AgRISTARS

E82-10274

SR-L1-04158
JSC-17429

NASA-CR-167567

A Joint Program for Agriculture and Resources Inventory Surveys Through Aerospace Remote Sensing

Supporting Research

January 1982

REGRESSION MODEL ESTIMATION OF EARLY SEASON CROP PROPORTIONS: NORTH DAKOTA, SOME PRELIMINARY RESULTS

(E82-10274) REGRESSION MODEL ESTIMATION OF EARLY SEASON CROP PROPORTIONS: NORTH DAKOTA, SOME PRELIMINARY RESULTS (Lockheed Engineering and Management) 139 p HC A07/MF A01 CSCL 02C G3/43

N82-24552

Unclas 00274

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SR-L1-04158
JSC-17429

REGRESSION MODEL ESTIMATION OF EARLY SEASON CROP PROPORTIONS: NORTH DAKOTA, SOME PRELIMINARY RESULTS

Job Order 71-309

This report describes activities of the Supporting Research project of the AgRISTARS program.

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LOCKHEED ENGINEERING AND MANAGEMENT SERVICES COMPANY, INC.

Under Contract NAS 9-15800

For

Earth Resources Research Division

Space and Life Sciences Directorate

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
LYNDON B. JOHNSON SPACE CENTER
HOUSTON, TEXAS

January 1982

LEMSCO-17156

PREFACE

The Agriculture and Resources Inventory Surveys Through Aerospace Remote Sensing is a multiyear program of research, development, evaluation, and application of aerospace remote sensing for agricultural resources, which began in fiscal year 1980. This program is a cooperative effort of the U.S. Department of Agriculture, the National Aeronautics and Space Administration, the National Oceanic and Atmospheric Administration (U.S. Department of Commerce), the Agency for International Development (U.S. Department of State), and the U.S. Department of the Interior.

The work which is the subject of this document was performed within the Earth Resources Research Division, Space and Life Sciences Directorate, at the Lyndon B. Johnson Space Center, National Aeronautics and Space Administration. Under Contract NAS 9-15800, personnel of Lockheed Engineering and Management Services Company, Inc., performed the tasks which contributed to the completion of this research.

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1. INTRODUCTION

It is not possible to obtain precise early-season estimations of crop proportions solely by using Landsat data because there is not enough accumulated information from only one or two Landsat passes. For this reason, the following approach was proposed to estimate crop proportions early in the season (ref. 1).

a. Use a regression-based prediction equation to obtain an a priori estimate for specific major crop groups.

b. Modify this estimate using current-year Landsat and weather data.

c. Break down major crop groups into specific crops by regression models.

In this report, some preliminary results from the development and evaluation of appropriate models for the first portion of the proposed approach are presented. The developed models were tested and evaluated by using a data base for North Dakota, constructed from the published statistics compiled by the North Dakota Crop and Livestock Reporting Service. Because of the local data base used, the results are valid only for North Dakota area crop proportion estimation. It is believed that the same models can be applied to other regions of the United States and foreign countries. However, further tests of the models using data from areas with significantly different environmental conditions are needed to confirm this belief. Although it has not been fully investigated, most likely, the same models can be used in the third portion of the proposed approach, which is the breakdown of major crop groups into specific crops.

There are difficulties in using straight regression models in early-season crop proportion estimation. These difficulties and some possible solutions to them are examined in section 2. In section 3, new models aiming to solve these difficulties are proposed. Following the proposal of new models, the construction of the North Dakota data base for testing and evaluating the models is discussed in section 4. Some preliminary modeling and predicting of results using the North Dakota data base are presented in sections 5 and 6,

respectively. Some issues which were not investigated in this study are discussed in section 7.

2. DIFFICULTIES IN USING STRAIGHT REGRESSION MODELS IN PROPORTION ESTIMATION

Consider the following standard general linear model:

$$\underset{n\times 1}{P} = \underset{n\times k}{X}\ \underset{k\times 1}{\beta} + \underset{n\times 1}{\varepsilon}$$

where

P = a vector of proportions.
X = the data matrix of explanatory variables.
β = a vector of unknown coefficients to be estimated from the sample data.
ε = a vector of error terms.

There exists at least three difficulties in applying the above model to crop proportion estimation problems.

1. Because the dependent variable is proportion, it assumes only values in the [0,1] interval. The estimated or predicted values can be outside the interval. This makes the interpretation of the results difficult.

2. The variance of p_i is:

$$Var(p_i) = P_i(1 - P_i)/n_i$$

where

P_i = the population proportion.

n_i = the sample size of the i^{th} class.

The condition of constant variance assumption in a standard general linear model is no longer true except in the rather uninteresting case where all P_i's are identical.

3. If some of the explanatory variables are highly correlated, then the application of the least-squares method to the data will yield unstable and imprecise estimated coefficients. The high correlations among the explanatory variables (i.e., multicollinearity) can cause exclusion of significant variables, which in turn, causes misspecification of the model. A brief examination of these difficulties is given in reference 2.

There are ways to solve the first difficulty, and some of the proposed solutions are by using the logit model, the loglinear model, and the probit transformations (refs. 3, 4, and 5). The variance stabilization technique can be used to transform the data to make the variances constant (ref. 6). It is argued that, if all the P_i's are within the interval [0.2,0.8], then the second difficulty won't be a serious problem because the least-squares method is relatively robust when the constant variance assumption is violated (ref. 5).

There are methods and procedures which have been proposed in dealing with the problem of multicollinearity in the linear model. Most widely used are the direct data augmentation method (ref. 7), the mixed estimation procedure (refs. 8 and 9), the Bayesian approach (refs. 10, 11, and 12), and the ridge regression procedure (refs. 13, 14, and 15).

Simulation studies by persons from different professional fields have shown that, among these widely used methods or procedures, the ridge regression procedure yields the most encouraging results in dealing with the multicollinearity problem. The ridge regression estimator of β in the linear model is defined as:

$$\hat{\beta}(k) = (X'X + kI_k)^{-1}X'P$$

where

$k \geq 0$ is the ridge parameter whose value is to be determined.

The $\beta(k)$ is a biased estimate of β. The induction of a small amount of bias in the estimation significantly reduces the variance of the ridge estimator. This results in a smaller mean-squared error of the estimate than the ordinary least-squares estimate

$$\hat{\beta} = (X'X)^{-1}X'Y$$

There are different methods proposed for determining the optimal values of the ridge parameter k. The use of ridge trace, empirical Bayes methods, and methods based on $\hat{\beta}$ are among them. A survey of these methods and a simulation study on some of the important ones are in references 2 and 16.

3. THE PROPOSED MODELS

To correct the shortcomings of the ordinary regression model discussed in section 2, the use of the logit model for crop proportion estimation and the use of the ridge regression procedure for estimation of the regression coefficients are proposed. In the dichotomous case, the logit model can be written:

$$p_{i,t} = \frac{\exp(\beta_0 + \beta_1 X_{i,1,t} + \cdots + \beta_k X_{i,k,t})}{1 + \exp(\beta_0 + \beta_1 X_{i,1,t} + \cdots + \beta_k X_{i,k,t})} + \varepsilon_{i,t}$$

or in the following transformed linear form:

$$Y_{i,t} = \log_e \frac{p_{i,t}}{1 - p_{i,t}} = \alpha_0 + \alpha_1 X_{i,1,t} + \cdots + \alpha_k X_{i,k,t} + \varepsilon_{i,t}$$

where

$p_{i,t}$ = observed proportion of spring small grains of the i^{th} stratum of year t.

$X_{i,j,t}$ = value of the i^{th} stratum of the j^{th} independent variable of year t.

$\varepsilon_{i,t}$ = error term.

The estimated proportions obtained from the logit model automatically satisfy the proportion definition, that is:

$$\hat{p}_{i,t} + \hat{q}_{i,t} = 1$$

and

$$0 \leq \hat{p}_{i,t} \leq 1$$

where

$$\hat{q}_{i,t} = 1 - \hat{p}_{i,t}$$

The logit model in the dichotomous case can be extended to the case where there are more than two major crop groups. In the extended case, there will be $\ell - 1$ equations if there are $\ell > 2$ major crop groups with $0 \leq p_{i,t,\ell} \leq 1$ and $p_{i,t,1} + p_{i,t,2} + \cdots + p_{i,t,\ell} = 1$. All the equations are considered simultaneously when estimating the regression coefficients.

4. DATA

A data set containing crop, weather, and economic data at both county and crop reporting district (CRD) levels in North Dakota from 1975 to 1980 was constructed for testing the models. The data were based upon the published statistics compiled by the North Dakota Crop and Livestock Reporting Service. The variables included in the data set were planted acres; prices of various spring small grains for the current and previous years; total acres of individual counties and CRD's; temperature and precipitation for April, May, and June; and some dummy variables for temporal and spatial effects (refs. 17, 18, 19, 20, 21, 22, 23, and 24).

A listing of the data set is given in appendix A. Listings of summary statistics and correlation matrices at both county and CRD levels, given in appendices B and C, provide some basic information about the data set.

The number of acres of spring small grains planted was calculated by summing the numbers of acres planted in spring wheat (excluding durum), durum, barley, oats, rye, and flax. The previous year's weighted price of spring small grains was obtained as a weighted average for spring small grains, using the numbers of acres planted as weights. The proportions of spring small grains were calculated by dividing the total acres of spring small grains planted by the total acres of each county or CRD.

Weather data were published by weather station rather than by county and CRD levels. To be consistent, the weather data were transformed from weather station to county and CRD levels. If weather data were published by more than one station within a county, then the average temperature and precipitation were used as the weather data for the county. A few counties do not contain weather stations with published data. In this case, the averages of the data published by stations near a county in this category were used as the weather data for the county.

The data subset at the county level has 265 observations. The data subset at the CRD level contains 45 observations.

5. SOME PRELIMINARY MODELING RESULTS

5.1 MODELS

The following three models were tested at both county and CRD levels.

1. (ML1) straight regression model (stepwise)

$$(PSSG)_{i,t} = \beta_0 + \sum_{j=1}^{8} \beta_j (DCRDj)_{i,t} + \beta_9 (WPSSG)_{i,t-1} + \beta_{10} (PSSG)_{i,t-1}$$
$$+ \beta_{11} (PERAPL)_{i,t} + \beta_{12} (PERMAY)_{i,t} + \beta_{13} (PERJUNE)_{i,t} + \varepsilon_{i,t}$$

where

$(PSSG)_{i,t}$ = proportion of spring small grains of the i^{th} unit of year t.

DCRD1, ..., DCRD8 = dummy variables for spatial effect.

$(WPSSG)_{i,t-1}$ = last year's weighted price of spring small grains.

$(PERAPL)_{i,t}$ = April precipitations of the i^{th} unit of year t.

$(PERMAY)_{i,t}$ = May precipitations of the i^{th} unit of year t.

$(PERJUNE)_{i,t}$ = June precipitations of the i^{th} unit of year t.

$\varepsilon_{i,t}$ = error term

2. (ML2) logit model

$$(PSSG)_{i,t} = \frac{\exp(E)}{1 + \exp(E)} + \varepsilon_{i,t}$$

where

$$E = \gamma_0 + \sum_{j=1}^{8} \gamma_j (DCRDj)_{i,t} + \gamma_9 (WPSSG)_{i,t-1}$$
$$+ \gamma_{10} (PSSG)_{i,t-1} + \gamma_{11} (PERAPL)_{i,t} + \gamma_{12} (PERMAY)_{i,t}$$
$$+ \gamma_{13} (PERJUNE)_{i,t}$$

3. (ML3) linearized logit model

$$Y_{i,t} = \log_e \frac{(PSSG)_{i,t}}{1 - (PSSG)_{i,t}}$$

$$= \alpha_0 + \sum_{j=1}^{8} \alpha_j (DCRDj)_{i,t} + \alpha_9 (WPSSG)_{i,t-1}$$

$$+ \alpha_{10} (PSSG)_{i,t-1} + \alpha_{11} (PERAPL)_{i,t} + \alpha_{12} (PERMAY)_{i,t}$$

$$+ \alpha_{13} (PERJUNE)_{i,t} + \varepsilon_{i,t}$$

5.2 MODELS AT THE COUNTY LEVEL

The results from the computer runs of the three models at the county level are given in appendixes D, E, and F. The stepwise regression was tested for the purpose of getting some information about the relationship between the dependent variable, the proportion of spring small grains, and the explanatory variables. As expected, the most important factor in determining the current year proportion of spring small grains is last year's proportion. This variable, together with the intercept, explains approximately 94 percent of the total variation of the crop proportion.

Other significant variables are last year's weighted price; precipitation for April, May, and June; and the dummy variable for CRD 5. All the significant variables explain approximately 96 percent of the total variation.

The nonlinear logit model was fixed by using the NLIN procedure in the Statistical Analysis System (SAS). The independent variables included in the model are those significant variables plus all the dummy variables for spatial effect.

The Marquardt iteration method was used in the estimation of the coefficients. The Marquardt method of iteration is equivalent to performing the ridge regression procedure. It is useful when some of the independent variables are highly correlated.

The plots of observed and estimated proportions against COUNTYCO by year are given in figures 5-1 through 5-5. The variable COUNTYCO is used to identify counties and CRD's in a plot. Values 10, 20, ..., 90 are for CRD1, CRD2, ..., CRD9. Values 11 and 97, for example, are for the first county of CRD1 and the seventh county of CRD9, respectively. The value 1 is for state-level data. As can be seen from the plots, the estimated proportions are very close to the observed ones.

The linearized logit model was fixed by using the GLM procedure in SAS. The independent variables used in the nonlinear logit model were used in this model. These significant variables explain approximately 95 percent of the total variation. The observed and estimated proportions from this model were plotted in figures 5-6 through 5-10. The plots show similar results as those obtained from the nonlinear logit model.

5.3 MODELS AT THE CRD LEVEL

The results of computer runs for the three models at the CRD level are presented in appendixes G, H, and I, respectively. At the CRD level, last year's proportion still plays an extremely important role in determining the current year's proportion. The variable plus the intercept explain approximately 96 percent of the total variation. Other significant variables at this level are dummy variables for CRD7, year, May and June temperatures, and April precipitation. All the significant variables explain 99 percent, which is virtually all the total variation.

Although stepwise regression models at county and at CRD levels did not pick up an identical set of independent variables, the same set of independent variables used in the logit models at the county level was used in the logit (both nonlinear and linearized) models at the CRD level for the following reasons.

a. Both stepwise regression models picked up the most important variable, last year's proportion.

b. Computer programming is convenient.

c. Comparison of the same model at different data levels is easy.

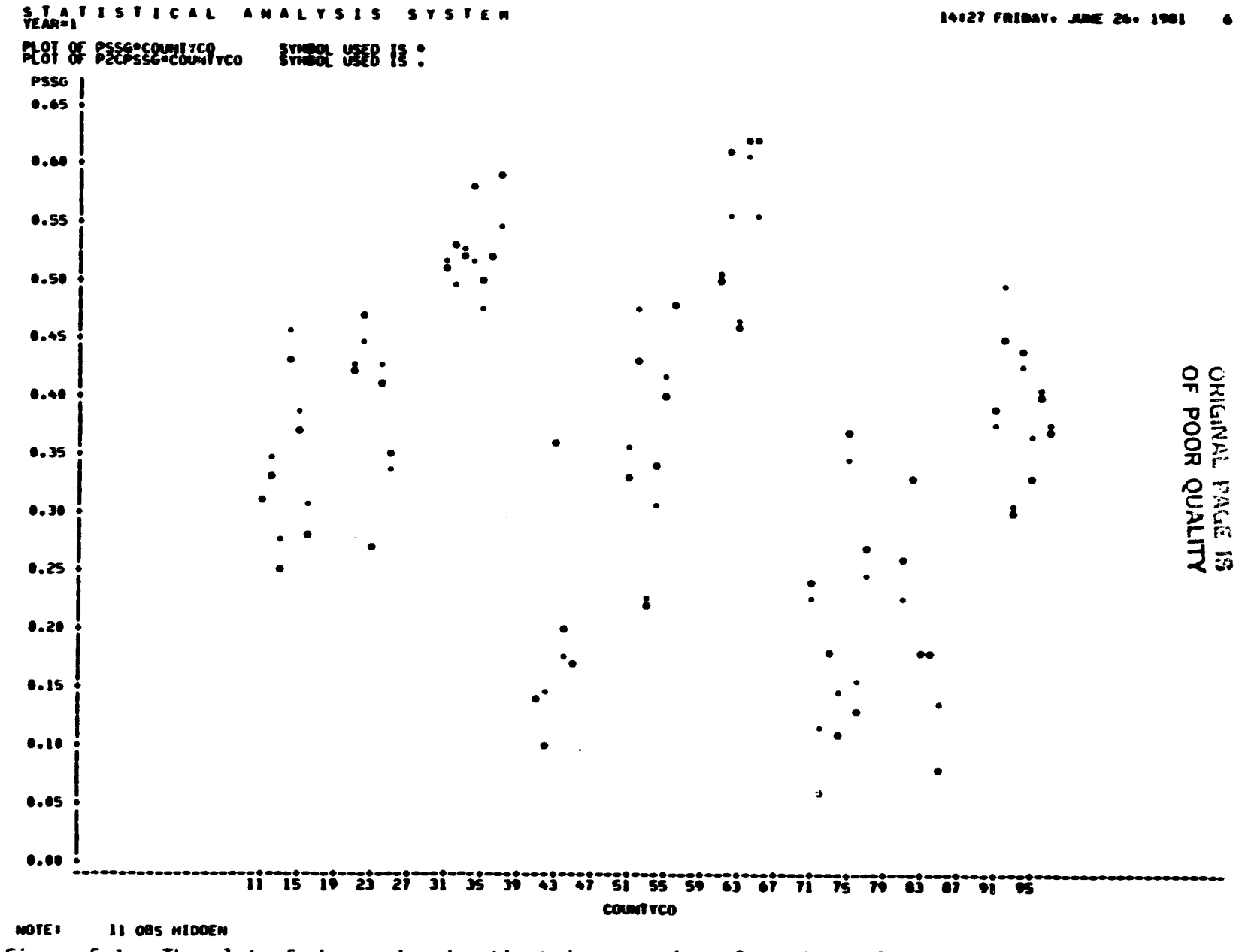


Figure 5-1.- The plot of observed and estimated proportions from the nonlinear logit model for year 1.

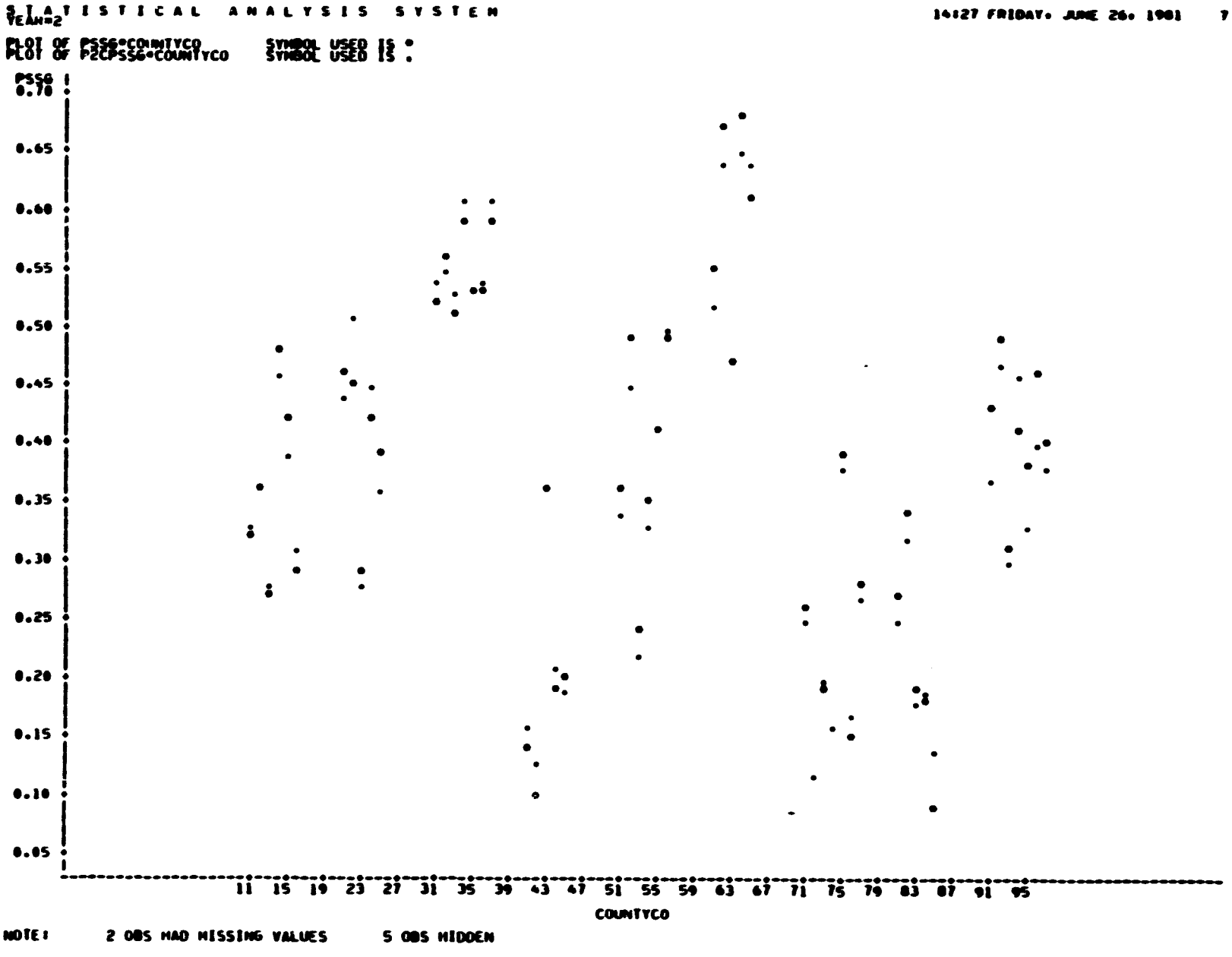


Figure 5-2.- The plot of observed and estimated proportions from the nonlinear logit model for year 2.

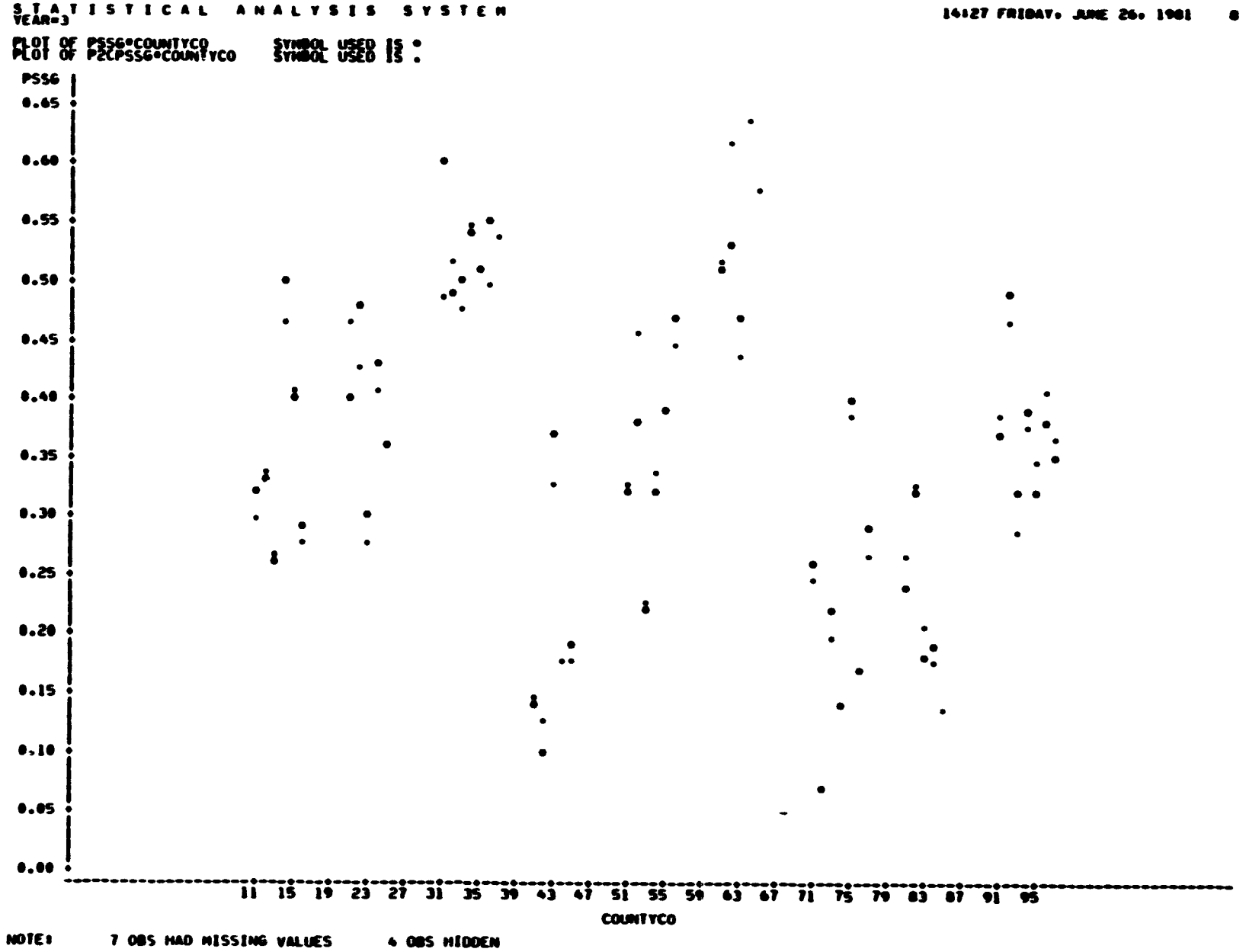


Figure 5-3.- The plot of observed and estimated proportions from the nonlinear logit model for year 3.

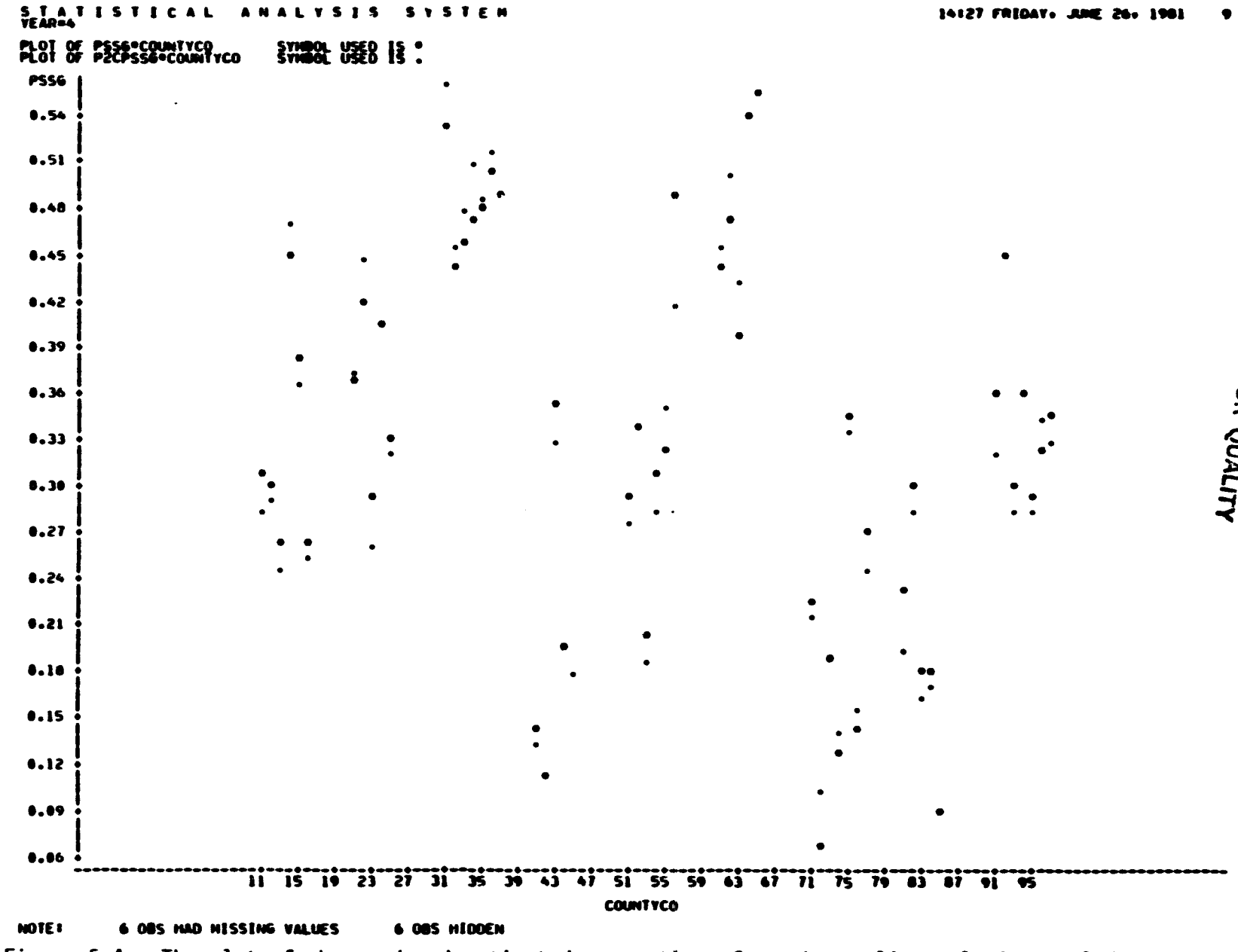


Figure 5-4.- The plot of observed and estimated proportions from the nonlinear logit model for year 4.

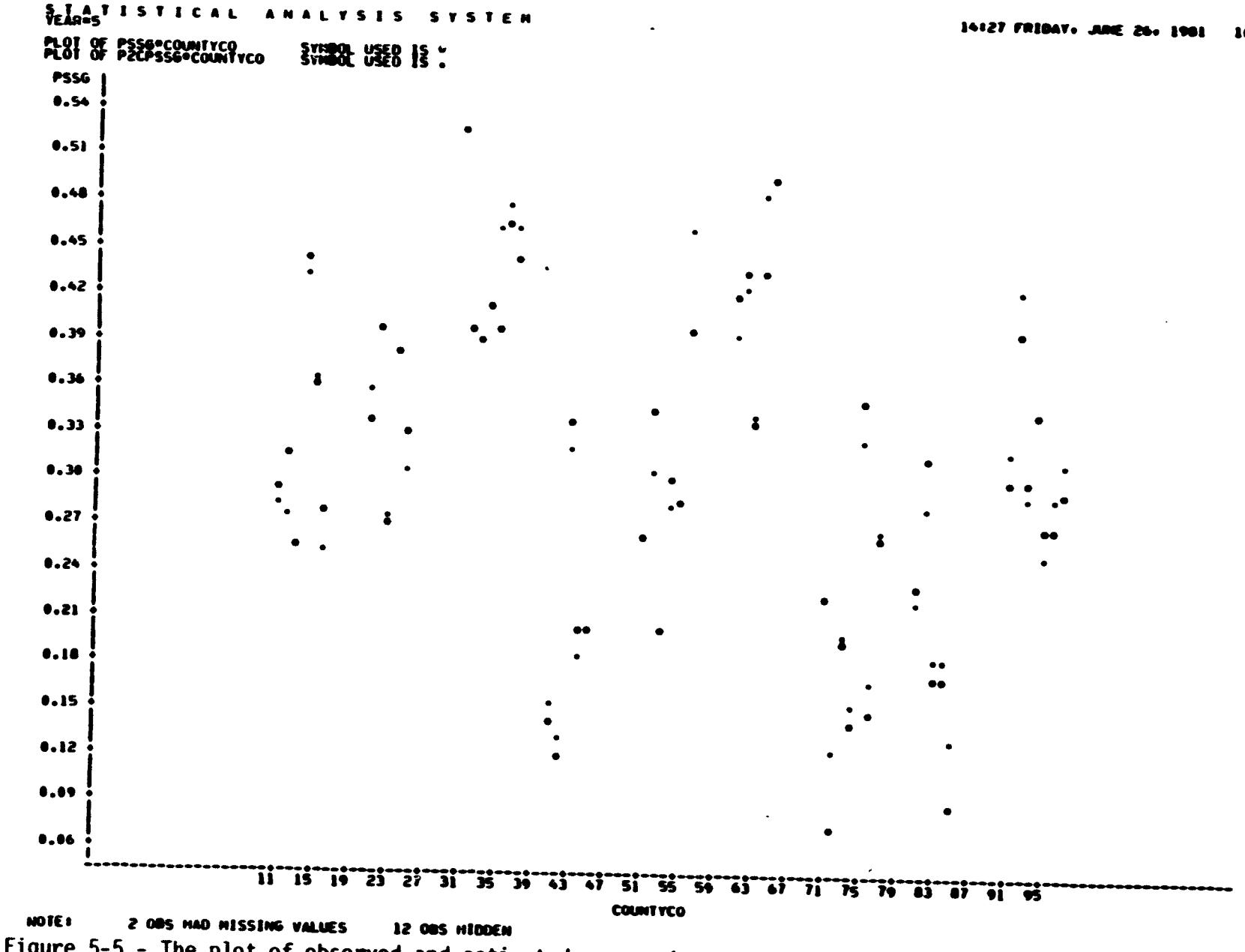


Figure 5-5.- The plot of observed and estimated proportions from the nonlinear logit model for year 5.

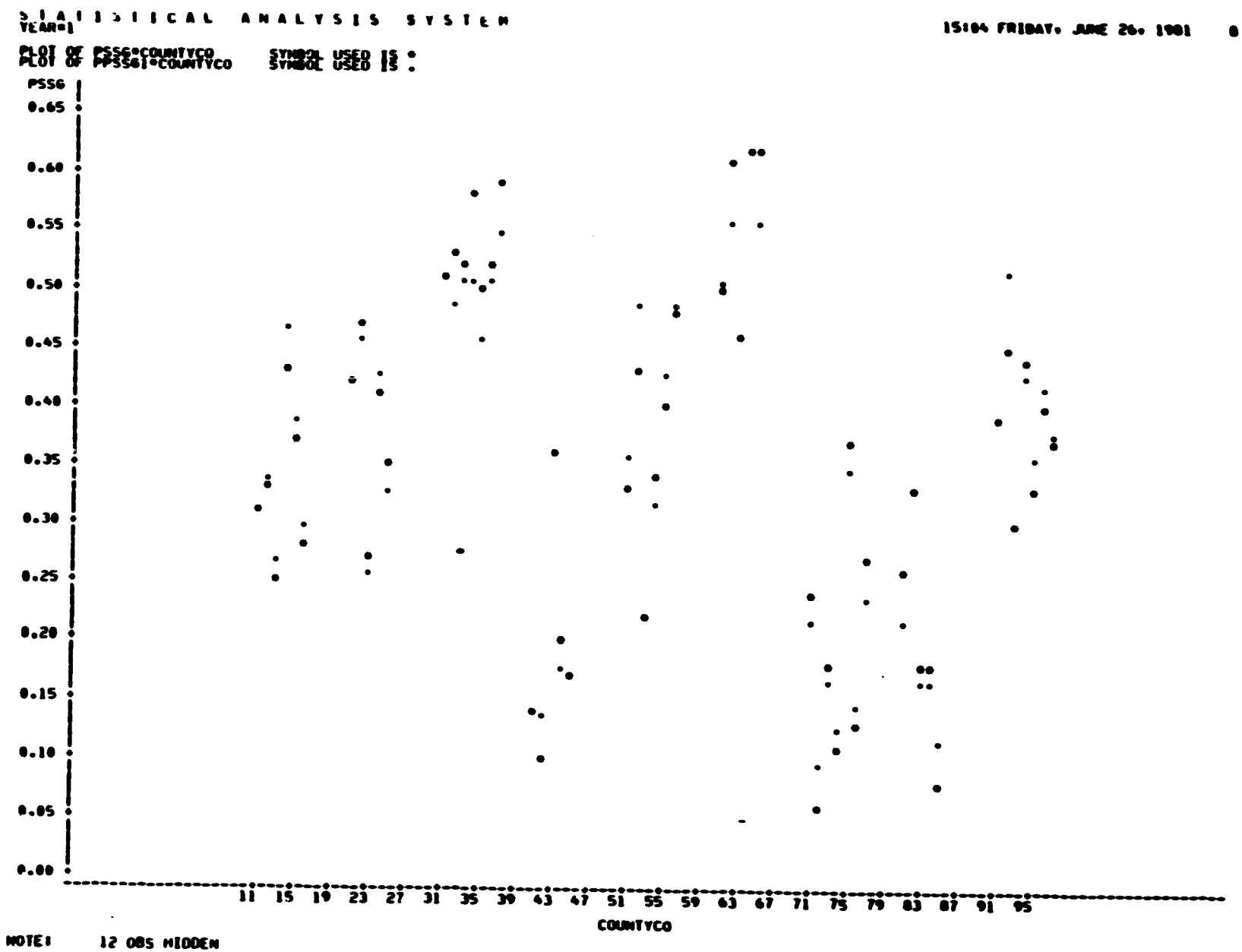


Figure 5-6.- A plot of the observed and estimated proportions from the linearized logit model for year 1.

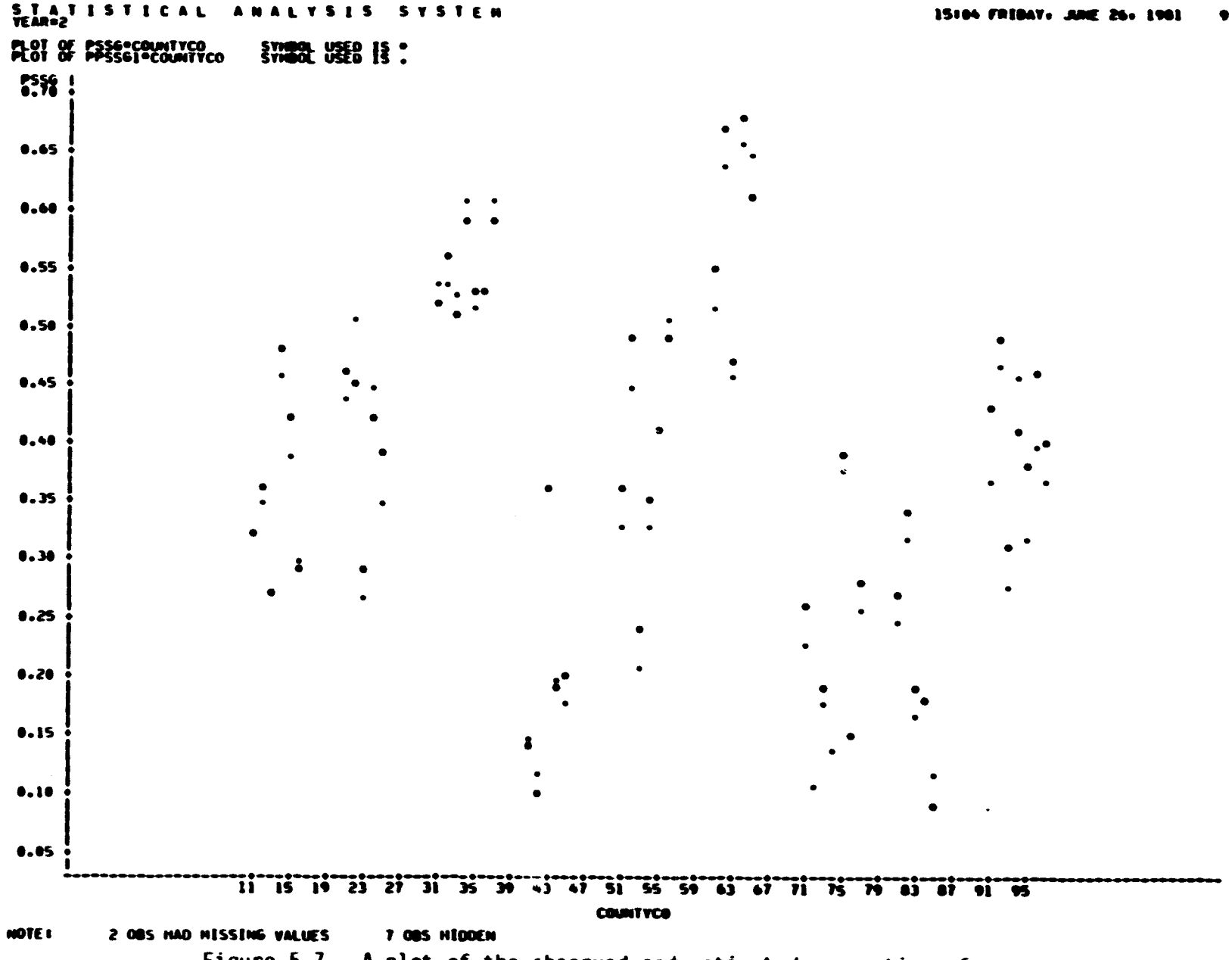


Figure 5-7.- A plot of the observed and estimated proportions from the linearized logit model for year 2.

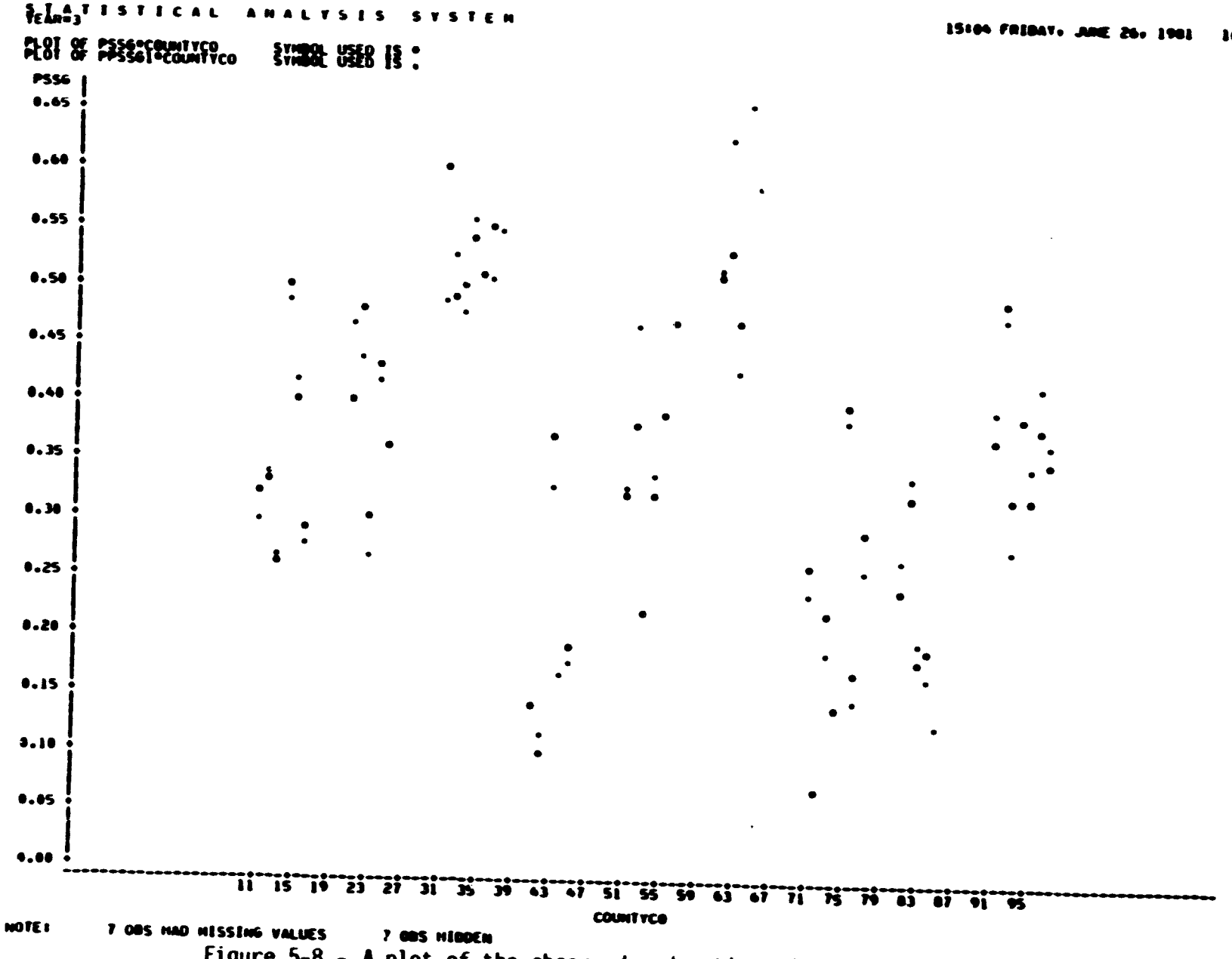


Figure 5-8.- A plot of the observed and estimated proportions from the linearized logit model for year 3.

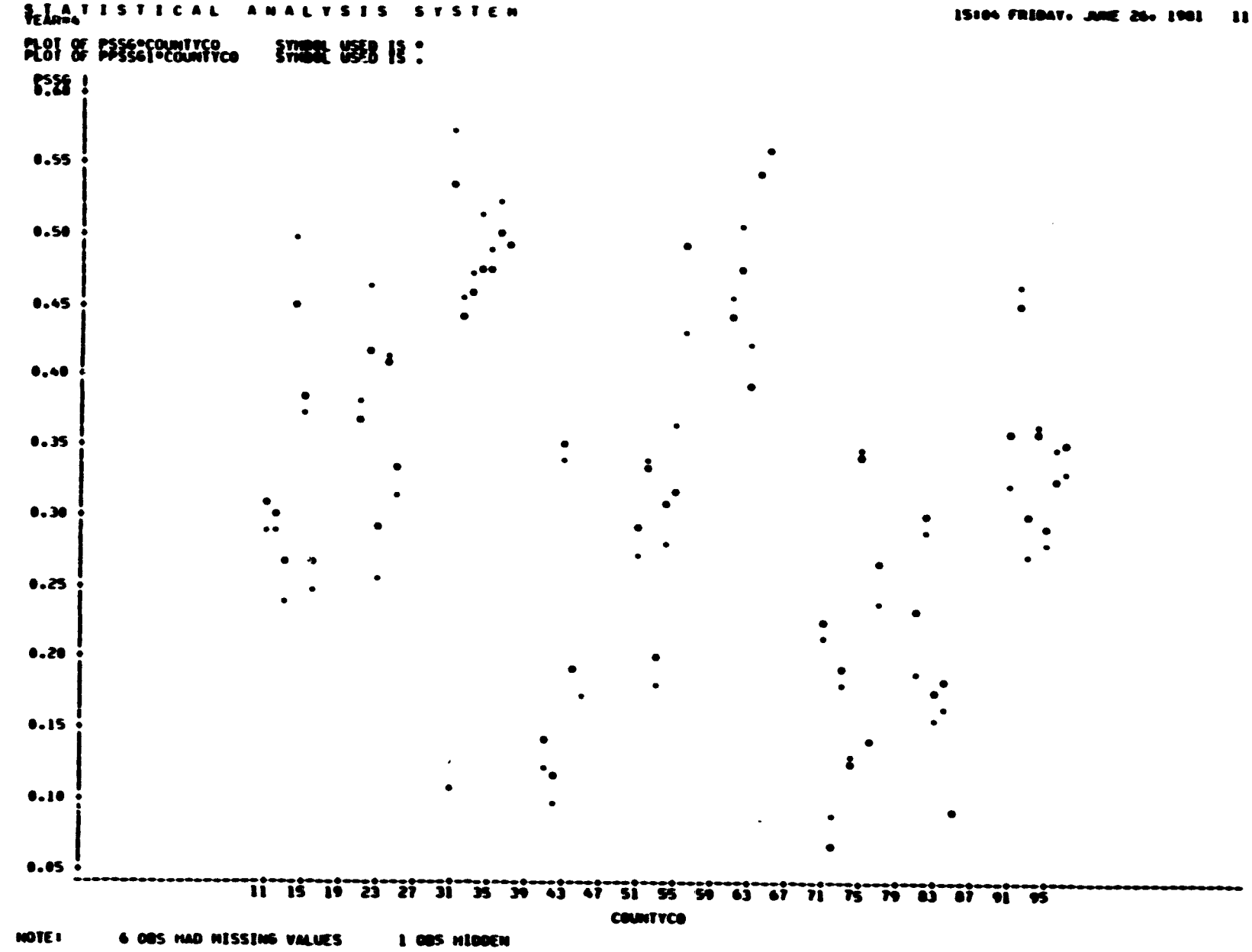


Figure 5-9.- A plot of the observed and estimated proportions from the linearized logit model for year 4.

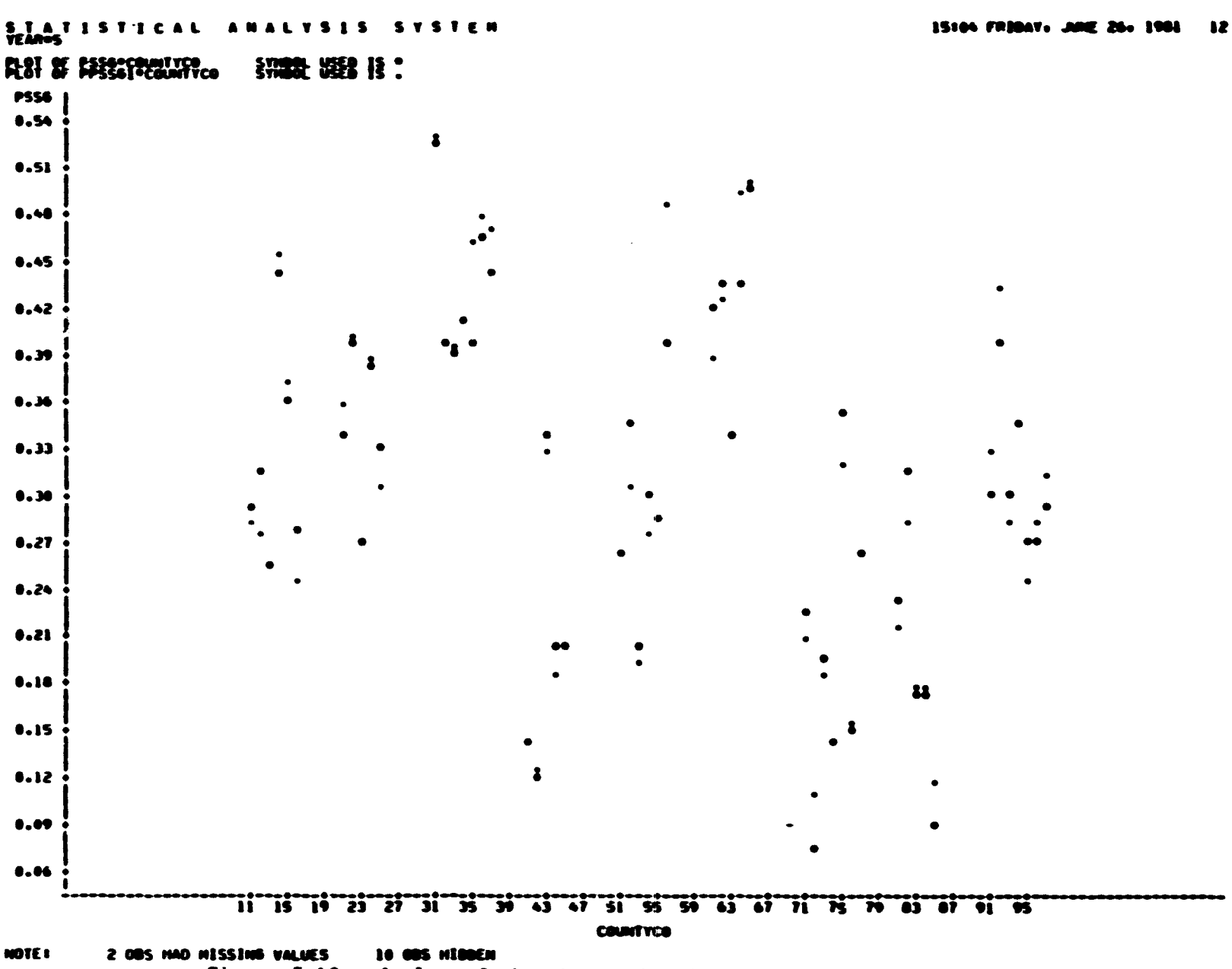


Figure 5-10.- A plot of the observed and estimated proportions from the linearized logit model for year 5.

The observed and estimated proportions from the CRD logit (nonlinear) model are plotted against COUNTYCO by year in figures 5-11 through 5-15. The observed and estimated proportions from the linearized logit are plotted against COUNTYCO by year in figures 5-16 through 5-20. COUNTYCO's at this level are 10, 20, 30, 40, 50, 60, 70, 80, and 90 for the nine CRD's in North Dakota. As can be seen from these plots, the estimated proportions almost duplicate the observed proportions in both linear and nonlinear logit models.

5.4 SOME FINDINGS

Estimated regression coefficients and their standard errors of the linearized logit model at both county and CRD levels are summarized in table 5-1. Some main findings from the model fittings follow.

a. At both levels of the data, the most important factor determining current year crop proportion is last year's proportion.

b. At both levels of the data, other significant independent variables are last year's weighted price of spring small grains and precipitation for April, May, and June.

c. All three models which were tested performed well.

d. Dummy variables for temporal and spatial effects are not very important.

e. The standard errors of estimation of the estimated coefficients at the CRD level are greater than those at the county level.

f. The R^2 computed from CRD data is greater than that computed from county data. (In fact, it can be substantially greater.)

TABLE 5-1.- ESTIMATED REGRESSION COEFFICIENTS AND THEIR STANDARD ERRORS OF THE LINEARIZED LOGIT MODEL

Parameter	Model 1[a]		Model 2[b]	
	Estimate	Standard error	Estimate	Standard error
Intercept	-2.5018	0.0685	-1.9112	0.2324
$(WPSSG)_{i,t-1}$	.0410	.0170	.1181	.0272
$(DCRD1)_{i,t}$	.1159	.0398	-.0290	.0683
$(DCRD2)_{i,t}$	.0569	.0403	.0274	.0478
$(DCRD3)_{i,t}$	-.0696	.0409	.1267	.0926
$(DCRD4)_{i,t}$	.0068	.0478	-.2928	.1388
$(DCRD5)_{i,t}$	.0129	.0377	-.0377	.0470
$(DCRD6)_{i,t}$	-.1013	.0454	.1478	.1109
$(DCRD7)_{i,t}$	.0273	.0433	-.2563	.1358
$(DCRD8)_{i,t}$	.0403	.0453	-.2228	.1224
$(PSSG)_{i,t-1})$	4.9286	.1307	3.0643	.6743
$(PERAPR)_{i,t}$	-.0322	.0097	-.0710	.0147
$(PERMAY)_{i,t}$	-.0496	.0085	-.0266	.0129
$(PERJUNE)_{i,t}$	.0241	.0072	.0107	.0104
R^2	0.952981		0.990776	

[a]Model 1, at county level: 248 completed observations

[b]Model 2, at CRD level: 45 completed observations

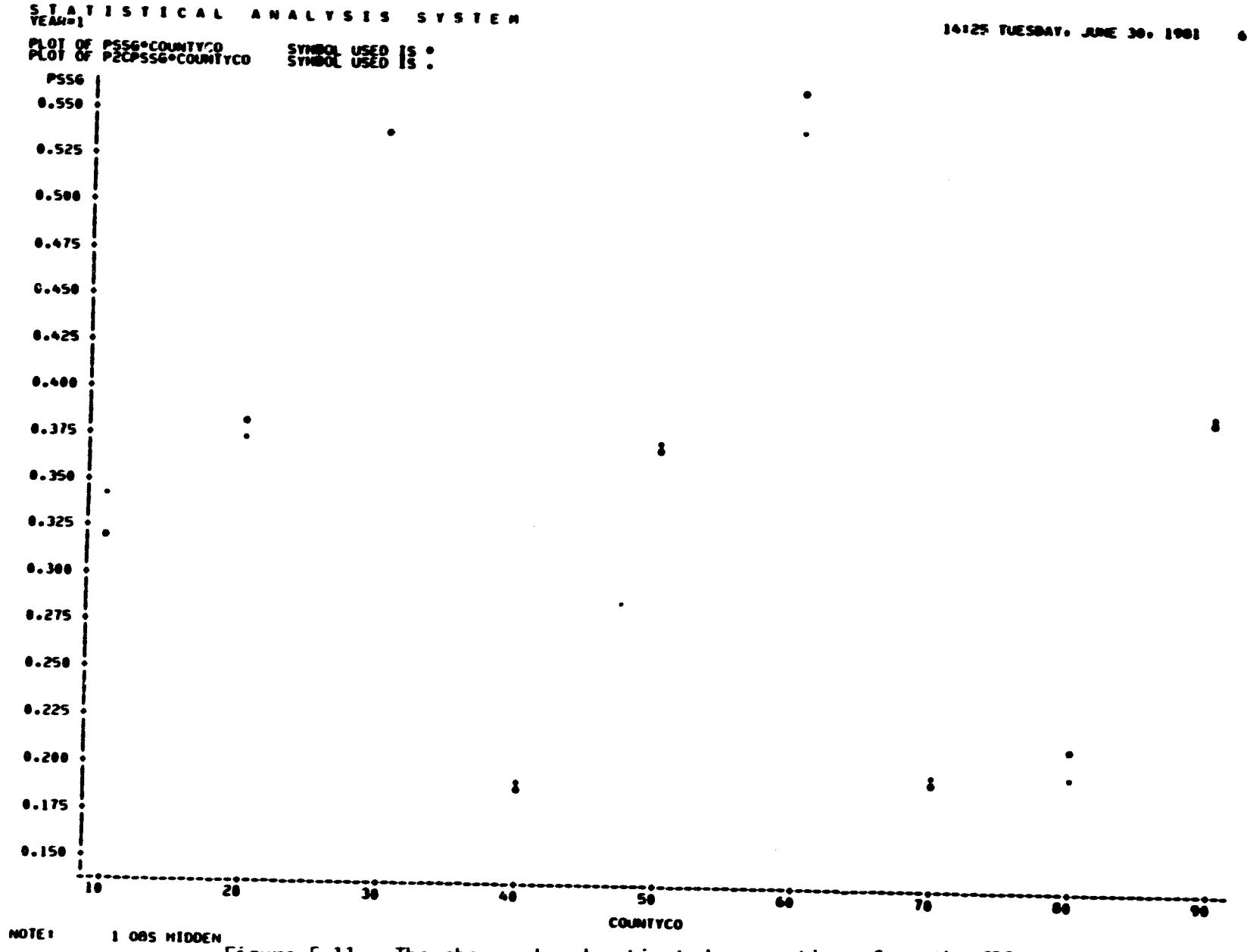


Figure 5-11.- The observed and estimated proportions from the CRD logit model are plotted against COUNTYCO for year 1.

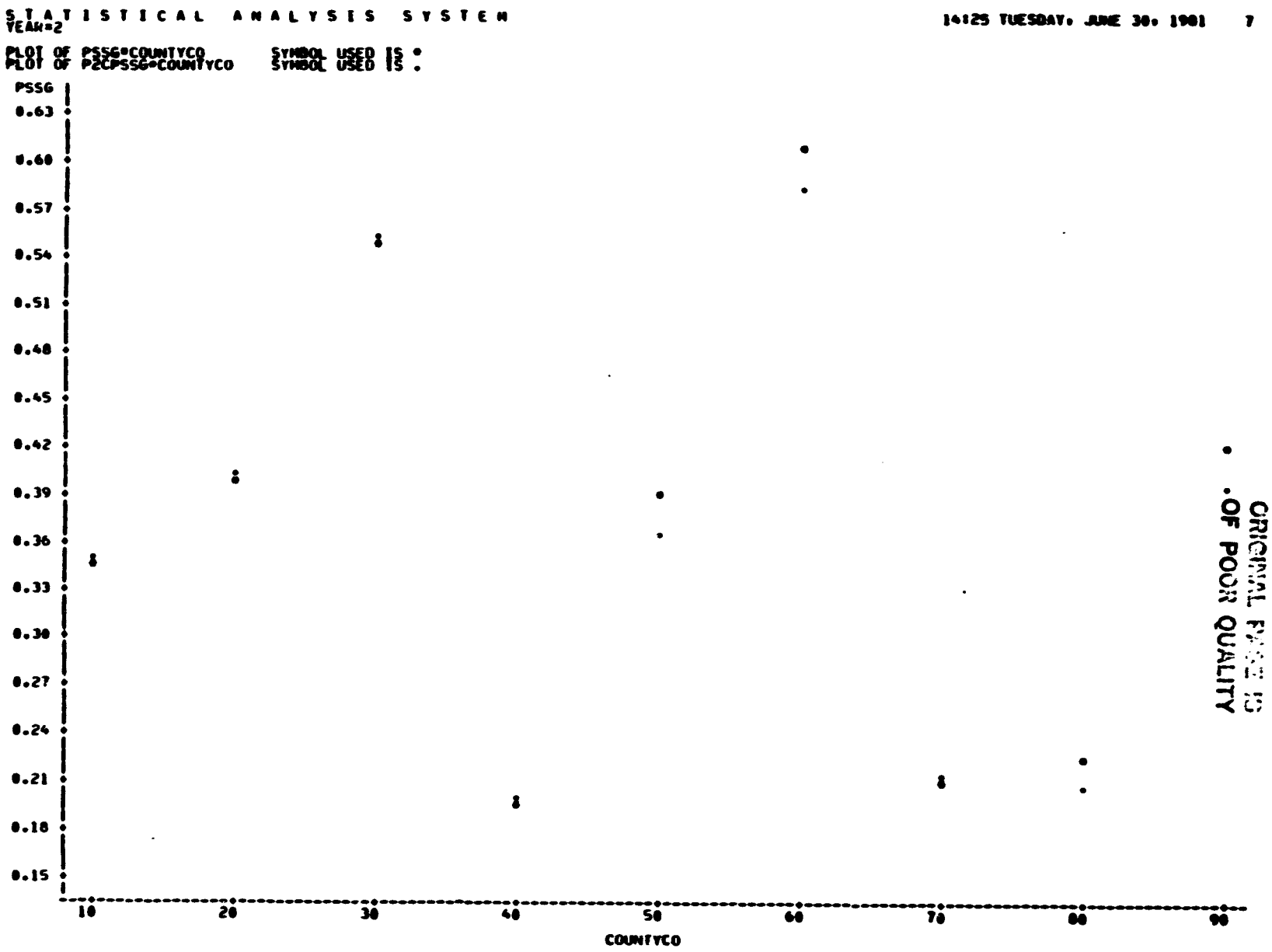


Figure 5-12.- The observed and estimated proportions from the CRD logit model are plotted against COUNTYCO for year 2.

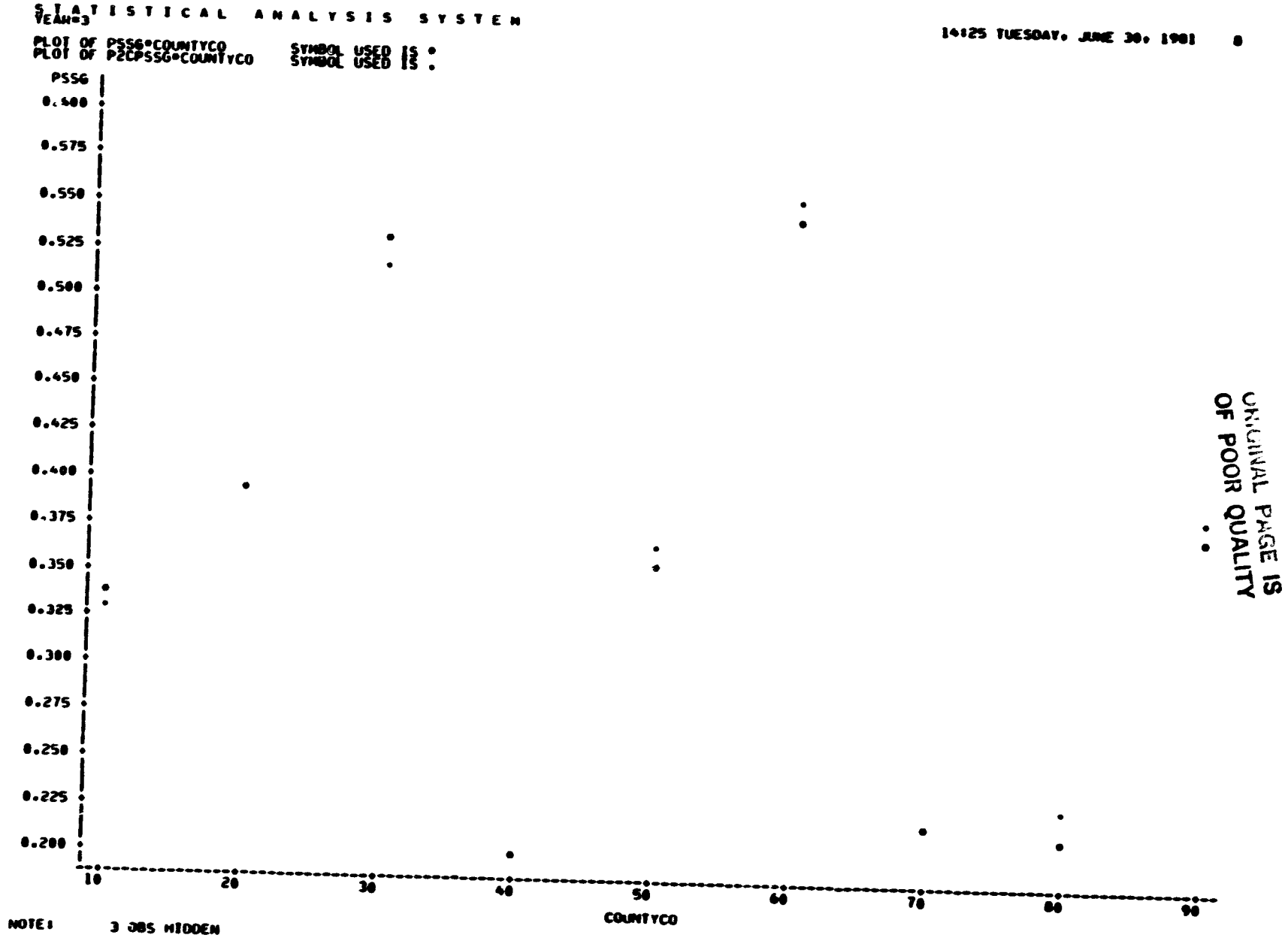
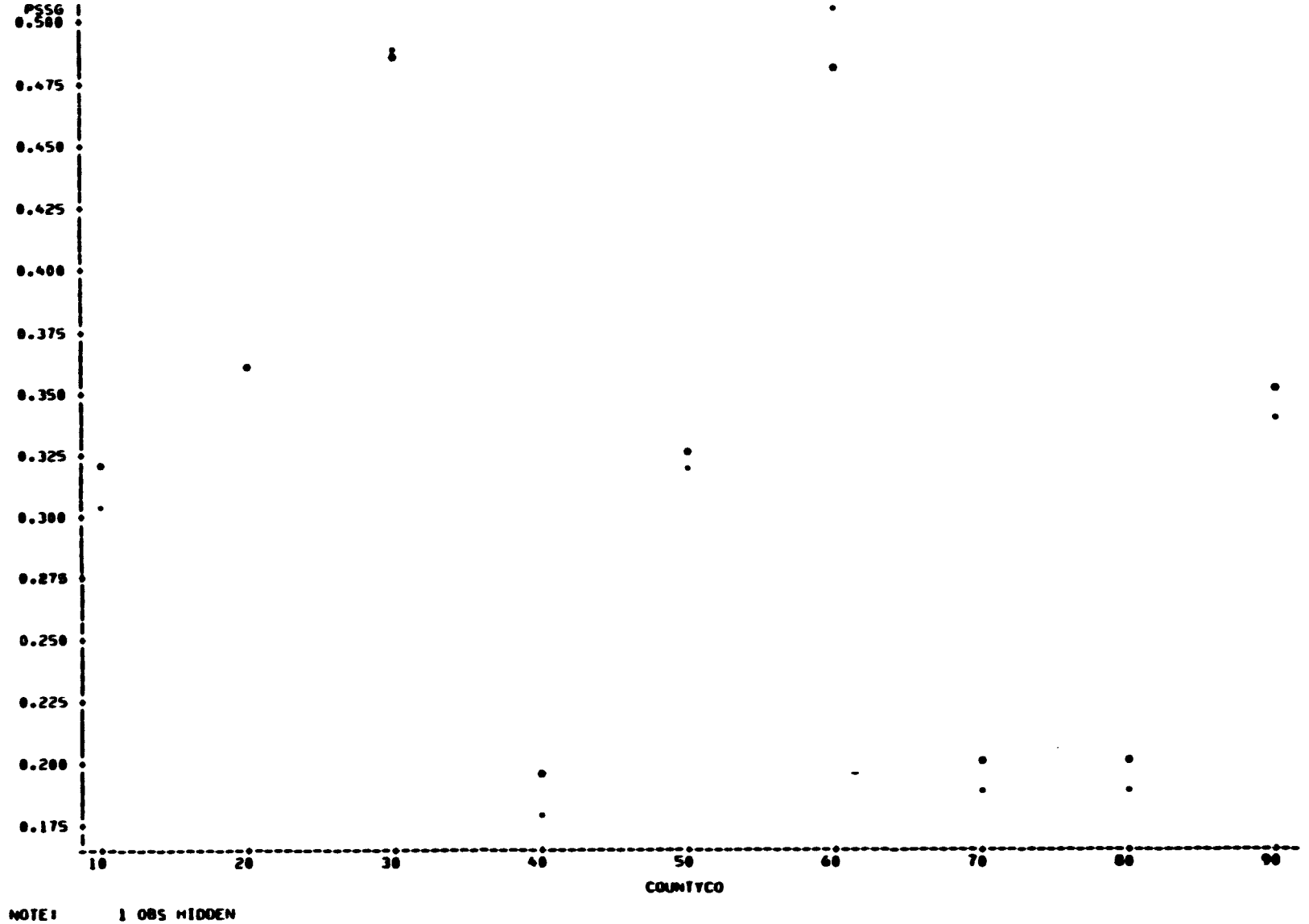


Figure 5-13.- The observed and estimated proportions from the CRD logit model are plotted against COUNTYCO for year 3.

YEAR=4

PLOT OF PSSG*COUNTYCO SYMBOL USED IS *
PLOT OF P2CPSSG*COUNTYCO SYMBOL USED IS .



NOTE: 1 OBS HIDDEN

Figure 5-14.- The observed and estimated proportions from the CRD logit model are plotted against COUNTYCO for the year 4.

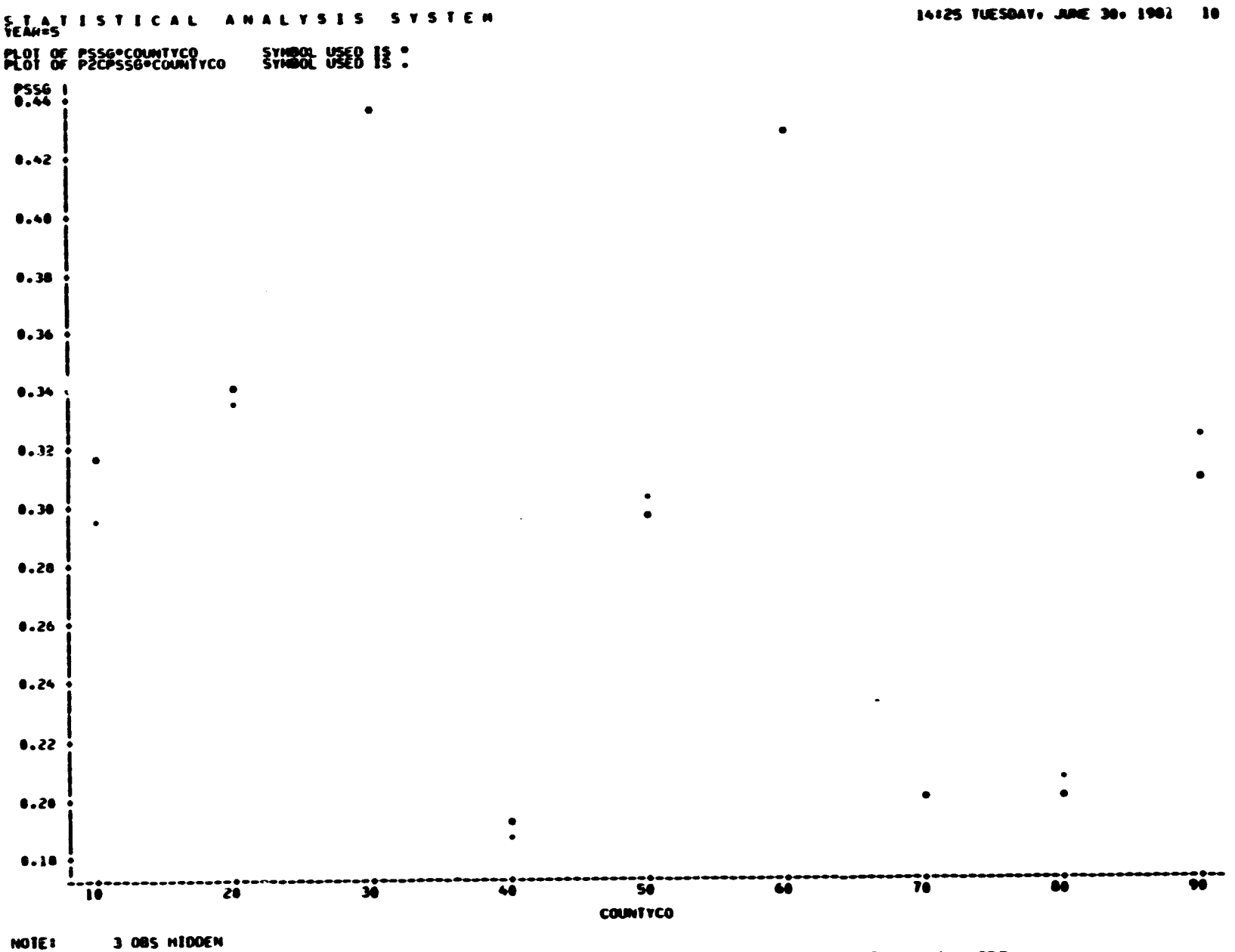


Figure 5-15.- The observed and estimated proportions from the CRD logit model are plotted against COUNTYCO for year 5.

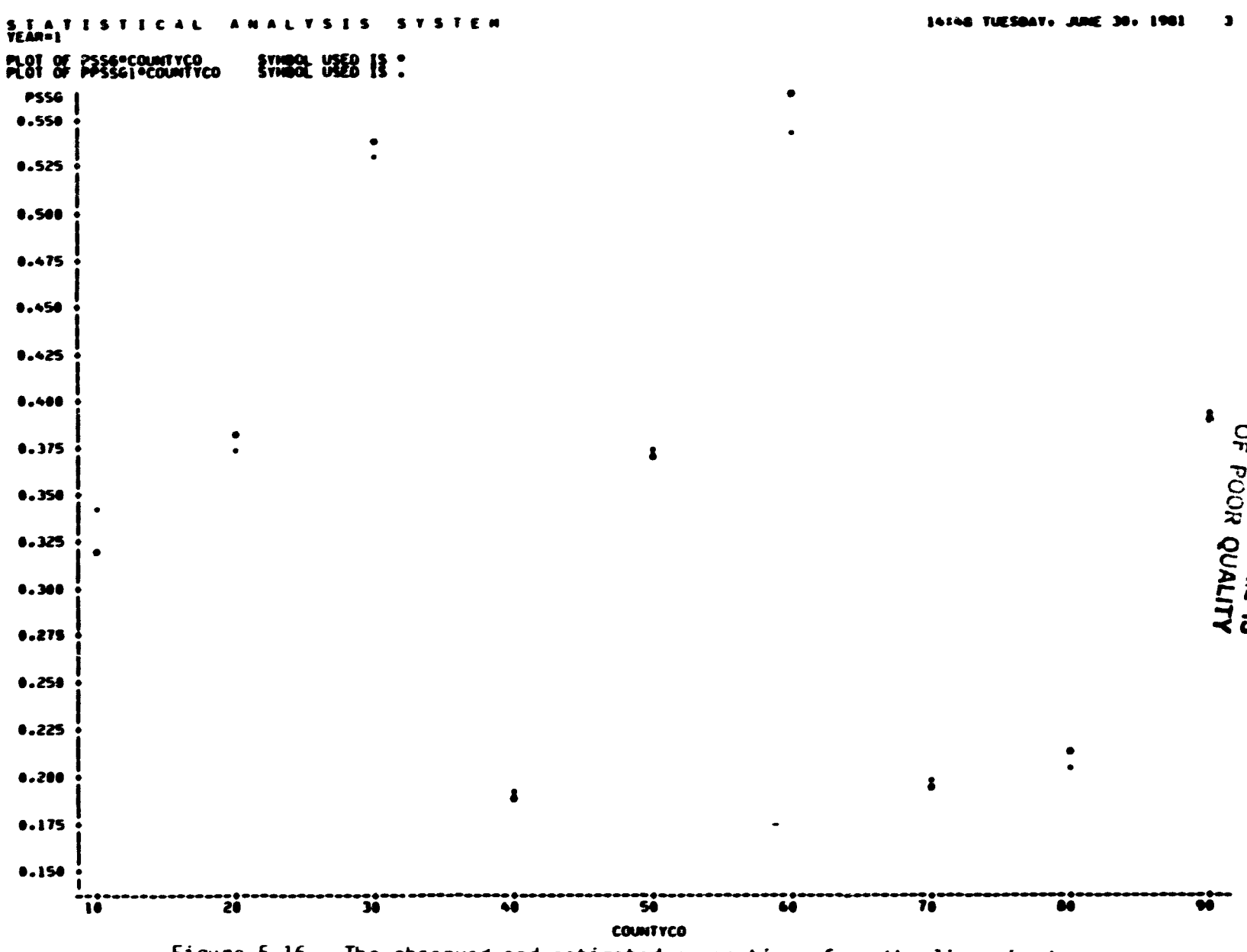
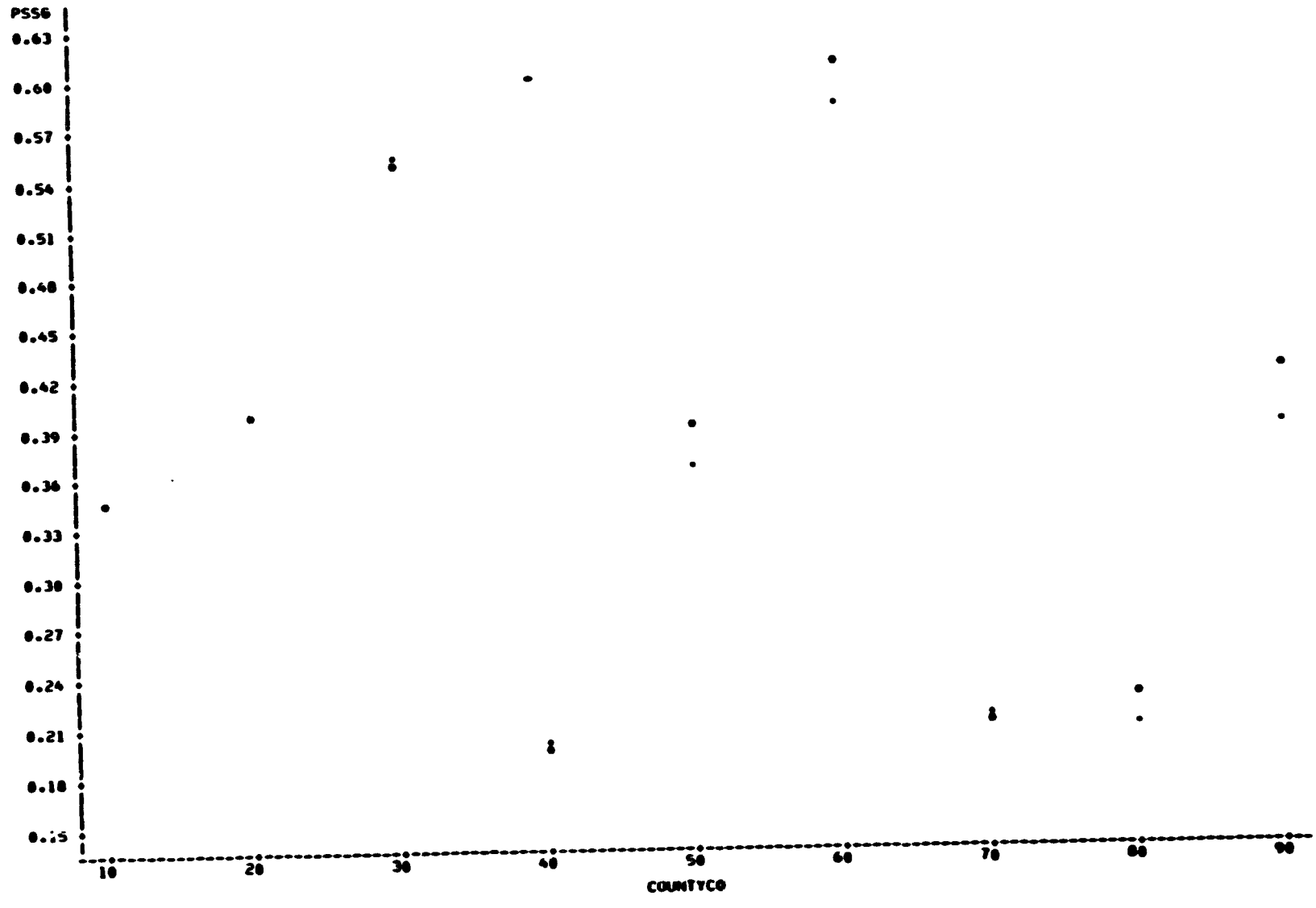


Figure 5-16.- The observed and estimated proportions from the linearized logit model are plotted against COUNTYCO for year 1.

STATISTICAL ANALYSIS SYSTEM
YEAR=2

PLOT OF PSSG*COUNTYCO SYMBOL USED IS *
PLOT OF PPSSG1*COUNTYCO SYMBOL USED IS .



NOTE: 2 OBS HIDDEN

Figure 5-17.- The observed and estimated proportions from the linearized logit model are plotted against COUNTYCO for year 2.

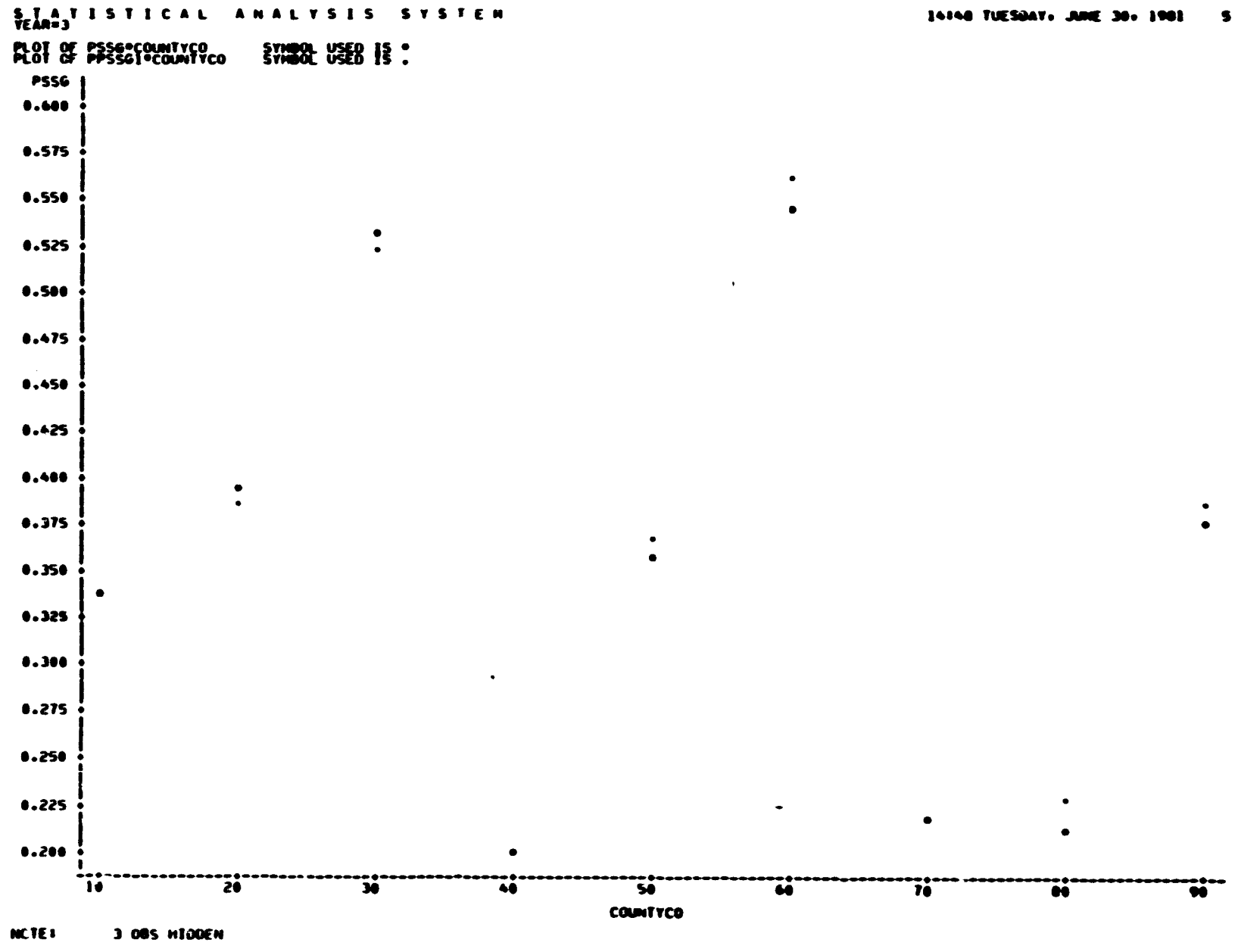
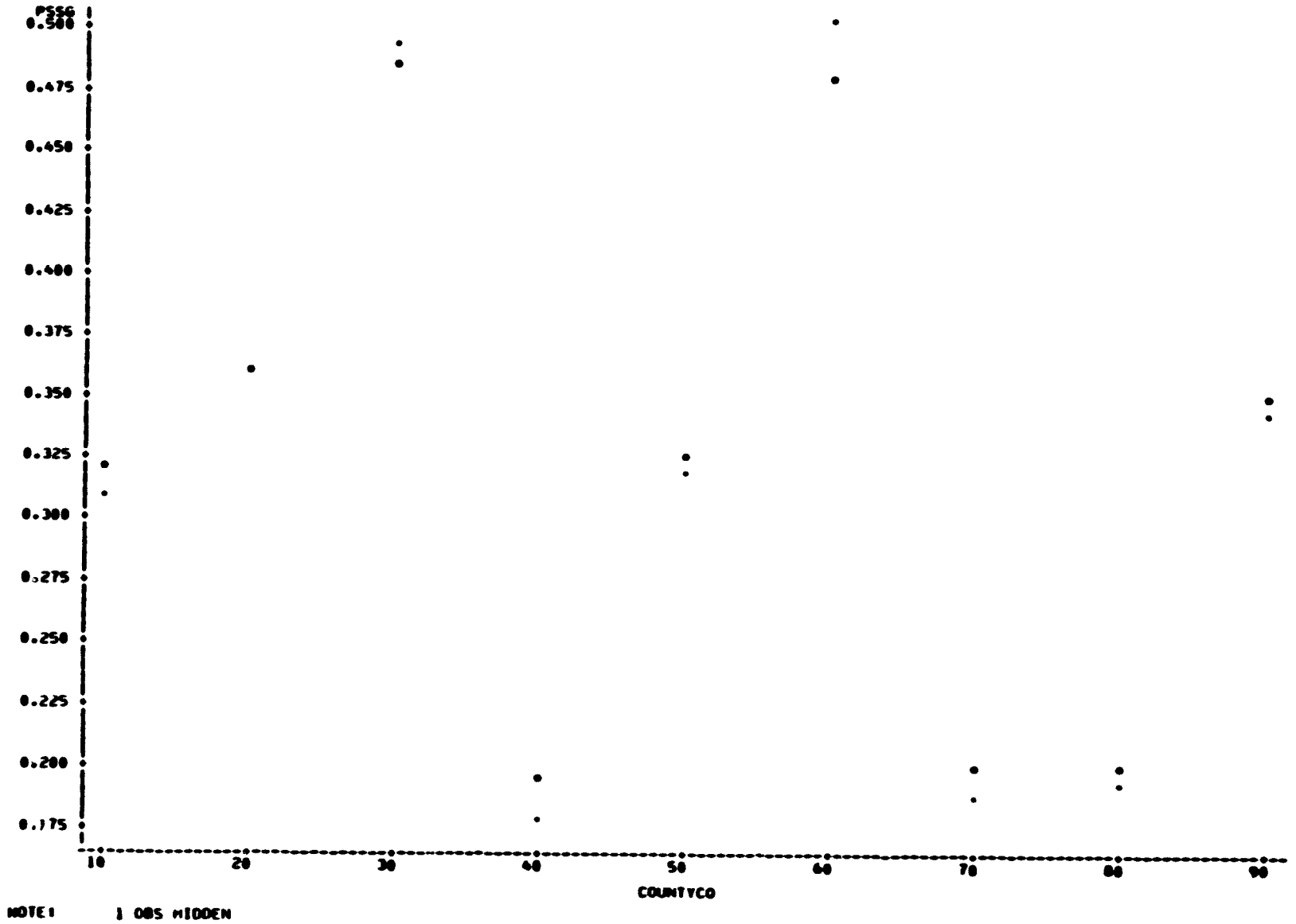


Figure 5-18.- The observed and estimated proportions from the linearized logit model are plotted against COUNTYCO for year 3.

YEAR=4

PLOT OF PSSG*COUNTYCO SYMBOL USED IS *
PLOT OF PPSSG1*COUNTYCO SYMBOL USED IS .



NOTE: 1 OBS HIDDEN

Figure 5-19.- The observed and estimated proportions from the linearized logit model are plotted against COUNTYCO for year 4.

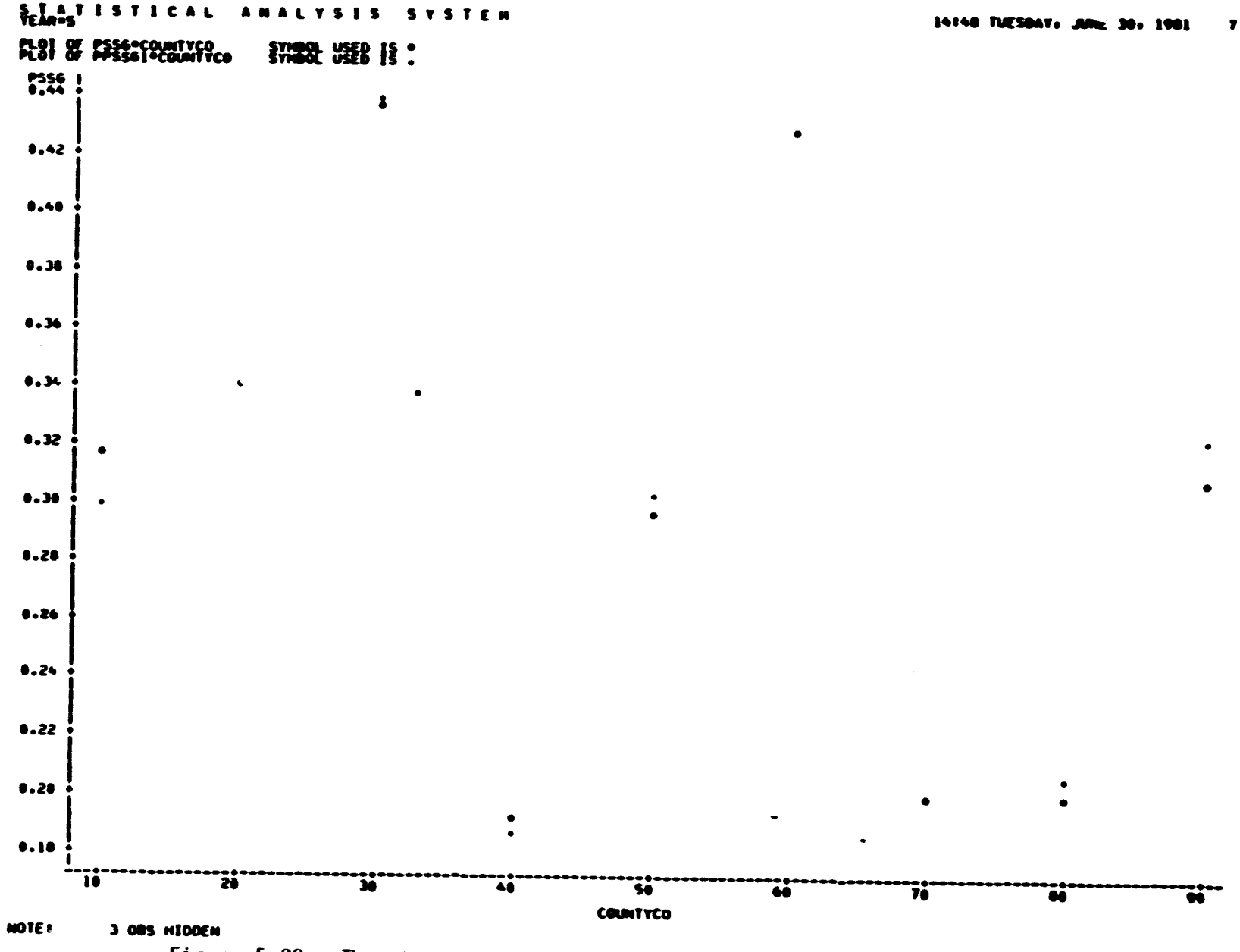


Figure 5-20.- The observed and estimated proportions from the linearized logit model are plotted against COUNTYCO for year 5.

6. SOME PRELIMINARY PREDICTION RESULTS

6.1 THEORETICAL BACKGROUND

By using the method of least squares to estimate β in the model $Y = X\beta + \varepsilon$, one may then attempt to predict the crop proportions in 1980. Let each row of the m by k matrix X_* be the values taken by the independent variables during the prediction period. If the assumptions of the fitted model are still valid for the m observations, that is:

$$Y_* = X_*\beta + \varepsilon_*$$

then

a. $X_*\hat{\beta}$ is the best linear unbiased predictor of

$$E(Y_*) = X_*\beta$$

with covariance matrix

$$\sum_{X_*\hat{\beta}} = \sigma^2[X_*(X'X)^{-1}X_*']$$

and

b. $X_*\hat{\beta}$ is the best linear unbiased predictor of

$$Y_* = X_*\beta + \varepsilon_*$$

with covariance matrix

$$\sum_{X_*\hat{\beta}} = \sigma^2[I_k + X_*(X'X)^{-1}X_*']$$

See figure 6-1 for the simple regression case.

Simple regression with Y_* being one dimensional:

$$Y = \alpha + \beta X + \epsilon$$

Given X_*, then

a. $$\widehat{E(Y_*|X_*)} = \hat{\alpha} + \hat{\beta}X_*$$

with variance $$Var(\hat{\alpha} + \hat{\beta}X_*) = \sigma^2 \left[\frac{1}{n} + \frac{(X_* - \bar{X})^2}{(X_1 - \bar{X})^2} \right]$$

b. $$\hat{Y}_* = \hat{\alpha} + \hat{\beta}X_*$$

with variance $$Var(\alpha + \beta X_*) = \sigma^2 \left[1 + \frac{1}{n} + \frac{(X_* - \bar{X})^2}{(X_1 - X)^{-2}} \right]$$

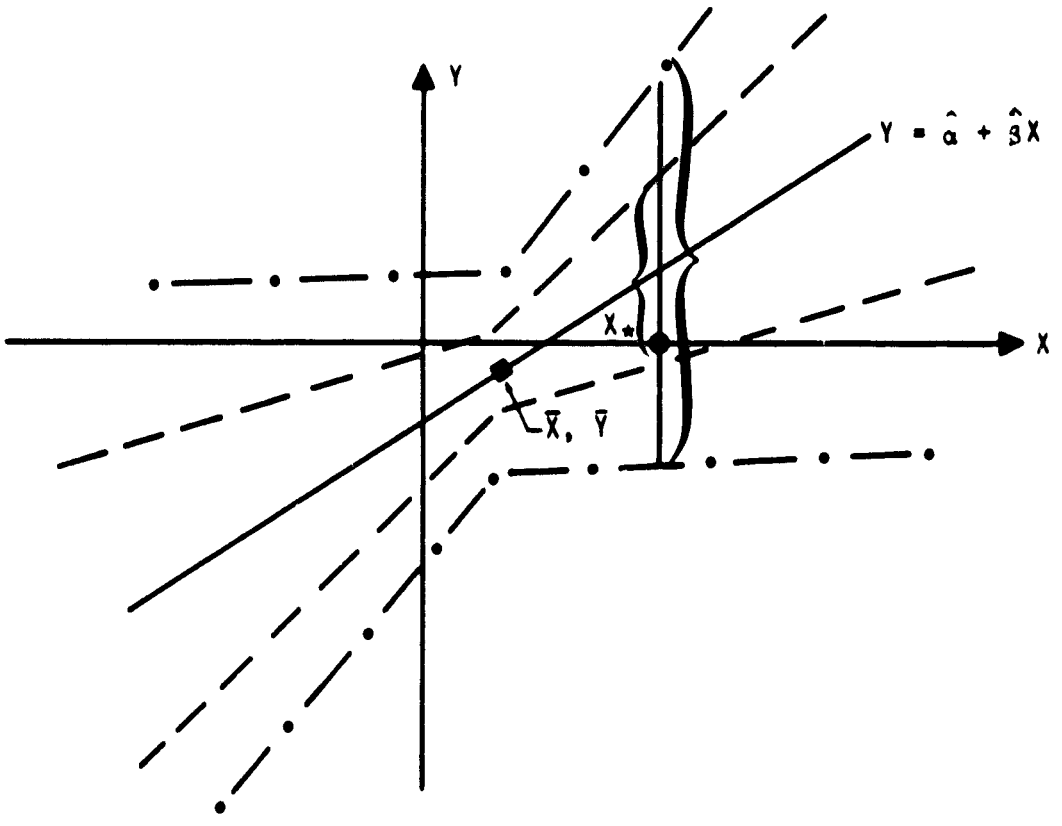


Figure 6-1.- An illustration of the simple regression case.

The 100(1 - α) percent confidence ellipsoids for $E(Y_*|X_*)$ and Y_* are as follows:

a. $$X_*\hat{\beta} \sim N_m[X_*\beta, \sigma^2 X_*(X'X)^{-1}X_*']$$

Confidence ellipsoid for $E(Y_*|X_*)$:

$$X_*(\hat{\beta} - \beta)'[X_*(X'X)^{-1}X_*']^{-1}(\hat{\beta} - \beta)X_*' \leq m\hat{\sigma}^2 F_{\alpha,m,n-k}$$

b. $$X_*\hat{\beta} \sim N_m\ X_*\beta,\ \sigma^2[I_k + X_*(X'X)^{-1}X_*')$$

Confidence ellipsoid for Y_*:

$$X_*(\hat{\beta} - \beta)'[1 + X_*(X'X)^{-1}X_*']^{-1}(\hat{\beta} - \beta)X_*' \leq m\hat{\sigma}^2 F_{\alpha,m,n-k}$$

The model data at the CRD level

$m = 9$

$\hat{\sigma}^2 = 0.00409026$

$F_{0.05,9,31} = 3.03$

6.2 PRELIMINARY RESULTS

The 1980 data used in the prediction are listed in appendix J. The notations of the data are the same as those listed in appendix A.

Because all three models that were considered yielded equally good results, only the linearized logit model was used in the evaluation of predictability of the models. The 1980 independent variable data, both at county and at CRD levels, are plugged into the fitted linear logit model to get the 1980 predicted crop proportions. In order to learn the predictability of the models, the predicted crop proportions are then compared with the 1980 proportions, which are calculated directly from the published data. The predicted, calculated proportions and the differences at both county and CRD levels are presented in tables 6-1 and 6-2, respectively; they are plotted in figures 6-2 and 6-3, respectively. The average squared error of prediction is 0.00352592 at the county level (52 counties) and 0.00063521 at the CRD level (9 CRD's).

TABLE 6-1.- THE PREDICTED AND CALCULATED PROPORTIONS AND THE DIFFERENCES AT THE COUNTY LEVEL

Observation	County	County code	Proportion of spring small grains	Predicted proportions of spring small grains	Difference in predicted and published spring small grain proportions
1	Burke	11	0.323671	0.307626	0.016045
2	Divide	12	.338221	.335807	.002414
3	Mountrail	13	.269551	.282295	-.012744
4	Renville	14	.451467	.484650	-.033182
5	Ward	15	.370520	.387766	-.017245
6	Williams	16	.290395	.295436	-.005041
7	Benson	21	.388342	.351792	.036550
8	Bottineau	22	.482633	.432534	.050099
9	McHenry	23	.290131	.283453	.006678
10	Pierce	24	.389722	.402973	-.013251
11	Rolette	25	.362644	.348666	.013978
12	Cavalier	31	.607019	.541898	.065121
13	Grand Forks	32	.490699	.379811	.110888
14	Nelson	33	.449906	.387692	.062214
15	Pembina	34	.516709	.408852	.107858
16	Ramsey	35	.481020	.393475	.087545
17	Towner	36	.553392	.471408	.081984
18	Walsh	37	.548212	.456271	.091941
19	Dunn	41	.146680	.166588	-.019908
20	McKenzie	42	.125971	.147770	-.021799
21	McLean	43	.358202	.340999	.017203
22	Mercer	44	.206484	.207201	-.000717
23	Oliver	45	.219747	.202496	.017251
24	Eddy	51	.340059	.261390	.078669
25	Foster	52	.402374	.350540	.051834
26	Kidder	53	.201008	.210422	-.009414
27	Sheridan	54	.327825	.307767	.020058

TABLE 6-1.- Concluded.

Observation	County	County code	Proportion of spring small grains	Predicted proportions of spring small grains	Difference in predicted and published spring small grain proportions
28	Stutsman	55	0.352943	0.282379	0.070563
29	Wells	56	.449745	.426989	.022756
30	Barnes	61	.507416	.416293	.091123
31	Cass	62	.565323	.427776	.137547
32	Griggs	63	.441461	.315426	.126036
33	Steele	64	.551937	.416136	.135801
34	Traill	65	.577272	.499878	.077394
35	Adams	71	.251833	.228150	.023683
36	Billings	72	.068591	.129781	-.061191
37	Bowman	73	.211538	.209436	.002103
38	Golden Valley	74	.158253	.175076	-.016823
39	Hettinger	75	.373402	.362535	.010867
40	Slope	76		.171852	
41	Stark	77	.280680	.263685	.016996
42	Burleigh	81	.250000	.228753	.021247
43	Emmons	82	.301065	.306140	-.005075
44	Grant	83	.188607	.184216	.004390
45	Morton	84	.188639	.185074	.003566
46	Sioux	85	.093495	.125946	-.032451
47	Dickey	91	.327127	.259582	.067545
48	La Moure	92	.439178	.394666	.044512
49	Logan	93	.303134	.288294	.014841
50	McIntosh	94	.393775	.335847	.057928
51	Ransom	95	.337907	.260638	.077268
52	Richland	96	.334958	.276545	.068412
53	Sargent	97	.380825	.275197	.105628

TABLE 6-2.- THE PREDICTED AND CALCULATED PROPORTIONS AND THE DIFFERENCES AT THE CRD LEVEL

Observation	CRD	CRD code	Proportion of spring small grains	Observed log odds	Estimated log odds	Predicted proportions of spring small grains	Difference in predicted and published spring small grain proportions
1	Northwest	10	0.330254	-0.7070	-0.6140	0.351147	-0.020893
2	North Central	20	.381331	-.4839	-.4283	.394530	-.013199
3	Northeast	30	.524448	.0979	-.0371	.490732	.033716
4	West Central	40	.204559	-1.3580	-1.2315	.225927	-.021368
5	Central	50	.341577	-0.6563	-0.6241	.348857	-.007280
6	East Central	60	.533956	.1360	-.0642	.483966	.049990
7	Southwest	70	.215311	-1.2932	-1.1661	.237561	-.022250
8	South Central	80	.209579	-1.3275	-1.2134	.229103	-.019523
9	Southeast	90	.360794	-0.5719	-0.6120	.351599	.009195

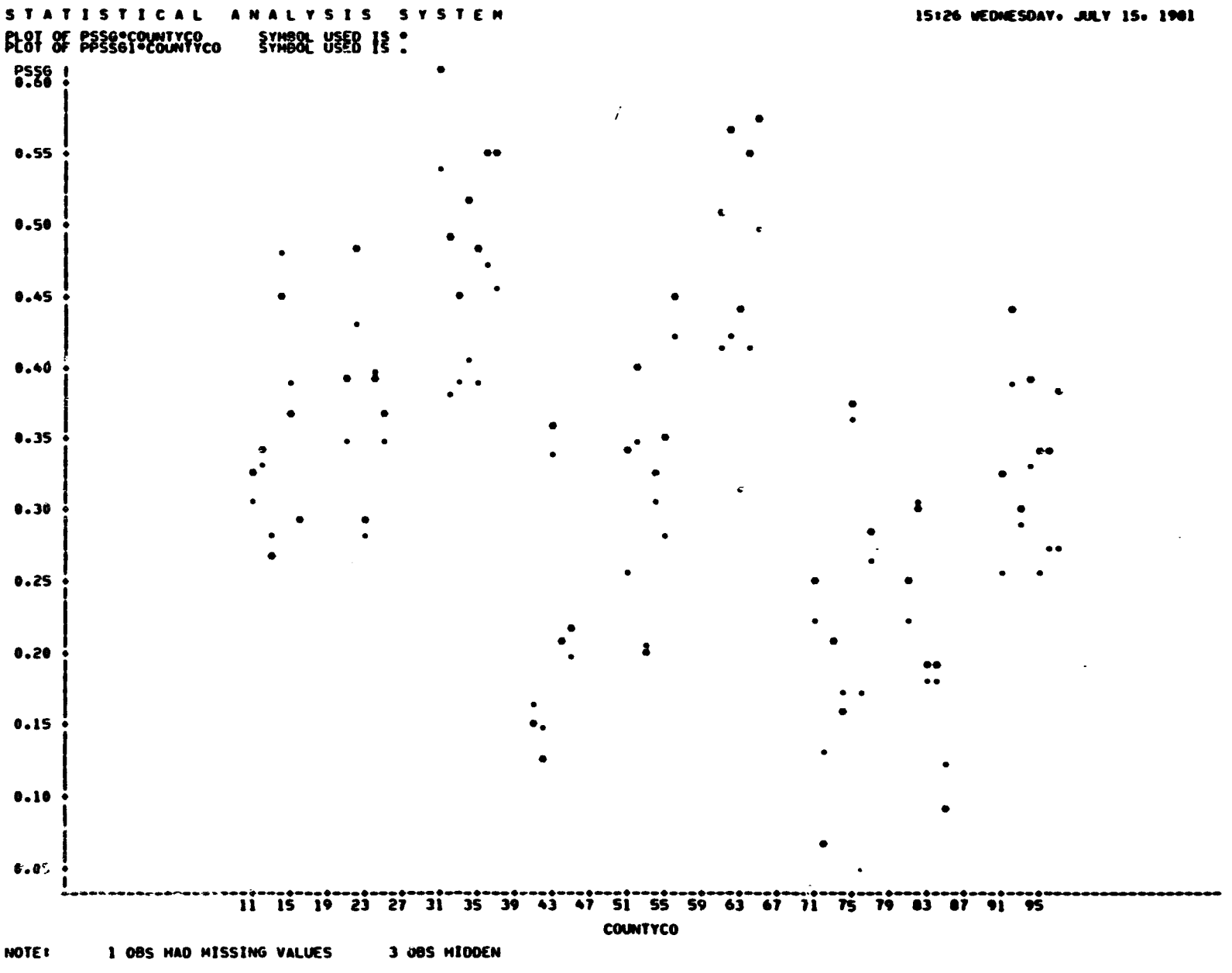


Figure 6-2.- A plot of the predicted and calculated proportions and the differences at the county level.

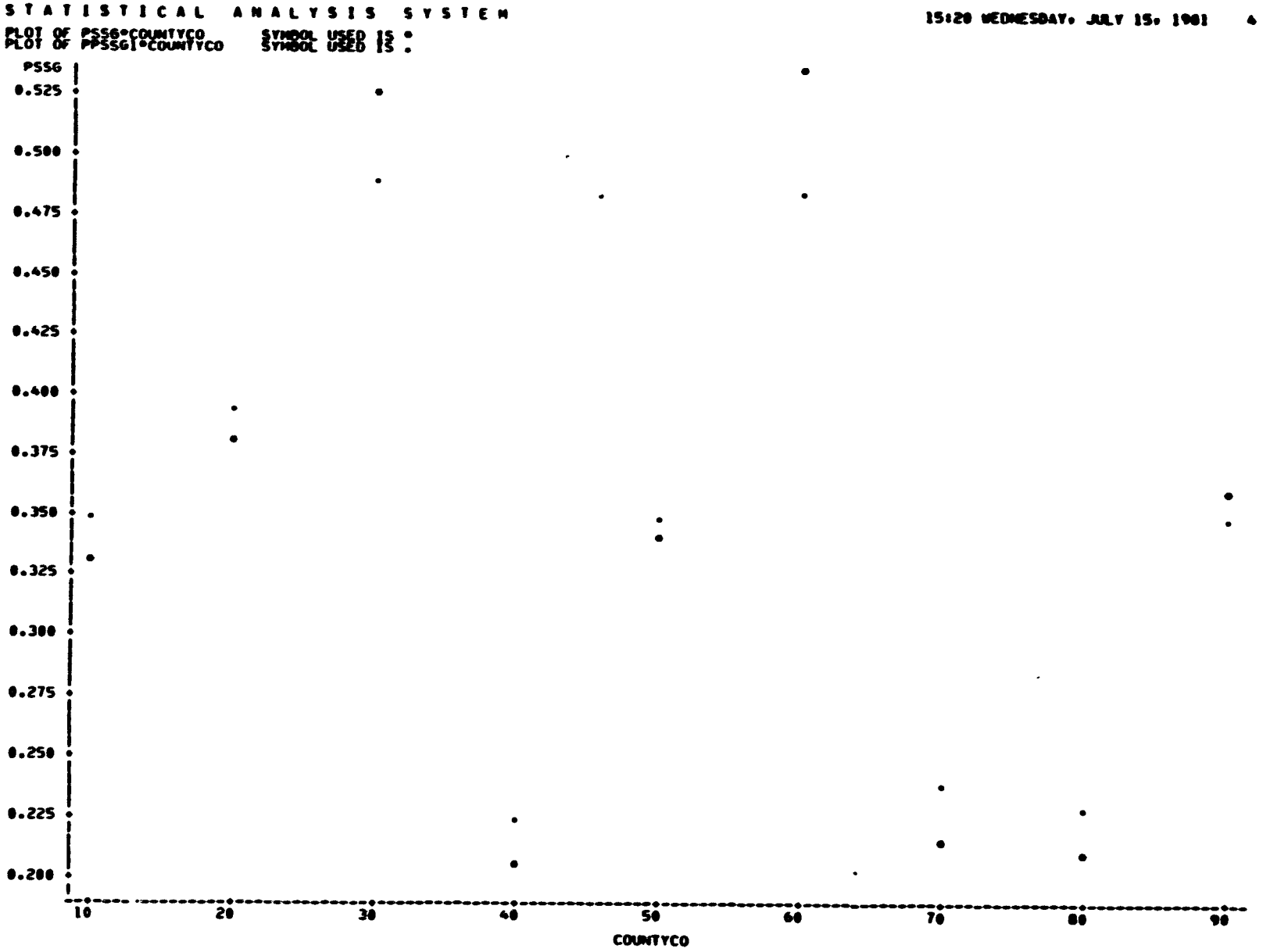


Figure 6-3.- A plot of the predicted and calculated proportions and the differences at the CRD level.

The covariance matrices of the best linear unbiased predictor $X_{\star}\hat{\beta}$ of $E(Y_{\star}|X_{\star})$ and $Y_{\star}|X_{\star}$ at the CRD level are given in tables 6-3 and 6-4, respectively.

Comparisons between 1980 published and predicted acreages at both county and CRD levels are given in tables 6-5 and 6-6, respectively. At the county level, the published 1980 total planted acreage of spring small grains is 14,857,300 acres (excluding Slope County, North Dakota). The predicted 1980 planted acreage is 13,504,169.67 acres (excluding Slope County). The model at the county level underpredicted the 1980 planted acreage by 1,353,130 acres or 9.1 percent of the published data.

At the CRD level, the published data are 14,980,000 acres; the predicted planted acreage is 15,117,152.11 acres. The model at the CRD level over-predicted the 1980 planted acreage by 137,151.11 acres or 0.92 percent. In terms of the absolute differences between the 1980 published and predicted acreages, the model at the CRD level yields better prediction than the model at the county level when North Dakota data were tested. A summary of the predictability of the models in terms of planted acreage is in table 6-7.

TABLE 6-3.- ESTIMATE OF THE COVARIANCE MATRIX OF $E(Y_* | X_*)$

Covariance matrix	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
Row 1	0.0173474	0.0248336	0.0267834	0.0277973	0.0370541	0.0200517	0.0248632	0.0278089	0.0314446
Row 2	.0248336	.0694118	.0814133	.0746374	.0955308	.0565694	.0911771	.0866872	.0897132
Row 3	.0267834	.0814133	.0986158	.0883136	.112781	.0673055	.110917	.104425	.107225
Row 4	.0277973	.0746374	.0883136	.0822622	.104522	.0616231	.0981924	.0941519	.0977423
Row 5	.0370541	.0955308	.112781	.104522	.138987	.0793024	.123051	.119782	.125941
Row 6	.0200517	.0565694	.0673055	.0616231	.0793024	.0473392	.0753858	.0717396	.0745453
Row 7	.0248632	.0911771	.110917	.0981924	.123051	.0753858	.131003	.119152	.119775
Row 8	.0278089	.0866872	.104425	.0941519	.119782	.0717396	.119152	.11236	.114719
Row 9	.0314446	.0897132	.107225	.0977423	.125941	.0745453	.119775	.114719	.118841

TABLE 6-4.- ESTIMATE OF THE COVARIANCE MATRIX OF $\hat{Y}_* | X_*$

Covariance matrix	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
Row 1	1.01735	0.0248336	0.0267834	0.0277973	0.0370541	0.0200517	0.0248632	0.0278089	0.0314446
Row 2	.0248336	1.06941	.0814133	.0746374	.0955308	.0565694	.0922771	.0866872	.0897132
Row 3	.0267834	.0814133	1.09862	.0883136	.112781	.0673055	.110917	.104425	.107225
Row 4	.0277973	.0746374	.0883136	1.08226	.104522	.0616231	.0981924	.0941519	.0977423
Row 5	.0370541	.0955308	.112781	.104522	1.13699	.0793024	.123051	.119782	.125941
Row 6	.0200517	.0565694	.0673055	.0616231	.0793024	1.04734	.0753858	.0717396	.0745453
Row 7	.0248632	.0911771	.110917	.0981924	.123051	.0753858	1.131	.119152	.1199775
Row 8	.0278089	.0866872	.104425	.0941519	.119782	.0717396	.119152	1.11236	.114719
Row 9	.0314446	.0897132	.107225	.0977423	.125941	.0745453	.119775	.114719	1.11884

TABLE 6-5.- THE 1980 PUBLISHED AND PREDICTED ACREAGE OF COUNTIES

Observation	County	County code	Spring small grains, predicted acreage	Spring small grains, published acreage
1	Burke	11	220 309	231 800
2	Divide	12	279 391	281 400
3	Mountrail	13	328 637	313 800
4	Renville	14	274 816	256 000
5	Ward	15	507 259	484 700
6	Williams	16	390 259	383 600
7	Benson	21	315 881	348 700
8	Bottineau	22	464 230	518 000
9	McHenry	23	340 869	348 900
10	Pierce	24	267 703	258 900
11	Rolette	25	203 733	211 900
12	Cavalier	31	524 384	587 400
13	Grand Forks	32	349 547	451 600
14	Nelson	33	246 882	286 500
15	Pembina	34	294 112	371 700
16	Ramsey	35	314 276	384 200
17	Towner	36	314 674	369 400
18	Walsh	37	375 529	451 200
19	Dunn	41	212 380	187 000
20	McKenzie	42	258 857	220 500
21	McLean	43	450 665	473 400
22	Mercer	44	138 178	137 700
23	Oliver	45	93 440	101 400
24	Eddy	51	106 229	138 200
25	Foster	52	144 703	166 100
26	Kidder	53	182 882	174 700
27	Sheridan	54	194 804	207 500

TABLE 6-5.- Concluded.

Observation	County	County code	Spring small grains, predicted acreage	Spring small grains, published acreage
28	Stutsman	55	409 156	511 400
29	Wells	56	354 982	373 900
30	Barnes	61	394 046	480 300
31	Cass	62	478 835	632 800
32	Griggs	63	143 329	200 600
33	Steele	64	189 092	250 800
34	Traill	65	275 453	318 100
35	Adams	71	144 410	159 400
36	Billings	72	94 605	50 000
37	Bowman	73	156 826	158 400
38	Golden Valley	74	113 618	102 700
39	Hettinger	75	263 113	271 000
40	Slope	76	134 732	
41	Stark	77	222 086	236 400
42	Burleigh	81	237 904	260 000
43	Emmons	82	294 482	289 600
44	Grant	83	196 419	201 100
45	Morton	84	227 418	231 800
46	Sioux	85	88 908	66 000
47	Dickey	91	189 889	239 300
48	La Moure	92	286 938	319 300
49	Logan	93	184 692	194 200
50	McIntosh	94	213 223	250 000
51	Ransom	95	143 622	186 200
52	Richland	96	256 457	319 900
53	Sargent	97	150 236	207 900
TOTAL			13 638 902	14 857 300

TABLE 6-6.- THE 1980 PUBLISHED AND PREDICTED ACREAGE BY CRD

Observation	CRD	CRD code	Total CRD area, mi^2	Spring small grains, published acreage	Spring small grains, predicted acreage	Difference in predicted and published spring small grain acreage
1	Northeast	10	9 232	1 951 300	2 074 747	-123 447
2	North Central	20	6 910	1 688 400	1 744 771	-58 371
3	Northeast	30	8 646	2 902 000	2 715 434	186 566
4	West Central	40	8 555	1 120 000	1 236 995	-116 995
5	Central	50	7 190	1 571 800	1 605 299	-33 499
6	East Central	60	5 509	1 882 600	1 706 349	176 251
7	Southwest	70	7 987	1 100 600	1 214 337	-113 737
8	South Central	80	7 817	1 046 500	1 146 173	-9 763
9	Southeast	90	7 435	1 716 800	1 673 047	43 753
	TOTAL		69 281	14 980 000	15 117 152	-137 152

TABLE 6-7.- SUMMARIES OF THE PREDICTABILITY OF THE MODELS

Item	Model 1	Model 2
Published 1980 planted acreage	[a]14 857 300	14 980 000
Predicted 1980 planted acreage	[a]13 504 170	15 117 152
Difference	1 353 130	-137 152
% difference	9.1	-0.92

[a]Excluding Slope County.

7. ISSUES AND REMARKS

The development and tests of the proposed models were based upon the usual assumptions of standard general linear theory; i.e., normality, constant variance, and independence of the error term. There is no doubt that the standard theory must be modified to suit the conditions of the real problem. In this preliminary study, possible modifications to the general model were investigated during the process of modeling. However, it was decided that modifications would not be incorporated in the proposed models for the following reasons.

a. The assumptions of normality and of constant variance probably will not be serious problems in the proposed model since it has been shown to be relatively robust. This is especially true for the assumption of constant variances, if all the observations are within the range $0.2 \leq P \leq 0.8$. If modifications to the proposed models are desired in order to satisfy the two assumptions, transformations of the data (discussed in Chapter 10 of reference 2) can be used.

b. The independence assumption concerning the dependent variable or error term is the most difficult problem to deal with. Violations of the assumption also have the most serious consequences in statistical inferences. Note the following quote by Scheffe (ref. 6). "In general, of the three kinds of possible departures from assumptions we have considered, those caused by lack of independence are the most formidable to cope with."

In the proposed models, it was assumed that the error terms are independently, identically, and normally distributed with zero mean and unit variance. This is the simplest assumption one can make. Because the combination of time-series and cross-section data was used in the proposed model, there are temporal and spatial correlations in the error terms. The inclusion of lagged dependent variables in the models further compounds the problem because the crop proportions of a county or a CRD are certainly affected by previous-year proportions of the particular county or CRD and the proportions of surrounding counties or CRD's. To reflect the conditions of the real problem, a covariance structure of

temporal effect and spatial effect should be developed according to the real situations. This is an area where further research is needed.

The dependence problem is somewhat alleviated if one assumes that only temporal effects exist and a county or a CRD is uncorrelated with all other counties or CRD's for the current and previous years. Under this assumption (i.e., the error terms are autocorrelated), there are three main consequences if the standard general linear model is applied.

1. Estimates of β are unbiased, but the sampling variances of the estimates may be unduly large when compared with those achievable by a slightly different method of estimation.
2. The sampling variances of the estimates are likely to be seriously underestimated.
3. Sampling variances of the predictors will be needlessly large.

In addition to autocorrelated error terms, the proposed models also contain lagged dependent variables. In this case, there are other possible assumptions about the error terms. Some of the possibilities are as follows (ref. 25):

a. $$\varepsilon_{i,t} = u_{i,t} - \lambda u_{i,t-1} \quad ; \quad 0 < \lambda < 1$$

and $$u_{i,t} \sim N(0, \sigma_u^2)$$

b. $$\varepsilon_{i,t} = u_{i,t} - \lambda u_{i,t-1} \quad ; \quad 0 < \lambda < 1$$

and $$u_{i,t} = \rho u_{i,t-1} + v_{i,t}$$

with $$|\rho| < 1 \text{ and } v_{i,t} \sim N(0, \sigma_v^2)$$

c. $$\varepsilon_{i,t} = \rho \varepsilon_{i,t-1} + v_{i,t}$$

with $$|\rho| < 1 \text{ and } v_{i,t} \sim N(0, \sigma_v^2)$$

If the error terms satisfy one of the above assumptions and there are lagged dependent variables included in the models, then the ordinary least-squares estimates of β become biased and inconsistent; i.e., the bias remains even if the sample is large. The asymptotic bias is a function of the true coefficient of the lagged dependent variable and the true autocorrelation coefficient ρ.

It seems extremely hopeless to apply the standard general linear model theory to a study in which autocorrelated error terms and lagged dependent variables exist. There are encouraging results from studies in this area. It is shown empirically and theoretically that if the absolute value of the true coefficient of the lagged dependent variable is large, then the asymptotic bias will be small even with large values of the autocorrelation coefficient ρ (ref. 26). It is further shown that the presence of independent variables in a model tends to reduce the absolute values of the asymptotic biases (ref. 27).

In the proposed stepwise models, the dependent variable is the proportion of spring small grains. The true coefficient of the proportion 1 year before is very big. (The least-squares estimates are 0.9288 and 0.9488 at county and CRD levels, respectively.) In addition to the lagged variable, there are 12 independent variables included in the models. The large value of the true coefficient of the lagged dependent variable and the large number of independent variables included in the models are expected to make the asymptotic biases in the estimates become minimal.

It was proposed to use the ridge regression procedure to estimate the regression coefficients in the logit models. There are two ways to incorporate the procedure in the estimation and prediction of crop proportions. One way is to specify the Marquardt iteration method in the NLIN procedure in SAS. Marquardt's method is equivalent to performing ridge regressions. The other way is to linearize the logit model and apply directly the ridge regression estimation techniques to estimate the coefficients.

In this study, the first way was used in the nonlinear logit models. The ridge regression procedure was not applied to the linearized logit models for the following reason. Since the linear logit models fitted North Dakota data very well at both levels, little improvement can be made by using methods other than the ordinary least-squares estimators.

The alternative estimation technique to the ordinary least-squares method will be investigated more thoroughly when the proposed models are tested with data from other areas.

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APPENDIX A

A LISTING OF THE CONSTRUCTED DATA SET

APPENDIX A

LISTING OF THE CONSTRUCTED DATA SET

The following symbol definitions are to be used in Appendixes A, B, C, D, E, F, G, H, I, and J of this document.

Symbol definitions:

AREA	Acres of a county or CRD
AREACRES	640 times the area
BARLEY	Acres of barley planted
COUNTYCO	County code
CV	Coefficient of variation
DCRD1 through DCRD8	Dummy variables for spatial effect
DF	Degrees of freedom
DURUM	Acres of durum wheat planted
DYR1 through DYR4	Dummy variables for temporal effect
FLAX	Acres of flax planted
LEVEL OR DATA LEVEL	C represents county; CRD; ST represents state
N	Number of observations
OATS	Acres of oats planted
OBS	Observation
P2CPSSG	CRD-observed proportion
PDBARLEY	Last year's price of barley
PDURUM	Last year's price of durum wheat
PERAPL	Precipitation for April
PERMAY	Precipitation for May
PERJUNE	Precipitation for June
POATS	Last year's price of oats
PPSSG1	Predicted proportion of spring small grains
PSPW	Last year's price of spring wheat without durum wheat
PSSG	Observed proportion of spring small grains
R2CPSSG	PSSG - P2CPSSG = R2CPSSG
RPSSG1	Difference obtained by subtracting the predicted proportion from observed proportion of spring small grains

RYE	Acres of rye planted
SPW	Acres of spring wheat other than durum wheat planted
SSG	Total acres of spring small grains planted
TACRES1	Pevious year's total acres of the county
TEMPAPL, TEMPMAY, TEMPJUNE	Temperatures for April, May, and June, respectively
WPSSG	Last year's weighted price of spring small grains
YEAR	1 = 1975, 2 = 1976, 3 = 1977, 4 = 1978, 5 = 1979

Note: All variable names with the last letter 1 are the same as those without 1 with the exception that they are logged for one year.

OBS	COUNTY	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACHES	PSSG	PDURUM	PSPW	POATS	PBARLEY
1	BURKE	114100	70400	16500	13200	1800	3000	1119	219000	710160	0.3069915	5.93	4.28	1.38	2.00
2	DIVIDE	52200	200100	8400	10100	1200	400	1300	312400	832000	0.3754808	5.93	4.28	1.38	2.00
3	MOUNTRAIL	36900	224700	5600	21500	1400	2600	1819	592700	1164160	0.5091426	5.93	4.28	1.38	2.00
4	RENVILLE	87000	101300	21200	16700	1900	1200	886	241000	567040	0.4251114	5.93	4.28	1.38	2.00
5	WARD	113900	277400	24000	43800	700	20400	2044	485600	1308160	0.3710758	5.93	4.28	1.38	2.00
6	WILLIAMS	119900	149800	13000	22000	2500	1100	2064	391100	1220480	0.3204852	5.93	4.28	1.38	2.00
7	NW	584000	1023700	96500	157300	10700	4000	6232	1881000	5008480	0.3756655	5.93	4.28	1.38	2.00
8	MERCER	55100	205100	6400	25400	1700	2300	1607	325200	832000	0.3908654	5.93	4.28	1.38	2.00
9	BOTTINEAU	89700	265600	17100	33600	1200	5200	2877	509600	1732480	0.2942158	5.93	4.28	1.38	2.00
10	MCHENRY	134400	75800	26000	47900	9800	24000	4879	1425200	1280320	1.1132758	5.93	4.28	1.38	2.00
11	PIERCE	56600	188600	36800	41200	2400	20800	4038	1142000	884320	1.2913652	5.93	4.28	1.38	2.00
12	ROLETTE	11300	122900	44000	18300	200	6200	913	202900	584320	0.3472741	5.93	4.28	1.38	2.00
13	NC	347100	978000	248000	166400	27300	11600	6410	1679200	4422400	0.3796703	5.93	4.28	1.38	2.00
14	CAVALIER	126800	188400	154000	17500	2800	15700	1512	449600	957600	0.4695533	5.93	4.28	1.38	2.00
15	GRAND FORKS	264500	39800	134300	29400	2800	15000	1438	487800	920320	0.5300391	5.93	4.28	1.38	2.00
16	NELSON	61100	161100	61300	26900	200	22000	995	333400	636800	0.5235553	5.93	4.28	1.38	2.00
17	NEMBINA	298200	15800	81900	16300	1400	5700	1124	418700	719360	0.5820645	5.93	4.28	1.38	2.00
18	RAMSEY	50900	233700	94800	8700	400	13700	1248	401500	798720	0.5026254	5.93	4.28	1.38	2.00
19	TOWNER	20900	262100	82200	6500	100	11400	1052	344200	673520	0.5110448	5.93	4.28	1.38	2.00
20	WALSH	208400	39500	131900	25400	1000	11400	1298	404300	831280	0.4863208	5.93	4.28	1.38	2.00
21	NE	1034000	497700	741300	130900	5200	82300	8644	2966400	5531280	0.5362086	5.93	4.28	1.38	2.00
22	DUNN	111900	4600	91000	16900	100	400	1352	173000	1674880	0.1032853	5.93	4.28	1.38	2.00
23	MCKENZIE	77500	59300	10500	22500	600	700	2735	171100	1750400	0.0977769	5.87	4.42	1.48	2.00

OBS	LEVEL	COUNTYCO	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7	DCRD8	TEMPAPR	TEMPMAY	TEMPJUNE	PERAPR	PERMAY	PERJUNE	DYR1	DYR2
1	C	1	.	0	0	0	0	0	0	0	33.2	53.0	62.8	1.59	1.79	3.42	.	0
2	C	3	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
3	C	5	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
4	C	7	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
5	C	9	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
6	C	11	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
7	C	13	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
8	C	15	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
9	C	17	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
10	C	19	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
11	C	21	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
12	C	23	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
13	C	25	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
14	C	27	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
15	C	29	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
16	C	31	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
17	C	33	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
18	C	35	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
19	C	37	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
20	C	39	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
21	C	41	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
22	C	43	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0
23	C	45	.	0	0	0	0	0	0	0	33.1	53.0	62.8	1.59	1.79	3.42	.	0

OBS	DYR3	DYR4	YEAR	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSSG
1	0	0	.	BURKE	112300	70100	16000	14000	800	5100	1119	218300	710160	0.3064828	4.52871
2	0	0	.	DIVIDE	68200	182100	10900	15600	300	500	1308	277600	832000	0.3336554	5.14742
3	0	0	.	MOUNTRAIL	55200	224800	9000	21800	600	1500	1819	312100	1164160	0.2680894	5.23971
4	0	0	.	RENVILLE	99400	86200	34900	17400	700	13800	886	252400	567040	0.4451119	4.46164
5	0	0	.	WARD	147300	256300	30500	47500	700	20500	2044	502800	1308160	0.3843577	4.78403
6	0	0	.	WILLIAMS	196900	140700	16000	24400	600	1200	2064	381800	1220480	0.2849032	4.64620
7	0	0	.	NW	681300	960200	117300	139900	3700	42600	6232	1645000	5008480	0.3284148	4.8[468
8	0	0	.	MERCER	48700	202100	62900	30100	1200	23400	1607	368000	897920	0.4[10838	4.8[930
9	0	0	.	BOTTINEAU	96000	253300	67100	31200	4700	36600	2877	489700	1073280	0.4562625	4.87066
10	0	0	.	MCHENRY	160100	60900	31000	57900	4500	28300	4879	337700	1202560	0.2808[8	4.81979
11	0	0	.	PIERCE	65700	100700	38200	41200	3200	32400	4038	281400	884320	0.3182591	4.52101
12	0	0	.	ROLETTE	14200	117000	47200	13000	600	4000	913	190600	584320	0.3262459	4.84894
13	0	0	.	NC	385500	734000	244400	168400	14200	125800	6410	1674300	4422400	0.3785[5	4.59930
14	0	0	.	CAVALIER	167200	151000	152000	12800	300	6400	1512	489700	957600	0.5110[56	4.42223
15	0	0	.	GRAND FORKS	262000	28300	111000	28500	2400	14700	1438	451900	920320	0.4911025	3.97867
16	0	0	.	NELSON	61700	134800	51000	22700	400	32000	995	301600	636800	0.4738930	4.72693
17	0	0	.	NEMBINA	276200	7200	56900	14400	800	6500	1124	362000	719360	0.5032225	4.06416
18	0	0	.	RAMSEY	54000	183100	96000	8200	300	15500	1248	357100	798720	0.4470998	4.03316
19	0	0	.	TOWNER	26900	210700	82600	6500	200	7200	1052	334100	673520	0.4960509	5.05605
20	0	0	.	WALSH	212200	41900	103000	21800	200	13700	1298	452800	823040	0.5502055	4.23907
21	0	0	.	NE	1060200	802000	652500	114900	4600	101000	8644	2732200	5533440	0.4936[4	4.43896
22	0	0	.	DUNN	114200	2400	11700	49800	300	1400	1992	179800	1274880	0.1410133	3.47553
23	0	0	.	MCKENZIE	102500	39200	13000	28500	600	1100	2735	185700	1750400	0.1060[9	4.12484

S T A T I S T I C A L A N A L Y S I S S Y S T E M 15:53 TUESDAY, JUNE 23, 1981

Obs	COUNTY	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	PDURUM	PSPW	POATS	PBARLEY
24	MCLEAN	190700	205200	18900	44600	4700	25900	2065	482000	1321600	0.364709	5.87	4.42	1.48	2.60
25	MERCER	86200	5300	6100	30500	300	2400	1042	138400	666800	0.196137	5.87	4.42	1.48	2.60
26	OLIVER	46400	3000	4200	20700	200	5000	721	79500	461440	0.172287	5.87	4.42	1.48	2.60
27	MC	512700	277400	40900	165200	5900	34400	8555	1036400	5475200	0.189290	5.87	4.42	1.48	2.60
28	EDDY	57500	28400	10600	23200	2600	11500	635	134400	406400	0.330709	6.09	4.58	1.43	3.27
29	FOSTER	84200	37300	20800	17700	2200	13000	645	174200	412800	0.421169	6.09	4.58	1.43	3.27
30	PIERCE	78800	34100	11900	41700	2700	19100	1358	192400	869120	0.221949	6.09	4.58	1.43	3.27
31	SHERIDAN	131300	18900	15500	29500	1500	16500	984	213200	632960	0.336830	6.09	4.58	1.43	3.27
32	STUTSMAN	275400	146400	57700	57400	8600	38400	2264	583900	1448960	0.402974	6.09	4.58	1.43	3.27
33	WELLS	123500	122100	54600	28700	3600	42300	1299	396000	831360	0.476298	6.09	4.58	1.43	3.27
34	C	784700	392600	171300	189800	21200	140800	7190	1700400	4601600	0.369524	6.09	4.58	1.43	3.27
35	BARNES	242400	59200	113300	29800	4800	20600	1479	470100	946560	0.496640	5.96	4.51	1.44	3.35
36	CASS	394500	65100	186100	20200	3200	18500	1749	687600	1119360	0.614280	5.96	4.51	1.44	3.35
37	GRIGGS	96500	22100	48300	15000	400	28700	710	211000	454400	0.464349	5.96	4.51	1.44	3.35
38	STEELE	135400	24600	66800	14200	200	20900	710	282100	454400	0.620814	5.96	4.51	1.44	3.35
39	TRAILL	184800	17200	103100	17300	100	14600	861	339100	551040	0.615182	5.96	4.51	1.44	3.35
40	EC	1055600	188200	537600	96500	8700	103300	5509	1989400	3525760	0.564389	5.96	4.51	1.44	3.35
41	ADAMS	93800	25400	6400	19200	2200	3000	989	150000	632960	0.236982	5.93	4.46	1.47	3.48
42	HILLINGS	26500	2300	3400	7400	100	400	1139	40100	728960	0.055010	5.93	4.46	1.47	3.48
43	HUMAN	70800	25300	11300	25600	300	400	1178	133700	748800	0.178532	5.93	4.46	1.47	3.48
44	GOLDEN VALLEY	32600	23200	4600	11300	300	200	1014	72200	648960	0.111255	5.93	4.46	1.47	3.48
45	BETTINGER	210800	21400	8700	25300	1300	1800	1134	269300	725760	0.371059	5.93	4.46	1.47	3.48
46	SLOPE	73000	13200	6400	8400	1600	400	1225	103000	784000	0.131378	5.93	4.46	1.47	3.48

Obs	LEVEL	COUNTYCO	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7	DCRD8	TEMPAPR	TEMPMAY	TEMPJUNE	MEMAPR	PERMAY	PERJUNE	DYR1	DYR2
24	C	43	0	0	0	0	0	0	0	0	32.1	51.7	61.8	3.41	2.12	4.43	0	0
25	C	44	0	0	0	0	0	0	0	0	33.1	52.9	62.4	4.67	2.69	3.79	0	0
26	C	45	0	0	0	0	0	0	0	0	34.8	53.7	63.8	4.88	1.95	3.97	0	0
27	CRD	40	0	0	0	0	0	0	0	0	33.5	52.9	62.8	4.24	2.05	4.00	0	0
28	C	51	0	0	0	0	0	0	0	0	34.8	55.6	64.3	3.75	1.99	5.71	0	0
29	C	52	0	0	0	0	0	0	0	0	31.8	53.1	62.1	3.44	2.01	9.17	0	0
30	C	53	0	0	0	0	0	0	0	0	34.9	54.1	63.9	3.86	1.84	7.52	0	0
31	C	54	0	0	0	0	0	0	0	0	34.8	55.1	64.6	4.30	2.07	8.61	0	0
32	C	55	0	0	0	0	0	0	0	0	33.8	55.1	64.5	2.39	2.34	5.64	0	0
33	C	56	0	0	0	0	0	0	0	0	35.4	55.7	65.6	4.87	2.34	5.80	0	0
34	CRD	50	0	0	0	0	0	0	0	0	33.4	54.4	63.9	3.65	2.18	6.82	0	0
35	C	61	0	0	0	0	0	0	0	0	30.4	53.5	62.4	2.96	2.11	9.00	0	0
36	C	62	0	0	0	0	0	0	0	0	35.1	56.4	64.8	3.78	2.32	5.72	0	0
37	C	63	0	0	0	0	0	0	0	0	35.2	56.6	64.7	2.89	2.32	5.85	0	0
38	C	64	0	0	0	0	0	0	0	0	34.6	56.8	64.2	3.90	2.02	5.97	0	0
39	C	65	0	0	0	0	0	0	0	0	36.2	57.7	66.5	4.91	2.01	4.99	0	0
40	CRD	60	0	0	0	0	0	0	0	0	34.7	56.3	64.5	3.85	2.22	5.15	0	0
41	C	71	0	0	0	0	0	0	0	0	35.6	57.4	65.8	3.68	2.62	5.63	0	0
42	C	72	0	0	0	0	0	0	0	0	32.6	51.6	61.8	3.17	2.86	5.73	0	0
43	C	73	0	0	0	0	0	0	0	0	34.6	52.8	61.1	4.08	4.40	3.87	0	0
44	C	74	0	0	0	0	0	0	0	0	34.9	53.9	61.5	3.44	3.81	4.16	0	0
45	C	75	0	0	0	0	0	0	0	0	34.7	53.5	64.4	4.81	4.81	4.48	0	0
46	C	76	0	0	0	0	0	0	0	0	33.5	51.5	60.3	4.08	3.11	5.55	0	0

Obs	DYR3	DYR4	YEAR	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSSG
24	0	0	1	MCLEAN	197700	185000	19800	52800	2600	35600	2805	493500	1321600	0.373411	4.57988
25	0	0	1	MERCER	93900	1500	7000	32800	300	2900	1042	138400	666800	0.207534	3.60919
26	0	0	1	OLIVER	47700	700	6300	26400	200	4100	721	85400	461440	0.185073	3.20805
27	0	0	1	MC	556000	228800	58600	199300	4000	45100	8555	1082800	5475200	0.197765	4.08188
28	0	0	1	EDDY	53000	36700	21500	21700	2100	15200	635	149700	406400	0.368356	4.24157
29	0	0	1	FOSTER	98800	35300	14300	23600	2000	14200	645	193200	412800	0.468021	4.31831
30	0	0	1	PIERCE	77300	30600	13700	47100	1500	19300	1358	184500	869120	0.212237	3.86805
31	0	0	1	SHERIDAN	140200	19900	15700	32300	600	19800	989	208500	632960	0.329405	4.08950
32	0	0	1	STUTSMAN	292400	133700	65000	68500	8700	26900	2264	595200	1448960	0.410777	4.46302
33	0	0	1	WELLS	148500	128200	56000	25700	3300	45400	1299	407100	831360	0.489688	4.68956
34	0	0	1	CENTRAL	790200	384400	191200	218400	18200	140800	7190	1743200	4601600	0.378825	4.35401
35	0	0	1	HARNES	252200	55600	118600	39900	4300	23800	1479	494400	946560	0.522312	4.16516
36	0	0	1	CASS	401000	45300	129100	14000	2900	20200	1749	617500	1119360	0.551655	4.27043
37	0	0	1	GRIGGS	110700	21500	38200	14900	400	28900	710	214600	454400	0.472271	4.19225
38	0	0	1	STEELE	140200	25200	64900	16300	300	21300	710	272300	454400	0.599252	4.13688
39	0	0	1	TRAILL	189100	16100	76000	15000	200	15900	861	308300	551040	0.559488	4.1074
40	0	0	1	EC	1093200	1597100	530900	195100	8100	110100	5509	1907100	3525760	0.540905	4.17867
41	0	0	1	ADAMS	104700	18600	8000	22300	2300	3000	989	154100	632960	0.251359	4.06268
42	0	0	1	HILLINGS	28700	200	2500	10000	300	700	1139	42400	728960	0.058165	3.59758
43	0	0	1	HUMAN	96700	19800	16900	25500	700	700	1178	150300	748800	0.200721	3.89540
44	0	0	1	GOLDEN VALLEY	39400	14200	7100	9700	200	300	1014	75900	648960	0.116956	4.24232
45	0	0	1	BETTINGER	209400	15300	18100	33200	3900	3000	1134	282800	725760	0.389660	4.02163
46	0	0	1	SLOPE	76400	11100	10400	11800	2500	800	1225	113500	784000	0.144770	4.06433

OBS	COUNTY	SPR	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	ACRES	PSSG	PDURUM	PSPR	POATS	PBARLEY
47	STARK	150800	1 100	11100	45100	400	400	1316	224100	842240	0.266076	5.93	4.42	1.47	3.48
48	Sb	657500	12 900	51900	142300	6200	6600	7987	992600	5111600	0.194144	5.93	4.42	1.47	3.48
49	BURLEIGH	137500	31400	21900	61500	500	1400	1625	271900	1044000	0.260342	5.93	4.42	1.47	3.48
50	EMMONS	67800	34400	12400	52100	1600	51400	1583	318900	961920	0.331524	5.93	4.42	1.47	3.48
51	GRANT	12700	11200	9600	49600	1200	3400	866	147700	466240	0.316834	5.93	4.42	1.47	3.48
52	MORTON	33200	8700	22300	66700	500	1000	928	226400	1220800	0.185425	5.93	4.42	1.47	3.48
53	SIOUX	3300	9000	3800	13500	100	1000	1182	54000	705920	0.076502	5.93	4.42	1.47	3.48
54	SC	583700	94700	69200	237400	3900	75900	7817	1064000	5002080	0.212837	5.93	4.42	1.47	3.48
55	DICKEY	106000	36000	52300	29200	12000	40200	1143	285700	731520	0.390625	5.93	4.42	1.47	3.48
56	LAMOURE	47300	65800	28300	50400	9300	25600	1136	326900	727040	0.449631	5.93	4.42	1.47	3.48
57	LOGAN	15700	20000	6500	11800	1700	26900	1001	162600	640064	0.308031	5.93	4.42	1.47	3.48
58	MCINTOSH	12200	32200	8400	35200	3200	91300	992	282500	634880	0.444966	5.93	4.42	1.47	3.48
59	RANSOM	78200	19700	46600	23700	8200	4500	861	161100	551040	0.320651	5.93	4.42	1.47	3.48
60	RICHLAND	213800	16500	84200	32100	6200	16300	1449	369100	927360	0.398012	5.93	4.42	1.47	3.48
61	SARGENT	76700	35600	35900	11800	5500	15100	853	201600	545920	0.369285	5.93	4.42	1.47	3.48
62	St	8399000	2268000	2626000	1244200	466100	2199000	7435	1830500	4758400	0.384588	5.93	4.42	1.47	3.48
63	STATE	6400000	4880000	2320000	1500000	135000	815000	64281	15150000	44339040	0.341679	5.97	4.45	1.47	3.48
64	BURKE	124300	62600	28100	15700	1200	2500	1119	226400	716160	0.316138	4.56	3.45	1.31	2.62
65	DIVIDE	98400	179300	12400	11500	1600	200	1308	299600	832000	0.359904	4.56	3.45	1.31	2.62
66	MOUNTRAIL	69300	213100	6700	22100	800	3100	1819	315100	1164160	0.270667	4.56	3.45	1.31	2.62
67	RENVILLE	18500	47200	22000	19700	1500	11400	886	270800	567040	0.477568	4.56	3.45	1.31	2.62
68	WARD	185100	271800	29400	48500	700	16900	2044	544400	1308160	0.416157	4.56	3.45	1.31	2.62
69	WILLIAMS	244300	118000	9100	19400	2200	3500	2064	389300	1320960	0.294718	4.56	3.45	1.31	2.62

OBS	LEVEL	COUNTYCO	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7	DCRD8	TEMPAPR	TEMPMAY	TEMPJUNE	PERAPR	PERMAY	PERJUNE	DYR1	DYR2
47	C	77	0	0	0	0	0	0	1	0	33.8	56.5	62.1	2.18	3.26	4.27	1	0
48	CRD	78	0	0	0	0	0	0	1	0	34.2	52.4	61.1	2.15	3.20	4.28	1	0
49	C	81	0	0	0	0	0	0	1	0	35.5	53.9	63.2	2.44	3.44	4.88	1	0
50	C	82	0	0	0	0	0	0	1	0	37.0	57.2	66.3	2.11	3.12	5.02	1	0
51	C	83	0	0	0	0	0	0	1	0	33.1	52.0	62.1	2.80	3.65	5.07	1	0
52	C	85	0	0	0	0	0	0	1	0	34.1	54.9	64.1	2.74	3.38	5.07	1	0
53	C	86	0	0	0	0	0	0	1	0	36.1	58.1	66.6	2.21	2.77	4.80	1	0
54	CMU	89	0	0	0	0	0	0	1	0	34.5	54.7	63.2	2.29	2.77	4.80	1	0
55	C	91	0	0	0	0	0	0	1	0	35.6	57.3	65.6	2.73	3.43	5.22	1	0
56	C	92	0	0	0	0	0	0	1	0	34.6	56.6	65.5	3.63	3.84	7.22	1	0
57	C	93	0	0	0	0	0	0	1	0	34.6	56.6	65.8	4.11	3.25	5.81	1	0
58	C	95	0	0	0	0	0	0	1	0	32.8	54.4	62.3	3.36	3.27	5.81	1	0
59	C	96	0	0	0	0	0	0	1	0	33.6	55.3	62.1	2.30	2.77	4.80	1	0
60	C	97	0	0	0	0	0	0	1	0	34.9	57.4	65.9	2.78	2.57	4.82	1	0
61	C	98	0	0	0	0	0	0	1	0	34.2	56.4	64.9	3.50	2.38	4.22	1	0
62	CRD	99	0	0	0	0	0	0	1	0	34.2	56.3	64.8	3.57	2.16	4.22	1	0
63	STATE		0	0	0	0	0	0	1	0	33.8	54.8	63.2	3.68	3.24	5.40	1	0
64	C		0	0	0	0	0	0	0	1	44.8	55.2	65.2	2.07	0.93	4.06	0	1
65	C		0	0	0	0	0	0	0	1	45.6	57.2	64.1	2.16	0.94	4.06	0	1
66	C		0	0	0	0	0	0	0	1	44.2	54.1	63.5	2.28	0.87	3.57	0	1
67	C		0	0	0	0	0	0	0	1	43.6	54.2	64.2	1.97	0.85	3.35	0	1
68	C		0	0	0	0	0	0	0	1	45.2	55.6	65.2	1.99	0.85	3.35	0	1

OBS	DYR3	DYR4	YEAR	COUNTY1	SPR1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	ACRES1	PSSG1	WPSSG
47	0	0	1	STARK	155000	5200	13900	54100	800	1500	1316	230500	842240	0.273675	3.63608
48	0	0	1	Sb	700300	89000	78000	166600	10600	10000	7987	1054500	5111600	0.206292	3.62827
49	0	0	1	BURLEIGH	128900	26900	18400	62000	100	21400	1625	258300	1044000	0.248365	3.67178
50	0	0	1	EMMONS	73800	25400	8700	60400	2200	53700	1583	325400	961920	0.338282	3.64119
51	0	0	1	GRANT	26600	4100	15200	52200	1100	4000	1066	204200	1066240	0.191514	3.53852
52	0	0	1	MORTON	30100	6800	24600	74700	700	1800	1928	234700	1220800	0.192255	3.33271
53	0	0	1	SIOUX	38800	6200	4400	16900	200	2000	1182	68500	705920	0.097036	3.09291
54	0	0	1	SC	597400	69400	74300	266800	4300	82900	7817	1095100	5002080	0.218896	3.08119
55	0	0	1	DICKEY	104600	27100	49000	50500	13400	45100	1143	289100	731520	0.395025	3.67566
56	0	0	1	LAMOURE	64400	61800	35500	54200	12500	34800	1136	360600	727040	0.495986	4.12694
57	0	0	1	LOGAN	15400	16200	5400	37500	900	25300	1001	100700	640064	0.313288	3.44420
58	0	0	1	MCINTOSH	11030	24600	12000	47700	3900	77800	992	176300	634880	0.435230	3.88839
59	0	0	1	RANSOM	97400	12400	43000	35700	4700	8500	861	199700	551040	0.362408	3.66380
60	0	0	1	RICHLAND	226900	7400	75900	43300	7500	18500	1449	379500	927360	0.409226	3.83686
61	0	0	1	SARGENT	86900	23800	40000	31700	5400	20500	853	208300	545920	0.381552	3.84162
62	0	0	1	St	905900	172500	260800	299600	48300	227700	7435	1915000	4758400	0.402407	3.87099
63	0	0	1	STATE	6770000	3690000	2110000	1670000	116000	886000	64281	15152000	44339040	0.341727	4.27662
64	0	0	2	BURKE	114100	78400	16500	13200	1800	3800	1119	219800	716160	0.306915	3.79979
65	0	0	2	DIVIDE	52200	200100	8400	10100	1200	400	1308	272400	832000	0.327404	4.22690
66	0	0	2	MOUNTRAIL	36900	224700	5600	21500	1400	2600	1819	292700	1164160	0.251424	4.16152
67	0	0	2	RENVILLE	87800	101300	21200	16700	1900	12100	886	241600	567040	0.425964	3.92855
68	0	0	2	WARD	113900	271400	29800	43800	700	20600	2044	493000	1308160	0.376975	3.93348
69	0	0	2	WILLIAMS	175000	149800	13800	22900	3500	1100	2064	370100	1320960	0.280175	3.92353

S T A T I S T I C A L A N A L Y S I S S Y S T E M 15:53 TUESDAY, JUNE 23, 1981

OBS	COUNTY	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	PDURUM	PSPW	POATS	PBARLEY
70	NORTHWEST	832100	934800	997800	128900	7800	38100	9236	2041406	5908488	0.345581	4.56	3.84	1.31	2.27
71	HENSON	94300	199700	80600	21400	2100	16000	1403	413588	897928	0.460584	4.68	3.99	1.26	2.58
72	BOTTINEAU	147800	218000	65200	23700	7800	23700	1677	486000	1073200	0.452984	4.68	3.99	1.26	2.58
73	MC HENRY	187600	67700	16700	51600	7900	16200	1879	347700	1202500	0.289133	4.68	3.99	1.26	2.58
74	PIERCE	90900	102700	30100	29900	3400	18400	1038	275400	664328	0.415312	4.68	3.99	1.26	2.58
75	ROLETTE	22500	121000	44100	21600	1000	19600	413	229800	544328	0.421566	4.68	3.99	1.26	2.58
76	NORTH CENTRAL	543100	709100	236100	148200	22200	93400	6410	1752100	4422488	0.396188	4.68	3.99	1.26	2.58
77	CAVALIER	142600	178200	163000	15600	500	2100	1512	502200	967888	0.518973	4.78	3.95	1.31	2.60
78	GRAND FORKS	101700	33300	153200	17200	1900	8000	1438	515300	928328	0.555914	4.78	3.95	1.31	2.60
79	NELSON	73600	156800	56800	22400	100	13400	995	323600	636888	0.508166	4.78	3.95	1.31	2.60
80	PEMBINA	329800	10700	70800	7700	2200	2500	1124	423700	719300	0.588998	4.78	3.95	1.31	2.60
81	RAMSEY	82500	530200	102000	5700	600	5000	1248	466800	798728	0.584355	4.78	3.95	1.31	2.60
82	TOWNER	34400	226600	86100	5900	400	3700	1043	357100	667528	0.534965	4.78	3.95	1.31	2.60
83	WALSH	255600	86900	119600	16800	100	5000	1206	484000	823048	0.588084	4.78	3.95	1.31	2.60
84	NORTHEAST	1220200	922700	751500	91500	5800	41000	8648	3032700	5533448	0.548068	4.78	3.95	1.31	2.60
85	DUNN	126000	2800	7800	48500	100	1000	1992	178200	1274888	0.139778	4.59	4.03	1.29	2.25
86	MC KENZIE	104600	42700	7100	25300	300	1400	2735	141400	1759488	0.103633	4.59	4.03	1.29	2.25
87	MC LEAN	229300	182400	12800	29700	3800	13800	2065	471800	1321688	0.356992	4.59	4.03	1.29	2.25
88	MERCER	93700	1700	3600	22600	100	3200	1042	124900	666888	0.187498	4.59	4.03	1.29	2.25
89	OLIVER	59500	1300	5400	15600	100	11200	721	93100	461448	0.201768	4.59	4.03	1.29	2.25
90	WEST CENTRAL	613100	230900	36700	133700	4400	38600	8555	1049400	5475208	0.191664	4.59	4.03	1.29	2.25
91	EDDY	73000	30600	13000	20000	2100	9100	635	147800	406408	0.363681	4.68	4.12	1.34	2.69
92	FOSTER	119600	40500	20300	9700	3900	9300	645	202300	412888	0.490068	4.68	4.12	1.34	2.69

OBS	LEVEL	COUNTYCO	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7	DCRD8	TEMPAPR	TEMPMAY	TEMPJUNE	PRAPR	PRMAY	PRJUNE	DYR1	DYR2
70	CRD	10	1	0	0	0	0	0	0	0	44.7	55.5	64.1	2.08	0.89	3.76	0	
71	C	21	0	1	0	0	0	0	0	0	44.5	53.3	64.1	2.53	0.37	3.65	0	
72	C	22	0	1	0	0	0	0	0	0	45.2	55.4	64.2	1.53	0.49	3.39	0	
73	C	23	0	1	0	0	0	0	0	0	44.9	55.6	65.6	2.38	0.38	3.73	0	
74	C	24	0	1	0	0	0	0	0	0	47.5	58.5	67.6	1.48	0.47	4.03	0	
75	C	25	0	1	0	0	0	0	0	0	42.1	53.0	62.6	2.56	0.76	3.98	0	
76	CRD	20	0	1	0	0	0	0	0	0	45.0	55.3	64.8	2.23	0.37	3.48	0	
77	C	31	0	0	1	0	0	0	0	0	43.5	54.3	64.7	1.88	0.17	4.11	0	
78	C	32	0	0	1	0	0	0	0	0	45.8	56.8	67.4	1.55	0.82	3.62	0	
79	C	33	0	0	1	0	0	0	0	0	43.6	54.3	63.9	2.20	0.90	2.98	0	
80	C	34	0	0	1	0	0	0	0	0	43.5	54.3	64.7	1.99	0.71	4.30	0	
81	C	35	0	0	1	0	0	0	0	0	44.6	54.9	65.8	1.59	0.87	4.08	0	
82	C	36	0	0	1	0	0	0	0	0	42.8	53.7	63.7	2.21	0.67	4.05	0	
83	C	37	0	0	1	0	0	0	0	0	46.9	56.3	66.7	1.74	0.60	3.84	0	
84	CRD	30	0	0	1	0	0	0	0	0	44.4	55.3	66.1	1.66	0.57	3.83	0	
85	C	41	0	0	0	1	0	0	0	0	44.3	54.7	64.9	2.48	0.99	4.12	0	
86	C	42	0	0	0	1	0	0	0	0	47.6	59.6	67.1	2.78	1.92	2.69	0	
87	C	43	0	0	0	1	0	0	0	0	44.8	54.7	64.5	2.92	0.58	3.76	0	
88	C	44	0	0	0	1	0	0	0	0	45.4	55.2	65.4	2.88	0.68	5.23	0	
89	C	45	0	0	0	1	0	0	0	0	45.4	54.7	65.2	3.46	0.87	6.51	0	
90	CRD	40	0	0	0	1	0	0	0	0	46.4	55.9	65.3	2.78	1.09	4.85	0	
91	C	51	0	0	0	0	1	0	0	0	46.7	57.0	67.3	1.94	0.53	4.82	0	
92	C	52	0	0	0	0	1	0	0	0	44.3	54.1	65.6	1.88	0.39	3.28	0	

OBS	DYR3	DYR4	YEAR	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	ACRES1	PSSG1	#PSSG
70	0	0	2	NW	584800	1023700	94500	127300	10500	46200	9232	1881000	5908488	0.318356	3.98568
71	0	0	2	HENSON	55100	205100	64900	25400	1700	23000	1403	375200	897928	0.417855	3.93484
72	0	0	2	BOTTINEAU	89700	265000	77100	33600	13200	25400	1677	504600	1073288	0.470154	3.95314
73	0	0	2	MCHENRY	134400	75800	26000	47900	4800	28000	1879	322588	1202568	0.268178	3.98477
74	0	0		PIERCE	56000	108600	36800	41200	2400	28400	1038	274000	664328	0.412452	3.82228
75	0	0		ROLETTE	11300	122900	44000	18300	200	6200	913	202900	544328	0.347241	3.65159
76	0	0	2	NC	347100	778000	248800	166400	27300	111000	6410	1674200	4422488	0.378581	3.81584
77	0	0	2	CAVALIER	126400	188400	15400	17500	200	5700	1512	496600	967888	0.513186	3.78912
78	0	0	2	GRAND FORKS	266500	39600	134300	23400	2800	15000	1438	487800	928328	0.525513	3.96261
79	0	0	2	NELSON	61100	161100	61300	20900	200	22800	995	333400	636888	0.523522	3.84366
80	0	0	2	PEMBINA	298200	15000	81900	15500	1400	5700	1124	418700	719300	0.582005	3.80284
81	0	0	2	RAMSEY	50900	233700	94000	8700	400	13700	1248	461400	798728	0.502554	4.01500
82	0	0	2	TOWNER	20900	227000	82200	6500	100	7500	1043	344200	667528	0.515660	4.07513
83	0	0	2	WALSH	209600	105700	111600	25400	100	11900	1206	484300	823048	0.588428	3.59471
84	0	0	2	NE	1034000	470700	743300	134900	5200	82300	8648	2966400	5533448	0.536388	3.73429
85	0	0	2	DUNN	11900	4600	4100	4900	100	400	1992	17200	1274888	0.135009	3.20607
86	0	0	2	MCKENZIE	37500	54300	10500	22500	300	700	2735	171100	1759488	0.097249	3.75243
87	0	0	2	MCLEAN	190700	205200	10900	44600	1000	25900	2065	462000	1321688	0.349709	3.97886
88	0	0	2	MERCER	86200	5300	6100	30500	300	2400	1042	134400	666888	0.196137	3.31603
89	0	0	2	OLIVER	46400	3900	4200	20700	200	5000	721	79500	461448	0.172287	3.16863
90	0	0	2	WC	512700	277400	408400	165200	5400	34400	8555	1936400	5475200	0.169240	3.65862
91	0	0	2	EDDY	57500	26800	10600	23200	2000	11500	635	134400	406408	0.330709	3.39956
92	0	0	2	FOSTER	88200	37300	20800	17700	2200	13000	645	179200	412888	0.434109	3.76596

S T A T I S T I C A L A N A L Y S I S S Y S T E M 15:53 TUESDAY, JULE 23, 1981

OBS	COUNTY	SPW	DUMUM	BAMLEY	OATS	WYE	FLAX	AREA	SSG	AREACRES	FSSG	PUUMUM	PSPW	PUA S	PBAMLEY
93	RIDDER	104000	37360	11700	20700	1800	13800	1358	211308	869120	0.243119	4.68	4.12	1.36	2.84
94	SHERIDAN	136500	17700	17400	23100	600	8400	489	223700	632000	0.353419	4.68	4.12	1.36	2.84
95	STUTSMAN	1351100	1212000	62106	43900	9300	16500	2004	548165	1448000	0.405477	4.68	4.12	1.36	2.84
96	WELLS	209600	96200	49800	20400	3900	24200	1249	408168	831360	0.490882	4.68	4.12	1.36	2.84
97	CENTRAL	997800	345500	173300	156800	21600	86300	7148	1781300	4601600	0.387184	4.68	4.12	1.37	2.89
98	BARNES	240840	56106	12280	40940	3409	28190	1479	321500	946560	0.559945	4.75	4.12	1.37	2.89
99	CASS	508400	134500	17660	27200	1800	4700	1749	752800	1114300	0.675257	4.72	4.12	1.37	2.89
100	CRIGGS	104600	24300	5890C	17500	400	11600	718	215300	454400	0.473812	4.72	4.12	1.37	2.89
101	STEELE	164000	26400	9590C	8300	290	13700	710	308588	454400	0.678917	4.72	4.12	1.37	2.89
102	TRAILL	205100	12800	10450C	9100	200	2900	861	336600	551040	0.610865	4.72	4.12	1.37	2.89
103	EAST CENTRAL	1265300	156100	54980	103300	8000	53200	5504	2134750	3525760	0.605458	4.72	4.12	1.37	2.89
104	ADAMS	113300	21600	5500	20780	2400	2600	989	166180	632960	0.262518	4.56	3.98	1.36	2.10
105	BILLINGS	25800	2500	2500	8500	200	.	1139	.	728360	.	4.56	3.98	1.36	2.10
106	BOWMAN	97500	21000	6600	16000	500	1550	1170	143100	748800	0.191106	4.56	3.98	1.36	2.10
107	GOLDEN VALLEY	38600	25900	6400	14200	500	.	1014	.	648960	.	4.56	3.98	1.36	2.10
108	HETTINGER	224000	20800	13600	15600	4400	4400	1134	282600	725760	0.389385	4.56	3.98	1.36	2.10
109	SLOPE	88400	13500	3500	9300	500	1000	1225	116200	784000	0.148214	4.56	3.98	1.36	2.10
110	STARK	168200	17400	9500	40200	800	600	1316	237200	842240	0.281630	4.56	3.98	1.36	2.10
111	SOUTHWEST	753600	143000	47600	124500	9300	10100	7987	1366300	5111680	0.267342	4.56	3.98	1.36	2.10
112	BURLEIGH	189800	17500	11300	48300	1400	15700	1625	284000	1044800	0.271877	4.67	4.18	1.55	2.82
113	EMMONS	208500	24900	8700	55500	800	32400	1503	328400	961920	0.341401	4.67	4.18	1.55	2.82
114	GRANT	145000	13600	7300	38900	2000	1600	1656	206000	1066240	0.193282	4.67	4.18	1.55	2.82
115	MORTON	132300	11800	21100	54600	600	5700	1420	226100	1228800	0.184001	4.67	4.18	1.55	2.82

OBS	LEVEL	COUNTYCO	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7	DCRD8	TEMPAPR	TEMPMAY	TEMPJUNE	PERAPR	PERMAY	PERJUNE	DYR1	DYR2
93	C	53	0	0	0	0	0	0	0	0	46.6	55.7	67.0	1.62	0.92	2.21	0	
94	C	54	0	0	0	0	0	0	0	0	47.1	57.8	67.5	1.68	0.76	4.85	0	
95	C	55	0	0	0	0	0	0	0	0	46.1	56.1	67.2	2.25	0.87	3.84	0	
96	C	56	0	0	0	0	0	0	0	0	47.2	57.3	66.8	2.18	0.75	5.88	0	
97	CND	50	0	0	0	0	0	0	0	0	45.9	56.0	66.8	2.59	0.55	3.72	0	
98	C	61	0	0	0	0	0	0	0	0	44.2	52.9	64.9	1.68	0.88	6.15	0	
99	C	62	0	0	0	0	0	0	0	0	47.3	56.7	68.6	1.32	0.39	2.43	0	
100	C	63	0	0	0	0	0	0	0	0	46.2	57.4	67.9	1.43	0.48	1.42	0	
101	C	64	0	0	0	0	0	0	0	0	46.0	56.3	66.2	1.41	0.34	4.47	0	
102	C	65	0	0	0	0	0	0	0	0	47.1	58.1	68.4	1.84	0.65	4.26	0	
103	CND	60	0	0	0	0	0	0	0	0	46.5	56.5	67.4	1.32	0.47	3.99	0	
104	C	71	0	0	0	0	0	0	0	0	46.7	56.3	66.6	2.23	1.01	5.83	0	
105	C	72	0	0	0	0	0	0	0	0	44.1	55.2	62.9	1.92	1.66	3.44	0	
106	C	73	0	0	0	0	0	0	0	0	45.2	54.4	64.1	1.54	1.02	4.25	0	
107	C	74	0	0	0	0	0	0	0	0	45.5	55.3	64.8	1.92	1.18	4.30	0	
108	C	75	0	0	0	0	0	0	0	0	45.2	54.7	64.6	2.59	1.36	5.07	0	
109	C	76	0	0	0	0	0	0	0	0	45.1	54.8	63.5	2.64	1.55	3.77	0	
110	C	77	0	0	0	0	0	0	0	0	45.7	55.2	64.7	2.77	1.20	4.41	0	
111	CND	70	0	0	0	0	0	0	0	0	45.6	54.8	64.2	2.16	1.55	4.28	0	
112	C	81	0	0	0	0	0	0	0	0	46.3	55.6	67.1	2.84	1.08	2.66	0	
113	C	82	0	0	0	0	0	0	0	0	50.1	58.0	70.6	2.38	0.92	1.88	0	
114	C	83	0	0	0	0	0	0	0	0	45.7	54.8	64.8	3.13	1.69	4.69	0	
115	C	84	0	0	0	0	0	0	0	0	46.7	56.2	65.8	3.00	1.19	4.16	0	

OBS	DYR3	DYR4	YEAR	COUNTY1	SPW1	DUMUM1	BAMLEY1	OATS1	WYE1	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSSG
93	0	0	2	RIDDER	78400	34100	11900	41300	2700	19100	1358	192900	869120	0.221944	3.47748
94	0	0	2	SHERIDAN	131300	18900	16500	29500	1500	16500	489	213200	632960	0.336938	3.64054
95	0	0	2	STUTSMAN	275400	166400	57700	57400	9900	38400	2004	583900	1448960	0.402977	3.82181
96	0	0	2	WELLS	153500	122100	36400	20750	3600	42300	1249	340800	831360	0.477240	3.42836
97	0	0	2	C	784700	392600	171300	189800	21200	140800	7190	1700400	4601600	0.369522	3.76070
98	0	0	2	BARNES	242600	59200	33300	29800	4400	28600	1479	370100	946560	0.391000	3.66582
99	0	0	2	CASS	496500	65100	46100	20200	3200	18500	1749	687600	1114300	0.616980	4.08967
100	0	0	2	CRIGGS	96500	22100	14300	15000	400	14700	718	211000	454400	0.464349	3.58111
101	0	0	2	STEELE	135400	24900	8600	7400	400	20400	710	286100	454400	0.629841	3.54618
102	0	0	2	TRAILL	194800	11700	10100	17300	1400	14600	861	329400	551040	0.597862	3.54442
103	0	0	2	EC	1355400	1882300	537400	965000	97000	103300	5504	1944900	3525760	0.551739	3.66239
104	0	0	2	ADAMS	93500	25400	9400	19200	2200	3600	989	150000	632960	0.236942	3.64771
105	0	0	2	BILLINGS	25700	3400	2500	7400	100	400	1139	40100	728960	0.055018	3.36152
106	0	0	2	BOWMAN	73500	25300	11300	25600	300	400	1170	133400	748800	0.178152	3.42550
107	0	0	2	GOLDEN VALLEY	32500	25200	6400	13100	300	200	1014	72200	648960	0.111255	3.40767
108	0	0	2	HETTINGER	210400	20700	13600	15300	4400	1800	1134	269300	725760	0.371034	3.71057
109	0	0	2	SLOPE	83200	13200	3500	9200	500	400	1225	103000	784000	0.131378	3.71010
110	0	0	2	STARK	157100	17100	9500	39500	800	400	1316	224100	842240	0.266078	3.71267
111	0	0	2	SW	708000	142000	47600	122000	9300	6000	7987	942400	5111680	0.184316	3.69296
112	0	0	2	BURLEIGH	175300	17400	11300	47500	1400	1500	1625	271900	1044800	0.260172	3.71439
113	0	0	2	EMMONS	192000	24600	8700	54000	800	31200	1503	318400	961920	0.331024	3.52264
114	0	0	2	GRANT	133600	11700	7300	37800	2000	1500	1656	193700	1066240	0.181697	3.24078
115	0	0	2	MORTON	122000	11700	21100	53000	600	5400	1420	226400	1228800	0.184245	3.19824

OBS	COUNTY	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AMLACRES	PSSG	PDURUM	PSPW	POATS	PBARLEY
116	SIOUX	40600	6700	5100	8700	100	2300	1103	63200	705900	0.089995	4.07	4.18	1.45	2.02
117	SOUTH CENTRAL	716200	74500	53500	202000	4900	56900	9817	1100000	5002400	0.220172	4.07	4.18	1.45	2.02
118	DICKEY	183900	26700	44300	32200	8200	21500	1143	319000	731520	0.433071	4.07	4.24	1.45	2.02
119	LA MOURE	143300	66500	32400	42000	8000	15300	1136	357500	727000	0.441720	4.07	4.24	1.45	2.02
120	LOGAN	27600	13200	6100	30500	1200	10700	1001	197300	640000	0.307973	4.07	4.24	1.45	2.02
121	MC INTOSH	42600	32600	8200	38000	5700	43200	992	262900	634000	0.414044	4.07	4.24	1.45	2.02
122	RANSOM	21900	20600	38400	27900	6100	3800	861	210700	551000	0.382368	4.07	4.24	1.45	2.02
123	RICHLAND	267400	15800	89900	38800	3700	6500	1449	422100	927300	0.455163	4.07	4.24	1.45	2.02
124	SARGENT	101700	36800	41600	29400	5100	7400	853	220000	545920	0.403455	4.07	4.24	1.45	2.02
125	SOUTHEAST	1138400	211400	252500	231400	38300	116400	7435	1988100	4758000	0.417800	4.07	4.24	1.45	2.02
126	STATE	6040000	3710000	2220000	1320000	1200000	526000	69291	15956000	43394400	0.367857	4.05	4.05	1.45	2.02
127	BURKE	119300	63000	17800	21400	1500	8000	1119	231000	716100	0.322554	2.34	2.47	1.28	2.15
128	DIVIDE	79300	153600	13100	18500	900	5900	1300	271000	832000	0.325721	2.34	2.47	1.28	2.15
129	MOUNTRAIL	81900	166100	15300	31100	2000	5100	1819	381500	1164100	0.258085	2.34	2.47	1.28	2.15
130	RENVILLE	112100	65000	37000	36000	3300	27200	886	281400	567000	0.496626	2.34	2.47	1.28	2.15
131	WARD	189600	172000	44100	75700	2500	35300	2044	520000	1308100	0.397585	2.34	2.47	1.28	2.15
132	WILLIAMS	216800	113300	14700	29100	2300	2000	2004	378200	1320900	0.286307	2.34	2.47	1.28	2.15
133	NORTHWEST	998700	733800	142000	212600	12500	83500	9232	1983100	5908400	0.335636	2.34	2.47	1.28	2.15
134	MERSON	65400	160200	82300	28600	1100	23400	1403	361000	897920	0.402048	2.52	2.68	1.33	2.48
135	BUTTINEAU	116500	157500	18900	51600	9600	66300	1677	511200	1873200	0.272897	2.52	2.68	1.33	2.48
136	MC HENRY	159000	58200	32200	76700	11100	26400	1879	363000	1202500	0.302355	2.52	2.68	1.33	2.48
137	PIERCE	71900	76900	43200	45700	1900	25000	1038	284900	664320	0.428808	2.52	2.68	1.33	2.48
138	ROLETTE	36200	81000	59700	24300	1700	6800	913	209700	584320	0.358879	2.52	2.68	1.33	2.48

OBS	LEVEL	COUNTY	CO	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7	DCRD8	TEMPAPR	TEMPMAY	TEMPJUNE	PERAPR	PERMAY	PERJUNE	DYR1	DYR2
116	C		85	0	0	0	0	0	0	0	1	44.5	56.1	66.8	2.56	1.66	2.37	0	1
117	CND		80	0	0	0	0	0	0	0	0	47.8	55.8	66.9	3.25	1.83	3.71	0	0
118	C		91	0	0	0	0	0	0	0	0	47.9	57.1	68.6	4.34	1.27	2.94	0	0
119	C		92	0	0	0	0	0	0	0	0	46.9	57.5	68.4	1.88	1.63	4.72	0	0
120	C		93	0	0	0	0	0	0	0	0	45.9	53.9	67.6	2.23	1.83	3.71	0	0
121	C		94	0	0	0	0	0	0	0	0	46.1	54.2	67.1	1.75	1.67	3.45	0	0
122	C		95	0	0	0	0	0	0	0	0	47.8	56.9	67.5	1.65	1.17	2.90	0	0
123	C		96	0	0	0	0	0	0	0	0	48.5	57.3	69.0	1.77	0.55	2.68	0	0
124	C		97	0	0	0	0	0	0	0	0	48.8	55.6	69.0	1.75	0.24	2.04	0	0
125	CND		90	0	0	0	0	0	0	0	0	47.8	56.2	68.3	2.08	0.49	2.83	0	0
126	STATE			0	0	0	0	0	0	0	0	45.8	55.7	66.8	2.23	1.77	3.71	0	0
127	C		11		0	0	0	0	0	0	0	50.1	63.5	66.3	0.25	2.70	1.76	0	0
128	C		12		0	0	0	0	0	0	0	50.1	63.5	66.3	0.25	2.70	1.76	0	0
129	C		13		0	0	0	0	0	0	0	47.6	61.5	63.6	0.17	3.52	5.36	0	0
130	C		14		0	0	0	0	0	0	0	48.8	62.9	63.8	0.34	4.88	3.42	0	0
131	C		15		0	0	0	0	0	0	0	48.8	62.9	63.5	0.18	3.62	4.11	0	0
132	C		16		0	0	0	0	0	0	0	48.2	62.8	65.6	0.17	3.44	1.84	0	0
133	CND		10		0	0	0	0	0	0	0	48.2	62.2	64.3	0.30	3.50	3.47	0	0
134	C		21	0		0	0	0	0	0	0	46.8	62.1	63.6	0.24	1.78	2.81	0	0
135	C		22	0		0	0	0	0	0	0	47.4	63.3	63.4	0.30	1.74	2.80	0	0
136	C		23	0		0	0	0	0	0	0	48.2	63.2	63.6	0.16	2.36	2.47	0	0
137	C		24	0		0	0	0	0	0	0	51.3	66.8	64.2	0.09	2.10	3.96	0	0
138	C		25	0		0	0	0	0	0	0	46.4	62.9	61.3	0.04	4.63	3.08	0	0

OBS	DYN3	DYN4	YEAR	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSSG
116	0	0	2	SIOUX	33300	9000	3000	13500	100	1000	103	54900	705920	0.084856	3.44148
117	0	0	2	SC	583700	94700	69200	237400	3900	75900	9817	1004900	5002400	0.212837	3.34990
118	0	0	2	DICKEY	106000	36000	52300	34200	12000	48200	1143	285700	731520	0.390557	3.38884
119	0	0	2	LAMOURE	147300	65800	28500	50400	9300	25600	1136	326900	727000	0.449611	3.65981
120	0	0	2	LOGAN	25700	20000	6500	31800	1700	26900	1001	192600	640000	0.300937	3.66428
121	0	0	2	MCINTOSH	112200	32200	8400	35500	3200	91300	992	262500	634000	0.414038	3.69854
122	0	0	2	RANSOM	18200	19700	36800	23700	8200	4500	861	211100	551000	0.383051	3.63221
123	0	0	2	RICHLAND	213800	16500	84200	32100	6200	16300	1449	369100	927300	0.398016	3.51049
124	0	0	2	SARGENT	16700	36600	35930	31800	5500	15160	853	201600	545920	0.369285	3.61985
125	0	0	2	SE	819900	226800	262500	244200	46100	219400	7435	1834500	4758000	0.385508	3.53365
126	0	0	2	STATE	6400000	4080000	2220000	1500000	135000	815000	69291	15158000	43394400	0.349079	3.60951
127	1	0	3	BURKE	124300	62000	20100	15700	1200	2500	1119	226400	716100	0.316130	2.32060
128	1	0	3	DIVIDE	90400	179300	12400	11500	1600	200	1300	295400	832000	0.355048	2.33648
129	1	0	3	MOUNTRAIL	69500	213100	6700	22100	800	3100	1819	315100	1164100	0.270667	2.28070
130	1	0	3	RENVILLE	118500	97200	22000	14700	1500	11400	886	270800	567000	0.477560	2.32240
131	1	0	3	WARD	185100	271800	24400	40500	700	16400	2044	544400	1308100	0.416157	2.29358
132	1	0	3	WILLIAMS	244300	110800	9100	19400	6200	3500	2004	389300	1320900	0.294716	2.30468
133	1	0	3	NORTHWEST	832100	434800	99700	128400	7800	38100	9232	2041400	5908400	0.345583	2.31824
134	1	0	3	MERSON	44300	149700	80000	21400	2100	16000	1403	413500	897920	0.460504	2.46947
135	1	0	3	BUTTINEAU	147400	218000	65200	23700	7800	23700	1677	486200	1873200	0.259389	2.49278
136	1	0	3	MC HENRY	147600	67700	16700	51600	7900	16200	1879	347700	1202500	0.289133	2.41681
137	1	0	3	PIERCE	90900	102700	30100	24900	3400	17400	1038	275400	664320	0.414512	2.42280
138	1	0	3	ROLETTE	22500	121000	44100	21600	1000	18000	913	228400	584320	0.391566	2.39804

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S T A T I S T I C A L   A N A L Y S I S   S Y S T E M                                         15:51 TUESDAY, JUNE 23, 1981

OBS  COUNTY              SPW     DURUM   BARLEY    OATS     RYE    FLAX   AREA      SSG     ACRES      PSSG    PDURUM  PSPW  POATS  PBARLEY

139  NORTH CENTRAL     409000   533800   327100   220900   25400  147900  6910   1730100   4422400  0.391213   2.52   2.28   1.31   2.40
140  CAVALIER          206800   118900   224900    17900     400    9400  1512    577900    967600  0.597293   2.52   2.66   1.31   2.33
141  GRAND FORKS       235600     6900   162200    26200    3100   13600  1438    447600    920320  0.486353   2.52   2.66   1.31   2.33
142  NELSON             71400   117700    81500    25600     300   22900   995    319400    636800  0.501570   2.52   2.66   1.31   2.33
143  PEMBINA           244200     5700   110100    13200    4500    5700  1124    387400    719360  0.538534   2.52   2.66   1.31   2.33
144  RAMSEY             77700   160700   134900    12000    1500   15300  1240    409000    799720  0.513071   2.52   2.66   1.31   2.33
145  TOWNER             28900   189900   131700    10300     700    8300  1043    369000    667520  0.553391   2.52   2.66   1.31   2.33
146  WALSH             210300    62400   140600    21400       .    9000  1286         .    823040   .         2.52   2.66   1.31   2.33
147  NORTHEAST        1070900   678200   985000   127200   10500   84000  8646   2956400   5533440  0.534279   2.52   2.66   1.31   2.33
148  DUNN              127100     1100    11400    42800     400     600  1992    183400   1274000  0.143957   2.49   2.60   1.31   2.17
149  MC KENZIE         109700    28200    13800    28600     400    2600  2735    183300   1759400  0.104719   2.49   2.60   1.31   2.17
150  MC LEAN           213500   165600    18200    52900    6400   28200  2065    484400   1321600  0.366428   2.49   2.60   1.31   2.17
151  MERCER             96100     2300     5100    32500       .    3400  1042         .    666000   .         2.49   2.60   1.31   2.17
152  OLIVER             52100      700     7900    23000     100    5600   721     89400    461440  0.193741   2.49   2.60   1.31   2.17
153  WEST CENTRAL      598500   197900    56400   179800    7300   40400  8555   1080300   5475200  0.197300   2.49   2.60   1.31   2.17
154  EDDY               51700    22600    16800    24300    3300   12500   635    131200    406400  0.322835   2.53   2.76   1.40   2.32
155  FOSTER             86000    15900    21700    20700    1300   10700   645    157100    412800  0.380572   2.53   2.76   1.40   2.32
156  KIDDER             88000    23100    14100    51300    3100   11100  1358    191500    869120  0.220338   2.53   2.76   1.40   2.32
157  SHERIDAN          138500    11700    14000    28100     300   12000   989    205200    632960  0.324191   2.53   2.76   1.40   2.32
158  STUTSMAN          299000    84000    71300    79400    4200   29900  2264    560000   1448960  0.372619   2.53   2.76   1.40   2.32
159  WELLS             213100    51500    53900    35100    1900   33500  1299    389000    831360  0.467900   2.53   2.76   1.40   2.32
160  CENTRAL           878700   208800   191800   238900   14100  110300  7190   1642000   4601600  0.356903   2.53   2.76   1.40   2.32
161  BARNES            246800    27200   136200    50100    1000   24200  1479    485500    946560  0.512910   2.56   2.76   1.43   2.26

OBS LEVEL COUNTYCO DCRD1 DCRD2 DCRD3 DCRD4 DCRD5 DCRD6 DCRD7 DCRD8 TEMPAPR TEMPMAY TEMPJUNE PERAPR PERMAY PERJUNE DYR1 DYR2

139  CRD      20      0     1     0     0     0     0     0     0     47.8    63.4     63.5    0.19   3.88   2.90    0    0
140  C        31      0     0     1     0     0     0     0     0     46.4    64.2     62.0    0.14   3.75   2.79    0    0
141  C        32      0     0     1     0     0     0     0     0     49.1    64.5     65.9    0.32   4.42   2.19    0    0
142  C        33      0     0     1     0     0     0     0     0     45.5    63.0     63.3    0.14   3.00   1.97    0    0
143  C        34      0     0     1     0     0     0     0     0     49.4    66.3      .      0.11   3.71   1.90    0    0
144  C        35      0     0     1     0     0     0     0     0     47.2    64.2     63.9    0.16   3.73   2.55    0    0
145  C        36      0     0     1     0     0     0     0     0     46.4    63.6     61.7    0.09   4.19   2.40    0    0
146  C        37      0     0     1     0     0     0     0     0     50.9    67.3     61.0    0.14   5.06   2.35    0    0
147  CRD      30      0     0     1     0     0     0     0     0     48.2    65.3     64.3    0.10   4.10   2.49    0    0
148  C        41      0     0     0     1     0     0     0     0     47.1    61.0     65.1    0.19   4.12   4.02    0    0
149  C        42      0     0     0     1     0     0     0     0     51.1    65.5     67.4    0.29   2.62   2.61    0    0
150  C        43      0     0     0     1     0     0     0     0     49.0    63.2     65.0    0.05   3.42   2.20    0    0
151  C        44      0     0     0     1     0     0     0     0     48.4    63.3     66.1    0.16   3.18   1.11    0    0
152  C        45      0     0     0     1     0     0     0     0     48.9    63.2     66.0    0.00   4.00   2.34    0    0
153  CRD      40      0     0     0     1     0     0     0     0     49.5    63.6     65.0    0.14   2.80   2.70    0    0
154  C        51      0     0     0     0     1     0     0     0     49.5    65.9     67.1    0.26   3.03   1.00    0    0
155  C        52      0     0     0     0     1     0     0     0     47.4    62.8     65.1    0.28   3.63   1.82    0    0
156  C        53      0     0     0     0     1     0     0     0     51.4    64.3     66.1    0.58   2.35   2.55    0    0
157  C        54      0     0     0     0     1     0     0     0     50.9    65.5     67.5    0.14   1.92   2.59    0    0
158  C        55      0     0     0     0     1     0     0     0     50.1    64.5     66.7    0.60   2.91   2.35    0    0
159  C        56      0     0     0     0     1     0     0     0     49.1    65.6     66.5    0.36   3.75   1.26    0    0
160  CRD      50      0     0     0     0     1     0     0     0     47.1    64.5     66.1    0.30   3.08   1.90    0    0
161  C        61      0     0     0     0     0     1     0     0     47.2    63.4     64.2    0.35   3.05   2.35    0    0

OBS DYR3 DYR4 YEAR   COUNTY1             SPW1   DURUM1  BARLEY1    OATS1    RYE1   FLAX1  AREA1      SSG1   TACRES1    PSSG1      WPSSG

139   1    0    3    NORTH CENTRAL     543100   709100   236100   148200   222 0   93400   6910   1752100   4422400  0.396100  2.44082
140   1    0    3    CAVALIER          142600   170200   163000    17000     400    2100   1512    502200    967600  0.518973  2.42571
141   1    0    3    GRAND FORKS       301700    33300   153200    17200    1400    8000   1438    515300    920320  0.559918  2.47350
142   1    0    3    NELSON             73600   156000    56000    24400     100   13900    995    323600    636800  0.508166  2.41564
143   1    0    3    PEMBINA           324800    10700    70000     7700    4200    2500   1124    423700    719360  0.588998  2.55837
144   1    0    3    RAMSEY             82500   230200   102000     5700     600    5900   1240    427800    799720  0.534355  2.45909
145   1    0    3    TOWNER             34400   226600    86100     5900     400    3700   1043    357100    667520  0.534965  2.44125
146   1    0    3    WALSH             255600    86900   119500    10800     100    5000   1286    484000    823040  0.588064  2.47949
147   1    0    3    NORTHEAST        1220200   922700   751500    91500    5800   41000   8646   3032700   5533440  0.548066  2.44467
148   1    0    3    DUNN              126000     2800     7800    40500     100    1000   1992    178200   1274000  0.139870  2.20032
149   1    0    3    MC KENZIE         104600    42700     7100    25300     300    1400   2735    181400   1759400  0.103103  2.37523
150   1    0    3    MC LEAN           229300   182400    12800    29700    3800   13000   2065    471800   1321600  0.356992  2.45935
151   1    0    3    MERCER             93700     1700     3600    22600     100    3200   1042    124900    666000  0.187540  2.34598
152   1    0    3    OLIVER             59500     1300     5400    15600     100   11200    721     93100    461440  0.201760  2.32325
153   1    0    3    WEST CENTRAL      613100   230900    36700   133700    4400   30000   8555   1049400   5475200  0.191664  2.38938
154   1    0    3    EDDY               73000    30600    13000    26000    2100    9100    635    147600    406400  0.363001  2.40744
155   1    0    3    FOSTER            119600    40500    20300     8700    3900    9300    645    202300    412800  0.490068  2.60896
156   1    0    3    KIDDER            104000    39300    11700    40700    1800   13000   1358    211300    869120  0.243119  2.49467
157   1    0    3    SHERIDAN          156500    17700    17400    23100     600    8400    989    223700    632960  0.353419  2.55905
158   1    0    3    STUTSMAN          335100   121200    62100    43900    9300   16300   2264    588100   1448960  0.405877  2.55565
159   1    0    3    WELLS             209600    96200    48800    20400    3400   29200   1299    408100    831360  0.490882  2.56475
160   1    0    3    CENTRAL           997000   345500   173300   156800   21600   86300   7190   1781300   4601600  0.387104  2.53451
161   1    0    3    BARNES            290800    56100   112200    40900    3400   18100   1479    521500    946560  0.550942  2.51657
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S T A T I S T I C A L A N A L Y S I S S Y S T E M 15:53 TUESDAY, JUNE 23, 1981

OBS	COUNTY	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	POURUM	PSPW	POATS	PBARLEY
62	CASS	336100	12900	187800	65200	1500	14300	1742	597800	1119360	0.534055	2.56	2.70	[illegible]	2.24
63	GRIGGS	104400	12400	53600	22600	200	6500	718	214500	454400	0.472051	2.56	2.70	[illegible]	2.24
64	STEELE	64500	8300	26900	8300	.	2500	718	.	454400	.	2.56	2.70	[illegible]	2.24
65	TRAILL	205100	12800	104500	9100	200	4900	861	.	551900	.	2.56	2.70	[illegible]	2.24
66	EAST CENTRAL	1265300	154100	549100	103000	6000	53400	5509	2134700	3525700	0.605458	2.56	2.70	[illegible]	2.24
67	ADAMS	113300	21600	5500	20700	2400	2600	989	166100	632900	0.262418	2.56	2.70	[illegible]	2.24
68	HILLINGS	25800	2500	2500	8500	200	.	139	.	728900	.	2.56	2.70	[illegible]	2.24
69	BOWMAN	97500	21000	6600	16000	500	1500	1170	143100	748800	0.191106	2.56	2.70	[illegible]	2.24
70	GOLDEN VALLEY	36600	25900	6400	14200	500	.	1014	.	648900	.	2.56	2.70	[illegible]	2.24
71	METTINGER	224000	20600	13600	15600	4400	4400	1134	282600	725700	0.389385	2.56	2.70	[illegible]	2.24
72	SLOPE	88400	13500	3500	9300	500	1000	225	116200	784000	0.148214	2.56	2.70	[illegible]	2.24
73	STARK	168200	17900	9500	40200	800	800	1316	237200	842200	0.281630	2.56	2.70	[illegible]	2.24
74	SOUTHWEST	753800	123800	47600	126500	9300	11100	7987	1068300	5111600	0.209092	2.56	2.70	[illegible]	2.24
75	HURLEIGH	199800	17500	11300	48300	11100	15700	1625	284000	1040000	0.273077	2.56	2.70	[illegible]	2.24
76	EMMONS	208500	24900	8700	53500	800	32000	1583	328400	961900	0.341401	2.56	2.70	[illegible]	2.24
77	GRANT	145900	13600	7300	30900	2069	1200	1666	206000	1000200	0.193282	2.56	2.70	[illegible]	2.24
78	MORTON	132300	11800	21100	54000	600	5700	1420	226100	1220800	0.185051	2.56	2.70	[illegible]	2.24
79	SIOUX	40600	6700	5100	8700	100	2300	1101	63500	785900	0.080856	2.56	2.70	[illegible]	2.24
80	SOUTH CENTRAL	716200	74500	53500	202600	4400	56400	7817	1108000	5002800	0.221472	2.56	2.70	[illegible]	2.24
81	DICKEY	183900	24700	24300	32200	8200	21500	1143	310800	731500	0.424871	2.56	2.70	[illegible]	2.24
82	LA MOURE	193300	26500	32400	42000	8000	15300	1136	357500	727800	0.491128	2.56	2.70	[illegible]	2.24
83	LOGAN	127600	13200	6100	30500	1600	10700	1001	197300	640600	0.307973	2.56	2.70	[illegible]	2.24
84	MC INTOSH	142600	32600	8200	30600	5700	43200	992	262900	634800	0.414094	2.56	2.70	[illegible]	2.24

OBS	LEVEL	COUNTYCO	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7	DCRD8	TEMPAPR	TEMPMAY	TEMPJUNE	PERAPR	PERMAY	PERJUNE	DYR1	DYR2
62	C	62	0	0	0	0	0	1	0	0	50.5	64.7	67.2	0.84	5.08	[illegible]	0	0
63	C	63	0	0	0	0	0	1	0	0	50.4	64.8	66.9	0.84	5.08	[illegible]	0	0
64	C	64	0	0	0	0	0	1	0	0	49.6	65.1	66.1	0.84	5.08	[illegible]	0	0
65	C	65	0	0	0	0	0	1	0	0	50.6	66.2	68.0	0.84	5.08	[illegible]	0	0
66	CND	66	0	0	0	0	0	1	0	0	49.9	65.2	66.8	0.84	5.08	[illegible]	0	0
67	C	71	0	0	0	0	0	1	0	0	49.3	64.2	66.8	0.84	5.08	[illegible]	0	0
68	C	72	0	0	0	0	0	1	0	0	48.6	64.2	65.7	0.84	5.08	[illegible]	0	0
69	C	73	0	0	0	0	0	1	0	0	48.9	64.1	65.9	0.84	5.08	[illegible]	0	0
70	C	74	0	0	0	0	0	1	0	0	49.2	64.1	65.9	0.84	5.08	[illegible]	0	0
71	C	75	0	0	0	0	0	1	0	0	49.4	64.5	66.2	0.84	5.08	[illegible]	0	0
72	C	76	0	0	0	0	0	1	0	0	49.4	64.5	66.2	0.84	5.08	[illegible]	0	0
73	C	77	0	0	0	0	0	1	0	0	49.4	64.5	66.2	0.84	5.08	[illegible]	0	0
74	CND	78	0	0	0	0	0	1	0	0	48.8	64.2	65.8	0.84	5.08	[illegible]	0	0
75	C	81	0	0	0	0	0	0	0	0	49.1	64.2	65.8	0.84	5.08	[illegible]	0	0
76	C	82	0	0	0	0	0	0	0	0	51.0	65.1	67.1	0.84	5.08	[illegible]	0	0
77	C	83	0	0	0	0	0	0	0	0	47.9	64.1	65.2	0.84	5.08	[illegible]	0	0
78	C	84	0	0	0	0	0	0	0	0	50.2	65.1	67.1	0.84	5.08	[illegible]	0	0
79	C	85	0	0	0	0	0	0	0	0	51.0	65.1	67.1	0.84	5.08	[illegible]	0	0
80	CND	88	0	0	0	0	0	0	0	0	49.8	64.2	66.2	0.84	5.08	[illegible]	0	0
81	C	91	0	0	0	0	0	0	0	0	52.1	65.1	67.1	0.84	5.08	[illegible]	0	0
82	C	92	0	0	0	0	0	0	0	0	50.8	65.1	66.8	0.84	5.08	[illegible]	0	0
83	C	93	0	0	0	0	0	0	0	0	49.4	64.1	66.2	0.84	5.08	[illegible]	0	0
84	C	94	0	0	0	0	0	0	0	0	49.4	64.1	66.2	0.84	5.08	[illegible]	0	0

OBS	DYR3	DYR4	YEAR	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSSG
62	1	0	3	CASS	5008800	385800	1796800	272800	18800	69000	1749	7528000	11193600	0.672527	2.500831
63	1	0	3	GRIGGS	1044000	244300	569000	175000	4800	11900	718	2153000	4544000	0.473816	2.568167
64	1	0	3	STEELE	1644000	264000	959000	83000	2000	13700	718	3885000	4544000	0.670819	2.561184
65	1	0	3	TRAILL	2051000	128000	1045000	91000	2000	49000	861	3306000	5511900	0.810045	2.555815
66	1	0	3	EAST CENTRAL	12653000	1541000	5491000	1030000	60000	534000	5509	21347000	35257000	0.605458	2.560668
67	1	0	3	ADAMS	1133000	216000	55000	207000	24000	26000	989	1661000	6329000	0.262418	2.353194
68	1	0	3	HILLINGS	258000	25000	25000	85000	2000	.	139	.	728900	.	2.563787
69	1	0	3	BOWMAN	975000	210000	66000	160000	5000	15000	1170	1431000	7488000	0.191106	2.564211
70	1	0	3	GOLDEN VALLEY	366000	259000	64000	142000	5000	.	1014	.	6489000	.	2.564083
71	1	0	3	METTINGER	2240000	206000	136000	156000	44000	44000	1134	2826000	7257000	0.389385	2.560811
72	1	0	3	SLOPE	884000	135000	35000	93000	5000	10000	225	1162000	7840000	0.148214	2.561473
73	1	0	3	STARK	1682000	179000	95000	402000	8000	8000	1316	2372000	8422000	0.281630	2.561373
74	1	0	3	SOUTHWEST	7538000	1238000	476000	1265000	93000	111000	7987	10683000	51116000	0.209092	2.561211
75	1	0	3	HURLEIGH	1998000	175000	113000	483000	111000	157000	1625	2840000	10400000	0.273077	2.561110
76	1	0	3	EMMONS	2085000	249000	87000	535000	8000	320000	1583	3284000	9619000	0.341401	2.561000
77	1	0	3	GRANT	1459000	136000	73000	309000	20690	12000	1666	2060000	10002400	0.193282	2.560915
78	1	0	3	MORTON	1323000	118000	211000	540000	6000	57000	1420	2261000	12208000	0.185051	2.573360
79	1	0	3	SIOUX	406000	67000	51000	87000	1000	23000	1101	635000	7859000	0.080856	2.560165
80	1	0	3	SOUTH CENTRAL	7162000	745000	535000	2026000	44000	564000	7817	11080000	50028000	0.221472	2.565110
81	1	0	3	DICKEY	1839000	247000	243000	322000	82000	215000	1143	3106000	7315000	0.424871	2.551132
82	1	0	3	LA MOURE	1933000	265000	324000	420000	80000	153000	1136	3575000	7278000	0.491128	2.553943
83	1	0	3	LOGAN	1276000	132000	61000	305000	16000	107000	1001	1973000	6406000	0.307973	2.557397
84	1	0	3	MC INTOSH	1426000	326000	82000	306000	57000	432000	992	2629000	6348000	0.414094	2.567880

STATISTICAL ANALYSIS SYSTEM 15:53 TUESDAY, JUNE 23, 1981

OBS	COUNTY	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREALRES	PSSG	PDURUM	PSPW	POATS	PBARLEY
185	RANSOM	87500	4100	31800	46200	1000	5490	861	176000	551040	0.320040	2.54	2.83	1.48	2.18
186	RICHLAND	184700	3100	83000	63500	2100	11000	1449	348000	927360	0.375127	2.54	2.83	1.48	2.18
187	SARGENT	88300	10900	33700	43400	2600	13100	853	192000	545920	0.351708	2.54	2.83	1.48	2.18
188	SOUTHEAST	918100	73000	244700	368800	20600	105200	7435	1794000	4758400	0.377102	2.54	2.83	1.48	2.18
189	STATE	7200000	2600000	2690000	1900000	110000	900000	69281	15300000	44339840	0.345062	2.54	2.83	1.37	2.26
190	BURKE	103100	13900	17200	15600	4200	4700	1119	218700	716160	0.305379	2.63	2.26	0.92	1.45
191	DIVIDE	41000	176200	14400	14200	900	3600	1308	250300	832000	0.300841	2.63	2.26	0.92	1.45
192	MOUNTRAIL	41900	221300	18800	29300	2800	2100	1819	368200	1164160	0.294740	2.63	2.26	0.92	1.45
193	MENVILLE	98000	86300	42100	29700	8100	9600	886	256000	567040	0.452078	2.63	2.26	0.92	1.45
194	WARD	134400	250700	42300	45900	6100	24400	2044	503800	1304160	0.385121	2.63	2.26	0.92	1.45
195	WILLIAMS	197100	111100	10000	23800	4300	1000	2064	347300	1320960	0.262915	2.63	2.26	0.92	1.45
196	NORTHWEST	607500	919500	136800	149500	26400	45400	9232	1885100	5908480	0.319050	2.63	2.26	0.92	1.45
197	MENSON	44400	192500	63400	14900	3000	9500	1403	327700	897920	0.364955	2.63	2.26	0.92	1.45
198	BOTTINEAU	84900	209300	94200	16200	10900	24700	1677	448400	1073280	0.417598	2.63	2.26	0.93	1.58
199	MC HENRY	150400	76000	36700	54100	18100	19200	1879	355300	1202560	0.295453	2.63	2.26	0.93	1.58
200	PIERCE	76500	95500	39300	37100	3100	10900	1038	270400	664320	0.407033	2.63	2.26	0.93	1.58
201	ROLETTE	17300	104500	52100	10700	3900	4600	913	193100	584320	0.330470	2.63	2.26	0.93	1.58
202	NORTH CENTRAL	373500	678600	285700	133000	47400	76900	6918	1794700	4422400	0.360596	2.63	2.26	0.93	1.58
203	CAVALIER	157900	134200	215900	55000	3400	3800	1516	517600	967680	0.534888	2.63	2.26	0.93	1.58
204	GRAND FORKS	217400	10600	157500	14300	2100	7200	1438	469100	920320	0.509644	2.63	2.26	0.93	1.58
205	NELSON	52600	135100	82300	10000	300	12100	995	292400	636800	0.459171	2.63	2.26	0.93	1.58
206	PEMBINA	219900	7300	102100	4600	3600	3600	1124	341100	719360	0.474117	2.63	2.26	0.94	1.59
207	RAMSEY	53300	197200	116700	6000	1200	6000	1248	388400	798720	0.476262	2.63	2.39	0.94	1.59

OBS	LEVEL	COUNTYCO	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7	DCRD8	TEMPAPR	TEMPMAY	TEMPJUNE	PEPAPR	PMAY	PERJUNE	DYR1	DYR2
185	C	95	0	0	0	0	0	0	0	0	51.7	66.0	67.2	1.14	5.58	2.30	0	0
186	C	96	0	0	0	0	0	0	0	0	50.5	65.3	66.6	1.62	5.62	2.33	0	0
187	C	97	0	0	0	0	0	0	0	0	49.9	65.2	66.1	1.82	5.88	2.33	0	0
188	CHD	90	0	0	0	0	0	0	0	0	50.4	64.5	64.6	1.05	5.53	2.50	0	0
189	STATE	1	0	0	0	0	0	0	0	0	49.1	63.8	65.6	1.38	5.53	2.59	0	0
190	C	1	0	0	0	0	0	0	0	0	42.2	58.3	64.6	1.52	5.55	4.50	0	0
191	C	2	0	0	0	0	0	0	0	0	42.2	58.3	64.6	1.82	5.55	4.59	0	0
192	C	3	0	0	0	0	0	0	0	0	44.1	57.9	63.3	0.88	4.14	3.16	0	0
193	C	4	0	0	0	0	0	0	0	0	41.7	58.4	63.5	0.88	4.40	3.00	0	0
194	C	5	0	0	0	0	0	0	0	0	41.3	58.1	62.5	0.88	4.31	2.77	0	0
195	C	6	0	0	0	0	0	0	0	0	41.9	56.6	63.8	0.97	4.79	2.77	0	0
196	CHD	10	0	0	0	0	0	0	0	0	41.4	57.4	62.6	0.83	4.06	2.88	0	0
197	C	21	0	0	0	0	0	0	0	0	37.7	57.6	65.5	1.55	2.55	2.88	0	0
198	C	22	0	0	0	0	0	0	0	0	41.2	58.5	62.4	0.88	5.28	2.68	0	0
199	C	23	0	0	0	0	0	0	0	0	41.6	58.4	63.2	0.82	3.98	2.26	0	0
200	C	24	0	0	0	0	0	0	0	0	42.7	60.6	65.4	0.88	5.34	2.97	0	0
201	C	25	0	0	0	0	0	0	0	0	37.5	56.7	60.6	0.50	3.64	2.58	0	0
202	CHD	20	0	0	0	0	0	0	0	0	38.8	58.4	62.8	0.74	3.48	2.61	0	0
203	C	31	0	0	0	0	0	0	0	0	38.6	58.0	62.8	1.23	3.15	2.36	0	0
204	C	32	0	0	0	0	0	0	0	0	41.4	59.2	63.8	0.87	5.18	2.53	0	0
205	C	33	0	0	0	0	0	0	0	0	41.4	59.2	63.8	0.87	5.18	2.53	0	0
206	C	34	0	0	0	0	0	0	0	0	39.3	58.4	62.5	1.02	4.73	2.36	0	0
207	C	35	0	0	0	0	0	0	0	0	40.6	57.6	62.6	1.15	2.52	2.83	0	0

OBS	DYR3	DYR4	YEAR	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSSG
185	.	0	3	RANSOM	121900	20600	30400	27900	6100	3800	861	218700	551040	0.382368	2.51427
186	.	0	3	RICHLAND	267400	15800	89900	38800	3700	6500	1449	422100	927360	0.455163	2.54984
187	.	0	3	SARGENT	101700	36000	41200	24400	5100	7400	853	262000	545920	0.484455	2.66077
188	.	0	3	SOUTHEAST	1138400	211400	252500	231400	38000	116400	7435	1988100	4758400	0.417809	2.53678
189	.	0	3	STATE	8080000	3710000	2200000	1320000	120000	526000	69281	15950800	44339840	0.359857	2.44766
190	0	.	4	BURKE	114300	63000	17800	21400	1500	8000	1119	231800	716160	0.323554	2.17068
191	0	.	4	DIVIDE	79000	153600	13100	16500	900	5900	1308	271900	832000	0.326721	2.34112
192	0	.	4	MOUNTRAIL	81900	166100	15300	31100	2000	5100	1819	301500	1164160	0.258905	2.24510
193	0	.	4	MENVILLE	112100	65000	37400	36800	3300	27200	886	281600	567040	0.496261	2.03986
194	0	.	4	WARD	189600	172800	44100	75700	2500	35300	2044	520000	1308160	0.397505	2.10015
195	0	.	4	WILLIAMS	216800	113300	14700	29100	2300	2000	2064	378200	1320960	0.286307	2.23098
196	0	.	4	NORTHWEST	798700	733800	142000	212600	12500	83500	9232	1983100	5908480	0.335636	2.19196
197	0	.	4	MENSON	65400	160200	82300	26600	1100	23400	1403	361800	897920	0.402040	2.14219
198	0	.	4	BOTTINEAU	116500	157500	109700	51600	9600	66300	1677	511200	1073280	0.476297	2.05445
199	0	.	4	MC HENRY	159000	58200	32200	76700	11100	26400	1879	363600	1202560	0.302355	1.96076
200	0	.	4	PIERCE	91900	76900	43200	45700	1900	25000	1038	284600	664320	0.428408	2.02199
201	0	.	4	ROLETTE	36200	81000	59700	24300	1700	6800	913	209700	584320	0.358874	2.02774
202	0	.	4	NORTH CENTRAL	469000	533800	327100	226900	25400	147200	6918	1730100	4422400	0.391213	2.04497
203	0	.	4	CAVALIER	206800	118900	224900	17900	400	9000	1516	577900	967680	0.597202	2.07806
204	0	.	4	GRAND FORKS	235600	6900	162200	26200	3100	13600	1438	447600	920320	0.486353	2.00454
205	0	.	4	NELSON	71400	117700	81500	25600	300	22900	995	319400	636800	0.501570	2.13994
206	0	.	4	PEMBINA	248200	5700	110100	13200	4500	3700	1124	387400	719360	0.538534	2.10917
207	0	.	4	RAMSEY	77700	168700	134000	12600	1500	15400	1248	409800	798720	0.513071	2.17375

S T A T I S T I C A L A N A L Y S I S S Y S T E M 15:53 TUESDAY, JUNE 23, 1981

OBS	COUNTY	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	PDURUM	PSPW	POATS	PBARLEY
208	TOWNER	12300	195000	106100	7200	600	7000	1043	3238000	667520	0.500048	2.63	2.39	0.94	1.59
209	WALSH	205900	54100	128600	9500	200	6500	1286	2403900	823040	0.498742	2.63	2.39	0.94	1.59
210	NORTHEAST	923400	733500	909200	57100	8300	46000	6646	26783800	5533440	0.484821	2.63	2.39	0.94	1.59
211	DUNN	10700	2000	10600	35000	300	200	1992	1794400	1274880	0.140876	2.61	2.38	0.93	1.56
212	MC KENZIE	103800	5400	12800	32600	200	900	2735	2818800	1750400	0.115288	2.61	2.38	0.93	1.56
213	MC LEAN	159800	179600	15800	67900	8500	14600	2065	4662200	1321600	0.352754	2.61	2.38	0.93	1.56
214	MERCER	91000	1700	4800	29000	100	1600	1042	1288800	666880	0.193138	2.61	2.38	0.93	1.56
215	OLIVER	46900	1500	7100	17600	.	5700	721	.	461440	.	2.61	2.38	0.93	1.56
216	WEST CENTRAL	572200	236200	52100	173500	9200	22000	8555	1065800	75200	0.194513	2.61	2.38	0.93	1.56
217	EDDY	50100	28500	15500	15600	4700	5600	635	1220000	80480	0.255276	2.84	2.59	0.91	1.49
218	FOSTER	31100	20800	17600	8600	7900	2700	645	1317900	412880	0.340060	2.84	2.59	0.91	1.49
219	KIDDER	89300	17800	15200	39400	6200	8300	1358	1765800	869120	0.263079	2.84	2.59	0.91	1.49
220	SHERIDAN	123800	19700	14200	25600	2100	9300	989	1941100	632960	0.366654	2.84	2.59	0.91	1.49
221	STUTSMAN	223000	131900	48700	40800	14300	12300	2264	4633000	1448960	0.319548	2.84	2.59	0.91	1.49
222	WELLS	189100	114600	58400	18400	9800	15000	1299	2486100	831360	0.488477	2.84	2.59	0.91	1.49
223	CENTRAL	756400	332500	161900	147800	45000	54000	7198	14497000	4601600	0.329452	2.84	2.59	0.91	1.49
224	BARNES	224500	31600	126500	24000	1600	13600	1479	4221000	946560	0.445614	2.91	2.51	0.96	1.51
225	CASS	269300	38700	191200	26700	1700	4500	1749	5311100	1119360	0.474468	2.91	2.51	0.96	1.51
226	GRIGGS	95300	14000	48700	11700	800	8800	710	1793000	454400	0.394586	2.91	2.51	0.96	1.51
227	STEELE	126400	7760	99300	3100	400	9400	710	2445500	454400	0.542474	2.91	2.51	0.96	1.51
228	TRAILL	151800	8100	129400	10800	200	5200	861	3055500	551040	0.554406	2.91	2.51	0.96	1.51
229	EAST CENTRAL	866500	100100	595100	80300	4700	41500	5509	16888200	3525760	0.478819	2.91	2.51	0.96	1.51
230	ADAMS	89600	27200	6700	18700	1100	900	989	1442800	632960	0.227819	2.75	2.34	1.05	1.49

OBS	LEVEL	COUNTYCO	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7	DCRD8	TEMPAPR	TEMPMAY	TEMPJUNE	PERAPR	PERMAY	PERJUNE	DYR1	DYR2
208	C	36	0	0	.	0	0	0	0	0	39.1	57.4	61.7	0.87	3.40	1.47	0	0
209	C	37	0	0	.	0	0	0	0	0	42.8	61.5	65.9	0.95	2.71	2.17	0	0
210	CRD	38	0	0	.	0	0	0	0	0	40.8	59.2	63.7	1.00	2.38	1.07	0	0
211	C	41	0	0	.	0	0	0	0	0	40.6	57.1	63.5	1.58	4.92	3.06	0	0
212	C	42	0	0	.	0	0	0	0	0	41.7	58.4	65.0	0.72	6.78	3.68	0	0
213	C	43	0	0	.	0	0	0	0	0	41.7	58.1	62.7	1.54	2.21	3.44	0	0
214	C	44	0	0	.	0	0	0	0	0	42.4	58.0	62.7	1.73	2.20	2.50	0	0
215	C	45	0	0	.	0	0	0	0	0	42.3	57.8	63.4	1.72	2.17	3.40	0	0
216	CRD	40	0	0	.	0	0	0	0	0	42.3	57.8	63.3	1.51	2.36	3.59	0	0
217	C	51	0	0	.	0	0	0	0	0	42.3	60.4	65.2	1.73	2.68	2.04	0	0
218	C	52	0	0	.	0	0	0	0	0	40.5	57.4	62.3	1.68	2.78	2.97	0	0
219	C	53	0	0	.	0	0	0	0	0	42.3	57.8	63.3	1.78	2.77	3.37	0	0
220	C	54	0	0	.	0	0	0	0	0	42.4	59.3	65.1	1.12	3.35	3.74	0	0
221	C	55	0	0	.	0	0	0	0	0	41.8	58.6	64.6	0.97	2.28	4.02	0	0
222	C	56	0	0	.	0	0	0	0	0	42.8	59.4	65.8	1.59	3.39	1.56	0	0
223	CRD	50	0	0	.	0	0	0	0	0	41.7	58.3	63.8	1.46	3.17	3.31	0	0
224	C	61	0	0	.	0	0	0	0	0	40.5	57.3	62.6	1.12	3.06	2.58	0	0
225	C	62	0	0	.	0	0	0	0	0	42.5	59.2	65.2	1.16	2.51	3.78	0	0
226	C	63	0	0	.	0	0	0	0	0	41.8	60.1	65.7	1.37	2.35	2.79	0	0
227	C	64	0	0	.	0	0	0	0	0	41.8	58.1	64.8	1.85	2.17	3.42	0	0
228	C	65	0	0	.	0	0	0	0	0	42.5	60.4	66.8	1.24	2.24	3.26	0	0
229	CRD	60	0	0	.	0	0	0	0	0	41.7	59.1	64.9	2.17	4.58	4.87	0	0
230	C	71	0	0	.	0	0	0	0	0	41.5	65.7	62.7	2.17	4.58	4.87	0	0

OBS	DYR3	DYR4	YEAR	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSSG
208	0	1	4	TOWNER	28400	189900	131700	19300	700	8300	1643	369800	667520	0.553991	2.18291
209	0	1	4	WALSH	210300	62400	140600	21400	.	9800	1286	.	823040	.	2.09432
210	0	1	4	NORTHEAST	1078900	670200	985000	127200	10500	84000	8646	2956400	5533440	0.534279	2.15636
211	0	1	4	DUNN	127100	1100	11400	42800	400	600	1992	183400	1274880	0.143857	1.97274
212	0	1	4	MC KENZIE	189700	28200	13800	28000	400	2600	2735	183300	1750400	0.104719	2.104
213	0	1	4	MC LEAN	213500	165600	18200	52900	6400	28200	2065	484800	1321600	0.366828	2.25064
214	0	1	4	MERCER	96100	2300	5100	32500	.	3400	1042	.	666880	.	1.99435
215	0	1	4	OLIVER	52100	700	7900	23000	100	5600	721	89400	461440	0.193741	1.80171
216	0	1	4	WEST CENTRAL	590500	197900	56400	179800	7300	40400	8555	1080300	5475200	0.197308	2.11241
217	0	1	4	EDDY	51700	26600	16800	24000	3300	12500	635	131200	406400	0.322835	2.06474
218	0	1	4	FOSTER	66800	15900	21700	20700	1300	10700	645	157100	412880	0.380572	2.15938
219	0	1	4	KIDDER	88800	23100	14100	51300	3100	11100	1358	191500	869120	0.220338	2.00393
220	0	1	4	SHERIDAN	138500	11700	14000	38100	300	12600	989	205200	632960	0.324191	2.21482
221	0	1	4	STUTSMAN	299800	84000	71300	79400	4200	29900	2264	568600	1448960	0.392419	2.18251
222	0	1	4	WELLS	213100	51500	53900	35100	1400	33500	1299	389000	831360	0.467988	2.23773
223	0	1	4	CENTRAL	876700	206800	191800	388900	14100	110300	7190	1642600	4601600	0.356963	2.16897
224	0	1	4	BARNES	246800	27600	136200	50100	1000	24200	1479	485500	946560	0.512918	2.06904
225	0	1	4	CASS	336100	12900	187800	45200	1500	14300	1749	597800	1119360	0.534055	2.07581
226	0	1	4	GRIGGS	108900	12400	53600	22900	200	16500	710	214500	454400	0.472051	2.08465
227	0	1	4	STEELE	144500	8300	99900	18600	.	16500	710	.	454400	.	2.04973
228	0	1	4	TRAILL	165700	7100	127600	21400	.	18000	861	.	551040	.	2.01923
229	0	1	4	EAST CENTRAL	1002000	67900	604100	158200	2700	82100	5509	1917000	3525760	0.543713	2.06128
230	0	1	4	ADAMS	116700	15100	6300	21900	1500	3600	989	165100	632960	0.260938	2.18324

S T A T I S T I C A L A N A L Y S I S S Y S T E M

15:53 TUESDAY, JUNE 23, 1981

OBS	COUNTY	SPR	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	PDURUM	PSPR	POATS	PBARLEY
231	BILLINGS	37900	500	1800	10600	300	400	1139	51500	728960	0.070649	2.75	2.36	1.85	1.56
232	BOWMAN	78300	22100	10900	29100	1100	900	1178	142400	748800	0.190171	2.75	2.36	1.85	1.56
233	GOLDEN VALLEY	40100	27500	8100	5500	300	100	1014	81600	648960	0.125740	2.75	2.36	1.85	1.56
234	METTINGER	203800	12500	11100	16700	4700	1400	1134	250200	725760	0.344742	2.75	2.36	1.85	1.56
235	SLOPE	79600	14500	6000	10000	1600	300	1225	112000	784000	0.142857	2.75	2.36	1.85	1.56
236	STARK	154900	5500	11700	53800	1500	500	1316	227500	841600	0.270368	2.75	2.36	1.85	1.56
237	SOUTHWEST	684200	186800	56300	144400	10600	4500	7987	1099800	5111680	0.215148	2.75	2.36	1.85	1.56
238	BURLEIGH	158100	15400	13400	46500	1900	7800	1625	243100	1040000	0.233750	2.96	2.47	1.88	1.55
239	EMMONS	180500	14100	9300	58000	1600	23800	1503	287300	961920	0.298673	2.96	2.47	1.88	1.55
240	GRANT	128400	12900	10800	41400	2200	900	1066	188600	1266240	0.148943	2.96	2.47	1.88	1.55
241	MORTON	146000	1800	20700	53800	1300	1000	1920	223800	1228800	0.182129	2.96	2.47	1.88	1.55
242	SIOUX	39800	6700	3000	14200	100	100	1183	63900	705920	0.090520	2.96	2.47	1.88	1.55
243	SOUTH CENTRAL	644600	58100	57200	213900	7100	33600	7817	1006700	5002688	0.201264	2.96	2.47	1.88	1.55
244	DICKEY	115000	22300	53000	41700	16000	16500	1143	264500	731520	0.361576	2.87	2.44	1.88	1.54
245	LA MOURE	171100	50800	34100	39500	23000	8500	1134	327800	727040	0.450869	2.87	2.44	1.88	1.54
246	LOGAN	123300	18000	4900	32100	900	22200	1001	193400	640960	0.301846	2.87	2.44	1.88	1.54
247	MC INTOSH	125000	13300	11700	37600	3600	38000	992	238000	634880	0.374873	2.87	2.44	1.88	1.54
248	RANSOM	87300	2100	31200	38300	6300	3700	886	162900	551360	0.295423	2.87	2.44	1.88	1.54
249	RICHLAND	170300	12000	69600	40200	4200	5900	1449	301300	927360	0.324961	2.87	2.44	1.88	1.54
250	SARGENT	79500	28200	40200	69100	6900	4800	853	184700	545920	0.338407	2.87	2.44	1.88	1.54
251	SOUTHEAST	871500	134700	246700	250500	61700	99500	7435	1669600	4758400	0.350874	2.87	2.44	1.88	1.54
252	STATE	6300000	3300000	2500000	1350000	220000	425000	69281	14095000	44339440	0.317866	2.66	2.40	1.84	1.54
253	BURKE	107800	78000	13800	6800	2300	4500	1119	218800	716160	0.294348	2.63	2.40	1.84	1.54

OBS	LEVEL	COUNTYCO	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7	DCRD8	TEMPAPR	TEMPMAY	TEMPJUNE	PRCPAPR	PRCPMAY	PRCPJUNE	DYR1	DYR2
231	C	72	0	0	0	0	0	0	0	0	41.3	54.7	61.5	1.24	5.13	3.50	0	0
232	C	73	0	0	0	0	0	0	0	0	41.1	54.4	61.6	1.60	4.38	2.59	0	0
233	C	74	0	0	0	0	0	0	0	0	42.0	55.3	62.7	1.24	5.13	3.50	0	0
234	C	75	0	0	0	0	0	0	0	0	41.7	54.9	62.6	1.75	3.76	2.59	0	0
235	C	76	0	0	0	0	0	0	0	0	42.4	55.7	62.1	1.15	4.44	2.38	0	0
236	C	77	0	0	0	0	0	0	0	0	41.3	55.0	62.6	1.74	3.45	2.98	0	0
237	CRD	70	0	0	0	0	0	0	0	0	42.1	55.8	62.8	1.78	4.31	3.13	0	0
238	C	81	0	0	0	0	0	0	0	0	42.7	56.4	63.0	2.00	4.05	3.19	0	0
239	C	82	0	0	0	0	0	0	0	0	44.1	59.0	65.7	2.01	3.21	4.13	0	0
240	C	83	0	0	0	0	0	0	0	0	40.8	54.1	61.4	2.00	3.11	2.57	0	0
241	C	84	0	0	0	0	0	0	0	0	41.6	56.0	63.6	2.09	3.41	3.07	0	0
242	C	85	0	0	0	0	0	0	0	0	43.1	59.2	66.9	2.24	2.36	3.60	0	0
243	CRD	80	0	0	0	0	0	0	0	0	42.2	57.4	63.7	1.95	3.48	2.99	0	0
244	C	91	0	0	0	0	0	0	0	0	42.0	58.1	65.5	2.15	4.18	4.77	0	0
245	C	92	0	0	0	0	0	0	0	0	42.1	58.1	64.7	1.78	3.39	4.44	0	0
246	C	93	0	0	0	0	0	0	0	0	42.1	58.1	64.7	1.69	3.44	4.87	0	0
247	C	94	0	0	0	0	0	0	0	0	41.4	57.1	63.7	1.47	3.53	5.88	0	0
248	C	95	0	0	0	0	0	0	0	0	44.2	59.9	65.9	1.71	2.32	4.98	0	0
249	C	96	0	0	0	0	0	0	0	0	43.0	59.5	65.6	1.78	2.75	5.28	0	0
250	C	97	0	0	0	0	0	0	0	0	41.8	58.1	64.9	1.75	3.45	5.34	0	0
251	CRD	90	0	0	0	0	0	0	0	0	42.2	58.0	65.0	1.69	3.37	5.02	0	0
252	STATE	1	0	0	0	0	0	0	0	0	41.9	58.1	65.0	1.36	3.44	4.27	0	0
253	C	11	1	0	0	0	0	0	0	0	29.3	45.6	61.6	2.00	1.85	0.53	0	0

OBS	DYR3	DYR4	YEAR	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSW1	TACRES1	PSSG1	WPSSG
231	0	1	4	BILLINGS	34400	1800	2800	12300	200	2100	1139	52800	728960	0.072432	2.00042
232	0	1	4	BOWMAN	109900	12200	11900	23500	1300	4100	1178	162900	748800	0.217548	2.12902
233	0	1	4	GOLDEN VALLEY	45900	22400	9300	14000	400	600	1014	93400	648960	0.143923	2.15715
234	0	1	4	METTINGER	216800	13900	19400	28700	4600	6100	1134	285500	725760	0.393502	2.18405
235	0	1	4	SLOPE	98100	8200	7800	14100	600	800	1225	129600	784000	0.165306	2.18793
236	0	1	4	STARK	168400	1700	13300	54500	1100	1100	1316	240100	842240	0.285073	2.01404
237	0	1	4	SOUTHWEST	790200	74500	70800	169800	6700	16400	7987	1133400	5111680	0.221727	2.12411
238	0	1	4	BURLEIGH	168900	11800	17000	43000	1400	18900	1625	253000	1040000	0.243269	2.17017
239	0	1	4	EMMONS	185600	18500	10000	65100	1000	31800	1503	312800	961920	0.325151	2.14292
240	0	1	4	GRANT	124300	4500	15300	44300	4400	1600	1066	194400	1266240	0.153529	2.06861
241	0	1	4	MORTON	149600	3100	23200	60000	400	2700	1920	239800	1228800	0.195117	2.01784
242	0	1	4	SIOUX	45500	2200	2600	13400	.	600	1183	.	705920	.	2.15301
243	0	1	4	SOUTH CENTRAL	673900	40100	68100	225800	7200	47600	7817	1062700	5002688	0.212418	2.18698
244	0	1	4	DICKEY	120600	9000	46800	57500	4000	32200	1143	270100	731520	0.369231	2.04160
245	0	1	4	LA MOURE	178900	34100	33400	65000	6900	34900	1134	353200	727040	0.485905	2.21346
246	0	1	4	LOGAN	124900	3100	4200	40900	1300	24500	1001	203900	640960	0.318275	2.23187
247	0	1	4	MC INTOSH	129200	8700	11600	44300	1900	58500	992	249600	634880	0.393145	2.20728
248	0	1	4	RANSOM	87500	4100	31800	46200	1900	5400	886	176400	551360	0.320448	2.00756
249	0	1	4	RICHLAND	184700	3100	83800	63500	2100	11600	1449	348800	927360	0.376121	2.07628
250	0	1	4	SARGENT	88300	10900	33700	43400	2600	13100	853	192000	545920	0.351700	2.05552
251	0	1	4	SOUTHEAST	710100	73000	244700	360800	20600	185200	7435	1794400	4758400	0.377102	2.12098
252	0	1	4	STATE	7230000	2600000	2690000	1400000	110000	800000	69281	15360000	44339440	0.346362	2.09344
253	0	0	5	MOORE	103100	73900	17200	15600	4200	4700	1119	218700	716160	0.305374	2.45849

S T A T I S T I C A L A N A L Y S I S S Y S T E M 15:53 TUESDAY, JUNE 23, 1981

OBS	COUNTY	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	PDURUM	PSPW	POATS	PBARLEY
254	DIVIDE	57000	185300	6300	9500	500	1900	1300	260200	832000	0.312748	2.63	2.69	0.97	1.69
255	MOUNTRAIL	46000	219000	10000	20500	1600	2600	1819	299300	1164160	0.257092	2.63	2.69	0.97	1.69
256	HENVILLE	83000	96000	38000	12000	4800	15500	886	250300	567040	0.441415	2.63	2.69	0.97	1.69
257	WARD	116000	257000	32000	35000	7400	25500	2044	472900	1308160	0.361500	2.63	2.69	0.97	1.69
258	WILLIAMS	223000	116000	6700	15000	2400	400	2064	363500	1320960	0.275179	2.63	2.69	0.97	1.69
259	NORTHWEST	632000	951000	106000	99000	19000	50000	9232	1857000	5908480	0.314294	2.63	2.69	0.97	1.69
260	BENSON	46000	187000	42500	9900	4000	14000	1403	303400	897920	0.337892	2.62	2.77	0.94	1.74
261	BOTTINEAU	71000	213000	81000	9600	9700	45000	1677	429300	1073280	0.399989	2.62	2.77	0.94	1.74
262	MC HENRY	167000	54000	28500	39500	20500	19500	1879	329000	1202560	0.273583	2.62	2.77	0.94	1.74
263	PIERCE	87000	86000	30000	22000	6700	22500	1038	256400	664320	0.385959	2.62	2.77	0.94	1.74
264	MOLETTE	15000	114000	44000	7000	4900	8000	913	192900	584320	0.330127	2.62	2.77	0.94	1.74
265	NORTH CENTRAL	386000	656000	226000	88000	46000	109000	6910	1511000	4422400	0.341670	2.62	2.77	0.94	1.74
266	CAVALIER	172000	155000	171000	3500	600	9400	1512	511500	967680	0.528534	2.63	2.84	0.91	1.74
267	GRAND FORKS	216000	14000	116000	8000	1800	8900	1438	366700	920320	0.398448	2.63	2.84	0.91	1.74
268	NELSON	64000	127000	36000	8500	300	14000	995	249000	636800	0.391274	2.63	2.84	0.91	1.74
269	PEMBINA	234000	8000	43500	2500	3300	6000	1124	297300	719360	0.413284	2.63	2.84	0.91	1.74
270	RAMSEY	61500	187000	54000	3800	200	13000	1248	318700	798720	0.399013	2.63	2.84	0.91	1.74
271	TOWNER	14500	206000	72000	4700	700	8700	1043	308600	667520	0.462308	2.63	2.84	0.91	1.74
272	WALSH	201000	58000	88500	4800	700	11000	1286	364400	823040	0.442663	2.63	2.84	0.91	1.74
273	NORTHEAST	963000	757000	583000	35000	7600	71000	8046	2416000	5533440	0.436727	2.63	2.84	0.91	1.74
274	DUNN	135000	1400	7000	35000	400	600	1992	179400	1274880	0.140776	2.61	2.71	0.97	1.55
275	MC KENZIE	117000	51000	9000	27500	500	500	2735	205500	1750400	0.117402	2.61	2.71	0.97	1.55
276	MC LEAN	170000	206000	11500	33000	7900	19500	2065	447000	1321600	0.338087	2.61	2.71	0.97	1.55

OBS	LEVEL	COUNTYCO	UCRD1	UCRD2	UCRD3	UCRD4	UCRD5	UCRD6	UCRD7	UCRD8	TEMPAPR	TEMPMAY	TEMPJUNE	PERAPR	PERMAY	PERJUNE	DYR1	DYR2
254	C	12	1	0	0	0	0	0	0	0	33.3	58.1	65.5	1.50	2.90	0.96	0	0
255	C	13	1	0	0	0	0	0	0	0	31.2	57.3	66.3	1.37	2.76	0.96	0	0
256	C	14	1	0	0	0	0	0	0	0	29.5	54.6	61.8	1.41	2.70	0.88	0	0
257	C	15	1	0	0	0	0	0	0	0	29.6	56.5	62.7	1.15	2.58	0.90	0	0
258	C	16	1	0	0	0	0	0	0	0	32.7	58.1	64.3	1.11	2.64	0.91	0	0
259	CRD	10	1	0	0	0	0	0	0	0	31.3	57.3	63.5	1.02	2.64	0.93	0	0
260	C	21	1	0	0	0	0	0	0	0	28.4	56.5	63.0	2.15	3.55	1.15	0	0
261	C	22	1	0	0	0	0	0	0	0	29.6	57.5	63.3	2.02	3.55	1.47	0	0
262	C	23	1	0	0	0	0	0	0	0	29.0	57.5	63.7	2.31	3.62	1.61	0	0
263	C	24	1	0	0	0	0	0	0	0	31.9	59.0	65.7	2.04	3.51	1.10	0	0
264	C	25	1	0	0	0	0	0	0	0	28.1	54.7	60.5	2.26	3.44	1.63	0	0
265	CRD	20	1	0	0	0	0	0	0	0	29.8	57.7	63.4	2.04	3.48	1.80	0	0
266	C	31	1	0	0	0	0	0	0	0	27.4	55.8	61.6	1.84	3.30	1.30	0	0
267	C	32	1	0	0	0	0	0	0	0	32.2	57.9	63.2	1.18	2.96	2.17	0	0
268	C	33	1	0	0	0	0	0	0	0	28.8	55.5	60.8	4.02	5.23	3.78	0	0
269	C	34	1	0	0	0	0	0	0	0	28.9	56.5	62.2	2.93	5.33	3.06	0	0
270	C	35	1	0	0	0	0	0	0	0	30.3	57.2	62.9	1.57	3.04	2.32	0	0
271	C	36	1	0	0	0	0	0	0	0	28.2	55.7	61.2	1.98	3.37	2.78	0	0
272	C	37	1	0	0	0	0	0	0	0	33.5	59.8	65.4	3.15	5.23	4.25	0	0
273	CRD	30	1	0	0	0	0	0	0	0	30.4	57.9	63.7	2.75	4.96	2.90	0	0
274	C	41	1	0	0	0	0	0	0	0	34.1	59.1	67.9	1.51	3.38	1.84	0	0
275	C	42	1	0	0	0	0	0	0	0	37.8	61.8	66.9	1.79	3.87	1.96	0	0
276	C	43	1	0	0	0	0	0	0	0	31.4	58.1	63.8	1.55	0.92	1.74	0	0

OBS	DYR3	DYR4	YEAR	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSSG
254	0	0	5	DIVIDE	41800	176200	14400	14200	900	3000	1300	250300	832000	0.300841	2.48904
255	0	0	5	MOUNTRAIL	41900	221300	10800	29300	2800	2100	1819	308200	1164160	0.264748	2.44445
256	0	0	5	HENVILLE	90000	86300	42100	20700	8100	9600	886	256800	567040	0.452878	2.34336
257	0	0	5	WARD	134400	250700	42300	43900	6150	24400	2044	503800	1308160	0.385121	2.40204
258	0	0	5	WILLIAMS	197100	111100	10000	23800	4300	1000	2064	347300	1320960	0.262915	2.32157
259	0	0	5	NORTHWEST	607500	919500	136800	149500	20400	45400	9232	1885100	5908480	0.319050	2.44232
260	0	0	5	BENSON	44400	196500	63400	14900	3000	9200	1403	327700	897920	0.364955	2.38471
261	0	0	5	BOTTINEAU	84900	209300	94250	16200	18900	24700	1677	448200	1073280	0.417598	2.37931
262	0	0	5	MC HENRY	150460	76800	36700	54100	18100	19200	1879	355300	1202560	0.295453	2.30357
263	0	0	5	PIERCE	76500	95500	39300	37100	3100	18900	1038	270400	664320	0.407033	2.27605
264	0	0	5	MOLETTE	17300	104500	52100	10700	3900	4080	913	193100	584320	0.330470	2.28032
265	0	0	5	NORTH CENTRAL	373500	678600	285700	133000	47000	76900	6910	1594700	4422400	0.360596	2.33524
266	0	0	5	CAVALIER	157900	134200	215900	5500	300	3000	1512	517600	967680	0.534884	2.30302
267	0	0	5	GRAND FORKS	217400	10600	157500	14300	2100	7200	1438	409100	920320	0.444514	2.33564
268	0	0	5	NELSON	52600	135100	86300	10000	300	12100	995	292400	636800	0.459171	2.35000
269	0	0	5	PEMBINA	219900	7300	102100	4600	3600	3000	1124	341100	719360	0.474117	2.37384
270	0	0	5	RAMSEY	53300	197200	116700	6000	1200	6000	1248	389400	798720	0.476262	2.35564
271	0	0	5	TOWNER	17300	195000	96100	7200	600	7600	1043	333800	667520	0.500060	2.31532
272	0	0	5	WALSH	205000	54100	82600	9500	200	6500	1286	403900	823040	0.490782	2.41149
273	0	0	5	NORTHEAST	923400	733500	909200	57100	8300	46800	8046	2678300	5533440	0.484021	2.36019
274	0	0	5	DUNN	130700	2000	10600	35800	300	200	1992	179600	1274880	0.140876	2.29242
275	0	0	5	MC KENZIE	103800	51400	12800	36600	300	400	2735	201800	1750400	0.115268	2.32759
276	0	0	5	MC LEAN	199800	174600	15800	47900	8500	14600	2065	466200	1321600	0.352754	2.44001

S T A T I S T I C A L A N A L Y S I S S Y S T E M 15:53 TUESDAY, JUNE 23, 1981

OBS	COUNTY	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	PDURUM	PSPW	POATS	PBARLEY
277	MERCER	97000	4200	3500	66000	200	2000	1052	132900	666800	0.199286	2.61	2.71	0.97	1.55
278	OLIVER	58000	400	7000	23500	100	2900	721	91900	461400	0.199159	2.61	2.71	0.97	1.55
279	WEST CENTRAL	577000	263000	38000	145000	9100	25500	8555	1057600	5475200	0.193162	2.61	2.71	0.97	1.55
280	EDDY	49000	30000	6000	13000	5100	4400	635	87500	466400	0.266518	2.84	2.83	1.00	1.83
281	FOSTER	83000	27000	10500	8000	8300	3600	645	91400	412800	0.342539	2.84	2.83	1.00	1.83
282	KIDDER	86000	27000	12500	35000	6500	10500	1358	177200	869120	0.205230	2.84	2.83	1.00	1.83
283	SHERIDAN	125000	20000	13000	28500	3000	12000	989	191500	632960	0.302547	2.84	2.83	1.00	1.83
284	STUTSMAN	221000	118000	23000	28500	8600	17000	2264	416100	1448960	0.287171	2.84	2.83	1.00	1.83
285	WELLS	168000	94000	35000	13000	7500	14500	1299	332000	831360	0.399346	2.84	2.83	1.00	1.83
286	CENTRAL	732000	316200	100000	118000	39000	61000	7150	1366000	4601600	0.296853	2.84	2.83	1.00	1.83
287	BARNES	235000	40000	88000	17500	1800	17000	1479	399300	946560	0.421843	2.91	2.95	1.03	1.90
288	CASS	267000	43000	139000	18500	8400	12000	1744	487900	1119360	0.435874	2.91	2.95	1.03	1.90
289	GRIGGS	99000	8000	25000	11000	600	8300	710	131900	454400	0.334287	2.91	2.95	1.03	1.90
290	STEELE	113000	10000	64000	4100	500	6100	716	197700	454400	0.435079	2.91	2.95	1.03	1.90
291	TRAILL	154000	6800	103000	4900	200	6100	801	274200	551040	0.497605	2.91	2.95	1.03	1.90
292	EAST CENTRAL	868000	107000	419000	56000	11500	49500	5584	1511000	3525760	0.428560	2.91	2.95	1.03	1.90
293	ADAMS	94000	25000	4100	14500	3800	1500	989	142100	632960	0.224501	2.75	2.65	1.04	1.67
294	HILLINGS	48000	1000	1100	9900	400	400	139	52000	728960	0.071432	2.75	2.65	1.04	1.67
295	BOWMAN	86000	22000	8300	30000	1000	700	1178	148000	748800	0.197650	2.75	2.65	1.04	1.67
296	GOLDEN VALLEY	50000	29000	4200	7600	200	100	814	91100	648960	0.140378	2.75	2.65	1.04	1.67
297	METTINGER	204000	23000	6600	14000	6100	2500	1134	256200	725760	0.353009	2.75	2.65	1.04	1.67
298	SLOPE	81000	12000	11500	11000	1200	400	1225	117100	784000	0.149362	2.75	2.65	1.04	1.67
299	STARK	167000	7800	7200	36000	2600	400	1316	220200	842240	0.261446	2.75	2.65	1.04	1.67

OBS	LEVEL	COUNTYCO	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7	DCRD8	TEMPAPR	TEMPMAY	TEMPJUNE	PERAPR	PERMAY	PERJUNE	DYR1	DYR2
277	C	44	0	0	0	0	0	0	0	0	32.9	49.4	64.3	1.78	0.88	2.34	0	0
278	C	45	0	0	0	0	0	0	0	0	34.6	49.8	64.4	1.56	0.89	2.36	0	0
279	CRD	40	0	0	0	0	0	0	0	0	33.5	49.1	64.8	1.57	1.16	2.83	0	0
280	C	51	0	0	0	0	0	0	0	0	31.8	49.3	65.0	.	1.26	3.11	0	0
281	C	52	0	0	0	0	0	0	0	0	30.8	46.9	62.0	2.13	1.80	3.77	0	0
282	C	53	0	0	0	0	0	0	0	0	30.6	46.8	62.9	1.52	1.36	3.17	0	0
283	C	54	0	0	0	0	0	0	0	0	33.1	50.0	65.8	1.49	1.38	2.13	0	0
284	C	55	0	0	0	0	0	0	0	0	34.2	48.9	64.5	2.59	2.14	2.58	0	0
285	C	56	0	0	0	0	0	0	0	0	33.3	50.0	65.4	2.12	2.43	4.26	0	0
286	CRD	50	0	0	0	0	0	0	0	0	32.4	48.3	63.9	2.19	1.85	3.35	0	0
287	C	61	0	0	0	0	0	0	0	0	31.6	47.1	62.8	2.78	2.16	3.17	0	0
288	C	62	0	0	0	0	0	0	0	0	36.8	50.4	65.4	3.06	2.82	3.92	0	0
289	C	63	0	0	0	0	0	0	0	0	33.2	49.2	64.8	3.18	1.76	3.20	0	0
290	C	64	0	0	0	0	0	0	0	0	32.4	48.7	63.5	4.83	2.07	2.24	0	0
291	C	65	0	0	0	0	0	0	0	0	34.9	50.3	65.4	4.88	2.69	2.21	0	0
292	CRD	60	0	0	0	0	0	0	0	0	33.6	49.2	64.3	3.52	2.20	2.45	0	0
293	C	71	0	0	0	0	0	0	0	0	38.1	49.9	64.6	1.10	1.39	1.51	0	0
294	C	72	0	0	0	0	0	0	0	0	35.6	49.1	63.5	1.17	0.88	1.06	0	0
295	C	73	0	0	0	0	0	0	0	0	37.2	49.7	63.2	1.09	1.14	2.96	0	0
296	C	74	0	0	0	0	0	0	0	0	36.8	49.6	63.8	1.17	0.88	1.06	0	0
297	C	75	0	0	0	0	0	0	0	0	36.5	50.8	64.4	1.64	0.93	1.81	0	0
298	C	76	0	0	0	0	0	0	0	0	38.6	51.6	63.9	0.87	0.91	1.46	0	0
299	C	77	0	0	0	0	0	0	0	0	38.4	51.2	63.9	1.50	0.57	1.29	0	0

OBS	DYR3	DYR4	YEAR	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSSG
277	0	0	5	MERCER	91800	1700	4800	29800	100	1400	1042	128800	666880	0.193138	2.25700
278	0	0	5	OLIVER	46900	1500	7100	27400	.	2700	721	.	461440	.	2.03374
279	0	0	5	WEST CENTRAL	572200	236200	51100	173500	9200	22800	8555	1065000	5475200	0.194513	2.33751
280	0	0	5	EDDY	50100	28500	15500	15600	4700	5600	635	120000	406400	0.295276	2.43107
281	0	0	5	FOSTER	81100	20000	17600	8600	7900	2700	645	131900	412800	0.334060	2.56904
282	0	0	5	KIDDER	89300	17800	15500	39400	6200	8300	1358	176500	869120	0.203079	2.29035
283	0	0	5	SHERIDAN	123800	19700	14200	25000	2100	9300	989	194100	632960	0.306654	2.50244
284	0	0	5	STUTSMAN	223000	131900	40700	40800	14300	12300	2264	463000	1448960	0.319540	2.56857
285	0	0	5	WELLS	189100	14600	58400	18400	9800	15800	1299	400100	831360	0.488677	2.54104
286	0	0	5	CENTRAL	756400	332500	161900	147800	45000	54000	7150	1497600	4601600	0.325452	2.52323
287	0	0	5	BARNES	225600	31600	169300	24000	1600	13600	1479	421800	946560	0.445614	2.30884
288	0	0	5	CASS	268300	36700	191200	20700	1700	4500	1749	511100	1119360	0.474468	2.46691
289	0	0	5	GRIGGS	95300	14000	48700	11700	800	8800	710	179300	454400	0.394586	2.51306
290	0	0	5	STEELE	124600	7700	99300	3100	400	3400	710	246500	454400	0.542674	2.48306
291	0	0	5	TRAILL	151800	8100	129400	10800	200	5200	801	305500	551040	0.554408	2.42707
292	0	0	5	EAST CENTRAL	868000	100100	595100	80300	4700	41500	5584	1668200	3525760	0.473129	2.47312
293	0	0	5	ADAMS	89600	27200	6700	18700	1100	900	989	144200	632960	0.227819	2.49161
294	0	0	5	HILLINGS	37400	500	1800	10600	300	400	1139	51500	728960	0.070649	2.27323
295	0	0	5	BOWMAN	78300	22100	19900	29100	1100	900	1178	142400	748800	0.190171	2.24043
296	0	0	5	GOLDEN VALLEY	40100	27500	8100	5000	300	100	1614	81500	648960	0.125574	2.45711
297	0	0	5	METTINGER	203800	23000	11100	16700	4700	1400	1134	250200	725760	0.344742	2.44132
298	0	0	5	SLOPE	74600	14500	8000	10000	1600	300	1225	112000	784000	0.142857	2.45263
299	0	0	5	STARK	154900	5500	11700	53800	1500	500	1316	227900	842240	0.270584	2.20784

S T A T I S T I C A L A N A L Y S I S S Y S T E M 15:53 TUESDAY, JUNE 23, 1981

OBS	COUNTY	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACHES	PSSG	PDURUM	PSPW	POATS	PBARLEY
300	SOUTHWEST	722000	119000	43000	123000	14500	6000	7987	10275000	5111600	0.201010	2.75	2.65	1.04	1.47
301	BURLEIGH	171000	13000	8100	41000	1900	5000	1625	2430000	1040000	0.233654	2.96	2.67	0.92	1.38
302	EMMONS	208000	9000	7500	49000	1500	24500	1503	2995000	961926	0.311356	2.96	2.67	0.92	1.38
303	GRANT	122000	2000	12000	40000	2200	2000	1664	1002200	1066240	0.169085	2.96	2.67	0.92	1.38
304	MORTON	135000	7000	17000	52000	400	1000	1920	2124000	1228800	0.172852	2.96	2.67	0.92	1.38
305	SIOUX	41000	1000	3400	18000	300	500	1103	64200	705920	0.090945	2.96	2.67	0.92	1.38
306	SOUTH CENTRAL	677000	42000	48000	200000	6300	36000	7817	9993300	5002880	0.199745	2.96	2.67	0.92	1.38
307	DICKEY	116000	17000	20000	28500	11000	18000	1143	2185000	731520	0.298693	2.87	2.94	1.03	1.84
308	LA MOURE	143000	5+000	16000	35000	18500	20500	1136	2870000	727040	0.394751	2.87	2.94	1.03	1.84
309	LOGAN	125000	17000	2900	28500	1600	18500	1001	1935000	640640	0.302092	2.87	2.94	1.03	1.84
310	MC INTOSH	128000	9000	7600	26500	5200	42500	992	2188000	634880	0.344632	2.87	2.94	1.03	1.84
311	RANSOM	83000	4000	24000	21500	8000	8100	861	1460000	551040	0.209672	2.87	2.94	1.03	1.84
312	RICHLAND	157000	10000	42500	28000	5600	6500	1449	2496000	927360	0.269151	2.87	2.94	1.03	1.84
313	SARGENT	89000	18000	18000	18000	7100	7900	853	1580000	545920	0.289420	2.87	2.94	1.03	1.84
314	SOUTHEAST	843000	129000	137000	186000	57000	122000	7435	14740000	4758400	0.354768	2.87	2.94	1.03	1.84
315	STATE	6400000	3330000	1700000	1050000	210000	530000	69281	13220000	4433984	0.298152	2.66	2.88	1.00	1.78

OBS	LEVEL	COUNTYCO	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7	DCRD8	TEMPAPR	TEMPMAY	TEMPJUNE	PERAPR	PERMAY	PERJUNE	DYR1	DYR2
300	CMD	70	0	0	0	0	0	0	1	0	37.5	58.2	64.2	1.22	1.81	1.32	0	0
301	C	81	0	0	0	0	0	0	0	1	35.1	56.0	64.3	0.94	1.87	1.76	0	0
302	C	82	0	0	0	0	0	0	0	1	39.0	57.7	66.0	0.89	1.89	2.01	0	0
303	C	83	0	0	0	0	0	0	0	1	33.6	54.1	62.2	1.03	1.87	2.00	0	0
304	C	84	0	0	0	0	0	0	0	1	36.8	57.3	65.4	1.52	1.99	2.05	0	0
305	C	85	0	0	0	0	0	0	0	1	37.4	53.8	66.6	0.71	1.75	1.81	0	0
306	CMD	80	0	0	0	0	0	0	0	1	36.4	56.8	65.1	1.07	1.81	1.96	0	0
307	C	91	0	0	0	0	0	0	0	0	37.5	57.8	65.1	2.92	1.96	2.52	0	0
308	C	92	0	0	0	0	0	0	0	0	34.5	48.8	63.4	1.25	2.18	2.34	0	0
309	C	93	0	0	0	0	0	0	0	0	33.0	48.4	63.2	1.55	2.03	2.24	0	0
310	C	94	0	0	0	0	0	0	0	0	35.3	49.5	63.6	1.58	1.84	2.20	0	0
311	C	95	0	0	0	0	0	0	0	0	36.2	49.2	64.0	1.94	1.97	2.14	0	0
312	C	96	0	0	0	0	0	0	0	0	37.8	50.8	65.3	1.43	1.91	2.02	0	0
313	C	97	0	0	0	0	0	0	0	0	36.2	49.8	63.8	1.28	1.26	2.30	0	0
314	CMD	90	0	0	0	0	0	0	0	0	36.2	49.0	64.3	1.45	1.77	2.21	0	0
315	STATE	1	0	0	0	0	0	0	0	0	33.5	48.8	64.0	2.08	1.61	2.32	0	0

OBS	DYR3	DYR4	YEAR	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSS
300	0	0	5	SOUTHWEST	684200	109600	56300	144400	10600	4500	7487	1009800	5111600	0.197548	2.36853
301	0	0	5	BURLEIGH	158100	15400	13400	46500	1700	7000	1625	243100	1040000	0.233736	2.26672
302	0	0	5	EMMONS	180500	14100	9300	58000	1600	23000	1503	207300	961920	0.278073	2.25225
303	0	0	5	GRANT	120400	12400	10500	41400	2200	900	1666	168600	1066240	0.158083	2.22557
304	0	0	5	MORTON	146000	1000	28700	53600	1300	1000	1920	223800	1228800	0.182129	2.12576
305	0	0	5	SIOUX	39800	6700	3300	14200	100	100	1103	63400	705920	0.089824	2.24904
306	0	0	5	SOUTH CENTRAL	644800	50100	57200	213900	7100	33600	7817	1006700	5002880	0.201224	2.22116
307	0	0	5	DICKEY	115000	22300	53000	41700	10000	10500	1143	264500	731520	0.361576	2.33867
308	0	0	5	LA MOURE	171100	50800	34100	39500	23000	8500	1136	327800	727040	0.450989	2.54572
309	0	0	5	LOGAN	123300	10000	4600	34100	900	22200	1001	193400	640640	0.301888	2.54422
310	0	0	5	MC INTOSH	125000	13300	11700	37600	3000	38000	992	230000	634880	0.362273	2.48362
311	0	0	5	RANSOM	87300	21000	33600	30300	6300	3700	861	166400	551040	0.295023	2.32107
312	0	0	5	RICHLAND	170300	12000	69600	40200	4200	5000	1449	301300	927360	0.324901	2.41216
313	0	0	5	SARGENT	79500	27400	46200	24100	6900	4800	853	189700	545920	0.347487	2.36786
314	0	0	5	SOUTHEAST	871500	134700	246700	250500	61700	94500	7435	1666600	4758400	0.350074	2.43642
315	0	0	5	STATE	6300000	3300000	2500000	1350000	220000	425000	69281	14095000	4433984	0.317886	2.39539

APPENDIX B

LISTINGS OF SUMMARY STATISTICS AND CORRELATION MATRIX AT THE COUNTY LEVEL

S T A T I S T I C A L A N A L Y S I S S Y S T E M 15:53 TUESDAY, JUNE 23, 1981

VARIABLE	N	MEAN	STD DEV	SUM	MINIMUM	MAXIMUM
SPW	265	129735.85	73936.58	34380000	11300.0	500800.0
DURUM	265	64226.42	71623.98	17020000	400.0	277400.0
BARLEY	265	42679.25	46724.07	11310000	1100.0	224900.0
OATS	265	26852.83	15740.50	7116000	2500.0	79400.0
RYE	259	3069.50	3802.70	795000	100.0	23000.0
FLAX	263	11771.86	12270.84	3096000	100.0	91300.0
AREA	265	1307.19	450.78	346405	635.0	2735.0
SSG	257	281081.32	131395.47	72237900	40100.0	752000.0
AREACRES	265	836600.75	288497.48	221699200	406400.0	1750400.0
PSSG	257	0.34	0.13	88	0.1	0.7
PDURUM	265	3.72	1.37	986	2.3	6.1
PSPW	265	3.27	0.82	867	2.3	4.6
POATS	265	1.21	0.20	321	0.9	1.5
PBARLEY	265	2.13	0.55	565	1.3	3.3
COUNTYCO	2[illegible]	54.26	26.41	14380	11.0	97.0
DCRD1	265	0.11	0.32	30	0	1.0
DCRD2	265	0.09	0.29	25	0	1.0
DCRD3	265	0.13	0.34	35	0	1.0
DCRD4	265	0.09	0.29	25	0	1.0
DCRD5	265	0.11	0.32	30	0	1.0
DCRD6	265	0.09	0.29	25	0	1.0
DCRD7	265	0.13	0.34	35	0	1.0
DCRD8	265	0.09	0.29	25	0	1.0
TEMPAPR	265	40.81	6.63	10814	27.4	53.0
TEMPMAY	265	56.06	5.24	14856	44.6	67.3
TEMPJUNE	264	64.52	2.02	17033	60.3	70.6
PEMAPR	264	1.91	1.27	505	0.0	5.5
PEMMAY	265	2.25	1.30	595	0.1	6.8
PEMJUNE	265	3.54	1.59	938	0.5	9.7
DTH1	265	0.20	0.40	53	0	1.0
DTH2	265	0.20	0.40	53	0	1.0
DTH3	265	0.20	0.40	53	0	1.0
DTH4	265	0.20	0.40	53	0	1.0
YEAR	265	3.00	1.42	795	1.0	5.0
SPW1	265	131132.08	76493.83	34750000	11300.0	500800.0
DURUM1	265	65245.28	71946.91	17290000	200.0	277400.0
BARLEY1	265	44226.42	46253.59	11720000	1800.0	224900.0

S T A T I S T I C A L A N A L Y S I S S Y S T E M 15:53 TUESDAY, JUNE 23, 1981

VARIABLE	N	MEAN	STD DEV	SUM	MINIMUM	MAXIMUM
OATS1	265	29192.45	16191.33	7736000	3100.0	79400.0
RYE1	259	2706.56	3485.63	701000	100.0	23000.0
FLAX1	263	13125.48	13618.71	3452000	100.0	91300.0
AREA1	265	1307.19	450.78	346405	635.0	2735.0
SSG1	257	288598.83	134636.25	74169900	40100.0	752000.0
TACRES1	265	836600.75	288497.48	221699200	406400.0	1750400.0
PSSG1	257	0.35	0.14	91	0.1	0.7
#PSSG	265	2.95	0.85	781	1.9	5.2

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	PDURUM	PSPW	POATS
SPW	1.00000 0.0000 265	-0.13787 0.0248 265	0.44481 0.0001 265	0.30177 0.0001 265	0.17222 0.0055 259	0.15446 0.0121 263	0.38636 0.0001 265	0.68451 0.0001 257	0.38636 0.0001 265	0.42880 0.0001 257	0.03711 0.5476 265	0.07990 0.1944 265	0.11565 0.0601 265
DURUM	-0.13787 0.0248 265	1.00000 0.0000 265	0.22658 0.0002 265	-0.11763 0.0558 265	0.13015 0.0363 259	0.18489 0.0026 263	0.32435 0.0001 265	0.54743 0.0001 257	0.32435 0.0001 265	0.33993 0.0001 257	0.09302 0.1310 265	0.05050 0.4129 265	-0.08223 0.1820 265
BARLEY	0.44481 0.0001 265	0.22658 0.0002 265	1.00000 0.0000 265	-0.19167 0.0017 265	-0.00762 0.9028 259	0.10504 0.0891 263	0.02831 0.6464 265	0.70769 0.0001 257	0.02831 0.6464 265	0.74968 0.0001 257	-0.01103 0.8582 265	-0.00858 0.8894 265	0.04554 0.4603 265
OATS	0.30177 0.0001 265	-0.11763 0.0558 265	-0.19167 0.0017 265	1.00000 0.0000 265	0.24568 0.0001 259	0.38422 0.0001 263	0.44773 0.0001 265	0.19075 0.0021 257	0.44773 0.0001 265	-0.15088 0.0155 257	-0.00403 0.9479 265	0.01485 0.8098 265	0.23305 0.0001 265
RYE	0.17222 0.0055 259	0.13015 0.0363 259	-0.00762 0.9028 259	0.24568 0.0001 259	1.00000 0.0000 259	0.31294 0.0001 257	0.13481 0.0301 259	0.24648 0.0001 257	0.13481 0.0301 259	0.12695 0.0420 257	-0.11082 0.0750 259	-0.11318 0.0690 259	-0.22136 0.0003 259
FLAX	0.15446 0.0121 263	0.18489 0.0026 263	0.10504 0.0891 263	0.38422 0.0001 263	0.31294 0.0001 257	1.00000 0.0000 263	0.01943 0.7538 263	0.36854 0.0001 257	0.01943 0.7538 263	0.37738 0.0001 257	0.10756 0.0817 263	0.14736 0.0168 263	0.21001 0.0006 263
AREA	0.38636 0.0001 265	0.32435 0.0001 265	0.02831 0.6464 265	0.44773 0.0001 265	0.13481 0.0301 259	0.01943 0.7538 263	1.00000 0.0000 265	0.45936 0.0001 257	1.00000 0.0000 265	-0.22220 0.0003 257	-0.01601 0.7953 265	-0.03420 0.5794 265	-0.06528 0.2897 265
SSG	0.68451 0.0001 257	0.54743 0.0001 257	0.70769 0.0001 257	0.19075 0.0021 257	0.24640 0.0001 257	0.36854 0.0001 257	0.45936 0.0001 257	1.00000 0.0000 257	0.45936 0.0001 257	0.71310 0.0001 257	0.07498 0.2315 257	0.08503 0.1742 257	0.08196 0.1903 257
AREACRES	0.38636 0.0001 265	0.32435 0.0001 265	0.02831 0.6464 265	0.44773 0.0001 265	0.13481 0.0301 259	0.01943 0.7538 263	1.00000 0.0001 265	0.45936 0.0001 257	1.00000 0.0000 265	-0.22220 0.0003 257	-0.01601 0.7953 265	-0.03420 0.5794 265	-0.06528 0.2897 265
PSSG	0.42880 0.0001 257	0.33993 0.0001 257	0.74968 0.0001 257	-0.15088 0.0155 257	0.12695 0.0420 257	0.37738 0.0001 257	-0.22220 0.0003 257	0.71310 0.0001 257	-0.22220 0.0003 257	1.00000 0.0000 257	0.12344 0.0481 257	0.15078 0.0156 257	0.14447 0.0205 257
PDURUM	0.03711 0.5476 265	0.09302 0.1310 265	-0.01103 0.8582 265	-0.00403 0.9479 265	-0.11082 0.0750 259	0.10756 0.0817 263	-0.01601 0.7953 265	0.07498 0.2315 257	-0.01601 0.7953 265	0.12344 0.0481 257	1.00000 0.0000 265	0.96624 0.0001 265	0.59914 0.0001 265
PSPW	0.07990 0.1944 265	0.05050 0.4129 265	-0.00858 0.8894 265	0.01485 0.8098 265	-0.11318 0.0690 259	0.14736 0.0168 263	-0.03420 0.5794 265	0.08503 0.1742 257	-0.03420 0.5794 265	0.15078 0.0156 257	0.96624 0.0001 265	1.00000 0.0000 265	0.67782 0.0001 265
POATS	0.11565 0.0601 265	-0.08223 0.1820 265	0.04554 0.4603 265	0.23305 0.0001 265	-0.22136 0.0003 259	0.21001 0.0006 263	-0.06528 0.2897 265	0.08196 0.1903 257	-0.06528 0.2897 265	0.14447 0.0205 257	0.59914 0.0001 265	0.67782 0.0001 265	1.00000 0.0000 265

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	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	POURUM	PSPW	POATS
PBARLEY	0.11486 0.0619 265	0.10091 0.0887 265	0.18948 0.0020 265	0.06076 0.3245 265	-0.11189 0.0745 259	0.26867 0.0001 263	-0.06912 0.2696 265	0.04360 0.0001 257	-0.06912 0.2696 265	0.34791 0.0001 257	0.79410 0.0001 265	0.82285 0.0001 265	0.81970 0.0001 265
COUNTYCO	0.04765 0.1548 265	-0.06688 0.0001 265	-0.28426 0.0000 265	0.25487 0.0001 265	0.64852 0.4369 259	0.03263 0.3953 263	-0.23219 0.0001 265	-0.34127 0.0001 257	-0.23219 0.0001 265	-0.22343 0.0003 257	0.03448 0.5741 265	0.08727 0.1566 265	0.15068 0.0037 265
DCRD1	-0.07852 0.2526 265	0.03915 0.0001 265	-0.17912 0.0034 265	-0.06693 0.2777 265	-0.05058 0.4184 259	-0.09371 0.1296 263	0.18382 0.0027 265	0.11229 0.0723 257	0.18382 0.0027 265	-0.01948 0.7559 257	-0.02652 0.6674 265	-0.07198 0.2429 265	-0.07344 0.2334 265
DCRD2	-0.19675 0.0013 265	0.31688 0.0001 265	0.07187 0.2490 265	0.07492 0.2241 265	0.31484 0.0001 259	0.25881 0.0001 263	0.05366 0.3862 265	0.12416 0.0468 257	0.05366 0.3862 265	0.08304 0.1845 257	-0.01825 0.7681 265	-0.02327 0.7061 265	-0.18603 0.1629 265
DCRD3	0.10651 0.0953 265	0.28159 0.0001 265	0.59227 0.0001 265	-0.35340 0.0001 265	-0.28172 0.0011 259	-0.07843 0.2055 263	-0.06247 0.3118 265	0.35460 0.0001 257	-0.06247 0.3118 265	0.47324 0.0001 257	-0.04468 0.9138 265	-0.01385 0.8225 265	-0.03272 0.5959 265
DCRD4	-0.06471 0.2939 265	-0.07228 0.2409 265	-0.23363 0.0001 265	0.10344 0.0929 265	-0.12489 0.0468 259	-0.14882 0.0157 263	0.28967 0.0001 265	-0.14595 0.0192 257	0.28967 0.0001 265	-0.34037 0.0001 257	-0.02018 0.7437 265	-0.01776 0.7735 265	-0.05981 0.3328 265
DCRD5	0.04156 0.5005 265	-0.05521 0.3707 265	-0.12311 0.0453 265	0.03466 0.5744 265	0.15518 0.0124 259	0.09692 0.1169 263	-0.08644 0.1606 265	-0.04188 0.5121 257	-0.08644 0.1606 265	0.00849 0.8473 257	0.02004 0.7454 265	0.03782 0.5485 265	0.00629 0.9188 265
DCRD6	0.31734 0.0001 265	-0.17776 0.0037 265	0.45342 0.0001 265	-0.14988 0.0152 265	-0.13232 0.0333 259	0.03737 0.5463 263	-0.14733 0.0164 265	0.22376 0.0003 257	-0.14733 0.0164 265	0.48254 0.0001 257	0.02188 0.7229 265	0.03738 0.5447 265	0.05482 0.3761 265
DCRD7	-0.14892 0.0218 265	-0.20486 0.0001 265	-0.29257 0.0001 265	-0.16732 0.0063 265	-0.17801 0.0041 259	-0.32134 0.0001 263	-0.14489 0.0189 265	-0.36961 0.0001 257	-0.14489 0.0189 265	-0.38263 0.0001 257	-0.01811 0.7694 265	-0.03955 0.5215 265	0.06026 0.2825 265
DCRD8	0.00913 0.8824 265	-0.23734 0.0001 265	-0.21343 0.0005 265	0.33508 0.0001 265	-0.15531 0.0123 259	-0.04689 0.4489 263	0.18379 0.0027 265	-0.15997 0.0102 257	0.18379 0.0027 265	-0.32216 0.0001 257	0.00770 0.9007 265	0.00587 0.9242 265	0.00241 0.9688 265
TEMPAPR	0.16875 0.0059 265	-0.21805 0.0004 265	0.03804 0.5376 265	0.28152 0.0001 265	-0.09816 0.1143 259	0.00762 0.9022 263	0.00180 0.9767 265	0.04036 0.5193 257	0.00180 0.9767 265	0.03754 0.5491 257	-0.32359 0.0001 265	-0.22785 0.0002 265	0.31080 0.0001 265
TEMPMAY	0.14216 0.0206 265	-0.15022 0.0149 265	0.18902 0.0020 265	0.33284 0.0001 265	-0.05927 0.3421 259	0.13859 0.0248 263	-0.02380 0.7006 265	0.11871 0.0574 257	-0.02380 0.7006 265	0.14757 0.0179 257	-0.25371 0.0001 265	-0.24122 0.0001 265	0.37628 0.0001 265
TEMPJUNE	0.29555 0.0001 264	-0.38574 0.0001 264	0.08508 0.1769 264	0.24151 0.0001 264	-0.01424 0.8200 258	0.11153 0.0715 262	-0.03142 0.6113 264	0.04133 0.5103 256	-0.03142 0.6113 264	0.09228 0.1409 256	-0.08864 0.1509 264	0.04471 0.4695 264	0.24616 0.0001 264
PERAPR	-0.02365 0.7020 264	0.01279 0.8361 264	-0.14664 0.0171 264	-0.02243 0.7168 258	0.02184 0.7269 258	0.04756 0.4434 262	0.01058 0.8651 264	-0.06578 0.2958 256	0.01058 0.8651 264	-0.07163 0.2522 256	0.71597 0.0001 264	0.69881 0.0001 264	0.20597 0.0008 264
PERMAY	-0.05334 0.3871 265	-0.09981 0.1050 265	0.06353 0.3029 265	0.10874 0.0772 265	0.03271 0.6003 259	-0.02755 0.6565 263	0.04195 0.4965 265	-0.07516 0.2248 257	0.04195 0.4965 265	-0.13178 0.0347 257	-0.05806 0.3481 265	-0.06622 0.2841 265	-0.09343 0.1293 265
PERJUNE	0.05216 0.3977 265	-0.05035 0.4143 265	-0.03681 0.5595 265	0.13385 0.0304 265	0.06367 0.3074 259	0.17397 0.0047 263	-0.05813 0.3459 265	0.03813 0.6307 257	-0.05813 0.3459 265	0.09636 0.1234 257	0.56132 0.0001 265	0.52836 0.0001 265	0.39495 0.0001 265
DYN1	-0.00085 0.9237 265	0.08921 0.1476 265	-0.00850 0.8905 265	0.04612 0.4547 265	-0.06981 0.2630 259	0.14789 0.0164 263	0.00000 1.0000 265	0.01853 0.7675 257	0.00000 1.0000 265	0.03403 0.5871 257	0.02419 0.6961 265	0.71412 0.0001 265	0.49865 0.0001 265
DYN2	0.15392 0.0121 265	0.04038 0.5128 265	-0.01254 0.8390 265	-0.06197 0.3149 265	-0.10763 0.0838 259	-0.05839 0.3455 263	0.00000 1.0000 265	0.11143 0.0744 257	0.00000 1.0000 265	0.14699 0.0184 257	0.33336 0.0001 265	0.47227 0.0001 265	0.27939 0.0001 265

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	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	PDURUM	PSPW	POATS
DYN3	0.04162 0.5020 265	-0.10618 0.0847 265	0.08658 0.1599 265	0.28631 0.0001 265	-0.09775 0.1166 259	0.13658 0.0271 263	0.00000 1.0000 265	0.05116 0.5112 257	0.00000 1.0000 265	0.02182 0.7277 257	-0.45127 0.0001 265	-0.37279 0.0001 265	0.39169 0.0001 265
DYN4	-0.07363 0.2322 265	-0.01372 0.8240 265	0.04815 0.4351 265	-0.04636 0.4524 265	0.15336 0.0135 259	-0.15396 0.0126 263	0.00000 1.0000 265	-0.04534 0.4691 257	0.00000 1.0000 265	-0.05365 0.3917 257	-0.35261 0.0001 265	-0.51610 0.0001 265	-0.01537 0.8001 265
YEAR	-0.06636 0.2966 265	-0.07129 0.2475 265	-0.04234 0.4925 265	-0.14044 0.0156 265	0.18014 0.0036 259	-0.15218 0.0135 263	0.00000 1.0000 265	-0.12373 0.0475 257	0.00000 1.0000 265	-0.15018 0.0111 257	-0.05971 0.0001 265	-0.05181 0.0001 265	-0.04687 0.0001 265
SPW1	0.93408 0.0001 265	-0.13568 0.0273 265	0.08653 0.0001 265	0.33187 0.0001 265	0.20386 0.0010 259	0.17167 0.0052 263	0.38138 0.0001 265	0.04976 0.0001 257	0.38138 0.0001 265	0.40770 0.0001 257	-0.05664 1.3579 265	-0.04435 0.4332 265	0.07484 0.2246 265
DURUM1	-0.09958 0.1048 265	0.96655 0.0001 265	0.24520 0.0001 265	-0.06968 0.2584 265	0.09386 0.1320 259	0.22649 0.0002 263	0.32251 0.0001 265	0.56411 0.0001 257	0.32241 0.0001 265	0.35638 0.0001 257	0.04027 0.5139 265	0.03815 0.5351 265	0.04239 0.4491 265
BARLEY1	0.42392 0.0001 265	0.23618 0.0001 265	0.95232 0.0001 265	-0.25581 0.0001 265	0.02018 0.7465 259	0.07354 0.2344 263	0.02958 0.6316 265	0.07098 0.0001 257	0.02958 0.6316 265	0.76753 0.0001 257	-0.04769 0.4395 265	-0.03425 0.5567 265	-0.07091 0.2504 265
OATS1	0.29168 0.0001 265	-0.06561 0.2872 265	-0.19609 0.0013 265	0.80533 0.0001 265	0.43272 0.0001 259	0.29813 0.0001 263	0.45996 0.0001 265	0.18833 0.0027 257	0.45996 0.0001 265	-0.16049 0.0106 257	0.07128 0.2475 265	0.04159 0.4961 265	-0.04939 0.4203 265
RYE1	0.20699 0.0008 259	0.09145 0.1422 259	-0.08965 0.0847 259	0.24752 0.0001 259	0.77216 0.0001 253	0.37562 0.0001 257	0.12913 0.0378 259	0.44098 0.0001 251	0.12913 0.0378 259	0.13541 0.0320 251	-0.07083 0.2561 259	-0.06273 0.3063 259	-0.10205 0.0986 259
FLAX1	0.10682 0.0823 263	0.17928 0.0035 263	0.09688 0.1170 263	0.29871 0.0001 263	0.39414 0.0001 257	0.00426 0.9561 261	-0.00425 0.9454 263	0.34954 0.0001 255	-0.00425 0.9454 263	0.39806 0.0001 255	0.19232 0.0017 263	0.19008 0.0018 263	0.09114 0.1403 263
AREA1	0.38036 0.0001 265	0.32435 0.0001 265	0.02831 0.6464 265	0.44773 0.0001 265	0.13481 0.0301 259	0.01943 0.7538 263	1.00000 0.0001 265	0.45936 0.0001 257	1.00000 0.0001 265	-0.22220 0.0003 257	-0.01681 0.7953 265	-0.03420 0.5794 265	-0.06520 0.2897 265
SSG1	0.66736 0.0001 257	0.52485 0.0001 257	0.71411 0.0001 257	0.19169 0.0020 257	0.27553 0.0001 251	0.35987 0.0001 255	0.45289 0.0001 257	0.97885 0.0001 249	0.45289 0.0001 257	0.67988 0.0001 249	-0.01981 0.7544 257	-0.02825 0.7497 257	0.01246 0.8425 257
TACRES1	0.38036 0.0001 265	0.32435 0.0001 265	0.02831 0.6464 265	0.44773 0.0001 265	0.13481 0.0301 259	0.01943 0.7538 263	1.00000 0.0001 265	0.45936 0.0001 257	1.00000 0.0001 265	-0.22220 0.0003 257	-0.01681 0.7953 265	-0.03420 0.5794 265	-0.06520 0.2897 265
PSSG1	0.68775 0.0001 257	0.38828 0.0001 257	0.75126 0.0001 257	-0.14297 0.0219 257	0.16778 0.0077 251	0.37096 0.0001 255	-0.23441 0.0001 257	0.07696 0.0001 249	-0.23441 0.0001 257	0.96914 0.0001 249	0.00274 0.9715 257	0.02418 0.7006 257	0.09176 0.1465 257
WPSSG	0.05102 0.4081 265	0.26099 0.0001 265	0.02113 0.7320 265	-0.04676 0.4484 265	-0.12981 0.0368 259	0.14287 0.0205 263	0.01639 0.7906 265	0.18464 0.0031 257	0.01639 0.7906 265	0.21704 0.0005 257	0.93308 0.0001 265	0.93641 0.0001 265	0.67253 0.0001 265

	PBARLEY	CO_WHTCO	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7	DCRD8	TEMPAPR	TEMPMAY	TEMPJUNE
SPW	0.11486 0.0619 265	0.08765 0.1548 265	-0.07013 0.2526 265	-0.19675 0.0013 265	0.10251 0.0959 265	-0.06671 0.2939 265	0.04150 0.5085 265	0.31734 0.0001 265	-0.14892 0.0218 265	0.98913 0.0001 265	0.16875 0.0059 265	0.14216 0.0206 265	0.29555 0.0001 264
DURUM	0.16891 0.0067 265	-0.06688 0.0001 265	0.43915 0.0001 265	0.31688 0.0001 265	0.28159 0.0001 265	-0.27268 0.2409 265	-0.05521 0.3707 265	-0.17778 0.0037 265	-0.26488 0.0001 265	-0.23734 0.0001 265	-0.21885 0.0003 265	-0.15822 0.0099 265	-0.30574 0.0001 264
BARLEY	0.19968 0.0020 265	-0.20426 0.0008 265	-0.17912 0.0034 265	0.07187 0.2490 265	0.59227 0.0001 265	-0.23363 0.0001 265	-0.12211 0.0453 265	0.45562 0.0001 265	-0.29257 0.0001 265	-0.21343 0.0005 265	0.33804 0.5376 265	0.18992 0.0020 265	0.00368 0.9269 264
OATS	0.06074 0.1246 265	0.25687 0.0001 265	-0.06693 0.2777 265	0.07492 0.2241 265	-0.35340 0.0001 265	0.10344 0.0929 265	0.03466 0.5744 265	-0.14988 0.0152 265	-0.16732 0.0063 265	0.33508 0.0001 265	0.28152 0.0001 265	0.33284 0.0001 265	0.26151 0.0001 264

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	PBARLEY	COUNTYCO	DCH01	DCH02	DCH03	DCH04	DCH05	DCH06	DCH07	DCH08	TEMPAPR	TEMPMAY	TEMPJUNE
RYE	-0.11188 0.0745 259	0.04852 0.4369 259	-0.05058 0.4184 259	0.31494 0.0001 259	-0.20177 0.0011 259	-0.12469 0.0468 259	0.15518 0.0124 259	-0.13432 0.0333 259	-0.17881 0.0041 259	-0.15531 0.0123 259	-0.09836 0.1143 259	-0.05927 0.3421 259	-0.01545 0.8056 258
FLAX	0.26867 0.0001 263	0.05263 0.3953 263	-0.09171 0.1396 263	0.25481 0.0001 263	-0.07889 0.2022 263	-0.14882 0.0157 263	0.09692 0.1169 263	0.03737 0.5463 263	-0.32134 0.0001 263	-0.04649 0.4549 263	0.00762 0.9022 263	0.13859 0.0244 263	0.11153 0.0715 262
AREA	-0.20612 0.3296 265	-0.23219 0.0001 265	0.18382 0.0027 265	0.05366 0.3842 265	-0.06247 0.3110 265	0.28967 0.0001 265	-0.08644 0.1606 265	-0.14733 0.0164 265	-0.14489 0.0189 265	0.18379 0.0027 265	0.00188 0.9767 265	-0.02388 0.7044 265	-0.03142 0.6113 264
SSG	0.26368 0.0001 257	-0.34127 0.0001 257	0.11229 0.0723 257	0.12416 0.0468 257	0.35460 0.0001 257	-0.14595 0.0192 257	-0.06108 0.5121 257	0.22376 0.0003 257	-0.36961 0.0001 257	-0.15997 0.0102 257	0.04038 0.5193 257	0.11071 0.0574 257	0.04133 0.5103 256
AHEACRES	-0.20612 0.3296 265	-0.23219 0.0001 265	0.18382 0.0027 265	0.05366 0.3842 265	-0.06247 0.3110 265	0.28967 0.0001 265	-0.08644 0.1606 265	-0.14733 0.0164 265	-0.14489 0.0189 265	0.18379 0.0027 265	0.00188 0.9767 265	-0.02388 0.7044 265	-0.03142 0.6113 264
PSSG	0.34791 0.0001 257	-0.22343 0.0003 257	-0.01948 0.7559 257	0.08384 0.1865 257	0.47324 0.0001 257	-0.34037 0.0001 257	0.08889 0.1573 257	0.08254 0.0001 257	-0.38263 0.0001 257	-0.32216 0.0001 257	0.03754 0.5491 257	0.14757 0.0179 257	0.09228 0.1489 256
POURUM	0.79410 0.0001 265	0.04468 0.3741 265	-0.02652 0.6674 265	-0.01025 0.8681 265	-0.00668 0.9138 265	-0.02018 0.7437 265	0.02084 0.7454 265	0.02188 0.7229 265	-0.01811 0.7699 265	0.00770 0.9007 265	-0.32359 0.0001 265	-0.25371 0.0001 265	-0.08844 0.1569 264
PSPW	0.82205 0.0001 265	0.08727 0.1566 265	-0.07198 0.2429 265	-0.02327 0.7061 265	-0.01385 0.8225 265	-0.01776 0.7735 265	0.03782 0.5485 265	0.03738 0.5447 265	-0.03955 0.5215 265	0.00587 0.9252 265	-0.22785 0.0002 265	-0.24122 0.0001 265	0.04471 0.4699 264
POATS	0.81970 0.0001 265	0.15068 0.0097 265	-0.07348 0.2332 265	-0.01603 0.7926 265	-0.03272 0.5959 265	-0.05983 0.3328 265	0.00629 0.9184 265	0.05482 0.3761 265	0.06626 0.2825 265	0.00241 0.9688 265	0.31080 0.0001 265	0.37628 0.0001 265	0.26016 0.0001 264
PBARLEY	1.00000 0.0000 265	-0.11750 0.0561 265	-0.02756 0.6552 265	0.09850 0.1097 265	0.09324 0.1308 265	-0.08659 0.1599 265	0.12349 0.0446 265	0.12468 0.0427 265	-0.15341 0.0124 265	-0.16252 0.0080 265	-0.06431 0.2970 265	0.07572 0.2192 265	0.07117 0.2492 264
COUNTYCO	-0.11750 0.0561 265	1.00000 0.0000 265	-0.55260 0.0001 265	-0.38284 0.0001 265	-0.29992 0.0001 265	-0.13793 0.0247 265	-0.01036 0.8667 265	0.10697 0.0822 265	0.29210 0.0001 265	0.35184 0.0001 265	0.15492 0.0116 265	0.08364 0.1758 265	0.31980 0.0001 264
DCH01	-0.02756 0.6552 265	-0.55260 0.0001 265	1.00000 0.0000 265	-0.11532 0.0608 265	-0.13938 0.0233 265	-0.11532 0.0608 265	-0.12766 0.0378 265	-0.11532 0.0608 265	-0.13938 0.0233 265	-0.11532 0.0608 265	-0.05015 0.4162 265	-0.06717 0.2765 265	-0.14228 0.0207 264
DCH02	0.09850 0.1097 265	-0.38284 0.0001 265	-0.11532 0.0608 265	1.00000 0.0000 265	-0.12590 0.0465 265	-0.10417 0.0906 265	-0.11532 0.0608 265	-0.10417 0.0906 265	-0.12590 0.0406 265	-0.10417 0.0906 265	-0.00219 0.9822 265	-0.02936 0.6362 265	-0.14274 0.0203 264
DCH03	0.09324 0.1308 265	-0.29992 0.0001 265	-0.13938 0.0233 265	-0.12590 0.0406 265	1.00000 0.0000 265	-0.12590 0.0406 265	-0.13938 0.0233 265	-0.12590 0.0406 265	-0.15217 0.0131 265	-0.12590 0.0406 265	-0.09059 0.1414 265	-0.01084 0.8605 265	-0.17447 0.0045 264
DCH04	-0.08659 0.1599 265	-0.13793 0.0247 265	-0.11532 0.0608 265	-0.10417 0.0906 265	-0.12590 0.0406 265	1.00000 0.0000 265	-0.11532 0.0608 265	-0.10417 0.0906 265	-0.12590 0.0406 265	-0.10417 0.0906 265	0.00575 0.9258 265	-0.02922 0.6371 265	-0.07339 0.2352 264
DCH05	0.12349 0.0446 265	-0.01036 0.8867 265	-0.12766 0.0378 265	-0.11532 0.0608 265	-0.13938 0.0233 265	-0.11532 0.0608 265	1.00000 0.0000 265	-0.11532 0.0608 265	-0.13938 0.0233 265	-0.11532 0.0608 265	0.00363 0.9531 265	0.04353 0.4806 265	0.12412 0.0439 264
DCH06	0.12468 0.0427 265	0.10697 0.0822 265	-0.11532 0.0608 265	-0.10417 0.0906 265	-0.12590 0.0406 265	-0.10417 0.0906 265	-0.11532 0.0608 265	1.00000 0.0000 265	-0.12590 0.0406 265	-0.10417 0.0906 265	0.01452 0.8139 265	0.06998 0.2568 265	0.12484 0.0427 264
DCH07	-0.15341 0.0124 265	0.29210 0.0001 265	-0.13938 0.0233 265	-0.12590 0.0406 265	-0.15217 0.0131 265	-0.12590 0.0406 265	-0.13938 0.0233 265	-0.12590 0.0406 265	1.00000 0.0000 265	-0.12590 0.0406 265	0.03988 0.5181 265	-0.09291 0.1314 265	-0.17263 0.0050 264

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / NUMBER OF OBSERVATIONS

	PBARLEY	COUNTYCD	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7	DCRD8	TEMPAPR	TEMPMAY	TEMPJUNE
DCRD0	-0.16252 0.0008 265	0.35188 0.0001 265	-0.11532 0.0608 265	-0.10417 0.0906 265	-0.12598 0.0406 265	-0.10417 0.0906 265	-0.11532 0.0608 265	-0.10417 0.0906 265	-0.12598 0.0406 265	1.00000 0.0000 265	0.00002 0.1897 265	0.04397 0.4760 265	0.17553 0.0042 264
TEMPAPR	-0.06431 0.2978 265	0.15492 0.0116 265	-0.05015 0.4162 265	-0.08219 0.1822 265	-0.09959 0.1414 265	0.00575 0.9258 265	0.00363 0.9531 265	0.01452 0.8139 265	0.03988 0.5181 265	0.00002 0.1897 265	1.00000 0.0000 265	0.03917 0.0001 265	0.62263 0.0001 264
TEMPMAY	0.07572 0.2192 265	0.08360 0.1748 265	-0.06717 0.2759 265	-0.02936 0.6342 265	-0.01884 0.7605 265	-0.02022 0.7431 265	0.04353 0.4884 265	0.01990 0.2568 265	-0.09291 0.1316 265	0.04397 0.4760 265	0.03917 0.0001 265	1.00000 0.0000 265	0.67077 0.0001 264
TEMPJUNE	0.07117 0.2492 264	0.31980 0.0001 264	-0.14228 0.0207 264	-0.10274 0.0283 264	-0.17447 0.0045 264	-0.06349 0.7052 264	0.12412 0.0438 264	0.12484 0.0427 264	-0.17263 0.0050 264	0.17553 0.0042 264	0.62263 0.0001 264	0.67077 0.0001 264	1.00000 0.0000 264
PERAPR	0.40996 0.0001 264	0.08581 0.1665 264	-0.03858 0.5218 264	-0.01485 0.8103 264	-0.11097 0.0718 264	0.04284 0.4863 264	0.03134 0.6122 264	0.00447 0.9115 264	-0.02791 0.6517 264	0.04612 0.4556 264	-0.58267 0.0001 264	-0.54768 0.0001 264	-0.25192 0.0001 263
PERMAY	-0.25841 0.0001 265	-0.01502 0.8077 265	0.08990 0.1461 265	-0.07765 0.2077 265	-0.02793 0.6548 265	-0.00692 0.9108 265	-0.04391 0.4766 265	0.03598 0.5667 265	0.10654 0.0834 265	-0.04715 0.4447 265	0.16542 0.0070 265	0.44621 0.0001 265	-0.22661 0.0002 264
PERJUNE	0.49628 0.0001 265	0.20305 0.0009 265	-0.06709 0.2765 265	-0.11567 0.0601 265	-0.07206 0.2424 265	-0.03133 0.6116 265	0.05300 0.3897 265	0.01781 0.7729 265	-0.08695 0.1603 265	-0.02363 0.7018 265	-0.12720 0.0385 265	0.91440 0.0104 265	-0.02310 0.7087 264
DYR1	0.78488 0.0001 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	-0.51726 0.0001 265	-0.19082 0.0018 265	-0.38602 0.0001 264
DYR2	0.22844 0.0002 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.37899 0.0001 265	-0.03964 0.5226 265	0.37706 0.0001 264
DYR3	0.06201 0.3166 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.63467 0.0001 265	0.76588 0.0001 265	0.29966 0.0001 264
DYR4	-0.58702 0.0001 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.06936 0.2605 265	0.18231 0.0029 265	-0.26283 0.0009 264
YEAR	-0.06279 0.0001 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	-0.11490 0.0618 265	-0.22469 0.0002 265	-0.08248 0.1815 264
SPR1	0.05627 0.3615 265	0.88109 0.1882 265	-0.06781 0.2771 265	-0.19816 0.0013 265	0.18614 0.0046 265	-0.07208 0.2428 265	0.04272 0.4887 265	0.33691 0.0001 265	-0.14651 0.0170 265	-0.01853 0.7645 265	0.16619 0.0173 265	0.23184 0.0001 265	0.21186 0.0006 264
DUMUM1	0.18886 0.0020 265	-0.66227 0.0001 265	0.43365 0.0001 265	0.32483 0.0001 265	0.28179 0.0001 265	-0.08269 0.1796 265	-0.04864 0.4299 265	-0.17287 0.0058 265	-0.21388 0.0001 265	-0.23414 0.0001 265	-0.09976 0.1052 265	-0.06931 0.2649 265	-0.23889 0.0001 264
BARLEY1	0.39737 0.1178 265	-0.19442 0.0015 265	-0.18987 0.0019 265	0.06663 0.2798 265	0.08161 0.0001 265	-0.24891 0.0001 265	-0.11276 0.0669 265	0.45025 0.0001 265	-0.29997 0.0001 265	-0.21892 0.0003 265	-0.08476 0.1698 265	0.03238 0.6007 265	-0.03717 0.5477 264
OATS1	-0.09917 0.1073 265	0.25938 0.0001 265	-0.08665 0.1596 265	0.09034 0.1425 265	-0.34493 0.0001 265	0.09002 0.1439 265	0.05595 0.3643 265	-0.15235 0.0138 265	-0.18906 0.0020 265	0.33239 0.0001 265	0.02586 0.6749 265	0.06519 0.2906 265	0.11922 0.0538 264
RYE1	-0.04731 0.4464 259	0.18438 0.0037 259	-0.07039 0.2598 259	0.25720 0.0001 259	-0.18938 0.0022 259	-0.12271 0.0485 259	0.13492 0.0308 259	-0.12505 0.0444 259	-0.15690 0.0115 259	-0.14375 0.0208 259	-0.18054 0.0070 259	-0.12205 0.0503 259	0.00411 0.9483 258
FLAX1	0.20746 0.0007 263	0.18060 0.1036 263	-0.12675 0.0408 263	0.21707 0.0004 263	-0.08545 0.1671 263	-0.14776 0.0165 263	0.12184 0.0481 263	0.05923 0.3387 263	-0.32407 0.0001 263	-0.02981 0.6306 263	0.02269 0.7162 263	0.10458 0.0906 263	0.10286 0.0838 262

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	BARLEY	COUNTYCD	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7	DCRD8	TEMPAPR	TEMPMAY	TEMPJUNE
AREA1	-0.00812 0.3246 265	-0.23219 0.0001 265	0.18382 0.0027 265	0.05366 0.3842 265	-0.06267 0.3116 265	0.28967 0.0001 265	-0.00644 0.1606 265	-0.16733 0.0164 265	-0.14489 0.0189 265	0.18379 0.0027 265	0.00188 0.4761 265	-0.06388 0.1994 265	-0.03164 0.6113 264
SSG1	0.16289 0.0009 257	-0.32318 0.0001 257	0.09718 0.1202 257	0.11871 0.0572 257	0.35165 0.0001 257	-0.15742 0.0113 257	-0.02641 0.6735 257	0.26182 0.0001 257	-0.37985 0.0001 257	-0.16454 0.0084 257	0.01453 0.8167 257	0.12865 0.0393 257	0.01026 0.8712 256
TACRES1	-0.00812 0.3246 265	-0.23219 0.0001 265	0.18382 0.0027 265	0.05366 0.3842 265	-0.06267 0.3116 265	0.28967 0.0001 265	-0.00644 0.1606 265	-0.16733 0.0164 265	-0.14489 0.0189 265	0.18379 0.0027 265	0.00188 0.4761 265	-0.06388 0.1994 265	-0.03164 0.6113 264
PSSG1	0.26213 0.0001 257	-0.28815 0.0001 257	-0.03749 0.5497 257	0.07644 0.2243 257	0.46684 0.0001 257	-0.35899 0.0001 257	0.02532 0.6862 257	0.42562 0.0001 257	-0.39563 0.0001 257	-0.32665 0.0001 257	0.02589 0.6795 257	0.18823 0.0027 257	0.09831 0.2762 256
WPSSG	0.86342 0.0001 265	-0.10438 0.0890 265	0.08629 0.1713 265	0.03273 0.5958 265	0.03998 0.5169 265	-0.05844 0.3433 265	0.03396 0.5618 265	0.00775 0.9001 265	-0.03986 0.5187 265	-0.00159 0.1655 265	-0.22219 0.0003 265	-0.20315 0.0009 265	-0.03994 0.5272 264
	PERAPR	PERMAY	PERJUNE	DYR1	DYR2	DYR3	DYR4	YEAR	SPW1	DURUM1	BARLEY1	OATS1	RYE1
SPW	-0.02365 0.7028 264	-0.05334 0.3871 265	0.05216 0.3977 265	-0.04685 0.4237 265	0.15392 0.0121 265	0.04142 0.5028 265	-0.07363 0.2327 265	-0.00436 0.2944 265	0.93688 0.0001 265	-0.09958 0.1058 265	0.42302 0.0001 265	0.29168 0.0001 265	0.20699 0.0008 259
DURUM	0.01279 0.8361 264	-0.09481 0.1258 265	-0.05035 0.4142 265	0.08921 0.1476 265	0.04038 0.5128 265	-0.10618 0.0847 265	-0.01372 0.8268 265	-0.07129 0.2495 265	-0.13568 0.0273 265	0.96035 0.0001 265	0.23618 0.0001 265	-0.06561 0.2872 265	0.09165 0.1422 259
BARLEY	-0.14644 0.0171 264	0.06353 0.3029 265	-0.03681 0.5595 265	-0.08858 0.1995 265	-0.01254 0.8398 265	0.08658 0.1569 265	0.04815 0.4351 265	-0.04234 0.4922 265	0.48053 0.0001 265	0.26526 0.0001 265	0.95232 0.0001 265	-0.19669 0.0013 265	-0.08966 0.1467 259
OATS	-0.02243 0.7168 264	0.10876 0.0772 265	0.13305 0.0344 265	0.04612 0.4547 265	-0.06197 0.3149 265	0.20631 0.0008 265	-0.04636 0.4526 265	-0.14844 0.0156 265	0.33187 0.0001 265	-0.06968 0.2584 265	-0.25581 0.0001 265	0.88533 0.0001 265	0.24752 0.0001 259
RYE	0.02184 0.7269 258	0.03271 0.6003 259	0.06367 0.3074 259	-0.06981 0.2638 259	-0.10763 0.0838 259	-0.09775 0.1164 259	0.15336 0.0135 259	0.10816 0.0838 259	0.20386 0.0010 259	0.09364 0.1329 259	0.02018 0.7465 259	0.43272 0.0001 259	0.77216 0.0001 253
FLAX	0.04756 0.4434 242	-0.02755 0.6583 243	0.17397 0.0067 243	0.14789 0.0184 243	-0.05839 0.3655 243	0.13668 0.0331 243	-0.15394 0.0126 243	-0.15218 0.0135 243	0.17167 0.0082 243	0.22669 0.0003 243	0.07354 0.2548 243	0.29813 0.0001 243	0.37562 0.0001 237
AREA	0.01050 0.8651 264	0.04195 0.4965 265	-0.05813 0.3459 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.38138 0.0001 265	0.32261 0.0001 265	0.02958 0.6316 265	0.45996 0.0001 265	0.12913 0.0376 259
SSG	-0.06576 0.2998 256	-0.07516 0.2298 257	0.03213 0.6107 257	0.01853 0.7675 257	0.11163 0.0746 257	0.04116 0.5112 257	-0.04534 0.4693 257	-0.12373 0.0475 257	0.66976 0.0001 257	0.56411 0.0001 257	0.67098 0.0001 257	0.18033 0.0037 257	0.24098 0.0001 251
AREACRES	0.01050 0.8651 264	0.04195 0.4965 265	-0.05813 0.3459 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.38138 0.0001 265	0.32261 0.0001 265	0.02958 0.6316 265	0.45996 0.0001 265	0.12913 0.0376 259
PSSG	-0.07182 0.2522 256	-0.13178 0.0347 257	0.09636 0.1234 257	0.03403 0.5871 257	0.14699 0.0186 257	0.02182 0.7277 257	-0.05365 0.3917 257	-0.15018 0.0111 257	0.68779 0.0001 257	0.35658 0.0001 257	0.78753 0.0001 257	-0.10649 0.0889 257	0.13341 0.0329 251
POUNUM	0.71597 0.0001 264	-0.35866 0.0001 265	0.56132 0.0001 265	0.02619 0.6681 265	0.33330 0.0001 265	-0.45227 0.0001 265	-0.35261 0.0001 265	-0.05971 0.0001 265	-0.05669 0.3579 265	0.04027 0.5139 265	-0.04769 0.4395 265	0.07168 0.2475 265	-0.07883 0.2041 259
PSPW	0.69087 0.0001 264	-0.46622 0.0001 265	0.52836 0.0001 265	0.71612 0.0001 265	0.47227 0.0001 265	-0.37279 0.0001 265	-0.51618 0.0001 265	-0.05181 0.0001 265	-0.04835 0.4332 265	0.03815 0.6251 265	-0.03925 0.5247 265	0.04199 0.4961 265	-0.04573 0.4803 259
POATS	0.20597 0.0008 264	-0.04343 0.1293 265	0.39695 0.0001 265	0.49865 0.0001 265	0.27939 0.0001 265	0.34189 0.0001 265	-0.01537 0.8061 265	-0.04887 0.3881 265	0.87484 0.2656 265	0.00239 0.9691 265	-0.07891 0.2004 265	-0.06934 0.2641 265	-0.10285 0.0986 259

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	PERAPR	PERMAY	PERJUNE	DYR1	DYR2	DYR3	DYR4	YEAR	SPW1	DURUM1	BARLEY1	OATS1	RYE1
PBARLEY	0.49996 0.0001 264	-0.25841 0.0001 265	0.49428 0.0001 265	0.70688 0.0001 265	0.22864 0.0002 265	0.06201 0.3146 265	-0.58702 0.0001 265	-0.86279 0.0001 265	0.35627 0.3615 265	0.18886 0.0020 265	0.09737 0.1138 265	-0.09917 0.1073 265	-0.04731 0.4484 259
COUNTYCO	0.04581 0.1845 264	-0.01502 0.8077 265	0.20305 0.0009 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.04189 0.1682 265	-0.66227 0.0001 265	-0.19442 0.0015 265	0.25938 0.0001 265	0.10436 0.0937 259
DCHD1	-0.06956 0.6218 264	0.08999 0.1461 265	-0.06709 0.2765 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	-0.06701 0.2771 265	0.43365 0.0001 265	-0.18987 0.0019 265	-0.08665 0.1596 265	-0.07034 0.2590 259
DCHD2	-0.01485 0.8103 264	-0.07765 0.2077 265	-0.11567 0.0601 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	-0.19616 0.0013 265	0.32403 0.0001 265	0.06663 0.2798 265	0.09034 0.1425 265	0.25720 0.0001 259
DCHD3	-0.11097 0.0716 264	-0.02793 0.6508 265	-0.07296 0.2434 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.18614 0.0846 265	0.28179 0.0001 265	0.68161 0.0001 265	-0.34493 0.0001 265	-0.18938 0.0022 259
DCHD4	0.04284 0.4883 264	-0.00092 0.9108 265	-0.03133 0.6116 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	-0.07280 0.2426 265	-0.08269 0.1796 265	-0.24091 0.0001 265	0.09002 0.1439 265	-0.12271 0.0483 259
DCHD5	0.03134 0.6122 264	-0.04391 0.4766 265	0.05306 0.3897 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.04272 0.4887 265	-0.04869 0.4299 265	-0.11274 0.0669 265	0.05545 0.3643 265	0.13492 0.0300 259
DCHD6	0.00687 0.9115 264	0.03590 0.5607 265	0.01781 0.7729 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.33891 0.0001 265	-0.17207 0.0058 265	0.45825 0.0001 265	-0.15235 0.0130 265	-0.12505 0.0444 259
DCHD7	-0.02791 0.6517 264	0.10654 0.0834 265	-0.00695 0.9103 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	-0.14651 0.0170 265	-0.27308 0.0001 265	-0.29997 0.0001 265	-0.18906 0.0020 265	-0.15698 0.0115 259
DCHD8	0.04612 0.4556 264	-0.04715 0.4447 265	-0.02363 0.7018 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	-0.01053 0.8645 265	-0.23414 0.0001 265	-0.21892 0.0003 265	0.33239 0.0001 265	-0.14375 0.0206 259
TEMPAPR	-0.58242 0.0001 264	0.16542 0.0070 265	-0.12720 0.0385 265	-0.51726 0.0001 265	0.37699 0.0001 265	0.03447 0.0001 265	0.08936 0.2605 265	-0.11490 0.0618 265	0.14619 0.0173 265	-0.09976 0.1052 265	-0.03476 0.5699 265	0.02588 0.6749 265	-0.18054 0.0870 259
TEMPMAY	-0.56760 0.0001 264	0.44621 0.0001 265	0.01480 0.8104 265	-0.19082 0.0018 265	-0.03944 0.5226 265	0.74580 0.0001 265	0.18231 0.0024 265	-9.22409 0.0001 265	0.23104 0.0001 265	-0.06931 0.2609 265	0.03238 0.6007 265	0.00519 0.2904 265	-0.12285 0.6483 259
TEMPJUNE	-0.25192 0.0001 263	-0.22661 0.0002 264	-0.02310 0.7097 264	-0.30602 0.0001 264	0.37784 0.0001 264	0.29466 0.0001 264	-0.20283 0.0009 264	-0.08268 0.1815 264	0.21106 0.0006 264	-0.23889 0.0001 264	-0.03717 0.5477 264	0.11922 0.0538 264	0.06411 0.3050 258
PERAPR	1.00000 0.0000 264	-0.26295 0.0000 264	0.49417 0.0001 264	0.63553 0.0001 264	0.12657 0.0399 264	-0.60578 0.0001 264	-0.21193 0.0005 264	-0.42521 0.0001 264	-0.08432 0.1719 264	-0.05457 0.3772 264	-0.06378 0.3019 264	0.15987 0.0096 264	0.05458 0.3826 258
PERMAY	-0.26295 0.0001 264	1.00000 0.0000 265	-0.02248 0.7156 265	-0.01375 0.8237 265	-0.56705 0.0001 265	0.38442 0.0001 265	0.46921 0.0001 265	0.14634 0.0170 265	0.15461 0.0117 265	-0.09945 0.1063 265	0.01296 0.8337 265	0.02727 0.6586 265	-0.11688 0.0604 259
PERJUNE	0.49417 0.0001 264	-0.02248 0.7156 265	1.00000 0.0000 265	0.53113 0.0001 265	0.07227 0.2410 265	-0.17169 0.0052 265	-0.08536 0.1659 265	-0.54119 0.0001 265	0.03374 0.5845 265	-0.04156 0.1371 265	-0.07928 0.1982 265	0.10718 0.0022 265	-0.02012 0.7472 259
DYR1	0.63553 0.0001 264	-0.01375 0.8237 265	0.53113 0.0001 265	1.00000 0.0000 265	-0.25000 0.0001 265	-0.25000 0.0001 265	-0.25000 0.0001 265	-0.70711 0.0001 265	-0.02224 0.7186 265	0.81866 0.0001 265	-0.04779 0.4385 265	0.07169 0.2449 265	-0.07551 0.2259 259
DYR2	0.12657 0.0399 264	-0.56705 0.0001 265	0.07227 0.2410 265	-0.25000 0.0001 265	1.00000 0.0000 265	-0.25000 0.0001 265	-0.25000 0.0001 265	-0.35355 0.0001 265	-0.06796 0.2703 265	0.08172 0.1868 265	-0.02532 0.6816 265	-0.02795 0.6552 265	-0.02324 0.7097 259

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	PERAPW	PERMAY	PERJUNE	DYN1	DYN2	DYN3	DYN4	YEAR	SPW1	DURUM1	BARLEY1	OATS1	RYE1
DYN3	-0.60579 0.0001 264	0.38442 0.0001 265	-0.17124 0.0052 265	-0.25000 0.0001 265	-0.25000 0.0001 265	1.00000 0.0000 265	-0.25000 0.0001 265	0.00000 1.0000 265	0.13963 0.0230 265	0.03311 0.5916 265	-0.02941 0.6337 265	-0.13263 0.0309 265	-0.06450 0.3011 259
DYN4	-0.21193 0.0005 264	-0.46921 0.0001 265	-0.08536 0.1654 265	-0.25000 0.0001 265	-0.25000 0.0001 265	-0.25000 0.0001 265	1.00000 0.0000 265	0.35355 0.0001 265	0.03089 0.6166 265	-0.11272 0.0669 265	0.07066 0.2517 265	0.20595 0.0007 265	-0.05688 0.3619 259
YEAR	-0.42521 0.0001 264	0.14654 0.0170 265	-0.54119 0.0001 265	-0.70711 0.0001 265	-0.35355 0.0001 265	0.00000 1.0000 265	0.35355 0.0001 265	1.00000 0.0000 265	-0.00489 0.9368 265	-0.07724 0.2098 265	0.07220 0.2415 265	-0.04095 0.5069 265	0.15805 0.0109 259
SPW1	-0.08432 0.1719 264	0.15461 0.0117 265	0.03374 0.5845 265	-0.02224 0.7186 265	-0.06796 0.2703 265	0.13963 0.0230 265	0.03089 0.6166 265	-0.00489 0.9368 265	1.00000 0.0000 265	-0.12122 0.0487 265	0.46121 0.0001 265	0.29852 0.0001 265	0.28058 0.0012 259
DURUM1	-0.05457 0.3772 264	-0.09945 0.1063 265	-0.09156 0.1371 265	0.01866 0.7624 265	0.08172 0.1848 265	0.03311 0.5916 265	-0.11272 0.0669 265	-0.07724 0.2098 265	-0.12122 0.0487 265	1.00000 0.0000 265	0.23377 0.0001 265	-0.10765 0.0802 265	0.10711 0.0854 259
BARLEY1	-0.06378 0.3019 264	0.01296 0.8337 265	-0.07926 0.1982 265	-0.04774 0.4385 265	-0.02532 0.6816 265	-0.02941 0.6337 265	0.07066 0.2517 265	0.07220 0.2415 265	0.46121 0.0001 265	0.23377 0.0001 265	1.00000 0.0000 265	-0.19628 0.0013 265	0.03275 0.5998 259
OATS1	0.15907 0.0096 264	0.02727 0.6586 265	0.18718 0.0022 265	0.07169 0.2449 265	-0.02755 0.6552 265	-0.13263 0.0309 265	0.20595 0.0007 265	-0.04095 0.5069 265	0.29852 0.0001 265	-0.10765 0.0802 265	-0.19628 0.0013 265	1.00000 0.0000 265	0.30697 0.0001 259
RYE1	0.05458 0.3826 258	-0.11686 0.0604 259	-0.02012 0.7472 259	-0.07551 0.2259 259	-0.02 0.7097 259	-0.06450 0.3011 259	-0.05688 0.3619 259	0.15805 0.0109 259	0.28058 0.0012 259	0.10711 0.0854 259	0.03275 0.5998 259	0.30697 0.0001 259	1.00000 0.0000 259
FLAX1	0.09518 0.1245 262	-0.09089 0.1401 263	0.21542 0.0004 263	0.13282 0.0313 263	0.08328 0.1762 263	-0.10152 0.1004 263	0.07281 0.2393 263	-0.18474 0.0026 263	0.15395 0.0124 263	0.15077 0.0144 263	0.08421 0.1733 263	0.41191 0.0001 263	0.31027 0.0001 257
AREA1	0.01050 0.8651 264	0.04195 0.4965 265	-0.05813 0.3459 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.38138 0.0001 265	0.32241 0.0001 265	0.02958 0.6316 265	0.45996 0.0001 265	0.12913 0.0378 259
SSG1	-0.09070 0.1477 258	0.03011 0.6309 257	-0.01857 0.7671 257	-0.01029 0.8696 257	-0.01043 0.8678 257	0.09091 0.1961 257	0.01336 0.8316 257	-0.02840 0.6504 257	0.70289 0.0001 257	0.54266 0.0001 257	0.70849 0.0001 257	0.20222 0.0011 257	0.27074 0.0001 251
TACRES1	0.01050 0.8651 264	0.04195 0.4965 265	-0.05813 0.3459 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.00000 1.0000 265	0.38138 0.0001 265	0.32241 0.0001 265	0.02958 0.6316 265	0.45996 0.0001 265	0.12913 0.0378 259
PSSG1	-0.04941 0.1126 258	0.02646 0.7360 257	0.03340 0.5948 257	-0.00283 0.9648 257	-0.00322 0.9540 257	0.10729 0.0861 257	-0.01290 0.8369 257	-0.05062 0.4190 257	0.64492 0.0001 257	0.33042 0.0001 257	0.74255 0.0001 257	0.14990 0.0162 257	0.15959 0.0109 257
WPSSG	0.63306 0.0001 264	-0.41120 0.0001 265	0.47702 0.0001 265	0.72339 0.0001 265	0.41130 0.0001 265	-0.30451 0.0001 265	-0.49527 0.0001 265	-0.83508 0.0001 265	-0.05193 0.3917 265	0.23947 0.0001 265	-0.02482 0.6875 265	-0.06708 0.2766 265	-0.06429 0.3027 259

	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSSG
SPW	0.14882 0.0023 263	0.38818 0.0001 265	0.66736 0.0001 257	0.31535 0.0001 265	0.40775 0.0001 257	0.05102 0.4081 265
DURUM	0.17928 0.0035 263	0.32435 0.0001 265	0.52485 0.0001 257	0.32435 0.0001 265	0.38828 0.0001 257	0.26044 0.0001 265
BARLEY	0.09588 0.1179 263	0.02831 0.6464 265	0.71411 0.0001 257	0.02831 0.6464 265	0.75126 0.0001 257	0.07113 0.7320 265
OATS	0.24071 0.0001 263	0.44773 0.0001 265	0.19169 0.0020 257	0.44773 0.0001 265	-0.14297 0.0216 257	-0.04678 0.4464 265

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	FLAG1	AREA1	SSG1	TACRES1	PSSG1	#PSSG
AVE	0.39414 0.0001 257	0.13481 0.0301 259	0.27553 0.0001 251	0.13481 0.0301 259	0.16778 0.0077 251	-0.12981 0.0368 259
FLAG	0.80426 0.0001 261	0.01943 0.7538 263	0.35987 0.0001 255	0.01943 0.7538 263	0.37096 0.0001 255	0.14287 0.0205 263
AREA	-0.00425 0.9454 263	1.00000 0.0001 265	0.45209 0.0001 257	1.00000 0.0001 265	-0.23441 0.0001 257	0.01639 0.7906 265
SSG	0.34954 0.0001 255	0.45936 0.0001 257	0.97885 0.0001 249	0.45936 0.0001 257	0.67096 0.0001 249	0.18404 0.0031 257
AREACRES	-0.00425 0.9454 263	1.00000 0.0001 265	0.45209 0.0001 257	1.00000 0.0001 265	-0.23441 0.0001 257	0.01639 0.7906 265
PSSG	0.39006 0.0001 255	-0.22220 0.0003 257	0.67968 0.0001 249	-0.22220 0.0003 257	0.76914 0.0001 249	0.21704 0.0005 257
PDUMUM	0.14232 0.0017 263	-0.01601 0.7953 265	-0.01961 0.7544 257	-0.01601 0.7953 265	0.00224 0.9714 257	0.93308 0.0001 265
PSPW	0.19808 0.0012 263	-0.03420 0.5794 265	-0.02025 0.7467 257	-0.03420 0.5794 265	0.02410 0.7006 257	0.93641 0.0001 265
POATS	0.09114 0.1405 263	-0.06528 0.2897 265	0.01246 0.8424 257	-0.06528 0.2897 265	0.09174 0.1425 257	0.67253 0.0001 265
PBARLEY	0.26788 0.0001 263	-0.06012 0.3296 265	0.16249 0.0089 257	-0.06012 0.3296 265	0.26613 0.0001 257	0.86342 0.0001 265
COUNTYCO	0.10040 0.1035 263	-0.23219 0.0001 265	-0.32310 0.0001 257	-0.23219 0.0001 265	-0.20015 0.0013 257	-0.10438 0.0899 265
DCHD1	-0.12675 0.0400 263	0.18382 0.0027 265	0.09716 0.1206 257	0.18382 0.0027 265	-0.03749 0.5497 257	0.08469 0.1713 265
DCHD2	0.21707 0.0004 263	0.05366 0.3842 265	0.11877 0.0572 257	0.05366 0.3842 265	0.07444 0.2343 257	0.03273 0.5958 265
DCHD3	-0.04545 0.1671 263	-0.06247 0.3110 265	0.35145 0.0001 257	-0.06247 0.3110 265	0.46664 0.0001 257	0.03998 0.5169 265
DCHD4	-0.14776 0.0165 263	0.28967 0.0001 265	-0.15742 0.0115 257	0.28967 0.0001 265	-0.35094 0.0001 257	-0.05844 0.3433 265
DCHD5	0.12149 0.0489 263	-0.08644 0.1606 265	-0.02041 0.6735 257	-0.08644 0.1606 265	0.02532 0.6862 257	0.03398 0.5818 265
DCHD6	0.35923 0.0001 263	-0.14733 0.0164 265	0.24102 0.0001 257	-0.14733 0.0164 265	0.42582 0.0001 257	0.00775 0.9001 265
DCHD7	-0.12407 0.0001 263	-0.14489 0.0184 265	-0.37985 0.0001 257	-0.14489 0.0184 265	-0.39563 0.0001 257	-0.03982 0.5187 265

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	FLAG1	AREA1	SSG1	TACRES1	PSSG1	#PSSG
DCHD8	-0.02981 0.6304 263	0.18379 0.0027 265	-0.16454 0.0082 257	0.18379 0.0027 265	-0.32665 0.0001 257	-0.08159 0.1855 265
TEMPAPR	0.02269 0.7142 263	0.30140 0.9767 265	0.01453 0.8167 257	0.00180 0.9767 265	0.02589 0.6795 257	-0.22219 0.0003 265
TEMPMAY	0.10458 0.0906 263	-0.02300 0.7094 265	0.12865 0.0393 257	-0.02300 0.7094 265	0.18023 0.0037 257	-0.20315 0.0009 265
TEMPJUNE	0.18280 0.0030 262	-0.03142 0.6113 264	0.01826 0.7712 256	-0.03142 0.6113 264	0.06831 0.2762 256	-0.03909 0.5272 264
PERAPR	0.09518 0.1244 262	0.01050 0.8651 264	-0.09070 0.1479 256	0.01050 0.8651 264	-0.09941 0.1126 256	0.60300 0.0001 264
PERMAY	-0.09609 0.1201 263	0.04195 0.4965 265	0.03011 0.6309 257	0.04195 0.4965 265	0.02096 0.7380 257	-0.41120 0.0001 265
PERJUNE	0.21542 0.0004 263	-0.05513 0.3459 265	-0.01857 0.7671 257	-0.05813 0.3459 265	0.03340 0.5940 257	0.47702 0.0001 265
DYR1	0.13282 0.0313 263	0.00000 1.0000 265	-0.01029 0.8696 257	0.00000 1.0000 265	-0.00283 0.9640 257	0.72339 0.0001 265
DYR2	0.04328 0.1782 263	0.00000 1.0000 265	-0.01043 0.8678 257	0.00000 1.0000 265	-0.00322 0.9590 257	0.41130 0.0001 265
DYR3	-0.10152 0.1004 263	0.00000 1.0000 265	0.08091 0.1961 257	0.00000 1.0000 265	0.10729 0.0861 257	-0.30451 0.0001 265
DYR4	0.07281 0.2393 263	0.00000 1.0000 265	0.01336 0.8312 257	0.00000 1.0000 265	-0.01240 0.8369 257	-0.44527 0.0001 265
YEAR	-0.14474 0.0026 263	0.00000 1.0000 265	-0.02060 0.6504 257	0.00000 1.0000 265	-0.05062 0.4190 257	-0.85508 0.0001 265
SPW1	0.15395 0.0124 263	0.38138 0.0001 265	0.70269 0.0001 257	0.38138 0.0001 265	0.44492 0.0001 257	-0.05283 0.3917 265
DURUM1	0.15077 0.0144 263	0.32241 0.0001 265	0.54246 0.0001 257	0.32241 0.0001 265	0.33042 0.0001 257	0.23947 0.0001 265
BARLEY1	0.08421 0.1733 263	0.02956 0.6316 265	0.70849 0.0001 257	0.02956 0.6316 265	0.74255 0.0001 257	-0.02482 0.6875 265
OATS1	0.41191 0.0001 263	0.45996 0.0001 265	0.20222 0.0011 257	0.45996 0.0001 265	-0.14990 0.0162 257	-0.06708 0.2766 265
RYE1	0.31024 0.0001 257	0.12913 0.0378 259	0.27074 0.0001 257	0.12913 0.0378 259	0.15859 0.0104 257	-0.06424 0.3027 259
FLAX1	1.00000 0.0000 263	-0.00425 0.9454 265	0.35021 0.0001 257	-0.00425 0.9454 265	0.38061 0.0001 257	0.17401 0.0036 265

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	FLAI	AMEAI	SSGI	TACRESI	PSSGI	WPSSG
AMEAI	-0.00425 0.9454 263	1.00000 0.0000 265	0.45209 0.0001 257	1.00000 0.0001 265	-0.23441 0.0001 257	0.01639 0.7906 265
SSGI	0.35021 0.0001 257	0.45209 0.0001 257	1.00000 0.0000 257	0.45209 0.0001 257	0.70842 0.0001 257	0.07973 0.2027 257
TACRESI	-0.00425 0.9454 263	1.00000 0.0001 265	0.45209 0.0001 257	1.00000 0.0000 265	-0.23441 0.0001 257	0.01639 0.7906 265
PSSGI	0.38041 0.0001 257	-0.23441 0.0001 257	0.70842 0.0001 257	-0.23441 0.0001 257	1.00000 0.0000 257	0.09584 0.1254 257
WPSSG	0.17901 0.0036 263	0.01639 0.7906 265	0.07973 0.2027 257	0.01639 0.7906 265	0.09584 0.1254 257	1.00000 0.0000 265

APPENDIX C

LISTINGS OF SUMMARY STATISTICS AND CORRELATION MATRIX AT THE CRD LEVEL

STATISTICAL ANALYSIS SYSTEM

16:06 TUESDAY, JUNE 23, 1981 16

VARIABLE	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SUM	VARIANCE	C.V.
SPW	45	764000.00000	216436.255774	347100.00000	1265300.00000	32324.0340527	34380000.00	47017961818	28.382
DURUM	45	378222.22222	321201.516249	32000.00000	1023700.00000	47881.8944987	17020000.00	10317041 40440	84.924
BARLEY	45	251333.33333	250935.407294	36700.00000	985000.00000	37407.7441912	11310000.00	6296857 0636	99.842
OATS	45	159222.22222	61017.616231	35000.00000	360800.00000	9215.2261 40	7120000.00	3821417677	38.310
RYE	45	17666.66667	15686.993777	2700.00000	61700.00000	2338.4640 56	795000.00	2460076636	88.796
FLAX	45	66400.00000	40689.396209	4500.00000	219400.00000	6066.0338 15	3096000.00	2179847182	61.262
AMFA	45	7697.08889	1056.575132	5504.00000	9632.00000	157.5049 21	346405.00	1116351	13.726
SSD	45	1630244.44444	556431.041450	992400.00000	3032700.00000	82947.8422 32	73721000.00	3096155 01889	34.765
AMEALMES	45	492666.66667	676208.084644	3525760.00000	5908480.00000	100803.1496 13	221694200.00	4572573737 37	137.326
MSSU	45	3.33956	0.161360	0.18429	0.60546	0.0181 13	150.28	8	13.726
MIDURUM	45	3.71888	1.374821	2.34000	6.09000	0.2056 42	167.35	2	35.744
MSP+	45	3.27200	0.826862	2.26000	4.60000	0.1233 59	147.24	1	37.103
POATS	45	1.21022	0.199585	0.71000	1.48000	0.0297 52	54.46	0	25.332
BRARLEY	45	2.13289	0.556801	1.15000	3.35000	0.0830 12	95.98	0	16.472
COMMTYCO	45	50.00000	20.111640	10.00000	90.00000	3.0 42495	2250.00	662	26.108
DCM01	45	0.11111	0.317821	0.00000	1.00000	0.0 47378	5.00	0	52.223
DCM02	45	0.11111	0.317821	0.00000	1.00000	0.0 47378	5.00	0	286.039
DCM03	45	0.11111	0.317821	0.00000	1.00000	0.0 47378	5.00	0	286.039
DCM04	45	0.11111	0.317821	0.00000	1.00000	0.0 47378	5.00	0	286.039
DCM05	45	0.11111	0.317821	0.00000	1.00000	0.0 47378	5.00	0	286.039
DCM06	45	0.11111	0.317821	0.00000	1.00000	0.0 47378	5.00	0	286.039
DCM07	45	0.11111	0.317821	0.00000	1.00000	0.0 47378	5.00	0	286.039
DCM08	45	0.11111	0.317821	0.00000	1.00000	0.0 47378	5.00	0	286.039
TEMPAPR	45	52.73889	6.516176	29.80000	58.40000	0.971376	1035.50	42	12.475
TEMPMAY	45	59.06000	5.100646	47.00000	65.70000	0.760365	2522.70	26	8.6 44
TEMP JUNE	45	64.48889	1.536854	61.70000	66.30000	0.229101	2901.00	2	2.383
RFMAPR	45	1.34556	1.233050	0.14000	4.32000	0.183812	87.55	2	91.678
RFMAY	45	2.25267	1.156156	0.37000	4.86000	0.172349	101.37	1	51.324
RFMJUNE	45	3.52711	1.450577	1.23000	9.22000	0.216239	158.82	2	41.101
DTM1	45	0.20000	0.404520	0.00000	1.00000	0.060302	9.00	0	202.260
DTM2	45	0.20000	0.404520	0.00000	1.00000	0.060302	9.00	0	202.260
DTM3	45	0.20000	0.404520	0.00000	1.00000	0.060302	9.00	0	202.260
DTM4	45	0.20000	0.404520	0.00000	1.00000	0.060302	9.00	0	202.260
DTM5	45	0.20000	0.404520	0.00000	1.00000	0.060302	9.00	0	202.260
DTM6	45	0.20000	0.404520	0.00000	1.00000	0.060302	9.00	0	202.260
DTM7	45	0.20000	0.404520	0.00000	1.00000	0.060302	9.00	0	202.260
DTM8	45	0.20000	0.404520	0.00000	1.00000	0.060302	9.00	0	202.260
SPW1	45	3.00000	1.430194	1.00000	5.00000	0.213201	135.00	2	47.673
DURUM1	45	77222.22222	225910.481938	3a7100.00000	1265 .00.00000	33676.746299	3473 0000.00	51035545856	29.255
BARLEY1	45	384222.22222	322828.647129	40100.00000	1023700.00000	48124.453337	17290000.00	10421833 5604	84.021
OATS1	45	2504	250189.764147	36700.00000	985000.00000	37296.088094	11720000.00	6259491 8 34	99.943
RYE1	45	17200	6 05.617801	57100.00000	360800.00000	9034.552081	7743000.00	3673040909	35.236
FLAX1	45	15577.77778	14535.034304	2700.00000	61700.00000	2166.754484	701000.00	211267222	93.306
AMFA1	45	7671.. .11111	52720.447225	4500.00000	227700.00000	7854.100253	3452000.00	2779445556	68.726
SSD1	45	7697.08889	1056.575132	5504.00000	9632.00000	157.504921	346405.00	1116351	13.726
TACHES1	45	1641177.77778	564827.723087	992400.00000	3032700.00000	84199.545627	75653000.00	3190 0 356760	34.597
AMEAL1	45	4926	676208.084644	3525760.00000	5908480.00000	100803.149613	221694200.00	4572573737 37	137.326
MSSU1	45	3.34889	0.125110	0.18429	0.60546	0.018653	15.70	0	35.959
MMSSU	45	2.96481	0.851905	2.04497	4.81488	0.126994	133.42	1	28.734

VARIABLE	N	MEAN	STD DEV	SUM	MINIMUM	MAXIMUM
SPR	45	764000.0	216836.26	34380000	347100.0	1265300.0
DURUM	45	374222.2	321201.52	17020000	32000.0	1023700.0
BARLEY	45	251333.3	250935.41	11310000	36700.0	985000.0
OATS	45	158222.2	61817.62	7120000	35000.0	360000.0
RYE	45	17666.7	15686.89	795000	2700.0	61700.0
FLAX	45	68400.0	46689.33	3078000	4500.0	219900.0
AREA	45	7697.9	1056.58	346405	5589.0	9232.0
SSG	45	1638244.4	556431.04	73721000	992400.0	3032700.0
AREACRES	45	4926648.9	676208.08	221699200	3525760.0	5908480.0
PSSG	45	0.3	0.12	15	0.2	0.6
PDURUM	45	3.7	1.38	167	2.3	6.1
PSPR	45	3.3	0.83	147	2.3	4.6
POATS	45	1.2	0.20	54	0.9	1.5
PBARLEY	45	2.1	0.56	96	1.3	3.3
COUNTYCD	45	50.0	26.11	2250	10.0	90.0
DCH01	45	0.1	0.32	5	0	1.0
DCH02	45	0.1	0.32	5	0	1.0
DCH03	45	0.1	0.32	5	0	1.0
DCH04	45	0.1	0.32	5	0	1.0
DCH05	45	0.1	0.32	5	0	1.0
DCH06	45	0.1	0.32	5	0	1.0
DCH07	45	0.1	0.32	5	0	1.0
DCH08	45	0.1	0.32	5	0	1.0
TEMPAPR	45	40.8	6.52	1835	29.8	50.4
TEMPMAY	45	56.1	5.10	2523	47.0	65.7
TEMPJUN	45	64.5	1.54	2902	61.7	68.3
PERAPR	45	1.9	1.23	88	0.1	4.3
PERMAY	45	2.3	1.16	101	0.4	4.4
PERJUNE	45	3.5	1.45	159	1.2	9.2
DYH1	45	0.2	0.40	9	0	1.0
DYH2	45	0.2	0.40	9	0	1.0
DYH3	45	0.2	0.40	9	0	1.0
DYH4	45	0.2	0.40	9	0	1.0
YEAR	45	3.0	1.43	135	1.0	5.0
SPR1	45	772222.2	225910.48	34750000	347100.0	1265300.0
DURUM1	45	384222.2	322826.65	17290000	40100.0	1023700.0
BARLEY1	45	260444.4	250184.76	11720000	36700.0	985000.0

VARIABLE	N	MEAN	STD DEV	SUM	MINIMUM	MAXIMUM
OATS1	45	172000.0	60605.62	7740000	57100.0	300000.0
RYE1	45	15577.8	14535.03	701000	2700.0	61700.0
FLAX1	45	76711.1	52720.45	3452000	4500.0	227700.0
AREA1	45	7697.9	1056.58	346405	5509.0	9232.0
SSG1	45	1681177.8	564627.72	75653000	992400.0	3032700.0
TACRES1	45	4926648.9	676208.08	221699200	3525760.0	5900460.0
PSSG1	45	0.3	0.13	16	0.2	0.6
#PSSG	45	3.0	0.85	133	2.0	4.0

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	SPR	DUMUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	PDURUM	PSPR	POATS
SPR	1.00000 0.0000	-0.07861 0.6078	0.61383 0.0001	-0.11239 0.4623	-0.15627 0.3053	0.13613 0.3726	-0.18941 0.2127	0.61567 0.0001	-0.18941 0.2127	0.66472 0.0001	0.07662 0.6169	0.10669 0.2738	0.27569 0.0668
DUMUM	-0.07861 0.6078	1.00000 0.0000	0.33069 0.0265	-0.38932 0.0082	0.05865 0.7020	0.05751 0.7075	0.47230 0.0011	0.65898 0.0001	0.47230 0.0011	0.36121 0.0148	0.12388 0.4175	0.06852 0.6547	-0.09492 0.5351
BARLEY	0.61384 0.0001	0.33069 0.0265	1.00000 0.0000	-0.40632 0.0056	-0.12496 0.4134	0.21383 0.1564	-0.23241 0.1245	0.85035 0.0001	-0.23241 0.1245	0.87655 0.0001	-0.01185 0.9384	-0.08815 0.5576	0.06217 0.6850
OATS	-0.11234 0.4623	-0.38932 0.0082	-0.40632 0.0056	1.00000 0.0000	0.23002 0.1285	0.44877 0.0005	0.02974 0.8462	-0.29235 0.0513	0.02974 0.8462	-0.30260 0.0433	-0.00601 0.9687	0.04458 0.7727	0.38059 0.0099
RYE	-0.15627 0.3053	0.05865 0.7020	-0.12496 0.4134	0.23002 0.1285	1.00000 0.0000	0.52734 0.0002	-0.18505 0.2236	0.01460 0.9242	-0.18505 0.2236	0.05010 0.7438	-0.13308 0.3835	-0.13883 0.3659	-0.31006 0.0382
FLAX	0.13613 0.3726	0.05751 0.7075	0.21383 0.1564	0.44877 0.0005	0.52734 0.0002	1.00000 0.0000	-0.31927 0.0325	0.33686 0.0237	-0.31927 0.0325	0.42368 0.0037	0.16110 0.2904	0.22088 0.1448	0.33468 0.0247
AREA	-0.18941 0.2127	0.47230 0.0011	-0.23241 0.1245	0.02974 0.8462	-0.18505 0.2236	-0.31927 0.0325	1.00000 0.0000	0.06532 0.6699	1.00000 0.0000	-0.42743 0.0034	-0.03791 0.8047	-0.07689 0.6157	-0.07922 0.6050
SSG	0.61567 0.0001	0.65898 0.0001	0.85035 0.0001	-0.29235 0.0513	0.01460 0.9242	0.33686 0.0237	0.06532 0.6699	1.00000 0.0000	0.06532 0.6699	0.86619 0.0001	0.10512 0.4919	0.11821 0.4393	0.14229 0.3511
AREACRES	-0.18941 0.2127	0.47230 0.0011	-0.23241 0.1245	0.02974 0.8462	-0.18505 0.2236	-0.31927 0.0325	1.00000 0.0000	0.06532 0.6699	1.00000 0.0000	-0.42743 0.0034	-0.03791 0.8047	-0.07689 0.6157	-0.07922 0.6050
PSSG	0.66472 0.0001	0.36121 0.0148	0.87655 0.0001	-0.30260 0.0433	0.05010 0.7438	0.42368 0.0037	-0.42743 0.0034	0.86619 0.0001	-0.42743 0.0034	1.00000 0.0000	0.12487 0.4138	0.15545 0.3079	0.18404 0.2262
PDURUM	0.07662 0.6169	0.12388 0.4175	-0.01185 0.9384	-0.00601 0.9687	-0.13308 0.3835	0.16110 0.2904	-0.03791 0.8047	0.10512 0.4919	-0.03791 0.8047	0.12487 0.4138	1.00000 0.0000	0.96585 0.0001	0.59837 0.0001
PSPR	0.10669 0.4739	0.06852 0.6547	-0.08815 0.5576	0.04458 0.7727	-0.13883 0.3659	0.22088 0.1448	-0.07689 0.6157	0.11821 0.4393	-0.07689 0.6157	0.15545 0.3079	0.96585 0.0001	1.00000 0.0000	0.67667 0.0001
POATS	0.27569 0.0668	-0.09492 0.5351	0.06217 0.6850	0.38059 0.0099	-0.31006 0.0382	0.33468 0.0247	-0.07922 0.6050	0.14229 0.3511	-0.07922 0.6050	0.18404 0.2262	0.59837 0.0001	0.67667 0.0001	1.00000 0.0000
PBARLEY	0.22601 0.1360	-0.23273 0.1246	0.20543 0.1756	0.03443 0.5745	-0.15506 0.3123	0.41129 0.0050	-0.16304 0.2846	0.34003 0.0223	-0.16304 0.2846	0.48017 0.0065	0.79122 0.0001	0.82045 0.0001	0.82313 0.0001
COUNTY1	0.29544 0.0484	-0.40653 0.0056	-0.19937 0.1892	0.47752 0.0009	0.10719 0.4752	0.32910 0.0268	-0.36374 0.0140	-0.41125 0.0050	-0.36374 0.0140	-0.21519 0.1557	0.03526 0.8181	0.08516 0.5781	0.15438 0.3113
FSPR1	-0.12031 0.4311	0.17536 0.2481	-0.19312 0.2047	-0.08519 0.5771	-0.05731 0.7182	-0.13254 0.3940	0.51915 0.0003	0.18717 0.2183	0.51915 0.0003	-0.03804 0.8040	-0.02614 0.8646	-0.07075 0.6442	-0.06647 0.6564
FPOA1	-0.56187 0.0001	0.42196 0.0041	-0.01910 0.9004	-0.03310 0.8291	0.36271 0.0143	0.29838 0.0465	-0.26862 0.0767	0.00975 0.9493	-0.26862 0.0767	0.18114 0.5085	-0.81111 0.9422	-0.02502 0.8704	-0.08997 0.5567

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / N = 45

	SPR	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	PDURUM	PSPR	POATS
DCMD3	0.46154 0.0014	0.48155 0.0008	0.77300 0.0001	-0.40419 0.0059	-0.23218 0.1248	-0.02803 0.8550	0.32384 0.0316	0.75299 0.0001	0.32084 0.0316	0.49530 0.0005	-0.00593 0.9692	-0.01208 0.9372	-0.02549 0.8681
DCMD4	-0.31214 0.0364	-0.15266 0.3168	-0.29457 0.0495	0.00704 0.9634	-0.23982 0.1138	-0.29166 0.0521	0.29085 0.0533	-0.37382 0.0116	0.29085 0.0533	-0.43864 0.0032	-0.02200 0.8860	-0.01898 0.9015	-0.00131 0.9891
DCMD5	0.10470 0.4772	-0.06503 0.6674	-0.13062 0.3924	0.06963 0.6495	0.23963 0.1129	0.16603 0.2757	-0.17187 0.2569	-0.02611 0.8647	-0.17187 0.2589	0.02268 0.8833	0.01998 0.8963	0.03718 0.8088	0.01035 0.9462
DCMD6	0.40304 0.0056	-0.28670 0.0599	0.41271 0.0048	-0.34369 0.0208	-0.24951 0.0984	-0.02206 0.8857	-0.74073 0.0001	0.13489 0.3776	-0.74073 0.0001	0.54341 0.0001	0.02413 0.8756	0.04141 0.7871	0.00609 0.6727
DCMD7	-0.07001 0.6477	-0.29764 0.0471	-0.28129 0.0612	-0.10077 0.5101	-0.17338 0.2547	-0.45703 0.0016	0.09784 0.5226	-0.38838 0.0099	0.09784 0.5226	-0.39666 0.0070	-0.00984 0.9536	-0.03537 0.8176	0.00489 0.6757
DCMD8	-0.11224 0.4594	-0.35015 0.0183	-0.27376 0.0688	0.33314 0.0253	-0.26865 0.0744	-0.14397 0.3454	0.04031 0.7926	-0.37488 0.0182	0.04031 0.7926	-0.38238 0.0095	0.00858 0.9554	0.00649 0.9041	0.00677 0.9648
TEMPAPR	0.25404 0.0546	-0.24635 0.1118	0.06334 0.6743	0.40142 0.0063	-0.14014 0.2364	-0.00130 0.9932	-0.04140 0.7871	0.03492 0.7946	-0.04140 0.7871	0.06018 0.6658	-0.34130 0.0218	-0.24103 0.1107	0.38954 0.0085
TEMPMAY	0.19835 0.1915	-0.17869 0.2408	0.22781 0.1323	0.47450 0.0010	-0.13424 0.3793	0.21362 0.1588	-0.10881 0.4768	0.14386 0.3458	-0.10881 0.4768	0.19081 0.2093	-0.26838 0.0747	-0.25643 0.0917	0.38985 0.0081
TEMPJUNE	0.51728 0.0003	-0.43041 0.0031	0.07341 0.6317	0.34145 0.0217	-0.05152 0.7368	0.19873 0.1906	-0.31752 0.0336	0.03911 0.7987	-0.31752 0.0336	0.19868 0.1907	-0.12679 0.4066	0.05315 0.7268	0.31432 0.0355
PRAPR	-0.15553 0.3076	0.03423 0.8234	-0.18484 0.2241	-0.12480 0.4140	0.01118 0.9419	0.08540 0.5597	-0.03055 0.7416	-0.13027 0.3937	-0.03055 0.7416	-0.09633 0.5291	0.78484 0.0001	0.75107 0.0001	0.23181 0.1264
PRMAY	-0.17501 0.2502	-0.00311 0.9673	0.05588 0.7154	0.21555 0.1550	0.05856 0.7023	0.02364 0.8775	0.02335 0.8790	-0.06334 0.6791	0.02335 0.8790	-0.06482 0.6722	-0.48998 0.0052	-0.52988 0.0002	-0.11016 0.4712
PRJUNE	0.15262 0.3175	-0.11109 0.4675	-0.05449 0.7197	0.24784 0.1007	0.13908 0.3627	0.36753 0.0130	-0.06426 0.6749	0.03268 0.9312	-0.06426 0.6749	0.06865 0.6541	0.67528 0.0001	0.63364 0.0001	0.47386 0.0010
DYM1	-0.12333 0.4196	0.11824 0.4342	-0.09940 0.5111	0.06907 0.6521	-0.03596 0.8162	0.23521 0.1192	0.00000 1.0000	0.04097 0.7893	0.00000 1.0000	0.04412 0.7735	0.82413 0.0001	0.71322 0.0001	0.50851 0.0005
DYM2	0.31196 0.0370	0.05352 0.7264	-0.01386 0.9279	-0.04652 0.5368	-0.13908 0.3601	-0.11215 0.4633	0.00000 1.0000	0.12236 0.4233	0.00000 1.0000	0.12334 0.4196	0.33307 0.0254	0.47394 0.0010	0.27531 0.0672
DYM3	0.00395 0.9835	-0.14083 0.3568	0.09593 0.5312	0.43262 0.0030	-0.17550 0.2489	0.21756 0.1511	0.00000 1.0000	0.05612 0.7142	0.00000 1.0000	0.05311 0.7290	-0.45278 0.0016	-0.37208 0.0119	0.39354 0.0075
DYM4	-0.16924 0.2718	-0.01814 0.9070	0.03329 0.8241	-0.06726 0.6607	0.21847 0.1494	-0.23369 0.1223	0.00000 1.0000	-0.06555 0.6648	0.00000 1.0000	-0.06624 0.6653	-0.35221 0.0177	-0.51785 0.0003	-0.41142 0.0081
YEAR	-0.13045 0.3931	-0.09469 0.5369	-0.04688 0.7598	-0.22365 0.1397	0.05325 0.7332	-0.22535 0.1313	0.00000 1.0000	-0.16339 0.2835	0.00000 1.0000	-0.16587 0.2762	-0.85926 0.0001	-0.85239 0.0001	-0.84955 0.0001
SPRI	0.84166 0.0001	-0.10771 0.4813	0.88121 0.0001	-0.02117 0.8901	-0.11305 0.4517	0.21618 0.1538	-0.22032 0.1459	0.58820 0.0001	-0.22032 0.1459	0.65225 0.0001	-0.11246 0.4608	-0.09267 0.5448	0.19081 0.2893
DURUMI	-0.01795 0.9068	0.49338 0.0011	0.05874 0.7015	-0.31310 0.0362	0.00214 0.9889	0.11853 0.4380	0.45861 0.0016	0.08813 0.5661	0.45861 0.0016	0.39282 0.0076	0.05386 0.7253	0.04154 0.7864	0.01723 0.9100
BARLEYI	0.58144 0.0001	0.33155 0.0261	0.45388 0.0001	-0.50249 0.0004	-0.07475 0.6625	0.18138 0.2331	-0.23369 0.1223	0.80404 0.0001	-0.23369 0.1223	0.83033 0.0001	-0.05211 0.7339	-0.04175 0.7854	-0.07434 0.6274
OATSI	-0.22243 0.1412	-0.32375 0.0290	-0.43324 0.0030	0.67670 0.0001	0.37011 0.0061	0.33911 0.0227	0.01125 0.9415	-0.35055 0.0142	0.01125 0.9415	-0.36121 0.0148	0.11332 0.4578	0.06993 0.6481	-0.07787 0.6112
RYEI	-0.13103 0.3907	-0.08052 0.5956	-0.12445 0.4154	0.23447 0.0582	0.74885 0.0001	0.26042 0.0801	-0.18084 0.2366	0.03502 0.8194	-0.18084 0.2366	0.07279 0.6347	-0.08151 0.5945	-0.01058 0.9450	-0.09697 0.5177
FLAXI	0.27434 0.0691	0.07154 0.6418	0.21545 0.1542	0.35504 0.0167	0.03715 0.8061	0.76258 0.0001	-0.35356 0.0172	0.33961 0.0225	-0.35356 0.0172	0.44628 0.0021	0.30436 0.0421	0.31385 0.0358	0.15065 0.3232
AREAI	-0.11741 0.4459	0.04124 0.7871	-0.13241 0.3845	0.02974 0.8452	-0.16223 0.2865	-0.31927 0.0325	1.00000 0.0001	0.06332 0.6844	1.00000 0.0000	-0.42743 0.0034	-0.83791 0.0001	-0.87689 0.0157	-0.87922 0.0050

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	SPR	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	PDURUM	PSPR	POATS
SSGI	0.56274 0.0001	0.06443 0.6801	0.67049 0.0001	-0.29716 0.0474	0.06106 0.6903	0.33868 0.0156	0.03292 0.8388	0.97891 0.0001	0.03292 0.8388	0.85796 0.0001	0.00181 0.9947	0.09478 0.5755	0.05648 0.7124
TACWEST	-0.14641 0.2127	0.47230 0.0011	-0.23261 0.1245	0.02975 0.8462	-0.18505 0.2236	-0.31927 0.0325	1.00000 0.0000	0.00532 0.9649	1.00000 0.0000	-0.42763 0.0034	-0.03791 0.8047	-0.07689 0.6157	-0.07922 0.6054
PSSGI	0.62294 0.0001	0.32635 0.0318	0.48523 0.0001	-0.30382 0.0425	0.09058 0.5540	0.43578 0.0028	-0.45508 0.0015	0.83261 0.0001	-0.45508 0.0015	0.97921 0.0001	0.01977 0.8974	0.09085 0.5502	0.09820 0.5210
WPSSG	0.10014 0.5795	0.25100 0.0963	0.01266 0.9352	-0.02869 0.8516	-0.17628 0.2413	0.17315 0.2554	0.01420 0.9262	0.14997 0.1901	0.01420 0.9262	0.18688 0.2140	0.95110 0.0001	0.95571 0.0001	0.08436 0.0001
	PBARLEY	COUNTYCD	DCWD1	DCWD2	DCWD3	DCWD4	DCWD5	DCWD6	DCWD7	DCWD8	TEMPAPR	TEMPMAY	TEMPJUNE
SPR	0.22403 0.1390	0.28428 0.0594	-0.12034 0.4310	-0.56107 0.0001	0.46154 0.0014	-0.31214 0.0368	0.10470 0.4772	0.48808 0.0054	-0.07081 0.6477	-0.17294 0.2559	0.28484 0.0586	0.19835 0.1915	0.51728 0.0003
DURUM	0.26473 0.1088	-0.40663 0.0001	0.59488 0.0001	0.32602 0.0288	0.48155 0.0008	-0.15266 0.3168	-0.00583 0.9674	-0.28270 0.0599	-0.29764 0.0471	-0.35615 0.0163	-0.24035 0.1118	-0.17849 0.2408	-0.43891 0.0031
BARLEY	0.26543 0.1754	-0.19937 0.1892	-0.19316 0.2037	0.61910 0.9609	0.77360 0.0001	-0.69657 0.0495	-0.13062 0.3924	0.41271 0.0048	-0.28129 0.0612	-0.27376 0.0688	0.06334 0.6793	0.22781 0.1323	0.07263 0.6317
OATS	0.09443 0.5795	0.47782 0.0009	-0.08538 0.5771	-0.03310 0.8241	-0.09419 0.0059	0.00704 0.9634	0.06963 0.6495	-0.34364 0.0208	-0.10877 0.5101	0.33314 0.0253	0.40162 0.0063	0.47458 0.0018	0.34165 0.0217
RYE	-0.15405 0.4123	0.10919 0.4752	-0.03531 0.7182	0.36271 0.0143	-0.23218 0.1248	-0.23902 0.1138	0.23963 0.1129	-0.24951 0.0984	-0.17338 0.2547	-0.20665 0.1744	-0.18814 0.2364	-0.13424 0.3793	-0.05152 0.7366
FLAX	0.41124 0.0050	0.12410 0.4240	-0.13244 0.3840	0.29836 0.0465	-0.02803 0.8550	-0.27146 0.0721	0.10683 0.4757	-0.02208 0.8857	-0.45703 0.0016	-0.44397 0.0032	-0.00136 0.9946	0.21362 0.1588	0.19873 0.1906
AREA	-0.16304 0.2846	-0.36374 0.0140	0.51915 0.0003	-0.26662 0.0767	0.32084 0.0316	0.27005 0.0533	-0.17187 0.2589	-0.74073 0.0001	0.89784 0.5226	0.04031 0.7926	-0.04160 0.7871	-0.18881 0.4766	-0.31752 0.0336
SSG	0.34003 0.0223	-0.41125 0.0050	0.18717 0.2163	0.00475 0.9743	0.75299 0.0001	-0.37302 0.0116	-0.02613 0.8647	0.13481 0.3778	-0.38838 0.0099	-0.37908 0.0132	0.03942 0.7946	0.14386 0.3458	0.03911 0.7947
AREACRES	-0.16304 0.2846	-0.36374 0.0140	0.51915 0.0003	-0.26662 0.0767	0.32084 0.0316	0.27005 0.0533	-0.17187 0.2589	-0.74073 0.0001	0.89784 0.5226	0.04031 0.7926	-0.04160 0.7871	-0.18881 0.4766	-0.31752 0.0336
PSSG	0.41017 0.0053	-0.21519 0.1557	-0.03804 0.8040	0.10114 0.5085	0.49530 0.0005	-0.43064 0.0032	0.02260 0.8528	0.93341 0.0001	-0.39666 0.0076	-0.38238 0.0095	0.06618 0.6658	0.19881 0.2093	0.19868 0.1987
PDURUM	0.71122 0.0001	0.03526 0.8181	-0.02614 0.8646	-0.01111 0.9422	-0.00543 0.9642	-0.02200 0.8860	0.01998 0.8963	0.02613 0.8750	-0.00980 0.9530	0.00038 0.9554	-0.34130 0.0218	-0.20870 0.1747	-0.12679 0.4066
PSPR	0.62045 0.0001	0.09516 0.5761	-0.07075 0.6442	-0.02502 0.8704	-0.01208 0.9372	-0.01898 0.9015	0.03710 0.8048	0.04161 0.7871	-0.03537 0.8176	0.00690 0.9641	-0.24103 0.1107	-0.25443 0.0917	0.05315 0.7288
POATS	0.46313 0.0001	0.15938 0.3113	-0.06847 0.6549	-0.08947 0.5567	-0.02548 0.8681	-0.06131 0.6891	0.01035 0.9462	0.06484 0.6757	0.06469 0.6757	0.00677 0.9648	0.30954 0.0385	0.38985 0.0081	0.31432 0.0355
PBARLEY	1.00000 0.0000	-0.11410 0.4538	-0.02754 0.8575	0.10601 0.4942	0.08249 0.5892	-0.19431 0.2377	0.12014 0.4318	0.13427 0.3792	-0.13748 0.3661	-0.17658 0.2461	-0.06743 0.6594	0.07843 0.6086	0.09065 0.5577
COUNTYCD	-0.11410 0.4538	1.00000 0.0000	-0.54772 0.0001	-0.41079 0.0051	-0.27386 0.0687	0.13693 0.3697	0.00000 1.0000	0.13693 0.3697	0.27386 0.0687	0.41079 0.0051	0.13653 0.3708	0.08583 0.5751	0.44911 0.0028
DCWD1	-0.02754 0.8575	-0.54772 0.0001	1.00000 0.0000	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.08743 0.6599	-0.08832 0.5648	-0.29355 0.0528
DCWD2	0.10601 0.4942	-0.41079 0.0051	-0.12500 0.4133	1.00000 0.0000	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.04868 0.7987	-0.02604 0.8549	-0.21145 0.1632
DCWD3	-0.08249 0.5892	-0.27386 0.0687	-0.12500 0.4133	-0.12500 0.4133	1.00000 0.0000	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.08865 0.7019	0.30941 0.0440	-0.11819 0.4386
DCWD4	-0.19431 0.2377	-0.13693 0.3697	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	1.00000 0.0000	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	0.00939 0.9512	-0.01402 0.9272	-0.02008 0.8927

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / N = 45

	PBARLEY	COUNTYCO	DCH01	DCH02	DCH03	DCH04	DCH05	DCH06	DCH07	DCH08	TEMPAPR	TEMPMAY	TEMPJUNE
DCH05	0.12014 0.4318	0.00000 1.0000	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	1.00000 0.0000	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.00927 0.9518	0.01042 0.9127	0.09564 0.5329
DCH06	0.13427 0.3792	0.13643 0.3697	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	1.00000 0.0000	-0.12500 0.4133	-0.12500 0.4133	0.02695 0.8605	0.09113 0.5516	0.22593 0.1356
DCH07	-0.11748 0.4461	0.27386 0.0687	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	1.00000 0.0000	-0.12500 0.4133	0.04788 0.7552	-0.07571 0.6211	-0.14631 0.3375
DCH08	-0.17550 0.2501	0.41074 0.0051	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	-0.12500 0.4133	1.00000 0.0000	0.00536 0.9697	0.01963 0.9042	0.10079 0.5014
TEMPAPR	-0.00743 0.9619	0.14653 0.3368	-0.06743 0.6599	-0.08060 0.5987	-0.05865 0.7019	0.00933 0.9512	-0.00927 0.9518	0.02695 0.8605	0.04788 0.7552	0.00536 0.9697	1.00000 0.0000	0.03919 0.8001	0.65128 0.0001
TEMPMAY	0.07543 0.6196	0.08363 0.5751	-0.08832 0.5640	-0.02604 0.8549	0.00961 0.9490	-0.01402 0.9272	0.01042 0.9127	0.09113 0.5516	-0.07571 0.6211	0.01963 0.8982	0.03919 0.8001	1.00000 0.0000	0.41187 0.0049
TEMPJUNE	-0.09655 0.5527	0.44911 0.0026	-0.29855 0.0528	-0.21145 0.1632	-0.11834 0.4386	-0.02068 0.8927	0.09586 0.5328	0.22593 0.1356	-0.14631 0.3375	0.10079 0.2914	0.65128 0.0001	0.41187 0.0049	1.00000 0.0000
PBARAPR	-0.04239 0.7819	0.08444 0.5744	-0.02824 0.8537	-0.01205 0.9374	-0.11238 0.4623	0.02971 0.8466	0.03145 0.8375	0.00825 0.9571	-0.03583 0.8153	0.05928 0.6989	-0.65761 0.0001	-0.61041 0.0001	-0.35253 0.0175
PBARMAY	-0.29334 0.0509	-0.01634 0.9152	0.11360 0.4575	-0.05773 0.7064	-0.04967 0.7489	-0.04474 0.7708	-0.03175 0.8360	0.04556 0.7663	0.05463 0.5372	-0.05092 0.7347	0.17158 0.2598	0.50641 0.0004	-0.34684 0.0199
PBARJUNE	0.55442 0.0001	0.28219 0.0604	-0.06442 0.6742	-0.20245 0.1823	-0.09251 0.5455	-0.02358 0.8762	0.00522 0.9656	0.01988 0.8969	-0.01516 0.9215	-0.08772 0.5598	-0.10036 0.2748	0.02408 0.8766	-0.03233 0.8338
DTH1	0.70666 0.0001	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	-0.56147 0.0001	-0.20422 0.1786	-0.41318 0.0048
DTH2	0.27445 0.1312	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.39058 0.0082	-0.03899 0.7993	0.49352 0.0006
DT	0.66244 0.6715	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.64838 0.0001	0.77868 0.0001	3.30357 0.0135
DTMA	-0.56441 0.0001	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.07156 0.6404	0.18961 0.2137	-0.20880 0.0543
YEAR	-0.46125 0.0001	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	-0.18584 0.2490	-0.22325 0.1368	-0.07652 0.6174
SPWI	0.10809 0.4879	0.26816 0.0772	-0.11241 0.4663	-0.55170 0.0001	0.00075 0.9961	-0.31927 0.0325	0.10974 0.4736	0.00990 0.9019	-0.08708 0.5695	-0.29528 0.1765	0.29863 0.1113	0.37751 0.0385	0.29166 0.0521
DUMUM1	0.24317 0.1045	-0.08158 0.5991	0.17720 0.2441	0.33501 0.0245	0.08245 0.5948	-0.18611 0.2755	-0.03700 0.7100	-0.27625 0.0662	-0.38943 0.0386	-0.35271 0.0175	-0.08987 0.5572	-0.05836 0.7039	-0.31155 0.0372
MARLEY1	0.10802 0.4985	-0.18060 0.2232	-0.08186 1.0000	0.01197 0.9378	0.78295 0.0001	-0.30258 0.0434	-0.11747 0.4403	0.00836 0.9059	-0.26814 0.0576	-0.28008 0.0624	-0.07245 0.6363	0.04857 0.7514	0.01804 0.9447
OATS1	-0.11165 0.4648	0.51340 0.0003	-0.12012 0.4319	-0.02015 0.8953	-0.10928 0.4765	-0.02083 0.8924	0.10820 0.4793	-0.37342 0.0114	-0.13262 0.3851	0.33734 0.0234	0.08727 0.5622	0.05262 0.7314	0.09017 0.5297
WI	-0.09078 0.5615	0.18713 0.2194	-0.09338 0.5862	-0.28039 0.0565	-0.21346 0.1562	-0.23167 0.1257	0.17767 0.2710	-0.23662 0.1208	-0.15492 0.3096	-0.24840 0.0949	-0.15725 0.3023	-0.19463 0.2016	0.11359 0.4565
FLAG1	0.31114 0.0382	-0.20211 0.1840	-0.18143 0.2330	0.23135 0.1229	-0.03778 0.8054	-0.08514 0.5878	0.20162 0.1841	0.00701 0.9531	-0.45298 0.0018	-0.11734 0.4419	0.00294 0.9847	0.12939 0.3969	0.27892 0.0635
AMEAT	-0.17106 0.2656	-0.36376 0.0140	0.11915 0.4393	-0.26062 0.0767	0.32084 0.0315	0.27905 0.0613	-0.17187 0.2589	-0.74073 0.0001	0.04784 0.7552	0.04031 0.7926	-0.04148 0.7871	-0.10881 0.4768	-0.31752 0.0336
SSOI	0.17774 0.2427	-0.09478 0.5341	0.16835 0.2690	0.00310 0.9839	0.15496 0.3081	-0.19146 0.2078	-0.00516 0.9731	0.13565 0.3756	-0.39865 0.0067	-0.33858 0.0264	0.00988 0.9496	0.13559 0.3876	-0.01751 0.9091
TAMES1	-0.17106 0.2656	-0.36376 0.0140	0.11915 0.4393	-0.26062 0.0767	0.32084 0.0315	0.27905 0.0613	-0.17187 0.2589	-0.74073 0.0001	0.04784 0.7552	0.04031 0.7926	-0.04148 0.7871	-0.10881 0.4768	-0.31752 0.0336

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / N = 45

	PRAIRIEY	COUNTYCO	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7	DCRD8	TEMPAPR	TEMPMAY	TEMPJUNE
PSSG1	0.24500	-0.13085	-0.05545	0.09232	0.08691	-0.04283	0.00178	0.[illegible]	-0.04621	-0.28741	0.03575	0.20305	0.16377
	0.0492	0.2092	0.7175	0.5464	0.0007	0.0823	0.7652	0.3061	0.0053	0.0006	0.7954	0.1818	0.3461
WPSSG	0.47679	-0.11219	0.07782	0.03520	0.02369	-0.02631	0.00385	0.[illegible]	-0.03968	-0.09819	-0.23502	-0.21399	-0.06681
	0.0001	0.4631	0.6114	0.8194	0.8772	0.8926	0.7769	0.[illegible]	0.7982	0.5211	0.1187	0.1581	0.7681
	PERAPR	PERMAY	PERJUNE	DYR1	DYR2	DYR3	DYR4	YEAR	SPW1	DURUM1	BARLEY1	OATS1	RYE1
SPW	-0.15553	-0.17501	0.15242	-0.12333	0.31196	0.08345	-0.14926	-0.13065	0.84844	-0.81795	0.58344	-0.22283	-0.03383
	0.3076	0.2502	0.3175	0.4196	0.0370	0.5635	0.3278	0.3938	0.0001	0.0008	0.0001	0.1412	0.8294
DURUM	0.03423	-0.08311	-0.11109	0.11824	0.05352	-0.14063	-0.01819	-0.09469	-0.16771	0.96338	0.33155	-0.32575	-0.00662
	0.8234	0.5873	0.4675	0.4392	0.7269	0.3568	0.9056	0.5369	0.2613	0.0001	0.0261	0.0290	0.9656
BARLEY	-0.18444	0.05549	-0.05699	-0.00948	-0.01308	0.09583	0.03269	-0.09686	0.08121	0.35076	0.95388	-0.43326	-0.12665
	0.2241	0.7154	0.7197	0.9511	0.9279	0.5312	0.7281	0.7598	0.5955	0.0155	0.0001	0.0030	0.4154
OATS	-0.12670	0.21355	0.24784	0.00907	-0.09452	0.03262	-0.00726	-0.22365	-0.02119	-0.31310	-0.30299	0.67670	0.20667
	0.4140	0.1550	0.1007	0.9521	0.5368	0.8030	0.9647	0.1397	0.8901	0.0362	0.0004	0.0001	0.0582
RYE	0.01118	0.05838	0.13608	-0.08596	-0.13908	-0.17550	0.21847	0.25365	-0.11505	0.08214	-0.07975	0.57011	0.79885
	0.9419	0.7023	0.3727	0.5745	0.3601	0.2489	0.1496	0.0952	0.4517	0.5889	0.6025	0.0001	0.0001
FLAX	0.06910	0.02356	0.30753	0.23561	-0.11215	0.21756	-0.23369	-0.22838	0.21618	0.11853	0.18138	0.33911	0.60864
	0.5547	0.8775	0.0130	0.1192	0.4633	0.1511	0.1223	0.1313	0.1538	0.4388	0.2331	0.0227	0.0001
AREA	-0.05955	0.02335	-0.06426	0.00000	0.00000	0.00000	0.00000	0.00000	-0.22832	0.45661	-0.23369	0.81125	-0.18884
	0.7416	0.8740	0.6749	1.0000	1.0000	1.0000	1.0000	1.0000	0.1459	0.0016	0.1223	0.0415	0.2366
SSG	-0.13027	-0.06339	0.03268	0.04097	0.12236	0.05612	-0.06555	-0.16339	0.56828	0.68413	0.88684	-0.35655	0.83582
	0.3937	0.6771	0.8312	0.7893	0.4233	0.7142	0.6688	0.2835	0.0001	0.0001	0.0001	0.0183	0.0194
AREACRES	-0.05955	0.02335	-0.06426	0.00000	0.00000	0.00000	0.00000	0.00000	-0.22832	0.45661	-0.23369	0.81125	-0.18884
	0.7416	0.8740	0.6749	1.0000	1.0000	1.0000	1.0000	1.0000	0.1459	0.0016	0.1223	0.0415	0.2366
PSSG	-0.09033	-0.06642	0.06965	0.04412	0.12334	0.05311	0.00629	-0.16581	0.65225	0.39262	0.83033	-0.36121	0.87279
	0.5541	0.6722	0.6541	0.7735	0.4196	0.7290	0.6853	0.2762	0.0001	0.0076	0.0001	0.0148	0.0367
WDURUM	0.74444	-0.60978	0.67520	0.82413	0.33307	-0.45278	-0.35221	-0.85926	-0.11246	0.65306	-0.05211	0.11352	-0.08151
	0.0001	0.0052	0.0001	0.0001	0.0254	0.0018	0.0177	0.0001	0.4688	0.7253	0.7339	0.4578	0.5965
PSPW	0.75107	-0.52980	0.63054	0.71322	0.47394	-0.37208	-0.51705	-0.85239	-0.09269	0.86154	-0.84175	0.86993	-0.81858
	0.0001	0.0092	0.0001	0.0001	0.0010	0.0119	0.0003	0.0001	0.5448	0.7864	0.7854	0.0001	0.0458
POATS	0.23161	-0.11013	0.47386	0.50031	0.47531	0.34354	-0.61142	-0.64455	0.17081	0.81723	-0.87436	0.87787	-0.84897
	0.1268	0.4712	0.0010	0.0005	0.0672	0.0975	0.0001	0.0001	0.2693	0.0166	0.6274	0.6112	0.5177
PRAIRIEY	0.46228	-0.29066	0.55442	0.79464	0.22842	0.06498	-0.56881	-0.66124	0.10689	0.26517	0.18402	-0.16185	-0.03676
	0.0014	0.0525	0.0001	0.0001	0.1312	0.6715	0.0001	0.0001	0.4879	0.1845	0.4965	0.2986	0.8185
COUNTYCO	0.08549	-0.01614	0.28219	0.00000	0.00000	0.00000	0.00000	0.00000	0.26614	-0.00156	-0.18866	0.51340	0.18713
	0.5748	0.9152	0.0604	1.0000	1.0000	1.0000	1.0000	1.0000	0.0772	0.9881	0.2202	0.0003	0.2184
DCRD1	-0.[illegible]	0.11350	-0.06642	0.00000	0.00000	0.00000	0.00000	0.00000	-0.11291	0.58728	-0.20348	-0.12812	-0.06358
	0.[illegible]	0.4575	0.6742	1.0000	1.0000	1.0000	1.0000	1.0000	0.4662	0.0001	0.1808	0.4319	0.6852
DCRD2	-0.[illegible]	-0.05773	-0.26265	0.00000	0.00000	0.00000	0.00000	0.00000	-0.55178	0.33501	0.81197	-0.82818	0.28639
	[illegible]	0.7046	0.0823	1.0000	1.0000	1.0000	1.0000	1.0000	0.0001	0.0245	0.9378	0.8953	0.0565
DCRD3	-0.[illegible]	-0.[illegible]	-0.09251	0.00000	0.00000	0.00000	0.00000	0.00000	0.46875	0.40245	0.76295	-0.34928	-0.21398
	0.[illegible]	0.7044	0.5455	1.0000	1.0000	1.0000	1.0000	1.0000	0.0014	0.0008	0.0001	0.0206	0.1562
DCRD4	0.36271	-0.04474	-0.12350	0.00000	0.00000	0.00000	0.00000	0.00000	-0.31927	-0.16611	-0.38258	-0.82863	-0.23107
	0.0145	0.7705	0.4232	1.0000	1.0000	1.0000	1.0000	1.0000	0.0325	0.2755	0.0434	0.0929	0.1257
DCRD5	0.[illegible]	-0.03175	0.06522	0.00000	0.00000	0.00000	0.00000	0.00000	0.10474	-0.05708	-0.11797	0.10820	0.20767
	0.8375	0.8350	0.6656	1.0000	1.0000	1.0000	1.0000	1.0000	0.4738	0.7198	0.4483	0.4793	0.1718
DCRD6	0.[illegible]	0.04556	0.[illegible]488	0.00000	0.00000	0.00000	0.00000	0.00000	0.44496	-0.27625	0.48032	-0.37342	-0.23662
	[illegible]	0.7663	0.8459	1.0000	1.0000	1.0000	1.0000	1.0000	0.0019	0.0652	0.0054	0.0114	0.1208

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / N = 45

	PERAPR	PERMAY	PERJUNE	DYN1	DYN2	DYN3	DYN4	YEAR	SPW1	DUMUM1	BARLEY1	OATS1	RYE1
DCHO7	-0.03583 0.8153	0.09663 0.5372	-0.01512 0.9215	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	-0.00708 0.9495	-0.30963 0.0386	-0.28514 0.0574	-0.13262 0.3851	-0.15492 0.3094
DCHU8	0.05928 0.6989	-0.05892 0.7047	-0.00772 0.9598	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	-0.20469 0.1785	-0.35271 0.0175	-0.29888 0.0424	0.33734 0.0234	-0.24848 0.0999
TEMPAPR	-0.65761 0.0001	0.17158 0.2598	-0.10634 0.4748	-0.54167 0.0001	0.39858 0.0060	0.64838 0.0001	0.07156 0.6404	-0.10584 0.4890	0.20065 0.1113	-0.08987 0.5572	-0.07265 0.6363	0.00727 0.9622	-0.13725 0.3623
TEMPMAY	-0.41041 0.0041	0.50641 0.0004	0.02498 0.8706	-0.20422 0.1784	-0.03899 0.7993	0.77000 0.0001	0.14981 0.2137	-0.22525 0.1368	0.34751 0.0085	-0.05886 0.7009	0.04857 0.7514	0.03262 0.8314	-0.19403 0.2016
TEMPJUNE	-0.35243 0.0175	-0.34004 0.0199	-0.03233 0.8330	-0.41318 0.0048	0.49352 0.0006	0.36557 0.0135	-0.28888 0.0543	-0.07652 0.6174	0.29166 0.0521	-0.31155 0.0372	0.01044 0.9447	0.09817 0.5247	0.11359 0.4575
PERAPR	1.00000 0.0000	-0.31759 0.0335	0.49788 0.0005	0.71126 0.0001	0.11573 0.4498	-0.64155 0.0001	-0.29184 0.1107	-0.47181 0.0011	-0.20671 0.0784	-0.06525 0.6702	-0.08588 0.5752	0.16811 0.2698	0.03769 0.8058
PERMAY	-0.31759 0.0335	1.00000 0.0000	-0.04748 0.7572	-0.01672 0.9132	-0.64942 0.0001	0.42647 0.0035	0.52123 0.0002	0.18129 0.2333	0.27297 0.0696	-0.08885 0.5616	-0.09666 0.5557	0.07898 0.6044	-0.14164 0.3540
PERJUNE	0.49788 0.0005	-0.04748 0.7572	1.00000 0.0000	0.65364 0.0001	0.06143 0.6885	-0.28156 0.1843	-0.09879 0.5531	-0.65193 0.0001	0.11245 0.4621	-0.16989 0.2668	-0.18847 0.2144	0.30443 0.0441	0.04285 0.7839
DYN1	0.71126 0.0001	0.01672 0.9132	0.65364 0.0001	1.00000 0.0000	-0.25000 0.0977	-0.25000 0.0977	-0.25000 0.0977	-0.78711 0.0001	-0.04477 0.7703	0.02671 0.8728	-0.05255 0.7317	0.11318 0.4595	-0.09354 0.5411
DYN2	0.11573 0.4498	-0.64942 0.0001	0.06143 0.6885	-0.25000 0.0977	1.00000 0.0000	-0.25000 0.0977	-0.25000 0.0977	-0.35355 0.0172	-0.13678 0.3703	0.10845 0.4791	-0.02705 0.8559	-0.04458 0.7716	-0.02010 0.8957
DYN3	-0.64155 0.0001	0.42647 0.0035	-0.28156 0.1843	-0.25000 0.0977	-0.25000 0.0977	1.00000 0.0000	-0.25000 0.0977	0.50000 1.0000	0.28103 0.0615	0.04386 0.7748	-0.03234 0.8330	-0.21136 0.1634	-0.07888 0.6102
DYN4	-0.29184 0.1107	0.52123 0.0002	-0.09879 0.5531	-0.25000 0.0977	-0.25000 0.0977	-0.25000 0.0977	1.00000 0.0000	0.35355 0.0172	0.06217 0.6844	-0.14932 0.3276	0.07778 0.6119	0.32632 0.0287	-0.11673 0.4451
YEAR	-0.47181 0.0011	0.18129 0.2333	-0.65193 0.0001	-0.78711 0.0001	-0.35355 0.0172	0.00000 1.0000	0.35355 0.0172	1.00000 0.0000	-0.00985 0.9488	-0.18239 0.5033	0.07939 0.6042	-0.00293 0.9813	0.20067 0.1876
SPW1	-0.20671 0.0784	0.27297 0.0696	0.11245 0.4621	-0.04477 0.7703	-0.13678 0.3703	0.28103 0.0615	0.06217 0.6844	-0.00985 0.9488	1.00000 0.0000	-0.06681 0.6666	0.42855 0.0061	-0.10377 0.2269	-0.06184 0.6875
DUMUM1	-0.06525 0.6702	-0.08885 0.5616	-0.16989 0.2668	0.02671 0.8728	0.10845 0.4791	0.04386 0.7748	-0.14932 0.3276	-0.18239 0.5033	-0.06681 0.6666	1.00000 0.0000	0.33687 0.0264	-0.40250 0.0061	0.00750 0.9606
BARLEY1	-0.08598 0.5752	-0.09666 0.5557	-0.18847 0.2144	-0.05255 0.7317	-0.02705 0.8559	-0.03234 0.8330	0.07778 0.6119	0.07939 0.6042	0.42855 0.0061	0.33687 0.0264	1.00000 0.0000	-0.44084 0.0025	-0.06976 0.6648
OATS1	0.16811 0.2698	0.07898 0.6044	0.30443 0.0441	0.11318 0.4595	-0.04458 0.7716	-0.21136 0.1634	0.32632 0.0287	-0.00293 0.9813	-0.10377 0.2269	-0.40250 0.0061	-0.44084 0.0025	1.00000 0.0000	0.38782 0.0085
RYE1	0.03769 0.8058	-0.14164 0.3540	0.04285 0.7839	-0.09354 0.5411	-0.02010 0.8957	-0.07888 0.6102	-0.11673 0.4451	0.20067 0.1876	-0.06184 0.6875	0.00750 0.9606	-0.06976 0.6648	0.38782 0.0085	1.00000 0.0000
FLAA1	0.18297 0.2844	-0.11892 0.4365	0.44145 0.0026	0.20845 0.1694	0.13278 0.3846	-0.17560 0.2497	0.11688 0.4448	-0.28263 0.0601	0.16876 0.2678	0.00413 0.9785	0.20187 0.1454	0.56751 0.0001	0.56773 0.0001
AREA1	-0.05055 0.7416	0.02335 0.8770	-0.06426 0.6769	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	-0.22832 0.1459	0.45661 0.0016	-0.23369 0.1223	0.01125 0.9415	-0.18804 0.2366
SSG1	-0.14775 0.3327	0.03149 0.8345	-0.01263 0.9344	0.06215 0.9889	0.00293 0.9980	0.00210 0.5918	0.01885 0.9125	-0.05526 0.7185	0.63510 0.0001	0.64918 0.0001	0.65321 0.0001	-0.36822 0.0277	0.06725 0.6661
TACRES1	-0.05055 0.7415	0.02335 0.8770	-0.06426 0.6769	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	0.00000 1.0000	-0.22832 0.1459	0.45661 0.0016	-0.23369 0.1223	0.01125 0.9415	-0.18804 0.2366
PSSG1	-0.11141 0.4652	0.04473 0.7656	0.01926 0.9001	0.00247 0.9846	0.00465 0.9758	0.08156 0.5962	0.01338 0.9305	-0.05726 0.7080	0.64977 0.0001	0.64968 0.0001	0.65574 0.0001	-0.33668 0.0238	0.09855 0.5196
WPSSG	0.44743 0.0001	-0.47876 0.0009	0.57570 0.0001	0.73636 0.0001	0.41892 0.0042	-0.[illegible]376	-0.50367 0.0005	-0.07244 0.6881	-0.11073 0.4698	0.22367 0.1397	-0.04886 0.7899	-0.05047 0.7410	-0.07968 0.6032

STATISTICAL ANALYSIS SYSTEM

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / N = 45

	FLAR1	AREA1	SSG1	TACRES1	PSS61	WPSS6
SPW	0.22029 0.1315	-0.18941 0.2127	0.58274 0.0001	-0.18941 0.2127	0.62299 0.0001	0.16816 0.2795
PUMUM	0.05520 0.7188	0.47230 0.0011	0.52443 0.0001	0.47230 0.0011	0.32055 0.0318	0.25180 0.0963
BARLEY	0.21596 0.1562	-0.23241 0.1245	0.87557 0.0001	-0.23241 0.1245	0.88523 0.0001	0.81646 0.9352
OATS	0.35504 0.0167	0.02974 0.8462	-0.29716 0.0474	0.02974 0.8462	-0.30382 0.0425	-0.02869 0.8516
RYE	0.63715 0.0001	-0.18585 0.2236	0.06186 0.6903	-0.18585 0.2236	0.09058 0.5540	-0.17828 0.2413
FLAR	0.76256 0.0001	-0.31927 0.0325	0.35860 0.0156	-0.31927 0.0325	0.43596 0.0029	0.17315 0.2554
AREA	-0.35355 0.0172	1.00000 0.0001	0.03292 0.8300	1.00000 0.0000	-0.45908 0.0015	0.01468 0.9262
SSG	0.33961 0.0225	0.06532 0.6699	0.97891 0.0001	0.06532 0.6699	0.83241 0.0001	0.19497 0.1901
AREACRES	-0.35356 0.0172	1.00000 0.0000	0.03292 0.8300	1.00000 0.0000	-0.45908 0.0015	0.01466 0.9262
PSSG	0.44624 0.0021	-0.42743 0.0034	0.85796 0.0001	-0.42743 0.0034	0.97921 0.0001	0.18868 0.2140
PUMUM	0.30436 0.0421	-0.03791 0.8047	0.00101 0.9947	-0.03791 0.8047	0.01977 0.8974	0.95116 0.0001
PSPW	0.31385 0.0358	-0.07689 0.6157	0.00470 0.9755	-0.07689 0.6157	0.04085 0.7899	0.95571 0.0001
POATS	0.15066 0.3237	-0.07922 0.6050	0.05640 0.7129	-0.07922 0.6050	0.09826 0.5210	0.08436 0.0001
PBARLEY	0.31315 0.0363	-0.16304 0.2846	0.23964 0.1129	-0.16304 0.2846	0.29500 0.0492	0.87679 0.0001
COUNTYCO	0.20271 0.1840	-0.36374 0.0140	-0.38978 0.0081	-0.36374 0.0140	-0.19084 0.2092	-0.11219 0.4631
DCRD1	-0.16143 0.2378	0.51915 0.0003	0.16835 0.2699	0.51915 0.0003	-0.05545 0.7175	0.07762 0.6114
DCRD2	0.23336 0.1229	-0.28662 0.0767	0.00318 0.9839	-0.28662 0.0767	0.09232 0.5464	0.03520 0.8184
DCRD3	-0.03778 0.8054	0.32084 0.0316	0.75496 0.0001	0.32084 0.0316	0.48691 0.0007	0.04369 0.8772
DCRD4	-0.28519 0.0576	0.29005 0.0533	-0.39146 0.0078	0.29005 0.0533	-0.44645 0.0023	-0.12051 0.4436
DCRD5	0.20142 0.1841	-0.17187 0.2589	-0.00516 0.9731	-0.17187 0.2589	0.04178 0.7852	0.04385 0.7749
DCRD6	0.00901 0.9531	-0.74073 0.0001	0.15585 0.3066	-0.74073 0.0001	0.56493 0.0001	0.00506 0.9737
DCRD7	-0.45294 0.0019	0.09784 0.5226	-0.39849 0.0067	0.09784 0.5226	-0.40921 0.0053	-0.03960 0.7962
DCRD8	-0.11754 0.4419	0.04031 0.7926	-0.38850 0.0084	0.04031 0.7926	-0.38741 0.0086	-0.09819 0.5211
TEMPAPR	0.00294 0.9847	-0.04140 0.7871	0.00950 0.9490	-0.04140 0.7871	0.03475 0.7954	-0.23592 0.1187

CORRELATION COEFFICIENTS / PROB > |R| UNDER H0:RHO=0 / N = 45

	FLAA1	AREA1	SSG1	TACHES1	PSSG1	WPSSG
TEMPMAY	0.12934 0.3969	-0.10881 0.4768	0.15559 0.3074	-0.10881 0.4768	0.20305 0.1810	-0.21399 0.1581
TEMPJUNE	0.27842 0.0635	-0.31752 0.0336	-0.01751 0.9091	-0.31752 0.0336	0.14377 0.3461	-0.04681 0.7601
PERAPR	0.16247 0.2843	-0.05055 0.7416	-0.14775 0.3327	-0.05055 0.7416	-0.11391 0.4562	0.09995 0.5091
PERMAY	-0.11842 0.4365	0.02335 0.8790	0.05149 0.7345	0.02335 0.8790	0.04473 0.7456	-0.47876 0.0009
PERJUNE	0.44165 0.0026	-0.06426 0.6749	-0.01263 0.9344	-0.06426 0.6749	0.01926 0.9001	0.57578 0.0001
DYR1	0.20845 0.1706	0.00000 1.0000	0.00213 0.9489	0.00000 1.0000	0.00247 0.9846	0.73835 0.0001
DYR2	0.13274 0.3846	0.00000 1.0000	0.00193 0.9500	0.00000 1.0000	0.00465 0.9758	0.41856 0.0042
DYR3	-0.17540 0.2497	0.00000 1.0000	0.00218 0.5918	0.00000 1.0000	0.00158 0.5942	-0.31089 0.0376
DYR4	0.11680 0.4448	0.00000 1.0000	0.01685 0.9125	0.00000 1.0000	0.01338 0.9305	-0.50387 0.0004
YEAR	-0.29243 0.0681	0.00000 1.0000	-0.05526 0.7165	0.00000 1.0000	-0.05724 0.7088	-0.87244 0.0001
SP01	0.16876 0.2674	-0.22032 0.1459	0.63518 0.0001	-0.22032 0.1459	0.08977 0.0001	-0.11873 0.4690
DUMMY1	0.00413 0.9785	0.45061 0.0016	0.64910 0.0001	0.45061 0.0016	0.34968 0.0185	0.22367 0.1397
BARLEY1	0.28167 0.1654	-0.23369 0.1223	0.85321 0.0001	-0.23369 0.1223	0.86574 0.0001	-0.04866 0.7499
OATS1	0.56751 0.0001	0.01125 0.9415	-0.32822 0.0277	0.01125 0.9415	-0.33660 0.0238	-0.05067 0.7416
RYE1	0.54773 0.0001	-0.18004 0.2356	0.06725 0.6607	-0.18004 0.2356	0.09855 0.5196	-0.07966 0.6032
FLAA1	1.00000 0.0000	-0.35336 0.0172	0.32725 0.0282	-0.35336 0.0172	0.36589 0.0137	0.23463 0.1215
AREA1	-0.35336 0.0172	1.00000 0.0000	0.03292 0.8300	1.00000 0.0000	-0.45908 0.0015	0.01420 0.9262
SSG1	0.32725 0.0282	0.03292 0.8300	1.00000 0.0000	0.03292 0.8300	0.06522 0.0001	0.07983 0.6022
TACHES1	-0.35336 0.0172	1.00000 0.0000	0.03292 0.8300	1.00000 0.0000	-0.45908 0.0015	0.01420 0.9262
PSSG1	0.36589 0.0137	-0.45908 0.0015	0.86522 0.0001	-0.45908 0.0015	1.00000 0.0000	0.08962 0.5945
WPSSG	0.23463 0.1215	0.01420 0.9262	0.07983 0.6022	0.01420 0.9262	0.08962 0.5945	1.00000 0.0000

APPENDIX D

OUTPUT OF COMPUTER RUN: STEPWISE REGRESSION MODEL AT THE COUNTY LEVEL

STEPWISE REGRESSION PROCEDURE FOR DEPENDENT VARIABLE PSSG

WARNING: 18 OBSERVATIONS DELETED DUE TO MISSING VALUES.

STEP 1 VARIABLE PSSG1 ENTERED R SQUARE = 0.93896981 C(P) = 184.20630...

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	1	3.96999646	3.96999646	3769.35	0.0001
ERROR	245	0.25803722	0.00105323		
TOTAL	246	4.22803568			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	0.0...				
PSSG1	0.954...	0.01560496	3.96999646	3769.35	0.0001

STEP 2 VARIABLE WPSSG ENTERED R SQUARE = 0.95145241 C(P) = 82.91550823

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	2	4.02277473	2.01138736	2391.00	0.0001
ERROR	244	0.20526095	0.00084123		
TOTAL	246	4.22803568			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	-0.04...0447				
WPSSG	0.81720684	0.00217232	0.05278027	62.74	0.0001
PSSG1	0.94555084	0.01403555	3.81792443	4538.48	0.0001

STEP 3 VARIABLE PERAPH ENTERED R SQUARE = 0.95762920 C(P) = 43.70321018

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	3	4.04809041	1.34903014	1830.69	0.0001
ERROR	243	0.17914526	0.00073722		
TOTAL	246	4.22803568			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	-0.04387378				
WPSSG	0.82661734	0.00257593	0.07871546	106.77	0.0001
PSSG1	0.92944858	0.01341516	3.53875349	4800.11	0.0001
PERAPH	-0.01032851	0.00173535	0.02611569	35.42	0.0001

STEP 4 VARIABLE PERMAY ENTERED R SQUARE = 0.96138691 C(P) = 20.63131773

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	4	4.06477814	1.01619453	1506.33	0.0001
ERROR	242	0.16325754	0.00067402		
TOTAL	246	4.22803568			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	-0.0...76273				
WPSSG	0.82211122	0.00263327	0.04756543	70.51	0.0001
PSSG1	0.92929541	0.01283295	3.53762894	>243.98	0.0001
PERAPH	-0.01012968	0.00166054	0.02510457	37.21	0.0001
PERMAY	-0.00047989	0.00141784	0.01588772	23.55	0.0001

STEPWISE REGRESSION PROCEDURE FOR DEPENDENT VARIABLE PSSG

STEP 5 VARIABLE PERJUNE ENTERED R SQUARE = 0.96214298 C(P) = 17.59391836

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	5	4.06797827	0.81359565	1224.98	0.0001
ERROR	241	0.16005541	0.00066417		
TOTAL	246	4.22803368			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	-0.01395393				
WPSSG	0.01983921	0.00281084	0.03308707	49.82	0.0001
PSSG1	0.92821896	0.01274267	3.52619751	5308.15	0.0001
PERAPR	-0.01076115	0.00167262	0.02749169	41.39	0.0001
PERMAY	-0.00765121	0.00144998	0.01649339	27.84	0.0001
PERJUNE	0.00268973	0.00119041	0.00319213	4.81	0.0293

STEP 6 VARIABLE DCRDS ENTERED R SQUARE = 0.96261737 C(P) = 16.42148289

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	6	4.06998060	0.67833010	1030.82	0.0001
ERROR	240	0.15805508	0.00065856		
TOTAL	246	4.22803568			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	-0.01316161				
WPSSG	0.01988184	0.00279902	0.03296864	50.05	0.0001
DCRDS	-0.00687472	0.00508177	0.00201033	3.05	0.0819
PSSG1	0.92881753	0.01269338	3.52617365	5354.35	0.0001
PERAPR	-0.01077311	0.00166555	0.02755258	41.84	0.0001
PERMAY	-0.00771830	0.00144436	0.01880561	28.56	0.0001
PERJUNE	0.00269983	0.00118649	0.00340992	5.18	0.0238

STEP 7 VARIABLE TEMPAPR ENTERED R SQUARE = 0.96298059 C(P) = 15.99807486

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	7	4.07151628	0.58164518	888.15	0.0001
ERROR	239	0.15651939	0.00065489		
TOTAL	246	4.22803568			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	-0.03346173				
WPSSG	0.01907362	0.00283122	0.02972911	45.40	0.0001
DCRDS	-0.00928257	0.00507445	0.00219144	3.35	0.0686
PSSG1	0.93073346	0.01271964	3.50647715	5354.28	0.0001
TEMPAPR	0.00047012	0.00038708	0.00153568	2.34	0.1270
PERAPR	-0.00902735	0.00201456	0.01315066	20.08	0.0001
PERMAY	-0.00779596	0.00144172	0.01916242	29.26	0.0001
PERJUNE	0.00256300	0.00118695	0.00305561	4.67	0.0316

STEP 8 VARIABLE TEMPAPR REMOVED R SQUARE = 0.96261737 C(P) = 16.42148289

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	6	4.06998060	0.67833010	1030.82	0.0001
ERROR	240	0.15805508	0.00065856		
TOTAL	246	4.22803568			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	-0.01316161				
WPSSG	0.01988184	0.00279902	0.03296864	50.05	0.0001
DCRDS	-0.00687472	0.00508177	0.00201033	3.05	0.0819
PSSG1	0.92881753	0.01269338	3.52617365	5354.35	0.0001
PERAPR	-0.01077311	0.00166555	0.02755258	41.84	0.0001
PERMAY	-0.00771830	0.00144436	0.01880561	28.56	0.0001
PERJUNE	0.00269983	0.00118649	0.00340992	5.18	0.0238

NO OTHER VARIABLES MET THE 0.5000 SIGNIFICANCE LEVEL FOR ENTRY INTO THE MODEL.

APPENDIX E

OUTPUT OF COMPUTER RUN: LOGIT MODEL AT THE COUNTY LEVEL

NON-LINEAR LEAST SQUARES ITERATIVE PHASE

DEPENDENT VARIABLE: PSSG METHOD: DUD

ITERATION	B0 B5 B12	B1 B7 B13	B2 B8	B3 B4	B6 B10	B9 B11	RESIDUAL SS
-15	-0.01700000 0.06900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01900000 0.00700000	-0.00070000	0.00350000 0.01000000	0.01170000 0.00400000	16.76733179
-14	-0.01700000 0.06900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01900000 0.00700000	-0.00070000	0.00350000 0.01000000	0.01170000 0.00400000	16.71807965
-13	-0.01700000 0.06900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01900000 0.00700000	-0.00070000	0.00350000 0.01000000	0.01170000 0.00400000	16.91950568
-12	-0.01700000 0.06900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01900000 0.00700000	-0.00070000	0.00350000 0.01000000	0.01170000 0.00400000	16.70872722
-11	-0.01700000 0.06900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01900000 0.00700000	-0.00070000	0.00350000 0.01000000	0.01170000 0.00400000	16.71409044
-10	-0.01700000 0.06900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01900000 0.00700000	-0.00070000	0.00350000 0.01000000	0.01170000 0.00400000	16.80284246
-9	-0.01700000 0.06900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01900000 0.00700000	-0.00070000	0.00350000 0.01000000	0.01207000 0.00400000	16.77155418
-8	-0.01700000 0.06900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01900000 0.00700000	-0.00070000	0.00350000 0.01000000	0.01170000 0.00400000	16.76960830
-7	-0.01700000 0.06900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01900000 0.00700000	-0.00070000	0.00350000 0.01000000	0.01170000 0.00400000	16.76971513
-6	-0.01700000 0.06900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01900000 0.00700000	-0.00070000	0.00350000 0.01000000	0.01170000 0.00400000	16.76980682
-5	-0.01700000 0.06900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01900000 0.00700000	-0.00070000	0.00350000 0.01000000	0.01170000 0.00400000	16.76789811
-4	-0.01700000 0.06900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01900000 0.00700000	-0.00070000	0.00350000 0.01000000	0.01170000 0.00400000	16.76845751
-3	-0.01700000 0.06900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01900000 0.00700000	-0.00070000	0.00350000 0.01000000	0.01170000 0.00400000	16.77198466
-2	-0.01700000 0.06900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01900000 0.00700000	-0.00070000	0.00350000 0.01000000	0.01170000 0.00400000	16.77003030
-1	-0.01700000 0.06900000 0.00700000	0.01800000 0.01300000 1.01640000	-0.01900000 0.00700000	-0.00070000	0.00350000 0.01000000	0.01170000 0.00400000	17.58381866
0	-0.01700000 0.06900000 0.00700000	0.01800000 0.01300000 1.01640000	-0.01900000 0.00700000	-0.00070000	0.00350000 0.01000000	0.01170000 0.00400000	16.70872722
1	-2.08698893 0.03533815 0.03416783	0.07632905 0.06245131 3.67946113	-0.05218801 0.03459549	-0.03193220 0.00162581	0.01346179 0.05541136	0.00486711 0.03926876	0.27846761

NON-LINEAR LEAST SQUARES ITERATIVE PHASE

DEPENDENT VARIABLE: PSSG METHOD: DUD

ITERATION	B0 B6 B12	B1 B7 B13	B2 B8	B3 B9	B4 B10	B5 B11	RESIDUAL SS
2	-2.33479493 0.0445383? 0.00781286	0.06523268 -0.01236696 4.40135043	-0.04105393 -0.01453765	-0.0449946? -0.0046351?	-0.01909890 -0.03316288	0.07456218 0.01406415	0.18062981
NOTE: ITERATIONS RESTARTED USING A SMALLER GRID AROUND ABOVE PARAMETERS.							
-15	-2.33479493 0.0445383? 0.00781286	0.06523268 -0.01236696 4.40135043	-0.04105393 -0.01453765	-0.0449946? -0.0046351?	-0.01909890 -0.03316288	0.07456218 0.01406415	0.18062981
-14	-2.33712972 0.0445383? 0.00781286	0.06523268 -0.01236696 4.40135043	-0.04105393 -0.01453765	-0.0449946? -0.0046351?	-0.01909890 -0.03316288	0.07456218 0.01406415	0.18024283
-13	-2.33479493 0.0445383? 0.00781286	0.06529791 -0.01236696 4.40135043	-0.04105393 -0.01453765	-0.0449946? -0.0046351?	-0.01909890 -0.03316288	0.07456218 0.01406415	0.18066313
-12	-2.33479493 0.0445383? 0.00781286	0.06523268 -0.01236696 4.40135043	-0.04109498 -0.01453765	-0.0449946? -0.0046351?	-0.01909890 -0.03316288	0.07456218 0.01406415	0.18061433
-11	-2.33479493 0.0445383? 0.00781286	0.06523268 -0.01236696 4.40135043	-0.04105393 -0.01453765	-0.0449949? -0.0046351?	-0.01909890 -0.03316288	0.07456218 0.01406415	0.18060330
-10	-2.33479493 0.0445383? 0.00781286	0.06523268 -0.01236696 4.40135043	-0.04105393 -0.01453765	-0.0449946? -0.0046351?	-0.01911792 -0.03316288	0.07456218 0.01406415	0.18064273
-9	-2.33479493 0.0445383? 0.00781286	0.06523268 -0.01236696 4.40135043	-0.04105393 -0.01453765	-0.0449946? -0.0046351?	-0.01909890 -0.03316288	0.07463000 0.01406415	0.18063072
-8	-2.33479493 0.0445629? 0.00781286	0.06523268 -0.01236696 4.40135043	-0.04105393 -0.01453765	-0.0449946? -0.0046351?	-0.01909890 -0.03316288	0.07456218 0.01406415	0.18063085
-7	-2.33479493 0.0445383? 0.00781286	0.06523268 -0.01237932 4.40135043	-0.04105393 -0.01453765	-0.0449946? -0.0046351?	-0.01909890 -0.03316288	0.07456218 0.01406415	0.18062953
-6	-2.33479493 0.0445383? 0.00781286	0.06523268 -0.01236696 4.40135043	-0.04105393 -0.01455219	-0.0449946? -0.0046351?	-0.01909890 -0.03316288	0.07456218 0.01406415	0.18062928
-5	-2.33479493 0.0445383? 0.00781286	0.06523268 -0.01236696 4.40135043	-0.04105393 -0.01453765	-0.0449946? -0.0046307?	-0.01909890 -0.03316288	0.07456218 0.01406415	0.18062967
-4	-2.33479493 0.0445383? 0.00781286	0.06523268 -0.01236696 4.40135043	-0.04105393 -0.01453765	-0.0449946? -0.0046351?	-0.01909890 -0.03316404	0.07456218 0.01406415	0.18062941
-3	-2.33479493 0.0445383? 0.00781286	0.06523268 -0.01236696 4.40135043	-0.04105393 -0.01453765	-0.0449946? -0.0046351?	-0.01909890 -0.03316288	0.07456218 0.01407622	0.18063102
-2	-2.33479493 0.0445383? 0.00782067	0.06523268 -0.01236696 4.40135043	-0.04105393 -0.01453765	-0.0449946? -0.0046351?	-0.01909890 -0.03316288	0.07456218 0.01406415	0.18062996
-1	-2.33479493 0.0445383? 0.00781286	0.06523268 -0.01236696 4.40575178	-0.04105393 -0.01453765	-0.0449946? -0.0046351?	-0.01909890 -0.03316288	0.07456218 0.01406415	0.18094972
0	-2.33479493 0.0445383? 0.00781286	0.06523268 -0.01236696 4.40575178	-0.04105393 -0.01453765	-0.0449946? -0.0046351?	-0.01909890 -0.03316288	0.07456218 0.01406415	0.18024283

S T A T I S T I C A L A N A L Y S I S S Y S T E M 14:27 FRIDAY, JUNE 26, 1981 4

NON-LINEAR LEAST SQUARES ITERATIVE PHASE

DEPENDENT VARIABLE: PSSG METHOD: DUD

ITERATION	B0 B5 B12	B1 B7 B13	B2 B6	B3 B8	B4 B10	B5 B11	RESIDUAL SS
1	-2.35383281 0.03983273 0.00719508	0.06785478 -0.02725[illegible] 4.45652[illegible]	-0.04324436	-0.05867113	-0.01999739	0.02081182	*.17864495
			-0.03455421	-0.00401184	-0.03011754	0.02134984	
2	-2.35353887 0.03981391 0.00702731	1.06787552 -0.02865868 4.45561519	-0.04320282	-0.05862606	-0.01996784	0.02127626	0.17864438
			-0.03454598	-0.00403985	-0.03001664	0.02126354	
3	-2.35350149 0.03974562 0.00691355	0.06803941 -0.02844540 4.45488078	-0.04312926	-0.05838316	-0.01982947	0.02116137	0.17864421
			-0.03514376	-0.00409728	-0.03004051	0.02114598	

NOTE: USING THE ABOVE PARAMETERS, THE PARAMETER MODIFICATION VECTOR (DELTA) WAS HALVED 10 TIMES. NO REDUCTION IN THE RESIDUAL SS WAS FOUND (CONVERGENCE ASSUMED).

NON-LINEAR LEAST SQUARES SUMMARY STATISTICS DEPENDENT VARIABLE PSSG

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
REGRESSION	14	33.7918643[illegible]	2.41013331
RESIDUAL	234	0.[illegible]	0.00812344
UNCORRECTED TOTAL	248	33.92051058	
(CORRECTED TOTAL)	247	4.26533273	

PARAMETER	ESTIMATE	ASYMPTOTIC STD. ERROR	ASYMPTOTIC 95 % CONFIDENCE INTERVAL LOWER	UPPER
B0	-2.35358149	0.06235704	-2.47643507	-2.23072791
B1	[illegible]	[illegible]	[illegible]	[illegible]
B2	[illegible]	[illegible]	[illegible]	[illegible]
B3	[illegible]	[illegible]	[illegible]	[illegible]
B4	[illegible]	[illegible]	[illegible]	[illegible]
B5	[illegible]	[illegible]	[illegible]	[illegible]
B6	[illegible]	[illegible]	[illegible]	[illegible]
B7	[illegible]	[illegible]	[illegible]	[illegible]
B8	-0.03514376	[illegible]	[illegible]	[illegible]
B9	[illegible]	[illegible]	[illegible]	[illegible]
B10	[illegible]	[illegible]	[illegible]	[illegible]
B11	[illegible]	[illegible]	[illegible]	[illegible]
B12	[illegible]	[illegible]	[illegible]	[illegible]
B13	[illegible]	[illegible]	[illegible]	[illegible]

ASYMPTOTIC CORRELATION MATRIX OF THE PARAMETERS

	B0	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11
B0	1.000000	-0.330463	-0.061282	-0.335085	-0.079868	-0.253939	-0.218622	-0.185577	-0.377213	-0.208593	-0.155074	-0.[illegible]
B1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

	B12	B13
B0	-0.463670	-0.[illegible]
B1	[illegible]	[illegible]
B2	[illegible]	[illegible]
B3	[illegible]	[illegible]
B4	[illegible]	[illegible]
B5	[illegible]	[illegible]
B6	[illegible]	[illegible]
B7	[illegible]	[illegible]
B8	[illegible]	[illegible]
B9	[illegible]	[illegible]
B10	[illegible]	[illegible]
B11	[illegible]	[illegible]
B12	[illegible]	[illegible]
B13	[illegible]	[illegible]

NOTE: ALL ASYMPTOTIC STATISTICS ARE APPROXIMATE. REFERENCE: RALSTON AND JENNRICH, TECHNOMETRICS, FEBRUARY 1978, P 7-14.

NOTE: MISSING VALUES WERE GENERATED AS A RESULT OF PERFORMING
AN OPERATION ON MISSING VALUES.
EACH PLACE IS GIVEN BY: (NUMBER OF TIMES) AT (LINE):(COLUMN).

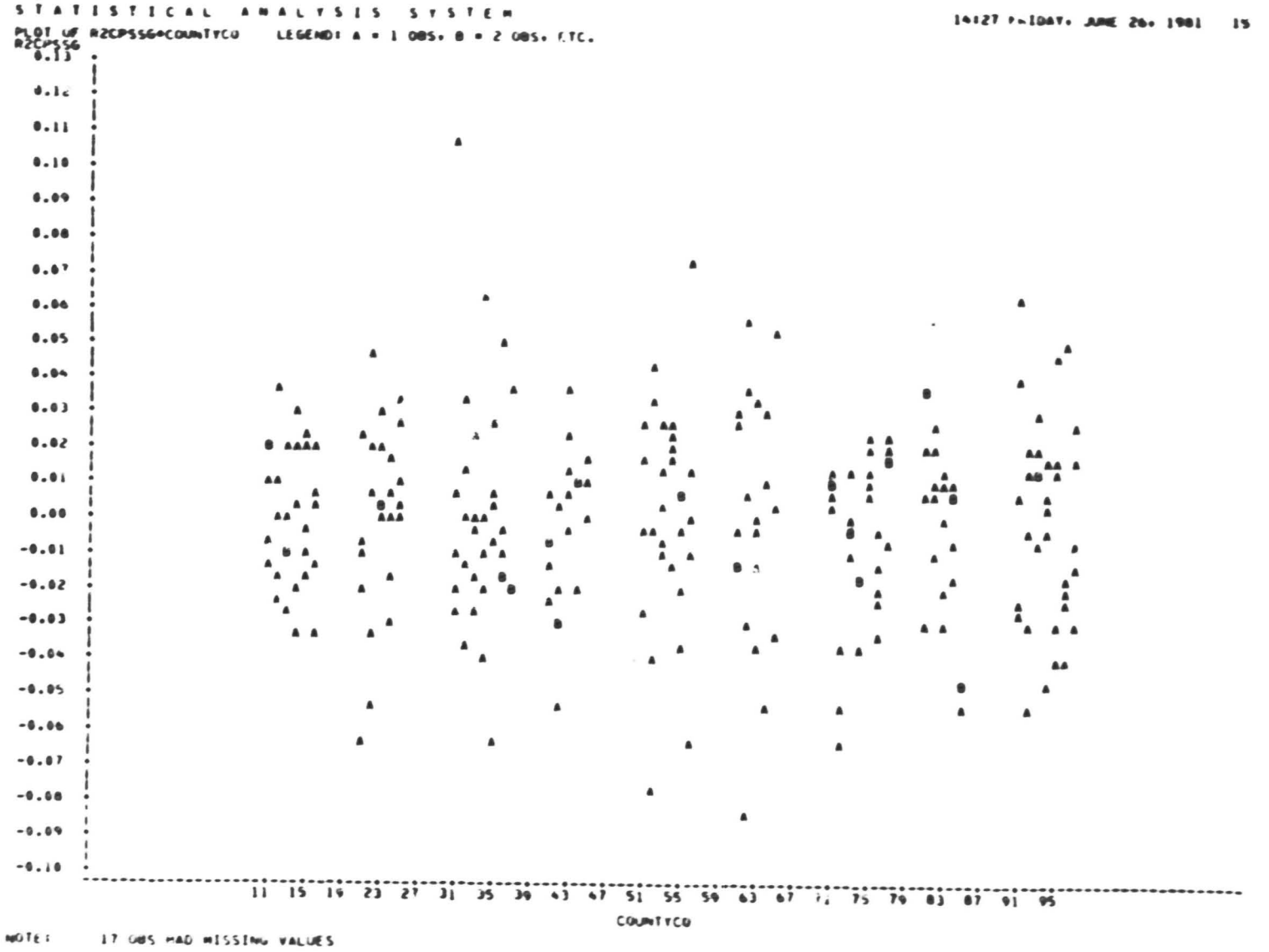
504 AT 54:5 504 AT 57:5 504 AT 58:14

OBS	COUNTY	YEAR	PSSG	P2CPSSG	R2CPSSG
1	BURKE	1	0.[illegible]	0.[illegible]	-0.[illegible]
2	DIVIDE	1	0.[illegible]	0.[illegible]	-0.[illegible]
3	MOUNTRAIL	1	0.[illegible]	0.[illegible]	-0.[illegible]
4	RENVILLE	1	0.[illegible]	0.[illegible]	-0.[illegible]
5	WARD	1	0.[illegible]	0.[illegible]	-0.[illegible]
6	WILLIAMS	1	0.[illegible]	0.[illegible]	-0.[illegible]
7	BENSON	1	0.[illegible]	0.[illegible]	-0.[illegible]
8	BOTTINEAU	1	0.[illegible]	0.[illegible]	-0.[illegible]
9	MCHENRY	1	0.[illegible]	0.[illegible]	-0.[illegible]
10	PIERCE	1	0.[illegible]	0.[illegible]	-0.[illegible]
11	ROLETTE	1	0.[illegible]	0.[illegible]	-0.[illegible]
12	CAVALIER	1	0.[illegible]	0.[illegible]	-0.[illegible]
13	GRAND FORKS	1	0.[illegible]	0.[illegible]	-0.[illegible]
14	NELSON	1	0.[illegible]	0.[illegible]	-0.[illegible]
15	PEMBINA	1	0.[illegible]	0.[illegible]	-0.[illegible]
16	RAMSEY	1	0.[illegible]	0.[illegible]	-0.[illegible]
17	TOWNER	1	0.[illegible]	0.[illegible]	-0.[illegible]
18	WALSH	1	0.[illegible]	0.[illegible]	-0.[illegible]
19	DUNN	1	0.[illegible]	0.[illegible]	-0.[illegible]
20	MCKENZIE	1	0.[illegible]	0.[illegible]	-0.[illegible]
21	MCLEAN	1	0.[illegible]	0.[illegible]	-0.[illegible]
22	MERCER	1	0.[illegible]	0.[illegible]	-0.[illegible]
23	OLIVER	1	0.[illegible]	0.[illegible]	-0.[illegible]
24	FOSTER	1	0.[illegible]	0.[illegible]	-0.[illegible]
25	KIDDER	1	0.[illegible]	0.[illegible]	-0.[illegible]
26	SHERIDAN	1	0.[illegible]	0.[illegible]	-0.[illegible]
27	STUTSMAN	1	0.[illegible]	0.[illegible]	-0.[illegible]
28	WELLS	1	0.[illegible]	0.[illegible]	-0.[illegible]
29	BARNES	1	0.[illegible]	0.[illegible]	-0.[illegible]
30	CASS	1	0.[illegible]	0.[illegible]	-0.[illegible]
31	GRIGGS	1	0.[illegible]	0.[illegible]	-0.[illegible]
32	STEELE	1	0.[illegible]	0.[illegible]	-0.[illegible]
33	TRAILL	1	0.[illegible]	0.[illegible]	-0.[illegible]
34	ADAMS	1	0.[illegible]	0.[illegible]	-0.[illegible]
35	BILLINGS	1	0.[illegible]	0.[illegible]	-0.[illegible]
36	BOWMAN	1	0.[illegible]	0.[illegible]	-0.[illegible]
37	GOLDEN VALLEY	1	0.[illegible]	0.[illegible]	-0.[illegible]
38	HETTINGER	1	0.[illegible]	0.[illegible]	-0.[illegible]
39	SLOPE	1	0.[illegible]	0.[illegible]	-0.[illegible]
40	STARK	1	0.[illegible]	0.[illegible]	-0.[illegible]
41	BURLEIGH	1	0.[illegible]	0.[illegible]	-0.[illegible]
42	EMMONS	1	0.[illegible]	0.[illegible]	-0.[illegible]
43	GRANT	1	0.[illegible]	0.[illegible]	-0.[illegible]
44	MORTON	1	0.[illegible]	0.[illegible]	-0.[illegible]
45	SIOUX	1	0.[illegible]	0.[illegible]	-0.[illegible]
46	DICKEY	1	0.[illegible]	0.[illegible]	-0.[illegible]
47	LAMOURE	1	0.[illegible]	0.[illegible]	-0.[illegible]
48	LOGAN	1	0.[illegible]	0.[illegible]	-0.[illegible]
49	MCINTOSH	1	0.[illegible]	0.[illegible]	-0.[illegible]
50	RANSOM	1	0.[illegible]	0.[illegible]	-0.[illegible]
51	RICHLAND	1	0.[illegible]	0.[illegible]	-0.[illegible]
52	SARGENT	1	0.[illegible]	0.[illegible]	-0.[illegible]
53	BURKE	2	0.[illegible]	0.[illegible]	-0.[illegible]
54	DIVIDE	2	0.[illegible]	0.[illegible]	-0.[illegible]
55	MOUNTRAIL	2	0.[illegible]	0.[illegible]	-0.[illegible]
56	RENVILLE	2	0.[illegible]	0.[illegible]	-0.[illegible]
57	WARD	2	0.[illegible]	0.[illegible]	-0.[illegible]
58	WILLIAMS	2	0.[illegible]	0.[illegible]	-0.[illegible]
59	BENSON	2	0.[illegible]	0.[illegible]	-0.[illegible]
60	BOTTINEAU	2	0.[illegible]	0.[illegible]	-0.[illegible]
61	MC HENRY	2	0.[illegible]	0.[illegible]	-0.[illegible]
62	PIERCE	2	0.[illegible]	0.[illegible]	-0.[illegible]
63	ROLETTE	2	0.[illegible]	0.[illegible]	-0.[illegible]
64	CAVALIER	2	0.[illegible]	0.[illegible]	-0.[illegible]
65	GRAND FORKS	2	0.[illegible]	0.[illegible]	-0.[illegible]
66	NELSON	2	0.[illegible]	0.[illegible]	-0.[illegible]
67	PEMBINA	2	0.[illegible]	0.[illegible]	-0.[illegible]
68	RAMSEY	2	0.[illegible]	0.[illegible]	-0.[illegible]
69	TOWNER	2	0.[illegible]	0.[illegible]	-0.[illegible]
70	WALSH	2	0.[illegible]	0.[illegible]	-0.[illegible]
71	DUNN	2	0.[illegible]	0.[illegible]	-0.[illegible]
72	MC KENZIE	2	0.[illegible]	0.[illegible]	-0.[illegible]
73	MC LEAN	2	0.[illegible]	0.[illegible]	-0.[illegible]
74	MERCER	2	0.[illegible]	0.[illegible]	-0.[illegible]
75	OLIVER	2	0.201760	0.100325	0.015435

OBS	COUNTY	YEAR	PSSG	P2CPSSG	R2CPSSG
77	EDDY	2	0.363681	0.339642	0.025219
78	FOSTER	2	0.[illegible]	0.[illegible]	0.[illegible]
79	KIDDER	2	0.[illegible]	0.[illegible]	0.[illegible]
80	SHERIDAN	2	0.[illegible]	0.[illegible]	0.[illegible]
81	STUTSMAN	2	0.[illegible]	0.[illegible]	-0.[illegible]
82	WELLS	2	0.[illegible]	0.[illegible]	-0.[illegible]
83	BARNES	2	0.[illegible]	0.[illegible]	-0.[illegible]
84	CASS	2	0.[illegible]	0.[illegible]	-0.[illegible]
85	GRIGGS	2	0.[illegible]	0.[illegible]	-0.[illegible]
86	STEELE	2	0.[illegible]	0.[illegible]	-0.[illegible]
87	TRAILL	2	0.[illegible]	0.[illegible]	-0.[illegible]
88	ADAMS	2	0.262718	0.[illegible]	0.[illegible]
89	BILLINGS	2	.	0.[illegible]	.
90	BOWMAN	2	0.191106	0.[illegible]	-0.[illegible]
91	GOLDEN VALLEY	2	.	0.[illegible]	.
92	HETTINGER	2	0.[illegible]	0.[illegible]	0.[illegible]
93	SLOPE	2	0.[illegible]	0.[illegible]	-0.[illegible]
94	STARK	2	0.[illegible]	0.[illegible]	0.[illegible]
95	BURLEIGH	2	0.[illegible]	0.[illegible]	0.[illegible]
96	EMMONS	2	0.[illegible]	0.[illegible]	0.[illegible]
97	GRANT	2	0.[illegible]	0.[illegible]	0.[illegible]
98	HUNTON	2	0.[illegible]	0.[illegible]	-0.[illegible]
99	SIOUX	2	0.[illegible]	0.[illegible]	-0.[illegible]
100	DICKEY	2	0.[illegible]	0.[illegible]	0.[illegible]
101	LA MOURE	2	0.[illegible]	0.[illegible]	0.[illegible]
102	LOGAN	2	0.[illegible]	0.[illegible]	0.[illegible]
103	MCINTOSH	2	0.[illegible]	0.[illegible]	-0.[illegible]
104	RANSOM	2	0.[illegible]	0.[illegible]	0.[illegible]
105	RICHLAND	2	0.[illegible]	0.[illegible]	0.[illegible]
106	SARGENT	2	0.[illegible]	0.[illegible]	0.[illegible]
107	BURKE	3	0.[illegible]	0.[illegible]	0.[illegible]
108	DIVIDE	3	0.[illegible]	0.[illegible]	-0.[illegible]
109	MOUNTRAIL	3	0.[illegible]	0.[illegible]	-0.[illegible]
110	RENVILLE	3	0.[illegible]	0.[illegible]	-0.[illegible]
111	WARD	3	0.[illegible]	0.[illegible]	-0.[illegible]
112	WILLIAMS	3	0.[illegible]	0.[illegible]	-0.[illegible]
113	BENSON	3	0.[illegible]	0.[illegible]	-0.[illegible]
114	BOTTINEAU	3	0.[illegible]	0.[illegible]	0.[illegible]
115	MCHENRY	3	0.[illegible]	0.[illegible]	0.[illegible]
116	PIERCE	3	0.[illegible]	0.[illegible]	0.[illegible]
117	ROLETTE	3	0.[illegible]	0.[illegible]	0.[illegible]
118	CAVALIER	3	0.[illegible]	0.[illegible]	0.[illegible]
119	GRAND FORKS	3	0.[illegible]	0.[illegible]	-0.[illegible]
120	NELSON	3	0.[illegible]	0.[illegible]	0.[illegible]
121	PEMBINA	3	0.[illegible]	0.[illegible]	-0.[illegible]
122	RAMSEY	3	0.[illegible]	0.[illegible]	0.[illegible]
123	TOWNER	3	0.[illegible]	0.[illegible]	0.[illegible]
124	WALSH	3	.	0.[illegible]	.
125	DUNN	3	0.[illegible]	0.[illegible]	-0.[illegible]
126	MCKENZIE	3	0.[illegible]	0.[illegible]	-0.[illegible]
127	MCLEAN	3	0.[illegible]	0.[illegible]	0.[illegible]
128	MERCER	3	.	0.[illegible]	.
129	OLIVER	3	0.[illegible]	0.[illegible]	0.[illegible]
130	EDDY	3	0.[illegible]	0.[illegible]	-0.[illegible]
131	FOSTER	3	0.[illegible]	0.[illegible]	-0.[illegible]
132	KIDDER	3	0.[illegible]	0.[illegible]	-0.[illegible]
133	SHERIDAN	3	0.[illegible]	0.[illegible]	-0.[illegible]
134	STUTSMAN	3	0.[illegible]	0.[illegible]	-0.[illegible]
135	WELLS	3	0.[illegible]	0.[illegible]	-0.[illegible]
136	BARNES	3	0.[illegible]	0.[illegible]	-0.[illegible]
137	CASS	3	0.[illegible]	0.[illegible]	-0.[illegible]
138	GRIGGS	3	0.472051	0.[illegible]	0.034207
139	STEELE	3	.	0.[illegible]	.
140	TRAILL	3	.	0.[illegible]	.
141	ADAMS	3	0.260838	0.249631	0.011207
142	BILLINGS	3	0.[illegible]	0.[illegible]	.
143	BOWMAN	3	0.[illegible]	0.[illegible]	0.[illegible]
144	GOLDEN VALLEY	3	0.[illegible]	0.[illegible]	.
145	HETTINGER	3	0.[illegible]	0.[illegible]	0.[illegible]
146	SLOPE	3	0.[illegible]	0.[illegible]	-0.[illegible]
147	STARK	3	0.[illegible]	0.[illegible]	0.[illegible]
148	BURLEIGH	3	0.[illegible]	0.[illegible]	-0.[illegible]
149	EMMONS	3	0.[illegible]	0.[illegible]	-0.[illegible]
150	GRANT	3	0.[illegible]	0.[illegible]	-0.[illegible]
151	HUNTON	3	0.[illegible]	0.[illegible]	-0.[illegible]
152	SIOUX	3	.	0.[illegible]	.

OBS	COUNTY	YEAR	PSS6	P2CPSS6	R2CPSS6
153	DICKEY	3	0.369223	0.393864	-0.024641
154	LA MOURE	3	0.439884	0.452885	-0.013001
155	LOGAN	3	0.314506	0.301378	0.013128
156	MC INTOSH	3	0.362273	0.356218	0.006056
157	RANSOM	3	0.326502	0.362013	-0.035511
158	RICHLAND	3	0.329981	0.341341	-0.011360
159	SARGENT	3	0.337681	0.336083	0.001598
160	BOWMAN	3	0.308554	0.308477	0.000077
161	DIVIDE	3	0.312740	0.276459	0.036281
162	MOUNTRAIL	3	0.257895	0.259221	-0.001326
163	RENVILLE	3	0.451125	0.437653	0.013472
164	WARD	3	0.361588	0.366196	-0.004608
165	WILLIAMS	3	0.275179	0.254204	0.020974
166	BENSON	3	0.337892	0.357190	-0.019298
167	BUTTE AU	3	0.399968	0.394368	0.005600
168	MC HENRY	3	0.273563	0.274200	-0.000637
169	PIERCE	3	0.385956	0.379193	0.006763
170	ROLETTE	3	0.330127	0.304622	0.025506
171	CAVALIER	3	0.320584	0.315536	0.005048
172	GRAND FORKS	3	0.394448	0.393727	0.000722
173	NELSON	3	0.392276	0.392689	-0.000413
174	PEMBINA	3	0.413284	0.413662	-0.000378
175	RAMSEY	3	0.459813	0.463696	-0.003882
176	TOWNER	3	0.508868	0.515358	-0.006490
177	WALSH	3	0.468762	0.468762	0.000000
178	DUNN	3	0.280876	0.273122	0.007754
179	MC KENZIE	3	0.332988	0.332988	0.000000
180	MC LEAN	3	0.332988	0.332988	0.000000
181	MERCER	3	0.193136	.	.
182	OLIVER	3	.	0.179998	.
183	FOOT	3	0.295278	0.297161	-0.001883
184	FOSTER	3	0.332988	0.332988	0.000000
185	RIDDER	3	0.283078	0.283078	0.000000
186	SHERIDAN	3	0.288553	0.288553	0.000000
187	STUTSMAN	3	0.315553	0.315553	0.000000
188	WELLS	3	0.288553	0.288553	0.000000
189	BARNES	3	0.315553	0.315553	0.000000
190	CASS	3	0.315553	0.315553	0.000000
191	GRIGGS	3	0.315553	0.315553	0.000000
192	STEELE	3	0.315553	0.315553	0.000000
193	TRAILL	3	0.315553	0.315553	0.000000
194	ADAMS	3	0.267018	0.278129	-0.011110
195	BILLINGS	3	0.276814	0.276814	0.000000
196	BURLEIGH	3	0.276814	0.276814	0.000000
197	GOLDEN VALLEY	3	0.276814	0.276814	0.000000
198	HETTINGER	3	0.276814	0.276814	0.000000
199	SLOPE	3	0.276814	0.276814	0.000000
200	STARK	3	0.276814	0.276814	0.000000
201	BURLEIGH	3	0.276814	0.276814	0.000000
202	EMMONS	3	0.276814	0.276814	0.000000
203	GRANT	3	0.276814	0.276814	0.000000
204	MORTON	3	0.276814	0.276814	0.000000
205	SIOUX	3	0.090529	.	.
206	DICKEY	4	0.361588	0.391598	-0.030010
207	LA MOURE	4	0.450884	0.452885	-0.002001
208	LOGAN	4	0.301866	0.301378	0.000488
209	MC INTOSH	4	0.362273	0.356218	0.006056
210	RANSOM	4	0.325623	0.362013	-0.036390
211	RICHLAND	4	0.329981	0.341341	-0.011360
212	SARGENT	4	0.337681	0.336083	0.001598
213	BOWMAN	4	0.274368	0.265776	0.008592
214	DIVIDE	4	0.312740	0.276459	0.036281
215	MOUNTRAIL	4	0.257895	0.259221	-0.001326
216	RENVILLE	4	0.451125	0.437653	0.013472
217	WARD	4	0.361588	0.366196	-0.004608
218	WILLIAMS	4	0.275179	0.254204	0.020974
219	BENSON	4	0.337892	0.357190	-0.019298
220	BUTTE AU	4	0.399968	0.394368	0.005600
221	MC HENRY	4	0.273563	0.274200	-0.000637
222	PIERCE	4	0.385956	0.379193	0.006763
223	ROLETTE	4	0.330127	0.304622	0.025506
224	CAVALIER	4	0.320584	0.315536	0.005048
225	GRAND FORKS	4	0.394448	0.393727	0.000722
226	NELSON	4	0.392276	0.392689	-0.000413
227	PEMBINA	4	0.413284	0.413662	-0.000378
228	RAMSEY	4	0.459813	0.463696	-0.003882

OBS	COUNTY	YEAR	PSS6	P2CPSS6	R2CPSS6
229	TOWNER	5	0.462308	0.477345	-0.015037
230	WALSH	5	0.443265	0.441673	0.001591
231	DUNN	5	0.[illegible]	0.[illegible]	-0.[illegible]
232	MC KENZIE	5	0.[illegible]	0.[illegible]	-0.[illegible]
233	MC LEAN	5	0.[illegible]	0.[illegible]	0.[illegible]
234	MERCER	5	0.199286	0.190518	0.008768
235	OLIVER	5	0.[illegible]	.	.
236	ODUY	5	0.[illegible]	.	.
237	FOSTER	5	0.[illegible]	0.307789	0.036838
238	BIDNER	5	0.[illegible]	0.[illegible]	0.[illegible]
239	SHERIDAN	5	0.[illegible]	0.[illegible]	0.[illegible]
240	STUTSMAN	5	0.[illegible]	0.[illegible]	0.[illegible]
241	WELLS	5	0.[illegible]	0.[illegible]	-0.[illegible]
242	BARNES	5	0.421863	0.396197	0.025666
243	CASS	5	0.[illegible]	0.[illegible]	0.[illegible]
244	GRIGGS	5	0.[illegible]	0.[illegible]	-0.[illegible]
245	STEELE	5	0.[illegible]	0.[illegible]	-0.[illegible]
246	TRAILL	5	0.[illegible]	0.[illegible]	0.[illegible]
247	ADAMS	5	0.226501	0.221788	0.004713
248	BILLINGS	5	0.[illegible]	0.[illegible]	-0.[illegible]
249	BOWMAN	5	0.[illegible]	0.[illegible]	-0.[illegible]
250	GOLDEN VALLEY	5	0.[illegible]	0.[illegible]	-0.[illegible]
251	MARTINGER	5	0.[illegible]	0.[illegible]	0.[illegible]
252	SLOPE	5	0.[illegible]	0.[illegible]	-0.[illegible]
253	STARK	5	0.[illegible]	0.[illegible]	-0.[illegible]
254	BURLEIGH	5	0.233654	0.225952	0.007702
255	EMMONS	5	0.311356	0.285834	0.025522
256	GRANT	5	0.[illegible]	0.[illegible]	-0.[illegible]
257	MORTON	5	0.[illegible]	0.[illegible]	-0.[illegible]
258	SIOUX	5	0.[illegible]	0.[illegible]	-0.[illegible]
259	DICKEY	5	0.[illegible]	0.[illegible]	-0.[illegible]
260	LA MOURE	5	0.[illegible]	0.[illegible]	-0.[illegible]
261	LOGAN	5	0.[illegible]	0.[illegible]	-0.[illegible]
262	MC INTOSH	5	0.[illegible]	0.[illegible]	-0.[illegible]
263	RANSOM	5	0.[illegible]	0.[illegible]	-0.[illegible]
264	RICHLAND	5	0.269151	0.291523	-0.022372
265	SARGENT	5	0.289420	0.318006	-0.028586



APPENDIX F

OUTPUT OF COMPUTER RUN: LINEARIZED MODEL AT THE COUNTY LEVEL

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: Y

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	13	102.87586325	7.91352794	364.62	0.0001	0.952981	20.6276
ERROR	234	5.07580826	0.02169149		STD DEV		Y MEAN
CORRECTED TOTAL	247	107.95167151			0.14728031		-0.70714175

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
WPSSG	1	3.97081520	183.06	0.0001	1	0.12653532	5.83	0.0165
DCH01	1	0.00331301	0.15	0.6937	1	0.18431270	8.50	0.0039
DCH02	1	1.01562047	46.82	0.0001	1	0.04312401	1.99	0.1599
DCH03	1	21.96188059	1012.47	0.0001	1	0.06287154	2.90	0.0900
DCH04	1	8.61985238	397.38	0.0001	1	0.00043593	0.02	0.8974
DCH05	1	0.75696234	34.90	0.0001	1	0.00253388	0.12	0.7328
DCH06	1	19.78508203	912.11	0.0001	1	0.10731851	4.95	0.0267
DCH07	1	5.21690174	240.50	0.0001	1	0.00865026	0.40	0.5283
DCH08	1	8.68680065	400.47	0.0001	1	0.01712777	0.79	0.3741
PSSG1	1	31.82356095	1467.10	0.0001	1	30.85775993	1422.57	0.0001
PEMAPR	1	0.21520946	9.92	0.0018	1	0.23936422	11.03	0.0010
PEMMAY	1	0.57822041	26.66	0.0001	1	0.74742486	34.46	0.0001
PEMJUNE	1	0.24166322	11.14	0.0010	1	0.24166322	11.14	0.0010

PARAMETER	ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
INTERCEPT	-2.50182069	-36.53	0.0001	0.06848193
WPSSG	0.04096352	2.42	0.0165	0.01696813
DCH01	0.11541339	2.91	0.0039	0.03976447
DCH02	0.05685166	1.41	0.1599	0.04032072
DCH03	-0.06963641	-1.70	0.0900	0.04090288
DCH04	0.00677145	0.14	0.8874	0.04776599
DCH05	0.01287642	0.34	0.7328	0.03767441
DCH06	-0.10129038	-2.23	0.0267	0.04541140
DCH07	0.02734441	0.63	0.5283	0.04330099
DCH08	0.04026042	0.89	0.3751	0.04530775
PSSG1	4.92858793	37.72	0.0001	0.13067274
PEMAPR	-0.03224008	-3.34	0.0010	0.00970535
PEMMAY	-0.04904601	-5.87	0.0001	0.00845756
PEMJUNE	0.02405943	3.34	0.0010	0.00720818

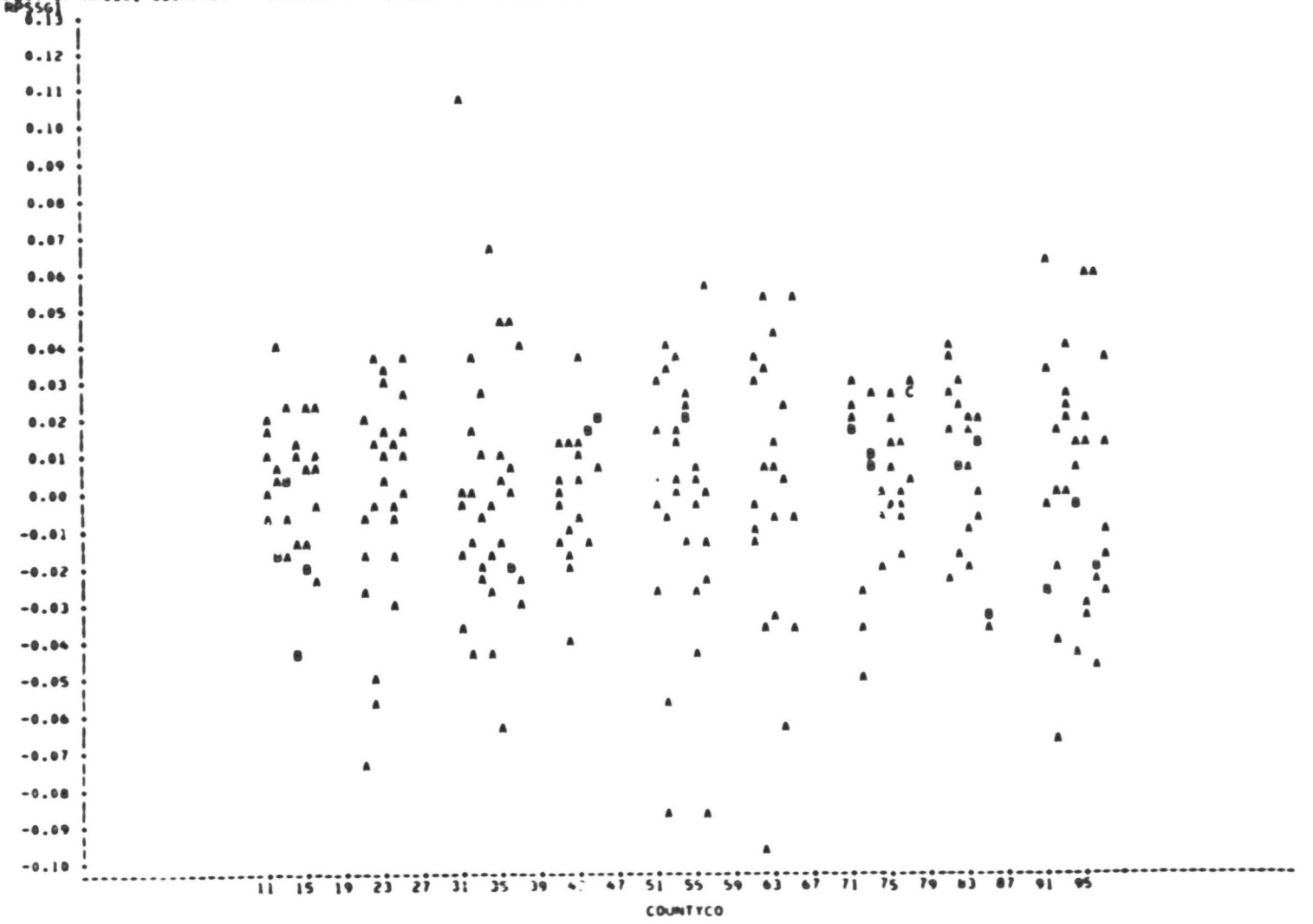
OBS	COUNTY	YEAR	PSSG	PPSSG1	RPSSG1
1	BURKE	1	0.309915	0.304755	0.005160
2	DIVIDE	1	0.332484	0.343444	-0.010960
3	MOUNTRAIL	1	0.282426	0.269721	0.012705
4	RENVILLE	1	0.452814	0.449654	0.003160
5	WARD	1	0.378758	0.399739	-0.020980
6	WILLIAMS	1	0.280175	0.302107	-0.021932
7	BENSON	1	0.417855	0.423166	-0.005311
8	BOTTINEAU	1	0.470148	0.456961	0.013187
9	MCHENRY	1	0.268178	0.259370	0.008808
10	PIERCE	1	0.412452	0.430011	-0.017559
11	ROLETTE	1	0.347241	0.331813	0.015428
12	CAVALIER	1	0.513184	0.514488	-0.001304
13	GRAND FORKS	1	0.530833	0.494733	0.036100
14	NELSON	1	0.522555	0.512681	0.009875
15	PEMBINA	1	0.580845	0.514954	0.065891
16	WAMSEY	1	0.502554	0.456935	0.045619
17	TOWNER	1	0.515448	0.510012	0.005428
18	WALSH	1	0.584428	0.542866	0.041562
19	DUNN	1	0.135699	0.135055	0.000644
20	MCKENZIE	1	0.097749	0.138087	-0.040338
21	MCLEON	1	0.364769	0.359932	0.004778
22	MERCER	1	0.196137	0.179862	0.016275
23	OLIVER	1	0.172287	0.167142	0.005144
24	FLOY	1	0.338709	0.358448	-0.019732
25	FOSTER	1	0.434189	0.489115	-0.054907
26	KIDDER	1	0.221649	0.220533	0.001116
27	SHERIDAN	1	0.336838	0.316871	0.019759
28	STUTSMAN	1	0.403979	0.428672	-0.024693
29	WELLS	1	0.477298	0.490927	-0.013636
30	BARNES	1	0.496648	0.506182	-0.009542
31	CASS	1	0.614288	0.561911	0.052376
32	GRIGGS	1	0.464349	0.457265	0.007083
33	STEELE	1	0.620819	0.617135	0.003683
34	TRAILL	1	0.615382	0.561983	0.053399
35	ADAMS	1	0.236488	0.217713	0.018264
36	BILLINGS	1	0.055010	0.103850	-0.048840
37	BOWMAN	1	0.170552	0.170441	0.000112
38	GOLDEN VALLEY	1	0.111255	0.131757	-0.020502
39	HETTINGER	1	0.391859	0.352096	0.039763
40	SLOPE	1	0.131370	0.148767	-0.017397
41	STARK	1	0.260076	0.239549	0.020527
42	BURLEIGH	1	0.261442	0.224039	0.037403
43	EMMONS	1	0.331524	0.325627	0.005897
44	GWANT	1	0.176039	0.170753	0.005286
45	MORTON	1	0.184245	0.172335	0.011910
46	SIOUX	1	0.084854	0.123039	-0.038185
47	DICKEY	1	0.390567	0.394962	-0.004405
48	LAMOURE	1	0.449431	0.516777	-0.067346
49	LOGAN	1	0.308831	0.296998	0.011833
50	MCINTOSH	1	0.444866	0.432506	0.012360
51	RANSOM	1	0.328651	0.362736	-0.034085
52	RICHLAND	1	0.398112	0.418022	-0.020011
53	SARGENT	1	0.369205	0.378982	-0.009697
54	BURKE	2	0.319138	0.324311	-0.005181
55	DIVIDE	2	0.355848	0.350314	0.005534
56	MOUNTRAIL	2	0.270667	0.267809	0.002859
57	RENVILLE	2	0.477568	0.463064	0.014504
58	WARD	2	0.419157	0.392418	0.023740
59	WILLIAMS	2	0.284118	0.296978	-0.012861
60	BENSON	2	0.460509	0.439978	0.020531
61	BOTTINEAU	2	0.453804	0.510508	-0.056704
62	MC HENRY	2	0.269133	0.251959	0.017174
63	PIERCE	2	0.412512	0.445711	-0.033400
64	ROLETTE	2	0.361665	0.352276	0.009390
65	CAVALIER	2	0.249973	0.235003	0.014970
66	GRAND FORKS	2	0.259914	0.244659	0.015255
67	NELSON	2	0.288168	0.531336	-0.243170
68	PEMBINA	2	0.588996	0.614190	-0.025194
69	WAMSEY	2	0.234355	0.223322	0.011033
70	TOWNER	2	0.534965	0.534870	0.000095
71	WALSH	2	0.568004	0.589828	-0.021824
72	DUNN	2	0.139778	0.151573	-0.011796
73	MC KENZIE	2	0.103633	0.120318	-0.016684
74	MC LEAN	2	0.356992	0.362764	-0.005773
75	MERCER	2	0.187298	0.198982	-0.011692
76	OLIVER	2	0.201760	0.180433	0.021327

OBS	COUNTY	YEAR	PSSG	PPSSG1	RPSSG1
77	EDDY	2	0.363681	0.333746	0.029935
78	FOSTER	2	0.490048	0.450632	0.039416
79	KIDDER	2	0.243119	0.207188	0.035931
80	SHERIDAN	2	0.353419	0.327574	0.025845
81	STUTSMAN	2	0.405877	0.409981	-0.004104
82	WELLS	2	0.490882	0.513251	-0.022369
83	BARNES	2	0.550945	0.515134	0.035811
84	CASS	2	0.672527	0.634249	0.038278
85	GRIGGS	2	0.473812	0.461207	0.012604
86	STEELE	2	0.678919	0.656361	0.022558
87	TRAILL	2	0.618845	0.648342	-0.029497
88	ADAMS	3	0.262418	0.233648	0.028770
89	BILLINGS	3	.	0.187096	.
90	BOWMAN	3	0.191186	0.182876	0.008230
91	GOLDEN VALLEY	3	.	0.142513	.
92	HETTINGER	3	0.389305	0.375152	0.014153
93	SLOPE	3	0.148214	0.150178	-0.001963
94	STARK	3	0.261630	0.256053	0.005577
95	BURLEIGH	3	0.273077	0.246302	0.026774
96	EMMONS	3	0.341501	0.318959	0.022542
97	GRANT	3	0.193202	0.174544	0.018658
98	MORTON	3	0.184881	0.183065	0.001816
99	SIOUX	3	0.089924	0.123208	-0.033284
100	DICKEY	3	0.413477	0.351115	0.062362
101	LA MOURE	3	0.407128	0.394842	0.012286
102	LOGAN	3	0.307913	0.280504	0.027409
103	MC INTOSH	3	0.414094	0.459086	-0.044992
104	RANSOM	3	0.382368	0.323663	0.058705
105	RICHLAND	3	0.455163	0.395763	0.059400
106	SARGENT	3	0.404455	0.368770	0.035685
107	BUNKE	3	0.322554	0.301922	0.020632
108	DIVIDE	3	0.335721	0.344390	-0.008669
109	MOUNTRAIL	3	0.258985	0.267710	-0.008716
110	RENVILLE	3	0.496261	0.485738	0.010522
111	WARD	3	0.397505	0.418843	-0.021338
112	WILLIAMS	3	0.286307	0.278205	0.008101
113	BENSON	3	0.402040	0.474948	-0.072907
114	BOTTINEAU	3	0.470297	0.433908	0.036389
115	MC HENRY	3	0.302955	0.277129	0.025826
116	PIERCE	3	0.428408	0.415996	0.012412
117	POLETTE	3	0.359879	0.359805	0.000073
118	CAVALIER	3	0.507202	0.498548	0.008654
119	GRAND FORKS	3	0.486353	0.528068	-0.041715
120	NELSON	3	0.501578	0.475431	0.026148
121	PEMBINA	3	0.530534	0.555069	-0.024535
122	RAMSEY	3	0.513071	0.508475	0.004595
123	TOWNER	3	0.553991	0.506085	0.047906
124	WALSH	3	.	0.447569	.
125	DUNN	3	0.143857	0.140387	0.003470
126	MC KENZIE	3	0.104719	0.123077	-0.018358
127	MC LEAN	3	0.366028	0.330426	0.035602
128	MERCER	3	.	0.173062	.
129	OLIVER	3	0.193741	0.175039	0.018703
130	EDDY	4	0.322034	0.325296	-0.003261
131	FOSTER	4	0.380572	0.468306	-0.087734
132	KIDDER	4	0.220338	0.219905	0.000433
133	SHERIDAN	4	0.324191	0.336310	-0.012119
134	STUTSMAN	4	0.392410	0.390206	0.002203
135	WELLS	4	0.467908	0.466982	0.000926
136	BARNES	4	0.512918	0.517358	-0.004440
137	CASS	4	0.576855	0.630109	-0.053254
138	GRIGGS	4	0.472051	0.428981	0.043070
139	STEELE	4	.	0.658525	.
140	TRAILL	4	.	0.588249	.
141	ADAMS	5	0.260838	0.238672	0.022166
142	BILLINGS	5	0.072432	.	.
143	BOWMAN	5	0.217548	0.189814	0.027734
144	GOLDEN VALLEY	5	0.143923	.	.
145	HETTINGER	5	0.390892	0.390653	0.000240
146	SLOPE	5	0.165306	0.151953	0.013353
147	STARK	5	0.265073	0.258661	0.006412
148	BURLEIGH	5	0.243269	0.265095	-0.021865
149	EMMONS	5	0.324351	0.340025	-0.015673
150	GRANT	5	0.182323	0.203191	-0.020868
151	MORTON	5	0.194499	0.174933	0.019566
152	SIOUX	5	.	0.126379	.

OBS	COUNTY	YEAR	PSSG	PPSSG1	RPSSG1
153	DICKEY	3	0.369223	0.395347	-0.026118
154	LA MOURE	3	0.448482	0.442937	0.005545
155	LOGAN	3	0.318242	0.278564	0.039678
156	MC INTOSH	3	0.393145	0.385799	0.007346
157	RANSOM	3	0.320844	0.341827	-0.020973
158	RICHLAND	3	0.376121	0.423384	-0.047263
159	SARGENT	3	0.351708	0.364482	-0.012774
160	BURKE	4	0.305379	0.288385	0.016994
161	DIVIDE	4	0.300841	0.293040	0.007801
162	MOUNTRAIL	4	0.264740	0.241720	0.023014
163	RENVILLE	4	0.452878	0.496475	-0.043597
164	WARD	4	0.385171	0.377583	0.007588
165	WILLIAMS	4	0.262915	0.253044	0.009869
166	BENSON	4	0.364965	0.381543	-0.016580
167	BOTTINEAU	4	0.417508	0.466857	-0.049348
168	MC HENRY	4	0.295653	0.261029	0.034624
169	PIERCE	4	0.407833	0.414532	-0.006699
170	ROLETTE	4	0.330470	0.320395	0.010074
171	CAVALIER	4	0.534808	0.572904	-0.038116
172	GRAND FORKS	4	0.446519	0.458160	-0.011640
173	NELSON	4	0.459171	0.478221	-0.019050
174	PEMBINA	4	0.474171	0.519157	-0.044985
175	RAMSEY	4	0.476262	0.488054	-0.011792
176	TOWNER	4	0.500060	0.521706	-0.021646
177	WALSH	4	0.490762	.	.
178	DUNN	4	0.140876	0.127185	0.013771
179	MC KENZIE	4	0.115588	0.102621	0.012967
180	MC LEAN	4	0.352754	0.338158	0.014596
181	MERCER	4	0.193138	.	.
182	OLIVER	4	.	0.175885	.
183	EDDY	4	0.295276	0.278448	0.016827
184	FOSTER	4	0.334068	0.342377	-0.008311
185	KIDDER	4	0.203079	0.184768	0.018311
186	MCHENRY	4	0.306654	0.286416	0.020238
187	STUTSMAN	4	0.319540	0.362886	-0.043346
188	WELLS	4	0.488477	0.432120	0.056357
189	BARNES	4	0.445014	0.460515	-0.015501
190	CASS	4	0.474468	0.510827	-0.036360
191	GRIGGS	4	0.396586	0.428727	-0.034140
192	STEELE	4	0.542474	.	.
193	TRAILL	4	0.534406	.	.
194	ADAMS	4	0.227819	0.212528	0.015291
195	BILLINGS	4	0.070649	0.095695	-0.025047
196	HOWMAN	4	0.190171	0.179785	0.010386
197	GOLDEN VALLEY	4	0.125740	0.131561	-0.005821
198	METTINGER	4	0.344742	0.347046	-0.002304
199	SLOPE	4	0.142857	0.143907	-0.001049
200	STARK	4	0.270588	0.241428	0.029160
201	BURLEIGH	4	0.233750	0.193730	0.040020
202	EMMONS	4	0.298673	0.291711	0.006963
203	GRANT	4	0.176883	0.159619	0.017264
204	MORTON	4	0.182129	0.170355	0.011774
205	SIOUX	4	0.090520	.	.
206	DICKEY	4	0.361576	0.329079	0.032497
207	LA MOURE	4	0.450869	0.469778	-0.018908
208	LOGAN	4	0.301886	0.278916	0.022970
209	MC INTOSH	4	0.362273	0.364276	-0.002003
210	RANSOM	4	0.295823	0.281224	0.014598
211	RICHLAND	4	0.324901	0.348019	-0.023118
212	SARGENT	4	0.347487	0.335213	0.012273
213	BURKE	5	0.294346	0.284211	0.010136
214	DIVIDE	5	0.312748	0.273829	0.038912
215	MOUNTRAIL	5	0.257095	0.252634	0.004462
216	RENVILLE	5	0.441415	0.454376	-0.012960
217	WARD	5	0.361508	0.374466	-0.012956
218	WILLIAMS	5	0.275179	0.250569	0.024609
219	BENSON	5	0.337892	0.363539	-0.025647
220	BOTTINEAU	5	0.399949	0.402224	-0.002275
221	MC HENRY	5	0.273563	0.270471	0.003113
222	PIERCE	5	0.385959	0.389469	-0.003510
223	ROLETTE	5	0.330127	0.304149	0.025979
224	CAVALIER	5	0.528584	0.531354	-0.002770
225	GRAND FORKS	5	0.390648	0.391078	-0.000430
226	NELSON	5	0.392274	0.398588	-0.006314
227	PEMBINA	5	0.413204	0.414997	-0.001793
228	RAMSEY	5	0.349013	0.463758	-0.064745

OBS	COUNTY	YEAR	PSSG	MPSSG1	RPSSG1
229	TURNER	5	0.462308	0.480762	-0.018454
230	WALSH	5	0.442993	0.471858	-0.028793
231	DUNN	5	0.145942	0.150027	-0.004186
232	MC KENZIE	5	0.117482	0.129947	-0.012546
233	MC LEAN	5	0.328983	0.329532	-0.000375
234	MERCER	5	0.199286	0.183681	0.015406
235	OLIVER	3	0.99150	.	.
236	PERRY	5	0.662518	.	.
237	FOSTER	5	0.342339	0.309050	0.033489
238	RIDDER	5	0.204238	0.192408	0.011829
239	SHERIDAN	5	0.380507	0.358814	0.021716
240	STUTSMAN	5	0.247171	0.241682	0.005569
241	WELLS	5	0.399346	0.484555	-0.085209
242	BARNES	5	0.421863	0.390253	0.031579
243	CASS	5	0.435874	0.427601	0.008273
244	GRIGGS	5	0.332297	0.339315	-0.005048
245	STEELE	5	0.35079	0.408358	-0.063279
246	TRAILL	5	0.497805	0.504208	-0.006404
247	WILLIAMS	5	0.224591	0.208619	0.015972
248	BILLINGS	5	0.072432	0.110184	-0.037752
249	BOWMAN	5	0.197650	0.187559	0.010090
250	GOLDEN VALLEY	5	0.140378	0.140637	-0.000259
251	MCINTOSH	5	0.253109	0.225452	0.027657
252	SLOPE	5	0.149362	0.154769	-0.005407
253	STARK	5	0.261446	0.255625	0.005821
254	BURLEIGH	5	0.233654	0.217243	0.016411
255	EMMONS	5	0.311356	0.282640	0.028717
256	GRANT	5	0.169005	0.178655	-0.009650
257	HUNTON	5	0.172852	0.181111	-0.008260
258	SIOUX	5	0.090965	0.123565	-0.032600
259	DICKEY	5	0.298693	0.326295	-0.027602
260	LA MOURE	5	0.394751	0.435236	-0.040484
261	LOGAN	5	0.302042	0.283152	0.018889
262	MC INTOSH	5	0.344635	0.346416	-0.001781
263	RANSOM	5	0.269672	0.249681	0.019991
264	RICHLAND	5	0.269151	0.288102	-0.018951
265	SARGENT	5	0.289420	0.315845	-0.026426

PLOT OF RPSSG1*COUNTYCO LEGEND: A = 1 OBS, B = 2 OBS, ETC.



NOTE: 17 OBS HAD MISSING VALUES

APPENDIX G

OUTPUT OF COMPUTER RUN: STEPWISE REGRESSION MODEL AT THE CRD LEVEL

STEPWISE REGRESSION PROCEDURE FOR DEPENDENT VARIABLE PSSG

STEP 1 VARIABLE PSSG1 ENTERED R SQUARE = 0.95845121 C(P) = 98.34852371

	DF	SUM OF SQUARES	MEAN SQUARE	F	PR>F
REGRESSION	1	0.62302848	0.62302848	1881.99	0.0001
ERROR	43	0.02673873	0.00062178		
TOTAL	44	0.64975721			

	B VALUE	STD ERROR	TYPE II SS	F	PR>F
INTERCEPT	0.00765853				
PSSG1	0.95098309	0.03084229	0.62302848	1881.99	0.0001

STEP 2 VARIABLE WPSSG ENTERED R SQUARE = 0.97349201 C(P) = 50.70811753

	DF	SUM OF SQUARES	MEAN SQUARE	F	PR>F
REGRESSION	2	0.63253345	0.31626672	771.21	0.0001
ERROR	42	0.01722376	0.00041009		
TOTAL	44	0.64975721			

	B VALUE	STD ERROR	TYPE II SS	F	PR>F
INTERCEPT	-0.04077677				
WPSSG	0.41730147	0.08359239	0.00951247	23.20	0.0001
PSSG1	0.[illegible]76223	0.02445721	0.60935341	1485.98	0.0001

STEP 3 VARIABLE REMARK ENTERED R SQUARE = 0.98381269 C(P) = 17.81828834

	DF	SUM OF SQUARES	MEAN SQUARE	F	PR>F
REGRESSION	3	0.63923920	0.21307973	830.61	0.0001
ERROR	41	0.01051795	0.00025654		
TOTAL	44	0.64975721			

	B VALUE	STD ERROR	TYPE II SS	F	PR>F
INTERCEPT	-0.04862206				
WPSSG	0.83212575	0.08405946	0.01601632	62.43	0.0001
PSSG1	0.41957389	0.01980836	0.54953657	2142.15	0.0001
REMARK	-0.01439833	0.00281018	0.00670261	26.14	0.0001

STEP 4 VARIABLE TEMPMAT ENTERED R SQUARE = 0.98719230 C(P) = 8.37269157

	DF	SUM OF SQUARES	MEAN SQUARE	F	PR>F
REGRESSION	4	0.64143531	0.16035883	770.78	0.0001
ERROR	40	0.00832189	0.00020805		
TOTAL	44	0.64975721			

	B VALUE	STD ERROR	TYPE II SS	F	PR>F
INTERCEPT	0.05579387				
WPSSG	0.[illegible]62618	0.08396917	0.01826123	87.77	0.0001
PSSG1	0.42590222	0.01798216	0.55098395	2648.37	0.0001
TEMPMAT	-0.00194733	0.00058399	0.00219606	10.56	0.0024
REMARK	-0.02124711	0.00330767	0.00862581	41.46	0.0001

STEPWISE REGRESSION PROCEDURE FOR DEPENDENT VARIABLE PSSG

STEP 5 VARIABLE YEAR ENTERED R SQUARE = 0.98847693 C(P) = 6.02236931

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	5	0.64227001	0.12845400	669.10	0.0001
ERROR	39	0.00748720	0.00019198		
TOTAL	44	0.64975721			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	0.24622037				
WPSSG	0.01475863	0.01113869	0.00033701	1.76	0.1929
YEAR	-0.01510769	0.00726530	0.00082469	4.35	0.0436
PSSQ1	0.94123179	0.01866837	0.47772594	2488.42	0.0001
TEMPMAY	-0.00620394	0.00124034	0.00225344	11.79	0.0016
PERARM	-0.02463213	0.00355723	0.00920320	47.95	0.0001

STEP 6 VARIABLE WPSSG REMOVED R SQUARE = 0.98795825 C(P) = 5.77888937

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	4	0.64193300	0.16048325	820.44	0.0001
ERROR	40	0.00782421	0.00019561		
TOTAL	44	0.64975721			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	0.23757117				
YEAR	-0.02414510	0.00246536	0.01875892	95.90	0.0001
PSSQ1	0.95134908	0.01721013	0.59845516	3059.50	0.0001
TEMPMAY	-0.00594511	0.00077456	0.00948289	48.33	0.0001
PERARM	-0.02557770	0.00351766	0.01034177	52.87	0.0001

STEP 7 VARIABLE TEMPJUNE ENTERED R SQUARE = 0.98993122 C(P) = 1.04745020

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	5	0.64321495	0.12864299	766.87	0.0001
ERROR	39	0.00654226	0.00016775		
TOTAL	44	0.64975721			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	0.1[illegible]				
YEAR	-0.02317[illegible]	0.00231013	0.01688071	100.63	0.0001
PSSQ1	0.[illegible]	0.01597718	0.59162[illegible]	3526.81	0.0001
TEMPMAY	-0.00[illegible]	0.00071[illegible]	0.01028[illegible]	61.31	0.0001
TEMPJUNE	0.00[illegible]	0.00[illegible]	0.00[illegible]	1.64	0.0007
PERARM	-0.02[illegible]	0.00332871	0.00849[illegible]	50.63	0.0001

STEP 8 VARIABLE DCHU7 ENTERED R SQUARE = 0.99026[illegible] C(P) = 1.97438768

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	6	0.64343043	0.10723841	644.10	0.0001
ERROR	38	0.00632678	0.00016649		
TOTAL	44	0.64975721			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	0.21[illegible]				
DCHU7	-0.00[illegible]	0.00044623	0.00021546	1.29	0.2629
YEAR	-0.02371628	0.00235032	0.01695276	101.82	0.0001
PSSQ1	0.94[illegible]	0.01741040	0.48610800	2920.03	0.0001
TEMPMAY	-0.00[illegible]	0.00072599	0.01049531	63.04	0.0001
TEMPJUNE	0.00[illegible]	0.00[illegible]	0.00101[illegible]	6.56	0.0146
PERARM	-0.02[illegible]	0.00341261	0.00865200	51.97	0.0001

STEPWISE REGRESSION PROCEDURE FOR DEPENDENT VARIABLE PSSG

STEP 9 VARIABLE DCRD7 REMOVED R SQUARE = 0.98993122 C(P) = 1.09765820

	DF	SUM OF SQUARES	MEAN SQUARE	F	PROB>F
REGRESSION	5	0.64321495	0.12864299	766.87	0.0001
ERROR	39	0.00653226	0.00016775		
TOTAL	44	0.64975721			

	B VALUE	STD ERROR	TYPE II SS	F	PROB>F
INTERCEPT	-0.18495959				
YEAR	-0.02317396	0.00231813	0.01688871	100.63	0.0001
PSSG1	-0.96883617	0.01597716	0.59162314	3526.81	0.0001
TEMPMAY	-0.00542907	0.00071893	0.01023482	61.31	0.0001
TEMPJUNE	0.00394913	0.00142819	0.00120195	7.04	0.0116
TEMPAPR	-0.02368503	0.00332671	0.00849361	50.63	0.0001

NO OTHER VARIABLES MET THE 0.5000 SIGNIFICANCE LEVEL FOR ENTRY INTO THE MODEL.

APPENDIX H

OUTPUT OF COMPUTER RUN: LOGIT MODEL AT THE CRD LEVEL

NON-LINEAR LEAST SQUARES ITERATIVE PHASE

DEPENDENT VARIABLE: PSSG METHOD: DUD

ITERATION	θ0 θ6 θ12	θ1 θ7 θ13	θ2 θ8	θ3 θ9	θ4 θ10	θ5 θ11	RESIDUAL SS
-15	-0.01700000 0.00900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01000000 0.00700000	-0.00800000 -0.00070000	0.00350000 0.01000000	0.01170000 0.00900000	3.07282784
-14	-0.01870000 0.00900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01000000 0.00700000	-0.00800000 -0.00070000	0.00350000 0.01000000	0.01170000 0.00900000	3.96290173
-13	-0.01700000 0.00900000 0.00700000	0.01900000 0.01300000 0.92400000	-0.01000000 0.00700000	-0.00800000 -0.00070000	0.00350000 0.01000000	0.01170000 0.00900000	3.10017070
-12	-0.01700000 0.00900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01100000 0.00700000	-0.00800000 -0.00070000	0.00350000 0.01000000	0.01170000 0.00900000	3.06133577
-11	-0.01700000 0.00900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01000000 0.00700000	-0.00800000 -0.00070000	0.00350000 0.01000000	0.01170000 0.00900000	3.06223092
-10	-0.01700000 0.00900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01000000 0.00700000	-0.00800000 -0.00070000	0.00385030 0.01000000	0.01170000 0.00900000	3.07859875
-9	-0.01700000 0.00900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01000000 0.00700000	-0.00800000 -0.00070000	0.00350000 0.01000000	0.01237000 0.00900000	3.07275348
-8	-0.01700000 0.00900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01000000 0.00700000	-0.00800000 -0.00070000	0.00350000 0.01000000	0.01170000 0.00900000	3.07250263
-7	-0.01700000 0.00900000 0.00700000	0.01800000 0.01430000 0.92400000	-0.01000000 0.00700000	-0.00800000 -0.00070000	0.00350000 0.01000000	0.01170000 0.00900000	3.07238466
-6	-0.01700000 0.00900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01000000 0.00770000	-0.00800000 -0.00070000	0.00350000 0.01000000	0.01170000 0.00900000	3.07264460
-5	-0.01700000 0.00900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01000000 0.00700000	-0.00800000 -0.00077000	0.00350000 0.01000000	0.01170000 0.00900000	3.07198722
-4	-0.01700000 0.00900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01000000 0.00700000	-0.00800000 -0.00070000	0.00350000 0.01000000	0.01170000 0.00900000	3.07227253
-3	-0.01700000 0.00900000 0.00700000	0.01800000 0.01300000 0.92400000	-0.01000000 0.00700000	-0.00800000 -0.00070000	0.00350000 0.01000000	0.01170000 0.00900000	3.07280834
-2	-0.01700000 0.00900000 0.00770000	0.01800000 0.01300000 0.92400000	-0.01000000 0.00700000	-0.00800000 -0.00070000	0.00350000 0.01000000	0.01170000 0.00900000	3.07262134
-1	-0.01700000 0.00900000 0.00700000	0.01800000 0.01300000 1.01640000	-0.01000000 0.00700000	-0.00800000 -0.00070000	0.00350000 0.01000000	0.01170000 0.00900000	3.22448453
0	-0.01700000 0.00900000 0.00700000	0.01800000 0.01300000 1.01640000	-0.01000000 0.00700000	-0.00800000 -0.00070000	0.00350000 0.01000000	0.01170000 0.00900000	3.06133577
1	-1.89686972 0.01876753 -0.07352605	0.11581687 0.12505186 3.02526562	-0.06706897 -0.10683229	-0.02382253 -0.03304806	0.00776511 0.14401885	-0.01983420 -0.09646187	0.01871180

NON-LINEAR LEAST SQUARES ITERATIVE PHASE

DEPENDENT VARIABLE: PSSG METHOD: GAUSS

ITERATION	B0 B6 B12	B1 B7 B13	B2 B8	B3 B9	B4 B10	B5 B11	RESIDUAL SS
2	-2.05171221 0.02933977 -0.13337109	0.11435642 0.07562866 3.47594840	-0.06764793 -0.18102778	-0.03169932 -0.02941128	0.01057289 0.08378563	-0.00580116 -0.15548521	0.00638168
3	-2.03460604 0.02794280 -0.15125446	0.11517348 0.07889249 3.42429696	-0.06810435 -0.20594691	-0.03136647 -0.02972668	0.01026923 0.08958771	-0.00712397 -0.17567599	0.00607666

NOTE: ITERATIONS RESTARTED USING A SMALLER GRID AROUND ABOVE PARAMETERS.

-15	-2.03460604 0.02794280 -0.15125446	0.11517348 0.07889249 3.42429696	-0.06810435 -0.20594691	-0.03136647 -0.02972668	0.01026923 0.08958771	-0.00712397 -0.17567599	0.00607666
-14	-2.03460604 0.02794280 -0.15125446	0.11517348 0.07889249 3.42429696	-0.06810435 -0.20594691	-0.03136647 -0.02972668	0.01026923 0.08958771	-0.00712397 -0.17567599	0.00607626
-13	-2.03460604 0.02794280 -0.15125446	0.11528866 0.07889249 3.42429696	-0.06810435 -0.20594691	-0.03136647 -0.02972668	0.01026923 0.08958771	-0.00712397 -0.17567599	0.00608041
-12	-2.03460604 0.02794280 -0.15125446	0.11517348 0.07889249 3.42429696	-0.06817265 -0.20594691	-0.03136647 -0.02972668	0.01026923 0.08958771	-0.00712397 -0.17567599	0.00607499
-11	-2.03460604 0.02794280 -0.15125446	0.11517348 0.07889249 3.42429696	-0.06810435 -0.20594691	-0.03139783 -0.02972668	0.01026923 0.08958771	-0.00712397 -0.17567599	0.00607517
-10	-2.03460604 0.02794280 -0.15125446	0.11517348 0.07889249 3.42429696	-0.06810435 -0.20594691	-0.03136647 -0.02972668	0.01027950 0.08958771	-0.00712397 -0.17567599	0.00607709
-9	-2.03460604 0.02794280 -0.15125446	0.11517348 0.07889249 3.42429696	-0.06810435 -0.20594691	-0.03136647 -0.02972668	0.01026923 0.08958771	-0.00713103 -0.17567599	0.00607666
-8	-2.03460604 0.02797975 -0.15125446	0.11517348 0.07889249 3.42429696	-0.06810435 -0.20594691	-0.03136647 -0.02972668	0.01026923 0.08958771	-0.00712397 -0.17567599	0.00607667
-7	-2.03460604 0.02794280 -0.15125446	0.11517348 0.07897138 3.42429696	-0.06810435 -0.20594691	-0.03136647 -0.02972668	0.01026923 0.08958771	-0.00712397 -0.17567599	0.00607666
-6	-2.03460604 0.02794280 -0.15125446	0.11517348 0.07889249 3.42429696	-0.06810435 -0.20615280	-0.03136647 -0.02972668	0.01026923 0.08958771	-0.00712397 -0.17567599	0.00607559
-5	-2.03460604 0.02794280 -0.15125446	0.11517348 0.07889249 3.42429696	-0.06810435 -0.20594691	-0.03136647 -0.02972668	0.01026923 0.08958771	-0.00712397 -0.17567599	0.00607666
-4	-2.03460604 0.02794280 -0.15125446	0.11517348 0.07889249 3.42429696	-0.06810435 -0.20594691	-0.03136647 -0.02972668	0.01026923 0.08967730	-0.00712397 -0.17567599	0.00607668
-3	-2.03460604 0.02794280 -0.15125446	0.11517348 0.07889249 3.42429696	-0.06810435 -0.20594691	-0.03136647 -0.02972668	0.01026923 0.08958771	-0.00712397 -0.17565166	0.00607578
-2	-2.03460604 0.02794280 -0.15125446	0.11517348 0.07889249 3.42429696	-0.06810435 -0.20594691	-0.03136647 -0.02972668	0.01026923 0.08958771	-0.00712397 -0.17567599	0.00607605
-1	-2.03460604 0.02794280 -0.15125446	0.11517348 0.07889249 3.42429696	-0.06810435 -0.20594691	-0.03136647 -0.02972668	0.01026923 0.08958771	-0.00712397 -0.17567599	0.00609302

S T A T I S T I C A L A N A L Y S I S S Y S T E M

NON-LINEAR LEAST SQUARES ITERATIVE PHASE

1:25 TUESDAY, JUNE 30, 1981 4

DEPENDENT VARIABLE: PSSG METHOD: DUD

ITERATION	B0 B6 B12	B1 B7 B13	B2 B8	B3 B9	B4 B10	B5 B11	RESIDUAL SS
0	-2.03440604 0.02794280 -0.15125446	0.11517348 0.07849249 3.42772126	-0.06810435 -0.20594691	-0.03136647 -0.02972668	0.01026923 0.00458771	-0.00712397 -0.17567549	0.00605626
1	-1.80203702 0.01545758 -0.26572547	0.13620107 0.15983595 2.77250128	-0.08170872 -0.36561822	-0.02625163 -0.05164414	0.00969405 0.19469166	-0.06284349 -0.32531757	0.00569522
2	-1.80082357 0.01539248 -0.26656927	0.13636900 0.16044362 2.71823164	-0.08182613 -0.36667205	-0.02630808 -0.05178983	0.00969314 0.19547487	-0.06321313 -0.32628402	0.00569510

NOTE: USING THE ABOVE PARAMETERS, THE PARAMETER MODIFICATION VECTOR (DELTA) WAS HALVED 10 TIMES. NO REDUCTION IN THE RESIDUAL SS WAS FOUND (CONVERGENCE ASSUMED).

NON-LINEAR LEAST SQUARES SUMMARY STATISTICS DEPENDENT VARIABLE PSSG

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE
REGRESSION	14	5.83071246	0.41647946
RESIDUAL	31	0.00569510	0.00018371
UNCORRECTED TOTAL	45	5.83640757	
(CORRECTED TOTAL)	44	0.64975721	

PARAMETER	ESTIMATE	ASYMPTOTIC STD. ERROR	ASYMPTOTIC 95 % CONFIDENCE INTERVAL LOWER	UPPER
B0	-1.80082357	0.21850133	-2.24645687	-1.35519027
B1	0.13636900	0.02585736	0.08363106	0.18910693
B2	-0.08136213	0.01515823	-0.11224133	-0.05091093
B3	-0.02630808	0.01255861	-0.05192135	-0.00069481
B4	0.00476314	0.00956596	-0.00981664	0.02920242
B5	-0.06321313	0.06468306	-0.19513418	0.06870791
B6	0.01534248	0.04377481	-0.07369641	0.10468136
B7	0.16044362	0.08480582	-0.01251177	0.33340503
B8	-0.36667205	0.13345651	-0.63883651	-0.09450759
B9	-0.05178683	0.04365401	-0.14082215	0.03224849
B10	0.19527487	0.10261912	-0.01361175	0.40417149
B11	-0.32628402	0.13079955	-0.59304460	-0.05951843
B12	-0.28056927	0.11747156	-0.52615243	-0.03498612
B13	2.71823164	0.63251371	1.42822040	4.00824287

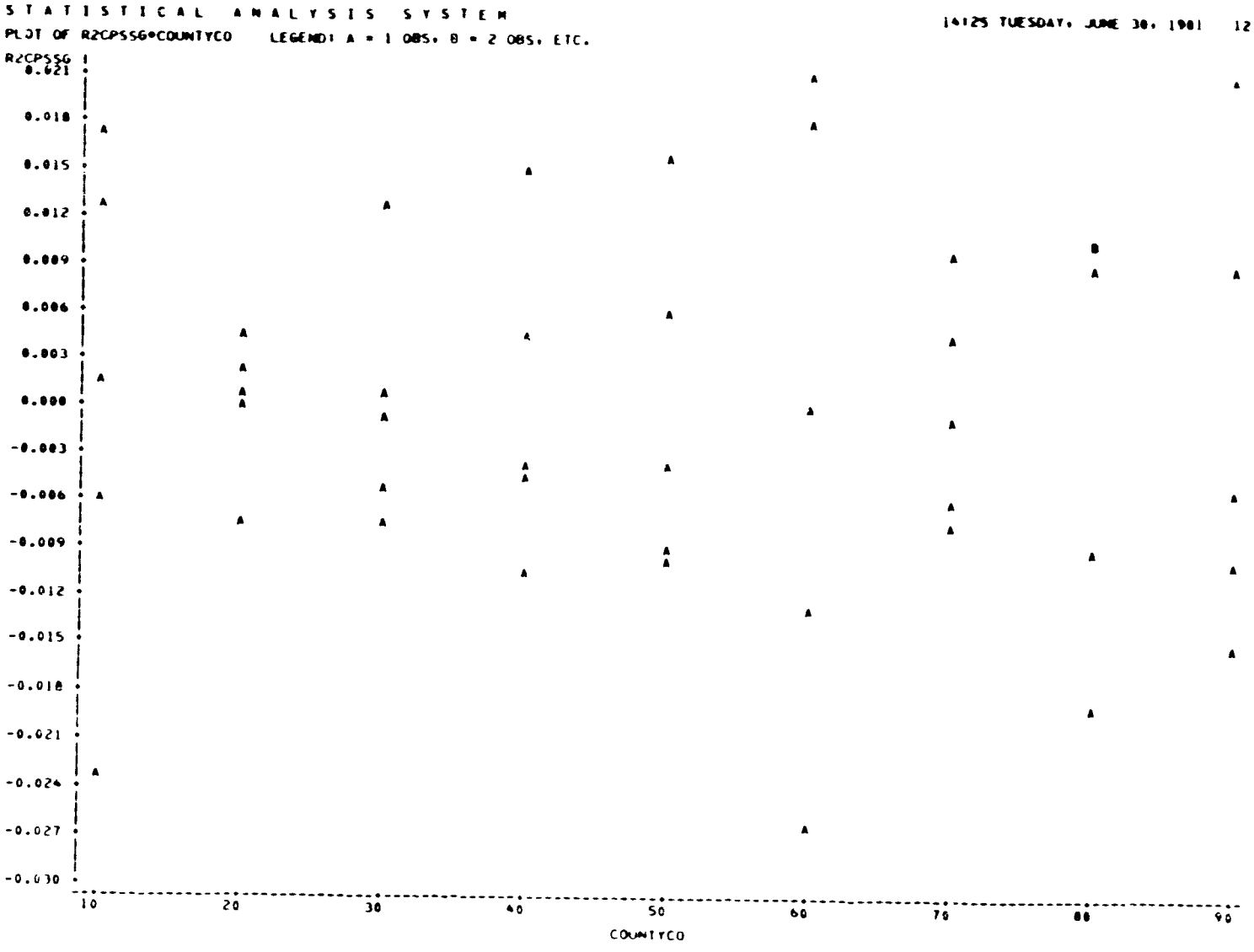
ASYMPTOTIC CORRELATION MATRIX OF THE PARAMETERS

	B0	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11
B0	1.000000	0.4554060	-0.611048	0.375654	-0.081217	-0.736313	-0.279857	0.814668	-0.918331	-0.475312	0.867507	-0.914796
B1	0.4554060	1.000000	-0.675236	0.673089	-0.496465	-0.662526	-0.406041	0.404018	-0.620584	-0.433464	0.484917	-0.630007
B2	-0.611048	-0.675236	1.000000	-0.324137	-0.032739	0.534719	0.180284	-0.531078	0.618923	0.313047	-0.606314	0.629463
B3	0.375654	0.673089	-0.324137	1.000000	-0.350472	-0.562510	-0.264814	0.422037	-0.537440	-0.331062	0.445315	-0.558031
B4	-0.081217	-0.496465	-0.032739	-0.350472	1.000000	0.350676	0.497641	0.121079	0.179732	0.053027	-0.161527	0.179117
B5	-0.736313	-0.662526	0.534719	-0.562510	0.350676	1.000000	0.557558	-0.466301	0.802727	0.543154	-0.795121	0.807596
B6	-0.279857	-0.406041	0.180284	-0.264814	0.497641	0.557558	1.000000	0.084958	0.376924	0.589514	0.009577	0.380081
B7	0.814668	0.404018	-0.531078	0.422037	0.121079	-0.466301	0.084958	1.000000	-0.738519	-0.138384	0.422610	-0.736468
B8	-0.918331	-0.620584	0.618923	-0.537440	0.179732	0.802727	0.376924	-0.738519	1.000000	0.548852	-0.799409	0.918202
B9	-0.475312	-0.433464	0.313047	-0.331062	0.053027	0.543154	0.589514	-0.138384	0.548852	1.000000	-0.211783	0.552689
B10	0.867507	0.484917	-0.606314	0.445315	0.053027	-0.543154	0.009577	0.422610	-0.799409	-0.211783	1.000000	-0.798268
B11	-0.914796	-0.630007	0.629463	-0.558031	0.179117	0.807596	0.380081	-0.736468	0.918202	0.552689	-0.798268	1.000000
B12	-0.918292	-0.581060	0.594755	-0.512142	0.161527	0.795121	0.378756	-0.726182	0.909434	0.552279	-0.788032	0.910007
B13	-0.962133	-0.604232	0.661365	-0.543256	0.074000	0.741673	0.222067	-0.681514	0.931177	0.431575	-0.927513	0.931455

	B12	B13
B0	-0.918292	-0.962133
B1	-0.581060	-0.604232
B2	0.594755	0.661365
B3	-0.512142	-0.543256
B4	0.161527	0.074000
B5	0.795121	0.741673
B6	0.378756	0.222067
B7	-0.726182	-0.681514
B8	0.909434	0.931177
B9	0.552279	0.431575
B10	-0.788032	-0.927513
B11	0.910007	0.931455
B12	1.000000	0.919933
B13	0.919933	1.000000

NOTE: ALL ASYMPTOTIC STATISTICS ARE APPROXIMATE. REFERENCE: R ..STON AND JENNRICH, TECHNOMETRICS, FEBRUARY 1978, P 7-14.

OBS	COUNTY	YEAR	PSSG	P2CPSSG	R2CPSSG
1	NW	1	0.318356	0.341824	-0.023468
2	NC	1	0.379703	0.377213	0.002491
3	NE	1	0.536086	0.535489	0.000597
4	WC	1	0.189290	0.193466	-0.004176
5	C	1	0.369524	0.373078	-0.003554
6	EC	1	0.564389	0.546314	0.018075
7	SW	1	0.194144	0.199916	-0.005772
8	SC	1	0.212837	0.202128	0.010709
9	SE	1	0.366580	0.372179	-0.005600
10	NORTHWEST	2	0.345503	0.351443	-0.005939
11	NORTH CENTRAL	2	0.396188	0.403375	-0.007188
12	NORTHEAST	2	0.548068	0.553345	-0.005277
13	WEST CENTRAL	2	0.191664	0.202469	-0.010805
14	CENTRAL	2	0.387104	0.371077	0.016027
15	EAST CENTRAL	2	0.605458	0.584500	0.020958
16	SOUTHWEST	2	0.208992	0.216476	-0.007484
17	SOUTH CENTRAL	2	0.221472	0.212639	0.008834
18	SOUTHEAST	2	0.417808	0.397170	0.020638
19	NORTHWEST	3	0.335036	0.334172	0.001464
20	NORTH CENTRAL	3	0.391213	0.390942	0.000271
21	NORTHEAST	3	0.534279	0.521283	0.012996
22	WEST CENTRAL	3	0.197308	0.200733	-0.003425
23	CENTRAL	3	0.356963	0.367074	-0.010111
24	EAST CENTRAL	3	0.543713	0.555828	-0.012116
25	SOUTHWEST	3	0.221727	0.216864	0.004863
26	SOUTH CENTRAL	3	0.215418	0.231492	-0.016074
27	SOUTHEAST	3	0.377102	0.386944	-0.009842
28	NORTHWEST	4	0.319050	0.306657	0.012393
29	NORTH CENTRAL	4	0.360596	0.360129	0.000467
30	NORTHEAST	4	0.484021	0.491613	-0.007592
31	WEST CENTRAL	4	0.194513	0.179424	0.015089
32	CENTRAL	4	0.320452	0.314232	0.006220
33	EAST CENTRAL	4	0.478819	0.504837	-0.026018
34	SOUTHWEST	4	0.197348	0.188051	0.009297
35	SOUTH CENTRAL	4	0.201224	0.190761	0.010463
36	SOUTHEAST	4	0.350874	0.341616	0.009258
37	NORTHWEST	5	0.314294	0.296801	0.017493
38	NORTH CENTRAL	5	0.341670	0.337332	0.004338
39	NORTHEAST	5	0.436727	0.437499	-0.000772
40	WEST CENTRAL	5	0.193162	0.188573	0.004589
41	CENTRAL	5	0.296953	0.305419	-0.008466
42	EAST CENTRAL	5	0.428560	0.428321	0.000239
43	SOUTHWEST	5	0.201010	0.201650	-0.000640
44	SOUTH CENTRAL	5	0.199745	0.208722	-0.008977
45	SOUTHEAST	5	0.309768	0.325033	-0.015265


STATISTICAL ANALYSIS SYSTEM
14:25 TUESDAY, JUNE 30, 1981 12
PLOT OF R2CPSSG*COUNTYCO LEGEND: A = 1 OBS, B = 2 OBS, ETC.
R2CPSSG
0.021
0.018
0.015
0.012
0.009
0.006
0.003
0.000
-0.003
-0.006
-0.009
-0.012
-0.015
-0.018
-0.021
-0.024
-0.027
-0.030
10
20
30
40
50
60
70
80
90
COUNTYCO

APPENDIX I

OUTPUT OF COMPUTER RUN: LINEARIZED LOGIT MODEL AT THE CRD LEVEL

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: Y

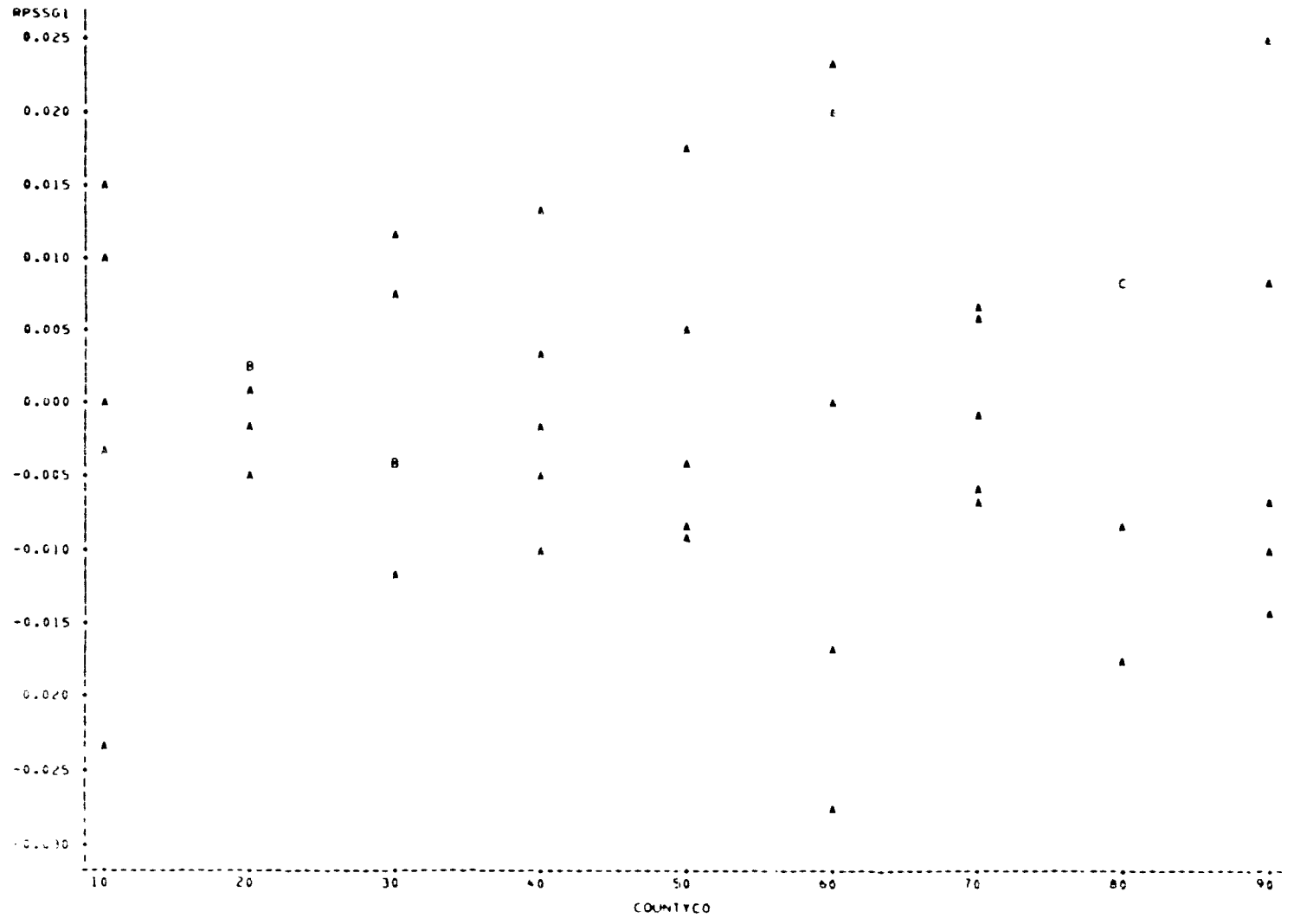
SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	13	13.62027636	1.04771357	256.15	0.0001	0.990776	8.9869
ERROR	31	0.12679804	0.00409026		STD DEV		Y MEAN
CORRECTED TOTAL	44	13.74707440			0.06395514		-0.71165172

SOURCE	DF	TYPE I SS	F VALUE	PR > F	TYPE IV SS	F VALUE	PR > F
WPSSG	1	0.45828419	112.04	0.0001	0.07710518	18.85	0.0001
DCH01	1	0.00665870	1.63	0.2049	0.00073851	0.18	0.6738
DCH02	1	0.18660418	45.62	0.0001	0.00134145	0.33	0.5710
DCH03	1	3.35582998	820.44	0.0001	0.00765301	1.87	0.1812
DCH04	1	1.90998271	466.96	0.0001	0.01820225	4.45	0.0431
DCH05	1	0.06498109	15.89	0.0004	0.00263226	0.64	0.4281
DCH06	1	5.05685784	1236.32	0.0001	0.00727305	1.78	0.1921
DCH07	1	0.60926884	148.96	0.0001	0.01456691	3.56	0.0668
DCH08	1	1.49268126	364.94	0.0001	0.01354534	3.31	0.0785
PSSG1	1	0.31113632	76.07	0.0001	0.04448278	10.87	0.0025
PERAPR	1	0.14968172	36.67	0.0001	0.09495650	23.21	0.0001
PERMAY	1	0.01342590	3.28	0.0797	0.01753707	4.29	0.0468
PERJUNE	1	0.00438363	1.07	0.3086	0.00438363	1.07	0.3086

PARAMETER	ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
INTERCEPT	-1.91117465	-8.22	0.0001	0.23240547
WPSSG	0.11013496	4.34	0.0001	0.02720897
DCH01	-0.05992825	-0.42	0.6738	0.06031534
DCH02	0.02713254	0.57	0.5710	0.04779721
DCH03	0.12672392	1.37	0.1812	0.09264415
DCH04	-0.29279871	-2.11	0.0431	0.13879761
DCH05	-0.03774505	-0.80	0.4281	0.04700663
DCH06	0.14784087	1.33	0.1921	0.11086940
DCH07	-0.25630956	-1.89	0.0668	0.13584572
DCH08	-0.22280223	-1.82	0.0785	0.12243341
PSSG1	3.06433713	4.54	0.0001	0.67426073
PERAPR	-0.07104067	-4.82	0.0001	0.01474165
PERMAY	-0.02661383	-2.07	0.0468	0.01286265
PERJUNE	0.01071633	1.04	0.3086	0.01035153

OBS	COUNTY	YEAR	PSSG	PPSSG1	RPSSG1
1	NW	1	0.318356	0.341447	-0.022091
2	NC	1	0.379703	0.376816	0.002887
3	NE	1	0.536086	0.528832	0.007255
4	WC	1	0.189290	0.194642	-0.005352
5	C	1	0.369524	0.373324	-0.003800
6	EC	1	0.564389	0.544197	0.020192
7	SW	1	0.194144	0.230472	-0.036329
8	SC	1	0.212837	0.204295	0.008543
9	SE	1	0.386580	0.393510	-0.006931
10	NORTHWEST	2	0.345503	0.348552	-0.003049
11	NORTH CENTRAL	2	0.396188	0.401201	-0.005014
12	NORTHEAST	2	0.546068	0.552065	-0.005997
13	WEST CENTRAL	2	0.191664	0.201840	-0.010175
14	CENTRAL	2	0.387104	0.369765	0.017340
15	EAST CENTRAL	2	0.605458	0.591432	0.023526
16	SOUTHWEST	2	0.208992	0.214580	-0.005588
17	SOUTH CENTRAL	2	0.221472	0.213395	0.008077
18	SOUTHEAST	2	0.417809	0.393184	0.024624
19	NORTHWEST	3	0.335636	0.335700	-0.000064
20	NORTH CENTRAL	3	0.391213	0.390444	0.000769
21	NORTHEAST	3	0.534279	0.522224	0.012054
22	WEST CENTRAL	3	0.197308	0.199073	-0.001765
23	CENTRAL	3	0.359963	0.366256	-0.006294
24	EAST CENTRAL	3	0.543713	0.560102	-0.016389
25	SOUTHWEST	3	0.221727	0.215803	0.005925
26	SOUTH CENTRAL	3	0.212418	0.230186	-0.017769
27	SOUTHEAST	3	0.377102	0.387254	-0.010152
28	NORTHWEST	4	0.319050	0.308971	0.010079
29	NORTH CENTRAL	4	0.360596	0.362147	-0.001551
30	NORTHEAST	4	0.484021	0.495471	-0.011450
31	WEST CENTRAL	4	0.194513	0.181221	0.013292
32	CENTRAL	4	0.325452	0.320492	0.004960
33	EAST CENTRAL	4	0.478819	0.506706	-0.027887
34	SOUTHWEST	4	0.197548	0.190897	0.006651
35	SOUTH CENTRAL	4	0.201224	0.196539	0.004685
36	SOUTHEAST	4	0.350874	0.342269	0.008605
37	NORTHWEST	5	0.314294	0.301107	0.013187
38	NORTH CENTRAL	5	0.341670	0.338446	0.003223
39	NORTHEAST	5	0.436727	0.440554	-0.003827
40	WEST CENTRAL	5	0.191162	0.187624	0.003537
41	CENTRAL	5	0.276853	0.339234	-0.062381
42	EAST CENTRAL	5	0.428560	0.428407	0.000153
43	SOUTHWEST	5	0.201010	0.201609	-0.000599
44	SOUTH CENTRAL	5	0.199745	0.208625	-0.008880
45	SOUTHEAST	5	0.309768	0.324111	-0.014343

PLOT OF RPSSG1*COUNTYCO LEGEND: A = 1 OBS, B = 2 OBS, ETC.



APPENDIX J

A LISTING OF THE 1980 EXPLANATORY DATA

S T A T I S T I C A L A N A L Y S I S S Y S T E M 15:26 WEDNESDAY, JULY 15, 1981 1

OBS	COUNTY	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	POURUM	PSPW	POATS
1	BURKE	100000	110000	12500	6500	1500	1300	1119	231000	716160	0.323671	4.26	3.35	1.14
2	DIVIDE	35000	230000	5700	10000	200	500	1300	261400	832000	0.314227	4.26	3.35	1.14
3	MOUNTRAIL	40000	250000	7200	15000	600	1000	1819	313800	1164160	0.269551	4.26	3.35	1.14
4	RENVILLE	100000	95000	37000	17000	1500	1500	886	256900	567040	0.453147	4.26	3.35	1.14
5	WARD	115000	290000	31000	34500	2700	11500	2044	484700	1308160	0.370520	4.26	3.35	1.14
6	WILLIAMS	210000	155000	6600	11000	800	200	2064	383600	1320960	0.290395	4.26	3.35	1.14
7	NORTHWEST	600000	1130000	100000	94000	7300	20000	9232	1951300	5908480	0.330254	4.26	3.35	1.14
8	BENSON	50000	140000	14500	10600	1100	8500	1403	340700	897920	0.379352	4.44	3.39	1.14
9	BOTTINEAU	95000	285000	13000	12000	8000	25000	1677	518000	1073280	0.482633	4.44	3.39	1.14
10	MCHENRY	190000	75000	28500	35500	6900	13000	1879	348900	1202560	0.290131	4.44	3.39	1.14
11	PIERCE	100000	95000	26000	27900	2000	8000	1038	258900	664320	0.389722	4.44	3.39	1.14
12	ROLETTE	15000	135000	44000	14000	5400	3500	913	211900	584320	0.362644	4.44	3.39	1.14
13	NORTH CENTRAL	450000	830000	230000	98000	26400	58000	6910	1886400	4422400	0.426511	4.44	3.39	1.14
14	CAVALIER	210000	210000	55000	3000	400	9000	1512	387400	967680	0.607019	4.55	3.54	1.12
15	GRAND FORKS	260000	32000	140000	10300	1300	8000	1438	451600	920320	0.490699	4.55	3.54	1.12
16	NELSON	76000	165000	29000	7800	200	8500	995	286500	636800	0.449906	4.55	3.54	1.12
17	PEMBINA	290000	18000	55000	2400	1800	4500	1124	371700	719360	0.516709	4.55	3.54	1.12
18	RAMSEY	76000	240000	56000	25[illegible]	200	9500	1248	384200	798720	0.481020	4.55	3.54	1.12
19	TOWNER	18000	270000	73000	2[illegible]	600	5500	1043	369400	667520	0.553392	4.55	3.54	1.12
20	WALSH	240000	115000	82000	57[illegible]	500	8000	1286	451200	823040	0.548212	4.55	3.54	1.12
21	NORTHEAST	1170000	1050000	590000	34000	5000	53000	8646	2902000	5533440	0.524448	4.55	3.54	1.12
22	DUNN	140000	3000	7900	35500	200	400	1992	187000	1274880	0.146680	4.47	3.39	1.11
23	MCKENZIE	125000	66000	7000	22000	200	300	2735	220500	1750400	0.125971	4.47	3.39	1.11

OBS	PBARLEY	LEVEL	COUNTYCO	TEMPAPR	TEMPMAY	TEMPJUNE	PERAPR	PERMAY	PERJUNE	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7
1	1.92	C	11	46.3	57.7	61.6	1.72	0.06	1.55	1	0	0	0	0	0	0
2	1.92	C	12	49.6	61.4	65.8	1.41	0.06	2.15	1	0	0	0	0	0	0
3	1.92	C	13	48.6	57.3	65.6	1.16	0.10	2.97	1	0	0	0	0	0	0
4	1.92	C	14	45.4	58.0	63.9	1.16	0.17	2.36	1	0	0	0	0	0	0
5	1.92	C	15	48.4	59.8	64.2	1.41	0.03	1.95	1	0	0	0	0	0	0
6	1.92	C	16	48.4	59.8	64.9	0.73	0.15	1.96	1	0	0	0	0	0	0
7	1.92	CRD	10	48.4	59.8	64.3	1.20	0.07	2.03	1	0	0	0	0	0	0
8	2.00	C	21	46.6	58.8	62.0	2.00	0.72	2.03	0	1	0	0	0	0	0
9	2.00	C	23	47.9	60.2	63.5	0.38	0.43	3.59	0	1	0	0	0	0	0
10	2.00	C	24	47.9	59.9	63.5	0.48	0.21	2.76	0	1	0	0	0	0	0
11	2.00	C	24	51.3	62.8	66.7	0.11	0.53	1.68	0	1	0	0	0	0	0
12	2.00	C	25	46.5	59.4	63.7	0.01	0.53	2.36	0	1	0	0	0	0	0
13	2.00	CRD	20	47.7	60.1	63.9	0.37	0.38	2.71	0	1	0	0	0	0	0
14	2.01	C	31	46.9	58.9	62.5	0.00	1.59	3.22	0	0	1	0	0	0	0
15	2.01	C	32	49.5	61.3	64.9	0.00	0.83	1.45	0	0	1	0	0	0	0
16	2.01	C	33	46.7	58.6	61.9	0.00	0.81	2.79	0	0	1	0	0	0	0
17	2.01	C	34	47.3	60.6	62.8	0.00	0.52	2.32	0	0	1	0	0	0	0
18	2.01	C	35	47.6	59.6	63.6	0.00	1.00	2.64	0	0	1	0	0	0	0
19	2.01	C	36	46.7	59.2	61.5	0.02	0.91	2.79	0	0	1	0	0	0	0
20	2.01	C	37	51.0	63.0	66.5	0.38	0.28	4.48	0	0	1	0	0	0	0
21	2.01	CRD	30	48.0	60.3	63.7	0.05	0.84	2.57	0	0	1	0	0	0	0
22	1.91	C	41	47.8	60.2	64.6	0.36	0.06	3.64	0	0	0	1	0	0	0
23	1.91	C	42	50.9	62.0	67.2	0.16	0.27	2.00	0	0	0	1	0	0	0

OBS	DCRD8	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSSG
1	0	BURKE	107000	78000	13000	6000	2300	4500	1119	210800	716160	0.294348	3.54181
2	0	DIVIDE	57000	185000	6300	9500	500	1900	1300	260200	832000	0.312740	3.88664
3	0	MOUNTRAIL	46000	219000	10000	20500	1600	2200	1819	299300	1164160	0.257095	3.82271
4	0	RENVILLE	83000	96000	38000	13000	4800	15500	886	250300	567040	0.441415	3.36865
5	0	WARD	116000	257000	32000	35000	7400	25500	2044	472900	1308160	0.361500	3.60173
6	0	WILLIAMS	223000	116000	6700	15000	2400	400	2064	383500	1320960	0.275179	3.52414
7	0	NORTHWEST	632000	951000	106000	99000	19000	50000	9232	1857000	5908480	0.314294	3.62687
8	0	BENSON	46000	187000	42500	9900	4000	14000	1403	303400	897920	0.337892	3.79294
9	0	BOTTINEAU	71000	213000	81000	9600	9700	45000	1677	429300	1073280	0.399989	3.62881
10	0	MC HENRY	167000	54000	28500	39500	20500	19500	1879	329000	1202560	0.273583	3.14159
11	0	PIERCE	87000	88000	30000	22000	6600	22500	1038	256400	664320	0.385959	3.39529
12	0	ROLETTE	15000	114000	44000	7000	4900	8000	913	192900	584320	0.330127	3.62772
13	0	NORTH CENTRAL	386000	656000	226000	88000	46000	109000	6910	1511000	4422400	0.341670	3.52028
14	0	CAVALIER	172000	155000	171000	3500	600	9400	1512	511500	967680	0.528584	3.31338
15	0	GRAND FORKS	216000	14000	118000	8000	1800	8900	1438	366700	920320	0.398448	3.01820
16	0	NELSON	64000	127000	36000	8500	300	14000	995	249800	636800	0.392274	3.76544
17	0	PEMBINA	234000	8000	43500	2500	3300	6000	1124	297300	719360	0.413284	3.31595
18	0	RAMSEY	61500	187000	54000	3000	200	13000	1248	318700	798720	0.399011	3.86403
19	0	TOWNER	14500	208000	72000	4700	700	8700	1043	308600	667520	0.462308	3.83594
20	0	WALSH	201000	90000	88500	4800	700	11000	1286	384000	823040	0.466263	3.28399
21	0	NORTHEAST	963000	757000	583000	35000	7600	71000	8646	2416600	5533440	0.436727	3.44927
22	0	DUNN	135000	1400	7000	35000	400	600	1992	179400	1274880	0.140719	2.89309
23	0	MC KENZIE	117000	51000	9000	27500	500	500	2735	205500	1750400	0.117402	3.28760

OBS	COUNTY	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	PDURUM	PSPW	POATS
24	MCLEAN	180000	240000	7100	32500	3300	10500	2065	473400	1321600	0.358202	4.47	3.39	1.11
25	MERCER	95000	10000	4000	26500	200	2000	1042	137700	666880	0.206484	4.47	3.39	1.11
26	OLIVER	60000	1000	1000	28500	100	4800	721	101400	461440	0.219747	4.47	3.39	1.11
27	WEST CENTRAL	600000	320000	32000	145000	4000	18000	855	1120000	5475200	0.204559	4.47	3.39	1.11
28	EDDY	75000	39000	5000	11500	3200	4500	535	138200	406400	0.340059	4.52	3.55	1.12
29	FOSTER	105000	34000	6500	11000	5600	4000	645	166100	412800	0.402374	4.52	3.55	1.12
30	KIDDER	85000	35000	11500	34500	1200	7500	1358	174700	869120	0.201008	4.52	3.55	1.12
31	SHERIDAN	140000	27000	12500	17000	3000	8000	989	207500	632960	0.327825	4.52	3.55	1.12
32	STUTSMAN	285000	150000	23000	32500	2900	18000	2264	511400	1448960	0.352943	4.52	3.55	1.12
33	WELLS	170000	145000	34500	13500	2900	8000	1299	373900	831360	0.449745	4.52	3.55	1.12
34	CENTRAL	860000	430000	93000	120000	18800	50000	7190	1571800	4601606	0.341577	4.52	3.55	1.12
35	BARNES	280000	57000	11000	10000	2800	12500	1479	480300	946560	0.507416	4.64	3.71	1.17
36	CASS	360000	67000	17500	12500	9500	8800	1749	632800	1119360	0.565323	4.64	3.71	1.17
37	GRIGGS	125000	25000	7000	7800	400	5400	710	200600	454400	0.441461	4.64	3.71	1.17
38	STEELE	140000	15000	8300	5400	300	5100	710	256900	454400	0.565432	4.64	3.71	1.17
39	TRAILL	170000	16000	12500	3300	100	3700	861	318100	551040	0.577172	4.64	3.71	1.17
40	EAST CENTRAL	1080000	180000	530000	44000	13100	35500	5509	1882600	3525760	0.533956	4.64	3.71	1.17
41	ADAMS	97000	36000	9500	14000	2200	700	989	159400	632960	0.251833	4.52	3.42	1.20
42	BILLINGS	33000	2000	3000	10500	500	1000	1139	50000	728960	0.068591	4.52	3.42	1.20
43	BOWMAN	69000	44000	13000	31500	600	300	1170	158400	748800	0.211538	4.52	3.42	1.20
44	GOLDEN VALLEY	42000	42000	9500	9000	100	100	1014	102700	648960	0.158253	4.52	3.42	1.20
45	METTINGER	215000	30000	7000	14500	2700	1800	1134	271000	725760	0.373402	4.52	3.42	1.20
46	SLOPE	89000	11000	12500	9500	700	.	1225	.	784000	.	4.52	3.42	1.20

OBS	PBARLEY	LEVEL	COUNTYCO	TEMPAPR	TEMPMAY	TEMPJUNE	PERAPR	PERMAY	PERJUNE	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7
24	1.91	C	43	48.4	60.2	64.3	0.30	0.99	3.04	0	0	0	1	0	0	0
25	1.91	C	44	47.7	58.8	64.7	0.74	0.21	3.54	0	0	0	1	0	0	0
26	1.91	C	45	48.5	59.3	65.1	0.70	0.88	4.13	0	0	0	1	0	0	0
27	1.91	CRD	40	48.7	60.4	65.0	0.44	0.37	3.09	0	0	0	1	0	0	0
28	2.03	C	51	49.0	60.3	63.5	0.00	1.48	3.30	0	0	0	0	1	0	0
29	2.03	C	52	47.6	59.7	63.3	0.02	1.35	4.54	0	0	0	0	1	0	0
30	2.03	C	53	48.7	60.1	64.6	0.21	1.05	3.88	0	0	0	0	1	0	0
31	2.03	C	54	49.6	61.7	66.2	0.12	0.67	3.75	0	0	0	0	1	0	0
32	2.03	C	55	49.2	60.6	65.4	0.14	1.65	3.36	0	0	0	0	1	0	0
33	2.03	C	56	49.1	61.4	65.9	0.05	1.33	6.15	0	0	0	0	1	0	0
34	2.03	CRD	50	48.8	60.3	64.7	0.03	1.34	4.29	0	0	0	0	1	0	0
35	.87	C	61	46.9	58.1	63.6	0.06	0.67	3.54	0	0	0	0	0	1	0
36	.87	C	62	49.8	61.4	65.7	0.02	0.64	2.68	0	0	0	0	0	1	0
37	.87	C	63	49.5	60.9	65.4	0.00	0.58	3.11	0	0	0	0	0	1	0
38	.87	C	64	49.4	60.7	64.9	0.00	1.44	5.57	0	0	0	0	0	1	0
39	.87	C	65	50.2	62.5	66.7	0.00	0.56	5.17	0	0	0	0	0	1	0
40	.87	CRD	60	49.5	61.0	65.3	0.01	0.84	2.69	0	0	0	0	0	1	0
41	.87	C	71	47.3	59.1	66.3	0.32	0.20	1.45	0	0	0	0	0	0	1
42	.87	C	72	48.6	59.3	4.4	0.01	0.17	4.21	0	0	0	0	0	0	1
43	.87	C	73	48.9	59.1	62.5	0.29	0.32	3.54	0	0	0	0	0	0	1
44	.87	C	74	49.5	60.1	65.3	0.01	0.17	4.51	0	0	0	0	0	0	1
45	.87	C	75	47.5	59.8	62.9	0.23	0.48	2.71	0	0	0	0	0	0	1
46	.87	C	76	48.5	59.8	65.8	0.05	0.07	1.76	0	0	0	0	0	0	1

OBS	DCRD8	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSSG
24	0	MC LEAN	170000	206000	11500	33000	7900	19500	2065	447900	1321600	0.338907	3.69968
25	0	MERCER	97000	4200	3500	26000	200	2000	1042	132900	666880	0.199286	3.93151
26	0	OLIVER	58000	400	1000	23500	100	2900	721	91900	461440	0.199152	3.67562
27	0	WEST CENTRAL	577000	263000	38000	142000	9100	25500	8555	1057600	5475200	0.193162	3.68951
28	0	EDDY	49000	30000	6000	12500	5100	4400	635	107500	406400	0.264518	3.43153
29	0	FOSTER	83000	27000	10500	8000	8300	4600	645	141400	412800	0.342539	3.47813
30	0	KIDDER	86000	37000	12500	35000	6500	10500	1358	177500	869120	0.204230	3.06489
31	0	SHERIDAN	125000	20000	12000	20500	3000	10000	989	191500	632960	0.302547	3.26891
32	0	STUTSMAN	221000	118000	23000	28500	8600	17000	2264	416100	1448960	0.287171	3.57624
33	0	WELLS	168000	94000	35000	13000	7500	14500	1299	332000	831360	0.399346	3.57061
34	0	CENTRAL	732000	315000	100000	180030	39000	61000	7190	1366000	4601600	0.296853	3.44556
35	0	BARNES	252000	40000	88000	17500	1800	17000	1479	399300	946560	0.421843	3.32691
36	0	CASS	267000	43000	139000	18500	8400	12000	1749	487900	1119360	0.435874	3.21930
37	0	GRIGGS	99000	8000	25000	11000	600	8300	710	151900	454400	0.334287	3.28692
38	0	STEELE	113000	10000	64000	4100	500	6100	710	197700	454400	0.435079	3.16833
39	0	TRAILL	154000	6000	103000	4900	200	6100	861	274200	551040	0.497605	3.06922
40	0	EAST CENTRAL	868000	107000	419000	56000	11500	49500	5509	1511000	3525760	0.428560	3.21819
41	0	ADAMS	94000	25000	4100	14500	3000	1500	989	142100	632960	0.224501	3.28523
42	0	BILLINGS	40000	1000	1100	9900	400	400	1139	52900	728960	0.072532	2.97794
43	0	BOWMAN	86000	22000	8300	30000	1000	700	1170	148000	748800	0.197650	2.99714
44	0	GOLDEN VALLEY	50000	29000	4200	7600	200	100	1014	91100	648960	0.140374	3.41800
45	0	METTINGER	204000	23000	6600	14000	6100	2500	1134	256200	725760	0.353009	3.32747
46	0	SLOPE	81000	12000	11500	11000	1200	400	1225	117100	784000	0.149362	3.13736

OBS	COUNTY	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	PDURUM	PSPW	POATS
47	STARK	175000	15000	8500	36000	1800	100	1316	236400	842240	0.280680	4.22	3.42	1.20
48	SOUTHWEST	720000	180000	63000	125000	8600	4000	7987	1100600	5111680	0.215311	4.22	3.42	1.20
49	BURLEIGH	190000	23000	9000	30000	1000	7000	1625	260000	1040000	0.250000	4.55	3.44	1.25
50	EMMONS	190000	19000	9100	56000	500	15000	1503	284600	961920	0.301065	4.55	3.44	1.25
51	GRANT	130000	10000	15000	43500	1100	1500	1666	201100	1066240	0.188607	4.55	3.44	1.25
52	MORTON	145000	9000	19000	58000	100	700	1920	231800	1228800	0.188639	4.55	3.44	1.25
53	SIOUX	35000	9000	3900	17500	300	300	1103	66000	705920	0.093495	4.55	3.44	1.25
54	SOUTH CENTRAL	690000	70000	56000	205000	3000	24500	7817	1048500	5002880	0.209579	4.55	3.44	1.25
55	DICKEY	135000	33000	26000	26500	2300	16500	1143	239300	731520	0.327127	4.41	3.65	1.25
56	LAMOURE	180000	67000	21000	26500	1800	23000	1136	319300	727040	0.439178	4.41	3.65	1.25
57	LOGAN	120000	20000	4700	33000	500	16000	1001	194200	640640	0.303134	4.41	3.65	1.25
58	MCINTOSH	140000	20000	9300	31500	8700	40500	992	250000	634880	0.393775	4.41	3.65	1.25
59	RANSOM	115000	16000	26000	20000	1700	7500	861	186200	551040	0.337907	4.41	3.65	1.25
60	RICHLAND	220000	23000	42000	28000	1400	5500	1449	319900	927360	0.344958	4.41	3.65	1.25
61	SARGENT	120000	31000	26000	19500	3400	8000	853	207900	545920	0.380825	4.41	3.65	1.25
62	SOUTHEAST	1030000	210000	155000	185000	19800	117000	7435	1716800	4758400	0.360794	4.41	3.65	1.25
63	STATE	7200000	4400000	1650000	1050000	100000	380000	69281	14980000	44339840	0.337845	4.41	3.53	1.16

OBS	PBARLEY	LEVEL	COUNTYCO	TEMPAPR	TEMPMAY	TEMPJUNE	PERAPR	PERMAY	PERJUNE	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7
47	1.87	C	77	48.8	59.7	65.3	0.40	0.12	2.24	0	0	0	0	0	0	1
48	1.87	CRD	78	48.6	59.9	65.8	0.17	0.29	4.64	0	0	0	0	0	0	1
49	1.87	C	81	48.7	60.1	66.2	0.25	1.20	4.56	0	0	0	0	0	0	1
50	1.87	C	82	48.9	60.3	66.4	0.47	1.04	5.15	0	0	0	0	0	0	1
51	1.87	C	83	48.3	59.9	63.9	0.40	0.97	3.57	0	0	0	0	0	0	1
52	1.87	C	84	48.6	60.3	66.0	0.62	0.81	3.05	0	0	0	0	0	0	1
53	1.87	C	85	51.4	62.8	68.5	0.87	0.79	1.32	0	0	0	0	0	0	1
54	1.87	CRD	80	49.2	60.5	66.2	0.56	0.92	2.60	0	0	0	0	0	0	1
55	2.15	C	91	49.6	60.4	66.5	0.73	1.57	5.23	0	0	0	0	0	0	0
56	2.15	C	92	48.5	59.5	64.8	0.31	1.75	5.61	0	0	0	0	0	0	0
57	2.15	C	93	47.7	59.6	65.2	0.06	1.67	2.47	0	0	0	0	0	0	0
58	2.15	C	94	48.0	59.2	66.2	0.31	0.88	1.76	0	0	0	0	0	0	0
59	2.15	C	95	49.2	60.8	64.2	0.55	1.82	4.78	0	0	0	0	0	0	0
60	2.15	C	96	50.2	62.0	66.8	0.15	0.57	4.94	0	0	0	0	0	0	0
61	2.15	C	97	48.7	60.6	64.7	0.38	2.22	4.01	0	0	0	0	0	0	0
62	2.15	CRD	90	49.2	60.7	66.2	0.35	1.50	3.29	0	0	0	0	0	0	0
63	2.06	STATE	1	48.6	60.3	65.0	0.35	0.72	2.88	0	0	0	0	0	0	0

OBS	DCRD8	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSSG
47	0	STARK	167000	7000	7200	36000	2600	400	1316	220200	842240	0.261446	3.02645
48	0	SOUTHWEST	722000	119000	43000	123000	14500	6000	7987	1027500	5111680	0.201010	3.17719
49	1	BURLEIGH	171000	13000	8100	41000	1920	8000	1625	643000	1040000	0.618269	3.04456
50	1	EMMONS	208000	9000	7500	49000	1500	24500	1503	696500	961920	0.724011	3.02220
51	1	GRANT	152000	2000	12000	40000	2200	2000	1666	180200	1066240	0.169005	3.02511
52	1	MORTON	135000	7000	17000	52000	400	1500	1920	212400	1228800	0.172852	3.05547
53	1	SIOUX	41000	1000	3400	18000	300	500	1103	64200	705920	0.090945	3.02315
54	1	SOUTH CENTRAL	677000	32000	48000	200000	6300	36000	7817	999300	5002880	0.199745	3.01979
55	0	DICKEY	118000	17000	26000	28500	1100	18000	1143	218500	731520	0.298693	3.14970
56	0	LA MOURE	143000	54000	16000	35000	18500	20500	1136	287000	727040	0.394751	3.37012
57	0	LOGAN	125000	19000	2400	28500	1600	18500	1001	193500	640640	0.302045	3.29345
58	0	MC INTOSH	128000	19000	7600	26500	4700	42500	992	188800	634880	0.344537	3.24079
59	0	RANSOM	83000	4000	24000	21500	8000	8100	861	149600	551040	0.269675	3.00045
60	0	RICHLAND	157000	10000	42500	28000	5600	6500	1449	249600	927360	0.269151	3.12238
61	0	SARGENT	89000	18000	18000	18000	7100	7900	853	158000	545920	0.289420	3.24594
62	0	SOUTHEAST	843000	129000	137000	186000	57000	122000	7435	1474000	4758400	0.309768	3.21225
63	0	STATE	6400000	3130000	1700000	1050000	210000	530000	69281	13220000	44339840	0.298152	3.36517

OBS	COUNTY	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	PDURUM	PSPW	POATS
47	STARK	175000	15000	8500	36000	1800	100	1316	236400	842240	0.280680	4.22	3.42	1.20
48	SOUTHWEST	720000	180000	63000	125000	8600	4000	7987	1100600	5111680	0.215311	4.22	3.42	1.20
49	BURLEIGH	190000	23000	9000	30000	1000	7000	1625	260000	1040000	0.250000	4.55	3.44	1.25
50	EMMONS	190000	19000	9100	56000	500	15000	1503	284600	961920	0.301065	4.55	3.44	1.25
51	GRANT	130000	10000	15000	43500	1100	1500	1666	201100	1066240	0.188607	4.55	3.44	1.25
52	MORTON	145000	9000	19000	58000	100	700	1920	231800	1228800	0.188639	4.55	3.44	1.25
53	SIOUX	35000	9000	3900	17500	300	300	1103	66000	705920	0.093495	4.55	3.44	1.25
54	SOUTH CENTRAL	690000	70000	56000	205000	3000	24500	7817	1048500	5002880	0.209579	4.55	3.44	1.25
55	DICKEY	135000	33000	26000	26500	2300	16500	1143	239300	731520	0.327127	4.41	3.65	1.25
56	LAMOURE	180000	67000	21000	26500	1800	23000	1136	319300	727040	0.439178	4.41	3.65	1.25
57	LOGAN	120000	20000	4700	33000	500	16000	1001	194200	640640	0.303134	4.41	3.65	1.25
58	MCINTOSH	140000	20000	9300	31500	8700	40500	992	250000	634880	0.393775	4.41	3.65	1.25
59	RANSOM	115000	16000	26000	20000	1700	7500	861	186200	551040	0.337907	4.41	3.65	1.25
60	RICHLAND	220000	23000	42000	28000	1400	5500	1449	319900	927360	0.344958	4.41	3.65	1.25
61	SARGENT	120000	31000	26000	19500	3400	8000	853	207900	545920	0.380825	4.41	3.65	1.25
62	SOUTHEAST	1030000	210000	155000	185000	19800	117000	7435	1716800	4758400	0.360794	4.41	3.65	1.25
63	STATE	7200000	4400000	1650000	1050000	100000	380000	69281	14980000	44339840	0.337845	4.41	3.53	1.16

OBS	PBARLEY	LEVEL	COUNTYCO	TEMPAPR	TEMPMAY	TEMPJUNE	PERAPR	PERMAY	PERJUNE	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7
47	1.87	C	77	48.8	59.7	65.3	0.40	0.12	2.24	0	0	0	0	0	0	1
48	1.87	CRD	78	48.6	59.9	65.8	0.17	0.29	4.64	0	0	0	0	0	0	1
49	1.87	C	81	48.7	60.1	66.2	0.25	1.20	4.56	0	0	0	0	0	0	1
50	1.87	C	82	48.9	60.3	66.4	0.47	1.04	5.15	0	0	0	0	0	0	1
51	1.87	C	83	48.3	59.9	63.9	0.40	0.97	3.57	0	0	0	0	0	0	1
52	1.87	C	84	48.6	60.3	66.0	0.62	0.81	3.05	0	0	0	0	0	0	1
53	1.87	C	85	51.4	62.8	68.5	0.87	0.79	1.32	0	0	0	0	0	0	1
54	1.87	CRD	80	49.2	60.5	66.2	0.56	0.92	2.60	0	0	0	0	0	0	1
55	2.15	C	91	49.6	60.4	66.5	0.73	1.57	5.23	0	0	0	0	0	0	0
56	2.15	C	92	48.5	59.5	64.8	0.31	1.75	5.61	0	0	0	0	0	0	0
57	2.15	C	93	47.7	59.6	65.2	0.06	1.67	2.47	0	0	0	0	0	0	0
58	2.15	C	94	48.0	59.2	66.2	0.31	0.88	1.76	0	0	0	0	0	0	0
59	2.15	C	95	49.2	60.8	64.2	0.55	1.82	4.78	0	0	0	0	0	0	0
60	2.15	C	96	50.2	62.0	66.8	0.15	0.57	4.94	0	0	0	0	0	0	0
61	2.15	C	97	48.7	60.6	64.7	0.38	2.22	4.01	0	0	0	0	0	0	0
62	2.15	CRD	90	49.2	60.7	66.2	0.35	1.50	3.29	0	0	0	0	0	0	0
63	2.06	STATE	1	48.6	60.3	65.0	0.35	0.72	2.88	0	0	0	0	0	0	0

OBS	DCRD8	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSSG
47	0	STARK	167000	7000	7200	36000	2600	400	1316	220200	842240	0.261446	3.02645
48	0	SOUTHWEST	722000	119000	43000	123000	14500	6000	7987	1027500	5111680	0.201010	3.17719
49	1	BURLEIGH	171000	13000	8100	41000	1920	8000	1625	643000	1040000	0.618269	3.04456
50	1	EMMONS	208000	9000	7500	49000	1500	24500	1503	696500	961920	0.724011	3.02220
51	1	GRANT	152000	2000	12000	40000	2200	2000	1666	180200	1066240	0.169005	3.02511
52	1	MORTON	135000	7000	17000	52000	400	1500	1920	212400	1228800	0.172852	3.05547
53	1	SIOUX	41000	1000	3400	18000	300	500	1103	64200	705920	0.090945	3.02315
54	1	SOUTH CENTRAL	677000	32000	48000	200000	6300	36000	7817	999300	5002880	0.199745	3.01979
55	0	DICKEY	118000	17000	26000	28500	1100	18000	1143	218500	731520	0.298693	3.14970
56	0	LA MOURE	143000	54000	16000	35000	18500	20500	1136	287000	727040	0.394751	3.37012
57	0	LOGAN	125000	19000	2400	28500	1600	18500	1001	193500	640640	0.302045	3.29345
58	0	MC INTOSH	128000	19000	7600	26500	4700	42500	992	188800	634880	0.344537	3.24079
59	0	RANSOM	83000	4000	24000	21500	8000	8100	861	149600	551040	0.269675	3.00045
60	0	RICHLAND	157000	10000	42500	28000	5600	6500	1449	249600	927360	0.269151	3.12238
61	0	SARGENT	89000	18000	18000	18000	7100	7900	853	158000	545920	0.289420	3.24594
62	0	SOUTHEAST	843000	129000	137000	186000	57000	122000	7435	1474000	4758400	0.309768	3.21225
63	0	STATE	6400000	3130000	1700000	1050000	210000	530000	69281	13220000	44339840	0.298152	3.36517

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: Y

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	13	13.62027636	1.0477.357	256.15	0.0001	0.990776	0.9869
ERROR	31	0.12679804	0.00409026		STD DEV		Y MEAN
CORRECTED TOTAL	44	13.74707440			0.06395514		-0.71165172

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
#PSSG	1	0.45828419	112.04	0.0001	1	0.07710510	18.85	0.0001
DCHD1	1	0.00685870	1.68	0.2046	1	0.00073851	0.18	0.6738
DCHD2	1	0.18660418	45.62	0.0001	1	0.00134145	0.33	0.5710
DCHD3	1	3.35582998	820.44	0.0001	1	0.00765301	1.87	0.1812
DCHD4	1	1.90998271	466.96	0.0001	1	0.01820225	4.45	0.0431
DCHD5	1	0.06498109	15.89	0.0004	1	0.00261726	0.64	0.4281
DCHD7	1	5.05685784	1236.32	0.0001	1	0.00727305	1.78	0.1921
DCHD8	1	0.60926884	148.96	0.0001	1	0.01436091	3.56	0.0686
PSSG1	1	1.49268126	364.94	0.0001	1	0.01354534	3.31	0.0785
PEMAPR	1	0.31113635	76.07	0.0001	1	0.00446270	1.09	0.3045
PEMMAY	1	0.14498132	35.67	0.0001	1	0.09499658	23.23	0.0001
PEMJUNE	1	0.01342590	3.28	0.0769	1	0.01753707	4.29	0.0468
		0.00438363	1.07	0.3006		0.00438363	1.07	0.3006

PARAMETER	ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
INTERCEPT	-1.91117465	-8.22	0.0001	0.23240547
#PSSG	0.11813408	4.34	0.0001	0.02720897
DCHD1	-0.03590825	-0.42	0.6738	0.08631534
DCHD2	0.02717554	0.57	0.5710	0.04774721
DCHD3	0.12672302	1.37	0.1812	0.09264415
DCHD4	-0.24274877	-2.11	0.0431	0.11487976
DCHD5	-0.03774504	-0.80	0.4281	0.04700663
DCHD6	0.14784087	1.33	0.1921	0.11086940
DCHD8	-0.25630956	-1.89	0.0686	0.13584572
PSSG1	-0.22280223	-1.82	0.0785	0.12243341
PEMAPR	3.06433713	4.54	0.0001	0.67426073
PEMMAY	-0.07134067	-4.82	0.0001	0.01474105
PEMJUNE	-0.02663383	-2.07	0.0468	0.01286265
	0.01071633	1.04	0.3006	0.01035153

OBS	COUNTY	YEAR	PSSG	PPSSG1	RPSSG1
1	NW	1	0.318756	0.341447	-0.022691
2	NC	1	0.379703	0.376816	0.002887
3	NE	1	0.536086	0.528832	0.007255
4	WC	1	0.189290	0.194642	-0.005352
5	C	1	0.369524	0.373324	-0.003800
6	EC	1	0.564389	0.544197	0.020192
7	SW	1	0.194144	0.200472	-0.006329
8	SC	1	0.212837	0.204295	0.008543
9	SE	1	0.306580	0.343510	-0.036931
10	NORTHWEST	2	0.345503	0.348552	-0.003049
11	NORTH CENTRAL	2	0.396188	0.401201	-0.005014
12	NORTHEAST	2	0.548068	0.552065	-0.003997
13	WEST CENTRAL	2	0.191664	0.201840	-0.010175
14	CENTRAL	2	0.387104	0.369765	0.017340
15	EAST CENTRAL	2	0.605458	0.581932	0.023526
16	SOUTHWEST	2	0.208992	0.214580	-0.005588
17	SOUTH CENTRAL	2	0.221472	0.213395	0.008077
18	SOUTHEAST	2	0.417809	0.393184	0.024626
19	NORTHWEST	3	0.335636	0.335700	-0.000064
20	NORTH CENTRAL	3	0.391213	0.390444	0.000769
21	NORTHEAST	3	0.534279	0.522224	0.012056
22	WEST CENTRAL	3	0.197308	0.199071	-0.001765
23	CENTRAL	3	0.359963	0.366266	-0.006304
24	EAST CENTRAL	3	0.543711	0.560102	-0.016389
25	SOUTHWEST	3	0.221727	0.215803	0.005925
26	SOUTH CENTRAL	3	0.213418	0.230186	-0.016769
27	SOUTHEAST	3	0.317102	0.307254	0.010152
28	NORTHWEST	4	0.319050	0.308971	0.010079
29	NORTH CENTRAL	4	0.360596	0.362147	-0.001551
30	NORTHEAST	4	0.484021	0.495471	-0.011450
31	WEST CENTRAL	4	0.194513	0.181221	0.013292
32	CENTRAL	4	0.325452	0.320492	0.004960
33	EAST CENTRAL	4	0.478819	0.506706	-0.027887
34	SOUTHWEST	4	0.197548	0.190897	0.006651
35	SOUTH CENTRAL	4	0.201224	0.196539	0.004686
36	SOUTHEAST	4	0.350874	0.342669	0.008205
37	NORTHWEST	5	0.314294	0.299187	0.015107
38	NORTH CENTRAL	5	0.341670	0.338946	0.002723
39	NORTHEAST	5	0.436727	0.440554	-0.003827
40	WEST CENTRAL	5	0.193162	0.189624	0.003537
41	CENTRAL	5	0.296853	0.305234	-0.008381
42	EAST CENTRAL	5	0.428560	0.428907	-0.000347
43	SOUTHWEST	5	0.201010	0.201609	-0.000599
44	SOUTH CENTRAL	5	0.199745	0.208025	-0.008280
45	SOUTHEAST	5	0.309768	0.324111	-0.014343

APPENDIX J

A LISTING OF THE 1980 EXPLANATORY DATA

OBS	COUNTY	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	PDURUM	PSPW	POATS
1	BURKE	100000	110000	12500	6500	1500	1300	1119	231000	716160	0.322677			
2	DIVIDE	35000	45000	5700	10000	200	500	1208	261000	832000	0.313702			
3	MOUNTRAIL	40000	210000	9200	15000	600	1000	1819	393000	1165760	0.337135			
4	RENVILLE	100000	240000	37000	13000	1500	4200	886	256000	567040	0.451615			
5	WARD	115000	240000	31000	34500	2700	11500	2044	485700	1308160	0.371259			
6	WILLIAMS	210000	155000	6600	11000	800	200	2044	383600	1220480	0.314299			
7	NORTHWEST	600000	1130000	100000	94000	7300	20000	9232	1951300	5904640	0.330454			
8	BENSON	50000	540000	30500	10000	1100	8500	1481	348700	897920	0.388331			
9	BOTTINEAU	95000	285000	51000	12000	6000	25000	1677	518000	1673248	0.309522			
10	MCHENRY	190000	75000	20500	35500	6900	13000	1879	348900	1202560	0.290151			
11	PIERCE	100000	95000	26000	27900	2000	8900	1838	368900	944320	0.390722			
12	ROLETTE	15000	135000	44000	46000	4700	3500	1029	211900	584320	0.362671			
13	NORTH CENTRAL	450000	830000	230000	98000	26400	58000	6910	1686400	4422400	0.381331			
14	CAVALIER	210000	210000	155000	3000	400	9000	1512	587400	957696	0.613410			
15	GRAND FORKS	260000	32000	140000	10300	1300	8900	1438	451600	920320	0.490649			
16	NELSON	70000	165000	29000	7000	200	8500	995	286300	636800	0.449623			
17	PEMBINA	290000	18000	55000	2400	1800	4500	1124	371700	719360	0.516709			
18	RAMSEY	70000	240000	54000	3000	200	9500	1240	384200	798720	0.481020			
19	TOWNER	10000	270000	73000	2300	600	5500	1043	360400	667520	0.539972			
20	WALSH	240000	115000	42000	5700	500	8000	1286	451200	823040	0.548212			
21	NORTHEAST	1170000	1450000	590000	34000	5000	57000	8646	2982000	5533440	0.538848			
22	DUNN	140000	3000	7900	35500	200	400	1792	187000	1274880	0.146688			
23	MCKENZIE	125000	66000	7000	22000	200	300	2735	220500	1750400	0.125971			

OBS	PBARLEY	LEVEL	COUNTYCO	EMPAPR	TEMPMAY	TEMPJUNE	PERAPR	PERMAY	PERJUNE	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7
1	1.02	C	11	46.3	57.7	61.6	1.72	0.06	1.55		0	0	0	0	0	0
2	1.03	C	13	49.6	61.4	62.8	1.41	0.00	2.13		0	0	0	0	0	0
3	1.02	C	15	48.6	61.3	65.6	1.16	0.10	2.07		0	0	0	0	0	0
4	1.03	C	17	45.4	58.8	63.0	1.16	0.17	2.38		0	0	0	0	0	0
5	1.03	C	19	48.4	59.8	64.2	1.41	0.02	1.85		0	0	0	0	0	0
6	1.03	C	21	48.4	59.8	64.6	0.73	0.15	2.05		0	0	0	0	0	0
7	1.02	CRD	10	48.0	59.8	64.3	1.20	0.07	2.03		0	0	0	0	0	0
8	2.00	C	21	46.6	58.8	62.0	0.00	0.72	2.03		0	0	0	0	0	0
9	2.00	C	23	47.9	59.2	63.2	0.36	0.43	2.56		0	0	0	0	0	0
10	2.00	C	25	47.8	59.0	63.5	0.48	0.21	2.76		0	0	0	0	0	0
11	2.00	C	27	51.2	62.8	66.7	0.11	0.55	1.68		0	0	0	0	0	0
12	2.00	C	29	46.5	58.4	60.7	0.03	0.23	2.36		0	0	0	0	0	0
13	2.00	CRD	20	47.7	60.1	63.9	0.37	0.28	2.71		0	0	0	0	0	0
14	2.01	C	31	46.9	58.4	62.2	0.00	1.59	3.22		0	0	0	0	0	0
15	2.01	C	33	49.5	61.3	64.9	0.00	0.83	1.95		0	0	0	0	0	0
16	2.01	C	35	46.7	58.6	61.9	0.00	0.81	2.79		0	0	0	0	0	0
17	2.01	C	37	47.6	60.6	64.8	0.00	0.52	2.32		0	0	0	0	0	0
18	2.01	C	39	47.6	59.6	63.6	0.00	1.00	2.71		0	0	0	0	0	0
19	2.01	C	41	46.6	59.2	61.5	0.02	0.91	2.79		0	0	0	0	0	0
20	2.01	C	43	51.2	63.8	66.5	0.38	0.28	4.48		0	0	0	0	0	0
21	2.01	CRD	30	48.8	60.3	63.7	0.05	0.84	2.57		0	0	0	0	0	0
22	1.01	C	41	47.8	60.2	64.6	0.36	0.06	2.64		0	0	0	0	0	0
23	1.01	C	42	50.9	62.8	67.2	0.16	0.27	2.00		0	0	0	0	0	0

OBS	DCRD8	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSSG
1	0	BURKE	107000	78000	13000	6000	2300	4500	1119	210000	716160	0.293248	3.54181
2	0	DIVIDE	57000	185000	6300	9500	500	1900	1208	260200	832000	0.312740	3.80664
3	0	MOUNTRAIL	46000	219000	10000	20500	1600	3200	1819	364300	1164760	0.312795	3.82271
4	0	RENVILLE	83000	96000	38000	13000	4800	15500	886	250300	567040	0.441415	3.38005
5	0	WARD	116000	257000	32000	35000	7400	25500	2044	472900	1308160	0.361500	3.60173
6	0	WILLIAMS	223000	116000	6700	15000	2400	400	2044	383500	1220480	0.314299	3.55419
7	0	NORTHWEST	632000	951000	106000	99000	19000	50000	9232	1857000	5904640	0.314494	3.55287
8	0	BENSON	46000	187000	42500	9900	4000	14000	1403	343400	897920	0.382492	3.52454
9	0	BOTTINEAU	71000	213000	81000	9600	4700	45000	1677	429300	1073248	0.399986	3.62881
10	0	MC HENRY	147000	54000	28500	39500	20500	19500	1879	329000	1202560	0.273583	3.36126
11	0	PIERCE	87000	88000	30000	27000	6900	22500	1838	356400	944320	0.385956	3.55559
12	0	ROLETTE	15000	114000	44000	7000	4900	8000	1029	192900	584320	0.330127	3.62772
13	0	NORTH CENTRAL	386000	656000	226000	88000	46000	109000	6910	1511000	4422400	0.341670	3.57028
14	0	CAVALIER	172000	155000	171000	3500	600	9400	1512	511300	957696	0.528584	3.31354
15	0	GRAND FORKS	216000	14000	118000	8000	1800	8900	1438	366700	920320	0.398468	3.01820
16	0	NELSON	64000	127000	36000	8500	300	14000	995	249800	636800	0.392274	3.76344
17	0	PEMBINA	234000	8000	43500	2500	3300	6000	1124	297300	719360	0.413284	3.31595
18	0	RAMSEY	61500	187000	54000	3000	200	13000	1240	318700	798720	0.399117	3.44403
19	0	TOWNER	14500	208000	72000	4700	700	8700	1043	308000	667520	0.461364	3.03594
20	0	WALSH	201000	59000	88500	4800	700	11000	1286	364000	823040	0.442263	3.28898
21	0	NORTHEAST	963000	757000	583000	35000	7600	91000	8646	2416000	5533440	0.436727	3.44627
22	0	DUNN	135000	1400	7000	35000	400	800	1792	179400	1274880	0.140719	2.99309
23	0	MC KENZIE	117000	51000	9000	27500	500	500	2735	265500	1750400	0.117482	3.28760

OBS	COUNTY	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	PDURUM	PSPW	POATS
24	MCLEAN	180000	240000	7100	32500	3300	10300	2065	473400	1321600	0.358282	0.47	0.38	0.11
25	MERCER	95000	10000	4000	26500	200	2000	1042	137700	666800	0.206486	0.07	0.70	0.11
26	OLIVER	60000	1000	7000	20500	100	4000	721	91400	461440	0.197967	0.01	0.78	0.11
27	WEST CENTRAL	600000	320000	33000	145000	4000	18000	855	1200000	5475200	0.219159	0.53	0.30	0.15
28	EDDY	75000	34000	5000	11500	3200	4500	635	130200	406400	0.320359	0.45	0.35	0.15
29	FOSTER	105000	34000	6500	11000	5600	4000	665	145100	425600	0.341774	0.32	0.50	0.15
30	KIDDER	85000	35000	11500	26500	1200	7200	1258	247200	805120	0.306998	0.41	0.34	0.21
31	STEELE	140000	27000	12500	17000	3000	8000	1042	237000	666880	0.355329	0.26	0.53	0.21
32	STUTSMAN	205000	150000	23000	32500	2400	10000	2264	511200	1448960	0.352762	0.66	0.25	0.09
33	WELLS	170000	145000	24500	13500	6200	8000	1281	327000	819840	0.398975	0.44	0.41	0.15
34	CENTRAL	660000	430000	83000	120000	18000	50000	2459	1571000	4481600	0.350571	0.65	0.26	0.08
35	BARNES	200000	57000	11000	19000	2000	12000	1474	400200	943360	0.424173	0.28	0.47	0.24
36	CASS	360000	67000	175000	12500	4500	8000	1749	632000	1119360	0.564525	0.10	0.57	0.32
37	GRIGGS	125000	25000	37000	7800	400	5200	1118	280000	715520	0.391272	0.09	0.46	0.45
38	STEELE	145000	15000	83000	5400	300	5100	718	208000	459520	0.452611	0.07	0.40	0.53
39	TRAILL	170000	160000	125000	33000	100	3700	881	521000	563840	0.923772	0.31	0.33	0.36
40	EAST CENTRAL	1080000	180000	530000	44000	13100	35500	5509	1882000	3525760	0.533956	0.10	0.49	0.41
41	ADAMS	97000	36000	9500	14000	2200	700	989	159400	632960	0.251833	0.23	0.61	0.16
42	BILLINGS	33000	2000	3000	10500	500	1000	1139	50000	729280	0.068551	0.04	0.66	0.30
43	BOWMAN	69000	44000	13000	31500	600	300	1170	159400	748800	0.212858	0.28	0.44	0.28
44	GOLDEN VALLEY	42000	42000	9500	9000	100	100	1014	102700	648960	0.158253	0.41	0.37	0.22
45	METTINGER	215000	30000	7000	14500	2700	1000	1134	271000	725760	0.373402	0.11	0.54	0.35
46	SLOPE	89000	11000	12500	9590	700	.	1225	.	784000	.	0.12	0.72	0.16

OBS	PBARLEY	LEVEL	COUNTYCO	TEMPAPR	TEMPMAY	TEMPJUNE	PERAPR	PERMAY	PERJUNE	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7
24	1.91	C	43	48.4	60.2	66.3	0.30	0.99	3.04	0	0	0	0	0	0	0
25	1.91	C	44	47.7	58.8	64.7	0.26	0.92	3.05	0	0	0	0	0	0	0
26	1.91	C	45	48.5	59.3	65.1	0.28	0.88	3.03	0	0	0	0	0	0	0
27	1.91	CRD	48	48.7	60.4	65.8	0.44	0.97	3.08	0	0	0	0	0	0	0
28	2.03	C	52	49.0	60.3	65.5	0.08	1.48	3.26	0	0	0	0	0	0	0
29	2.03	C	53	47.9	59.1	64.3	0.06	1.35	3.13	0	0	0	0	0	0	0
30	2.03	C	54	48.7	60.1	64.2	0.12	1.07	3.08	0	0	0	0	0	0	0
31	2.03	C	55	49.3	61.1	66.2	0.12	1.07	3.08	0	0	0	0	0	0	0
32	2.03	C	56	49.2	60.6	65.4	0.14	1.05	3.05	0	0	0	0	0	0	0
33	2.03	C	57	49.1	61.4	65.9	0.05	1.33	3.15	0	0	0	0	0	0	0
34	2.03	CRD	58	48.8	60.3	64.7	0.03	1.34	3.12	0	0	0	0	0	0	0
35	1.91	C	61	48.9	58.1	62.6	0.08	0.87	3.05	0	0	0	0	0	0	0
36	1.91	C	62	49.0	61.4	65.9	0.02	0.84	3.04	0	0	0	0	0	0	0
37	1.91	C	63	49.5	60.9	65.4	0.08	0.58	3.01	0	0	0	0	0	0	0
38	1.91	C	64	49.4	60.7	64.9	0.08	1.44	3.17	0	0	0	0	0	0	0
39	1.91	C	65	50.2	62.5	66.7	0.08	0.56	3.07	0	0	0	0	0	0	0
40	1.87	CRD	68	47.6	61.8	65.3	0.01	0.84	2.69	0	0	0	0	0	0	0
41	1.87	C	71	47.3	58.7	64.3	0.32	0.28	1.65	0	0	0	0	0	0	0
42	1.87	C	72	48.6	59.3	64.4	0.01	0.17	2.21	0	0	0	0	0	0	0
43	1.87	C	73	48.8	59.1	62.6	0.29	0.32	2.26	0	0	0	0	0	0	0
44	1.87	C	74	48.9	60.9	65.3	0.01	0.17	2.71	0	0	0	0	0	0	0
45	1.87	C	75	47.6	59.8	65.4	0.23	0.48	2.71	0	0	0	0	0	0	0
46	1.87	C	76	48.5	59.8	65.8	0.05	0.07	1.76	0	0	0	0	0	0	0

OBS	DCRD8	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSSG
24	0	MCLEAN	170000	206000	11500	33000	7900	19500	2065	447900	1321600	0.338987	3.00000
25	0	MERCER	97000	4200	3500	26000	200	2000	1042	132000	666880	0.197956	3.01153
26	0	OLIVER	58000	400	7000	23500	100	5900	721	87400	461440	0.189437	3.02762
27	0	WEST CENTRAL	577000	263060	38000	145000	9100	25500	855	1057000	5475200	0.193035	3.03155
28	0	EDDY	49000	30000	6004	13069	5100	4400	635	107500	406400	0.264578	3.03315
29	0	FOSTER	83000	27000	10500	8000	8200	4000	665	141400	425600	0.332329	3.04781
30	0	KIDDER	86000	27000	12500	25000	6500	10500	1258	177500	805120	0.220470	3.04480
31	0	STEELE	125000	20000	13000	20500	3000	10000	1042	191500	666880	0.287131	3.04480
32	0	STUTSMAN	221000	118000	23000	28500	8000	17000	2264	416100	1448960	0.287171	3.03624
33	0	WELLS	168000	94000	35000	13000	7500	14500	1281	332000	819840	0.399366	3.07091
34	0	CENTRAL	732000	316000	100000	118000	39000	61000	2459	1364000	4481600	0.299653	3.04556
35	0	BARNES	235000	40000	8A000	17200	1800	14700	1474	369200	943360	0.321853	3.02691
36	0	CASS	367000	43000	139000	18500	6400	12000	1749	487000	1119360	0.435147	3.01930
37	0	GRIGGS	99000	8000	25000	11000	600	8300	718	151900	459480	0.330587	3.00692
38	0	STEELE	113000	10000	64000	4100	500	6100	718	197200	459480	0.429279	3.10813
39	0	TRAILL	154000	6000	103000	4000	200	6100	881	274200	563840	0.486405	3.06922
40	0	EAST CENTRAL	868000	107000	419000	56000	11500	49500	5509	1511000	3525760	0.428568	3.21819
41	0	ADAMS	94000	25000	4100	14500	3000	1500	989	162100	632960	0.256501	3.28521
42	0	BILLINGS	40000	1000	1100	9900	400	400	1139	52900	729280	0.072546	3.97884
43	0	BOWMAN	86000	22000	8300	30000	1000	700	1170	140000	748800	0.186966	3.99714
44	0	GOLDEN VALLEY	50000	24000	4200	7600	200	100	1014	91100	648960	0.140374	3.41000
45	0	METTINGER	204000	23000	6650	14000	6100	2500	1134	256200	725760	0.353009	3.32747
46	0	SLOPE	91000	12000	11500	11000	1200	400	1225	117100	784000	0.149362	3.13736

OBS	COUNTY	SPW	DURUM	BARLEY	OATS	RYE	FLAX	AREA	SSG	AREACRES	PSSG	PDURUM	PSPW	POATS
47	STARK	175000	15000	8500	36000	1800	100	1316	236400	842240	0.280680	.22	.24	.20
48	SOUTHWEST	320000	180000	43000	125000	8000	4000	700	126000	448000	0.280000	.56	.39	.39
49	BURLEIGH	171000	13000	9000	50000	1500	700	1000	180000	640000	0.281250	.26	.29	.29
50	EMMONS	240000	6000	9000	50000	1500	1500	1500	270000	960000	0.281250	.12	.25	.33
51	GRANT	132000	2000	12000	42000	2200	2000	1000	180000	640000	0.281250	.02	.15	.32
52	MORTON	155000	7000	17000	52000	4300	1900	1000	180000	640000	0.281250	.05	.11	.34
53	SIOUX	41000	1000	2400	11000	300	300	100	18000	64000	0.281250	.02	.06	.27
54	SOUTH CENTRAL	677000	32000	48000	200000	6300	3000	700	126000	448000	0.281250	.05	.07	.30
55	DICKEY	118000	17000	24000	28500	11000	10000	1443	259740	923520	0.281250	.14	.20	.24
56	LA MOURE	143000	54000	16000	35000	18500	10500	1436	258480	919040	0.281250	.38	.25	.24
57	LOGAN	126000	17000	2900	20500	1200	1000	1041	187380	666240	0.281250	.13	.02	.16
58	MC INTOSH	154000	9000	7600	30500	4200	1200	1000	180000	640000	0.281250	.06	.05	.20
59	RANSOM	83000	4000	24000	20500	8000	8000	845	152100	540800	0.281250	.05	.29	.25
60	RICHLAND	157000	10000	42500	28000	5600	6500	1449	260820	927360	0.281250	.06	.27	.18
61	SARGENT	89000	10000	18000	18000	5100	7000	853	153540	545920	0.281250	.11	.20	.20
62	SOUTHEAST	863000	150000	137000	180000	57000	122000	7237	1302660	4631360	0.281250	.17	.15	.20
63	STATE	6400000	1350000	1700000	1050000	210000	530000	69281	13220000	44339840	0.298152	.21	.26	.16

OBS	PBARLEY	LEVEL	COUNTYCO	TEMPAPR	TEMPMAY	TEMPJUNE	PERAPR	PERMAY	PERJUNE	DCRD1	DCRD2	DCRD3	DCRD4	DCRD5	DCRD6	DCRD7
47	1.07	C	77	48.8	59.7	65.3	0.48	0.12	2.24	0	0	0	0	0	0	0
48	1.07	CRD	70	48.9	59.9	65.8	0.47	0.12	2.24	0	0	0	0	0	0	0
49	1.07	C	81	48.4	59.1	64.9	0.47	0.12	2.24	0	0	0	0	0	0	0
50	1.07	C	84	48.4	59.2	64.9	0.47	0.12	2.24	0	0	0	0	0	0	0
51	1.07	C	84	48.4	59.2	64.9	0.47	0.12	2.24	0	0	0	0	0	0	0
52	1.07	CRD	88	48.2	58.8	64.5	0.47	0.12	2.24	0	0	0	0	0	0	0
53	1.07	C	85	48.2	58.8	64.5	0.47	0.12	2.24	0	0	0	0	0	0	0
54	1.07	C	88	48.2	58.8	64.5	0.47	0.12	2.24	0	0	0	0	0	0	0
55	1.07	C	84	48.2	58.8	64.5	0.47	0.12	2.24	0	0	0	0	0	0	0
56	1.07	C	93	48.2	58.8	64.5	0.47	0.12	2.24	0	0	0	0	0	0	0
57	1.07	C	93	47.9	58.5	64.2	0.46	0.12	2.24	0	0	0	0	0	0	0
58	1.07	C	85	48.0	58.6	64.3	0.46	0.12	2.24	0	0	0	0	0	0	0
59	1.07	C	85	48.0	58.6	64.3	0.46	0.12	2.24	0	0	0	0	0	0	0
60	1.07	C	90	48.0	58.6	64.3	0.46	0.12	2.24	0	0	0	0	0	0	0
61	1.07	C	90	48.0	58.6	64.3	0.46	0.12	2.24	0	0	0	0	0	0	0
62	1.07	CRD	90	48.0	58.7	64.4	0.46	0.12	2.24	0	0	0	0	0	0	0
63	1.06	STATE	-	48.0	60.3	65.0	0.35	0.12	2.08	0	0	0	0	0	0	0

OBS	DCRD8	COUNTY1	SPW1	DURUM1	BARLEY1	OATS1	RYE1	FLAX1	AREA1	SSG1	TACRES1	PSSG1	WPSSG
47	0	STARK	167000	7000	7200	36000	2600	400	1316	220700	842240	0.261440	0.26445
48	0	SOUTHWEST	322000	119000	43000	123000	14500	6000	1407	189450	900480	0.210400	0.34161
49	0	BURLEIGH	171000	13000	8100	47000	1900	1000	1000	134600	640000	0.210312	0.26316
50	0	EMMONS	240000	6000	9500	49000	1500	1500	1500	201900	960000	0.210312	0.33333
51	0	GRANT	132000	2000	12000	40000	2200	2000	1000	134600	640000	0.210312	0.32576
52	0	MORTON	155000	7000	17000	52000	4300	1900	1000	134600	640000	0.210312	0.34194
53	0	SIOUX	41000	1000	2400	11000	300	300	100	13460	64000	0.210312	0.27439
54	0	SOUTH CENTRAL	677000	32000	48000	200000	6300	3000	700	94220	448000	0.210312	0.29542
55	0	DICKEY	118000	17000	24000	28500	11000	10000	1443	216580	923520	0.234500	0.24407
56	0	LA MOURE	143000	54000	16000	35000	18500	10500	1436	215580	919040	0.234500	0.24476
57	0	LOGAN	126000	17000	2900	20500	1200	1000	1041	156240	666240	0.234500	0.16270
58	0	MC INTOSH	154000	9000	7600	30500	4200	1200	1000	150000	640000	0.234500	0.19805
59	0	RANSOM	83000	4000	24000	20500	8000	8000	845	126750	540800	0.234500	0.28916
60	0	RICHLAND	157000	10000	42500	28000	5600	6500	1449	217350	927360	0.234500	0.27070
61	0	SARGENT	89000	10000	18000	18000	5100	7000	853	127950	545920	0.234500	0.20202
62	0	SOUTHEAST	863000	150000	137000	180000	57000	122000	7237	1085550	4631360	0.234500	0.17391
63	0	STATE	6400000	1350000	1700000	1050000	210000	530000	69281	11220000	44339840	0.253000	0.36511