

On-orbit Gardening Guides

Zinnia care guide for the on-orbit gardener:

1. Inspect the plants for growth and mold – if mold present follow the steps previously used in message 46-0082
2. Check pillows and plants for moisture and growth
 - a. Increase or decrease fan speed at crew discretion
 - b. Water plants per the size/water guide below
 - c. Plants showing no signs of growth over a 3 day period are likely stressed from either too much or too little water. Mature plants will stop growing in size but will continue other growth processes like flowering
3. Report any fan speed changes and water quantities to the ground
4. Photograph the plants

Zinnia size and water guide:

Small zinnias

- 2 to 8 leaves and measure up to approximately 2” across and up to 2” tall
- 0 – 30 mL of water per water activity

Medium zinnias

- 9 to 25 leaves and measure approximately from 2 to 4” across and from 2 to 4” tall
- Will also form buds and side shoots with buds.
- 15 – 60 mL of water per activity

Large zinnias

- More than 25 leaves and be larger than 4” tall and larger than 4” wide
- More buds and side shoots with buds than medium zinnias
- 30 – 120 mL of water per activity

Leafy greens care guide for the on-orbit gardener:

This care guide is intended for use after plant thinning. If you have any questions please notify POIC.

5. Inspect the plants for growth.
 - a. Plants showing no signs of growth over a 3 day period are likely stressed from either too much or too little water.
6. Check pillows and plants for standing water or water protruding from wick onto plant surface(s).
 - a. Increase or decrease fan speed at crew discretion (nominal setting is low, high setting will dry excess moisture)
7. Water plants per the size/water guide below
 - a. Previous Veg-01 experiments found that watering every other day for medium to large to plants was effective
 - b. Adjust water quantities and frequency based on your observations
 - i. Water leaking out pillows indicates saturation and can induce flood stress response if prolonged
 - ii. Wet wick indicates water present in plant pillow
8. Report any fan speed changes and water quantities to the ground
 - a. Water quantities are needed for parallel ground control test
9. Photograph the plants

Leafy green size and water guide:

Parameters apply to Chinese cabbage and red romaine lettuce

Small Leafy green plants

- 1 to 4 leaves and measure up to approximately 3" across and up to 3" tall
- 0 - 30 mL of water per water activity

Medium leafy green plants

- 5 to 8 leaves and measure approximately from 3" to 5" across and from 3" to 5" tall
- 20 - 60 mL of water per activity

Large leafy green plants

- More than 8 leaves and be larger than 5" tall and larger than 5" wide
- 50 - 120 mL of water per activity