



DONALD DANFORTH
PLANT SCIENCE CENTER

Integrated Plant Growth Facility
Donald Danforth Plant Science Center, St. Louis, MO
June 2019

MEDICAGO PROTOCOL
Medicago truncatula

Planting Seed

1. Fill 1801 or 4" Square Pots with Berger 7-35%. Tap the pot to settle the media, and place them into an 1801 holding tray and a 1020 flat with holes, or a 450 tray if using 4" pots. Do not compact the media.
 - a. If roots are to be studied, sand can be mixed into soil for easier removal. Sand can also be used alone, but plants will not be as vigorous or produce as many seeds.
2. Water each pot using the spray setting, and thoroughly saturate the media.
3. Plant 2-3 seeds on top of the media per pot.
4. Lightly cover seeds with soil, wet, and place dome on flat.
5. After germination, thin plants to one plant per pot.
6. As the plants grow, space pots out to every other cell in the holding tray.

Growing for Seed

- If you need to harvest a large number of seeds, transplant plants into 1-gallon pots. If yield is not a priority, then they can stay in original pots. It will take 3-4 months for seed production.
- Seeds will fall off plants as they dry, so plants should be staked up and bagged with a mesh or plastic pollination bag. Secure bag at top and bottom of stake.
- An alternative is to put fabric underneath the trays so the seeds will fall onto the fabric instead of onto the floor. This method should not be used when growing different lines together.
- Wear gloves when collecting and cleaning seed.

Watering/Fertilizing

- Medicago is top-watered with RO water, and the plants are checked twice a day for watering needs.
- The media should be allowed to dry out between waterings. Medicago does not like to stay wet and will show leaf wilt if the roots begin to rot.
- Plants will be fertilized Mondays, Wednesdays, and Fridays with Jack's 15-16-17 at an E.C. of 1.5. Yellowing leaves show a need for increased fertilizer.
- Plants are watered until seed turns brown. Pods will need to be carefully crushed to remove seeds.



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Pest Management

- The most common pests found on Medicago are the Two-Spotted Spider Mite and Western Flower Thrips.
- Populations of spider mites generally do not establish well in the cool weather houses, and are spot-sprayed as needed.
- Thrips are controlled through a combination of beneficial insects and pesticide sprays depending on population levels.
- Powdery mildew will be treated with fungicidal sprays if needed.

Typical Growing Conditions:

Temp: 22°C/20°C (day/night)

Relative Humidity: 50%

Light: 300 $\mu\text{mol}/\text{m}^2/\text{s}$

Day Length: 16 hours