DONALD DANFORTH
PLANT SCIENCE CENTER

Integrated Plant Growth Facility
Donald Danforth Plant Science Center, St. Louis, MO
Updated: June 2016 by Derek Allen

CAMELINA PROTOCOL

Camelina spp.

Camelina from Seed

1. Place 1801 deep inserts into holding trays, and fill pots with *Berger 35% Bark* till the media is level with top of pot. Tap pot on the bench or with your hand to settle the media. This will help with aeration. Do not fill cells that are not going to be planted.
2. Place the 18 count holding trays in flats with holes. Camelina prefers a well-drained root zone.
3. Water the media thoroughly from the top. Do not bottom water trays.
4. Sow seeds into pots, cover with a thin layer of media, and lightly water to moisten top layer.
5. Cover tray with clear dome and place in the Camelina greenhouse that is currently designated for new seedlings.
6. When a majority of the seed has germinated, the domes will be cracked and then removed 24 hours later. Seedlings will stretch rapidly if left under domes for too long. Greenhouse staff will do this as needed.
7. If there are multiple seedlings that have germinated in each pot, thin them to one seedling per cell
8. At 3-4 weeks when plants begin to flower, space pots in the holding trays to every other pot. This will ensure all plants receive consistent light, water/fertilizer, and air flow.

Camelina from Transplants

1-3. Same as above.

5. Make a hole in the soil of each cell and place a seedling in it. Press soil gently around the roots and water in. Be sure not to leave any large air pockets near the roots as this can cause them to dry out.
6. Place flat into Camelina greenhouse that is currently designated for new seedlings. Flat may be covered with dome if seedlings need to be transitioned.
7. At 3-4 weeks when plants begin to flower, space pots in the holding trays to every other pot. This will ensure all plants receive consistent light, water/fertilizer, and air flow.

Watering

1. The plants are checked twice a day for watering needs. Established plants should be allowed to dry down between watering.
2. Regular watering will continue until at least half of the seed pods have turned brown, at which point plants will be allowed to dry down more before watering again. Watering will stop once all pods are brown.

3. The current fertilizer regimen is Monday, Wednesday, and Friday with Jack's 15-16-17 peat lite at an E.C. of 1.0 + the E.C. of the water.
4. On Tuesdays, Thursdays, and the weekend all plants are watered with reverse osmosis (RO) water as needed.

Staking/Harvesting

- It is the researcher's responsibility to stake plants. This should be done before the plant begins to fall over. Please use the thin, green 3' stakes when staking plants in small pots.
- Plants should be harvested as soon as possible to prevent seed loss. This is also the researcher's responsibility. Cut off seed head and place in a bag, along with the label from the pot.
- To clean the seed, crush seed heads above one of the sieves. Seeds will fall through to the bottom. This may need to be repeated several times to remove all plant waste.

Pest Management

Common pests:

- **Western Flower Thrips** *(Frankliniella occidentalis)* – Use of *Neoseiulus cucumeris* as a beneficial control has been shown to be effective at keeping thrips populations at acceptably low levels. Chemical pesticides may occasionally be used to control large populations of thrips. Our most commonly sprayed chemicals targeting thrips include Conserve® and Overture®.
- **Green Peach Aphid** *(Myzus persicae)* – Use of *Hippodamia convergens* is an effective biological control, and Endeavor® is an effective chemical control.
- **Powdery Mildew** *(Sphaerotheca fuliginea)* – Strike® is our most effective control of powdery mildew. Copper or sulfur based sprays may be substituted in place of Strike®, but control is not as effective.

PGF staff keep records of all pesticide sprays. Please ask one of the greenhouse staff if you would like access to the records.

Researchers and staff moving from one greenhouse to the next will increase the chance of spreading pests amongst the houses. **If you need to enter multiple Camelina greenhouses throughout the day, it is always best to enter the youngest Camelina house first and then move to the next house in terms of plant maturity.** Please assist the greenhouse staff in controlling pests by planning your day accordingly.

Do not move plants from one house to another without first consulting with the PGF staff.

Growing Conditions
Temp: Constant 20º to 21ºC, but day temps will raise as much as 4º to 5ºC above set point in hot sunny weather.
Humidity: 40-60%
Light: Supplemental lights turn on when the sunlight is below 300 W/m^2 and to maintain a 14 hour day length.
The shade curtain automatically pulls to 50% when the sunlight is over 700 W/m^2 and it pulls to 100% when the sunlight is over 800 W/m^2.
Dry Down: When all plants in a greenhouse have reached the drying down stage the temperature in the house will be raised and the humidity will be dropped to zero to speed dry down time.

Growing Camelina from Seed for Increased Yield
Follow instructions for growing Camelina from seed, but use the 4.5" green pots, along with their respective holding trays, and place on the top shelves in the current new seedling Camelina greenhouse.