

# SOYBEAN PROTOCOL

Donald Danforth Plant Science Center  
Plant Growth Facility

June 2016

## Planting/Transplanting:

- 1) Fill one gallon pots with HP Pro mix or Berger 7-35% to the top but do not pack down.
- 2) Top water soil thoroughly. After watering, soil should be about 1" below rim to provide sufficient headspace for watering.
- 3) Plant 3 seeds per pot approximately ½ inch deep and cover with soil. Gently water seeds in.
- 4) Put one PTR label in each pot.
- 5) After plants have germinated, thin plants to one plant per pot unless otherwise requested.

### 1801 Flats:

When planting into an 1801 flat, water soil before sowing seed. Place a dome on the tray for more uniform germination. To transplant, fill a 1-gallon pot about ½ full of soil. Place plant on top of soil, cover root ball with soil, and water in.

## Watering/Spacing:

- 1) For 1-gallon pots, plants are spaced 2 plants per tray. Seeds will usually germinate in a couple days, and usually will not need watered until that point. For varieties where germination is slower or if plants are in smaller pots, they may need to be misted occasionally before germination.
- 2) Plants are checked twice a day for watering needs. Plants are allowed to dry down between watering but not to the point of wilt.
- 3) When about 75-85% of the seed pods have turned brown watering can be slowed down to let plants dry down more in-between watering (approx. 1 watering per day). Plants can be condensed to 4 plants per tray.
- 4) When more than 95% of seed pods are brown, watering can be stopped and plants condensed to 6 plants per tray.

## Fertilizer:

- 1) Fertilizing is begun when the first true leaves are present.
- 2) Soy is fertilized 3 times a week (MWF) with **15-16-17** at 200 ppm N in the greenhouse and 150 ppm N in growth chambers.

### **Harvesting/Cleaning:**

When plant is completely dried down (approximately 4 months), the pods are cut off and placed in a bag with either the PTR tag or the colored tag from the pot. To clean, seeds are removed from pods and placed back in the bag.

### **Pest and Disease Management:**

#### *Common Pests and Diseases*

**Mites and Thrips** are the main pests found on soybean. There are a number of pesticides that are able to be used to treat these pests.

**Powdery Mildew** - This occasional problem is treated with Cleary's granular fungicide at the rate of 1 Tbsp per pot.

#### *Phytotoxicity issues*

Pylon may show spotted leaf burn, but will not affect seed production

### **Growing Conditions:**

#### *Chambers*

Temp: 25°C day/ 23°C night (77°F/73°F)

Humidity: 50%

Light: 16 hour day at up to 1000 $\mu$ mol

#### *Greenhouse*

Temp: 25°C day/ 23°C night (77°F/73°F)

Humidity: 35% minimum

Light: The supplemental lights come on when the sunlight is below 400 W/m<sup>2</sup> between 6am-8pm (14 hours) from September through May and between 6-10am May through September.

Shading: The shade curtain automatically closes to 50% when the sunlight level is over 900 W/m<sup>2</sup> and it pulls to 100% when the sunlight is over 1000 W/m<sup>2</sup>.