

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

BRACHYPODIUM PROTOCOL

Planting Seed

1. Place 1801 deep inserts into 18 count holding trays, then into flats with holes. If subirrigation is desired, place 3601 inserts into no-hole trays. Fill cells with potting soil. Do not pack/compact soil. Berger 35% Bark is the PGF-recommended potting soil. Metro-Mix 360 and 852 have been used by certain labs. Remove one of the corner cells of the 3601's if bottom watering is desired.
2. Water the tray with the spray setting. Thoroughly saturate the soil.
3. Create holes about 1-2 cm deep. It is common to plant multiple seeds per cell then thin to desired quantity after germination.
4. Plant one seed/floret in each hole. Be certain to place with the awn pointing upward (awn is hair-like structure; see figure below).
5. Cover the seed with enough soil that the tip of the awn lays just below the soil surface.
6. Cover tray with clear dome.
7. If stratifying, place the trays in a dark 4°C chamber for 4-6 days. Remove trays from the 4°C chamber, and move to growth chamber or greenhouse.
8. When germination is visible, remove clear dome and begin regular watering.

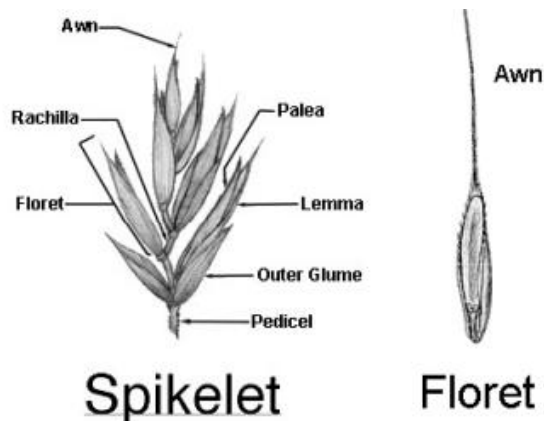


Figure Images from:

<http://www.csd.tamu.edu/FLORA/taes/tracy/610/brachypodium.html>
<http://forages.oregonstate.edu/projects/regrowth/main.cfm?PageID=11>



DONALD DANFORTH
PLANT SCIENCE CENTER

Watering

1. The 3601 inserts are bottom watered, while the 1801's are usually top watered in trays with holes.
2. The plants are checked twice a day for watering needs. When not bottom watering the 3601's, this is on a cell by cell basis.
3. Regular watering will continue until the plants are removed or a "Do Not Water" sign is in place.
4. The current fertilizer regimen is Tuesday and Friday with 150 ppm of Jack's 15-16-17 Peat-Lite. Plants that are transgenic will usually not be fertilized, and will have a "No Fertilizer" sign in place.

Seed Collection

1. Seed spikelets are collected when they are completely dry. This is important for good germination.
2. The individual florets are removed from the spikelet before planting.
3. If bagging plants is necessary for seed containment, place bag on plant at the latest possible date. This will allow effective pesticide applications to continue. Sprays are ineffective on bagged plants.

Pest Management

The most common pests on *Brachypodium* in chambers are fungus gnats, thrips, and two-spotted spider mites.

Beneficial insects/nematodes have been used successfully as a control for these pests in chambers.

Limited use of miticides such as Avid, Floramite, and Tetrasan has been necessary at times for spider mite control.

Typical Growing Conditions:

Temp: 24°C/18 °C (day/night)

Relative Humidity: 50%

Light: 200 $\mu\text{mol}/\text{m}^2/\text{s}$

Day Length: 16 hr is typical for normal plant bulking; 20+ hr to drive flowering