

GSOR Greenhouse Rice Production Procedures “How to Grow Rice in the Greenhouse”

You will need:

Sterilized soil, clay or silt loam
Commercial potting mix
8 ½” diameter x 7.5” tall plastic pots (**no drainage holes**)
Nitrogen fertilizer (Pelletized Urea)

Greenhouse conditions:

12 hour day, controlled lighting during winter; normal day length during summer
Temperature-controlled space with minimum 70° F at night; maximum 85-90° F during day

Soil – this is field soil that has been sterilized and sifted to remove rocks. Small amounts of soil can be autoclaved, or we use a large soil sterilizer that cooks ca. 18 cubic feet of soil overnight.

Mix together 2 parts sterile soil with 1 part commercial potting mix.

Fill pots to within 2 inches from top. Moisten pot of soil (not in standing water) prior to planting seeds. We plant up to 5 seeds per pot at ½ inch depth, lightly covered with soil.

The pots should be moistened at least daily through germination. Germination can occur between 5-10 days after planting. After sprouting, watering is best done during first half of day, to allow foliage to dry before nightfall.

When four leaves have emerged, fertilizer and permanent flood are applied. The 8.5” pots use 1/8 teaspoon nitrogen (pelletized Urea). The permanent flood is represented by maintaining the water level, usually 1 to 1½ inches deep, equal to the top of the pot. When plants begin the reproductive stage (aka, booting) there is usually an increased uptake of water. Depending upon the cultivar type, panicle expression (heading) can occur as soon as 60 days from planting, or up to 100 days from planting.

Flowering usually occurs in the morning, with actual pollination occurring about mid morning (9-10 a.m.). The hulls separate, the floret opens and pollen is produced. At some point the hulls close, covering the fertilized pistil. In most cases the stamens are left exposed, hanging outside the closed hulls.

As the seeds ripen and mature, the panicles will begin to tip over and the seeds will dry and turn brown. Overall, the plant foliage also begins to senesce, water uptake decreases and the seed is ready to harvest. Harvested panicles can be taken and placed into paper bags or envelopes and left on a greenhouse table for several days to dry further. Long-term storage for seed material should occur in cold storage (ca. 40° F, 20% RH).

As an example, a recent GSOR project involved plants which took 104 days, from planted seed to harvested panicles.