

# Dry Direct Seeding

## What is Dry Direct Seeding?

In rainfed and deepwater ecosystems, dry seed is manually broadcast onto the soil surface and then incorporated either by ploughing or by harrowing while the soil is still dry. In some cases (e.g., deepwater rice areas), the seed is not incorporated after broadcasting.

## Why Use Dry Direct Seeding?

- Easier (less drudgery) and more timely crop establishment
- Reduced labor costs for crop establishment
- Fewer crop establishment problems than wet direct seeding

## How to Dry Direct Seed?

Plow and work the field well to ensure that it is level, weed free and that the size of the soil clods are about the same size as the seed. Unleveled fields will usually sult in poor emergence in low spots and weeds and stressed plants in high spots.

## In rainfed systems:

1. Small canalettes can be made across the field to help drain the field and avoid snail damage and seed emergence problems in areas where water may stand.
2. Use sufficient seed - of a variety suited for direct seeding - to achieve a plant population of 100-150 plants/m<sup>2</sup>. This will usually require around 120-150 kg seed/ha. Farmers often use more seed (e.g., up to 150-200 kg/ha) because of poor field leveling, poor seed and seed losses to birds and rats)
3. Sow the seed uniformly: For hand broadcasting, mark the field in 5 m wide strips (the typical distance over which seed can be uniformly distributed by hand). Divide the seed into uniform lots to allow the person sowing to sow up the field and back (i.e., a 10 m wide strip) before getting the next seed lot. (e.g., if the field is 20 m wide, then there will be 4 passes of 5 m each and the seed should be divided into 2 equal size seed lots).
4. Broadcast the seed and lightly incorporate. Care is taken not to incorporate the seed too deeply (i.e., > 1-2 cm) into clay soils or where surface sealing is a problem.
5. After rainfall and establishment, ensure weeds are controlled in the first 21 days to panicle initiation.
6. Fertilizer: Due to the uncertainties of rainfall, fertilizer applications (especially N) may be delayed until after early emergence and when there is standing water in the field.

## In irrigated areas:

As for rainfed systems with the following exceptions:

1. Use less - 60-80 kg - of good seed of a variety suited for direct seeding.
2. Fertilizer can be added as basal.
3. Irrigate after seeding (if no rain). Let the water drain before flash flooding after 2-3 days to keep seed moist and to reduce soil crusting (this is especially important in the dry season)
4. If water is drained from the fields after broadcasting, it is re-introduced 10 to 15 days after the crop is established.

## Limitations:

- Good land preparation, leveling and water management are needed for uniform crop establishment.
- Weeds are a major problem and their control is critical to get high yields.
- Problems of rats, birds, mole crickets and ants. Nematodes can also be a problem especially in non-flooded fields.
- Heavy rainfall at the time of crop establishment can result in crop establishment failure (especially in heavier clay soils) and if water sits over seed still germinating below the soil.
- Longer occupation of main field by about 15 days, compared to transplanted rice.
- In light soils, there is high water use due to percolation losses.



Broadcast the seeds on dry soil



Harrow field to lightly incorporate seeds into the soil



Use of seed-cum fertilizer drill for row seeding



Irrigate the field to maintain shallow submergence, about 5 cm depth

## For more information:

Visit <http://www.knowledgebank.irri.org>.

To diagnose problems in the field visit <http://www.knowledgebank.irri.org/ricedoctor>.

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