

# Direct seeding



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## What is direct seeding of rice (DSR)

Direct seeding is a method of rice establishment wherein seeds are sown directly in puddled or non-puddled main field by broadcast, by using drum seeder or by using seed-cum-fertilizer drill in place of traditional method of transplanting rice seedlings from a raised nursery.

## Why and where DSR

Direct seeding through machines helps in seed sowing at a uniform row distance and depth, eliminating the drudgery of human labor in transplanting seedlings from nursery to the main field. By direct seeding, the crop evades transplanting shock, and maturity is advanced by 7-10 days. Machine sowing is a good alternate to maintain appropriate crop density, particularly in the areas where seeds are directly sown through broadcasting. Rice can be surface broadcasted (wet or dry), drum seeded, drill seeded (using machines) or broadcasted and incorporated when sown on dry fields. Pre-germinated seed is typically used while wet-direct seeding through drum seeder.

Direct seeded fields tend to have more problems of weeds, especially when the pre- and post-emergence weedicides are not used for effective control of weeds.

The areas where the farmers broadcast the seed directly in the fields to save money, non-uniform distribution of seed may cause patchy germination leading to either too many or too few plants depending on the skills of the broadcaster, and the soil conditions where the seed lands. Farmers often use high seed rates due to poor seed quality, to compensate for losses due to rats, birds and snails, and to increase crop competition with weeds.



Wet direct seeding  
by broadcast



Dry direct seeding through  
seed-cum-fertilizer drill



Wet direct seeding  
with drum seeder

## Why Mechanized Dry/Wet DSR is important

Mechanized DSR helps in maintaining the row to row and plant to plant spacing through proper calibration and running the machine at a constant speed. This proper plant spacing helps in avoiding the unnecessary competition between plants for sun light and nutrients. Too close spacing causes weak stems resulting into lodging at heading, leading to yield reduction causing economic loss. Moreover, the higher seed rate under broadcasting may incur more cost thus reducing the net returns. Due to shallow root system in broadcast method, rice is vulnerable to lodging and less able to withstand drought as compared to drill seeding by better anchoring and deep proliferation of root system enabling to withstand water stress. The line sowing by seed drill also facilitate mechanical weeding in the crop. Leveling of field is a must to easy operation of machine, uniform crop stand, and efficient water use and weed management.

## Maintaining proper plant stand

Various problems can cause low plant stands e.g., uneven undulating field, cloddy soil, seeding too deep, soil too soft at seeding, heavy rainfall at seeding, soil crusting, poor seed quality, poor seed distribution, low seed rate, water stress, muddy water at seeding, clogged seeder and/or pests such as ants, birds and rats that remove seed at planting. A plant stand of 28-35 per square meter is considered best for proper aeration, sunlight and uptake of nutrients to attain higher yield and better economic returns.

## How to manage

- For good planting or crop establishment, ensure proper flow of seeds, check seed drop during planting.
- After planting, ensure good weed management and timely water management.
- Ensure appropriate seed rate with uniform distribution of seed.
- Use seed rates between 40-45 kg per hectare, if other factors such as, pest problems, seed quality and seedbed preparation, are not a concern.