



Direct Seeding of Rice

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Why in News

Due to labour shortage in two granary states of Punjab and Haryana, farmers are now being encouraged to adopt '**Direct Seeding of Rice**' (DSR) in place of **conventional transplanting**.

Covid-19 pandemic has led the labourers to reverse migrate to their villages, which has created a shortage of labourers.

Key Points

- **Normal Transplanting of Paddy vs Direct Seeding of Rice**
 - **Transplanting Paddy:**
 - In transplanting paddy, **farmers prepare nurseries** where the paddy seeds are first sown and raised into young plants.
 - The nursery seed bed is 5-10% of the area to be transplanted.
 - These **seedlings are then uprooted and replanted** 25-35 days later in the puddled field.
 - **Direct Seeding of Rice (DSR):**
 - In DSR, the pre-germinated seeds are directly drilled into the field by a tractor-powered machine.
 - There is no nursery preparation or transplantation involved in this method.
 - Farmers have to only level their land and give one pre-sowing irrigation.

- **Protection against the weeds**

Transplanting Method: In transplanting for the first three weeks or so, the plants have to be irrigated almost daily to maintain a water depth of 4-5 cm.

- Water prevents growth of weeds by denying them oxygen in the submerged stage, whereas the soft '**aerenchyma tissues**' in paddy plants allow air to penetrate through their roots. Water, thus, acts as a herbicide for paddy.
- **DSR Method:** In DSR as flooding of fields is not done during sowing, chemical herbicides are used to kill weeds.

- **Advantage with Direct Seeding of Rice**

- **Water savings.**
- **Less numbers of labourers** required.
- **Saves labour cost.**
- **Reduce methane emissions** due to a shorter flooding period and decreased soil disturbance compared to transplanting rice seedlings.

- **Drawbacks of Direct Seeding of Rice**

- Non-availability of herbicides.
- The **seed requirement for DSR is also high**, 8-10 kg/acre, compared to 4-5 kg/acre in transplanting.
- Further, **laser land levelling is** compulsory in DSR. This is not so in transplanting.
- The **sowing needs to be done timely** so that the plants have come out properly before the monsoon rains arrive.

Rice

- Rice is a staple food for the overwhelming majority of the population in India.
- It is a **kharif crop** which requires **high temperature, (above 25°C)** and **high humidity** with annual **rainfall above 100 cm**.
 - In the **areas of less rainfall, it is grown with the help of irrigation.**
- In **southern states and West Bengal the climatic conditions allow the cultivation of two or three crops** of rice in an agricultural year.
 - In West Bengal farmers grow three crops of rice called '**aus**', '**aman**' and '**boro**'.
- About **one-fourth of the total cropped area in India is under rice cultivation**.
 - **Leading producer states:** West Bengal, Uttar Pradesh, and Punjab.
 - **High Yielding States:** Punjab, Tamil Nadu, Haryana, Andhra Pradesh, Telangana, West Bengal and Kerala.
- Punjab and Haryana are **not traditional rice growing areas**.
 - Rice Cultivation in the irrigated areas of Punjab and Haryana was introduced in the 1970s following the **Green Revolution**.
 - Almost the entire land under rice cultivation in Punjab and Haryana is irrigated.

- India contributes 21.6% of rice production in the world and **ranked second after China** in 2016.

Source: IE