Direct-Seeding Method

Why in News?

Farmers in leading rice-growing states are adopting the **direct-seeding method** as a solution to **delayed rains and labor shortages.**

What is Direct-Seeding Method?

- **About:**
  - Direct Seeded Rice (DSR), also known as the **'broadcasting seed technique,' is a water-saving method of sowing paddy.**
  - In this method, **seeds are directly drilled into the fields,** eliminating the **need for nursery preparation and transplantation.**
- **Benefits:**
  - **Reduction in Labor:**
    - With the use of drum seeders, only two laborers are required to sow seeds on one acre, compared to 25-30 laborers needed in traditional methods.
      - This significantly **reduces labor costs and eases the burden on farmers.**
  - **Time and Resource Savings:**
    - By eliminating the need for nursery cultivation, farmers save **approximately 30 days in the crop cycle.**
      - This allows them to start the rabi season early and avoid untimely rains during the harvesting phase.
  - **Water Conservation:**
    - The direct-seeding method reduces water requirements by around 15% as water logging occurs only after a month. This is especially beneficial in areas where rainfall is delayed.
  - **Increase in Yield:**
    - According to the results from research trials and farmers' field survey, after this technique the **yield is one to two quintals per acre higher than puddled transplanted rice.**
- **Challenges:**
  - **Weed Growth:**
    - Weed growth becomes a challenge as **seeds are sown directly into the fields.**
  - **Extreme climate:**
    - High temperatures and deficient rainfall can **affect seed germination and crop growth.**
  - **Operational challenges:**
    - Closed canals, erratic electricity supply, and issues with weed control and pest management.
- **Successful Implementations:**
  - The direct-seeding method has gained traction in various regions, including **Punjab, Telangana, and Andhra Pradesh.**
  - In Andhra Pradesh alone, an NGO has implemented this method on approximately 4,000 hectares, resulting in significant cost savings.

UPSC Civil Services Examination Previous Year Question (PYQ)

Q. What is/are the advantage/advantages of zero tillage in agriculture? (2020)

1. Sowing of wheat is possible without burning the residue of the previous crops.
2. Without the need for a nursery of rice saplings, direct planting of paddy seeds in the wet soil is possible.
3. Carbon sequestration in the soil is possible.

Select the correct answer using the code given below:

(a) 1 and 2 only
(b) 2 and 3 only
(c) 3 only
(d) 1, 2 and 3

Ans: (d)

Exp:

- Zero Tillage, also called no-till farming, is a cultivation technique in which **the soil is disturbed only along the slit or in the hole into which the seeds are planted,** the reserved detritus from previous crops covers and protects the seedbed. Under zero tillage, the direct seeding of wheat into unploughed soil and with rice residues left behind has proved very beneficial. It saved on water, labour and use of agrochemicals, reduced greenhouse gas emissions, and improved soil health and crop yield and thus benefitted both farmers and the society at large. **Hence, statement 1 is correct.**
- **Direct Seeded Rice (DSR)** is a viable option to reduce the unproductive water flows. DSR refers to the process of establishing a rice crop from seeds sown in the field rather than by transplanting seedlings from the nursery. Conventional rice establishment system requires a substantial amount of water. It has been reported that water up to 5000 litres is used to produce 1 kg of rough rice. However, with increasing shortage of water, dry DSR with minimum or zero tillage further enhances the benefits of this technology by saving labour. **Hence, statement 2 is correct.**
- No tilled soils tend to be cooler than others, partly because a surface layer of plant residues is present. Carbon is sequestered in the soil enhancing its quality, reducing the threat of global warming. **Hence, statement 3 is correct. Therefore, option (d) is the correct answer.**

Source: BL