System of Rice Intensification (SRI)

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In news– The Punjab government is promoting Direct Seeding of Rice (DSR) technique of paddy, which saves water and labour cost against the conventional puddling method.

What is System of Rice Intensification (SRI)?

- **The System of Rice Intensification (SRI) was first developed in Madagascar in the 1980s** and since then several countries in the world have been practising it, including India.
- It **involves cultivating rice with as much organic manure as possible**, starting with young seedlings planted singly at wider spacing in a square pattern; and with intermittent irrigation that keeps the soil moist but not inundated, and frequent inter cultivation with weeder that actively aerates the soil.
- **It is also called Madagascar method of rice cultivation. It promises to save 15 to 20 per cent ground water, improves rice productivity**.
- **It gives equal or more produce than the conventional rice cultivation, with less water,** less seed and less chemicals. The net effect is a substantial reduction in the investments on external inputs.
- U**nlike Direct Seeding of Rice (DSR) when weeds are major problem and weedicides are sprayed simultaneously at the time of sowing, in SRI, which permits greater weed growth because of alternate wetting and drying of fields**, the weeds are incorporated into the soil by operating a cono-weeder between rows, which are made at the time of sowing, which adds nutrients to the crop like green manures.
- Experts said that **unlike DSR, which is suitable only for mid to heavy textured soils, SRI is suitable in all**

types of soil including less fertile soil as in such soil the number of seedlings can be increased to double.

- Because of planting in rows and keeping proper spacing, SRI gives more yield.
- The paddy cultivation using the SRI method **uses less water, needs less labour**, and produces better yields. **As a result, it is highly beneficial for small and marginal farmers**.
- In SRI paddy cultivation, only 2 kg of seeds per acre are required. As a result, there are fewer plants per unit area (25 × 25 cm), compared to 20 kg of seeds per acre in conventional chemical-intensive paddy cultivation.
- **Paddy fields are not flooded under SRI** but are kept damp during the vegetative period. After that, only one inch of water is kept.
- **In traditional sowing from the day of transplanting** till the crop turns 35-40 days fields are kept under flood-like conditions. Then fields are filled every week till a few weeks before harvesting.

The limitations of SRI-

If unchecked, **greater weed growth will cause substantial loss of yield**. Experts said that **it can be sustainable if organic inputs in the soil structure are maintained.**

Other methods of rice cultivation-

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.

Broadcasting method:

- Seeds are sown and broadcast by hand.
- This method is practised in those areas which are comparatively dry and less fertile and do not have much labour to work in the fields.
- It is the easiest method requiring minimum input but its yields are also minimum.

Drilling method:

- Ploughing of land and sowing of seeds is done by two persons.
- This method is mostly confined to peninsular India.

Transplantation method:

- This method is practised in areas of fertile soil, abundant rainfall and plentiful supply of labour.
- To begin with, seeds are sown in the nursery and seedlings are prepared.
- After 4-5 weeks the seedlings are uprooted and planted in the field which has already been prepared for the purpose.
- The entire process is done by hand.
- It is, therefore, a very difficult method and requires heavy inputs. But at the same time it gives some of the highest yields.

Japanese method:

- This method includes the use of high yielding varieties of seeds, sowing the seeds in a raised nursery-bed and transplanting the seedlings in rows so as to make weeding and fertilizing easy.
- It also involves the use of a heavy dose of fertilizers so that very high yields are obtained.
- The Japanese method of rice cultivation has been successfully adopted in the main rice producing regions

of India.