SRI FOR WATER-EFFICIENT RICE PRODUCTION

How the System of Rice Intensification (SRI) can improve rice productivity using less water

Today access to clean water is an issue for a large part of humanity. Control of water resources is a cause for 127 conflicts around the globe.

Water use has been growing globally at more than twice the rate of population increase in the last century.

Agriculture is by far the sector which consumes the largest amount of fresh water and rice is the first crop for water utilization.

By 2025, 20 million hectares of irrigated rice fields may suffer from water scarcity.

Rice cultivation covers around 167 million hectares globally and feeds 3.5 billion people while providing the livelihood to 1 billion farmers, mainly small-holders. In order to feed the growing world population which is estimated to reach 9.6 billion by 2050, rice production needs to grow by 25% over the next 25 years.

Increasing rice production while following the current mainstream methods will cause intense pressure on the already scarce water resources.

The System of Rice Intensification (SRI) provides an answer for increasing rice production and preserving water resources.

Rice uses 34-43% of the world’s irrigation water for production. On average, about 2,500 liters of water are needed to produce 1 kg of rice (2-3 times those of other major cereals).

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700 million people worldwide could be displaced by intense water scarcity by 2030.

3.2 billion people live in agricultural areas with high water shortages.

2.3 billion people live in water-stressed countries of which 733 million live in critically water-stressed countries.

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WHAT IS SRI?

SRI is an agroecological approach to growing rice that allows farmers to increase yields while decreasing water consumption along with the reduction of other inputs such as seeds and synthetic amendments.

SRI is based on the following four principles:

1. Start with young healthy plants
2. Optimise spacing to minimise competition between plants
3. Build up healthy fertile soil
4. Apply only the minimum amount of water needed

Under SRI the Alternate Wetting and Drying (AWD) water-management is followed. AWD is defined by periodic drying and re-flooding of the rice field. AWD reduces water use by up to while also reducing greenhouse-gas emissions (GHG) by up to 50%.

Each SRI principle contributes to enhancing water-efficiency:

- By starting with young healthy seedlings the crop cycle duration is reduced
- Optimised spacing enhances root systems development and the photosynthetic process while reducing competition for resources between plants
- Healthy fertile soil retains more water

SRI improves total water use efficiency by 52% and irrigation water use efficiency by 78%

SRI reduces irrigation water applications by 3.9 million litres per hectare

Rain-fed rice

SRI methods result in stronger and more robust plants with larger and longer-living root systems. Water dependency is reduced meaning unirrigated or upland SRI rice plants also require less rainfall therefore increasing resilience against drought events.

SRI-2030’s GOAL IS TO ACHIEVE 50 MILLION HECTARES OF SRI BY 2030

BY 2050 THIS WILL

PRODUCE AN EXTRA
1 BILLION TONS RICE

REDUCE EMISSIONS BY
8.5 BILLION TONS CO2e

HIGHLY REDUCE PRESSURE ON WATER RESOURCES
3.9 MILLION l/ha SAVED

INCREASE FARMER PROFITS BY
$ 1.6 TRILLION

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