SRI-2030

SRI rice methods practiced on 50m hectares by 2030

SRI: A TRIPLE WIN FOR PLANET, PEOPLE, AND PROSPERITY

RICE & THE WORLD

Rice, the livelihood of one billion, is the single largest source of employment and income for rural people and the staple crop for over half of the world's population. Paddy rice cultivation, however, is responsible for between 8-12% of anthropogenic methane emissions, producing around 40 million tons of carbon dioxide equivalent (CO2e) annually. With rising populations estimated to reach 9.6 billion by 2050, rapid increases in rice production are required to meet demand, notwithstanding current nutrition deficits, from the equivalent or reduced area of land. Meeting growing food requirements and ensuring inclusive social and economic development under increasingly erratic climate conditions, while also tackling greenhouse gas emissions, remains a complex challenge.

The System of Rice Intensification (SRI) is a cost-effective, available solution for farmers and their nations to manage land and water resources while addressing social, climate, and food security issues.

SRI is identified by Project Drawdown as a leading solution to the climate crisis as it requires a change in mindsets, not materials. SRI-2030 is an initiative working to achieve Drawdown's goal of 50 million hectares by a more ambitious target of 2030 for accelerated and amplified results.

WHAT IS SRI?

1. START WITH YOUNG HEALTHY PLANTS
2. MINIMIZE COMPETITION
3. BUILD UP HEALTHY, FERTILE SOIL
4. APPLY THE MINIMUM AMOUNT OF WATER NEEDED

SRI is a proven set of eco-friendly agroecological crop management principles demonstrated to raise rice production by 25–50%,[1] and even up to 100% or more,[6,12] while lowering production costs and raising farmer incomes. SRI is based on four key principles (above) that capitalize upon already existing biological potentials that elicit more robust and productive plants (phenotype) from any given variety of rice (genotype).

SRI FOR SDGs

SRI can work to achieve the following United Nations Sustainable Development Goals[8]

HOW DOES SRI WORK?

SRI principles support the best conditions for growth. Young healthy seedlings which hold the most potential for growth are chosen, and with increased spacing each plant has more access to sunlight, water, and nutrients, and can therefore grow larger root systems. Providing water intermittently, rather than flooding, known as alternate wetting and drying (AWD) allows the soil to be kept in a mostly aerobic conditions, allowing more oxygen to reach the roots, promoting growth, and supporting larger populations of beneficial soil organisms. Organic matter further enhances the soil nutrients and improves its structure and functioning, making it more porous and better able to absorb rainwater, reducing water requirements. SRI induces and amplifies the many natural biological processes within the soil, enhancing the final crop health.

SRI-2030's goal is to reach 50 million hectares by 2030, in doing so this will achieve by 2050:

1 BN TONS ADDITIONAL RICE PRODUCED

8.5GT CO2E REDUCED

$ 1.6TN FARMER NET PROFITS

SRI is currently practiced on an estimated 6.7 million hectares globally.[2] Due to an initial skepticism of such high yields from reduced inputs without requiring additional technologies, criticism published in the mid-2000s has repressed SRI investment. Now rebutted, SRI is backed by over 20 years of substantial literature and numerous demonstrated case studies and is validated in 60 countries globally.[7] Stronger support at an institutional level is needed to upscale SRI at the pace necessary to address global crises.

SRI achieves increased yields with less inputs.
Seed requirements are reduced by 80-90% and water by between 30-50%.[4,8] Notably, SRI practices are beneficial for the climate, as methane emissions are reduced by up to 70%;[2] and overall net greenhouse gas emissions are reduced by 50% or more per kilogram of rice produced. SRI crops are more resilient to climate hazards such as drought, storms, and pests. Importantly, SRI is accessible to low-income households as no external inputs are required, meaning SRI is a highly cost-effective solution and triple-win for rural households, their country, and the planet together.

SRI & Gender

SRI presents many benefits for women who provide up to 80% of rice cultivation labour. SRI reduces labour with smaller nurseries and fewer plants to manage. By not flooding the fields, water-borne illnesses caused by long-hours in unsanitary conditions are reduced. Furthermore, SRI improves equity and status of women in their communities. Training female-farmer leaders has shown to have greater potential to accelerate the uptake and impact of SRI while enhancing their status in their community.[8,10]

SRI LMB: A leading example[5]

The SRI-Lower Mekong Basin Project (SRI-LMB) was a regional project involving four Lower Mekong Basin (LMB) countries in Southeast Asia during 2013-2018: Cambodia, Laos, Vietnam, and Thailand. The project was implemented over 72 months, with main funding coming from the European Union to support the €3.4 million project. The aim of this initiative was to increase crop yields, productivity, and profitability in a sustainable manner for smallholder rice farmers in rainfed areas of the LMB. The project was led by the Asian Institute of Technology (AIT), and implemented through partnership of the FAO, OXFAM, SRI-Rice Cornell University, and the University of Queensland.

By applying SRI principles 15,000 smallholder farmers achieved an average yield increase of 52%, improved water productivity by 59%, and increased economic return of 70% with reduced energy use of 34%.

Irrigated rice production methods are usually the focus for GHG emission reduction due to the significant impact that AWD provides in reducing methane emissions. This project, however, worked mostly in rainfed areas, where farmers rely on rainfall rather than on irrigation. Even so, the field-level measurements showed a 17% reduction in GHG emissions, resulting from the reduced plant density and the use of organic fertiliser in preference to inorganic fertiliser. For the four countries in this project, rainfed rice represents the leading method of rice cultivation with 64% of the rice production grown under rainfed conditions, producing a calculated 6.31 million t CO_2eq. By adopting SRI methods, GHG emissions could be reduced to 5.13 million t CO_2 eq from rainfed areas alone. There is huge opportunity for rainfed regions to deliver food-security benefits for resource-limited smallholder farmers while also achieving significant results for global-warming mitigation.

Through reducing plant density, transitioning to organic fertiliser, and lessening flooding, SRI can improve water productivity and reduce emissions significantly.

WHAT IS NEEDED TO EXPAND SRI?

SRI has mostly spread through farmer-to-farmer networks and grassroots movements. Stronger institutional support can provide the foundation to scale SRI rapidly at the pace needed.

Nationally Determined Contributions (NDCs) are one way that countries can mobilise action. Ten countries currently include SRI as either a mitigation or adaptation action in their NDCs. Top rice-producing countries, however, do not include quantified measures for rice mitigation and only 14% of countries that have signed the Methane Pledge hold rice mitigation actions[3].

Beneficial policies for SRI may be related to irrigation, education and training, or financial support amongst many others depending on local context and needs.

Farmers need to be encouraged to try out SRI. Farmer field schools that provide practical hands-on experience and education can be incredibly beneficial. Supporting farmers to visit and learn from other SRI practitioners is a practical route to convincing traditional mindsets.

ACTIONS FOR POLICY:

- **Include SRI in mitigation and adaptation Nationally Determined Contributions**
- **Provide supportive policies for SRI uptake.** Applicable policies will depend on various factors and context within each country. Relevant policy areas may include (though are not limited to): financial incentives through schemes or subsidies; participatory irrigation management infrastructure; training and education in agricultural extension work.
- **Build on previous and current SRI projects** to roll out efficient and effective training and education programs for disseminating SRI knowledge. There are many examples from small community programs, national programs, to internationally coordinated programs
- **Prioritise research and data gathering on SRI solutions during projects**: much of the innovation and adaptation arises from farmers' fields, without shared research, these simple and cost-effective solutions are overlooked by policymakers
- **Incentivise the private sector to develop and lead SRI** particularly in mechanisation and market-based approaches that can progress rapid SRI adoption
- **Seek innovative and creative opportunities** to combine SRI principles other agroecological practices

In Indonesia, Farmer Miyatty Jannah shows the difference between an SRI crop (left) and conventional rice crop (right).

SRI is an economically attractive investment with sufficient research and project experience globally meaning its opportunities can be undertaken with confidence and relatively little cost.

With SRI, more food can be produced with less water, less chemicals, and less seed all while reducing emissions.

For more information email info@sri-2030.org
or visit www.sri-2030.org.

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