Integration of SRI with conventional methods and its performance in Morang district, Nepal, 2015

Rajendra Uprety, Senior Agriculture Development Officer
DADO Morang, Nepal.

Rice is a main staple food crop and a main contributor to national GDP in Nepal. But rice yield is low compared to other Asian countries, and it has been almost stagnant at around 3 t/ha for the last decades. Increasing growth of consuption and stagnant yields make national rice production insufficient to fulfill domestic demand, reulting in increasing rice imports year after year. The Government has recently announced a program to increase cereal production especially focused on rice to achieve self-sufficiency in food grains.

To achieve the objective of self-sufficient rice production, the Ministry of Agricultural Development has launched a mega rice production program (MRPP) which emphasizes wider spacing of plants, line transplanting, and mechanical weed management, integrating SRI principles into the conventional rice production system. The performance of the mega rice production program will be available soon. Here the performance of SRI in past year (2015) is presented. 2015 was a drought year and rice yield in Morang was highly fluctuating, from 0.6 to 7.8 tons/ha, with an average yield of 4.1 tons/ha.

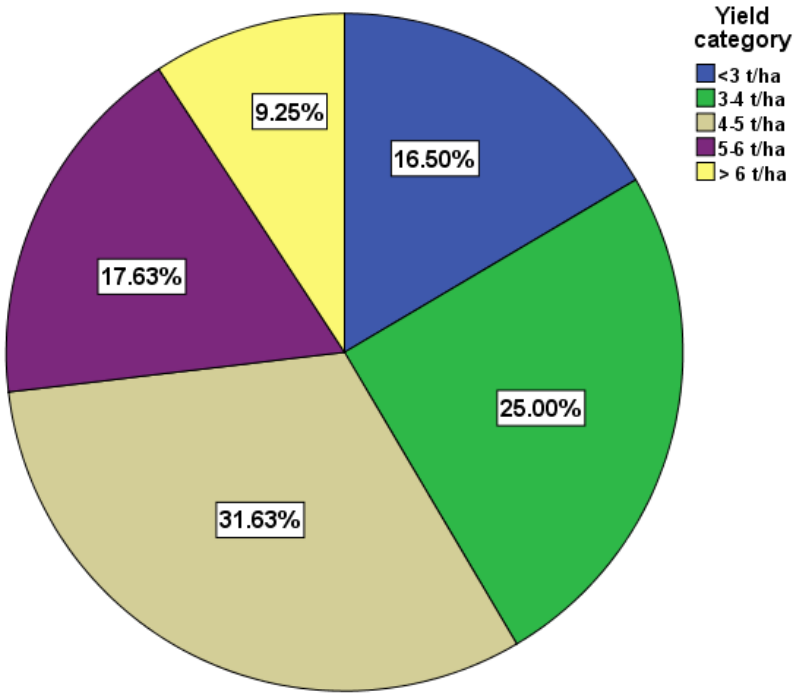


Fig 1. Distribution of rice yield in Morang district, Nepal, 2015.

If we analyze the performance of 95 randomly-sampled SRI farmers, their average yield in the rainy season was 5.5 tons/ha (range 3.6-7.8 tons/ha), 1.4 tons higher than district average. But if we do a deeper analysis, we find that more than 40% of the typical farmers produced less than 4 tons/ha yield while this percentage was only 11.5% among those farmers who used SRI methods. By conventional methods, only 9.25% farmers produced more than 6 tons/ha yield (Fig. 1) while this proportion was 40% in SRI farmers (Fig. 2).

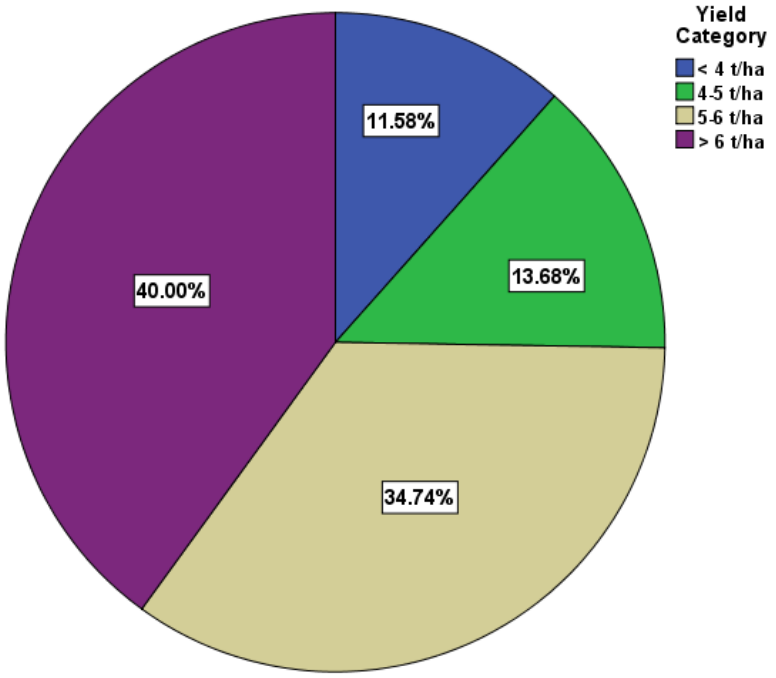
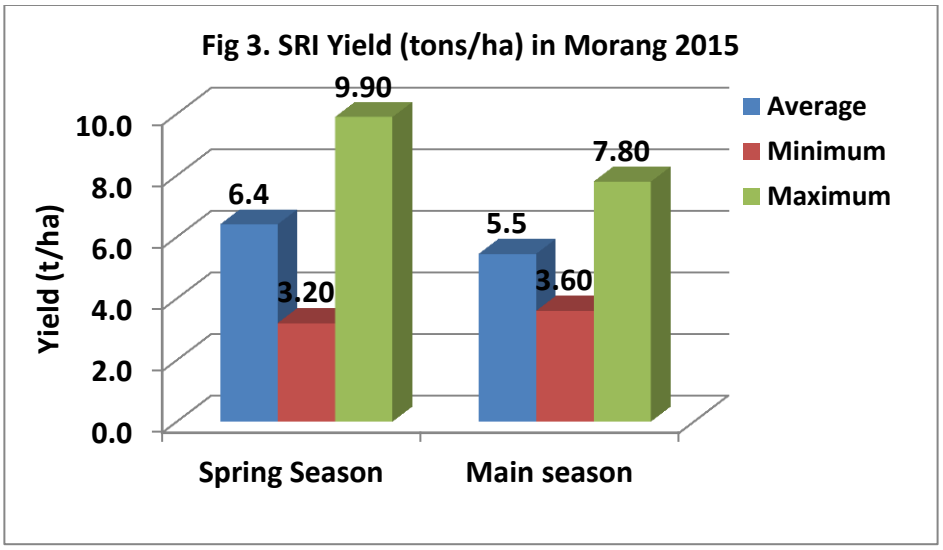
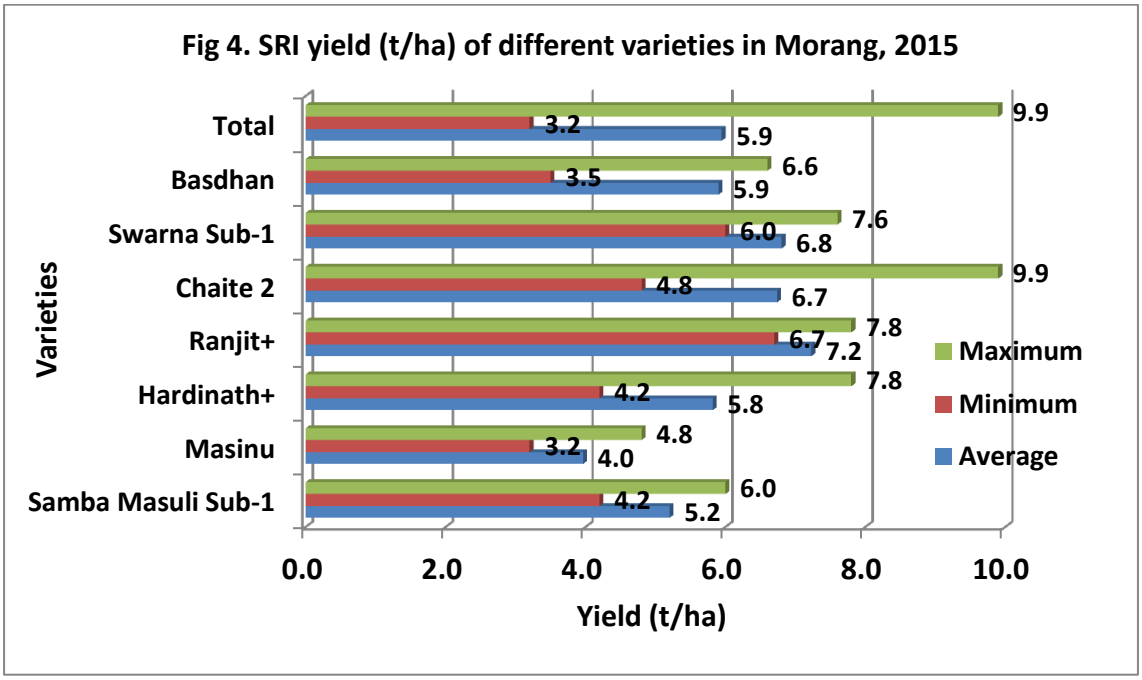


Fig 2. Distribution of SRI rice yields in Morang district, Nepal, 2015.

SRI performance was better in the spring season 2015 compared to the main season (Fig. 3). In spring season, farmers had control of their water/irrigation systems or farmers transplanted their rice only in those areas where irrigation facility was assured. But in the main season, most of the cultivated area was under rice cultivation, and more than 60% of the land in Morang is rainfed, so vulnerability to water stress is very high there for adopting any crop management practice including SRI. Farmers need to adjust their practices according to their rainfall or water availability.



To cope with climatic vulnerabilities, DADO tried to offer more varieties of rice to use with SRI method. Among those varieties, some are stress tolerant (Sukha 3 for drought, and Swarna Sub 1 and Samba Masuli Sub 1 for flood-affected areas). Performance of SRI was different with different varieties; detailed results on variety-wise performance are shown in Fig. 4. Swarna Sub 1, Ranjit, Samba Masuli Sub 1, and Masinu (Basmati) were more stable than other varieties. In favorable situations, Chaite 2 produced the highest yield, but the difference between the highest and the lowest yields with this variety was very high (5.1 tons). One observation was common for every highly-productive field, that is, the positive effect of applying more organic manure on rice yield. Most of the high-yielding fields were manured by a combined application of organic manure and chemical fertilizers. The field with highest rice yield (9.9 tons/ha) was flooded two times by diluted bio-gas slurry.



Conclusion

Integration of at least some of the recommended SRI practices into conventional rice farming system has become popular in Morang district of Nepal. Farmers have become aware about the importance of younger seedlings, fewer seedling/hill, wider spacing, mechanical weeding, and AWD system of irrigation. These changes result in greater savings and greater income for farmers through reduction of seed rate, in water use, and lower production costs, which are associated with higher yield.