A.1. SYSTEM OF RICE INTENSIFICATION

Introduction

System of rice intensification (SRI) is a new approach of growing rice, where rice is grown like vegetables. The system was first developed and has been practiced in Madagascar by an NGO. Farmers practicing SRI claim to achieve 10-16 tons of rice yields per acre.

SRI capitalizes on a built-in pattern of development identified by a Japanese researcher, T. Katayama (1951). He found if the growth and other conditions are conducive, rice plants produce tillers in a regular pattern. The interval of this growth is called phyllochrons. Transplanting after fourth phyllochrons sets back growth momentum of rice plants; hence their full potential for producing tillers, roots and grains is not achieved.

Another mechanism of the system is to provide enough oxygen to the soils to strengthen the root systems of plants. Additional roots help uptake more nutrients from soil and at the same time produce more tillers. To exploit the full potential of rice plant SRI, thus, comprises six important practices: 1) early transplanting, 2) single seedling, 3) wider space, 4) alternate drying the field, 5) cultivating the soils regularly and 6) application of compost. The study intended to assess the performance of the system in new conditions in Kachin.

Materials and methods

The study was established in two separate plots managed a plot by one small group. Area of a plot ranged from 800-1000 square meters. Each plot was planted in three different spacing: 25X25, 30X30, and 35X35 cm with ten days old seedling. The seedlings were planted in one by one (single seedling per hill) immediately after uprooting from the seedbed. The variety used in this study was Sin-3. 300 Kg per hectare oilcake was used as an alternate to compost. Other fertilizers were used as of IPM practice. Weeding was done in every ten days using rotary weeder. Weeding was done primarily to cultivate the soil. The soil was maintained alternate drying by removing the excess water. Water was given when field moisture was constrained. After panicle initiation, the field maintained five inches flooded water. Water was removed 15 days before harvesting the rice.

Treatments:

T1	25X25 cm spacing
T2	30X30 cm spacing
T3	35X35 cm spacing

Results and discussion

Consolidated average data on rice yields, number of tillers and productive tillers, plant heights, panicle sizes, and grains per panicle, gathered from weekly observations in both the plots are presented in the following table. The table, in comparison with same variety, used in other study such as seed production and IPM validation trial, show that the number of tillers produced in this study is much high. However, the average yield is much low.

Contrary to this study, results obtained from similar studies done in other parts of the world, nevertheless indicate a very different picture. Rice yields obtained in those studies are widely claimed to be between eight to ten tons per hectare. Low yield obtained in this study, however, could be the attributed to some important following factors.

Consolidated average data

Treatment	No. of Tiller		Plant height	panicle size	grain/ panicle	Yield ton/ha
	Tiller	Productive				
T1 25 cm x 25 cm	14.6	9	96.65	24.1	118	2.73
T2 30 cm x 30 cm	18.6	10	86.8	25.1	131	2.65
T3 35 cm x 35 cm	17.9	11	104	26.1	109	1.97

This study was setup one month later than the other studies. Producing fresh seedling and preparation of a new field took this time. The variety was thought to be a photo-insensitive variety. It was assumed that this delayed planting would not affect plant growth and rice yield. However, the variety of this study started flowering within the same period as the same variety of the other studies. This means the plants of this study got only fifty-percent time for tillering. Reduced time in tillering stage might largely affect to reduce the full potential of tillering ability of the plant. This system of planting was designed mainly to utilize the full potential plant's tillering ability. As this ability was affected by delayed planting, the plant could not produce enough tillers. As a result the yield turned to be very low.

Conclusion

Although the study produced very low yield, it drew huge attention of thousands of visiting upland farmers. As water is a big constraint in upland, the system of growing rice with very limited water highly attracted those farmers. The study however, remains inconclusive because of the late planting problem. Therefore, to make any final assessment, the study needs to be established again with more varieties in different planting times.