

**REPORT
ON
SYSTEM OF RICE INTENSIFICATION (SRI)
IMPROVED METHOD OF RICE GROWING
TRAINING WORKSHOP CONDUCTED AT
WORLD VISION-ZAMBIA MUSELE ADP**

08 – 12TH NOVEMBER, 2010



CHILDREN DANCING ON THE OCCASION OF
LAUNCHING THE TRAINING IN MUSANGEJI AREA

FOR

THE PROJECT MANAGER
WORLD VISION ZAMBIA
MUSELE AREA DEVELOPMENT PROGRAM

BY

HENRY N. NGIMBU
SRI SPECIALIST - ZAMBIA
CENTRE FOR SYSTEM OF RICE INTENSIFICATION INITIATIVE (CSRII)

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Acknowledgement

I wish to thank all the groups of women rice farmers and fish farmers for responding positively to the SRI new methods of RICE farming in Musele ADP.

I would like also to give great thanks to all the World Vision staff for their devotion in seeing that the SRI training was rendered with full support for successful results.

Special credit goes to World Vision management, not only for providing financial support to the training programme, but for envisioning and accepting SRI in the World Vision Musele ADP.

In conclusion, the entire arrangement was motivating and inspiring because the main purpose was to see farmers benefiting from ***better productivity and gains from their rice yields.***

With best regards,
Henry N. Ngimbu

1. BACKGROUND

This report has been compiled to provide insights on the World Vision training workshop activity for System of Rice Intensification (SRI) Best Practices and Group Work Dynamics under the Farmer-Field School (FFS) approach that took place on 1-5th November, 2010 in Musele ADP.

Therefore, the technical training material used and the training action plan was tailored to strengthen the capacity of responsible farmers located within World Vision Musele ADP. It is understood that the training was tailor-made, dedicated to World Vision Musele ADP needs in order to get the best out of the effort.

GOAL OF THE TRAINING: By the end of the training programme, participants should have learned and acquired skills in SRI-based farming practices and have developed strategic plans for improved performance and productivity in their paddy rice crop, including group dynamics development.

3. MAIN OBJECTIVES

- ⌘ Rice farmers are to be familiarized with agronomic characteristics and potential of SRI-based cropping system.
- ⌘ Rice farmers who are interested in practicing SRI will get organized and linked up with World Vision that is committed to the principles of improved rice productivity and sustainable household livelihoods.
- ⌘ Rice farmers in Musele ADP should be able to diversify their agricultural income sources and increase household food security as outgrowers for paddy rice achieved from SRI intervention.

4. TRAINING PROGRAM PLAN

#	Schedule	Session
	<i>DAY 1 PROGRAM</i>	
1	SWOT analysis on prevailing rice-growing activities in World Vision Musele ADP, focusing on; <ul style="list-style-type: none"> (a) Governance (by-laws, work plans and recordkeeping) (b) Traditional farming practices (seed selection, nursery and field management, post harvest, marketing and savings) 	Morning
2	Introduction to SRI farming practice (tool-kit)	Afternoon
	<i>DAY 2 PROGRAM</i>	
3	Life in the soil (conservation of micro-organisms)	Morning
4	Seed selection and priming	
5	Preparing the nursery and starting seedlings	
6	Field preparation	
7	Conservation (organic) fertilization	
8	Taking seedlings from the nursery	
9	Spacing the transplanted seedlings	
10	Water control	
11	Weeding and aeration	Afternoon
12	Pest and disease control	
13	Management after flowering	
14	Harvesting	
15	Post-harvest management	
16	Commodity marketing	
17	Savings	
18	Wrap-up and training evaluation	

5. TRAINING PROGRAMME PROCEEDINGS

SRI is a simple but effective rice-growing technique for rice farmers. The beginning point to understand is that the principles of System of Rice Intensification (SRI) can be explained and communicated without much formal educational requirements. Knowing the principles, farmers can make appropriate adaptations. The largest and most pervasive requirement for SRI adoption is change in farmers' thinking and willingness to change. Farmers need a certain amount of skill and motivation to use SRI techniques successfully. Overcoming skepticism and mental resistance usually requires some physical demonstration, or visits to see SRI fields that are growing as explained. Visits to demonstration plots and farmer-to-farmer communication are usually the most effective way to overcome resistance, supplemented by illustrated materials and visual displays. The confidence of those communicating about SRI is also a key element in gaining acceptance. Small-scale farmers need to observe important factors that impact traditional and modern rice farming.

The following details explain corrective measures that come with the training package:

#	Parameters	Effects	Action Required
1	Life in the soil (conservation of micro-organisms)	Soils in Rice farms are compromised by burning, chemical fertilization and lack of enough biomass	Support farmers in organic fertilizer/ manure mobilization
	No seed sorting and priming done at farmer level	Reduced germination and unpredictable yields	Train and support in required sorting standards and priming of rice seed
2	Lack of governance, record-keeping and work-plans at farmer level	Critical farming stages (time) are lost out, resulting in poor harvests	Support farmers with basic governance measures, farm record-keeping and work plan
3	Lack of spacing transplanted seedlings, water control and weeding	Proliferation of weeds, root	Focus on plants/hill rather than broadcasting or drilling in straight lines. Including formation of embankments
4	Poor harvesting and threshing methods	Huge loses leading to reduced harvested quantities and high level of broken rice	Provide best harvesting and threshing methodologies
5	Poor post-harvest methods	Huge loses leading to reduced harvested quantities and high level of broken rice	Provide best post-harvest practices
6	No proper marketing and savings arrangements	interruption of value for the commodity and misapplication of resources	Improved marketing strategies and savings for sustainable livelihoods

The significant points for considering adopting SRI

- ✦ NO NEED to change varieties -- *HYVs and hybrids* can give the highest yields with SRI methods, but *local varieties* can produce 6-12 t/ha with SRI methods
- ✦ LESS SEED is used, because plant populations (plant density) will be greatly reduced; fewer plants well-managed will give more yield than several times more plants casually managed
- ✦ NO NEED for use of chemical fertilizers -- while these can raise rice yield with SRI, the best results are achieved with *compost* or other organic fertilization of the soil
- ✦ NO NEED to apply agrochemicals -- pesticides, fungicides, etc., are usually not necessary -- farmers find that these are not economical as SRI plants are usually resistant to pests/diseases
- ✦ SIGNIFICANT WATER SAVINGS – usual irrigation water can be reduced by 50% -- but *need good water control* to apply smaller amounts of water reliably, regularly
- ✦ MORE LABOR – is needed at first, but as the SRI methods are mastered, SRI management can even become *labor-saving over time*
- ✦ MORE SKILL AND MANAGEMENT EFFORT are needed -- SRI is intended to *improve farmers' capabilities* – SRI is knowledge-intensive and management-intensive

(B) Simple growing instructions (6 key elements)

- ✦ Transplant young seedlings (<15 days, with just 2-3 leaves)
- ✦ Set out plants singly with wider spacing
- ✦ In a square pattern (25x25cm or more) and
- ✦ Planted shallow, gently, and quickly --
- ✦ No continuous flooding during the period of vegetative growth, with either (a) minimum daily applications, or (b) alternate wetting and drying – keeping soil mostly moist but not inundated
- ✦ After panicle initiation, maintain a *thin layer of water* (1-2 cm) on field until 10 days before harvest

(c) Remarkable results (unlocking the potential)

- ☞ Increased TILLERING -- 30-50 tillers/plant, or more, if the soil and water are well-managed
- ☞ Larger ROOT SYSTEMS – it can require 5-6x more force to uproot SRI plants (one evaluation found 28 kg of force was needed to pull up 3 regular plants vs. 53 kg to uproot single SRI plant)
- ☞ Bigger PANICLES -- 200-300 grains/panicle, or more
- ☞ *Positive correlation between the number of panicles and panicle size -- contrary to the negative relationship which is commonly reported – SRI can give more and bigger panicles*
- ☞ GRAIN QUALITY -- fewer unfilled grains and fewer broken grains when milling the paddy, so one can get a higher milled outturn of polished rice from one's paddy (unhusked) production
- ☞ RESISTANCE to pests, diseases, storms and drought as plants remain healthier with their deeper root systems and stronger tillers; LODGING is rare; also RATOON crop is possible
- ☞ HIGHER YIELDS -- ave. 6-8 t/ha, even up to 15 t/ha or more
- ☞ *PRODUCTIVITY* gains – from all inputs (land, labor, water, capital); more important than yield

6. TRAINING ACTIVITIES

a) KISASA ZONE FARMING BLOCK



World Vision-Zambia officially commissioned SRI farming based practice at Kisasa Zone on 01st November, 2010. There were two groups consisting of about 15 members each which were addressed separately. The sessions were conducted at Kisasa Guest House, and each took two and half hours. These sessions were not full training but orientations to bring awareness and knowledge-sharing on the potential of SRI and rainfed upland rice growing. This session involved presentations by the convener Henry Ngimbu focusing on the paradigm shift from the usual traditional method of growing paddy rice in flood fields to water-controlled application. The other facts were to develop nurseries, transplanting of single seedlings, spacing, and weeding and aeration. A projector was used as a visual aid showing a video demonstrating the SRI application.

The outcome of these sessions was that the participants showed keen interest to begin growing paddy rice in their areas in this forthcoming 2010-2011 farming season and demanded for a full training in SRI methodologies and adaptation.

b) MUSANGEJI RICE FARMING BLOCK



Musangeji Rice farming block became the first beneficiaries of a two-day full-time SRI training. This was conducted on 2-3 November, 2010. The Area Agriculture Co-ordinator Mr. Henry Kadima traveled from Solwezi to inaugurate the training program. About 100 participants from different villages were trained. The training was dominated by women participants who took almost all the numbers with very few men.

The history of Musangeji Rice farming block indicates the majority are women paddy rice farmers. Through the support of World Vision, the women farmers have formed a rice farmers' club, to which a motorized rice mill has been donated. The presence of a rice mill has encouraged the women who started their paddy rice cultivation in 2009/2010 farming season. Their problem has been low yields, lack of capacity building in paddy rice-growing practices, and few market opportunities.

A participatory SWOT analysis was conducted during the training period resulting in identification of five greatest farming problems:

- 1) The women farmers do not conduct seed selection and priming. Instead, seed is planted directly in the field.
- 2) Seed is broadcasted instead of developing nurseries to transplant seedlings in the field
- 3) Farming is conducted in flood plains without any embankments to control water in the fields
- 4) There is no weeding conducted throughout the farming season, resulting in manifestation of weeds, lack of aeration, and uneven distribution of sunlight
- 5) The fields are burned during farming season to provide ash as fertilizer alternative. The problem with this method is that microorganisms which support the cycling of nutrients for the rice crop are killed, and there is no organic manure that is applied to the field

- Training synopsis :



Over 100 farmers, with 90 percent women participation



Group work: This was Group One gathering to accomplish a task provided during the training workshop.



Group work: This was Group Two sharing information to each other out of a task provided during the training workshop.



Group work: This was Group Three conducting participatory discussions in response to tasks provided during the training workshop.

c) KANZALA FISH FARMING CO-OPERATIVE SOCIETY



The second training was held at Kanzala Fish Farming Co-operative Society situated near the boundary between Solwezi and Mwinilunga districts on 4-5th November, 2010. This co-operative society consists of 13 members, of whom 12 participated in the two-day SRI training workshop.

A brief background to this society: The members have constructed over 20 fish ponds at Kanzala area. All the ponds are well stocked with nice species of fish. The ponds look very beautiful, and the members are hard-working people. Their main goal is to make these fish ponds a source of livelihoods through income generated out of selling fish harvested from the same ponds. However, this group decided to expand their idea by taking opportunity of the water that flows out of the ponds to be harnessed into irrigating rice farms. In addition, there are plans to turn the surrounding land which remains unutilized to rice farms. The purpose is to diversify their source of income and create a means of food security for their families.

A participatory SWOT analysis was conducted during the training period. The following issues were identified:

- 1) The group had no adequate knowledge on rice farming, and training was very necessary to them.
- 2) The group has not got any rice seed for planting. They require a source of rice seed to be grown in this season
- 3) The surrounding area contains reasonable supply of organic manure which they have to learn how to prepare and how to apply it in their fields
- 4) A demonstration plot is required to be developed at their site to provide practical knowledge in the paddy growing program



Suitable land surrounding the fish pond planned for paddy rice growing



Adequate water flow coming out of the fish ponds to be utilized for irrigating paddy rice fields

Training synopsis:



Class work:

The training involved active participation of all the participants

Group work:

The participants were divided into two groups to accomplish tasks provided during the training workshop.

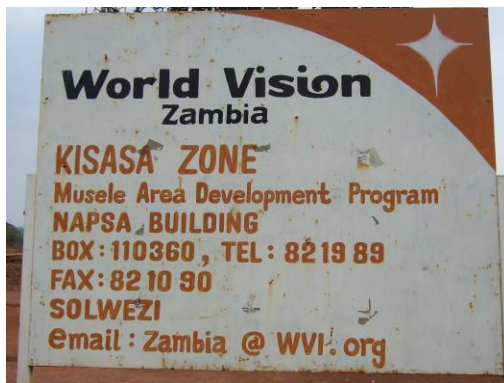
8. CHALLENGES

- ✦ The Rice Grower Specialist had no access to reliable transport to facilitate his movement from one station to the other, and this had some negative impact on the training delivery, e.g., time schedule
- ✦ The training program budget did not consider training handouts and toolkits for participants and training visual aids for demonstrating appropriate farming tools (e.g. weeders, markers, projector, etc.)
- ✦ The training program did not come with a clearly structured program and specific budget

WAY-FORWARD

The anticipation for this training program in rice-growing improvement is based on the premise that it is an on-going activity that will cover the whole 2010-2011 farming season. Therefore, the activity that has been covered already is the first in a series. We are yet to conduct other remaining training activities including areas in Kisasa, Jiwundu and others.

Other than the training activities, the Rice Grower Specialist should be provided the responsibility to provide backstopping and regular assessment of the adoptability and adaptation of the new improved rice-growing system at the farmer level from the beginning to the end of the 2010-2011 farming season.



LITERATURE REVIEW

More details on SRI, training materials and other technical information can be found on the following website:

<http://sri.ciifad.cornell.edu/countries/zambia/index.html>