FARA Dissemination Note

www.faraafrica.org ISSN 2590-9657

FARA Dissemination Note 26: 2016

Training of Trainers in the System of Rice Intensification (SRI)

Zambia Agriculture Research Institute

November 2016

PARI

Program of Accompanying Research for Agricultural Innovation

www.research4agrinnovation.org

ZARI Zambia Agriculture Research Institute

Researching Soils, Crops and Water in Zambia

FARA Forum for Agricultural Research in Africa

zef Center for Development Research University of Bonn

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Introduction

Zambia has not met its local rice demand from its own production for more than a decade now. Table 1 shows some past trends of rice production. The continued rice deficits have led to the importation of rice from other countries, even as far as Asia. Being a more convenient food to cook and eat, rice in Zambia is becoming one of the mainstream alternatives to the traditional staples of maize and cassava. There is also growing awareness in the Country that the rising demand for rice is not transient, but a reflection of a shift in food consumption patterns arising from the increasing urban and predominantly youthful population.

Table 1: Zambia National Food Balance Sheet for Rice (Figures in Metric Tonnes)

S/N		Marketing Year								
	Availability:	***2000/2001***	***2001/2002***	***2002/2003***	***2003/2004***	***2004/2005***	***2005/2006***	***2006/2007***	***2007/2008***	***2008/2009***
	(i) Opening stocks	1.00	2.00	1.00	0.00	0.27	0.10	0.10	0.93	2.80
	(ii) Total production	8.83	12.39	11.64	10.74	11.70	13.34	13.96	18.32	24.02
A	**Total availability**	**9.83**	**14.39**	**12.64**	**10.74**	**11.97**	**13.44**	**14.06**	**19.25**	**26.82**
	Requirements:									
	(i) Human consumption	16.66	16.76	15.93	16.71	17.88	24.67	25.37	30.33	36.05
	(ii) Food Reserve Stocks (net)	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
	(iii) Stockfeed	0.00	0.00	0.00						
	(iv) Breweries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(v) Seed	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(vi) Export/cross-border trade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(vii) Losses	0.44	0.62	0.58	0.54	0.58	0.67	0.70	0.92	1.20
B	**Total requirements**	**17.10**	**17.38**	**16.51**	**17.24**	**18.47**	**25.44**	**26.06**	**31.25**	**37.25**
C	**Surplus/deficit (A-B)**	**-7.27**	**-2.99**	**-3.86**	**-6.50**	**-6.50**	**-12.00**	**-12.00**	**-12.00**	**-10.43**

Source: Ministry of Agriculture & Cooperatives (Zambia)

With the above Country's rice position and in contributing to the achievement of the Programme of Accompanying Research for Agricultural Innovations (PARI)'s main goal of "Contributing to sustainable agricultural growth and food security in Africa" and one of its sub-goals of "Promoting and supporting the scaling of proven innovations in the agri-food sector in Africa in collaboration and partnership with all relevant actors", the Zambia Agriculture Research Institute (ZARI) planned to undertake the activity of training farmers in the System of Rice Intensification (SRI) methodology in 2016.

The SRI methodology has proved to increase rice productivity and production not only in Africa but also in the major rice growing areas of the World, especially Asia. In Zambia, the SRI methodology has particularly proved to increase rice productivity and production in the areas/districts of Eastern and Muchinga Provinces, where an NGO called Community Markets for Conservation (COMACO) has been operating. Therefore, the Zambia Agriculture Research Institute (ZARI) engaged a COMACO's SRI Expert, to conduct the Training of Trainers (ToT) workshop in the SRI Methodology.

Objectives

The main objective of undertaking the training of trainers work in the SRI Methodology was to increase rice productivity and production, in Zambia, with the overall aim of contributing to the Country's food security and poverty reduction.

The specific objectives were:

- To increase and promote rice productivity and production in Mpika District.
- To train Mpika small scale farmers in the SRI methodology of rice production.

To augment ZARI's rice research knowledge and information, in readiness for ZARI's undertaking of research in SRI methodology.

Methodology and Approach

The SRI training was initially targeted at small scale farmers who were using the conventional method of rice production with the aim of increasing their rice productivity and production and increasing their incomes. However, with the realization that with the support under PARI, the SRI training was going to be a one-time training activity (one-off event), it was not possible to cover/invite all or a large number of farmers targeted to be trained (due to limited resources and time-frame). The training/plan was subsequently changed to be a Training of Trainers (ToT) workshop involving Agricultural Supervisors (BEOs), Agricultural Assistants or Camp Extension Officers (CEOs) and some Leader Farmers, who in turn would train other small-scale farmers directly. With the limiting budget to undertake the activity, the SRI ToT was finally agreed to only include CEOs and Lead Farmers (i.e. excluding BEOs); the final target participants' category was arrived at considering that the CEOs and Lead Farmers were the ones continuously interacting or in contact with small scale farmers, by virtue of their work and thus were better placed or expected to train other small scale farmers in their respective Agricultural Camps and localities.

The SRI ToT workshop was therefore conducted in Mpika District (Muchinga Province) of Zambia, from 14 to 17 November 2016. Mpika was selected for the SRI ToT being an upcoming rice-growing District where rice is being grown along the valley areas. Six (6) rice-growing Agricultural Camps in Mpika District, namely, Kopa (in Luchembe Agricultural Block), Mpepo and Mbati (in Mpepo Agricultural Block), Chiundaponde and Lulimala (in Chiundaponde Agricultural Block), and Chobela (in Mukungule Agricultural Block), were selected from which a total of thirteen (13) participants were invited, i.e. 6 Agricultural Assistants/CEOs and 7 Lead Farmers. One Rice Research Officer from ZARI's Kasama (Misamfu) Rice Research Team was also invited as participant and co-facilitator, at the same time; and so, bringing the total number of participants to fourteen (14).

Additionally, Mpika District was selected for SRI training in order to take advantage of the available ready market of the expected increased rice productivity and production by the trained farmers, from the COMACO's Milling Plant which has been established in the neighbouring Serenje District (Central Province of Zambia). The 13 CEOs and Lead Farmers were trained to apply/practice the SRI methodology in their fields and to also be trainers of other small-scale rice farmers in SRI methodology, in their respective Agricultural Camps. To facilitate their application of SRI, the trained CEOs and Lead Farmers were given rice seeds at the end of the workshop, to

use in Farmer Field Schools (FFSs) during the 2016-2017 Agricultural Season. At the same time, using the FFSs (with the given seeds) to also train other farmers within their respective Agricultural Camps.

The four (4) days SRI ToT workshop was undertaken in two parts; one involving theoretical (Classroom) work and another part of practical (Field) work.
Besides the above mentioned thirteen or fourteen target participants, the SRI ToT training also included two (2) Officers from the Mpika District Agricultural Coordinator's Office (DACO's Office). The two Mpika DACO's Officers were included in the training with the aim of assisting ZARI (and probably including the COMACO SRI Expert/Trainer) to backstop, monitor and evaluate the trainees' (CEOs and Lead Farmers) performance, with regard to their practicing/implementation of the SRI methodology in their respective Agricultural Camps' fields/FFSs (using the knowledge gained from the training); and also to find out the number of other farmers they will have also trained in SRI methodology, in their respective Agricultural Camps, in the following Agricultural Season (2016/2017).

Training Process

The SRI training covered the following eighteen (18) main topics/areas:

a. Life in the Soil (Conserving of micro-organisms);
b. How SRI is a rewarding methodology;
c. Introducing SRI Tool kit;
d. Rice Seed testing and priming;
e. Preparing the nursery and starting seedlings (of rice);
f. Rice-Field preparation;
g. Conservation (organic) fertilization;
h. Taking Rice seedlings from the nursery;
i. Spacing the transplanted rice seedlings;
j. Water control methods;
k. Weeding and aeration;
l. Integrated pest control;
m. Management at vegetative stage (rouging off-types);
n. (rice) Harvesting;
o. Post-harvest management (of rice);
p. Commodity (rice) marketing (under COMACO);
q. Savings; and
r. Field practices (Practical work at an identified wetland area in Mpika) & Assessment of Fieldwork results (in Class).

Besides the above topics, the presentations were also made to the Participants on:

- Overview of the Programme of Accompanying Research for Innovations (PARI), as being implemented by the Forum for Agricultural Research in Africa (FARA) through ZARI; and
- Rice research and production trends in Zambia by ZARI (knowledge sharing).

At the end of the training/workshop, the Participants were:

- Required to prepare (and actually prepared) an Action Plan on how they were going to implement the PARI-SRI trial Farmer Field Schools (FFS) during the 2016-2017 Agricultural Season, based on the lessons learnt/taught, in their respective Agricultural Camp Fields; and
- Given 2 Kg each of Chama rice variety seeds at the end of the workshop, to use in Farmer Field Schools (FFSs) during the 2016-2017 Agricultural Season given rice seeds (2 Kg each) at the end of the workshop, to use in Farmer Field Schools (FFSs) during the 2016-2017 Agricultural Season.

Practical Application/Demonstration of SRI Methodology

Above Photos (4): Demonstration (during training) of Rice seed-testing before planting in nursery (using water, salt & egg)-in Class




Above four (4) Photos: Field demonstration (during training) Nursery land Preparation and seedling transplanting (at a wetland location of the Zambia College of Agriculture's Field)

Photo: Practical exercise to confirm existence of "Life in the Soil" (outside Training Venue-FTC)

Theoretical Training

Photos (3): Training Sessions (at Mpika Farmers' Training Institute)

Conclusion

The Participants were given emphasis on the importance of or encouraged to remember and apply the key activities of the SRI methodology, particularly the six (6) activities below referred to as the '*SRI Toolkit*', that is:

- To transplant young rice seedlings when they are 8-15 days old (better still from 8-12days);
- To plant seedlings singly and avoid trauma to roots;
- To provide wider spacing;

- To avoid continuous flooding of paddy rice;
- To aerate the soil; and
- To enhance organic matter (in the soil).

As a follow-up action to the SRI ToT training, and with probable funding under PARI for 2017 activities, monitoring and evaluation was expected to be undertaken in 2017, with the following objectives:

- To assess and confirm the competence of the trained CEOs and Lead Farmers in the practice/implementation of the SRI methodology in their fields/FFSs (with regard to the knowledge gained from the training, i.e. assessment of their practical application of the SRI topics covered during the training);
- To ascertain the number of farmers trained in SRI methodology by the trained CEOs and Lead farmers, in their respective Agricultural Camps; and
- To assess and confirm the competence of the trained CEOs and Lead Farmers in the training of (other) small scale farmers in SRI methodology, in their respective Agricultural Camps.

The ZARI Officer (SRI ToT participant and co-facilitator) is expected to also utilize the knowledge gained in enhancing the SRI research, expected to be embarked from 2017.