Sustainet E A.

Sustainable Agriculture Information Initiative

Technical Manual

FARMER FIELD SCHOOL APPROACH

FAO FIAT PANIS

gtz

SUSTAINABLE AGRICULTURAL INFORMATION INITIATIVE (SUSTAINET EA)

P.O. Box 10375-00100, NAIROBI, KENYA
KARI/NARL Campus, Waiyaki way
Email: info@sustainetea.org
Web site: www.sustainetea.org.

Sustainable Agriculture Information Initiative is a regional network, non-profit non-governmental organization that promotes sustainable agriculture along value chains to improve the quality of lives of the rural poor through participatory approaches, documentation, lobbying and advocacy, knowledge and information management and sharing, and capacity building with stakeholders in the Eastern Africa region.

DEUTSCHE GESELLSCHAFT FÜR TECHNISCHE ZUSAMMENARBEIT (GTZ)

Dag-Hammarskjöld-Weg 1-5, 65760 Eschborn
Telephone +49 6196 79-0
Telefax +49 6196 79-1115
Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH
Postfach 5180, 65726 Eschborn

Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) -Sustainable Management of Resources in Agriculture (NAREN) programme addresses sustainable production systems, genetic resources, cultivated biomass, soil, water and climate. One of its priority areas is 'cultivated biomass'.

Promotion of Private Sector Development in Agriculture (PSDA) is a bilateral development programme jointly implemented by GTZ and the agriculture sector ministries in Kenya. PSDA is supporting SUSTAINET to scale up Conservation Agriculture along the value chain in Western Kenya

FAO HEADQUARTERS, VIALE DELLE TERMEDI CARACALLA, 00153, ROME ITALY,

Telephone: (+39) 0657051, Fax (+39) 0657053152
Email: FAO-HQ@fao.org

The Food Agriculture Organization (FAO) of the United Nations leads international efforts to defeat hunger. Since 2004 and together with partners such as ACT and governments, it has been implementing a a project in East Africa entitled 'Conservation Agriculture for Sustainable Agriculture and Rural Development (CA-SARD)' during which training constituted a major project activity.

AFRICAN CONSERVATION TILLAGE (ACT)

Headquarters: P.O. Box 10375-00100, Westlands, Nairobi, Kenya
Email: info@act-africa.org; Website: www.act-africa.org

The ACT Network promotes the sharing of information and experiences and facilitates the adaptation and adoption of conservation agriculture technology across Africa.

ACT collaborates with SUSTAINET in implementation of Conservation Agriculture projects in Eastern Africa.

Published 2010 by Sustainable Agriculture Information Initiative

Design & Layout: Skyward Design & Marketing Ltd.

Printed in 2010 by Assup Enterprises P.O. BOX 67275-00100, Nairobi, Kenya.

Correct citation
SUSTAINET EA 2010. Technical Manual for farmers and Field Extension Service Providers: *Farmer Field School Approach*. Sustainable Agriculture Information Initiative, Nairobi.

ISBN 978-9966-1533-4-0

TABLE OF CONTENTS

PREFACE ..... **v**

1.0. Introduction **1**

1.1 What are Farmer Field Schools? 1

1.2 Why FFS? 1

2.0 Essential elements of FFS **1**

2.1 The group 1

2.2 The Field 1

2.3 The Facilitator 1

2.4 The curriculum 1

2.5 Programme leader 2

2.6 Financing 2

3.0 Characteristics of the farmer field school approach **2**

3.1 Farmers 2

3.2 The field 2

3.3 Extension workers 3

3.4 The curriculum 3

3.5 Training 3

3.6 Meetings 3

3.7 Learning Materials 3

3.8 Group Dynamics. 4

4.0 Steps in conducting FFS **5**

5.0 KEY CONCEPTS AND TECHNIQUES USED IN FFS **6**

5.1 Ecosystem 6

5.2 The Concept of What is This? What is That? 6

5.3 Agro Eco Sytem Analysis (AESA) 6

Purposes of AESA are: 6

5.4 Participatory Technology Development (PTD) 7

5.5 establishing PTD in FFS sites 7

5.6 VILLAGE IMMERSION (DO IT YOURSELF) 8

Case Study of PTD Development: Eotulo Farmers' Group, Meru District, Tanzania. **9**

PREFACE

There are several initiatives in Eastern Africa to promote sustainable agriculture practices as environment-friendly and alternative to conventional agriculture. However, little has been done to document the good agricultural practices or even lessons learnt from these initiatives. Farmers today still lack access to information on sustainable agriculture practices. Sustainable agriculture seeks an environmentally sound, socially equitable and economically viable ways to produce to meet the needs of the present without compromising those of future generations.

SUSTAINET EA as a regional Network operating in Eastern Africa endeavours to bridge the information gap on Sustainable Agriculture to reach smallholder farmers through publication of simplified technical manuals on good agricultural practices. These manuals contain useful technical information on good agricultural practices that offer practical answers to questions normally asked by farmers of what, why, how. The manuals' focuses are on:

1. Agroforestry practices
2. Dairy Goat Improvements
3. Soil and Water Conservation
4. Conservation Agriculture
5. Nine-seeded Hole
6. Integrated Agriculture System
7. Organic pineapple production
8. Certification of organic products
9. Groundnut Production
10. Farmer Field School.

This manual is part of SUSTAINET's effort to promote sustainable agriculture in the region. It is developed to reflect the experiences and views sustainable agriculture practitioners (farmers, researchers, member organizations and institutions of higher learning).

This manual is intended primarily for farmers and field extension service providers. It is written in simple English language with illustrations, and easy to understand.

The process of documenting and publishing the manuals was supported by funding from GTZ, and FAO. We thank our member organizations and collaborators for their useful contributions to the manuals' development.

Manual Development Process.

This manual was prepared from good agricultural practices (GAPs) documented and published in 2006. The process was participatory and interactive among the key stakeholders. This interactive process culminated into a writeshop that was held in Naivasha. The writeshop process was facilitated by Chancery Media.

The writeshop began with presentation of the GAPs by the facilitators. The participants included extension staff from various organizations in East Africa, ACT and SUSTAINET staff, research scientists from Nairobi and Sokoine universities, and artists. The participants were divided into groups to discuss the GAPs and develop them into manuals. This was followed by plenary presentations where participants gave positive critiques. Another groups' discussion to include comments from the participants were held, followed with plenary presentations. Chancery Media then refined the language and presentations.

Tom Apina
Executive Secretary SUSTAINET E.A

1.0. INTRODUCTION

1.1 What are Farmer Field Schools?

- Farmer Field Schools (FFS) consist of groups of farmers who get together to study a particular topic.
- The topics covered vary from conservation agriculture, organic agriculture, animal husbandry, and soil husbandry, to income-generating activities such as handicrafts.
- FFS provide opportunities for learning by doing. It teaches basic agricultural and management skills that make farmers experts in their own farms.
- FFS is a forum where farmers and trainers debate observations, experiences and present new information from outside the community.

1.2 -Why FFS?

- Empowering farmers with knowledge and skills
- Making farmers experts in their own fields.
- Sharpening the farmers' ability to make critical and informed decisions.
- Sensitizing farmers in new ways of thinking and problem solving
- Helping farmers learn how to organize themselves and their communities.

2.0 ESSENTIAL ELEMENTS OF FFS

2.1 The group

The group comprises of individuals (20-25 in number) who have a common interest, forming the core of a Farmer Field School. The FFS tends to strengthen existing groups or may lead to the formation of new groups

2.2 The Field

The field is the teacher. It provides most of the training materials like plants, pests and other facilities. In most cases, communities provide a study site with a shaded area for follow-up discussions..

2.3 The Facilitator

The facicilitator is a technically competent person who leads group members through the hands-on exercises. The facilitator can be an extension agent or a Farmer Field School graduate.

2.4 The curriculum

The curriculum follows the natural cycle of the subject, be it crop, animal, soil, or handicrafts. This allows all aspects of the subject to be covered in parallel with what is happening in the FFS field.

2.5 Programme leader

The programme leader is essential to support the training of facilitators, get materials organized for the field, solve problems in participatory ways, and nurture facilitators. The programme leader should be a good leader who empowers others.

2.6 Financing

This is an important element since Farmer Field Schools can be expensive or low-cost depending on who implements them and how they are conducted.

3.0 CHARACTERISTICS OF THE FARMER FIELD SCHOOL APPROACH

3.1 Farmers

Farmers are experts conducting their own field studies. Training is based on comparison of activities that they conduct.

3.2 The field

The field is the learning place where farmers working in small groups collect data, analyze and make decisions based on their analyses then present the decisions to other farmers for refinement.

3.3 Extension workers

They are facilitators not teachers. Once the farmers know what to do the extension workers takes a back seat only offering guidance when need be.

3.4 The curriculum

This is integrated to include crop husbandry, animal husbandry, land husbandry and other areas in relation to ecology, economics, sociology and education.

3.5 Training

Training is related to the seasonal cycle of the practice being investigated such as land preparation, cropping, harvesting, livestock feeds and so on.

3.6 Meetings

These are held at regular intervals depending on what activities need to be done.

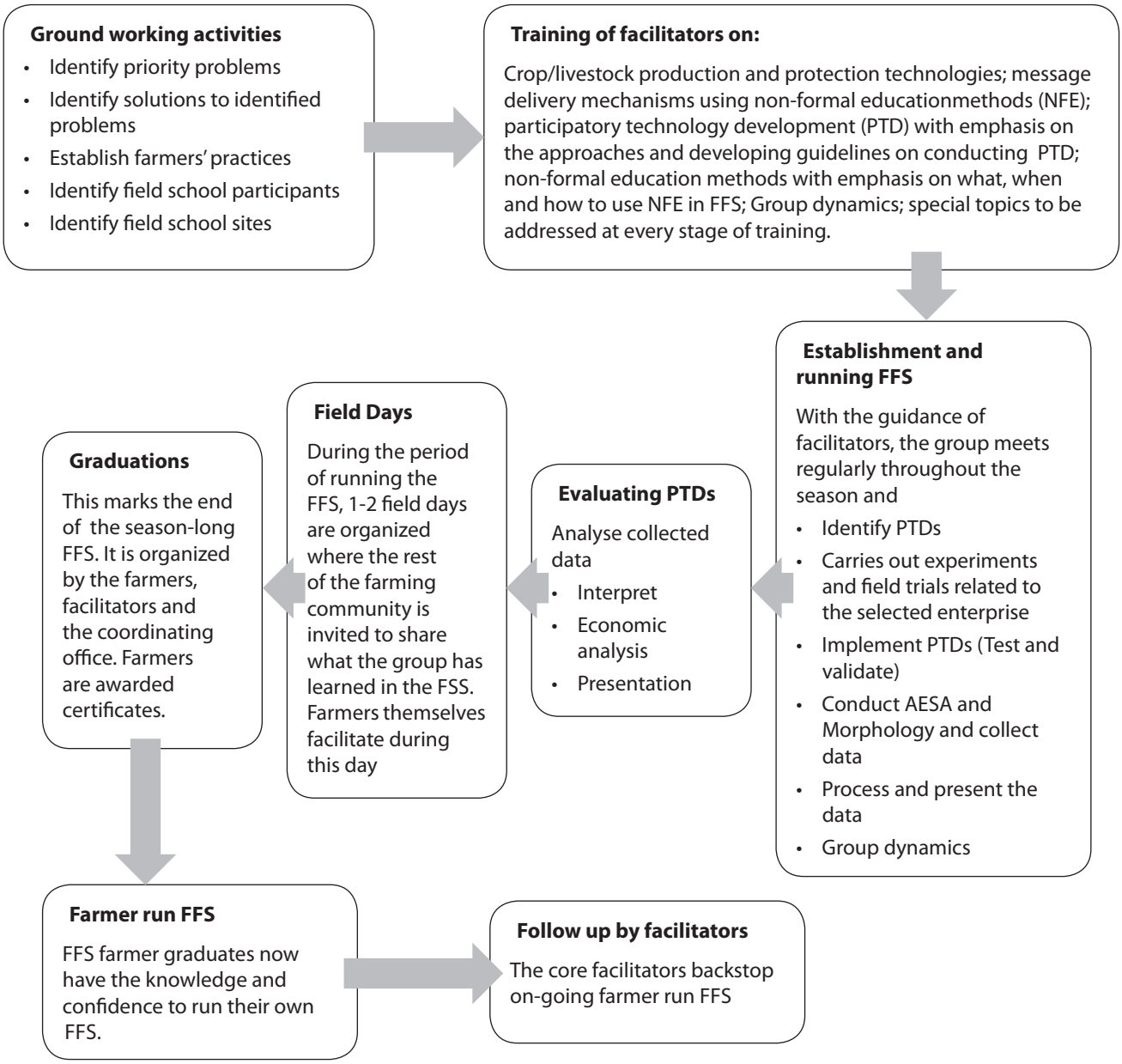
3.7 Learning Materials

These are generated by farmers and are consistent with local conditions. Even illiterate farmers can prepare and fuse simple diagrams to illustrate the points they want to make and actions to be taken.

3.8 Group Dynamics.

Training includes communication skills building, problem solving and leadership and discussion methods. Farmers implement their own decisions in their own fields.

4.0 STEPS IN CONDUCTING FFS



5.0 KEY CONCEPTS AND TECHNIQUES USED IN FFS

5.1 Ecosystem

This entails both living and non-living things found in an area and the environment they are in. The activity helps in identifying the functions of the organisms found in the ecosystem and how they interact with each other.

5.2 The Concept of *What is This*? *What is That?*

It is a discovery-based learning in which questions are used to answer questions.

It leads the learner to the answer by asking questions. The purposes of this concept are:

- to promote learning by discovery and lead learners towards their own analysis
- to guide farmers to critically analyze and make better decisions on their own fields.

The idea is to promote learning by discovery and to lead the person toward his or her own analysis.

5.3 Agro Eco Sytem Analysis (AESA)

Making the group management decision

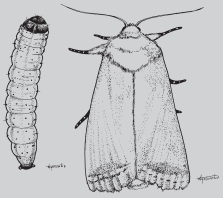
Purposes of AESA are:

- Promote learning by discovery and learners towards their own analysis.
- Guide farmers to critically analyze and make better decisions on their own fields.

Why AESA?

- It improves decision-making skills, through a field situation analysis by observing, drawing and discussing.
- improves decision-making skills by presenting small group decisions for critique in the large group

<table>
<tr><td colspan="2">Name of farmer field school:
AESA No.
Group No.
Plot No.
Problem addressed:</td><td>Date:
Week No.</td></tr>
<tr><td>General information
Variety:
Date planted:
Age of crop:
Spacing:
Fertilizer:
Weather:
Time of observation:
Plant population
Germination %</td><td>Measurement
Length of leaves:
Width of leaves:
No. of leaves:
No. of diseased leaves:
No. of dead leaves:
Length of plant:
No. of pods:</td><td>Treatment
Treatment schedule:

Management practices:</td></tr>
<tr><td>Insect pests
Pests seen:
  </td><td>Plant drawing
 </td><td>Natural enemies
Natural enemies seen:
 </td></tr>
<tr><td colspan="2">Observations
Soil moisture:
Diseases:
Insect pests:
Plant health:
Deficiency:
Weeds:
Predators:</td><td>Recommendations
What management practices should be applied?</td></tr>
</table>

5.4 Participatory Technology Development (PTD)

This is a process of collective inquiry with the purpose of initiating community action on solving local problems.

PTD in farmer field schools empowers participants with analytical skills to investigate problems in farming practices in three ways:

a) It empowers because of the specific insight, new understandings and new possibilities that participants discover in creating better explanations about their social world

b) Participants learn how to learn

c) It liberates when participants learn how to create new possibilities for action.

5.5 establishing PTD in FFS sites

To conduct PTD, seven (7) important steps are followed:

Step 1: Conduct Ground-working activities

The participants introduce themselves and the programme to build up a good relationship. In the process ideas about the attitudes, values and norms of the people in the community can also be shared during this stage.

Step 2: Conduct village immersion activities

The participants are immersed in the village identified as possible FFS sites. Participants validate local field problems and current farming practices gathered during Ground-working activities.

Step 3: Prioritizing field problems

A baseline survey tool is utilized to obtain more specific details of the field problems in the proposed FFS sites. Field problems are then prioritized.

Step 4: Plan and design PTD activities

After prioritizing field problems, the planning and designing of PTD activities commence. The participants identify which PTD activities will be set up.

Step 5: Implement PTD activities

Participants should jointly evaluate all activities. The participants and facilitators should agree upon the decision as to what PTD activities should be set-up in the FFS sites.

Step 6: Collect and interpret result of PTD activities

Participants should be able to collect and interpret PTD results. This helps the participants to develop innovations or discover technology gaps or new problems for consideration in succeeding PTD activities.

Step 7: Utilize result in succeeding PTD activities

PTD results should be continuously utilized and innovations developed. In conducting PTD activities innovations developed should be utilized in addressing similar field problems in the future.

5.6 VILLAGE IMMERSION (DO IT YOURSELF)

5.6.1 Purposes of village immersion are to:

- Acquaint with the area, know and be known
- Make farm and home visits
- Verify the baseline data collected during group working
- Pay courtesy call to the village elders
- Develop or verify the village map
- Identify/appreciate the resources within the village
- Help to understand the cultural norms/social practices within the area.

5.6.2 Methods:

- By using a village guide map
- Village guides or contact person

Case Study of PTD Development: Eotulo Farmers' Group, Meru District, Tanzania.

The Eotulelo group had several questions: should they plough as usual, use a ripper before planting, or plant without using a ripper? And would it be better to plant lablab (Lablab purpureum, a type of legume) or pigeonpeas in between the rows of maize? They rented an acre (0.4 ha) of land to use as their field school site. They divided the field into five plots, each with a different combination of techniques:

- *Ripped plot, planted with maize intercropped with lablab. At the end of the season, this plot yielded 58 kg of maize, and no lablab because of drought.*
- *Direct planting without ripping plot, maize intercropped with lablab (yield: 40 kg of maize, no lablab because of drought).*
- *Ripped plot, planted with maize intercropped with pigeonpeas (yield: 35 kg; no pigeonpeas because of drought).*
- *Direct planting without ripping plot, maize intercropped with pigeonpeas (yield: 15 kg maize, pigeonpeas dried and were not harvested).*
- *Farmer's normal practice: ploughing twice, then planting maize intercropped with beans,*

pigeonpeas and pumpkins (yield: 12 kg maize, pigeonpeas not harvested).

PARTICIPANTS IN THE PRODUCTION OF THIS MANUAL

	Name, Designation and Organisation	E-Mail and telephone contacts
1	**Alfred Ombati** Artist / Designer, Skyward Design and Marketing Ltd.	aholiabsart@yahoo.com +254 723 350 628 + 254 20 316912
2	**Ayub Gitau** Senior Lecturer, University Of Nairobi	gitauan@uonbi.ac.ke, gitauan@yahoo.co.uk +254 722878029, + 254 318262 Ext 452
3	**David Dodova** Teacher and Translator, Alliance Francaise, Nairobi and Language Solution Business Center	mudhoy@yahoo.com +254 0726667804, 0734677712, 0721162728
4	**David Kangangi Njoka** Disaster Risk Reduction/Small Programmes Coordinator. CCSMKE, Kerugoya, Kenya	kangangi_d@yahoo.com +254 720735449, +254 733965702
5	**Francis Njange** Head of Education and Training Dept. Molo, Kenya	training@sustainableag.org, francis.njange @gmail.com +254 725777421, +254 20 418717
6	**Hellen Bradburn** Programs Coordinator, Arusha, Tanzania	wadec@habari.tz, hellenbiseko@yahoo.com +255 754621020 +255 787621020
7	**Jacinta Murunga** Student, University of Bonn-Germany	s7jamuru@uni-bonn.de, j_murunga@yahoo.co.uk +254 718220529, +49 15201484918
8	**Karani Sekiete** Programme Co-ordinator, Moshi, Tanzania	sekiete@hotmail.com +255 754695191 +255 27 2752765
9	**Lucy Stephen Mvungi** Principal Agricultural Field Officer	lucymvungi@gmail.com +255 784654968, +255 655654968
10	**Mary Mate** Programme Co-ordinator, Diocese of Embu-IRDP, Embu, Kenya	marymate06@yahoo.com, doelrdp@salpha.co.ke +254 721535413, +254 68 31415, +254 31638, +254 31540
11	**Mathias Miburo** Teacher, Mparamirundi, Burundi	capadshirukubute@yahoo.fr +257 79117741, +257 22217902,
12	**Nganga Kihupi** Associate Professor, Sokoine University of Agriculture, Morogoro, Tanzania	nikihupi@yahoo.com +255 32 604216, +255 7867963
13	**Nyotumba Bonaventure** Artist / Graphic Designer, Skywarddesign and Marketing Ltd	nyotsz@yahoo.com +254 20 316912, +254 723 66 77 88
14	**Patrick Rukwaro** Media Consultant	pnrukwaro@yahoo.com, rukwaro@chancerymedia.com +254 20 2508492, 712-373737
15	**Philip Omuga** Programme Co-ordinator AEP, Homa Bay, Kenya	philipomuga@yahoo.com, dids.homabay@yahoo.com +254 59 22098 +254 59 22624, +254 720995013
16	**Stephen Kileo** Programme Co-ordinator, Chema, Karagwe, Tanzania	chema@sationet.net +255 28 2223226, + 255 754 756429, +255 2223226
17	**Tom Apina** Executive Secretary, SUSTAINET EA, Nairobi Kenya	tom.apina@sustainetea.org +254 20 4444252, +254 0722940789
18	**Richard Apamo** Consultant, SUSTAINET EA, Nairobi Kenya	richard.apamo@sustainet.org, r_apamo@yahoo.com +254 725 527207

SUSTAINABLE AGRICULTURE

Sustainable agriculture is a farming practice that is economically viable and socially acceptable. Practice aims at conserving land, water and genetic resources for future generations.

This manual is for farmers and extension workers in Eastern Africa region. It is intended to assist farmers and extension workers to scale up identified and tested Good Agricultural Practices (GAPs) based on the farmer experience. The manual therefore contributes to improving agricultural productivity, conserving natural resource base and building resilience of farmers to the negative effects of climate change.

This manual is based on the experience and skills of innovative farmers practicing Good Agricultural Practices (GAPs) in Eastern Africa region. GAPs refer to practices which work particularly well and are therefore exemplary in character. For SUSTAINET EA, a GAP must have measurable output/results, transferrable to other regions, easily adaptable, sustainable and environmentally sound. Other characteristics are economic viability, and socio-cultural acceptability.

This manual is written in clear and simple easy-to-understand language with simple illustrations. Case studies in this book demonstrate how farmers have adopted and practised the Good Agricultural Practice in a sustainable way

ISBN 978-9966-1533-4-0

For more information contact:
Executive Secretary
Sustainable Agriculture Information Initiative (SUSTAINET E.A)
KARI-Narl, Waiyaki Way, P.O. Box 10375-00100, Nairobi Kenya
Tel.:+254 20 2604616, Fax: +254 20 2604617,
Email: info@sustainetea.org, Website: www.sustainetea.org