SELECTION OF FARMERS FIELDS FOR IMPLEMENTATION OF ON-FARM TRIALS REPORT

Project Title
Climate smart options allowing agricultural intensification for smallholders in the dry zones of the Central Highlands of Kenya

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Summary

A visit to farmers' fields was conducted on 22nd September 2020 to select farms for implementation of the on-farm trials. We visited fifteen farms and ten were selected based on the owner's willingness to work with the project, size of the land availed for the project, accessibility, nearness to the project on-station site and homogeneity of the farm. The selected farmers will be invited for training on implementation of the trials. The farmer-managed trials will be conducted on ten farmer fields to evaluate effects of soil organic matter (SOM) on water infiltration and retention (IR 1.2). The ten farms will be the model farms that will be utilized in training Trainers of Trainers (ToTs) (IR 5.4). The farmer-managed trials will be supported with training activities during each cropping season to explain the selected technologies to the participating farmers.

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1.0 Introduction

The visit to the farmers' field was conducted on 9th September, 2020. The objective of the visit was to select farmers' field that had been randomly sampled by the site technician and Ward Agricultural Officer (WAO) for implementation of the on-farm trials. A total of 15 farms had been sampled. Each of the sampled farms belonged to a farmer in an agricultural farmers' group within Nkarini location. Selection was guided by the suitability of the farms for the implementation of the on-farm trial. The evaluation of the suitability was based on the size of the land provided to the project by the farmer, homogeneity of the land, accessibility and the willingness of the farmer to work with the project during the entire period of the trials.

The on-farm trials will be used to out-scale the best performing technologies from the project on-station experiment. The trials will be Researcher Designed-Farmer managed (Type II). The farmer-managed trials will then be used as training and demonstration farms to other farmers (Trainers of Trainers) to promote up take of the technologies among the community (IR 5).

Plate 1: Project members evaluating a Martin Muasya's farm

2.0 Decision making

Of the 15 farmers sampled earlier by the site technician and Ward Agricultural Officer, 10 farmer met the required threshold, thus qualified for selection to implement the on-farm trial (Table 1). The rest were disqualified as they did not meet the qualification threshold.

Table 1 Farmers sampled for on-farm trial in Chiakariga Ward

No	Name of the farmer	Farmer Group	Willingness to work with the project	Size of the farm availed	Accessibility of the site/nearness to project site	Homogeneity of the land (Soil type and terrain)	Verdict
1	Martin Mwasia	Maendeleo B	Willing	Enough	Accessible, but off the main road	Homogenous	Qualified
2	Shadrack Kithaka Githome	Maendeleo B	Willing	Enough	Accessible, but off the main road	Homogenous	Qualified
3	Charity Muriungi	Mashinani Digital	Willing, but a lot of activities going on around	Enough	Easily accessible, along the tarmac road	Homogenous	Qualified
4	Lucy Njagi	Upendo	Willing	Enough	Easily accessible, along the tarmac road	Homogenous	Qualified
5	Alice Kawira	Umoja	Willing	Enough, but needs careful plot fitting	Easily accessible, along the main road	Homogenous	Qualified
6	Elias Mwirigi	No group	Willing	Enough	Easily accessible, along the main road	Heterogeneous and has planted a lot of trees and shrubs	Not qualified
7	Joseph Mugambi	Tuinuane	Willing	Enough	Easily accessible, along the tarmac road	Homogenous	Qualified
8	Regina Kaindi	Mashinani	Willing	Enough	Accessible, but off the main road	Heterogeneous, poor terrain with a lot of trees and stones	Not qualified

9	Benard Ngochi	Welfare	Willing	Enough	Easily accessible, along the main road	Homogenous	Qualified
10	Jelcia Kathambi Mugambi	Welfare	Willing	Enough	Easily accessible, along the main road	Homogenous	Qualified
11	Stephen Simba	Tunka	Willing	Enough	Easily accessible, along the tarmac road	Homogenous	Qualified
12	Pauline Kanyaru	Kanyange	Willing	Enough	Accessible, but far from the main road	Homogenous	Qualified
13	Kanyange self-help group	Kanyange	Willing	Enough, but its communal land thus challenging in terms of management	Accessible, off the main road	Homogenous	Not Qualified
14	Philipine Karega	Mutethia	Willing	Enough	Accessible, but off the main road	Heterogeneous, sloppy and rugged terrain with a lot of trees	Not qualified
15	Charity Kamba	Kanyange	Willing	Enough, but has many stones on the surface	Easily accessible, along the tarmac road	Homogenous	Not Qualified

The ten qualified farmers were willing to work with the project unconditionally; provided enough land for trial implementation; had fairly homogenous land in terms of soil type and terrain; and were accessible as most of them were either along or close to the tarmac or main road. The one farm under consideration met all the requirements, but the land is communal owned and cultivated by a farmer group. Therefore, there could be no single individual responsible for the trial, besides, the ownership of the land might cause challenge since there is no guarantee that the project will be allowed to use the land during the intended trial period. The disqualified farms were heterogeneous, stony and had trees planted on them. Considering the whole farm is a single replication, lack of homogeneity could compromise the validity of the trials. Additionally, some had stones and trees that could cause interference with the experiment.

3.0 Final verdict

The ten qualified farms will be used for implementation of the selected technologies (Table 2) in the Research Designed-Farmer managed Trials.

Table 2 Selected technologies to be implemented in the on-farm trials

No	Technology	Manure rate (N equivalent in Kg/ha)	Fertilizer rate (Kg/ha) N
1	Manure plus fertilizer (moderate rate) plus tied ridging	30	30
2	Manure plus fertilizer (high rate) under minimum tillage with mulch	60	60
3	Manure plus fertilizer (high rate) under conventional tillage	60	60
4	Manure plus fertilizer (high rate) plus tied ridging	60	60
5	Manure plus fertilizer under moderate rate under conventional tillage	30	30
6	MBILI- Managing Beneficial Interactions in Legume Intercrops (Moderate manure plus fertilizer)		
		30	30
7	Conventional tillage without any input	0	0

4.0 Challenges

1. Heterogeneity

While most of the parameters like the soil colour and type, slope, areas with bias such as trees and tree stamp were apparent, homogeneity in terms of fertility was not easy to tell. Therefore,

the uniformity of the land in terms of fertility will be assessed through soil analysis. It is therefore assumed that the impact of different treatments could be apparent from the second season of implementation.

2. Accessibility

Aside from the farms along the tarmac and main roads, the once away from the main and tarmac road could pose challenge in terms of accessibility and inputs delivery, especially when it rains.

3. Already tilled lands

Some farms were already tilled, thus will compromise treatments with minimum tillage in the first season of the trials.

5.0 Way forward

The selected farmers will be invited for training on trial implementation on 22nd September, 2020 at Nkarini Mixed Day Secondary School.

Appendix 1

List of Project Members in Attendance

No	Name	Institution
1	Prof Daniel Mugendi	Project Local promoter-University of Embu
2	Milka Kiboi	Project member-University of Embu
3	Nathan Okoth	Project PhD Student-University of Embu
4	Susan Muriuki	Prof Mugendi's Research Asst.-University of Embu
5	Boniface Murangiri Kinyua	Project Site technician-University of Embu