Legume Select – Ethiopia: Review of Implemented Activities

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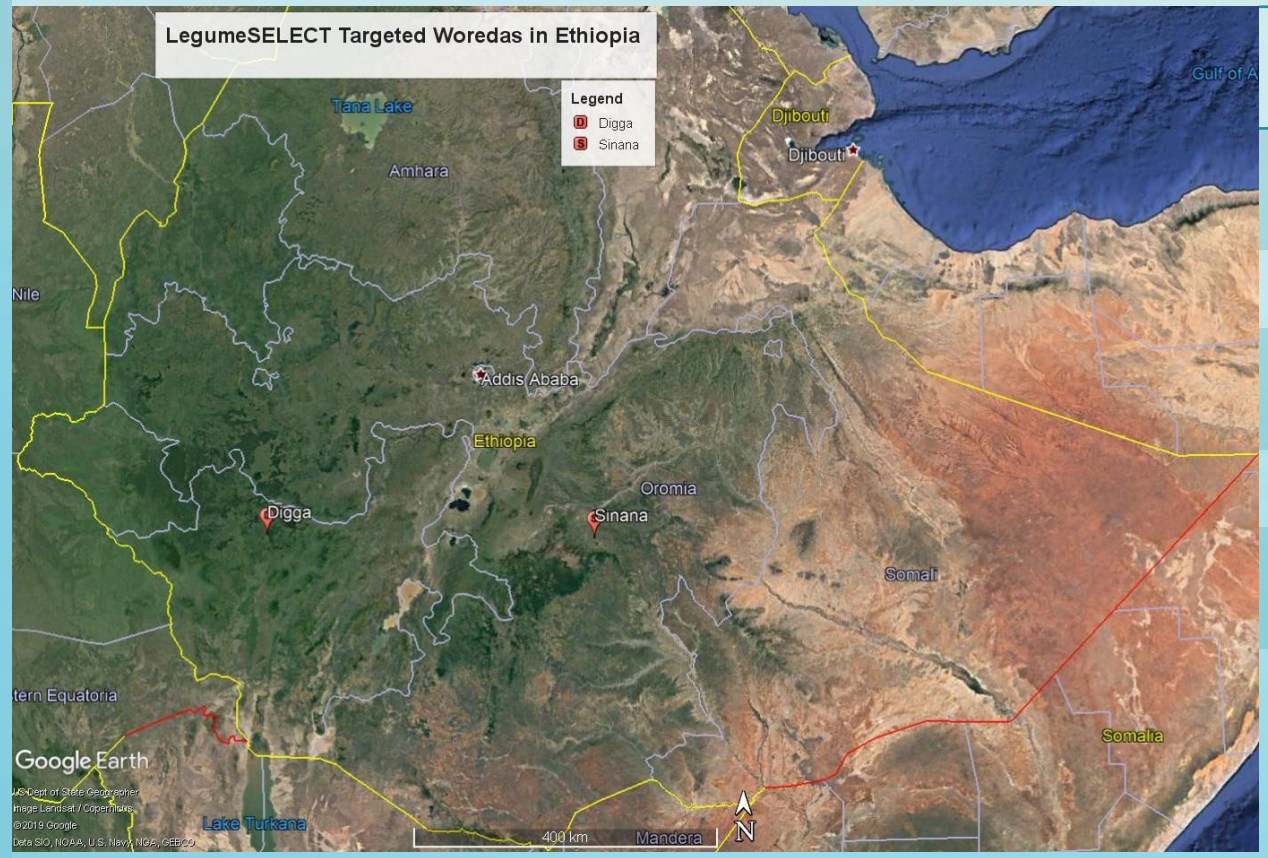
*International Livestock Research Institute (ILRI)
†Oromia Agricultural Research Institute (IQQO)

Legume SELECT Project Review and Planning Meeting

28-30 January 2020, ILRI Campus, Addis Ababa, Ethiopia

Legume SELECT in Ethiopia

- Targeted geographies



	Digga	Sinana
Distance from AA (km)	352	460
Altitude (m)	1200 to 2100	2400
Rainfall pattern	Mono-modal	Bi-modal
Rainfall (mm)	850	843
Temp. mean (oC)	22	18
Main farming system	Maize, teff, finger millet based crop-livestock	Wheat, faba bean, based crop-livestock mixed

Major Implemented Activities

Legume SELECT WP

WP1. ‘Big Data’ and Tool Development

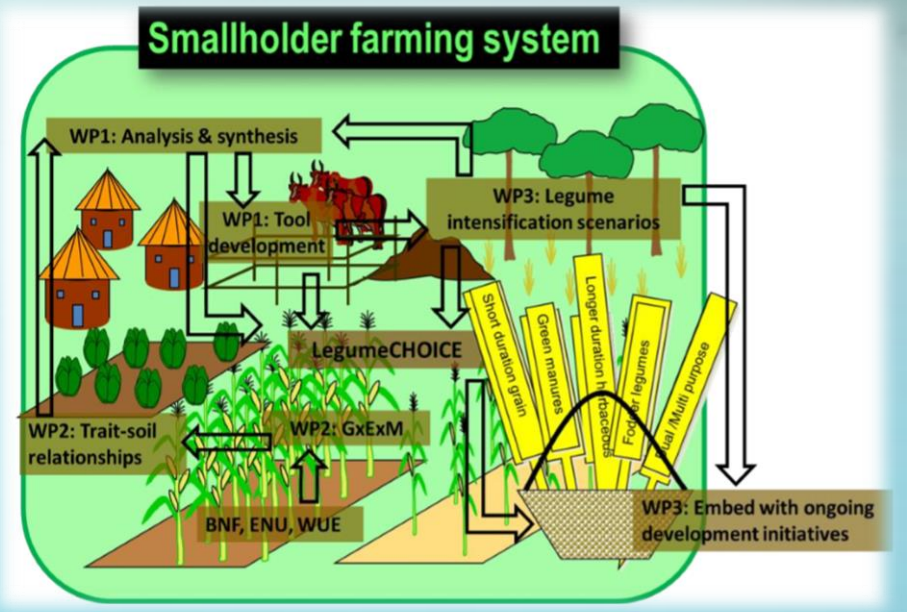
- WP1.1: focuses, brings together and creates an accessible database on legume productivity, quality and use across SSA
- WP1.2: builds on and further develops the existing prototype LegumeCHOICE decision support framework into a robust tool based on reliable data

WP2. Validation of benefits for legume niches

- WP2.1: Characterization of soil properties, root traits and BNF potential of legume classes
- WP2.2: To establish quantitative importance and mechanisms of legume contributions to soil C and N stocks and nutrient supply.
- WP 2.3: To quantify BNF, nutrient- and water-use efficiency in a range of legume-based systems to determine the robustness of trait-soil-management relationships

WP3. Moving into practice at scale

- WP 3.1: Modeling, forecasting, targeting, and scenario testing
- WP 3.2: Partner engagement, capacity development and scaling



WP1 ‘Big Data’ and Tool Development

- ***WP1.1*** focuses, brings together and creates an accessible database on legume productivity, quality and use across SSA
- ***WP1.2*** builds on and further develops the existing LegumeCHOICE prototype decision support framework into a robust tool based on reliable data

WP 1.1

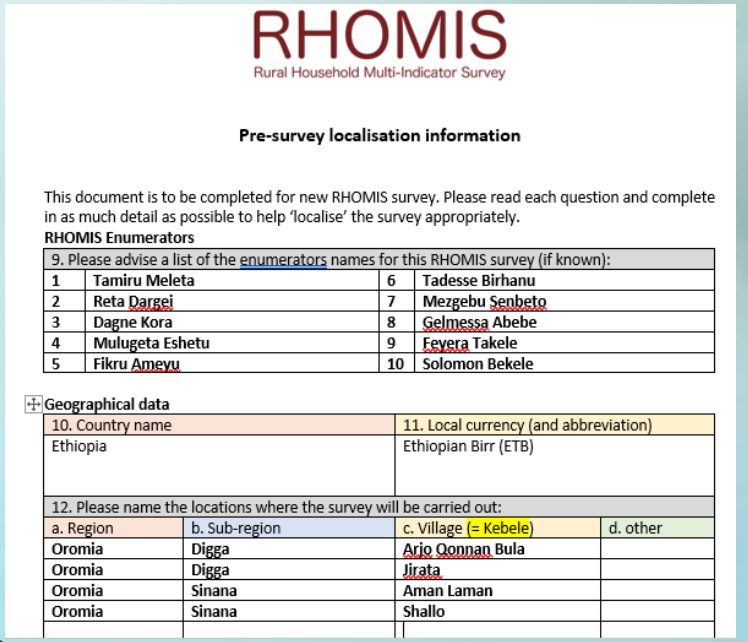
– *Baseline RHoMIS Eth*

WP 1.2

– *Apply LC Tool in Ethiopia*

WP 1.1. RHoMIS Survey

- Enumerators training to be held this weekend
- Enumerators from the research centers selected
- Local information collected
- List of HHs
- Survey – in a month
- Sample size: 400HH (100 HH per kebele x 4 kebeles)



RHOMIS
Rural Household Multi-Indicator Survey

Pre-survey localisation information

This document is to be completed for new RHOMIS survey. Please read each question and complete in as much detail as possible to help 'localise' the survey appropriately.

RHOMIS Enumerators

9. Please advise a list of the enumerators names for this RHOMIS survey (if known):			
1	Tamiru Meleta	6	Tadesse Birhanu
2	Reta Dargei	7	Mezgebu Senbeto
3	Dagne Kora	8	Gelmessa Abebe
4	Mulugeta Eshetu	9	Fevera Takele
5	Fikru Ameyu	10	Solomon Bekele

Geographical data

10. Country name	11. Local currency (and abbreviation)
Ethiopia	Ethiopian Birr (ETB)

12. Please name the locations where the survey will be carried out:			
a. Region	b. Sub-region	c. Village (= Kebele)	d. other
Oromia	Digga	Arjo Qonnan Bula	
Oromia	Digga	Jirata	
Oromia	Sinana	Aman Laman	
Oromia	Sinana	Shallo	

WP 1.2. Legume CHOICE Tool Application

- Information obtained from FGD and Legume CHOICE tool application:
  - ***Major legumes produced*** and ***their functions*** in the implementing sites were identified
    - ✓ *Pairwise ranking of legume functions was done separately for men and women farmers at both site*
    - ✓ *Participatory matrix scoring was also done separately for men and women as well as the three farm typologies at both sites*
  - Major legume ***production constraints*** at both sites were also identified

LC tool: Summary of Achieved Results

Major Legumes Produced

Qualitative Diagnosis

N= 29, *Jirata*

N= 20, *Arjo Q/bulaa*

Legume Variety	Frequency	Percentage
Faba Bean	21	72
Field Pea	18	62
Common Bean (Bush type)	14	48
Climbing bean (annual type)	20	69
Chick pea	9	31
Lentil	6	21
Sweet Lupine	10	34
Cow pea	6	21
Lablab	8	28
Sesbania	12	41
Lecaena	10	34
Gravilla	18	62
Acasia Species	16	55

Jirata-*Digga*

Legume Variety	Frequency	Percentage
Groundnut	20	100
Common bean (Bush type)	14	70
Climbing bean (annual type)	18	90
Soybean	10	50
Cow pea	3	15
Lablab	7	35
Sesbania	4	20
Lecaena	10	50
Gravilla	11	55
Acasia Species	19	95

Arjo Q/Bula-*Digga*

Major Legumes Produced

Qualitative Diagnosis

Legume name	Percentage (%)
Faba Bean	85
Field Pea	87.5
Chickpea	15
Lentil	85
Grass pea	5
Climbing bean (annual type)	20
Fenugreek	30
Common bean (bush type)	17.5
Rosa abyssinica (Lindley Rosaceae)	52.5
Calpurnia aurea (Alit.) Benth	30
Erythrin brucei Schweinf	27.5
Acacia abyssinica	12.5

Aman Laman- *Sinana*

N= 40

***Unique approaches?: selected >40 farmers for FGD, 18 used for actual Participatory Matrix Scoring data collection

Legume Functions

Qualitative Diagnosis

LEGUME TYPES PRODUCED	PURPOSE OF PRODUCTION	REMARK
Annual grain legumes		
Ground nut	Mainly grown for market (Income), seed pod after threshing used as livestock feed, soil fertility improvement	Widely grown in the community and used as a rotational crop for maize
Common bean (Bush Type)	Mainly for home consumption (food) as stew and boiled, used for soil fertility improvement, residue used for livestock feed.	Grown sole and intercropped with maize
Climbing bean (Annual Types)	Mainly Grown for home consumption (food) as stew and boiled, Sometimes for market (Income)	Grown in hedge rows around home stead (fences as staking), intercropped with maize
Fodder/tree legumes		
Sesbania	Grown for fencing, fuel, feed, soil fertility improvement and coffee shade	Mostly used by coffee growing farmers for shade and livestock feed
Leucaena	Mainly for fencing , animal feed, fire wood, soil fertility improvement, Fencing,	Recently introduced and getting attention
Acacia species	Used for animal feed, fire wood and soil fertility improvement	Naturally grown in and around farm lands
Gravilla	Used for fencing, timber, construction, soil fertility improvement and erosion control	Recently Getting high demand
Annual fodder legumes		
Lablab	Animal /livestock feed, soil fertility improvement	Recently introduced by agricultural extensions and researchers
Cowpea	Mainly for home consumption (food) as stew and boiled, and animal feed, used for soil fertility improvement, residue used for livestock feed	Rarely Produced
Desmodium	Mainly for home consumption (food) as stew and boiled, and animal feed, used for soil fertility improvement, residue used for livestock feed	Rarely Produced, and recently introduced by agricultural extensions and researchers

Arjo Q/Bula-*Digga*

Legume Functions

Qualitative Diagnosis

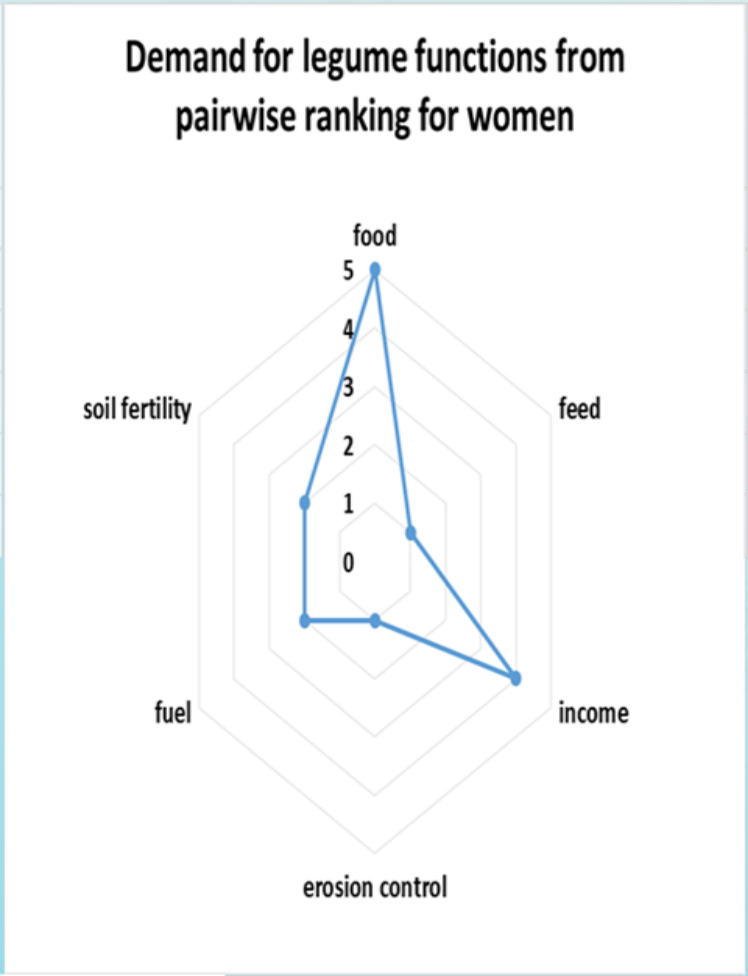
LEGUME TYPES	PURPOSE OF PRODUCTION
Annual grain legumes	
Faba Bean	Mainly for household consumption (food) in the form of stew, roasted, cooked, as a precursor crop for cereals (wheat and barley), stover for animal feed, soil fertility improvement and some of the produce for market (Income)
Field pea	Mainly for food in the form of stew, roasted, cooked, as a precursor crop for cereals (wheat and barley), residue for animal feed, soil fertility improvement and some of the produce for market (Income)
Chickpea	Mainly for income, some for home consumption as stew and boiled, for soil fertility improvement, residue used for livestock feed
Lentil	Mainly for income, some for home consumption as stew and boiled, for soil fertility improvement, residue used for livestock feed
Grass pea	Mainly for home consumption as stew and boiled, some for income, soil fertility improvement, residue used for livestock feed
Common bean (Bush Type)	Mainly for home consumption (food) as stew and boiled, used for soil fertility improvement, residue used for livestock feed, some for income generation
Climbing bean (Annual Types)	Mainly grown for home consumption (food) as stew and boiled, sometimes for market (income)
Fenugreek	Mainly for income, some for home consumption, and for soil fertility improvement, residue used for livestock feed
Fodder/tree legumes	
Rosa abyssinica	Grown for fencing
Calpurnia aurea (Alit.) Benth	Mainly for house construction, fencing, to make local farm implements, live stalk shading (off-season), erosion control, firewood
Erythrin brucei Schweinf	Mainly for fencing, shade, house construction, local beehive construction, to make some home implements, medicinal value to locally treat live stalk
Acacia abyssinica	Mainly for firewood, timber, charcoal, local beehive making, to make home and farm implements, soil fertility improvement and animal feed

Sinana

Legume Functions

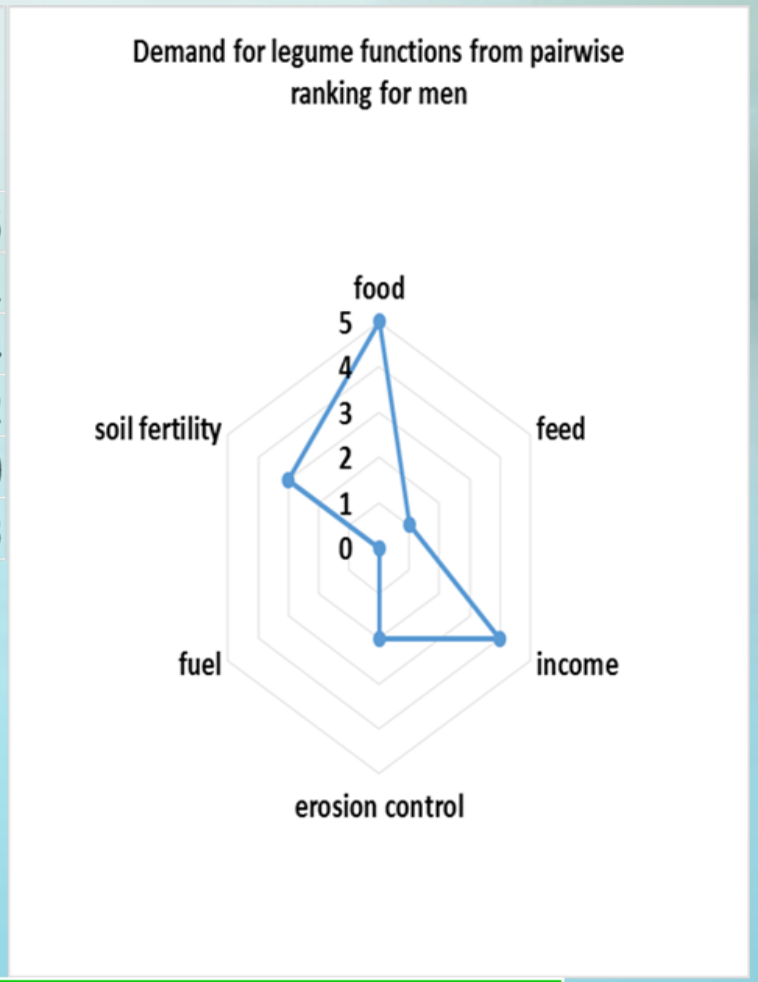
Pair-wise Scoring - Digga

	Count
food	5
feed	1
income	4
erosion control	1
fuel	2
soil fertility	2



Jirata - *Women*

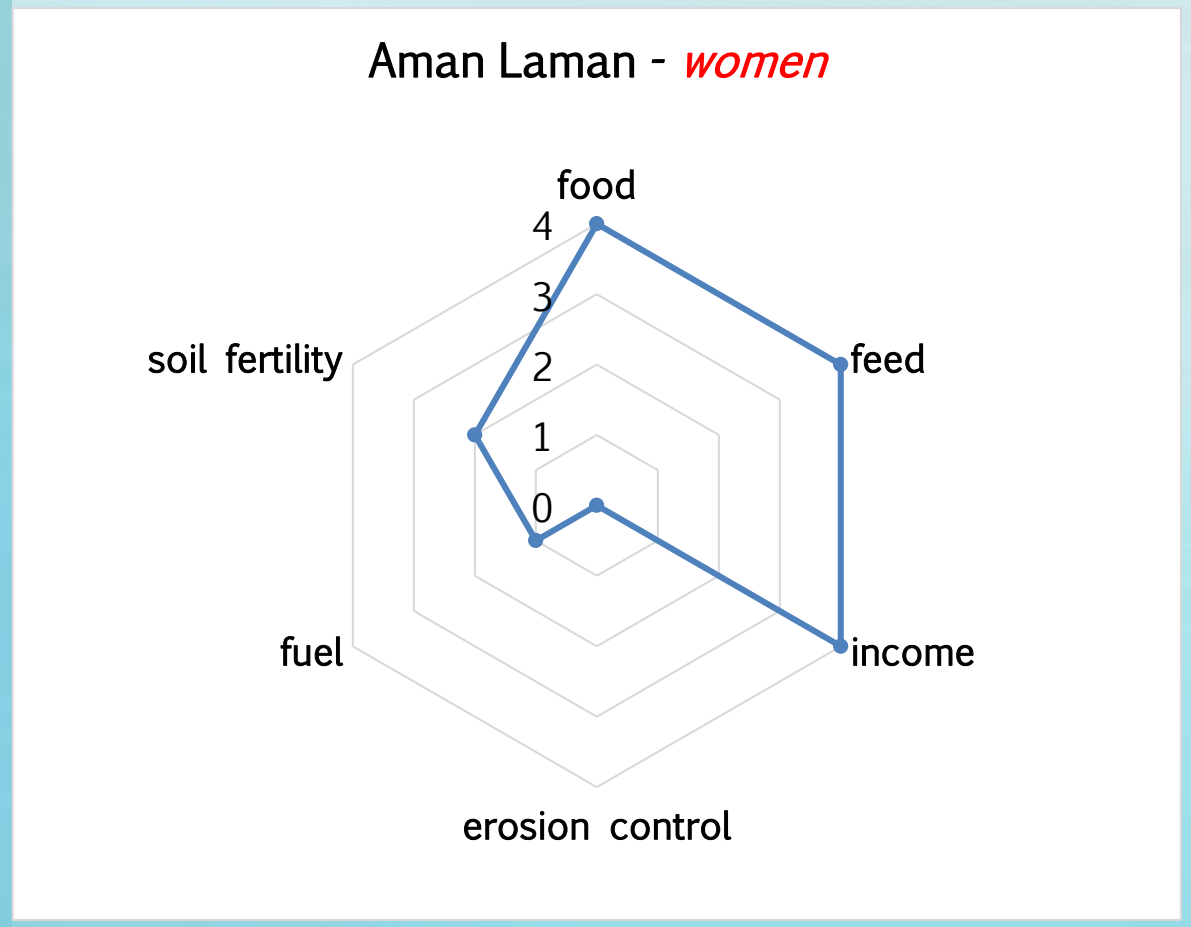
	Count
food	5
feed	1
income	4
erosion control	2
fuel	0
soil fertility	3

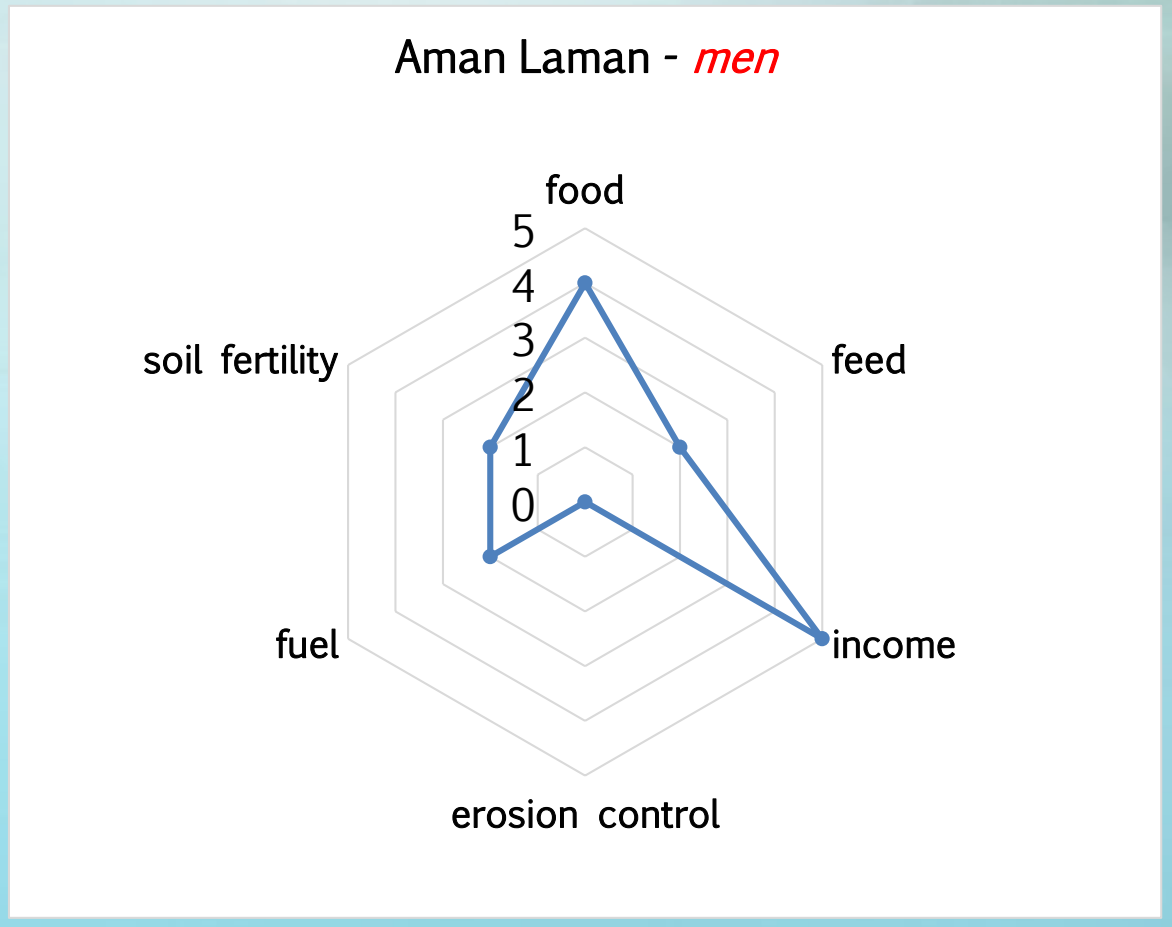


Jirata - *Men*

Legume Functions

Pair-wise Scoring - Sinana

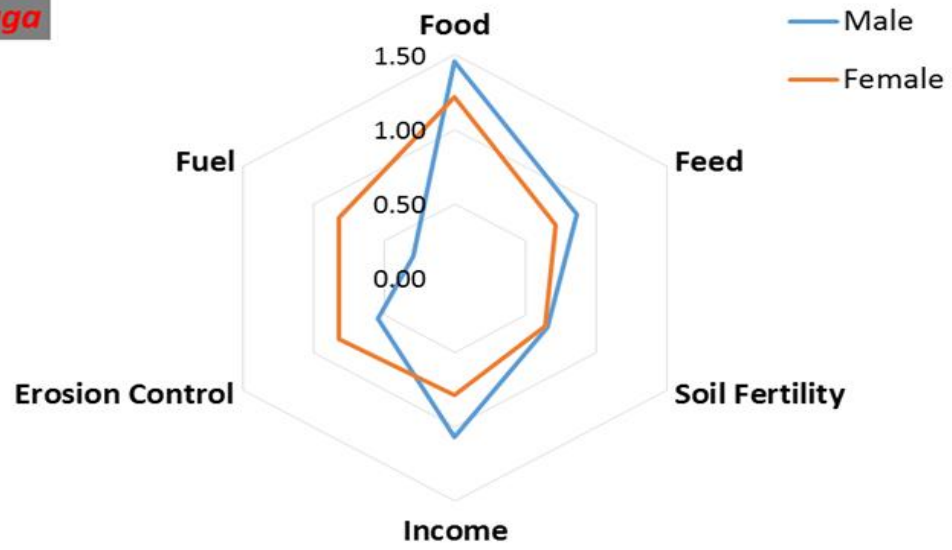




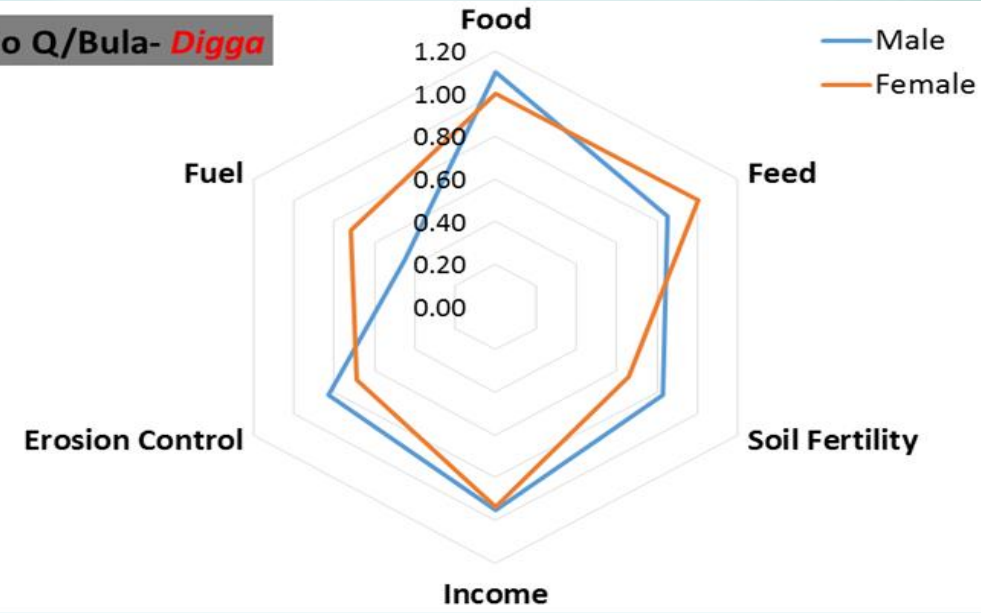
Legume Functions

Participatory matrix Scoring Digga and Sinana

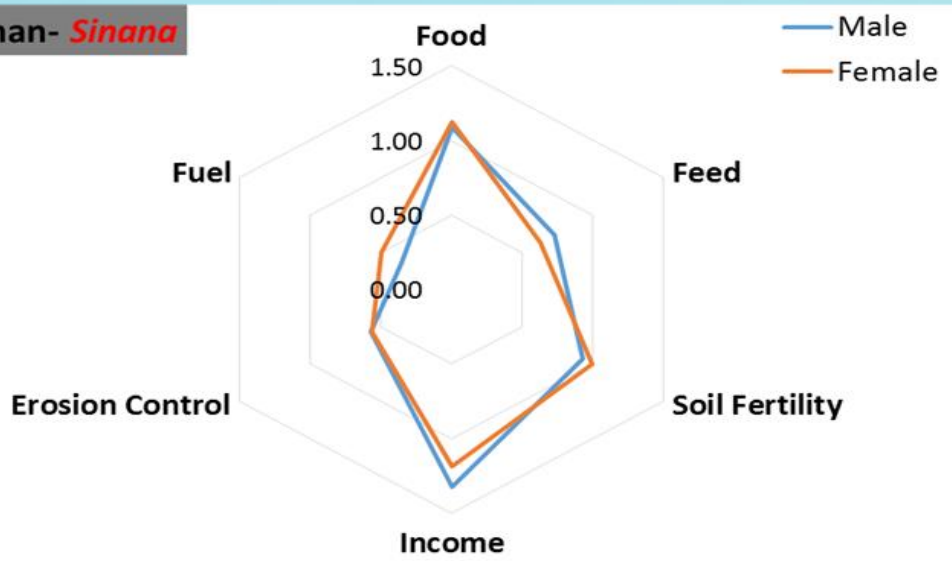
Jirata- *Digga*



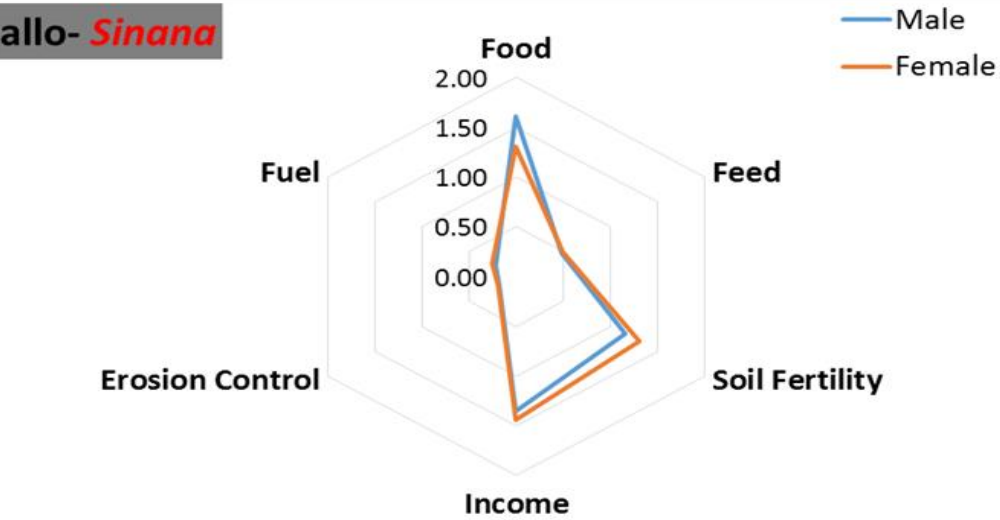
Arjo Q/Bula- *Digga*



Aman laman- *Sinana*

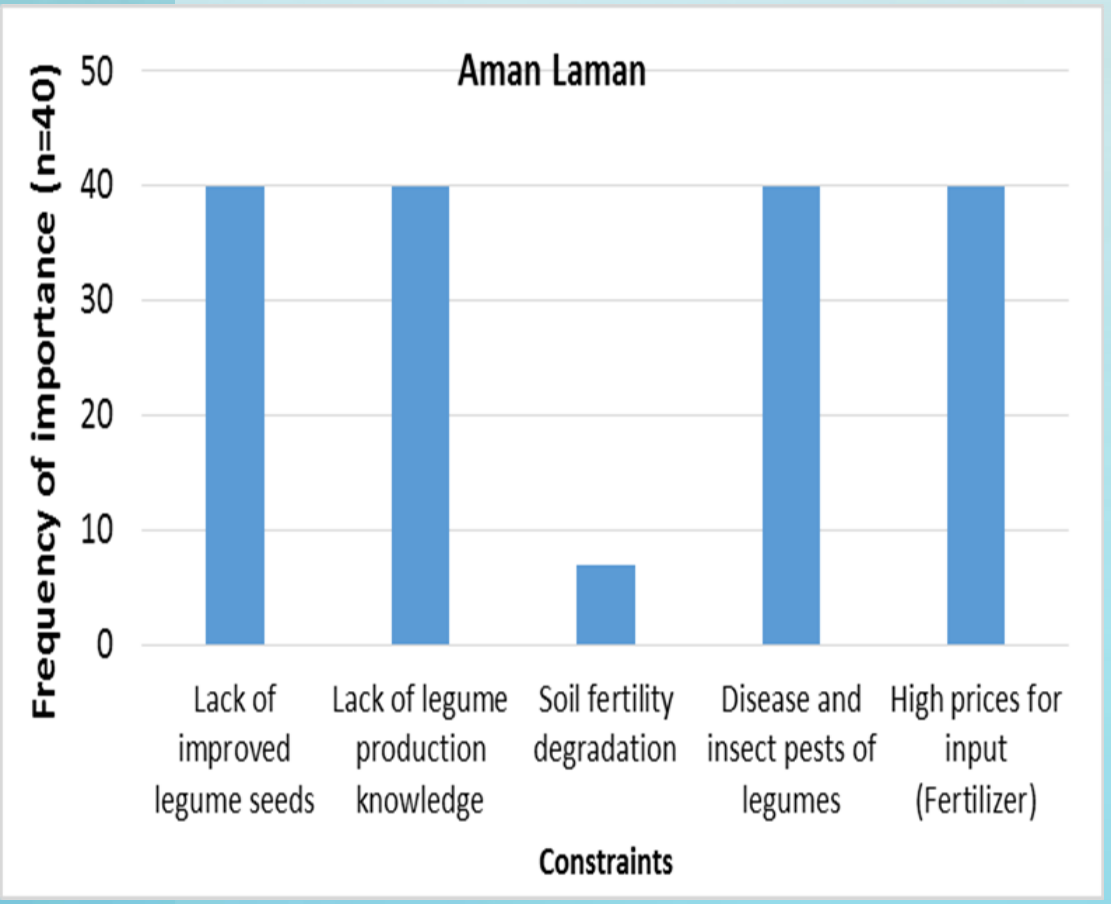


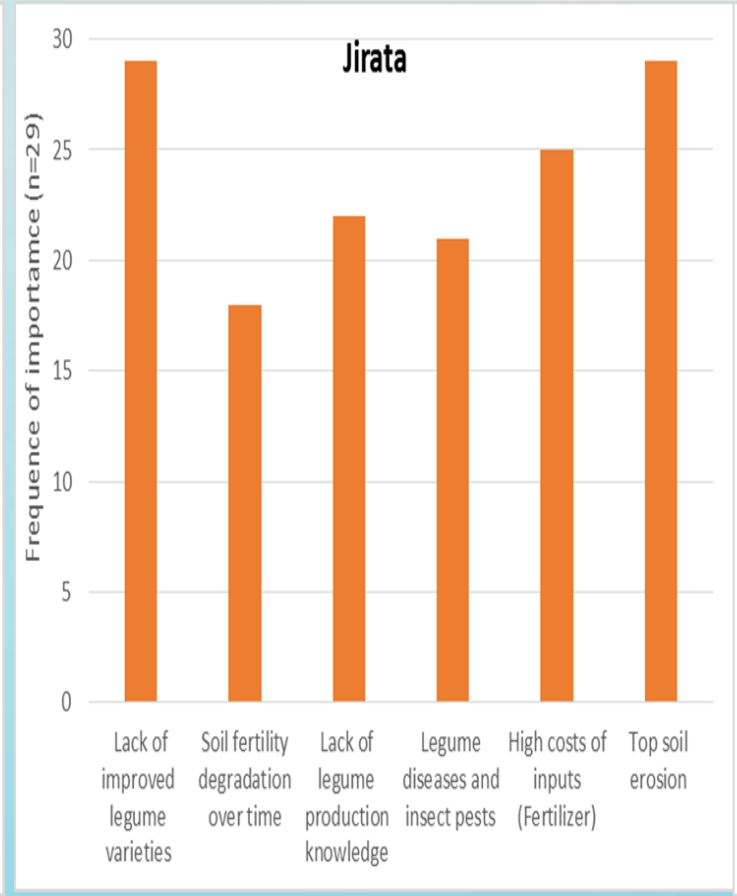
Shallo- *Sinana*

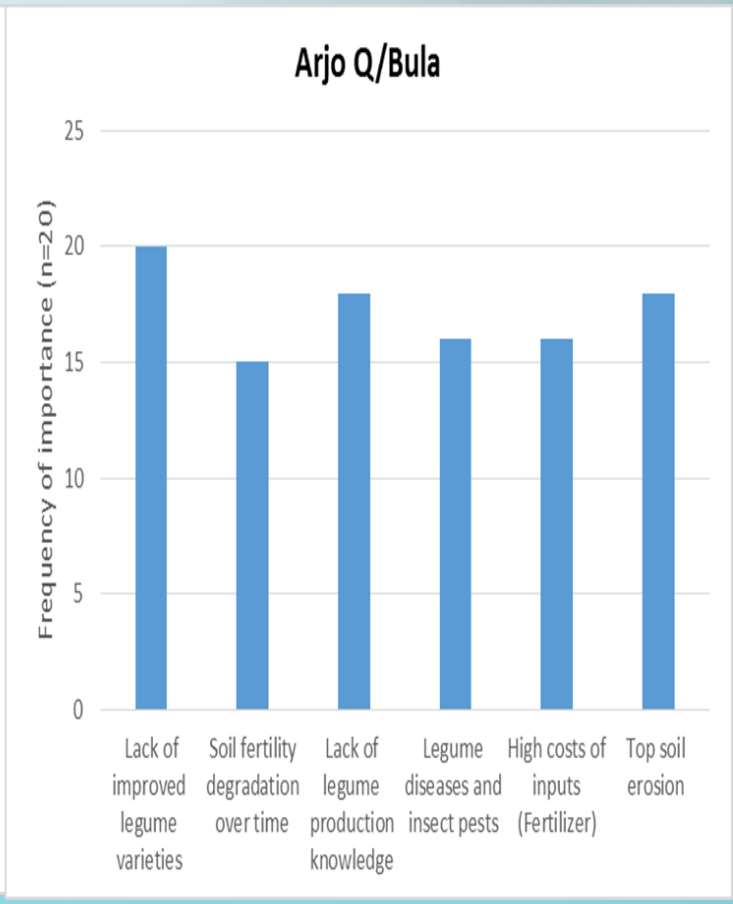


Legume Production Constraints

Qualitative Diagnosis



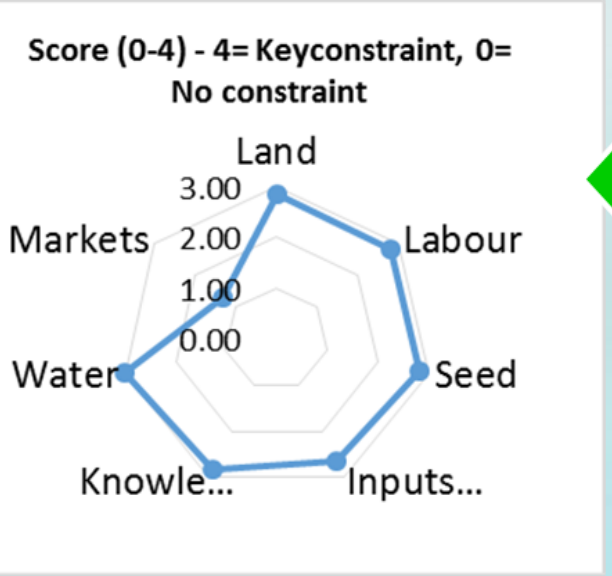




Legume Production Constraints

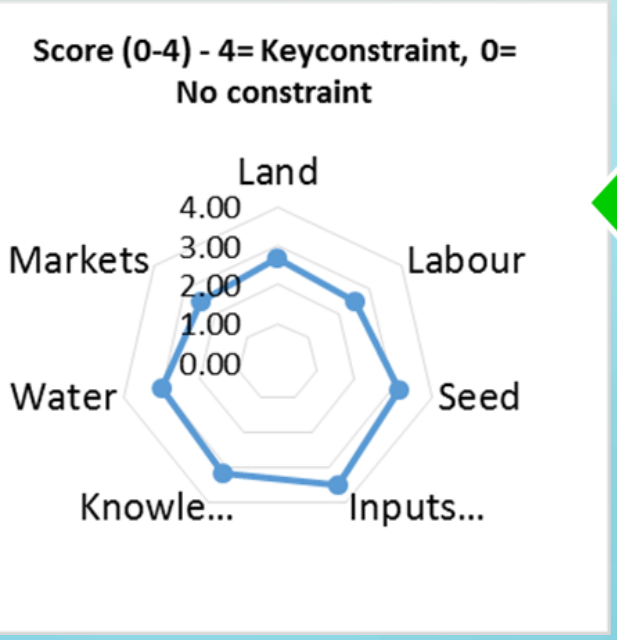
Context scoring

	Typology - low		Typology - medium		Typology - high	
	Farmer	Expert	Farmer	Expert	Farmer	Expert
Land	3	2	3	4	3	2
Labour	3	3	3	3	3	2
Seed	3	3	3	3	3	2
Inputs and services	2	2	3	3	3	3
Knowledge and skills	3	2	3	3	3	3
Water	3	3	3	3	3	3
Markets	1	1	2	1	1	2



Jirata

	Typology - low		Typology - medium		Typology - high	
	Farmer	Expert	Farmer	Expert	Farmer	Expert
Land	3	2	3	3	3	2
Labour	3	2	3	3	2	2
Seed	3	4	3	3	3	3
Inputs and services	3	4	4	3	4	3
Knowledge and skills	3	3	3	3	4	3
Water	3	4	3	3	3	2
Markets	3	3	3	2	2	2



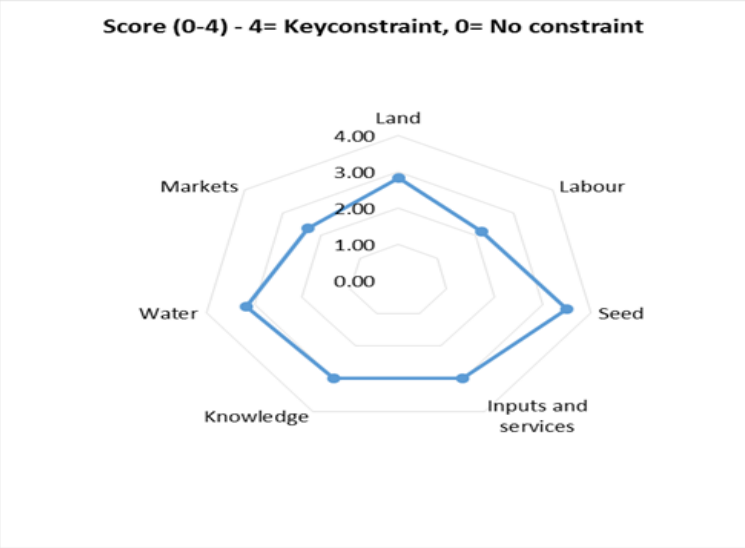
Arjo Q/Bula

Legume Production Constraints

Context scoring

	Typology - low		Typology - medium		Typology - high	
	Farmer	Expert	Farmer	Expert	Farmer	Expert
Land	4	3	2	3	3	2
Labour	1	2	3	3	2	2
Seed	3	3	4	3	4	4
Inputs and services	3	3	3	3	3	3
Knowledge and skills	3	3	3	3	3	3
Water	3	3	3	3	4	3
Markets	2	2	3	2	3	2

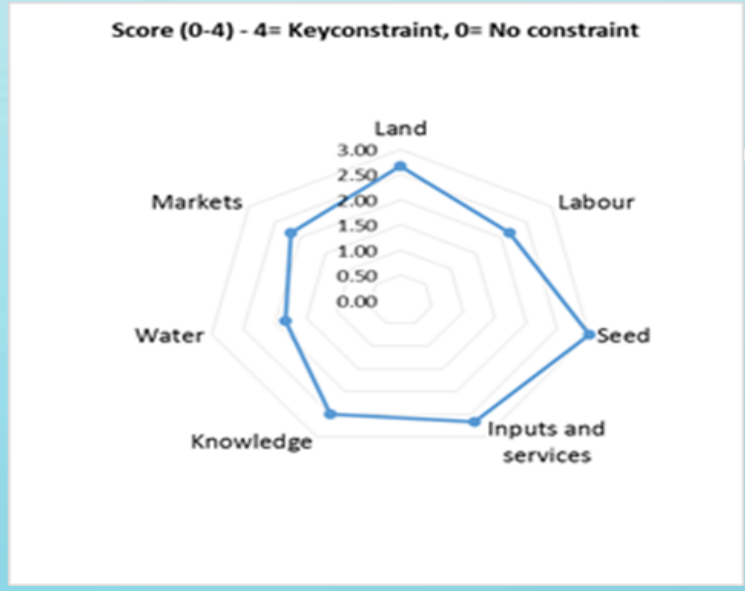
Attribute	Score (0-4) - 4=Key constraint, 0=No constraint
Land	2.83
Labour	2.17
Seed	3.50
Inputs and services	3.00
Knowledge	3.00
Water	3.17
Markets	2.33



Amanlaman

	Typology - low		Typology - medium		Typology - high	
	Farmer	Expert	Farmer	Expert	Farmer	Expert
Land	3	2	3	2	3	3
Labour	2	1	3	2	3	2
Seed	4	2	3	2	4	3
Inputs and services	2	2	4	3	3	2
Knowledge and skills	3	2	3	3	2	2
Water	1	1	2	2	3	2
Markets	2	2	2	3	2	2

Attribute	Score (0-4) - 4=Key constraint, 0=No constraint
Land	2.67
Labour	2.17
Seed	3.00
Inputs and services	2.67
Knowledge	2.50
Water	1.83
Markets	2.17



Shallo

***Contributed for the development of latest version of the LegumeCHOICE tool user guide V2.2.1 (July 2019)

Sinana (Aman Laman kebele)

Sinana (Shallo kebele)

WP2. Validation of benefits for legume niches

- WP2.1: Characterization of soil properties, root traits and BNF potential of legume classes
- WP2.2: To establish quantitative importance and mechanisms of legume contributions to soil C and N stocks and nutrient supply.
- WP 2.3: To quantify BNF, nutrient- and water-use efficiency in a range of legume-based systems to determine the robustness of trait-soil-management relationships

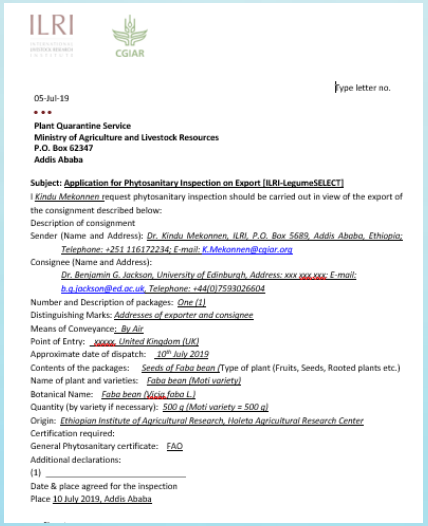
WP2.1 + 2.2

Get export permits for soils, seeds;& biomasses; then ship materials

WP 2.3

Farm Trial sampling (Soil, vegetative samplings)

WP 2.1 + 2.2: Get export permits for samples (Documents for Faba bean Seed Export)



ILRI CGIAR

Type letter no.

05-Jul-19

• • •

Plant Quarantine Service
Ministry of Agriculture and Livestock Resources
P.O. Box 62347
Addis Ababa

Subject: Application for Phytosanitary Inspection on Export [ILRI-LegumeSELECT]

I *Kindu Mekonnen* request phytosanitary inspection should be carried out in view of the export of the consignment described below:

Description of consignment

Sender (Name and Address): *Dr. Kindu Mekonnen, ILRI, P.O. Box 5689, Addis Ababa, Ethiopia; Telephone: +251 116172234; E-mail: K.Mekonnen@cgiar.org*

Consignee (Name and Address):
Dr. Benjamin G. Jackson, University of Edinburgh, Address: xxx xxx xxx; E-mail: b.g.jackson@ed.ac.uk, Telephone: +44(0)7593026604

Number and Description of packages: *One (1)*

Distinguishing Marks: *Addresses of exporter and consignee*

Means of Conveyance: *By Air*

Point of Entry: *xxxxx, United Kingdom (UK)*

Approximate date of dispatch: *10th July 2019*

Contents of the packages: *Seeds of Faba bean* (Type of plant (Fruits, Seeds, Rooted plants etc.)

Name of plant and varieties: *Faba bean (Moti variety)*

Botanical Name: *Faba bean (Vicia faba L.)*

Quantity (by variety if necessary): *500 g (Moti variety = 500 g)*

Origin: *Ethiopian Institute of Agricultural Research, Holeta Agricultural Research Center*

Certification required:

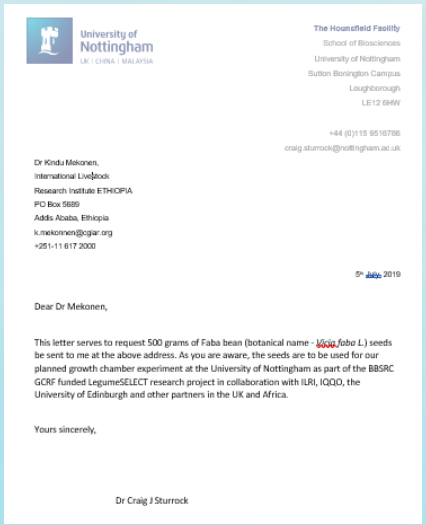
General Phytosanitary certificate: FAO

Additional declarations:

(1) _____

Date & place agreed for the inspection

Place 10 July 2019, Addis Ababa



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Dr Kindu Mekonen,
International Livestock
Research Institute ETHIOPIA
PO Box 5689
Addis Ababa, Ethiopia
k.mekonnen@cgiar.org
+251-11 617 2000

5th July 2019

Dear Dr Mekonen,

This letter serves to request 500 grams of Faba bean (botanical name - *Vicia faba L.*) seeds be sent to me at the above address. As you are aware, the seeds are to be used for our planned growth chamber experiment at the University of Nottingham as part of the BBSRC GCRF funded LegumeSELECT research project in collaboration with ILRI, IQQO, the University of Edinburgh and other partners in the UK and Africa.

Yours sincerely,

Dr Craig J Sturrock

ILRI CGIAR

To: Ethiopian Biodiversity Institute
Addis Ababa

Subject: Request of Export Permit for Faba bean seeds (from ILRI-Ethiopia to two Institutions in UK)

Dear Madam/Sir,

LegumeSELECT project (The Science-driven Evaluation of Legume Choice for Transformed livelihoods) is of one of the many projects in ILRI that addresses a major question that underpins the adoption of multi-purpose legumes in Sub-Saharan Africa (SSA): which legumes perform best and deliver the benefits farmers demand, under which conditions and management, for enhanced smallholder productivity. Our goal is to increase the contribution of legumes to livelihoods through more appropriate legume selection decisions. The primary geographic focus of the LegumeSELECT project in Africa include Ethiopia, DR Congo and Kenya. In Ethiopia the project will operate in Diga and Sinana woredas of the Oromia region.

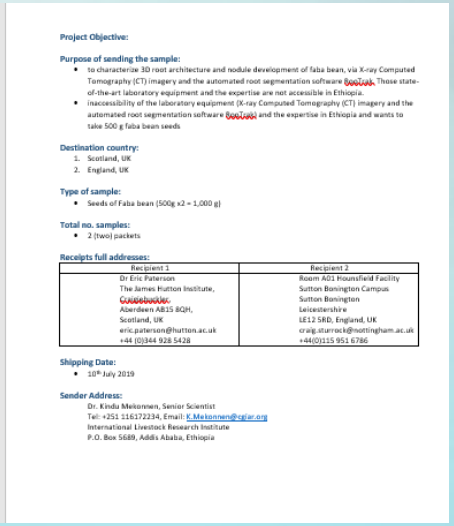
Accordingly, we are planning to send faba bean seed to the more specialized laboratories of *The James Hutton Institute, Scotland, UK* and *University of Nottingham, England, UK* for the characterization of 3D root architecture and nodule development, via X-ray Computed Tomography (CT) imagery and the automated root segmentation software RootTrak. Therefore, we are kindly requesting your institution to facilitate the export of 500 g faba bean seeds for each (total of 1 kg) institutions we are collaboratively working LegumeSELECT research project.

We are so much thankful for the usual cooperation.

Best regards

Kindu Mekonnen (PhD), Senior Scientist - Crop Livestock Systems
Tel: +251 116172234, Email: K.Mekonnen@cgiar.org
International Livestock Research Institute | Ilri.org
Box 5689, Addis Ababa, Ethiopia

PS: Details are annexed



Project Objective:

Purpose of sending the sample:

- to characterize 3D root architecture and nodule development of faba bean, via X-ray Computed Tomography (CT) imagery and the automated root segmentation software RootTrak. Those state-of-the-art laboratory equipment and the expertise are not accessible in Ethiopia.
- inaccessibility of the laboratory equipment (X-ray Computed Tomography (CT) imagery and the automated root segmentation software RootTrak) and the expertise in Ethiopia and wants to take 500 g faba bean seeds

Destination country:

1. Scotland, UK
2. England, UK

Type of sample:

- Seeds of Faba bean (500g x2 = 1,000 g)

Total no. samples:

- 2 (two) packets

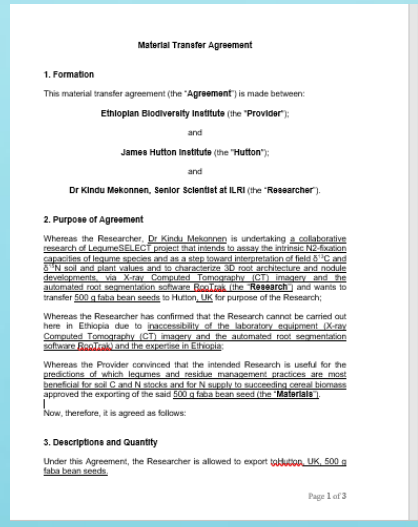
Receipts full addresses:

Recipient 1	Recipient 2
Dr Eric Paterson The James Hutton Institute, Cuddeebdiy, Aberdeen AB15 8QH, Scotland, UK eric.paterson@hutton.ac.uk +44 (0)344 928 5428	Room A01 Hounsfield Facility Sutton Bonington Campus Sutton Bonington Leicestershire LE12 5RD, England, UK craig.sturrock@nottingham.ac.uk +44(0)115 951 6786

Shipping Date:

- 10th July 2019

Sender Address:
Dr. Kindu Mekonnen, Senior Scientist
Tel: +251 116172234, Email: K.Mekonnen@cgiar.org
International Livestock Research Institute
P.O. Box 5689, Addis Ababa, Ethiopia



Material Transfer Agreement

1. Formation

This material transfer agreement (the "**Agreement**") is made between:

Ethiopian Biodiversity Institute (the "**Provider**");

and

James Hutton Institute (the "**Hutton**");

and

Dr Kindu Mekonnen, Senior Scientist at ILRI (the "**Researcher**").

2. Purpose of Agreement

Whereas the Researcher, Dr Kindu Mekonnen is undertaking a collaborative research of LegumeSELECT project that intends to assay the intrinsic N2-fixation capacities of legume species and as a step toward interpretation of field $\delta^{13}C$ and $\delta^{15}N$ soil and plant values and to characterize 3D root architecture and nodule developments, via X-ray Computed Tomography (CT) imagery and the automated root segmentation software RootTrak (the "**Research**") and wants to transfer 500 g faba bean seeds to Hutton, UK for purpose of the Research;

Whereas the Researcher has confirmed that the Research cannot be carried out here in Ethiopia due to inaccessibility of the laboratory equipment (X-ray Computed Tomography (CT) imagery and the automated root segmentation software RootTrak) and the expertise in Ethiopia;

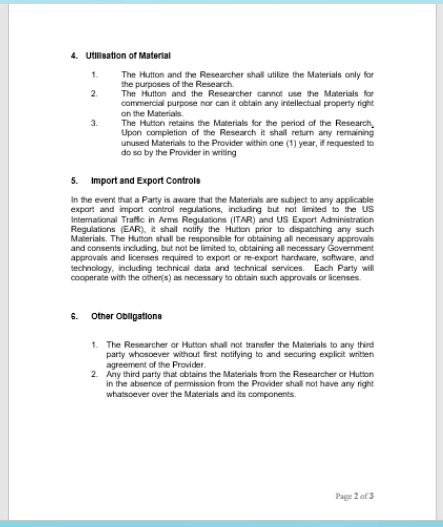
Whereas the Provider convinced that the intended Research is useful for the predictions of which legumes and residue management practices are most beneficial for soil C and N stocks and for N supply to succeeding cereal biomass approved the exporting of the said 500 g faba bean seed (the "**Materials**").

Now, therefore, it is agreed as follows:

3. Descriptions and Quantity

Under this Agreement, the Researcher is allowed to export toHutton, UK, 500 g faba bean seeds.

Page 1 of 3



4. Utilisation of Material

1. The Hutton and the Researcher shall utilize the Materials only for the purposes of the Research.
2. The Hutton and the Researcher cannot use the Materials for commercial purpose nor can it obtain any intellectual property right on the Materials.
3. The Hutton retains the Materials for the period of the Research. Upon completion of the Research it shall return any remaining unused Materials to the Provider within one (1) year, if requested to do so by the Provider in writing

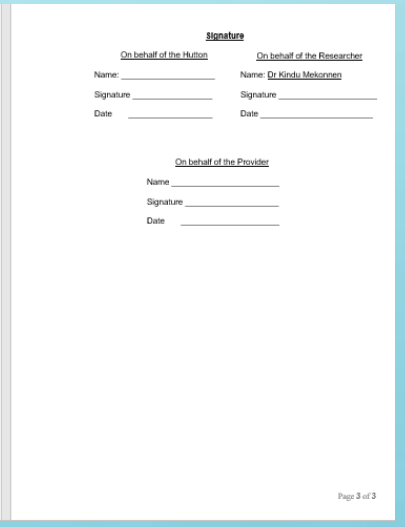
5. Import and Export Controls

In the event that a Party is aware that the Materials are subject to any applicable export and import control regulations, including but not limited to the US International Traffic in Arms Regulations (ITAR) and US Export Administration Regulations (EAR), it shall notify the Hutton prior to dispatching any such Materials. The Hutton shall be responsible for obtaining all necessary approvals and consents including, but not be limited to, obtaining all necessary Government approvals and licenses required to export or re-export hardware, software, and technology, including technical data and technical services. Each Party will cooperate with the other(s) as necessary to obtain such approvals or licenses.

6. Other Obligations

1. The Researcher or Hutton shall not transfer the Materials to any third party whosoever without first notifying to and securing explicit written agreement of the Provider.
2. Any third party that obtains the Materials from the Researcher or Hutton in the absence of permission from the Provider shall not have any right whatsoever over the Materials and its components.

Page 2 of 3



Signature

On behalf of the Hutton	On behalf of the Researcher
Name: _____	Name: Dr Kindu Mekonnen
Signature _____	Signature _____
Date _____	Date _____

On behalf of the Provider

Name _____

Signature _____

Date _____

Page 3 of 3

WP 2.3 On-farm trials (DT & NT)

- Based on the results of:
  - ✓ FGD (Qualitative Diagnosis), and
  - ✓ Legume Options Score section of Legume CHOICE tool,

- Mostly annual legume crops from different legume types were selected for their fit to legume functions and agro-ecologies, for quick intervention (demonstrations) activities both at ***Sinana*** and ***Digga*** Districts.

WP 2.3 On-farm trials

Legume Variety	Frequency	Percentage
Faba Bean	21	72
Field Pea	18	62
Common Bean (Bush type)	14	48
Climbing bean (annual type)	20	69
Chick pea	9	31
Lentil	6	21
Sweet Lupine	10	34
Cow pea	6	21
Lablab	8	28
Sesbania	12	41
Lecaena	10	34
Gravilla	18	62
Acasia Species	16	55

Jirata-*Digga*

Legume Variety	Frequency	Percentage
Groundnut	20	100
Common bean (Bush type)	14	70
Climbing bean (annual type)	18	90
Soybean	10	50
Cow pea	3	15
Lablab	7	35
Sesbania	4	20
Lecaena	10	50
Gravilla	11	55
Acasia Species	19	95

Arjo Q/Bula-*Digga*

Legume name	How well this option fulfils functional needs						SUMMARY		
	Food_ fit	Feed _fit	Income _fit	Erosion control _fit	Fuel _fit	Soil fertility _fit	Functional fit_rank	Context rank	Agro-ecological rank
Faba bean (Vicia faba L.)	3.2	0.5	2.3	0.2	0.2	1.1	5	32	1
Climbing beans (Phaseolus vulgaris) annual type	3.2	0.5	2.3	0.6	0.2	0.8	4	38	1
Field Pea, -high rainfall	3.2	0.7	2.3	0.6	0.0	0.8	3	23	1

WP 2.3 On-farm trials

Selected annual legume with recommended inputs (NPS +/- rhizobia inoculant) 1-4 varieties Legumes vegetative samples (x3) Weeds samples (x4) Soil samples (x2)	Selected annual legume without inputs 1-4 varieties Legumes vegetative samples (x3) Weeds samples (x4) Soil samples (x2)

Demonstration/ Legume Type	Implementation Site		Number of Farmers		Number/Type of varieties/Fert./Inoculums	
	Digga	Sinana	Digga	Sinana	Digga	Sinana
Annual Climbing bean	X	-	2	-	1	-
Bush Common bean	X	-	3	-	4	-
Soybean	X	-	3	-	3	-
Groundnut	X	-	3	-	3	-
Field pea	X	X	3	6	3	2
Faba bean	-	X	-	6	-	2
Leucaena leucocephala	X	-		-	3500 seedlings	
Fertilizers	X	X		-	NPS all crops	NPS
Inoculums	X	-	-	-	Except Annual Climbing Bean	-

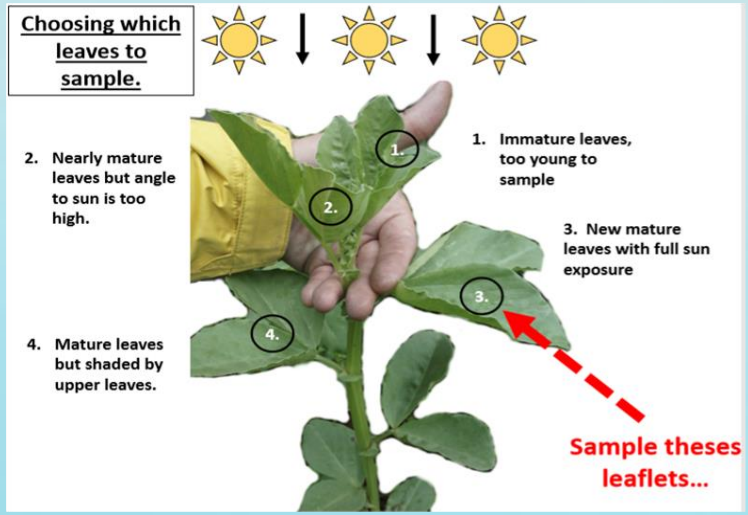
Field pea root with and without input (Digga, Jirata kebele, 7th August 2019)

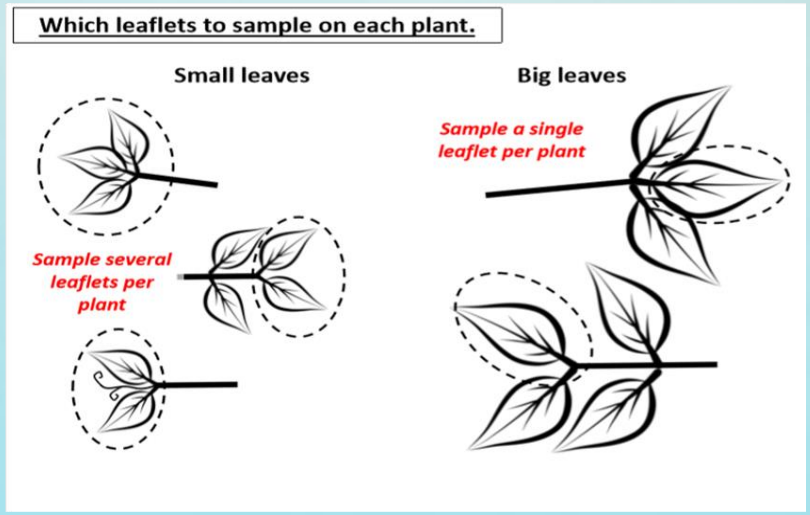
- Tree seedlings: targeting women farmers
  - Feed
  - Soil fertility improvement
  - Erosion control
  - Feul

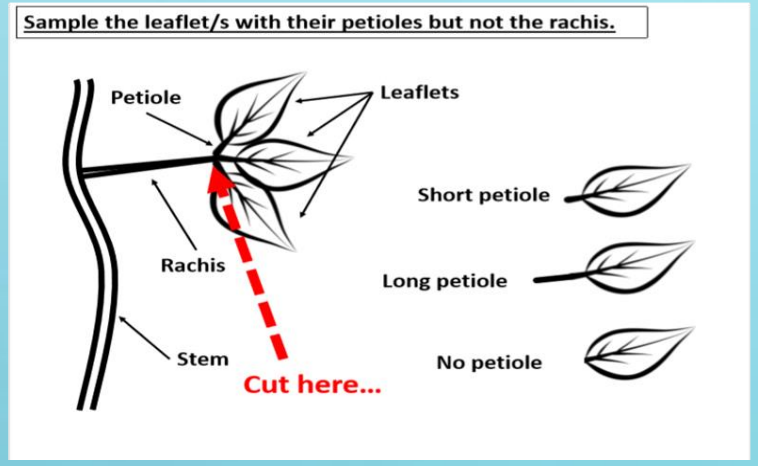
WP 2.3 On-farm trials

Protocols for sampling of soils and plant material to explore contributions of legumes to soil fertility on trial and non-trial farms (WP2.1 & WP2.3)

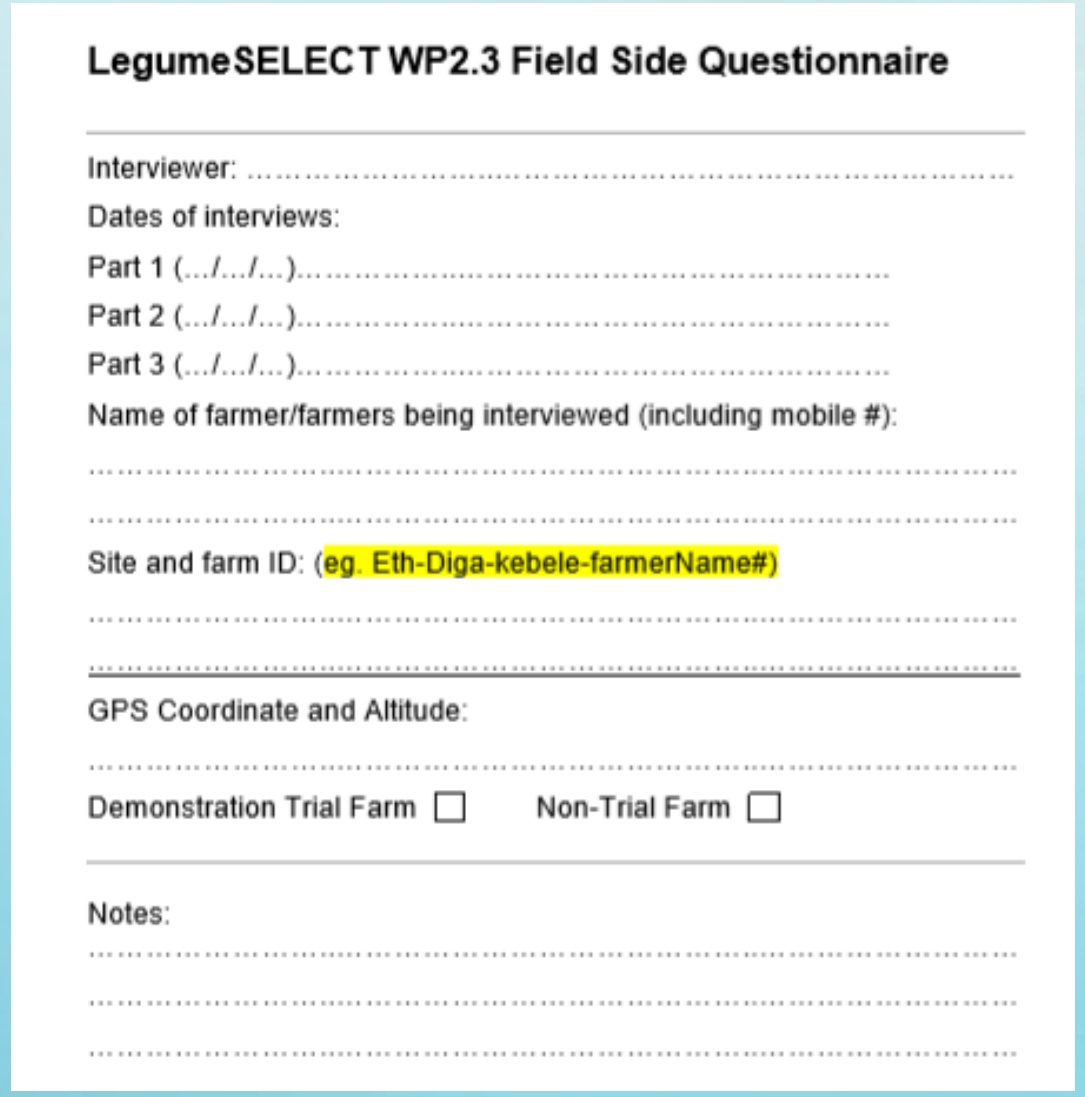
Practical sessions on sampling procedures







Customization of data collection tools



LegumeSELECT WP2.3 Field Side Questionnaire

Interviewer: .....

Dates of interviews:

Part 1 (.../.../...).....

Part 2 (.../.../...).....

Part 3 (.../.../...).....

Name of farmer/farmers being interviewed (including mobile #):

.....

.....

Site and farm ID: (eg. Eth-Diga-kebele-farmerName#)

.....

.....

GPS Coordinate and Altitude:

.....

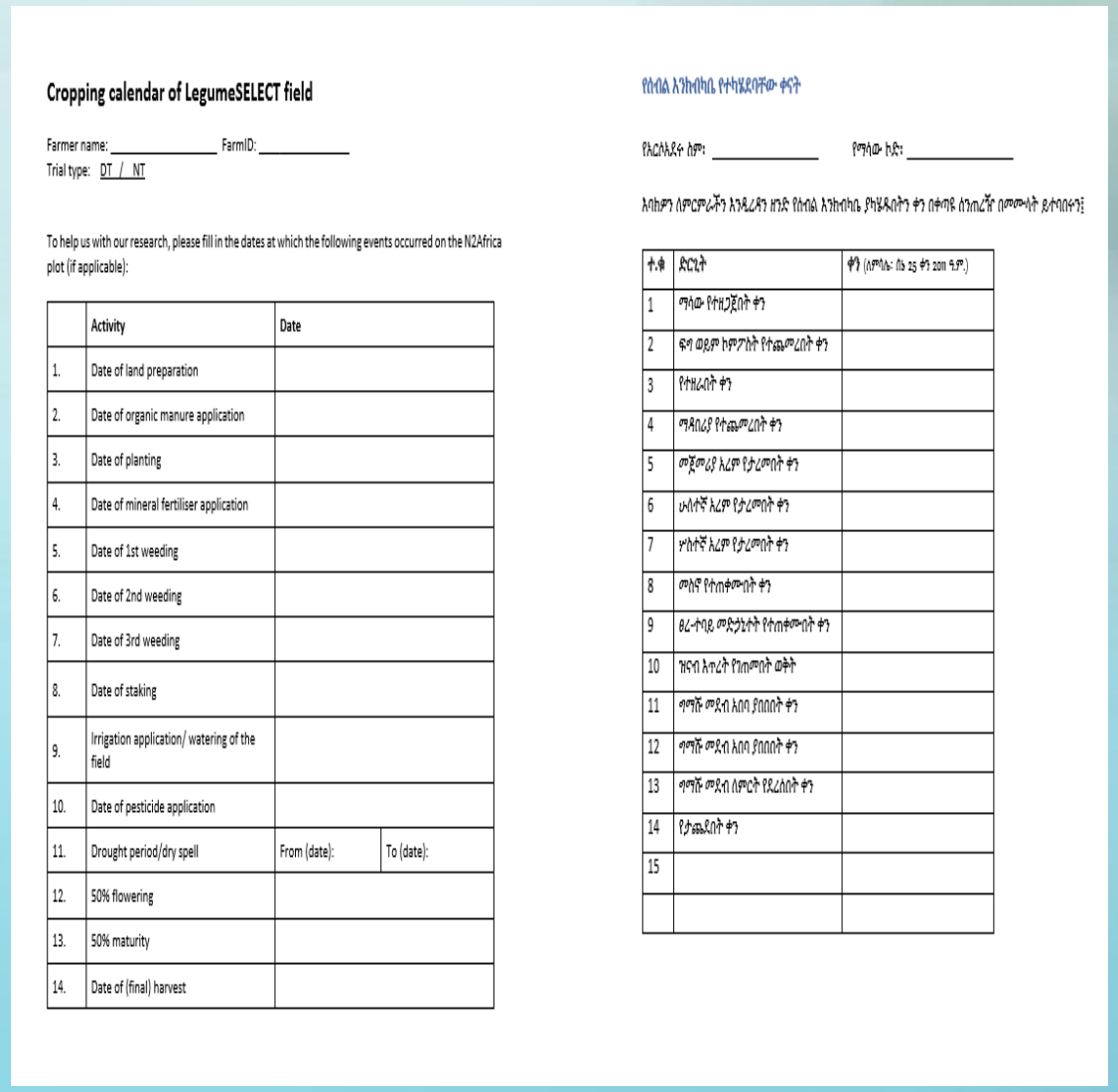
Demonstration Trial Farm ☐ Non-Trial Farm ☐

Notes:

.....

.....

.....



Cropping calendar of LegumeSELECT field

Farmer name: _____ FarmID: _____

Trial type: DT / NT

To help us with our research, please fill in the dates at which the following events occurred on the N2Africa plot (if applicable):

	Activity	Date	
1.	Date of land preparation		
2.	Date of organic manure application		
3.	Date of planting		
4.	Date of mineral fertiliser application		
5.	Date of 1st weeding		
6.	Date of 2nd weeding		
7.	Date of 3rd weeding		
8.	Date of staking		
9.	Irrigation application/ watering of the field		
10.	Date of pesticide application		
11.	Drought period/dry spell	From (date):	To (date):
12.	50% flowering		
13.	50% maturity		
14.	Date of (final) harvest		

የሰብል እንክብካቤ የተካሄደባቸው ቀናት

የአርሶአደሩ ስም፡ _____ የማሳው ኮድ፡ _____

እባክዎን ለምርምራችን እንዲረዳን ዘንድ የሰብል እንክብካቤ ያካሄዱበትን ቀን በቀጣዩ ሰንጠረዥ በመሙላት ይተባበሩን፤

ተ.ቁ	ድርጊት	ቀን (ለምሳሌ፡ ቤ 25 ቀን 2011 ዓ.ም.)
1	ማሳው የተዘጋጀበት ቀን	
2	ፍግ ወይም ኮምፖስት የተጨመረበት ቀን	
3	የተዘራበት ቀን	
4	ማጸበሪያ የተጨመረበት ቀን	
5	መጀመሪያ አረም የታረመበት ቀን	
6	ሁለተኛ አረም የታረመበት ቀን	
7	ሦስተኛ አረም የታረመበት ቀን	
8	መስኖ የተጠቀሙበት ቀን	
9	ፀረ-ተባይ መድኃኒት የተጠቀሙበት ቀን	
10	ዝናብ እጥረት የገጠመበት ወቅት	
11	ማሣዬ መደብ አበባ ያበበበት ቀን	
12	ማሣዬ መደብ አበባ ያበበበት ቀን	
13	ማሣዬ መደብ ለምርት የደረሰበት ቀን	
14	የታጨደበት ቀን	
15		

harvesting, soil samples, oven dry…

Plant and weed samples collection…..

Soil samples….

Data Inventory….

Country	Ethiopia			
Implementation Sites/ Woreda	Digga	Digga	Sinana	Sinana
Village/ Kebele	Arjo Qonan Bula	Jirata	Aman Laman	Shallo
Number of fields sampled	6 (6DT)	5 (5DT)	6 (4DT+2NT)	6 (3DT+3NT)
Legumes sampled	➢ Soybean, ➢ Common bean (bush types) ➢ Groundnut	➢ Field pea, ➢ Common bean (climbing type)	➢ Faba bean ➢ Field pea	➢ Faba bean ➢ Field pea
Weed spp sampled	• Alternanthera pungens; • Centella asiatica L.; • Ageratum conyzoides L; • Bidens pilosa L Conyza canadensis L.; • Guizotia scabra (vis.) chiov; • Conyza canadensis L.	• Guizotia scabra (vis.) chiov; • Snowdenia polystachya (Fresen.); • Bidens patchloma L. • Ageratum conyzoides L. • Galinsoga parviflora Cav.;	• Guizotia scabra; • Erucastrum arabica; • Galinsoga parviflora • Bromus pectinatus; • Chenopodium spp • Galium Spurium	• Guizotia scabra; • Chenopodium spp; • Bromus pectinatus • Plantago Lanceolata • Galinsoga parviflora • Chenopodium spp
Soil sampled	6+6	5+5	6+6	6+6

WP3 Moving into practice at scale

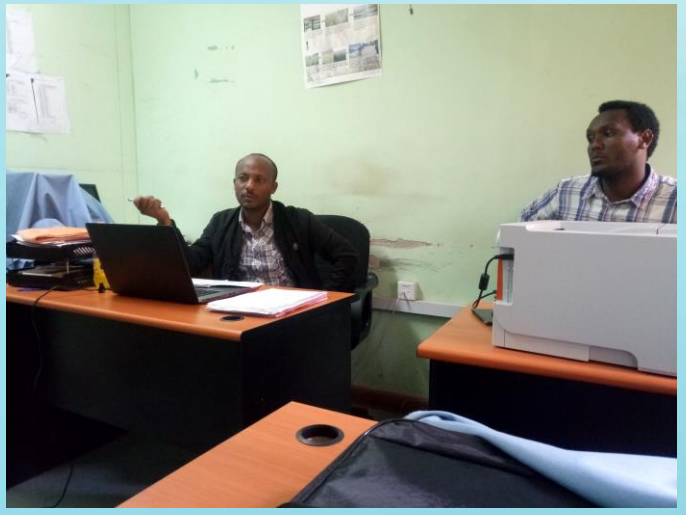
- WP 3.1: Modeling, forecasting, targeting, and scenario testing
- WP 3.2: Partner engagement, capacity development and scaling

WP 3.2

- *Summarize agricultural plans Eth*
- *Stakeholder Mapping Eth*
- *Scaling*

WP 3.2: Partner engagement, capacity development and scaling

- Multiple discussions with local partners:
  - IQQO HQ and research Centers
  - Woreda and kebele levels (Admins, Experts, DAs)



On-spot trainings and discussions

- Capacitate DAs on:
  - data collection
  - Handling of samples,
  - identification of weeds

Mini-farmers field day at Sinana (Nov 2019)

41 participant (34 Farmers, 3 DAs, 4 researcher)

Faba bean planted with inputs (NPS)

LegumeSELECT Poster presentation at ILRI IPM (17-19 Sep 2019)

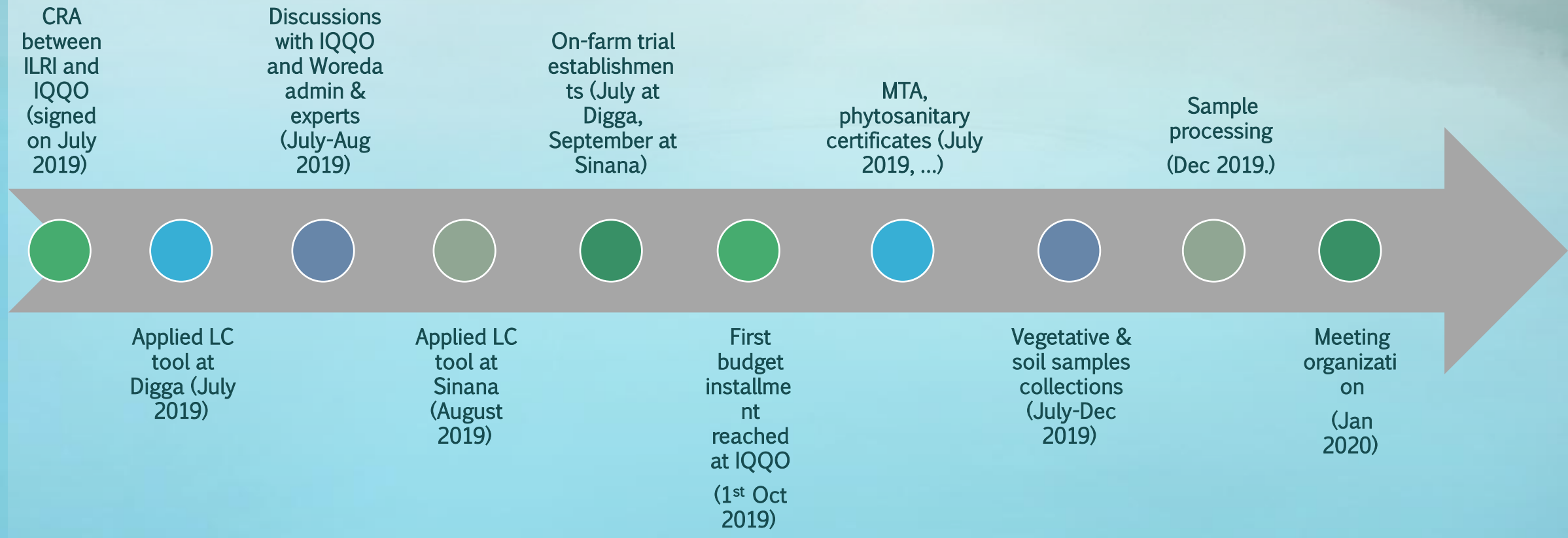
Challenges

- Unrest in Western Ethiopia and (South-eastern Ethiopia)
- Extended bureaucracy and lack of documents for faba bean export
- Budget disbursement delays between ILRI & IQQO (DD request)
- Lengthy financial channels within IQQO
- Scarcity of ovens (Equipment/Material capacity building?)

Way Forwards

- Undertake: [scope of the work]
  - Assessment of Agricultural Plans in relation to legumes in Ethiopia
  - Stakeholder mapping in relation to legumes in Ethiopia
- Facilitate export of faba bean seeds; soil & vegetative samples
- Training on Legume production and management practices to farmers and stakeholders
- Site level planning meetings

Timeline *(ways traveled)*



Thank You

Legume SELECT Project Review and Planning Meeting

28-30 January 2020, ILRI Campus, Addis Ababa, Ethiopia