Questionnaire Number _____

Adaptation Technologies in Agriculture: Adoption and Impact Assessment of Raised bed Farming System Technology (RFST) in Egypt
Farm Household and Socio-economic Survey Questionnaire
(Summer 2017 and Winter 2017/2018)

- **Name of Interviewer/Enumerator:** _____ **Date:** / /2018.
- **Name of Field Supervisor:** _____ **Date:** / /2018.
- **Name of Data Entry Clerk:** _____ **Date:** / /2018.
- **Name of Supervisor (Data Entry):** _____ **Date:** / /2018.

Interview Background

- **Date of interview (DD/MM/YY)**
- **Name of Governorate:** _____
- **Name of District:** _____
- **Name of Village:** _____
- **Name of Respondent (Head of Household):** _____
- **Holding category of Respondent (Head of Household):** ☐ graduate ☐ small farmer/beneficiary ☐ small investor ☐ other (specify)_____
- **The location of Respondent's land on the mesqa:** ☐ at the head ☐ in the middle ☐ at the tail
- **Geographic coordinates of household house:** Longitude: ……◦ …….’ ……” (or in decimal degree with precision up to 4 decimal digits)
  Latitude ……◦ …….’ ……” (or in decimal degree with precision up to 4 decimal digits)
- **Notes:** _____

First Part: Agricultural Activities (Plant and Animal) and Costs of Production in Summer 2017, Winter 2017/2018

1.1. Plant Production: What are the crops (or trees) and the varieties you cultivated in each of your land plots? And what was the area cultivated by each?

Summer crops				Winter crops				Trees				
Plot code*	Cultivated Area		Crop and variety	Plot code*	Cultivated Area		Crop and variety	Plot code*	Cultivated Area		Crop	Variety
	Feddan	Carat			Feddan	Carat			Feddan	Carat		
…				…				…				
…				…				…				
…				…				…				
…				…				…				
…				…				…				

* Note: Plot code can be numbers that is identical to the plot. In the case that winter crops are on the same plot with summer crops, please use the same plot code.

What are geographic coordinates of the plots? (Please use GPS unit or smartphone to measure and write down to the below table)

Summer crops			Winter crops			Trees		
Plot code*	Cultivated Area		Plot code	Cultivated Area		Plot code	Cultivated Area	
	Longitude*	Latitude*		Longitude*	Latitude*		Longitude*	Latitude*
…			…			…		
…			…			…		
…			…			…		
…			…			…		
…			…			…		

*** Note:** Format (dd◦mm'ss"): ……◦ ……' ……", or decimal degree with precision up to 4 decimal digits.

1.1.1. Input/Output Data for the cultivated area in Summer 2017, Winter 2017/2018

(if the farmer cultivated more than two crops/trees in one season, you concentrate on the two crops/trees that were the most relatively important in terms of area)

Items	Units	Summer crops						Winter crops					
		Plot #: Crop:		Plot #: Crop:		Plot #: Crop:		Plot #: Crop:		Plot #: Crop:		Plot #: Crop:	
		Cultivated Area Feddan: Carat:		Cultivated Area Feddan: Carat:		Cultivated Area Feddan: Carat:		Cultivated Area Feddan: Carat:		Cultivated Area Feddan: Carat:		Cultivated Area Feddan: Carat:	
		Quantity	Price (LE/unit)	Quantity	Price (LE/unit)	Quantity	Price (LE/unit)	Quantity	Price (LE/unit)	Quantity	Price (LE/unit)	Quantity	Price (LE/unit)
I. Outputs:													
1- Main Product													
2- Bi-product													
II. Inputs:													
1- Seed/Seedlings	kg/no.												
2- Organic Fertilizer	CM												
3- Chemical Fertilizer	kg												
- Urea	kg												
- Phosphate	kg												
- Potash	kg												
- Other (specify)___	kg												
4- Containers	No.												
5- Pesticides	L.E/liter												
6- Transportation	L.E.												
7- Land Rent	L.E.												
8- Tax	L.E.												
9- Other (specify)___													

1.1.2. Costs of human labour/animal labour/machinery according to farm operations for the cultivated area in Summer 2017, Winter 2017/2018 (if the farmer cultivated more than two crops/trees in one season, you concentrate on the two crops/trees that were the most relatively important in terms of area)

Summer **Plot #:** _ **Crop**: _ **Cultivated Area** **Feddan:** **Carat:** _____	**Rented-labour days of work**						**Family-labour days of work**			**Machine hours of work**		**Animal days of work**	
	Man		Woman		Boy/Girl								
	No.	Costs (L.E/day)	No.	Costs (L.E/day)	No.	Costs (L.E/day)	# of Man	# of Woman	# of Boy/Girl	No.	Costs (L.E/hour)	No.	Costs (L.E/day)
Organic fertilizing													
Land preparation													
Adding agricultural gypsum													
Land leveling													
Planting													
Irrigation													
Fertilizing													
Weeding/Hoeing													
Replanting													
Pest control													
Harvesting													
Threshing and winnowing													
Residuals removing													
Transportation													

Summer **Plot #:** _ **Crop**: _ **Cultivated Area** **Feddan:** **Carat:** _____	**Hired-labour days of work**						**Family-labour days of work**			**Machine hours of work**		**Animal days of work**	
	Man		Woman		Boy/Girl								
	No.	Costs (L.E/day)	No.	Costs (L.E/day)	No.	Costs (L.E/day)	# of Man	# of Woman	# of Boy/Girl	No.	Costs (L.E/hour)	No.	Costs (L.E/day)
Organic fertilizing													
Land preparation													
Adding agricultural gypsum													
Land leveling													
Planting													
Irrigation													
Fertilizing													
Weeding/Hoeing													
Replanting													
Pest control													
Harvesting													
Threshing and winnowing													
Residuals removing													
Transportation													

Cont'd. Costs of human labour/animal labour/machinery according to farm operations for the cultivated area in Summer 2017, Winter 2017/2018 (if the farmer cultivated more than two crops/trees in one season, you concentrate on the two crops/trees that were the most relatively important in terms of area)

Winter **Plot #:** _ **Crop:** _	**Rented-labour days of work**						**Family-labour days of work**			**Machine hours of work**		**Animal days of work**	
Cultivated Area **Feddan:** **Carat:** _____	Man		Woman		Boy/Girl								
	No.	Costs (L.E/day)	No.	Costs (L.E/day)	No.	Costs (L.E/day)	# of Man	# of Woman	# of Boy/Girl	No.	Costs (L.E/hour)	No.	Costs (L.E/day)
Organic fertilizing													
Land preparation													
Adding agricultural gypsum													
Land leveling													
Planting													
Irrigation													
Fertilizing													
Weeding/Hoeing													
Replanting													
Pest control													
Harvesting													
Threshing and winnowing													
Residuals removing													
Transportation													

Winter **Plot #:** _ **Crop:** _	**Rented-labour days of work**						**Family-labour days of work**			**Machine hours of work**		**Animal days of work**	
Cultivated Area **Feddan:** **Carat:** _____	Man		Woman		Boy/Girl								
	No.	Costs (L.E/day)	No.	Costs (L.E/day)	No.	Costs (L.E/day)	# of Man	# of Woman	# of Boy/Girl	No.	Costs (L.E/hour)	No.	Costs (L.E/day)
Organic fertilizing													
Land preparation													
Adding agricultural gypsum													
Land leveling													
Planting													
Irrigation													
Fertilizing													
Weeding/Hoeing													
Replanting													
Pest control													
Harvesting													
Threshing and winnowing													
Residuals removing													
Transportation													

Cont'd. Costs of human labour/animal labour/machinery according to farm operations for the cultivated area in Summer 2017, Winter 2017/2018

(if the farmer cultivated more than two crops/trees in one season, you concentrate on the two crops/trees that were the most relatively important in terms of area)

Trees **Plot #:** _ **Crop**: _	**Rented-labour days of work**						**Family-labour days of work**			**Machine hours of work**		**Animal days of work**	
Cultivated Area	Man		Woman		Boy/Girl								
Feddan: **Carat:** _____	No.	Costs (L.E/day)	No.	Costs (L.E/day)	No.	Costs (L.E/day)	# of Man	# of Woman	# of Boy/Girl	No.	Costs (L.E/hour)	No.	Costs (L.E/day)
Organic fertilizing													
Land preparation													
Adding agricultural gypsum													
Land leveling													
Planting													
Irrigation													
Fertilizing													
Weeding/Hoeing													
Replanting													
Pest control													
Harvesting													
Threshing and winnowing													
Residuals removing													
Transportation													

Trees **Plot #:** _ **Crop**: _	**Rented-labour days of work**						**Family-labour days of work**			**Machine hours of work**		**Animal days of work**	
Cultivated Area	Man		Woman		Boy/Girl								
Feddan: **Carat:** _____	No.	Costs (L.E/day)	No.	Costs (L.E/day)	No.	Costs (L.E/day)	# of Man	# of Woman	# of Boy/Girl	No.	Costs (L.E/hour)	No.	Costs (L.E/day)
Organic fertilizing													
Land preparation													
Adding agricultural gypsum													
Land leveling													
Planting													
Irrigation													
Fertilizing													
Weeding/Hoeing													
Replanting													
Pest control													
Harvesting													
Threshing and winnowing													
Residuals removing													

Transportation													

1.1.3. Costs of irrigation for the cultivated area in Summer 2017, Winter 2017/2018

Crops	Plot No.	Selected Plot No.	Establishment of irrigation network Costs (L.E/area)	Specifications of irrigation machine				Diesel & oil (L.E/fed.)	Maintenance & replacement (L.E/fed.)	Other (specify)___
				Type & Model	Discharge capacity (Liter/sec.)	Power (HP)	Price (L.E)			
Summer:										
Winter:										
Trees:										

1.1.4. Data on irrigation for the cultivated area in Summer 2017, Winter 2017/2018

Crops	Varieties	Plot No.	Cultivated Area		Source of irrigation (1)	Irrigation system (2)	No. of irrigations (irrigation/feddan)				Average time of an irrigation (hour/irrigation)	Irrigation schedule (3)
			Feddan	Carat			Fresh water (surface Nile water)	Groundwater	Drainage water	Mixed water		
Summer:												
Winter:												
Trees:												

Codes:

(1) **Source of irrigation:** 1= Fresh water (surface Nile water) 2= Groundwater 3= Drainage water 4= Mixed water 5= other (specify)_

(2) **Irrigation system:** 1= Flood irrigation 2= Sprinkler irrigation 3= Drip irrigation

(3) **Irrigation schedule:** 1= Early in the morning 2= At noon 3= In the afternoon 4= At night

- **What is the system of water flow in the canal that serves your land?** (__) 1= continuous flow 2= rotational flow (irrigation rotation)

  ✶ **If the answer is "rotational flow": What is the scheme of irrigation rotation in the canal that serves your land?** (_____) days wet (on days) and (_____) days dry (off days).

- **What is the type of mesqas that serve your land?** (__) 1= improved 2= non- improved 3= other (specify)_____

  ✶ **If the answer is "improved": What type of improvement?** (__) 1= lined canals 2= buried pipes 3= other (specify)_____

- **Is there a drainage system serving your land?** (__) 1= Yes 2= No

✶ **If the answer is "Yes": What type is the drainage system that serves your land?** (__) 1= tile drainage 2= surface drainage

- **Do you think water available in the mesqas that serve your land was adequate enough to irrigate summer crops?** (__) 1= Yes 2= No

✶ **If the answer is "Yes": Why not?**

□ high water level at the mesqa head □ long irrigation rotation at the mesqa head □ short distance between the mesqa head and the main canal □ other (specify)

✶ **If the answer is "No":**

- What are the months during which you face water shortage?

□ Jan. □ Feb. □ Mar. □ Apr. □ May □ Jun. □ Jul. □ Aug. □ Sept. □ Oct. □ Nov. □ Dec.

- Why not? _____

- How do you overcome water shortage? _____

- **Do you think farms located at the mesqa head overuse water?** (__) 1= Yes 2= No
- **What do you do to improve water use efficiency in your farm?** _____
- **Do you think there will be problems related to water quantity or quality in the near future?** (__) 1= Yes 2= No

✶ **If the answer is "Yes":**

- What are these problems? _____

- Do you think these problems can be solved? How? _____

- **Do you usually depend on night irrigation?** (__) 1= Yes 2= No

✶ **If the answer is "Yes":**

- How many times do you usually depend on night irrigation? (_____) times in summer and (_____) times in winter.

- Why do you usually depend on night irrigation? (_____)

□ due to the irrigation rotation □ due to water shortage occurring in daytime □ due to the suitability of night irrigation for summer crops I cultivate □ other (specify)

1.2. Animal Production:

1.2.1. Structure of animal production

Items	Unit	Cow	Buffalo	Sheep	Goat	Other (specify)
Total no. of animals	Heads					
No. of milk animals	Heads					
Average market value of owned animals	L.E.					
Quantity of produced milk	Kg/day					
Quantity of sold milk	Kg/day					
Average price of milk in the community	L.E/Kg					
No. of sold animals	Head					
Average price of sold animals in the community	L.E/head					
No. of animals slaughtered and consumed by a household	Heads					
Average market value of slaughtered animals	L.E/head					

Poultry	No	Value (L.E.)
Chicken		
Duck		
Goose		
Turkey		
Dove		
Rabbit		
Other (specify)		

1.2.2. Costs of animal production inputs during last year (2017)

Inputs	Unit	Quantity or number	Price/unit (L.E.)	Notes
I. Labour:				
1- Hired labour				
- Man	Man/day			
- Woman	Woman/day			
- Boy/Girl	Boy/day			
2- Family labour				
- Man	Man/day			
- Woman	Woman/day			
- Boy/Girl	Boy/day			
II. Feeding stuffs:				
- Concentrates	Ton			
- Bran	Ton			
- Seeds and grains	Ton			
- Clover	Carat/cutting			
- Darawa	Carat/cutting			
- Hay	Ton			
- Straw	Heap			
- Other (specify)				
III. Veterinary services	L.E.			
IV. Other (specify)				

Second Part: Output and Revenue of Plant Production in Summer 2017, Winter 2017/2018

Plot #:	Crops	Produced quantity				Sold quantity				Stored quantity			
		Main product	Unit [1]	Bi-product	Unit [1]	Main product		Bi-product		Main product		Bi-product	
						Quantity	Price/unit (L.E.)	Quantity	Price/unit (L.E.)	Sold	Consumed	Sold	Consumed
Summer:													
Winter:													
Trees:													

Codes:

[1] **Unit:** 1= Ton 2= Ardab 3= Kentar 4= Cuts

Third Part: Institutional Framework

Institution / Association	Are there any institutions or associations working in the community? (1)	If the answer is "Yes":		
		Are they effective? (2)	Are you a member in any? (3)	Since when are you a member in any?
Agricultural co-operatives				
Water User Associations (WUAs)				
Agricultural marketing associations				
NGOs / Local society development associations				
Other (specify)				

Codes:

(1) **Are there any institutions or associations working in the community?** 1= Yes 2= No 3= I don't know

(2) **Are they effective?** 1= Effective 2= fairly effective 3= ineffective

(3) **Are you a member in any?** 1= Yes 2= No

Fourth Part: Sustainable Water-saving and Soil-conserving Practices

4.1. Practice 1: Laser Leveling:

- **Did you hear about laser leveling?** (__) 1= Yes 2= No
  - ✶ **If the answer is "No": Which practice do you usually use for land leveling?** _____
  - ✶ **If the answer is "Yes": What is the source(s) of your information about laser leveling?** (__) 1= agricultural extension 2= neighbors 3= media 4= other (specify)
- **Did you use laser leveling in your land?** (__) 1= Yes 2= No
  - ✶ **If the answer is "Yes":**

- Which plot numbers did you use laser leveling in? (__), (__), (__) and (__). And what was the area of each plot? (____), (____), (____) and (____) feddans.

- When did you use laser leveling in your land for the first time? _____

- After how many years do you intend to use laser leveling in the same plots again in the fut _____

- Which authority has done laser leveling in your land? (_____)

□ Ministry of Agriculture (service stations) / Agricultural extension □ Agricultural co-operatives □ private companies □ I don't know □ other (specify)

- Do you think that laser leveling is useful? (__) 1= Yes 2= No

- What is the degree of importance for laser leveling? (__) 1= high 2= moderate 3= fair

- Why do you use laser leveling in your land? _____

- What are the effects of laser leveling on the following aspects? (__) 1= effective 2= ineffective 3= neutral

□ Regulating irrigation (__) □ Saving water (__) □ Reducing costs of irrigation (__) □ Reducing costs of production (__)
□ Reducing irrigation time (__) □ Saving inputs (__) □ Improving yields (__) □ Increasing income (__)
□ Making crop service easier (__) □ Increasing cultivated area (__) □ Good plant distribution (__) □ Improving seed germination rate (__)
□ Maintaining soil fertility (__) □ other (specify) _____ (__)

- What are the problems/obstacles you faced while using laser leveling in your land?

_____

- What are your suggestions to overcome these problems/obstacles? _____

✶ **If the answer is "No":**

- Why didn't you use laser leveling in your land?

□ Because it is the responsibility of land owners □ Because it isn't necessary now □ Because I don't know how to use it □ Because I can't afford

□ Because it needs large areas □ Because it isn't suitable for my land □ To maintain soil fertility □ other (specify) _____

- What are the problems/obstacles you faced and didn't let you use laser leveling in your land? _____

- What are your suggestions to overcome these problems/obstacles? _____

- Do you want to use laser leveling in the future? (__) 1= Yes 2= No

✶ **If the answer is "Yes":**

- Which authority do you prefer to do laser leveling in your land? (_____)

□ Ministry of Agriculture / Agricultural extension □ Agricultural co-operatives □ private companies □ I don't know

□ other (specify)_____

✶ **If the answer is "No":**

- Why not?

□ Because I rent the land for a short period of time□ Because it my land leveling is good

□ Because I prefer traditional land leveling □ Because the benefits I get from laser leveling is less than what paid to use it

□ Because my land is too small to use it □ Because It's expensive

□ other (specify)_____

4.2. Practice 2: Dry Cultivation of Berseem:

- **Did you hear about dry cultivation of berseem?** (__) 1= Yes 2= No

  ✶ **If the answer is "Yes": What is the source(s) of your information about dry cultivation of berseem?** (__) 1= agricultural extension 2= neighbors 3= media 4= other (specify)

- **Did you use dry cultivation of berseem in your land?** (__) 1= Yes 2= No

  ✶ **If the answer is "Yes":**

  - When did you use dry cultivation of berseem in your land for the first time?

_____

  - Which plot numbers did you use dry cultivation of berseem in for the last time? (__) **and** (__) **in the year** (____)**. And what was the area of each plot?** (__) **and** (__) fedd**.**

  - What was the total cultivated area you used dry cultivation of berseem in it in the same year? (_____) feddans**.**

  - Do you think that dry cultivation of berseem is useful? (__) 1= Yes 2= No

  - What are the effects of dry cultivation of berseem on the following aspects? (__) 1= effective 2= ineffective 3= neutral

  □ Improving water use efficiency (__) □ Saving water (__) □ Reducing costs of irrigation (__) □ Reducing costs of production (__)

  □ Reducing irrigation time (__) □ Saving inputs (__) □ Improving yields (__) □ Increasing income (__)

  □ Improving quality of agricultural environment (__) □ other (specify) _____ (__)

  - What are the problems/obstacles you faced while using dry cultivation of berseem in your land?_____

  - What are your suggestions to overcome these problems/obstacles?_____

  ✶ **If the answer is "No":**

  - Why didn't you use dry cultivation of berseem in your land?

  □ Because I don't know how to use it □ Because it isn't suitable for my land □ To maintain soil fertility □ other (specify) _____

  - Do you want to use dry cultivation of berseem in the future? (__) 1= Yes 2= No

4.3. Practice 3: Planting Wheat by Planters:

- **Did you hear about planting wheat by planters? (__)** 1= Yes 2= No

  ✶ **If the answer is "Yes": What is the source(s) of your information about planting wheat by planters? (__)** 1= agricultural extension 2= neighbors 3= media 4= other (specify)

- **Did you use planting wheat by planters in your land? (__)** 1= Yes 2= No

  ✶ **If the answer is "Yes":**

  - When did you use planting wheat by planters in your land for the first time?_____

  - Which plot numbers did you use planting wheat by planters in for the last time? (__) and (__) in the year (____). And what was the area of each plot? (__) and (__) fedd**.**

  - What was the total cultivated area you used planting wheat by planters in it in the same year? (_____) feddans**.**

  - Do you think that planting wheat by planters is useful? (__) 1= Yes 2= No

  - What are the effects of planting wheat by planters on the following aspects? (__) 1= effective 2= ineffective 3= neutral

  □ Saving water (__) □ Reducing costs of labour (__) □ Reducing costs of production i.e. labour (__) □ Saving inputs i.e. seeds (__)

  □ Saving time and efforts (__) □ Improving yields (__) □ Improving seed germination rate (__)

  □ Making weed control easier (__) □ Good seed distribution (__) □ Making wheat harvesting easier by combines (__) □ other (specify) _____ (__)

  - What are the problems/obstacles you faced while using planting wheat by planters in your land?_____

  - What are your suggestions to overcome these problems/obstacles?_____

  ✶ **If the answer is "No":**

  - Why didn't you use planting wheat by planters in your land?

  □ Because I don't know how to use it □ Because it isn't suitable for my land □ other (specify) _____

  - Do you want to use planting wheat by planters in the future? (__) 1= Yes 2= No

4.4. Practice 4: Transplanting Rice by Machines:

- **Did you hear about transplanting rice by machines? (__)** 1= Yes 2= No

  ✶ **If the answer is "Yes": What is the source(s) of your information on transplanting rice by machines? (__)** 1= agricultural extension 2= neighbors 3= media 4= other (specify)

- **Did you use transplanting rice by machines in your land? (__)** 1= Yes 2= No

  ✶ **If the answer is "Yes":**

  - When did you use transplanting rice by machines in your land for the first time?_____

  - Which plot numbers did you use transplanting rice by machines in for the last time? (__) and (__) in the year (__). And what was the area of each plot? (__) and (__) fed.

  - What was the total cultivated area you used transplanting rice by machines in it in the same year? (_____) feddans.

  - Do you think that transplanting rice by machines is useful? (__) 1= Yes 2= No

  - What are the effects of transplanting rice by machines on the following aspects? (__) 1= effective 2= ineffective 3= neutral

  □ Saving water (__) □ Reducing crop losses (__) □ Reducing costs of production i.e. labour (__) □ Saving inputs i.e. seeds (__)

  □ Saving time (__) □ Improving yields (__) □ Saving efforts (__) □ other (specify) _____ (__)

  - What are the problems/obstacles you faced while using transplanting rice by machines in your land?_____

  - What are your suggestions to overcome these problems/obs_____

  ✶ **If the answer is "No":**

  - Why didn't you use transplanting rice by machines in your land?

  □ Because I don't know how to use it □ Because it isn't suitable for my land □ other (specify) _____

  - Do you want to use transplanting rice by machines in the future? (__) 1= Yes 2= No

4.5. Practice 5: Manure Compost: (Manure compost is an organic matter that has been decomposed and recycled as a fertilizer and soil amendment.)

- **Did you hear about using manure compost?** (__) 1= Yes 2= No

  ✶ **If the answer is "Yes": What is the source(s) of your information about manure compost?** (__) 1= agricultural extension 2= neighbors 3= media 4= other (specify)

- **Did you use manure compost in your land?** (__) 1= Yes 2= No

  ✶ **If the answer is "Yes":**

  - What is the annual amount of manure compost you produce per feddan? (_____) CM.

  - What is the annual amount of manure compost you consume per feddan? (_____) CM.

  - When did you use manure compost in your land for the first time?

  _____

  - Which plot numbers did you use manure compost in for last summer? (__) **and** (__)**.**

  - What was the total cultivated area you used manure compost in it in for last summer? (_____) feddans**.**

  - Which plot numbers did you use manure compost in for last winter? (__) **and** (__)**.**

  - What was the total cultivated area you used manure compost in it in for last winter? (_____) feddans**.**

  - Do you think that manure compost is useful? (__) 1= Yes 2= No

  - What are the effects of using manure compost on the following aspects? (__) 1= effective 2= ineffective 3= neutral

  □ Easy to use (__) □ Rationalizing the use of chemical fertilizers (__) □ Reducing costs of production (__)
  □ Increasing income (__) □ Improving soil chemical and physical prosperities (__)
  □ Providing a clean growing environment for plants (__) □ Safe disposal of agricultural residuals (__) □ other (specify) _____ (__)

  - What are the problems/obstacles you faced while using manure compost in your land? _____

  - What are your suggestions to overcome these problems/ob _____

  ✶ **If the answer is "No":**

  - Why didn't you use manure compost in your land?
  □ Because I don't know how to use it □ other (specify) _____
  - Do you want to use manure compost in the future? (__) 1= Yes 2= No

4.6. Practice 6: Agricultural Gypsum:

- **Did you hear about adding agricultural gypsum?** (__) 1= Yes 2= No

  ✶ **If the answer is "Yes": What is the source(s) of your information about agricultural gypsum?** (__) 1= agricultural extension 2= neighbors 3= media 4= other (specify)

- **Did you add agricultural gypsum to your land?** (__) 1= Yes 2= No

  ✶ **If the answer is "Yes":**

  - What is the annual amount of agricultural gypsum you add per feddan? (_____) ton.

  - What is the annual cost of agricultural gypsum you add per feddan? (_____) L.E./ton.

  - When did you add agricultural gypsum to your land for the first time?

  _____

  - Which plot numbers did you add agricultural gypsum to for last summer? (__) **and** (__)**.**

  - What was the total cultivated area you used manure compost in it in for last summer? (_____) feddans.

  - Which plot numbers did you add agricultural gypsum to for last winter? (__) **and** (__)**.**

  - What was the total cultivated area you used manure compost in it in for last winter? (_____) feddans.

  - Do you think that adding agricultural gypsum is useful? (__) 1= Yes 2= No

  - What is the most suitable time for adding agricultural gypsum on the following aspects? (_____) in summer and (_____) in winter.

  - What is the most suitable method for adding agricultural gypsum on the following aspects? (__) 1= manually 2= mechanically

  - What are the effects of adding agricultural gypsum on the following aspects? (__) 1= effective 2= ineffective 3= neutral

  □ Easy to use (__) □ Reducing soil alkalinity and salt content (__) □ Low costs (__)
  □ Improving yields (__) □ Improving soil physical prosperities (__) □ Allow cultivating more crops (__) □ other (specify) _____ (__)

  - What are the problems/obstacles you faced while adding agricultural gypsum in your land?

  _____

  - What are your suggestions to overcome these problems/o_____

  ✶ **If the answer is "No":**

  - Why didn't you add agricultural gypsum to your land?

  □ Because I don't know how to use it □ Because it isn't suitable for my land □ other (specify) _____

  - Do you want to add agricultural gypsum in the future? (__) 1= Yes 2= No

4.7. Practice 7: Improved Varieties:

- **Did you hear about using improved varieties? (__)** 1= Yes 2= No
  - ✶ **If the answer is "Yes": What is the source(s) of your information on using improved varieties? (__)** 1= agricultural extension 2= neighbors 3= media 4= other (specify)
- **Did you use improved varieties in your land? (__)** 1= Yes 2= No
  - ✶ **If the answer is "Yes":**

- What are the improved varieties you cultivate in your land?

Plot #: ____	Cultivated Area		Crop	Improved variety	When did you use it for the first time? (year)	Where did you get it from?	Why do you prefer this variety? (1)
	Feddan	Carat					
Summer:							
Winter:							
Trees:							

Codes:

(1) **Why do you prefer this variety?** 1= early maturity 2= needs less inputs 3= disease-resistant 4= high yield 5= high quality 6= other (specify)

- Do you think that using improved varieties is useful? (__) 1= Yes 2= No

- Why not? _____

- What are the effects of using improved varieties on the following aspects? (__) 1= effective 2= ineffective 3= neutral

□ Saving water (__) □ Early maturity (__) □ Reducing costs of production (__) □ Saving inputs (__)

□ Increasing income (__) □ improving yields (__) □ Disease-resistant (__) □ other (specify) _____ (__)

- What are the problems/obstacles you faced while using improved varieties in your land? _____

- What are your suggestions to overcome these problems/obstacles? _____

✶ **If the answer is "No":**

- Why didn't you use improved varieties in your land?

□ Because the traditional varieties I use is good □ Because the yields of some improved varieties are less i.e. wheat and maize

□ other (specify) _____ □ Because I don't know where I can get it from

- Do you want to use improved varieties in the future? (__) 1= Yes 2= No

Fifth Part: Using Recommended Water Management Technologies: (Recommended water management technologies are new methods target to rationalize water used for irrigation and improve water use efficiency.)

- **Did you use any of the recommended water management technologies in your land?** (__) 1= Yes 2= No
  - ✶ **If the answer is "Yes":**

Recommended Technology	When did you use it for the first time? (year)	Which plot numbers did you use it in? (#)	Cultivated Area		Crops	Source(s) of information	Main benefits
			Feddan	Carat			
Raised bed							
Deficit irrigation							
Adding organic manure							
Sub-leveling							
Laser leveling							
Lining canals							
Using buried pipes							
Sprinkler irrigation							
Drip irrigation							
other (specify)_____							

Sixth Part: Support and Extension Services

- **Are there any projects or programs implemented in the community target to rationalize water used for irrigation or maintain soil fertility?** (__) 1= Yes 2= No
  - ✶ **If the answer is "Yes":**

    - What are these projects or programs? _____

    - What are the funding agencies for these projects or programs?

_____

- **Did you ever participate in any activities of these projects or programs?** (__) 1= Yes 2= No
  - ✶ **If the answer is "Yes": In what activities did you participate in?** _____
  - ✶ **If the answer is "No": Why not?** _____
- **Did you ever get information from these projects or programs about water rationalization or soil conservation?** (__) 1= Yes 2= No
  - ✶ **If the answer is "Yes":**

    - What is this information? _____

    - Did you ever make use of this information? (__) 1= Yes 2= No
    - ✶ **If the answer is "Yes": How?** _____
- **Did you get advice or guidance from the extension agents last year?** (__) 1= Yes 2= No
  - ✶ **If the answer is "Yes": Which extension agents?** (__) 1= Agricultural Extension Sector 2= Agricultural Research Station 3= NGOs 4= other (specify)

Seventh Part: Household Characterization

8.1. General Characterization:

8.1.1. Household composition (start with head of household) and off-farm income

ID No	Sex (1)	Age	Relation to Head of Household (2)	Education level (3)	Marital status (4)	Major occupation (5)	Annual off-farm work				
							Agricultural work in other farms		Non-agricultural work		
							Working days	Annual income (L.E./year)	Working days	Activities	Annual income (L.E./year)
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

Codes:

(1) **Sex:** 1= male 2= female

(2) **Relation to Head of HH:** 1= self 2= wife 3= son 4= daughter 5= grandson 6= granddaughter 7= father 8= mother 9= other (specify)_____

(3) **Education level:** 1= illiterate 2= can read and write 3= primary 4= preparatory (prep.) 5= agricultural technical prep. 6= other technical prep. 7= high school 8= agricultural technical high school 9= other technical high school 10= technical institute 11= college 12= child (1-6yrs)

(4) **Marital status:** 1= single 2= married 3= widow 4= divorced 5= child (<16 yrs) 6= other (specify)_____

(5) **Major occupation:** 1= None 2= crop farming 3= animal husbandry 4= technician 5= trade 6= off-farm employment 7= student 8= housekeeping 9= other (specify)_____

8.1.2. Existing income-generating activities

Activities	No. of units	% of women sharing	Year of establishment	Investment costs per unit (L.E.)	Fixed costs (L.E.)		Operating costs per month (L.E.)					Revenue per month (L.E.)		
					Rent	Others	Electricity	Water	Raw materials	Labour	Others	production	unit	Price/unit (L.E.)
Honey production														
Rabbit breeding														
Textile production														
Pottery production														
Leather production														
Fish farming														
other (specify)														

- **Do you want to conduct other income-generating activities?** (__) 1= Yes 2= No

  ✶ **If the answer is "Yes":**

  - What are these activities?_____

  - What are the problems/obstacles you faced and didn't let you conduct these activates?_____

  - What are your suggestions to overcome these problems/obstacles?_____

- **Head of Household's number of farming experience years:** (_____) years.

8.2. Household Assets:

8.2.1. House and storing capacity

- **Ownership of the house:** □ owned □ rented □ other (specify)_____
- **Wall material of the house:** □ concrete □ bricks and cement □ bricks only □ other (specify)_____
- **Total number of floors:** (__)
- **Total number of rooms:** (__)
- **Do you have stores?** (__) 1= Yes 2= No

✶ **If the answer is "Yes":**

Type	No.	Area (m^2)	Ownership (1)	If owned: what is its present value? (L.E.)	If rented: what is its annual rent? (L.E.)
Grain store					
Store					
Traditional silo					

Codes: (1) **Ownership:** 1= owned 2= rented 3= shared 4= other (specify)_____

8.2.2. Land

Plot # *(please taken plot code from Tables in section 1.1)*____	Area		Tenure status (1)	If the land (including its buildings) is for sale, what one can pay to purchase it? (L.E.)	Annual tax (L.E.)	Annual rent (L.E.)
	Feddan	Carat				
…						
…						
…						
…						
….						
….						
….						
….						
…						

Codes: (1) **Tenure status:** 1= owns the land and exploit it 2= owns the land and lease it to others 3= share the land with others 4= other (specify)_____

- **Do you think that bad exploitation of land leads to problems to this land?** (__) 1= Yes 2= No 3= I don't know

✶ **If the answer is "Yes": Can we solve these problems? How?** _____

- **Do you think that the excessive use of chemicals (fertilizers & pesticides) in agriculture leads to environmental and health problems?** (__) 1= Yes 2= No 3= I don't know

✶ **If the answer is "Yes": Can we solve these problems? How?** _____

8.2.3. Land rental value / price of the land according to the level of soil salinity

- **How do you describe the level of soil salinity in your land?** □ low □ moderate □ high
- **What is the average rental value of your land prevailing in the community?** (_____) L.E./feddan**.**
- **How far is water table in your land?** □ low □ moderate □ high "about (__) m"
- **How far is your land to the nearest urban centre?** (_____) Km**.**

8.2.4. Machines & equipment of production and home appliances

Machine/equipment	Tractor	Plow	Irrigation pumps	Irrigation wheel	Harvesting Machine	Threshing machine	Motorized sprayer	Trailer	Pickup	Cart	Refrigerator	Washing machine	T.V. set	other (specify)
No.														
Ownership (1)														
Market value (L.E.)														

Codes: (1) **Ownership:** 1= owned 2= rented 3= shared (% of sharing)

8.2.5. Sources of funding

- **Did you borrow from any of the following sources of funding during last 12 months?** (__)1= Yes 2= No

✶ **If the answer is "Yes":**

Source of funding	The purpose of the loan	Loan sum (L.E.)	Loan duration (month)	Annual interest rate %	Means of guarantee	Method of repayment	% of repayment until now
Relatives							
Village merchant							
Banks							
NGOs							
other (specify)							

Eight Part: MRB Technology, Awareness and Uptake

Have you heard of the MRB technology? (1=Yes; 0=No)

Main source of information on the new variety/technology? **(Code A, multiple answers – up to 2 - are possible**)

Code A
1=Extension staff/office
2= Other farmers (neighbors/relative)
3= Market (e.g. Agro vet/stockist)
4=Radio programs/TV
5=Research Centre (trials/demos), name _____
6=NGO or Governm. Devel. Assistance ,
name _____
77= Other(specify _____)

Have you ever used the MRB technology? (1=Yes; 0=No) - If No, what was the main reason (**Code C, multiple answers – up to 2 - are possible**)

Code C
1=MRB Technology not available
2=Lacked cash to use MRB technology
3=Lacked credit to buy seed/technology
4= Prefer other technology
5=Low yielding
6=High input requirements
7=Limited land to use MRB technology
8= limited information
77= Other(specify _____)

Who makes adoption decisions? 1=men, 2=women, 3=both

What was the main source of the MRB technology used that year? (**Code B, multiple answers – up to 2 - are possible**)

Code B
1= Extension staff demo plots
2= Other farmers in the village
3= Market (Agrovet/local trader/stockist)
4=Farmer group/coop
5=Governmental
6=Private company

7= Cooperative
77= Other(specify _____)

Number of years that MRB technology has been used (…..Years)

Have you used the MRB technology last year? (1=Yes; 0=No)
If you did not use the MRB technology in 2017 what was the main reason? (**Code C, multiple answers – up to 2 - are possible**)

Code C
1=MRB Technology not available
2=Lacked cash to use MRB technology
3=Lacked credit to buy seed/technology
4= Prefer other technology
5=Low yielding
6=High input requirements
7=Limited land to use MRB technology
8= limited information
77= Other(specify _____)

Will you consider using the MRB technology in the future? (1=Yes; 0=No, 88=don't know)
If No to the previous question, what is the main reason? (**Code C , multiple answers – up to 2 - are possible)**

Code C
1=MRB Technology not available
2=Lacked cash to use MRB technology
3=Lacked credit to buy seed/technology
4= Prefer other technology
5=Low yielding
6=High input requirements
7=Limited land to use MRB technology
8= limited information
77= Other(specify _____)

Night Part: MRB Technology Attributes, Knowledge and Perception

	Do you know the attributes of the MRB Technology?	*Yes =1 No =0*
1	Availability of the machine	
2	Technology. Knowledge needed	
3	Cost of Adoption	
4	Yield	
5	Water saving	
6	Marketability (demand)	
7	Market price received	

Code A 1=Better 2=Worse 3=No difference 4=Don't know

What were the most important adoption criteria (from the table) for the MRB technology used? 1. _____ 2. _____ 3. _____

			1	2	3	4	5	6	7	77
			Extension staff/office	Other farmers (neighbors/relative)	Market (e.g. Agro vet/stockist)	Radio programs/TV	Research (trials/demos), Centre name _____	NGO, name _____	Own experience	Other, specific (_____)
… serves me as source of information **[Code A]**	For crop production	1								
	For livestock production	2								
It is **[Code B]** to receive information from …		3								

Code A 1= not at all 2=seldomly/rather poorly 3=sometimes 4=a lot/very often 5=very much
Code B 1=Very easy 2=Rather easy 3=Difficult 4=Very difficult

Tenth Part: The most Important Problems Facing Farmers

7.1. Irrigation problems facing farmers:	Degree of severity			What do you do to solve this problem?
	Severe	Weak	No Problem	
Water shortage, especially in summer				
Irrigation water doesn't reach the mesqa tail, especially in summer				
Spread of weeds that hinder the water flow				
using agricultural drainage water in irrigation				
Inadequate scheme of irrigation rotation				
Irregular irrigation rotation				
High costs of energy i.e. electricity and diesel				
High costs of cleaning the mesqa				
Long distance between my land and the main canal				
Pollution of irrigation water				
Narrow path across the mesqa				
Inability to cultivate some crops due to water shortage i.e. vegetables				
Unsuitable width of the mesqa for irrigation due to collapse of its bridges				
Absence of drainage system even surface or tile				
Frequent blockage of sprayers				
Frequent electricity cut off				
Frequent interruption of irrigation water				
Disable hydraulic lifting gates				
other (specify)				

7.2. Soil problems facing farmers:	Degree of severity			What do you do to solve this problem?
High water table due to absence of drainage system				
Poor nutrients				
High level of soil salinity				
Inability to cultivate some crops due to poor soil fertility				
Spread of weeds				
Spread of diseases i.e. root rot				
Spread of pests i.e. nematodes				
other (specify)				

7.3. Plant production problems facing farmers:	Degree of severity			What do you do to solve this problem?
High price of inputs and labor				
High prices of chemical fertilizers offered by agricultural co-operatives				
Unavailability of inputs (seeds - pesticides)				
Inadequate supply of chemical fertilizers				
Unavailability of improved varieties				
Agricultural co-operatives enforce farmers to buy undesired types of chemical fertilizers				
Associating the provision of agricultural inputs by agricultural co-operatives with the collection of installments				
Decision of cultivating crops is determined according to the availability of irrigation water and soil fertility regardless market needs				
Spread of pests i.e. scale insects and fruit flies				
Low crop price				
Low crop yield				
Poor role of agricultural extension				

7.4. Animal production problems facing farmers:	Degree of severity			What do you do to solve this problem?
	Severe	Weak	No Problem	
Lack green fodders				
High prices of live animals				
High prices of concentrates and dry fodders				
High prices of veterinary drugs				
Unavailability of concentrates and dry fodders				
Lack of veterinary services				
Far distance between site of production and markets				
Lack of finance				
other (specify) _____				

7.5. Funding problems facing farmers:	Degree of severity			What do you do to solve this problem?
High interest rate				
Short grace period				
Complicated banking procedures and required documents				
Guarantee difficulties				
other (specify)				

7.6. Marketing problems facing farmers:	Degree of severity			What do you do to solve this problem?
Far distance between site of production and markets				
High costs of transportation				
Unavailability of co-operative marketing				
Unavailability of marketing channels rather than the village merchant				
Unavailability of co-operative storages				
Low crop price				
other (specify) _____				