

HHID: _____

Oral Consent Form

Kuvomemeleza kutenga nawo mbali pa kafukufuku

Title of the research project: Agro-ecological Intensification and Production among smallholder farmers in Malawi

Hello! My name is _____ and I am working for Africa RISING. Researchers from Michigan State University are trying to learn about the lives of farmers in Malawi. We are asking farmers, like you, if they would like to participate in a face-to-face interview about how you farm, and it will last about an hour. You must be at least 18 years old to participate.

Dzina langa ndine _____ ndipo ndikugwira ntchito ndi Africa RISING. Gulu la kafukufuku la ku Michigan State University likufuna li phunzire zo khuzana ndi umoyo wa alimi mu Malawi. Tikufunsa alimi ngati inu, ngati muli okonzeka kutenga nawo gawo poyankha mafunso okhuzana ndi ulimi wanu, mafunsowa atitengela pafupifupi ola lathunthu. Mukeyenera kukhala osachepera zaka 18 kuti mutenge nawo gawo.

We are not selling anything or offering any services to you right now. We are only gathering information, but hope that by understanding the lives of farmers in Malawi, Michigan State University and other organizations may provide better services in the future.

Your participation is completely voluntary. Choosing to participate will not increase your opportunities to get services; and choosing not to participate will not decrease your opportunities to receive services. If you choose to participate, I will ask you a number of questions about your household, your farm, and your opinions about farming. You can choose not to answer any question you wish. Your answers will be completely confidential and only the research staff will see your answers. When we do our reports, your answers will be grouped with other farmers' answers to give an overall picture of the lives of farmers in this area. No one in your community will know what your answers are unless you tell them.

There's no cost or compensation offered to participate.

If you have any questions about the study you may contact Dr. Regis Chikowo at IITA by phone at 0994-859-401, or Mr. Emmanuel Jambo by phone at 0999-911-530.

Do you have any questions about this study or your participation?

A.10) Do you agree to participate in this interview?

Yes, No

[If no:] Thank you for your time today. [Indicate the respondent's indication that they do not agree to participate in the survey. Notify your supervisor at the end of the day.]

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Africa Rising Maize Response Study

March 2016

Name of household head:	GPS coordinates of house:							
	S	°	'	"	E	°	'	"
Name of respondent:								
Name of enumerator:	Checked by:				Entered by:			

EPA (circle one):	<i>1=Linthipe</i>	<i>2=Golomoti</i>	<i>3=Kandeu</i>	<i>4=Nsipe</i>	<i>5=Mtakataka</i>
Village (circle one):	<i>4=Kalumo</i>	<i>8=Katsese</i>	<i>12=Pitala</i>	<i>16=Sukasuka</i>	<i>20=Kahowela</i>
	<i>1=Mkuwazi</i>	<i>5=Amosi</i>	<i>9=Chawa</i>	<i>13=Kakhome</i>	<i>17=Gonthi</i>
	<i>2=Mbidzi</i>	<i>6=Mzililongwe</i>	<i>10=Kabango</i>	<i>14=Chikawola</i>	<i>18=Kampanje</i>
	<i>3=Msamala</i>	<i>7=Dauka</i>	<i>11=Wilson</i>	<i>15=Sitolo</i>	<i>19=Hauya</i>
				<i>21=Malinda</i>	<i>22=Njolomole</i>

We are here today to follow up again on the HIGH fertility and LOW fertility maize plots we took yield samples from last May. **(These are not your baby trials where in the past we have asked you to compare legume crops to maize but the two maize plots that you identified as HIGH and LOW fertility).** We would first like to ask you some questions about your household's fertilizer use and input prices.

PART 1: INPUT PRICES, FERTILIZER PURCHASES, AND SALES

A1. Did your household receive or purchase any coupons or fertilizer from the FISP program THIS growing season (2015/16)?	1=Coupons 2=Fertilizer 3=Both 4=Neither	
A2. If you received SUBSIDIZED FERTILIZER , from whom did you receive it?	1=Admarc 2=Input distributor 3=small agro-dealer/retail store 4=Another household 5=Extension 99=Other (specify)	
A3. How much NPK did you receive through the FISP program?(Unit codes below). Write "N/A" if NPK not received.	a. Amount	
	b. Unit	
A4. How much UREA did you receive through the FISP program? (Unit codes above). Write "N/A" if UREA not received.	a. Amount	
	b. Unit	

Unit codes:	<i>1=Kilograms</i>	<i>2=25 kg bag</i>	<i>3=50 kg bag</i>	<i>4=5 liter bucket</i>	<i>99=Other (specify)</i>
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A5. Did you purchase any UNSUBSIDIZED NPK THIS growing season? If YES, how much? If NO, write 0 and proceed to A6.	a. Amount	
	b. Unit	
A6. Did you purchase any UNSUBSIDIZED UREA THIS growing season? If YES, how much? If NO, write 0 and proceed to A7.	a. Amount	
	b. Unit	

A5a, A6a Codes: 1=Kilograms 2=25 kg bag 3=50 kg bag 4=5 liter bucket 99=Other (specify)

A7. Did you rent IN any land LAST growing season (2015)? If so, how much did it cost to rent IN one acre of good quality land for 12 months LAST growing season (2015)? (* = Did not rent, 0 = borrow)	_____ MWK
A8. Did you rent OUT any land growing season (2015)? If so, how much did it cost to rent OUT one acre of good quality land for 12 months LAST growing season (2015)? (* = Did not rent, 0 = borrow)	_____ MWK
A9. Did you rent IN any land THIS growing season (2016)? If so, how much did it cost to rent IN one acre of good quality land for 12 months THIS growing season (2016)? (* = Did not rent, 0 = borrow)	_____ MWK
A10. Did you rent OUT any land THIS growing season (2016)? If so, how much did it cost to rent OUT one acre of good quality land for 12 months THIS growing season (2016)? (* = Did not rent, 0 = borrow)	_____ MWK

A11. Did you sell any maize over the past 12 months? (1=Yes, 2=No). If no, SKIP to A16		
A12. How much maize did you sell in your largest transaction?	a. Amount _____ b. Unit _____ c. 1=Shelled _____ 2=Unshelled	
A13. To whom was your largest maize sale in the past 12 months? (Buyer codes below)		
A14. Where did the buyer take possession of the maize for this transaction?	1=At the field 2=In the village/local trading center 3=The nearest large trading center 4=At the household 99=Other (specify)	
A15. How far did you have to travel from the field to the point where the buyer took possession of the maize for the largest sale?		_____ km

A12 Unit codes: 1=kilograms 2=25 kg bag 3=50 kg bag 4=90 kg bag 5=5L bucket 6=10L bucket 7=Plate 8=Oxcart 99=Other (specify)	A14 Buyer codes: 1=Other household 2=Small trader 3=Large trader 4=Processor 5=Admarc 99=Other (specify)
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A16. Did you grow any pigeon pea over the past 12 months ? (1=Yes, 2=No). If no, SKIP to A23		
A17. Did you sell any pigeon pea over the past 12 months ? (1=Yes, 2=No). If no, SKIP to A23		
A18. How much pigeon pea did you sell in your largest transaction?	a. Amount _____ b. Unit _____ c. 1 = Shelled 2 = Unshelled	
A19. To whom was your largest pigeon pea sale in the past 12 months? (Buyer codes below)		
A20. Where did the buyer take possession of the pigeon pea for this transaction?	1=At the field 2=In the village/local trading center 3=The nearest large trading center 99=Other (specify)	
A21. How far did you have to travel from the field to the point where the buyer took possession of the pigeon pea for the largest sale?		_____ km
A22. Over the past 12 months, how many traders came to this village to buy pigeon pea from farmers?		

Unit codes: 1=kilograms 2=25 kg bag 3=50 kg bag 4=90 kg bag 5=5L bucket 6=10L bucket 7=Plate 9=Oxcart 99=Other (specify)	Buyer codes: 1=Other household 2=Small trader 3=Large trader 4=Processor 5=Admarc 99=Other (specify)
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DEMOGRAPHIC TABLE: Please fill out the below for anyone in the household **OVER THE AGE OF 12 YEARS.**

A23. Person ID	A24. Given name	A25. Gender (1=Male, 2=Female)	A26. Relationship to head 1=Head 2=Spouse 3=Son/daughter 4=Brother/sister 5=Grandparent 6=In-law 7=Mother/father 8=Grandchild 99=Other (specify)	A27. Age in years	A28. Was this person ILL and unable to work for at least 1 month out of the past 12? (1=Yes, 2=No)	A29. Using the beans provided you, ask the respondent to show how this person split their total time working between on- farm, on others' farms (ganyu), and in non-farm businesses/wage jobs in NOVEMBER-MAY of the past 12 months?			A30. Using the beans provided you, ask the respondent to show how this person split their total time working between on- farm, on others' farms (ganyu), and in non-farm businesses/wage jobs in JUNE- OCTOBER of the past 12 months?		
						a. # beans in on-farm pile	b. # beans in ganyu pile	c. # beans in off-farm pile	a. # beans in on-farm pile	b. # beans in ganyu pile	c. # beans in off-farm pile
Head 1											
Spouse 2											
3											
4											
5											
6											
7											
8											

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PART 2: HIGH FERTILITY PLOT

Continue to the high fertility plot as identified by the farmer in September and take GPS readings from the southeast of the plot to confirm it is the correct plot. You MUST verify that this is the same plot that was identified as high fertility from September's survey. Do this by telling the farmer you want to visit the same plots (high and low) from last time AND check to make sure you have the same GPS coordinates. Then give the farmer the GPS and have him/her walk around the border of the area on which fertilizer was applied. If the plot was FALLOWED or RENTED OUT, continue to SECTION D and also complete the supplementary FALLOW/RENTED OUT section at the END.

GPS coordinates from center of plot:	S	°	'	''	E	°	'	''

HF1: Ask the farmer: *What is the area of this maize plot?* _____ acres

HF2: Do the GPS coordinates from the center of this plot match those on your list? 1=Yes 2=No

HF3: Ask the farmer to walk around the plot with the GPS. *Area of plot:* _____ square meters

HF4: Did you fertilize this plot? Circle your response. 1=Yes 2=No

HF5: If YES, was the whole area fertilized? Circle your response. 1=Yes 2=No ☺ ☹ ☹

HF6: If only part of the plot was fertilized, ask the farmer: *What is the area that was fertilized?* _____ acres

HF7: *If fertilized, GPS area that was fertilized:* _____ square meters

HF8: *Name of plot:* _____ Does this match the plot name on your list? Circle your response. 1=Yes 2=No

Enumerators: *The following questions pertain only to the part of this plot which was FERTILIZED. If none of it was, these questions pertain to the entire plot. When you are done, proceed to the plot identified by the farmer as being the least fertile.*

Enumerators: *After farmer has demonstrated plot boundaries using the GPS to obtain plot area, please ask the farmers to describe the plot and crops planted on it LAST growing season and THIS growing season (if necessary have farmer demonstrate crop and planting demarcation in the plot). Draw their description below. Also include any observations you have when drawing the plot (e.g., a mango tree in the corner of the plot, walk paths, etc.)*

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SECTION D: LAST GROWING SEASON'S LABOR INPUTS

Enumerators: Please ask the following questions about labor applied on the plot LAST GROWING SEASON (2015). Ask this regardless of whether the plot has been left fallow or rented out THIS GROWING SEASON (2016).

D1. When working on this plot, at what time do family members LEAVE HOME in the MORNING and RETURN for LUNCH ?	a. Leave in am:	b. Return for lunch:
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D2. When working on this plot, at what time do you LEAVE HOME in the MORNING and at what time do ARRIVE at the field?	a. Leave in am:	b. Arrive at field:
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D3. How many minutes does it take to walk to this plot?		
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D4. When working on this plot, at what time do family members LEAVE HOME in the AFTERNOON and RETURN in the EVENING ?	a. Leave in pm:	b. Return in evening:
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LAST GROWING SEASON'S FAMILY LABOR: Please fill out the table below for anyone in the household OVER THE AGE OF 12 YEARS WHO WORKED ON THIS PLOT LAST SEASON. ASK ONLY ABOUT LABOR FOR LAST GROWING SEASON ON THIS PLOT. Enumerators: Make sure the name and person ID matches names on the table in Section A.

LAST SEASON

D5. Person ID	D6. Given name	D7. How many mornings and afternoons spent on LAND PREP?		D8. How many mornings and afternoons spent on ONE HERBICIDE APPLICATION		D9. How many mornings and afternoons spent PLANTING?		D10. How many mornings and afternoons spent on BASAL FERTILIZER APPLICATION		D11. How many mornings and afternoons spent on TOP DRESSING APPLICATION		D12. How many mornings and afternoons spent on FIRST WEEDING?		D13. How many mornings and afternoons spent on SECOND WEEDING?		D14. How many mornings and afternoons spent on THIRD WEEDING?		D15. How many mornings and afternoons spent HARVESTING	
		a. # Mornings	b. # Afternoons	a. # Mornings	b. # Afternoons	a. # Mornings	b. # Afternoons	a. # Mornings	b. # Afternoons	a. # Mornings	b. # Afternoons	a. # Mornings	b. # Afternoons	a. # Mornings	b. # Afternoons	a. # Mornings	b. # Afternoons	a. # Mornings	b. # Afternoons
1																			
2																			
3																			
4																			
5																			
6																			
7																			
8																			

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D16. Did any CHILDREN work on this plot LAST SEASON? If NO, put a slash through the following table. If YES, please fill out the table below.	1=Yes 2=No
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LAST GROWING SEASON'S CHILD FAMILY LABOR ON HIGH FERTILITY PLOT:
Please ask the farmers how many children (under age 12) in the household worked on **this plot** LAST growing season and how many mornings and afternoons they EACH spent doing so.

<u>LAST SEASON</u>	a. # children in HH who worked on this plot	b. # mornings spent on this plot	c. # afternoons spent on this plot
D17. Land prep			
D18. ONE herbicide app'n			
D19. Planting			
D20. Basal fertilizer application			
D21. Top dressing application			
D22. First weeding			
D23. Second weeding			
D24. Third weeding			
D25. Harvest			

D26. Did any HIRED LABORERS work on this plot LAST SEASON? If NO, put a slash through the following table. If YES, please fill out the table below.	1=Yes 2=No
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LAST GROWING SEASON'S HIRED LABOR ON HIGH FERTILITY PLOT: Please ask the farmers how many HIRED LABORERS worked on **this plot** LAST growing season and how many mornings and afternoons they EACH spent doing so.

<u>LAST SEASON</u>	a. # hired laborers who worked on this plot	b. # mornings spent on this plot	c. # afternoons spent on this plot
D27. Land prep			
D28. ONE herbicide app'n			
D29. Planting			
D30. Basal fertilizer application			
D31. Top dressing application			
D32. First weeding			
D33. Second weeding			
D34. Third weeding			
D35. Harvest			

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SECTION B: HIGH FERTILITY SOIL PREPARATION AND PLANTING

Please list the crops planted on this plot this season and the dates planted (Codes below)

	B1. Main crop	B2. 1st intercrop	B3. 2nd intercrop	B4. 3rd intercrop	B5. 4th intercrop	B6. 5th intercrop	B7. Border crop
a. Crop code							
b. Month planted (and year: 2014, 2015, etc.)							
c. Week planted							
d. Variety name							
e. Type of variety							
<p>Crop Codes: 1=Local maize chimanga cha makolo 2=Hybrid maize chimanga cha makono 3=OPV/Composite maize 4=Tobacco/ fodya 5=Cotton / thonje 6=Pigeonpea/nandolo 7=Groundnut/mtedza 8=Soya bean / soya 9=Common bean Nyemba 10=Velvet bean Kalongonda</p> <p>11=Cowpea/ Khobwe 12=Bambara nut Nzama 13=Sorghum / Mapira 14=Cassava / Chinangwa 15=Sweet potato Mbatata za kholowa 16=Millet 17=Pumpkin 18=Sugarcane 88=Local/hybrid maize mix 99=Other (specify)</p> <p>Month codes 1=January 2=February 3=March 4=April etc. 88=Volunteer (leave c, d, e, f blank) 99=Ratooned (if so, get name, variety, type of variety, seed source; answer d, e, f but leave a and c blank)</p> <p>Type of Variety Codes: 1=Local 2=Newly acquired hybrid 3=Saved hybrid 4=OPV/composite 5=Unknown 88=Local/hybrid mix 99=Other (specify)</p>							

B8. If maize was not planted on this plot, why not?	
<p>Codes: 1=Did not grow well last year 2=Wanted more profitable crop to sell 3=Wanted to build up soil fertility 99=Other (specify)</p>	

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HHID:	B9. RIDGE PREP	B10. TYPE OF RIDGE PREP	B11. FIRST PLANTING RAINS	B12. SECOND RAINS	B13. THIRD RAINS	B14. PLANTING DATE	B15. 1ST DRY SPELL WHICH AFFECTED MAIZE			B16. 2ND DRY SPELL WHICH AFFECTED MAIZE			B17. 3RD DRY SPELL WHICH AFFECTED MAIZE			B18. EXPECTED HARVEST TIME
							a. BEGINNING/ RAINS STOPPED DAY OF THE MONTH	b. LENGTH OF DRY SPELL IN DAYS	c. MAIZE GROWTH STAGE	a. BEGINNING/ RAINS STOPPED DAY OF THE MONTH	b. LENGTH OF DRY SPELL IN DAYS	c. MAIZE GROWTH STAGE	a. BEGINNING/ RAINS STOPPED DAY OF THE MONTH	b. LENGTH OF DRY SPELL IN DAYS	c. MAIZE GROWTH STAGE	
MONTH OF THIS GROWING SEASON	WEEK OF MONTH (1, 2, 3 OR 4)	USE CODES ON NEXT PAGE	DAY OF THE MONTH	DAY OF THE MONTH	DAY OF THE MONTH	DAY OF THE MONTH										WEEK OF MONTH (1, 2, 3 OR 4)
<i>va. MAY (2015)</i>																
<i>via. JUNE (2015)</i>																
<i>vii. JULY (2015)</i>																
<i>viii. AUGUST (2015)</i>																
<i>ix. SEPTEMBER (2015)</i>																
<i>x. OCTOBER (2015)</i>																
<i>xi. NOVEMBER (2015)</i>																
<i>xii. DECEMBER (2015)</i>																
<i>i. JANUARY (2016)</i>																
<i>ii. FEBRUARY (2016)</i>																
<i>iii. MARCH (2016)</i>																
<i>iv. APRIL (2016)</i>																
<i>vb. MAY (2016)</i>																
<i>vib. JUNE (2016)</i>																
<i>vii. JULY (2016)</i>																

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Ridge preparation codes 1=Incorporate residues into ridges 2=Burn entire field	3=Incorporate some residues and burn some 4=Cut and burn all residues 5=Level soil	6=Move old ridges to furrow and rebuild 7=Leave soil in old ridge and bank 8=Build mounds	9=Dig planting basins 10=Animal traction 11=Zero tillage 99=Other (specify)
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B19. Did you incorporate any legume residues into your ridges? If NO, fill out B19b. If yes, fill out the chart below for each legume residue incorporated. CODES BELOW.				a. 1=Yes 2=No	b. If not, why? (Codes below)
<i>Legume crop code</i>	b. When incorporated	c. Amount	d. Unit	e. Source	
B20a. 1 st legume					
B21a. 2 nd legume					
B22a. 3 rd legume					

<i>Did you apply any of the following to/in the ridges/planting stations?</i>						
B23. Weeds	a. 1=Yes 2=No	b. When?	c. Amount	d. Unit	e. Source	f. If not, why not?
B24. Maize	a. 1=Yes 2=No	b. When?	c. Amount	d. Unit	e. Source	f. If not, why not?
B25. Ash	a. 1=Yes 2=No	b. When?	c. Amount	d. Unit	e. Source	f. If not, why not?

B26. Did you incorporate any animal manure into your ridges? If NO, fill out B26b. If yes, fill out the chart below for each type of animal manure incorporated. CODES ABOVE				a. 1=Yes 2=No	b. If not, why? (Codes above)
<i>Type of manure</i>	b. When incorporated	c. Amount	d. Unit	e. Source	
B27a. 1 st type					
B28a. 2 nd type					
B29a. 3 rd type					

Why not incorp. 1=Farmer/respondent burned 2=Were burned by someone else 3=Used for fuel 4=Used for fodder 5=Insufficient labour 6=Did not grow 7=Does not have livestock 8=Used in another field 99=Other (specify)	Legume codes 1=Pigeon pea 2=Groundnut 3=Cowpea 4=Common bean 5=Soya 99=Other (specify)	Unit Codes 1=Same (what was left in the field) 2=Kilograms 3=25 kg bag 4=50 kg bag (fertilizer bag) 5=90 kg bag (maize bag) 6=5L bucket 7=10L bucket 8=Ox cart 9=Handful 99=Other (specify)	Source Codes 1=Own production on THIS field 2=Own production on ANOTHER field 3=Other farmer/household 4=Payment for work 5=Extension agent 6=Local store 7=FISP 8=Inputs for Assets 9=Other NGO 10=Own livestock 99=Other (specify)
Timing of application codes 1=When turning ridges early right after harvest 2=When turning ridges just before first planting rains 3=when turning ridges after first planting rains right before planting 4= after ridge turning but before planting (incorporation)	5= after ridge turning but before planting (planting station application) 6=at planting in station with seed 7=about ten days after planting with first weeding 8=about 30 days after planting with second weeding 99=Other (specify use days after or before planting)	Manure types 1=Chicken manure 2=Goat manure 3=Swine manure 4=Cow mixture 5=Rabbit manure 99=Other animal manure (specify)	

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B30. Did you incorporate any COMPOST into your ridges? If NO, fill out B30b. If yes, fill out the chart below for what was in the compost CODES BELOW)				a. 1=Yes 2=No	b. If not, why? (Codes above)
c. When incorporated	d. Amount	e. Unit	f. Source	g. Was any material remaining to the eye when applied?	1=Yes 2=No
h. What was in the compost? List up to 5; codes below		i. _____ ii. _____ iii. _____ iv. _____ v. _____			

Why not incorp. 1=Farmer/respondent burned 2=Were burned by someone else 3=Used for fuel 4=Used for fodder 5=Insufficient labour 6=Did not grow 7=Does not have livestock 8=Used in another field 99=Other (specify)	Unit Codes 1=Same (what was left in the field) 2=Kilograms 3=25 kg bag 4=50 kg bag (fertilizer bag) 5=90 kg bag (maize bag) 6=5L bucket 7=10L bucket 8=Ox cart 9=Handful 99=Other (specify)	Source Codes 1=Own production on THIS field 2=Own production on ANOTHER field 3=Other farmer/household 4=Payment for work 5=Extension agent 6=Local store 7=FISP 8=Inputs for Assets 9=Other NGO 10=Own livestock 99=Other (specify)	
Timing of application codes 1=When turning ridges early right after harvest 2=When turning ridges just before first planting rains 3=When turning ridges after first planting rains right before planting 4= After ridge turning but before planting (incorporation)	5= after ridge turning but before planting (planting station application) 6=at planting in station with seed 7=about ten days after planting with first weeding 8=about 30 days after planting with second weeding 99=Other (specify use days after or before planting)	Compost contents 1=23:21:0+4S (NPK) 2=Urea 3=CAN 4=Other fertilizer (specify) 5=Chicken manure 6=Cow manure 7=Rabbit manure 8=Goat manure 9=Rabbit manure 10=Crop residue	11=Herbicide 12=Insecticide 13=Ash 14=Kitchen scraps 15=Maize residue 16=Groundnut residue 17=Soya residue 18=Weeds 19=Swine manure 20=Water 99=Other (specify)

Did you apply any of the following amendments?(Codes below) (In part b, m=month, w=week)

B31. NPK	a. 1=Yes 2=No	b. When? _____ m _____ w	c. Timing	d. Amount	e. Unit	f. How much of container used
B32. UREA	a. 1=Yes 2=No	b. When? _____ m _____ w	c. Timing	d. Amount	e. Unit	f. How much of container used
B33. CAN	a. 1=Yes 2=No	b. When? _____ m _____ w	c. Timing	d. Amount	e. Unit	f. How much of container used
B34. Herbicide TYPE: _____	a. 1=Yes 2=No	b. When? _____ m _____ w	c. Timing	d. Amount	e. Unit	f. How much of container used
B35. Insecticide TYPE: _____	a. 1=Yes 2=No	b. When? _____ m _____ w	c. Timing	d. Amount	e. Unit	f. How much of container used
B36a. Other (specify)		b. When? _____ m _____ w	c. Timing	d. Amount	e. Unit	f. How much of container used

B31b-B36b Month Codes: 10=October 11=November 12=December, etc.	B31c-B36c Codes: 1=During ridge preparation 2=Right BEFORE planting 3=During planting 4=1-10 days AFTER planting 5=Greater than 11 days AFTER planting 99=Other (specify)	B31e-B36e Codes: 1=Kilograms 2=25 kg bag 3=50 kg bag (fertilizer bag) 4=90 kg bag (maize bag) 5=5L bucket 6=10L bucket 7=Plate 8=Sugar packet 9=Ox cart 99=Other (specify)	B31f-B36f Codes: 1= 1/4 or less 2= 1/2 3= 3/4 4=All
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B37. What challenges did you face in production ON THIS PLOT this growing season? List up to 3(codes below)	B37a. _____ B37b. _____ B37c. _____																																
B38. Enumerators: Please comment on soil and plant health (List as many as applicable from below)	B38a. _____ B38b. _____ B38c. _____ B38d. _____																																
B37, B38 Codes:	<table border="0"> <tr> <td>0=None</td> <td>7=Poor soil quality</td> <td>14=Not enough rain</td> <td>22=Insufficient labour</td> </tr> <tr> <td>1=Insect pests</td> <td>8=Competition in intercropping</td> <td>15=Runoff/erosion</td> <td>23=Planted too late</td> </tr> <tr> <td>2=Termites</td> <td>9=Late maturing variety</td> <td>16=Erratic rainfall</td> <td>24=Late rain</td> </tr> <tr> <td>3=Weeds</td> <td>10=Not enough fertilizer</td> <td>17=Too much sun</td> <td>25=dry spell (specify number of events)</td> </tr> <tr> <td>4=Striga (witch weed)</td> <td>11=Poor germination</td> <td>18=Winds</td> <td>26=Stunting</td> </tr> <tr> <td>5=Disease</td> <td>12=Waterlogging</td> <td>19=Livestock grazing</td> <td>27=Plants look healthy</td> </tr> <tr> <td>6=Poor seed quality</td> <td>13=Too much rain</td> <td>20=Rodent attack</td> <td>99=Other (specify)</td> </tr> <tr> <td></td> <td></td> <td>21=Bird attack</td> <td></td> </tr> </table>	0=None	7=Poor soil quality	14=Not enough rain	22=Insufficient labour	1=Insect pests	8=Competition in intercropping	15=Runoff/erosion	23=Planted too late	2=Termites	9=Late maturing variety	16=Erratic rainfall	24=Late rain	3=Weeds	10=Not enough fertilizer	17=Too much sun	25=dry spell (specify number of events)	4=Striga (witch weed)	11=Poor germination	18=Winds	26=Stunting	5=Disease	12=Waterlogging	19=Livestock grazing	27=Plants look healthy	6=Poor seed quality	13=Too much rain	20=Rodent attack	99=Other (specify)			21=Bird attack	
0=None	7=Poor soil quality	14=Not enough rain	22=Insufficient labour																														
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6=Poor seed quality	13=Too much rain	20=Rodent attack	99=Other (specify)																														
		21=Bird attack																															

B39. Was this plot FLOODED this season?	1=Yes 2=No	
If YES, please fill out the following table. If no, SKIP to B41. Please list the month of the first flooding and the number of days for which it was flooded.		
B40a. Month 1 (Jan=1, Feb=2, etc):	B40b. Number of days:	

B41. Did this plot suffer from a DRYSPELL this season? If no, SKIP to B45	1=Yes 2=No	
B42. Did you have to replant (remove dead plants and replant) your crop after any dry spell? If no, SKIP to B45	1=Yes 2=No	
B43. If so, list all that apply (1=first, 2=second, 3=third dry spell)		
B44. Any additional comments on dry spell:		

B45 How was the initial main crop's seed germination (after first planting)? (If nearly all or all, <u>SKIP</u> to B49) (Note: This question is for the seed of the main crop REGARDLESS of whether it was maize)	0=No seed germinated 1=Less than half of the seed germinated 2=Half of the seed germinated 3=Nearly all OR all seed germinated 99=Other (specify)	
B46. If you had poor germination what do you think was the cause? (List all that apply)	1=Planted late 2=Not enough rain 3=Too much rain (seed washed away) 4=Rodents 5=Birds ate newly emerged plants 7=Poor seed quality 8=Planting depth 99=Other (specify)	
B47. Due to poor germination, how many times did you gap? (1, 2, 3, 4)		
B48. If after the number of above attempts to establish the crop stand failed, what course of action did you take?	1=Left it with poor stand 2=Left and planned to plant a different crop later in the season (specify) _____ 3=Replaced with a different crop immediately (specify) _____ 4=Rented the field 99=Other (specify)	

HHID: _____

B49. Has this plot had a problem with striga in the past? If no, SKIP to Section C.	1=Yes 2=No	
B50. If so, what is the last season in which striga was a problem on this plot?	1=Last growing season (2014/15) 2=Growing season before last (2013/14) 3=Years ago	
B51. Have you seen striga in this plot yet this growing season?	1=Yes 2=No	

SECTION C: HIGH FERTILITY PLOT WEEDING AND HERBICIDE USE

Enumerators: The following questions pertain only to the part of this plot which was FERTILIZED. If none of it was, ask these questions for the entire plot.

C1. Did you apply herbicide to this plot before planting? (1=Yes, 2=No)		
C2. Were there weeds in the plot at the time of planting? If so, what did you do with them?	0=No weeds 1=Removed all 2=Removed only where planting stations located 3=Left them and planted 4=APPLIED AN HERBICIDE 99=Other (specify)	
C3. 10 days after planting, how many weeds did this plot have in it as compared to your other plots?	0=No weeds 1=Fewer than others 2=Same as others 3=More than others 4=Fewer than others due to HERBICIDE application	
C4. 30 days after planting, how many weeds did this plot have in it as compared to your other plots?	0=No weeds 1=Fewer than others 2=Same as others 3=More than others 4=Fewer than others due to HERBICIDE application	
C5. What type of weeds do you have the most problem with on this field at different times in the growing season?(1=Grasses, 2=Broadleaf. MUST CHOOSE ONE: CANNOT BE BOTH PER TIME STAMP)	a. Crop establish-ment	b. Mid growing season
		c. After tassle

C6. What did you do with the weeds? List up to 3 uses (codes below).	a. _____ b. _____ c. _____
C7. Have the dry spells caused you to weed more this year?	1=Yes 2=No
C8. Did you weed this plot the same number of times you did last growing season?	1=Yes 2=No
C9. Why or why not? (List up to 3; codes below)	a. _____ b. _____ c. _____

C6 Codes: 1=Burn all 2= Burn some/ incorporate some 3=Incorporate ALL into ridge 4=Incorporate some into ridge and remove rest but not burn 5=Put in furrow and incorporate at next weeding/banking 6=Remove from field 7=Fed to livestock 8=Used for food 9=Incorporate some and handpick some and put in furrow 10=Hand pull and remove 99=Other (specify)	C9 Codes: 1=Same number of weeds in plot this year as last 2=More weeds in plot this year than last 3=More time to weed this year than last 4=Family labor shortage (due to illness, migration, etc.) LAST year 5=Labor too expensive LAST year 6=Fewer weeds in plot this year than last 7=Less time to weed this year than last	8=Family labor shortage (due to illness, migration, etc.) this year 9=Labor too expensive this year 10=Using herbicides instead this year 11=Received advice on weeding (from extension agent, other farmer, etc.) 12=Doesn't know/what has always done on this plot 13=Rains caused more weeds 14=Rains caused FEWER weeds 99=Other (specify)
--	---	---

HHID: _____

C10. <i>Did you apply Roundup /Glyphosate to this plot? If no, SKIP to C13.</i>	1=Yes 2=No	
C11. <i>Were weeds visible when you applied Roundup/Glyphosate?</i>	1=Yes 2=No	
C12. <i>What ratio of Roundup/Glyphosate to water did you use?</i>	a. _____ : Roundup/ Glyphosate	b. _____ Water

C13. <i>Did you apply Harness/Bullet to this plot? If no, SKIP to C16.</i>	1=Yes 2=No	
C14. <i>Were weeds visible when you applied Harness/Bullet?</i>	1=Yes 2=No	
C15. <i>What ratio of Harness/Bullet to water did you use?</i>	a. _____ : Harness/ Bullet	b. _____ Water

C16. <i>Did you mix Roundup /Glyphosate and Harness/Bullet for any herbicide application? (If YES, continue to C17 If NO, proceed to C19)</i>	1=Yes 2=No	
<i>If YES, for which application(s) did you mix Roundup/Glyphosate and Harness/Bullet, and were the weeds visible when you applied it?(Write all that apply; 1=first, 2=second, 3=third, etc.)</i>	Application #:	Weeds visible? (1=Yes, 2=No)
	C17a.	C17b.
	C18a.	C18b.

HHID: _____

COPY MAIZE PLANTING DATE FROM B14	Time Use Table: Please fill out the table below of activities performed after planting MAIZE . Codes BELOW.													
	Under the TIME column, ✓ all that apply							Under the TYPE column, enter the appropriate code listed below						
	C19. 1 ST HERBICIDE APPLICATION		C20. CROP EMERGENCE	C21. 2 ND HERBICIDE APPLICATION		C22. 1 ST FERTILIZING		C23. 1 ST WEEDING		C24. 1 ST SUPPLY- ING	C25. 1 ST THIN- NING	C26. 1 ST GAPPIN G	C27. 3 rd HERBICIDE APPLICATION	
	a. TIME	b. TYPE	TIME	a. TIME	b. TYPE	a. TIME	b. TYPE	a. TIME	b. TYPE				a. TIME	b. TYPE
i. DAY OF PLANTING														
ii. 1-3														
iii. 4-9														
iv. 10-15														
v. 16-29														
vi. 1 month (30-35)														
vii. 36-44														
viii. 45-59														
ix. 2 months (60-75)														
x. 2.5 months (76-89)														
xi. 3 months (90-104)														
xii. 3.5 months (105-119)														
xiii. 4 months (120-134)														
xiv. 4.5 months (135-150)														

<p>Fertilizer types: 1=NPK 2=UREA 3=CAN 4=DAP 5=NPK/UREA mixture 99=Other (specify)</p>	<p>Herbicide types: 1=Roundup /Glyphosate 2=Harness /Bullet 3=Roundup /Glyphosate and Harness /Bullet mixture 99=Other (specify)</p>	<p>Weeding types: 1=Scrape and bank 2=Scrape and leave in furrow 3=Hand pulling and leave in furrow (no banking) 4=Just banking 99=Other (specify)</p>
--	--	---

HHID: _____

Time Use Table Cont'd: Please fill out the table below of activities performed after planting. Codes on PREVIOUS page.												
HHID:	Under the TIME column, ✓ all that apply						Under the TYPE column, enter the appropriate code listed below					
	C28. 2ND WEEDING OR BANKING		C29. 2ND SUPPLY-ING	C30. 2ND THIN-NING	C31. 2ND GAP-PING	C32. 2ND FERTILIZING		C33. 3RD SUPPLYING	C34. 3RD THIN-NING	C35. 3RD GAPPING	C36. 3RD WEEDING	
	a. TIME	b. TYPE				a. TIME	b. TYPE				a. TIME	b. TYPE
	DAYS AFTER PLANTING											
i. DAY OF PLANTING												
ii. 1-3												
iii. 4-9												
iv. 10-15												
v. 16-29												
vi. 1 month (30-35)												
vii. 36-44												
viii. 45-59												
ix. 2 months (60-75)												
x. 2.5 months (76-89)												
xi. 3 months (90-104)												
xii. 3.5 months (105-119)												
xiii. 4 months (120-134)												
xiv. 4.5 months (135-150)												

C37. Other practices not captured and their timing:

HHID: _____

LOCATION AND SAMPLE NUMBER WITHIN HIGH FERTILITY PLOT								
	1	2	3	4	5	6	7	8
RIDGE	RIDGE	RIDGE	RIDGE	RIDGE	RIDGE	RIDGE	RIDGE	RIDGE
E1. RIDGE WEED RANKING <i>(INCLUDE WITCH WEED)</i>								
E2. RIDGE WITCH WEED (1=Present 2=Not present)								
FURROW	FURROW	FURROW	FURROW	FURROW	FURROW	FURROW	FURROW	FURROW
E3. FURROW WEED RANKING <i>(INCLUDE WITCH WEED)</i>								
E4. FURROW WITCH WEED (1=Present, 2=Not present)								

HHID: _____

HIGH FERTILITY PLOT	METER ID	atLEAF CHLOROPHYLL READINGS (4 PLANTS PER LOCATION & 3 READING REPS PER PLANT ON SAME LEAF AREA)															
	<input type="text"/>	1		2		3		4		5		6		7		8	
		GROW STAGE	SPAD	GROW STAGE	SPAD	GROW STAGE	SPAD	GROW STAGE	SPAD	GROW STAGE	SPAD	GROW STAGE	SPAD	GROW STAGE	SPAD	GROW STAGE	SPAD
1	F1a. PLANT 1 REP 1	GS		GS		GS		GS		GS		GS		GS		GS	
	F1b. PLANT 1 REP 2	# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES	
	F1c. PLANT 1 REP 3	NL		NL		NL		NL		NL		NL		NL		NL	
2	F2a. PLANT 1 REP 1	GS		GS		GS		GS		GS		GS		GS		GS	
	F2b. PLANT 1 REP 2	# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES	
	F2c. PLANT 1 REP 3	NL		NL		NL		NL		NL		NL		NL		NL	
3	F3a. PLANT 1 REP 1	GS		GS		GS		GS		GS		GS		GS		GS	
	F3b. PLANT 1 REP 2	# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES	
	F3c. PLANT 1 REP 3	NL		NL		NL		NL		NL		NL		NL		NL	
4	F4a. PLANT 1 REP 1	GS		GS		GS		GS		GS		GS		GS		GS	
	F4b. PLANT 1 REP 2	# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES	
	F4c. PLANT 1 REP 3	NL		NL		NL		NL		NL		NL		NL		NL	

HHID: _____

SECTION G: SUPPLEMENTAL FALLOW/RENTED OUT SECTION

Enumerators: Fill out this section if the plot was either left FALLOW or RENTED OUT THIS growing season.

G1. Was this plot fallowed or rented out <i>THIS</i> season?		1=Fallowed 2=Rented out
G2. Why was it fallowed/rented out?(Codes below)		
G3. What was the area fallowed/rented out?		_____ meters ²
G4. For how long was it fallowed/rented out?	a. Time	b. Units (1=season, 2=year)
G2 Codes: 1=Not enough inputs 2=Not enough labor	3=Completely infertile (not fertile enough to use inputs) 4=To increase soil fertility 5=Waterlogged	6=Family use (e.g., funeral plot) 7=Need the money 99=Other (specify)

G5. If plot was <i>RENTED OUT</i> , what was received in payment?	a. Amount _____	b. Unit _____
G5 Codes: 0 =Borrowed 1=Kwacha	2=kg maize 3=50 kg bag maize	4=90 kg bag maize 99=Other (specify)
G6. Item received in payment if not MWK or maize?		

G7. If plot left fallow, which crops do you plan to plant on it next growing season? (List up to 3)		a. _____ b. _____ c. _____
G7 Codes: 1=Local maize 2=Hybrid maize 3=OPV/composite maize 4=Tobacco 5=Cotton 6=Pigeon pea	7=Groundnut 8=Soya bean 9=Common bean 10=Velvet bean 11=Cowpea 12=Bambara nut 13=Sorghum	14=Cassava 15=Sweet potato 16=Millet 17=Pumpkin 18=Sugarcane 99=Other (specify)

G8. Other comments:

HHID: _____

PART 3: LOW FERTILITY PLOT

Continue to the LOW fertility plot as identified by the farmer in September and take GPS readings from the southeast of the plot to confirm it is the correct plot. You MUST verify that this is the same plot that was identified as LOW fertility from September's survey. Do this by telling the farmer you want to visit the same plots (high and low) from last time AND check to make sure you have the same GPS coordinates. Then give the farmer the GPS and have him/her walk around the border of the area on which fertilizer was applied. If the plot was FALLOWED or RENTED OUT, continue to SECTION K and also complete the supplementary FALLOW/RENTED OUT section at the END.

GPS coordinates from center of plot:	S	°	'	''	E	°	'	''

LF1: Ask the farmer: *What is the area of this maize plot?* _____ acres

LF2: Do the GPS coordinates from the center of this plot match those on your list? 1=Yes 2=No

LF3: Ask the farmer to walk around the plot with the GPS. *Area of plot:* _____ square meters

LF4: Did you fertilize this plot? Circle your response. 1=Yes 2=No

LF5: If YES, was the whole area fertilized? Circle your response. 1=Yes 2=No ☺ ☺ ☺

LF6: If only part of the plot was fertilized, ask the farmer: *What is the area that was fertilized?* _____ acres

LF7: *If fertilized, GPS area that was fertilized:* _____ square meters

LF8: *Name of plot:* _____ Does this match the plot name on your list? Circle your response. 1=Yes 2=No

Enumerators: *The following questions pertain only to the part of this plot which was FERTILIZED. If none of it was, these questions pertain to the entire plot. When you are done, proceed to the plot identified by the farmer as being the least fertile.*

Enumerators: *After farmer has demonstrated plot boundaries using the GPS to obtain plot area, please ask the farmers to describe the plot and crops planted on it LAST growing season and THIS growing season (if necessary have farmer demonstrate crop and planting demarcation in the plot). Draw their description below. Also include any observations you have when drawing the plot (e.g., a mango tree in the corner of the plot, walk paths, etc.)*

HHID: _____

SECTION J: LAST GROWING SEASON'S LABOR INPUTS

Enumerators: Please ask the following questions about labor applied on the plot LAST GROWING SEASON (2015). Ask this regardless of whether the plot has been left fallow or rented out THIS growing season (2016).

J1. When working on this plot, at what time do family members LEAVE HOME in the MORNING and RETURN for LUNCH ?	a. Leave in am:	b. Return for lunch:
---	-----------------	----------------------

J2. When working on this plot, at what time do you LEAVE HOME in the MORNING and at what time do ARRIVE at the field?	a. Leave in am:	b. Arrive at field:
---	-----------------	---------------------

J3 How many minutes does it take to walk to this plot?		
---	--	--

J4. When working on this plot, at what time do family members LEAVE HOME in the AFTERNOON and RETURN in the EVENING ?	a. Leave in pm:	b. Return in evening:
--	-----------------	-----------------------

HHID: _____

LAST GROWING SEASON'S FAMILY LABOR: *Please fill out the table below for anyone in the household OVER THE AGE OF 12 YEARS WHO WORKED ON THIS PLOT LAST SEASON. ASK ONLY ABOUT LABOR FOR LAST GROWING SEASON ON THIS PLOT. Enumerators: Make sure the name and person ID matches names on the table in Section A.*

LAST SEASON

J5. Person ID	J6. Given name	J7. How many mornings and afternoons spent on LAND PREP?		J8. How many mornings and afternoons spent on ONE HERBICIDE APPLICATION		J9. How many mornings and afternoons spent PLANTING?		J10. How many mornings and afternoons spent on BASAL FERTILIZER APPLICATION		J11. How many mornings and afternoons spent on TOP DRESSING APPLICATION		J12. How many mornings and afternoons spent on FIRST WEEDING?		J13. How many mornings and afternoons spent on SECOND WEEDING?		J14. How many mornings and afternoons spent on THIRD WEEDING?		J15. How many mornings and afternoons spent HARVESTING	
		a. # Mornings	b. # Afternoons	a. # Mornings	b. # Afternoons	a. # Mornings	b. # Afternoons	a. # Mornings	b. # Afternoons	a. # Mornings	b. # Afternoons	a. # Mornings	b. # Afternoons	a. # Mornings	b. # Afternoons	a. # Mornings	b. # Afternoons	a. # Mornings	b. # Afternoons
1																			
2																			
3																			
4																			
5																			
6																			
7																			
8																			

HHID: _____

J16. <i>Did any CHILDREN work on this plot LAST SEASON? If NO, put a slash through the following table. If YES, please fill out the table below.</i>	1=Yes 2=No
---	---------------

LAST GROWING SEASON'S CHILD FAMILY LABOR ON LOW FERTILITY PLOT:
Please ask the farmers how many children (under age 12) in the household worked on this plot LAST growing season and how many mornings and afternoons they EACH spent doing so.

<u>LAST SEASON</u>	a. # children in HH who worked on this plot	b. # mornings spent on this plot	c. # afternoons spent on this plot
J17. <i>Land prep</i>			
J18. <i>ONE herbicide app'n</i>			
J19. <i>Planting</i>			
J20. <i>Basal fertilizer application</i>			
J21. <i>Top dressing application</i>			
J22. <i>First weeding</i>			
J23. <i>Second weeding</i>			
J24. <i>Third weeding</i>			
J25. <i>Harvest</i>			

J26. <i>Did any HIRED LABORERS work on this plot LAST SEASON? If NO, put a slash through the following table. If YES, please fill out the table below.</i>	1=Yes 2=No
---	---------------

LAST GROWING SEASON'S HIRED LABOR ON LOW FERTILITY PLOT: *Please ask the farmers how many HIRED LABORERS worked on this plot LAST growing season and how many mornings and afternoons they EACH spent doing so.*

<u>LAST SEASON</u>	a. # hired laborers who worked on this plot	b. # mornings spent on this plot	c. # afternoons spent on this plot
J27. <i>Land prep</i>			
J28. <i>ONE herbicide app'n</i>			
J29. <i>Planting</i>			
J30. <i>Basal fertilizer application</i>			
J31. <i>Top dressing application</i>			
J32. <i>First weeding</i>			
J33. <i>Second weeding</i>			
J34. <i>Third weeding</i>			
J35. <i>Harvest</i>			

HHID: _____

SECTION H: LOW FERTILITY SOIL PREPARATION AND PLANTING

Please list the crops planted on this plot this season, the dates planted, and their planned uses. (Codes below)

	H1. Main crop	H2. 1st intercrop	H3. 2nd intercrop	H4. 3rd intercrop	H5. 4th intercrop	H6. 5th intercrop	H7. Border crop
a. Crop code							
b. Month planted (and year: 2014, 2015, etc)							
c. Week planted							
d. Variety name							
e. Type of variety							
Crop Codes:		Month codes		Type of Variety Codes:			
1=Local maize chimanga cha makolo		11=Cowpea/ Khobwe 12=Bambara nut Nzama		1=January 2=February		1=Local 2=Newly acquired hybrid	
2=Hybrid maize chimanga cha makono		13=Sorghum / Mapira 14=Cassava / Chinangwa		3=March 4=April etc.		3=Saved hybrid 4=OPV/composite	
3=OPV/Composite maize 4=Tobacco/ fodya		15=Sweet potato Mbatata za kholowa		99=Ratooned (if so, get name, variety, type of variety, seed source; answer d and e but leave a and c blank)		5=Unknown 88=Local/hybrid mix	
5=Cotton / thonje 6=Pigeonpea/nandolo		16=Millet 17=Pumpkin		88=Volunteer (leave c, d, e, blank)		99=Other (specify)	
7=Groundnut/mtedza 8=Soya bean / soya		18=Sugarcane 88=Local/hybrid maize mix					
9=Common bean Nyemba 10=Velvet bean Kalongonda		99=Other (specify)					

H8. If maize was not planted on this plot, why not?

Codes:

- 1=Did not grow well last year
- 2=Wanted more profitable crop to sell
- 3=Wanted to build up soil fertility
- 99=Other (specify)

HHID: _____

HHID:	H9. RIDGE PREP	H10. TYPE OF RIDGE PREP	H11. FIRST PLANTING RAINS	H12. SECOND RAINS	H13. THIRD RAINS	H14. PLANTING DATE	H15. 1ST DRY SPELL WHICH AFFECTED MAIZE			H16. 2ND DRY SPELL WHICH AFFECTED MAIZE			H17. 3RD DRY SPELL WHICH AFFECTED MAIZE			H18. EXPECTED HARVEST TIME
							a. BEGINNING/ RAINS STOPPED DAY OF THE MONTH	b. LENGTH OF DRY SPELL IN DAYS	c. MAIZE GROWTH STAGE	a. BEGINNING/ RAINS STOPPED DAY OF THE MONTH	b. LENGTH OF DRY SPELL IN DAYS	c. MAIZE GROWTH STAGE	a. BEGINNING/ RAINS STOPPED DAY OF THE MONTH	b. LENGTH OF DRY SPELL IN DAYS	c. MAIZE GROWTH STAGE	
MONTH OF THIS GROWING SEASON	WEEK OF MONTH (1, 2, 3 OR 4)	USE CODES ON NEXT PAGE	DAY OF THE MONTH	DAY OF THE MONTH	DAY OF THE MONTH	DAY OF THE MONTH										WEEK OF MONTH (1, 2, 3 OR 4)
<i>va. MAY (2015)</i>																
<i>via. JUNE (2015)</i>																
<i>vii. JULY (2015)</i>																
<i>viii. AUGUST (2015)</i>																
<i>ix. SEPTEMBER (2015)</i>																
<i>x. OCTOBER (2015)</i>																
<i>xi. NOVEMBER (2015)</i>																
<i>xii. DECEMBER (2015)</i>																
<i>i. JANUARY (2016)</i>																
<i>ii. FEBRUARY (2016)</i>																
<i>iii. MARCH (2016)</i>																
<i>iv. APRIL (2016)</i>																
<i>vb. MAY (2016)</i>																
<i>vib. JUNE (2016)</i>																
<i>vii. JULY (2016)</i>																

HHID: _____

Ridge preparation codes 1=Incorporate residues into ridges 2=Burn entire field	3=Incorporate some residues and burn some 4=Cut and burn all residues 5=Level soil	6=Move old ridges to furrow and rebuild 7=Leave soil in old ridge and bank 8=Build mounds	9=Dig planting basins 10=Animal traction 11=Zero tillage 99=Other (specify)
---	--	---	--

H19. Did you incorporate any legume residues into your ridges? If NO, fill out H19b. If yes, fill out the chart below for each legume residue incorporated. CODES BELOW.			a. 1=Yes 2=No	b. If not, why? (Codes below)
Legume crop code	b. When incorporated	c. Amount	d. Unit	e. Source
H20a. 1 st legume				
H21a. 2 nd legume				
H22.a 3 rd legume				

Did you apply any of the following to/in the ridges/planting stations?						
H23. Weeds	a. 1=Yes 2=No	b. When?	c. Amount	d. Unit	e. Source	f. If not, why not?
H24. Maize	a. 1=Yes 2=No	b. When?	c. Amount	d. Unit	e. Source	f. If not, why not?
H25. Ash	a. 1=Yes 2=No	b. When?	c. Amount	d. Unit	e. Source	f. If not, why not?

H26. Did you incorporate any animal manure into your ridges? If NO, fill out H26b. If yes, fill out the chart below for each type of animal manure incorporated. CODES BELOW			a. 1=Yes 2=No	b. If not, why? (Codes BELOW)
Type of manure	b. When incorporated	c. Amount	d. Unit	e. Source
H27a. 1 st type				
H28a. 2 nd type				
H29a. 3 rd type				

Why not incorp. 1=Farmer/respondent burned 2=Were burned by someone else 3=Used for fuel 4=Used for fodder 5=Insufficient labour 6=Did not grow legumes 7=Does not have livestock 8=Used in another field 99=Other (specify)	Legume codes 1=Pigeon pea 2=Groundnut 3=Cowpea 4=Common bean 5=Soya 99=Other (specify)	Unit Codes 1=Same (what was left in the field) 2=Kilograms 3=25 kg bag 4=50 kg bag (fertilizer bag) 5=90 kg bag (maize bag) 6=5L bucket 7=10L bucket 8=Ox cart 9=Handful 99=Other (specify)	Source Codes 1=Own production on THIS field 2=Own production on ANOTHER field 3=Other farmer/household 4=Payment for work 5=Extension agent 6=Local store 7=FISP 8=Inputs for Assets 9=Other NGO 10=Own livestock 99=Other (specify)
Timing codes 1=When turning ridges early right after harvest 2=When turning ridges just before first planting rains 3=when turning ridges after first planting rains right before planting 4= after ridge turning but before planting (incorporation)	5= after ridge turning but before planting (planting station application) 6=at planting in station with seed 7=about ten days after planting with first weeding 8=about 30 days after planting with second weeding 99=Other (specify use days after or before planting)	Manure types 1=Chicken manure 2=Goat manure 3=Swine manure 4=Cow mixture 5=Rabbit manure 99=Other animal manure (specify)	

HHID: _____

H30. Did you incorporate any COMPOST into your ridges? If NO, fill out H30b. If yes, fill out the chart below for what was in the compost; codes below				a. 1=Yes 2=No	b. If not, why?
c. When incorporated	d. Amount	e. Unit	f. Source	g. Was any material remaining to the eye when applied? 1=Yes 2=No	
h. What was in the compost? List up to 5; codes below		i. _____ ii. _____ iii. _____ iv. _____ v. _____			

Why not incorp. 1=Farmer/respondent burned 2=Were burned by someone else 3=Used for fuel 4=Used for fodder 5=Insufficient labour 6=Did not grow legumes 7=Does not have livestock 8=Used in another field 99=Other (specify)	Legume codes 1=Pigeon pea 2=Groundnut 3=Cowpea 4=Common bean 5=Soya 99=Other (specify)	Unit Codes 1=Same (what was left in the field) 2=Kilograms 3=25 kg bag 4=50 kg bag (fertilizer bag) 5=90 kg bag (maize bag) 6=5L bucket 7=10L bucket 9=Ox cart 10=Handful 99=Other (specify)	Source Codes 1=Own production on THIS field 2=Own production on ANOTHER field 3=Other farmer/household 4=Payment for work 5=Extension agent 6=Local store 7=FISP 8=Inputs for Assets 9=Other NGO 10=Own livestock 99=Other (specify)
Timing codes 1=When turning ridges early right after harvest 2=When turning ridges just before first planting rains 3=when turning ridges after first planting rains right before planting 4= after ridge turning but before planting (incorporation)	5= after ridge turning but before planting (planting station application) 6=at planting in station with seed 7=about ten days after planting with first weeding 8=about 30 days after planting with second weeding 99=Other (specify use days after or before planting)	Compost contents 1=23:21:0+4S (NPK) 2=Urea 3=CAN 4=Other fertilizer (specify) 5=Chicken manure 6=Cow manure 7=Rabbit manure 8=Goat manure 9=Rabbit manure 10=Crop residue	11=Herbicide 12=Insecticide 13=Ash 14=Kitchen scraps 15=Maize residue 16=Groundnut residue 17=Soya residue 18=Weeds 19=Swine manure 20=Water 99=Other (specify)

Did you apply any of the following amendments?(Codes below) (In part b, m=month, w=week)

H31. NPK	a. 1=Yes 2=No	b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used
H32. UREA	a. 1=Yes 2=No	b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used
H33. CAN	a. 1=Yes 2=No	b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used
H34. Herbicide TYPE: _____	a. 1=Yes 2=No	b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used
H35. Insecticide TYPE: _____	a. 1=Yes 2=No	b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used
H36. Other (specify)		b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used

H31b-H36b Month Codes: 10=October 11=November 12=December, etc.	H31c-H36c Codes: 1=During ridge preparation 2=Right BEFORE planting 3=During planting 4=1-10 days AFTER planting 5=Greater than 11 days AFTER planting 99=Other (specify)	H31e-H36e Codes: 1=Kilograms 2=25 kg bag 3=50 kg bag (fertilizer bag) 4=90 kg bag (maize bag) 5=5L bucket 6=10L bucket 7=Plate 8=Sugar packet 9=Ox cart 99=Other (specify)	H31f-H36f Codes: 1= 1/4 or less 2= 1/2 3= 3/4 4=All
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HHID: _____

H37. What challenges did you face in production ON THIS PLOT this growing season? List up to 3(codes below)	H37a. _____ H37b. _____ H37c. _____																														
H38. Enumerators: Please comment on soil and plant health (List as many as applicable from below)	H38a. _____ H38b. _____ H38c. _____ H38d. _____																														
H37, H38 Codes:	<table border="0"> <tr> <td>7=Poor soil quality</td> <td>14=Not enough rain</td> <td>22=Insufficient labour</td> </tr> <tr> <td>0=None</td> <td>15=Runoff/erosion</td> <td>23=Planted too late</td> </tr> <tr> <td>1=Insect pests</td> <td>16=Erratic rainfall</td> <td>24=Late rain</td> </tr> <tr> <td>2=Termites</td> <td>17=Too much sun</td> <td>25=Dry spell (specify number of events)</td> </tr> <tr> <td>3=Weeds</td> <td>18=Winds</td> <td>26=Stunting</td> </tr> <tr> <td>4=Striga (witch weed)</td> <td>11=Poor germination</td> <td>19=Livestock grazing</td> </tr> <tr> <td>5=Disease</td> <td>12=Waterlogging</td> <td>20=Rodent attack</td> </tr> <tr> <td>6=Poor seed quality</td> <td>13=Too much rain</td> <td>21=Bird attack</td> </tr> <tr> <td></td> <td></td> <td>27=Plants look healthy</td> </tr> <tr> <td></td> <td></td> <td>99=Other (specify)</td> </tr> </table>	7=Poor soil quality	14=Not enough rain	22=Insufficient labour	0=None	15=Runoff/erosion	23=Planted too late	1=Insect pests	16=Erratic rainfall	24=Late rain	2=Termites	17=Too much sun	25=Dry spell (specify number of events)	3=Weeds	18=Winds	26=Stunting	4=Striga (witch weed)	11=Poor germination	19=Livestock grazing	5=Disease	12=Waterlogging	20=Rodent attack	6=Poor seed quality	13=Too much rain	21=Bird attack			27=Plants look healthy			99=Other (specify)
7=Poor soil quality	14=Not enough rain	22=Insufficient labour																													
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4=Striga (witch weed)	11=Poor germination	19=Livestock grazing																													
5=Disease	12=Waterlogging	20=Rodent attack																													
6=Poor seed quality	13=Too much rain	21=Bird attack																													
		27=Plants look healthy																													
		99=Other (specify)																													

H39. Was this plot FLOODED this season?	1=Yes 2=No	
If YES, please fill out the following table. If no, SKIP to H41. Please list the month of the first flooding and the number of days for which it was flooded.		
H40a. Month 1 (Jan=1, Feb=2, etc):	H40b. Number of days:	

H41. Did this plot suffer from a DRYSPELL this season? If no, SKIP to H45	1=Yes 2=No	
H42. Did you have to replant (remove dead plants and replant) your crop after any dry spell? If no, SKIP to H45	1=Yes 2=No	
H43. If so, list all that apply (1=first, 2=second, 3=third dry spell)		
H44. Any additional comments on dry spell:		

H45 How was the initial main crop's seed germination (after first planting)? (If nearly all or all, <u>SKIP</u> to H49) (Note: This question is for the seed of the main crop REGARDLESS of whether it was maize)	0=No seed germinated 1=less than half of the seed germinated 2=half of the seed germinated 3= nearly all OR all seed germinated 99=Other (specify)	
H46. If you had poor germination what do you think was the cause? (List all that apply)	1=Planted late 2=Not enough rain 3=too much rain (seed washed away) 4=Rodents 5=Birds ate newly emerged plants 7=poor seed quality 8=planting depth 99= other (specify)	
H47. Due to poor germination, how many times did you gap? (1, 2, 3, 4)		
H48. If after the number of above attempts to establish the crop stand failed, what course of action did you take?	1=Left it with poor stand 2=Left and planned to plant a different crop later in the season (specify) _____ 3=Replaced with a different crop immediately (specify) _____ 4= rented the field 99=Other (specify)	

HHID: _____

H49. Has this plot had a problem with striga in the past? If no, SKIP to Section I	1=Yes 2=No	
H50. If so, what is the last season in which striga was a problem on this plot?	1=Last growing season (2014/15) 2=Growing season before last (2013/14) 3=Years ago	
H51. Have you seen striga in this plot yet this growing season?	1=Yes 2=No	

SECTION I: LOW FERTILITY PLOT WEEDING AND HERBICIDE USE

Enumerators: The following questions pertain only to the part of this plot which was FERTILIZED. If none of it was, ask these questions for the entire plot.

I1. Did you apply herbicide to this plot before planting? (1=Yes, 2=No)		
I2. Were there weeds in the plot at the time of planting? If so, what did you do with them?	0=No weeds 1=Removed all 2=Removed only where planting stations located 3=Left them and planted 4=APPLIED AN HERBICIDE 99=Other (specify)	
I3. 10 days after planting, how many weeds did this plot have in it as compared to your other plots?	0=No weeds 1=Fewer than others 2=Same as others 3=More than others 4=Fewer than others due to HERBICIDE application	
I4. 30 days after planting, how many weeds did this plot have in it as compared to your other plots?	0=No weeds 1=Fewer than others 2=Same as others 3=More than others 4=Fewer than others due to HERBICIDE application	
I5. What type of weeds do you have the most problem with on this field at different times in the growing season?(1=Grasses, 2=Broadleaf. MUST CHOOSE ONE: CANNOT BE BOTH PER TIME STAMP)	a. Crop establish-ment b. Mid growing season c. After tassle	

I6. What did you do with the weeds? List up to 3 uses (codes below).	a. _____ b. _____ c. _____
I7. Have the dry spells caused you to weed more this year?	1=Yes 2=No
I8. Did you weed this plot the same number of times you did last growing season?	1=Yes 2=No
I9. Why or why not? (List up to 3; codes below)	a. _____ b. _____ c. _____

I6 Codes: 1=Burn all 2= Burn some/ incorporate some 3=Incorporate ALL into ridge 4=Incorporate some into ridge and remove rest but not burn 5=Put in furrow and incorporate at next weeding/banking 6=Remove from field 7=Fed to livestock 8=Used for food 9=Incorporate some and handpick some and put in furrow 10=Hand pull and remove 99=Other (specify)	I9 Codes: 1=Same number of weeds in plot this year as last 2=More weeds in plot this year than last 3=More time to weed this year than last 4=Family labor shortage (due to illness, migration, etc.) LAST year 5=Labor too expensive LAST year 6=Fewer weeds in plot this year than last 7=Less time to weed this year than last	8=Family labor shortage (due to illness, migration, etc.) this year 9=Labor too expensive this year 10=Using herbicides instead this year 11=Received advice on weeding (from extension agent, other farmer, etc.) 12=Doesn't know/what has always done on this plot 13=Rains caused more weeds 14=Rains caused FEWER weeds 99=Other (specify)
--	---	---

HHID: _____

I10. Did you apply Roundup /Glyphosate to this plot? If no, SKIP to I13.	1=Yes 2=No	
I11. Were weeds visible when you applied Roundup/Glyphosate?	1=Yes 2=No	
I12. What ratio of Roundup/Glyphosate to water did you use?	a. _____ : Roundup/ Glyphosate	b. _____ Water

I13. Did you apply Harness/Bullet to this plot? If no, SKIP to I16.	1=Yes 2=No	
I14. Were weeds visible when you applied Harness/Bullet?	1=Yes 2=No	
I15. What ratio of Harness/Bullet to water did you use?	a. _____ : Harness/ Bullet	b. _____ Water

I16. Did you mix Roundup /Glyphosate and Harness/Bullet for any herbicide application? (If YES, continue to I17 If NO, proceed to I19)	1=Yes 2=No	
If YES, for which application(s) did you mix Roundup/Glyphosate and Harness/Bullet, and were the weeds visible when you applied it?(Write all that apply; 1=first, 2=second, 3=third, etc.)	Application #: I17a. _____ I18a. _____	Weeds visible? (1=Yes, 2=No) I17b. _____ I18b. _____

HHID: _____

COPY MAIZE PLANTING DATE FROM H14	Time Use Table: Please fill out the table below of activities performed after planting MAIZE . Codes BELOW.													
	Under the TIME column, ✓ all that apply							Under the TYPE column, enter the appropriate code listed below						
	I19. 1 ST HERBICIDE APPLICATION		I20. CROP EMERGENCE	I21. 2 ND HERBICIDE APPLICATION		I22. 1 ST FERTILIZING		I23. 1 ST WEEDING		I24. 1 ST SUPPLY- ING	I25. 1 ST THIN- NING	I26. 1 ST GAPPIN G	I27. 3 rd HERBICIDE APPLICATION	
DAYS AFTER PLANTING	a. TIME	b. TYPE	TIME	a. TIME	b. TYPE	a. TIME	b. TYPE	a. TIME	b. TYPE				a. TIME	b. TYPE
i. DAY OF PLANTING														
ii. 1-3														
iii. 4-9														
iv. 10-15														
v. 16-29														
vi. 1 month (30-35)														
vii. 36-44														
viii. 45-59														
ix. 2 months (60-75)														
x. 2.5 months (76-89)														
xi. 3 months (90-104)														
xii. 3.5 months (105-119)														
xiii. 4 months (120-134)														
xiv. 4.5 months (135-150)														

<p>Fertilizer types: 1=NPK 2=UREA 3=CAN 4=DAP 5=NPK/UREA mixture 99=Other (specify)</p>	<p>Herbicide types: 1=Roundup /Glyphosate 2=Harness /Bullet 3=Roundup /Glyphosate and Harness /Bullet mixture 99=Other (specify)</p>	<p>Weeding types: 1=Scrape and bank 2=Scrape and leave in furrow 3=Hand pulling and leave in furrow (no banking) 4=Just banking 99=Other (specify)</p>
--	--	---

HHID: _____

Time Use Table Cont'd: Please fill out the table below of activities performed after planting. Codes on PREVIOUS page.												
HHID:	Under the TIME column, ✓ all that apply						Under the TYPE column, enter the appropriate code listed below					
	128. 2 ND WEEDING OR BANKING		129. 2 ND SUPPLY-ING	130. 2 ND THIN-NING	131. 2 ND GAP-PING	132. 2 ND FERTILIZING		133. 3 RD SUPPLYING	134. 3 RD THIN-NING	135. 3 RD GAPPING	136. 3 RD WEEDING	
	a. TIME	b. TYPE				a. TIME	b. TYPE				a. TIME	b. TYPE
DAYS AFTER PLANTING												
i. DAY OF PLANTING												
ii. 1-3												
iii. 4-9												
iv. 10-15												
v. 16-29												
vi. 1 month (30-35)												
vii. 36-44												
viii. 45-59												
ix. 2 months (60-75)												
x. 2.5 months (76-89)												
xi. 3 months (90-104)												
xii. 3.5 months (105-119)												
xiii. 4 months (120-134)												
xiv. 4.5 months (135-150)												

I37. Other practices not captured and their timing:

HHID: _____

LOCATION AND SAMPLE NUMBER WITHIN LOW FERTILITY PLOT								
	1	2	3	4	5	6	7	8
RIDGE	RIDGE	RIDGE	RIDGE	RIDGE	RIDGE	RIDGE	RIDGE	RIDGE
K1. RIDGE WEED RANKING <i>(INCLUDE WITCH WEED)</i>								
K2. RIDGE WITCH WEED (1=Present 2=Not present)								
FURROW	FURROW	FURROW	FURROW	FURROW	FURROW	FURROW	FURROW	FURROW
K3. FURROW WEED RANKING <i>(INCLUDE WITCH WEED)</i>								
K4. FURROW WITCH WEED (1=Present, 2=Not present)								

HHID: _____

LOW FERTILITY PLOT	METER ID	atLEAF CHLOROPHYLL READINGS (4 PLANTS PER LOCATION & 3 READING REPS PER PLANT ON SAME LEAF AREA)															
		1		2		3		4		5		6		7		8	
		GROW STAGE	SPAD	GROW STAGE	SPAD	GROW STAGE	SPAD	GROW STAGE	SPAD	GROW STAGE	SPAD	GROW STAGE	SPAD	GROW STAGE	SPAD	GROW STAGE	SPAD
1	L1a. PLANT 1 REP 1	GS		GS		GS		GS		GS		GS		GS		GS	
	L1b. PLANT 1 REP 2	# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES	
	L1c. PLANT 1 REP 3	NL		NL		NL		NL		NL		NL		NL		NL	
2	L2a. PLANT 1 REP 1	GS		GS		GS		GS		GS		GS		GS		GS	
	L2b. PLANT 1 REP 2	# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES	
	L2c. PLANT 1 REP 3	NL		NL		NL		NL		NL		NL		NL		NL	
3	L3a. PLANT 1 REP 1	GS		GS		GS		GS		GS		GS		GS		GS	
	L3b. PLANT 1 REP 2	# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES	
	L3c. PLANT 1 REP 3	NL		NL		NL		NL		NL		NL		NL		NL	
4	L4a. PLANT 1 REP 1	GS		GS		GS		GS		GS		GS		GS		GS	
	L4b. PLANT 1 REP 2	# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES		# LEAVES	
	L4c. PLANT 1 REP 3	NL		NL		NL		NL		NL		NL		NL		NL	

HHID: _____

SECTION M: SUPPLEMENTAL FALLOW/RENTED OUT SECTION

Enumerators: Fill out this section if the plot was either left FALLOW or RENTED OUT THIS growing season.

M1. Was this plot fallowed or rented out <i>THIS</i> season?		1=Fallowed 2=Rented out
M2. Why was it fallowed/rented out?(Codes below)		
M3. What was the area fallowed/rented out?		_____ meters ²
M4. For how long was it fallowed/rented out?	a. Time	b. Units (1=season, 2=year)
M2 Codes: 1=Not enough inputs 2=Not enough labor	3=Completely infertile (not fertile enough to use inputs) 4=To increase soil fertility 5=Waterlogged	6=Family use (e.g., funeral plot) 7=Need the money 99=Other (specify)

M5. If plot was <i>RENTED OUT</i> , what was received in payment?	a. Amount _____	b. Unit _____
M5 Codes: 0=Borrowed 1=Kwacha	2=kg maize 3=50 kg bag maize	4=90 kg bag maize 99=Other (specify)
M6. Item received in payment if not MWK or maize?		

M7. If plot left fallow, which crops do you plan to plant on it next growing season? (List up to 3)	a. _____ b. _____ c. _____
M7 Codes: 1=Local maize 2=Hybrid maize 3=OPV/composite maize 4=Tobacco 5=Cotton 6=Pigeon pea	7=Groundnut 8=Soya bean 9=Common bean 10=Velvet bean 11=Cowpea 12=Bambara nut 13=Sorghum
	14=Cassava 15=Sweet potato 16=Millet 17=Pumpkin 18=Sugarcane 99=Other (specify)

M8. Other comments:

HHID: _____

PART 4: NEW MAIZE FIELD

If the farmer did not plant maize on **EITHER** the HIGH OR LOW FERTILITY field, fill out the following section.

GPS coordinates from center of plot:	S	o	'	"	E	o	'	"

NF1: Ask the farmer: *What is the area of this maize plot?* _____ acres

NF3: Ask the farmer to walk around the plot with the GPS. *Area of plot:* _____ square meters

NF4: Did you fertilize this plot? Circle your response. 1=Yes 2=No

NF5: If YES, was the whole area fertilized? Circle your response. 1=Yes 2=No ☹ ☹ ☹

NF6: If only part of the plot was fertilized, ask the farmer: *What is the area that was fertilized?* _____ acres

NF7: *If fertilized, GPS area that was fertilized:* _____ square meters

NF8: *Name of plot:* _____ ☹ ☹ ☹

Enumerators: *The following questions pertain only to the part of this plot which was FERTILIZED. If none of it was, these questions pertain to the entire plot. When you are done, proceed to the plot identified by the farmer as being the least fertile.*

Enumerators: *After farmer has demonstrated plot boundaries using the GPS to obtain plot area, please ask the farmers to describe the plot and crops planted on it last year and this year (if necessary have farmer demonstrate crop and planting demarcation in the plot). Draw their description below.*

HHID: _____

SECTION N: NEW MAIZE PLOT SOIL PREPARATION AND PLANTING

Please list the crops planted on this plot this season, the dates planted, and their planned uses. (Codes below)

	N1. Main crop	N2. 1st intercrop	N3. 2nd intercrop	N4. 3rd intercrop	N5. 4th intercrop	N6. 5th intercrop	N7. Border crop
a. Crop code							
b. Month planted (and year)							
c. Week planted							
d. Variety name							
e. Type of variety							

Crop Codes:	11=Cowpea/ Khobwe	Month codes	Type of Variety Codes:
1=Local maize	12=Bambara nut Nzama	1=January	1=Local
chimanga cha makolo	13=Sorghum / Mapira	2=February	2=Newly acquired hybrid
2=Hybrid maize	14=Cassava / Chinangwa	3=March	3=Saved hybrid
chimanga cha makono	15=Sweet potato	4=April etc.	4=OPV/composite
3=OPV/Composite maize	Mbatata za kholowa	99=Ratooned (if so, get name, variety, type of variety, seed source; answer d and e but leave a and c blank)	5=Unknown
4=Tobacco/ fodya	16=Millet	88=Volunteer	88=Local/hybrid mix
5=Cotton / thonje	17=Pumpkin	(leave c, d, e, blank)	99=Other (specify)
6=Pigeonpea/nandolo	18=Sugarcane		
7=Groundnut/mtedza	88=Local/hybrid maize mix		
8=Soya bean / soya	99=Other (specify)		
9=Common bean Nyemba			
10=Velvet bean			
Kalongonda			

HHID: _____

HHID:	N9. RIDGE PREP	N10. TYPE OF RIDGE PREP	N11. FIRST PLANTING RAINS	N12. SECOND RAINS	N13. THIRD RAINS	N14. PLANTING DATE	N15. 1ST DRY SPELL WHICH AFFECTED MAIZE			N16. 2ND DRY SPELL WHICH AFFECTED MAIZE			N17. 3RD DRY SPELL WHICH AFFECTED MAIZE			N18. EXPECTED HARVEST TIME
MONTH OF THIS GROWING SEASON	WEEK OF MONTH (1, 2, 3 OR 4)	USE CODES ON NEXT PAGE	DAY OF THE MONTH	DAY OF THE MONTH	DAY OF THE MONTH	DAY OF THE MONTH	a. <u>BEGINNING/ RAINS STOPPED</u> DAY OF THE MONTH	b. <u>LENGTH OF</u> DRY SPELL IN DAYS	c. MAIZE GROWTH STAGE	a. <u>BEGINNING/ RAINS STOPPED</u> DAY OF THE MONTH	b. <u>LENGTH OF</u> DRY SPELL IN DAYS	c. MAIZE GROWTH STAGE	a. <u>BEGINNING/ RAINS STOPPED</u> DAY OF THE MONTH	b. <u>LENGTH OF</u> DRY SPELL IN DAYS	c. MAIZE GROWTH STAGE	WEEK OF MONTH (1, 2, 3 OR 4)
va. MAY (2015)																
via. JUNE (2015)																
vii. JULY (2015)																
viii. AUGUST (2015)																
ix. SEPTEMBER (2015)																
x. OCTOBER (2015)																
xi. NOVEMBER (2015)																
xii. DECEMBER (2015)																
i. JANUARY (2016)																
ii. FEBRUARY (2016)																
iii. MARCH (2016)																
iv. APRIL (2016)																
vb. MAY (2016)																
vib. JUNE (2016)																
vii. JULY (2016)																

HHID: _____

Ridge preparation codes	3=Incorporate some residues and burn some	6=Move old ridges to furrow and rebuild	9=Dig planting basins
1=Incorporate residues into ridges	4=Cut and burn all residues	7=Leave soil in old ridge and bank	10=Animal traction
2=Burn entire field	5=Level soil	8=Build mounds	11=Zero tillage
			99=Other (specify)

N19. Did you incorporate any legume residues into your ridges? If NO, fill out N19b. If yes, fill out the chart below for each legume residue incorporated. CODES BELOW.			a. 1=Yes 2=No	b. If not, why? (Codes below)
Legume name	a. When incorporated	b. Amount	c. Unit	d. Source
N20. 1 st legume				
N21. 2 nd legume				
N22. 3 rd legume				

Did you apply any of the following to/in the ridges/planting stations?						
N23. Weeds	a. 1=Yes 2=No	b. When?	c. Amount	d. Unit	e. Source	f. If not, why not?
N24. Maize	a. 1=Yes 2=No	b. When?	c. Amount	d. Unit	e. Source	f. If not, why not?
N25. Ash	a. 1=Yes 2=No	b. When?	c. Amount	d. Unit	e. Source	f. If not, why not?

N26. Did you incorporate any animal manure into your ridges? If NO, fill out N22b. If yes, fill out the chart below for each type of animal manure incorporated. CODES BELOW.			a. 1=Yes 2=No	b. If not, why? (Codes above)
Type of manure	a. When incorporated	b. Amount	c. Unit	d. Source
N27. 1 st type				
N28. 2 nd type				
N29. 3 rd type				

Why not incorp. 1=Farmer/respondent burned 2=Were burned by someone else 3=Used for fuel 4=Used for fodder 5=Insufficient labour 6=Did not grow 7=Does not have livestock 8=Used in another field 99=Other (specify)	Legume codes 1=Pigeon pea 2=Groundnut 3=Cowpea 4=Common bean 5=Soya 99=Other (specify)	Unit Codes 1=Same (what was left in the field) 2=Kilograms 3=25 kg bag 4=50 kg bag (fertilizer bag) 5=90 kg bag (maize bag) 6=5L bucket 7=10L bucket 8=Ox cart 9=Handful 99=Other (specify)	Source Codes 1=Own production 2=Own production on ANOTHER field 3=Other farmer/household 4=Payment for work 5=Extension agent 6=Local store 7=FISP 8=Inputs for Assets 9=Other NGO 10=Own livestock 99=Other (specify)
Timing codes 1=When turning ridges early right after harvest 2=When turning ridges just before first planting rains 3=when turning ridges after first planting rains right before planting 4= after ridge turning but before planting (incorporation)	5= after ridge turning but before planting (planting station application) 6=at planting in station with seed 7=about ten days after planting with first weeding 8=about 30 days after planting with second weeding 99=Other (specify use days after or before planting)	Manure types 1=Chicken manure 2=Goat manure 3=Swine manure 4=Cow mixture 5=Rabbit manure 99=Other animal manure (specify)	

HHID: _____

N30. Did you incorporate any COMPOST into your ridges? If NO, fill out N30b. If yes, fill out the chart below for what was in the compost CODES BELOW; OTHERS ABOVE.				a. 1=Yes 2=No	b. If not, why? (Codes above)
c. When incorporated	d. Amount	e. Unit	f. Source	g. Was any material remaining to the eye when applied? 1=Yes 2=No	
h. What was in the compost? List up to 5; codes below		i. _____ ii. _____ iii. _____ iv. _____ v. _____			

Why not incorp. 1=Farmer/respondent burned 2=Were burned by someone else 3=Used for fuel 4=Used for fodder 5=Insufficient labour 6=Did not grow 7=Does not have livestock 8=Used in another field 99=Other (specify)	Legume codes 1=Pigeon pea 2=Groundnut 3=Cowpea 4=Common bean 5=Soya 99=Other (specify)	Unit Codes 1=Same (what was left in the field) 2=Kilograms 3=25 kg bag 4=50 kg bag (fertilizer bag) 5=90 kg bag (maize bag) 6=5L bucket 7=10L bucket 8=Ox cart 9=Handful 99=Other (specify)	Source Codes 1=Own production on THIS field 2=Own production on ANOTHER field 3=Other farmer/household 4=Payment for work 5=Extension agent 6=Local store 7=FISP 8=Inputs for Assets 9=Other NGO 10=Own livestock 99=Other (specify)
Timing codes 1=When turning ridges early right after harvest 2=When turning ridges just before first planting rains 3=when turning ridges after first planting rains right before planting 4= after ridge turning but before planting (incorporation)	5= after ridge turning but before planting (planting station application) 6=at planting in station with seed 7=about ten days after planting with first weeding 8=about 30 days after planting with second weeding 99=Other (specify use days after or before planting)	Compost contents 1=23:21:0+4S (NPK) 2=Urea 3=CAN 4=Other fertilizer (specify) 5=Chicken manure 6=Cow manure 7=Rabbit manure 8=Goat manure 9=Rabbit manure 10=Crop residue	11=Herbicide 12=Insecticide 13=Ash 14=Kitchen scraps 15=Maize residue 16=Groundnut residue 17=Soya residue 18=Weeds 19=Swine manure 20=Water 99=Other (specify)

<i>Did you apply any of the following amendments?(Codes below) (In part b, m=month, w=week)</i>						
N31. NPK	a. 1=Yes 2=No	b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used
N32. UREA	a. 1=Yes 2=No	b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used
N33. CAN	a. 1=Yes 2=No	b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used
N34. Herbicide TYPE: _____	a. 1=Yes 2=No	b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used
N35. Insecticide TYPE: _____	a. 1=Yes 2=No	b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used
N36. Other (specify)		b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used

N31b-N36b Month Codes: 10=October 11=November 12=December, etc.	N31c-N36c Codes: 1=During ridge preparation 2=Right BEFORE planting 3=During planting 4=1-10 days AFTER planting 5=Greater than 11 days AFTER planting 99=Other (specify)	N31e-N36e Codes: 1=Kilograms 2=25 kg bag 3=50 kg bag (fertilizer bag) 4=90 kg bag (maize bag) 5=5L bucket 6=10L bucket 7=Plate 8=Sugar packet 9=Ox cart 99=Other (specify)	N31f-N36f Codes: 1= 1/4 or less 2= 1/2 3= 3/4 4=All
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HHID: _____

N37. What challenges did you face in production ON THIS PLOT this growing season? List up to 3(codes below)				N37a. _____
				N37b. _____
				N37c. _____
N38. Enumerators: Please comment on soil and plant health (List as many as applicable from below)				N38a. _____
				N38b. _____
				N39c. _____
				N38d. _____
N37, N38 Codes:	7=Poor soil quality	14=Not enough rain	22=Insufficient labour	
0=None	8=Competition in intercropping	15=Runoff/erosion	23=Planted too late	
1=Insect pests	9=Late maturing variety	16=Erratic rainfall	24=late rain	
2=Termites	10=Not enough fertilizer	17=Too much sun	25=dry spell (specify number of events)	
3=Weeds	11=Poor germination	18=Winds	26=Stunting	
4=Striga (witch weed)	12=Waterlogging	19=Livestock grazing	27=Plants look healthy	
5=Disease	13=Too much rain	20=Rodent attack	99=Other (specify)	
6=Poor seed quality		Merge 21=Bird attack		

N39. Was this plot FLOODED this season?	1=Yes	
	2=No	
If YES, please fill out the following table. If no, SKIP to N41. Please list the month of the first flooding and the number of days for which it was flooded.		
N40a. Month 1 (Jan=1, Feb=2, etc):	N40b. Number of days:	

N41. Did this plot suffer from a DRYSPELL this season? If no, SKIP to N47	1=Yes	
	2=No	
N42. Did you have to replant (remove dead plants and replant) your crop after any dry spell? If no, SKIP to N47	1=Yes	
	2=No	
N43. If so, list all that apply (1=first, 2=second, 3=third dry spell)		
N44. Any additional comments on dry spell:		

N45. How was the initial maize seed germination (after first planting)? (If nearly all or all, <u>SKIP</u> to N49)	0=No seed germinated 1=less than half of the seed germinated 2=half of the seed germinated 3= nearly all OR all seed germinated 99=Other (specify)	
N46. If you had poor germination what do you think was the cause? (List all that apply)	1=Planted late 2=Not enough rain 3=too much rain (seed washed away) 4=Rodents 5=Birds ate newly emerged plants 7=poor seed quality 8=planting depth 99= other (specify)	
N47. Due to poor germination, how many times did you gap? (1, 2, 3, 4)		
N48. If after the number of above attempts to establish the crop stand failed, what course of action did you take?	1=Left it with poor stand 2=Left and planned to plant a different crop later in the season (specify) _____ 3=Replaced with a different crop immediately (specify) _____ 4= rented the field 99=Other (specify)	

HHID: _____

N49. Has this plot had a problem with striga in the past? If no, SKIP to Section O.	1=Yes 2=No	
N50. If so, what is the last season in which striga was a problem on this plot?	1=Last growing season (2014/15) 2=Growing season before last (2013/14) 3=Years ago	
N51. Have you seen striga in this plot yet this growing season?	1=Yes 2=No	

SECTION O: NEW MAIZE PLOT WEEDING AND HERBICIDE USE

Enumerators: The following questions pertain only to the part of this plot which was FERTILIZED. If none of it was, ask these questions for the entire plot.

O1. Did you apply herbicide to this plot before planting? (1=Yes, 2=No)		
O2. Were there weeds in the plot at the time of planting? If so, what did you do with them?	0=No weeds 1=Removed all 2=Removed only where planting stations located 3=Left them and planted 4=APPLIED AN HERBICIDE 99=Other (specify)	
O3. 10 days after planting, how many weeds did this plot have in it as compared to your other plots?	0=No weeds 1=Fewer than others 2=Same as others 3=More than others 4=Fewer than others due to HERBICIDE application	
O4. 30 days after planting, how many weeds did this plot have in it as compared to your other plots?	0=No weeds 1=Fewer than others 2=Same as others 3=More than others 4=Fewer than others due to HERBICIDE application	
O5. What type of weeds do you have the most problem with on this field at different times in the growing season?(1=Grasses, 2=Broadleaf. MUST CHOOSE ONE: CANNOT BE BOTH PER TIME STAMP)	a. Crop establish-ment b. Mid growing season c. After tassle	

O6. What did you do with the weeds? List up to 3 uses (codes below).	a. _____ b. _____ c. _____
O7. Have the dry spells caused you to weed more this year?	1=Yes 2=No
O8. Did you weed this plot the same number of times you did last growing season?	1=Yes 2=No
O9. Why or why not? (List up to 3; codes below)	a. _____ b. _____ c. _____

O6 Codes: 1=Burn all 2= Burn some/ incorporate some 3=Incorporate ALL into ridge 4=Incorporate some into ridge and remove rest but not burn 5=Put in furrow and incorporate at next weeding/banking 6=Remove from field 7=Fed to livestock 8=Used for food 9=Incorporate some and handpick some and put in furrow 10=Hand pull and remove 99=Other (specify)	O9 Codes: 1=Same number of weeds in plot this year as last 2=More weeds in plot this year than last 3=More time to weed this year than last 4=Family labor shortage (due to illness, migration, etc.) LAST year 5=Labor too expensive LAST year 6=Fewer weeds in plot this year than last 7=Less time to weed this year than last	8=Family labor shortage (due to illness, migration, etc.) this year 9=Labor too expensive this year 10=Using herbicides instead this year 11=Received advice on weeding (from extension agent, other farmer, etc.) 12=Doesn't know/what has always done on this plot 13=Rains caused more weeds 14=Rains caused FEWER weeds 99=Other (specify)
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HHID: _____

O10. Did you apply Roundup /Glyphosate to this plot? If no, SKIP to O13.	1=Yes 2=No	
O11. Were weeds visible when you applied Roundup/Glyphosate?	1=Yes 2=No	
O12. What ratio of Roundup/Glyphosate to water did you use?	a. _____ : Roundup/ Glyphosate	b. _____ Water

O13. Did you apply Harness/Bullet to this plot? If no, SKIP to O16.	1=Yes 2=No	
O14. Were weeds visible when you applied Harness/Bullet?	1=Yes 2=No	
O15. What ratio of Harness/Bullet to water did you use?	a. _____ : Harness/ Bullet	b. _____ Water

O16. Did you mix Roundup /Glyphosate and Harness/Bullet for any herbicide application? (If YES, continue to O17 If NO, proceed to O19)	1=Yes 2=No	
<i>If YES, for which application(s) did you mix Roundup/Glyphosate and Harness/Bullet, and were the weeds visible when you applied it?(Write all that apply; 1=first, 2=second, 3=third, etc.)</i>	Application #: O17a. _____ O18a. _____	Weeds visible? (1=Yes, 2=No) O17b. _____ O18b. _____

HHID: _____

COPY MAIZE PLANTING DATE FROM N14	Time Use Table: Please fill out the table below of activities performed after planting MAIZE . Codes BELOW.													
	Under the TIME column, ✓ all that apply							Under the TYPE column, enter the appropriate code listed below						
	O19. 1 ST HERBICIDE APPLICATION		O20. CROP EMERGENCE	O21. 2 ND HERBICIDE APPLICATION		O22. 1 ST FERTILIZING		O23. 1 ST WEEDING		O24. 1 ST SUPPLY- ING	O25. 1 ST THIN- NING	O26. 1 ST GAPPIN G	O27. 3 rd HERBICIDE APPLICATION	
DAYS AFTER PLANTING	a. TIME	b. TYPE	TIME	a. TIME	b. TYPE	a. TIME	b. TYPE	a. TIME	b. TYPE				a. TIME	b. TYPE
i. DAY OF PLANTING														
ii. 1-3														
iii. 4-9														
iv. 10-15														
v. 16-29														
vi. 1 month (30-35)														
vii. 36-44														
viii. 45-59														
ix. 2 months (60-75)														
x. 2.5 months (76-89)														
xi. 3 months (90-104)														
xii. 3.5 months (105-119)														
xiii. 4 months (120-134)														
xiv. 4.5 months (135-150)														

Fertilizer types:

- 1=NPK
- 2=UREA
- 3=CAN
- 4=DAP
- 5=NPK/UREA mixture
- 99=Other (specify)

Herbicide types:

- 1=Roundup /Glyphosate
- 2=Harness /Bullet
- 3=Roundup /Glyphosate and
Harness /Bullet mixture
- 99=Other (specify)

Weeding types:

- 1=Scrape and bank
- 2=Scrape and leave in furrow
- 3=Hand pulling and leave in
furrow (no banking)
- 4=Just banking
- 99=Other (specify)

HHID: _____

Time Use Table Cont'd: Please fill out the table below of activities performed after planting. Codes on PREVIOUS page.												
HHID:	Under the TIME column, ✓ all that apply						Under the TYPE column, enter the appropriate code listed below					
	O28. 2 ND WEEDING OR BANKING		O29. 2 ND SUPPLY-ING	O30. 2 ND THIN-NING	O31. 2 ND GAP-PING	O32. 2 ND FERTILIZING		O33. 3 RD SUPPLYING	O34. 3 RD THIN-NING	O35. 3 RD GAPPING	O36. 3 RD WEEDING	
	a. TIME	b. TYPE				a. TIME	b. TYPE				a. TIME	b. TYPE
i. DAY OF PLANTING												
ii. 1-3												
iii. 4-9												
iv. 10-15												
v. 16-29												
vi. 1 month (30-35)												
vii. 36-44												
viii. 45-59												
ix. 2 months (60-75)												
x. 2.5 months (76-89)												
xi. 3 months (90-104)												
xii. 3.5 months (105-119)												
xiii. 4 months (120-134)												
xiv. 4.5 months (135-150)												

O37. Other practices not captured and their timing:

HHID: _____

Section P: NEW MAIZE PLOT HISTORY

Enumerator (say to respondent): These next questions will be about what was previously planted on this plot.

P1. How many years has your household farmed this plot? (Write in years)		
P2. Who is responsible for managing this plot? Amasamalira gawo la mundawu di ndani?	1=household head 2=spouse 3=both 99=other (specify)	

P3. In what year was this plot last left fallow? (** if never fallowed since the household was formed and SKIP to P5)	
P4. For how many years was it left fallow?	

P5. Do you own this land? (1=Yes; 2=No) / Kodi mundawu ndi wanu wanu?	
--	--

P6. How fertile is the soil on this plot?	1=Low fertility 2=Average fertility 3=Very fertile	
--	--	--

Please list the crops grown on this plot over the past 4 years.			
Year	a. Main crop grown	b. Was this intercropped? (1=Yes; 2=No)	c. If intercropped, with what? (List all that apply)
P7. 2014/15			
P8. 2013/14			
P9. 2012/13			
P10. 2011/12			
P11. 2010/11			
Crop Codes: 1=Local maize chimanga cha makolo 2=Hybrid maize chimanga cha makono 3=OPV/Composite maize 4=Tobacco / fodya 5=Cotton / thonje 6=Pigeonpea nandolo 7=Groundnut / mtedza 8=Soya bean / soya 9=Common bean Nyemba 10=Velvet bean Kalongonda 11=Cowpea / Khobwe 12=Bambara nut Nzama 13=Sorghum / Mapira 14=Cassava / Chinangwa 15=Sweet potato Mbatata za kholowa 16=Millet 17=Pumpkin 18=Sugarcane 88=Local/hybrid maize mix 99=Other (specify)			

HHID: _____

**THE FOLLOWING QUESTIONS ARE ABOUT SOIL AMENDMENTS
APPLIED LAST GROWING SEASON (2014/15)**

P12. Did you incorporate any legume residues into your ridges <u>LAST YEAR?</u> If NO, fill out P12b. If yes, fill out the chart below for each legume residue incorporated. CODES BELOW.				a. 1=Yes 2=No	b. If not, why? (Codes below)
<i>Legume name</i>	a. When incorporated	b. Amount	c. Unit	d. Source	
P13. 1st legume					
P14. 2nd legume					
P15. 3rd legume					

Did you apply any of the following to/in the ridges/planting stations <u>LAST GROWING SEASON?</u>						
P16. Weeds	a. 1=Yes 2=No	b. When?	c. Amount	d. Unit	e. Source	f. If not, why not?
P17. Maize	a. 1=Yes 2=No	b. When?	c. Amount	d. Unit	e. Source	f. If not, why not?
P18. Ash	a. 1=Yes 2=No	b. When?	c. Amount	d. Unit	e. Source	f. If not, why not?

Why not incorp. 1=Farmer/respondent burned 2=Were burned by someone else 3=Used for fuel 4=Used for fodder 5=Insufficient labour 6=Did not grow 7=Does not have livestock 8=Used in another field 99=Other (specify)	Legume codes 1=Pigeon pea 2=Groundnut 3=Cowpea 4=Common bean 5=Soya 99=Other (specify)	Unit Codes 1=Same (what was left in the field) 2=Kilograms 3=25 kg bag 4=50 kg bag (fertilizer bag) 5=90 kg bag (maize bag) 6=5L bucket 7=10L bucket 8=Ox cart 9=Handful 99=Other (specify)	Source Codes 1=Own production on THIS field 2=Own production on ANOTHER field 3=Other farmer/household 4=Payment for work 5=Extension agent 6=Local store 7=FISP 8=Inputs for Assets 9=Other NGO 10=Own livestock 99=Other (specify)
Timing codes 1=When turning ridges early right after harvest 2=When turning ridges just before first planting rains 3=when turning ridges after first planting rains right before planting 4= after ridge turning but before planting (incorporation)		5= after ridge turning but before planting (planting station application) 6=at planting in station with seed 7=about ten days after planting with first weeding 8=about 30 days after planting with second weeding 99=Other (specify use days after or before planting)	

HHID: _____

P19. Did you incorporate any animal manure into your ridges <u>LAST GROWING SEASON</u>? If NO, fill out P19b. If yes, fill out the chart below for each type of animal manure incorporated. CODES BELOW				a. 1=Yes 2=No	b. If not, why? <i>(Codes above)</i>
Type of manure	a. When incorporated	b. Amount	c. Unit	d. Source	
P20. 1st type					
P21. 2nd type					
P22. 3rd type					

P23. Did you incorporate any COMPOST into your ridges <u>LAST GROWING SEASON</u>? If NO, fill out P23b. If yes, fill out the chart below for what was in the compost CODES BELOW				a. 1=Yes 2=No	b. If not, why? <i>(Codes above)</i>
c. When incorporated	d. Amount	e. Unit	f. Source	g. Was any material remaining to the eye when applied?	1=Yes 2=No
h. What was in the compost? List up to 5; codes below		<i>i.</i> _____ <i>ii.</i> _____ <i>iii.</i> _____ <i>iv.</i> _____ <i>v.</i> _____			

Why not incorp. 1=Farmer/respondent burned 2=Were burned by someone else 3=Used for fuel 4=Used for fodder 5=Insufficient labour 6=Did not grow 7=Does not have livestock 8=Used in another field 99=Other (specify)	Unit Codes 1=Same (what was left in the field) 2=Kilograms 3=25 kg bag 4=50 kg bag (fertilizer bag) 5=90 kg bag (maize bag) 6=5L bucket 7=10L bucket 8=Ox cart 9=Handful 99=Other (specify)	Source Codes 1=Own production on THIS field 2=Own production on ANOTHER field 3=Other farmer/household 4=Payment for work 5=Extension agent 6=Local store 7=FISP 8=Inputs for Assets 9=Other NGO 10=Own livestock 99=Other (specify)
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Timing codes 1=When turning ridges early right after harvest 2=When turning ridges just before first planting rains 3=when turning ridges after first planting rains right before planting 4= after ridge turning but before planting (incorporation) 5= after ridge turning but before planting (planting station application) 6=at planting in station with seed 7=about ten days after planting with first weeding 8=about 30 days after planting with second weeding 99=Other (specify use days after or before planting)	Manure types 1=Chicken manure 2=Goat manure 3=Swine manure 4=Cow mixture 5=Rabbit manure 99=Other animal manure (specify)	Compost contents 1=23:21:0+4S (NPK) 2=Urea 3=CAN 4=Other fertilizer (specify) 5=Chicken manure 6=Cow manure 7=Rabbit manure 8=Goat manure 9=Rabbit manure 10=Crop residue	11=Herbicide 12=Insecticide 13=Ash 14=Kitchen scraps 15=Maize residue 16=Groundnut residue 17=Soya residue 18=Weeds 19=Swine manure 20=Water 99=Other (specify)
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HHID: _____

Did you apply any of the following amendments?(Codes below) (In part b, m=month, w=week)

P24. NPK	a. 1=Yes 2=No	b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used
P25. UREA	a. 1=Yes 2=No	b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used
P26. CAN	a. 1=Yes 2=No	b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used
P27. Herbicide TYPE: _____	a. 1=Yes 2=No	b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used
P28. Insecticide TYPE: _____	a. 1=Yes 2=No	b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used
P29. Other (specify)		b. When? _____m _____w	c. Timing	d. Amount	e. Unit	f. How much of container used

P24b-P29b Month Codes: 10=October 11=November 12=December, etc.	P24c-P29c Codes: 1=During ridge preparation 2=Right BEFORE planting 3=During planting 4=1-10 days AFTER planting 5=Greater than 11 days AFTER planting 99=Other (specify)	P24e-P29e Codes: 1=Kilograms 2=25 kg bag 3=50 kg bag (fertilizer bag) 4=90 kg bag (maize bag) 5=5L bucket 6=10L bucket 7=Plate 8=Sugar packet 9=Ox cart 99=Other (specify)	P24f-P29f Codes: 1= 1/4 or less 2= 1/2 3= 3/4 4=All
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HHID: _____

**THE FOLLOWING QUESTIONS ARE ABOUT SOIL AMENDMENTS APPLIED
THE GROWING SEASON BEFORE LAST (2013/14)**

P30. Did you incorporate any legume residues into your ridges <u>THE GROWING SEASON BEFORE LAST?</u> If NO, fill out P30b. If yes, fill out the chart below for each legume residue incorporated. CODES BELOW.				<i>a. 1=Yes 2=No</i>	<i>b. If not, why? (Codes below)</i>
<i>Legume name</i>	a. When incorporated	b. Amount	c. Unit	d. Source	
P31. 1st legume					
P32. 2nd legume					
P33. 3rd legume					

<i>Did you apply any of the following to/in the ridges/planting stations <u>THE GROWING SEASON BEFORE LAST?</u></i>						
P34. Weeds	a. <i>1=Yes 2=No</i>	b. When?	c. Amount	d. Unit	e. Source	f. If not, why not?
P35. Maize	a. <i>1=Yes 2=No</i>	b. When?	c. Amount	d. Unit	e. Source	f. If not, why not?
P36. Ash	a. <i>1=Yes 2=No</i>	b. When?	c. Amount	d. Unit	e. Source	f. If not, why not?

Why not incorp. <i>1=Farmer/respondent burned 2=Were burned by someone else 3=Used for fuel 4=Used for fodder 5=Insufficient labour 6=Did not grow 7=Does not have livestock 8=Used in another field 99=Other (specify)</i>	Legume codes <i>1=Pigeon pea 2=Groundnut 3=Cowpea 4=Common bean 5=Soya 99=Other (specify)</i>	Unit Codes <i>1=Same (what was left in the field) 2=Kilograms 3=25 kg bag 4=50 kg bag (fertilizer bag) 5=90 kg bag (maize bag) 6=5L bucket 7=10L bucket 8=Ox cart 9=Handful 99=Other (specify)</i>	Source Codes <i>1=Own production on THIS field 2=Own production on ANOTHER field 3=Other farmer/household 4=Payment for work 5=Extension agent 6=Local store 7=FISP 8=Inputs for Assets 9=Other NGO 10=Own livestock 99=Other (specify)</i>
Timing codes <i>1=When turning ridges early right after harvest 2=When turning ridges just before first planting rains 3=when turning ridges after first planting rains right before planting 4= after ridge turning but before planting (incorporation)</i>		<i>5= after ridge turning but before planting (planting station application) 6=at planting in station with seed 7=about ten days after planting with first weeding 8=about 30 days after planting with second weeding 99=Other (specify use days after or before planting)</i>	

HHID: _____

P37. Did you incorporate any animal manure into your ridges THE <u>GROWING SEASON BEFORE LAST</u>? If NO, fill out P37b. If yes, fill out the chart below for each type of animal manure incorporated. TYPE CODES BELOW; OTHERS ABOVE.		a. 1=Yes 2=No	b. If not, why? (Codes above)	
Type of manure	a. When incorporated	b. Amount	c. Unit	d. Source
P38. 1 st type				
P39. 2 nd type				
P40. 3 rd type				

P41. Did you incorporate any COMPOST into your ridges THE <u>GROWING SEASON BEFORE LAST</u>? If NO, fill out P41b. If yes, fill out the chart below for what was in the compost CODES BELOW; OTHERS ABOVE.		a. 1=Yes 2=No	b. If not, why? (Codes above)	
c. When incorporated	d. Amount	e. Unit	f. Source	g. Was any material remaining to the eye when applied? 1=Yes 2=No
h. What was in the compost? List up to 5; codes below		i. _____ ii. _____ iii. _____ iv. _____ v. _____		

Why not incorp. 1=Farmer/respondent burned 2=Were burned by someone else 3=Used for fuel 4=Used for fodder 5=Insufficient labour 6=Did not grow 7=Does not have livestock 8=Used in another field 99=Other (specify)	Unit Codes 1=Same (what was left in the field) 2=Kilograms 3=25 kg bag 4=50 kg bag (fertilizer bag) 5=90 kg bag (maize bag) 6=5L bucket 7=10L bucket 8=Ox cart 9=Handful 99=Other (specify)	Source Codes 1=Own production on THIS field 2=Own production on ANOTHER field 3=Other farmer/household 4=Payment for work 5=Extension agent 6=Local store 7=FISP 8=Inputs for Assets 9=Other NGO 10=Own livestock 99=Other (specify)
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Timing codes 1=When turning ridges early right after harvest 2=When turning ridges just before first planting rains 3=when turning ridges after first planting rains right before planting 4= after ridge turning but before planting (incorporation) 5= after ridge turning but before planting (planting station application) 6=at planting in station with seed 7=about ten days after planting with first weeding 8=about 30 days after planting with second weeding 99=Other (specify use days after or before planting)	Manure types 1=Chicken manure 2=Goat manure 3=Swine manure 4=Cow mixture 5=Rabbit manure 99=Other animal manure (specify)	Compost contents 1=23:21:0+4S (NPK) 2=Urea 3=CAN 4=Other fertilizer (specify) 5=Chicken manure 6=Cow manure 7=Rabbit manure 8=Goat manure 9=Rabbit manure 10=Crop residue	11=Herbicide 12=Insecticide 13=Ash 14=Kitchen scraps 15=Maize residue 16=Groundnut residue 17=Soya residue 18=Weeds 19=Swine manure 20=Water 99=Other (specify)
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HHID: _____

Did you apply any of the following amendments **THE GROWING SEASON BEFORE** LAST?(Codes below)
(In part b, m=month, w=week)

P42. NPK	a. 1=Yes 2=No	b. When? ____m ____w	c. Timing	d. Amount	e. Unit	f. How much of container used
P43. UREA	a. 1=Yes 2=No	b. When? ____m ____w	c. Timing	d. Amount	e. Unit	f. How much of container used
P44. CAN	a. 1=Yes 2=No	b. When? ____m ____w	c. Timing	d. Amount	e. Unit	f. How much of container used
P45. Herbicide TYPE: _____	a. 1=Yes 2=No	b. When? ____m ____w	c. Timing	d. Amount	e. Unit	f. How much of container used
P46. Insecticide TYPE: _____	a. 1=Yes 2=No	b. When? ____m ____w	c. Timing	d. Amount	e. Unit	f. How much of container used
P47. Other (specify)		b. When? ____m ____w	c. Timing	d. Amount	e. Unit	f. How much of container used

P42b-P47b Month Codes:

10=October
11=November
12=December, etc.

P42b-P47b Week Codes:

1, 2, 3, 4

P42c-P47c Codes:

1=During ridge preparation
2=Right BEFORE planting
3=During planting
4=1-10 days AFTER planting
5=Greater than 11 days AFTER planting
99=Other (specify)

P42e-P47e Codes:

1=Kilograms
2=25 kg bag
3=50 kg bag (fertilizer bag)
4=90 kg bag (maize bag)
5=5L bucket
6=10L bucket
7=Plate
8=Sugar packet
9=Ox cart
99=Other (specify)

P42f-P47f Codes:

1= 1/4 or less
2= 1/2
3= 3/4
4=All

