

Appendix 3.1 Survey instrument

THE COMPARATIVE INFLUENCE OF INTERVENING VARIABLES IN THE ADOPTION BEHAVIOR OF MAIZE AND DAIRY FARMERS IN SHASHEMENE AND DEBREZEIT, ETHIOPIA

MAIZE QUESTIONNAIRE

Respondent's Name.....

Enumerator's Name.....

PA/Kebele

Village

PART 1: INDEPENDENT VARIABLES

1. Age (How old are you?) No. of Years

2. Educational level
What level of education did you attain? No. of years

3. Literacy level
Can you read in any one language?
No (1)
Yes, but with difficulty (2)
Yes, fairly well (3)
Yes, very well (4)

4. Gender
Male (1)
Female (2)

5. Are you the head of the household?
No (1)
Yes (2)

6. Marital status

- Single (1)
- Married (2)
- Divorced (3)
- Widow (4)
- Widower (5)

7. Social status

7.1 Number of oxen

7.2 Number of Milking Cows

7.3 Number of Draught Animals

7.4 Housing

- Grass roof (1)
- Corrugated iron roof (no partition) (2)
- Corrugated iron - roof (with partition) (3)

8. Farm size

8.1 Total land holding (ha).

8.2 Arable land (ha)

9. Farming experience

Number of years

10. Attitude toward credit

10.1 What is your attitude on the importance of credit for farm improvement?.....

10.2 Would you rate your feeling on the following five point scale?

Less important

Highly important



1	2	3	4	5
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11. Social participation (Organizational participation and leadership)

What was your level of participation in the following social organizations during the last five years? (If he/she was a member and served also as a leader during this period, take the second option)

11.1 List of social organizations

1. Woreda Council
2. Kebele/PA Council
3. Kebele/PA Development Council
4. Kebele/PA Soil Conservation team
5. Marketing Co-operative
6. Irrigation Association
7. Religious Club
8. School Council

11.2 Level of participation

- | | |
|--------|-----|
| Non | (1) |
| Member | (2) |
| Leader | (3) |

12. Change agent contact

How often do you use the following information sources per season?

12.1 List of information sources

1. DA
2. Fellow farmer
3. EMTP
4. Field day
5. Wereda BoA
6. AI Center
7. Woreda Council
8. NGO
9. PA

12.2 Frequency of contact

- Never (1)
- Rarely (2)
- Occasionally (at critical activities) (3)
- Often (once or twice a month) (4)
- Quite often (once or twice a week) (5)

12.3 Choose the 5 most important sources and place them in rank order

12.3.1 Rank

1 st	
2 nd	
3 rd	
4 th	
5 th	

12.3.2 Information sources (Refer 12.1)

13. Mass media exposure

How often do you make use of the following media facilities?

13.1 List of media facilities

1. Radio
2. Television
3. Printed media
4. Public gatherings (meeting, market place, church, watering Point, mosque, edir)

13.2 Frequency of listening

- Never (1)
- Rarely (2)
- Occasionally (3)
- About once or twice a month (4)
- At least once or twice a week (5)
- Daily (6)

13.3. Rank the above mass media sources in their order of importance

13.3.1 Rank

1 st	
2 nd	
3 rd	
4 th	

13.3.2 Types of media (Refer 13.1)

13.4 To which Radio program do you listen most?

13.4.1 Rank of programs

1 st	
2 nd	
3 rd	
4 th	
5 th	

13.4.2 List of programs

1. Agricultural program
2. News
3. Drama
4. Music
5. General knowledge

13.5 If not agricultural program why not?.....

13.6 To which Television program do you listen most?

13.6.1 Rank of programs

1 st	
2 nd	
3 rd	
4 th	
5 th	

13.6.2 List of programs (Refer 13.4.2)

13.7 If not agricultural program why not?.....

14. Attitude toward education

To what extent do you agree on the following statements?

14.1 List of statements

1. Education is a key for development
2. Educated people lead their life better than non-educated
3. Education is the base for present advances in science and technology
4. Education shall be regarded as a good measure of quality of life and is a basic human right

14.2 Degree of agreement

- | | |
|-------------------|-----|
| Strongly agree | (5) |
| Agree | (4) |
| Neutral | (3) |
| Disagree | (2) |
| Strongly disagree | (1) |

15. Fatalism

To what extent do you agree on these statements?

15.1 List of statements

1. What we achieve in life is a mere result of fate
2. The No. of children one has is predestined
3. The time when one dies is predestined

15.2 Degree of agreement

- Strongly agree (5)
- Agree (4)
- Neutral (3)
- Disagree (2)
- Strongly disagree (1)

16. Attitudinal modernity scale

16.1 How often do you get involved in issues concerning the community, like problems of education and health services, and participate in efforts for their resolution?

- Never (1)
- Sometimes (2)
- Many times (3)
- Always (4)

16.2 From which sources do boys learn most of the truth about life?

- From old people (1)
- From books and schools (2)

16.3 If education is available, and there are no obstacles of any kind, what education should be received by the sons of people like you?

- No education is important (1)
- Few years in traditional schools (2)
- Elementary school (3)
- High school (4)
- University studies (5)

16.4 What is the best job you aspire to have for yourself?

Name of job:

16.5 Do you trust merchants in general?

- Never (1)
- Sometimes (2)
- Most times (3)
- Always (4)

16.6 How often should an irresponsible boy be excused?

- Always (1)
- Many times (2)
- Few times (3)
- Never (4)

16.7 Two twelve year-old boys took time out from farm work and sat down talking about how to grow crops with fewer hours of work.

The father of one of the boys said to them, "the way to grow crops is the same way we are growing them. To sit down and talk about how to grow crops is a waste of time". (1)

The father of the other boy said, "this is a good thing to think about. Tell me how to grow crops with fewer hours of work" (2)
Who of the two fathers said the wiser words?

16.8 To which advice should one give more weight?

- To advices from religious men (1)
- To advices from governmental officials (2)

16.9 What qualifies a man to high office?

- Distinguished family (1)
- Respect for traditions (2)
- Popularity among people (3)
- Education and special knowledge (4)

16.10 To whom should the government grant a petition?

- To the man who is in most need (1)
- To the man who has influence in the community (2)

To the man who has the right (3)

16.11 Do you have a desire to possess a camera?

- No (1)
- Little desire (2)
- Some desire (3)
- Much desire (4)

16.12 Have you ever possessed a camera?

- No (1)
- Yes (2)

16.13 Is it good or bad to strive for money over and above comfortable living?

- Bad (1)
- Good (2)

16.14 How would you treat a person you defeated in an argument or a competition, if he attacks you?

- Harshly (1)
- Kindly (2)

16.15 Which of the following statements is closer to your own thinking?

- What man gets in life is determined by fate (1)
- What man gets in life depends on his own effort (2)

16.16 Which of the following is most important for the future of this country?

- Good luck (1)
- God's help (2)
- Good government planning (3)
- Hard work by the people (4)

16.17 Scientists are interested in exploring nature's secrets. Some of them want to know the things that determine whether a pregnant woman will give birth to a boy or a girl. Others try to find what things inside a seed make it grow into a plant. And some of them explore the skies to know from what materials the planets and the stars are made.

What do you think of such studies by scientists?

- Ungodly/bad/very harmful (1)
- Some what harmful (2)
- Some what beneficial (3)
- Good and very beneficial (4)

16.18 What is the ideal number of children for someone like you?

16.19 Some people say that it is necessary for men and wife to limit the number of children by use of birth control methods so that they can take better care of the few children they will have. Other people say it is wrong to limit the number of children. With which of the two opinions do you agree?

- It is wrong to limit (1)
- It is necessary to limit (2)

16.20 How many people do you think have opinions, which are different than yours?

- Non (1)
- Few (2)
- Many (3)

16.21 Who should speak for the family?

- Husband only (1)
- Husband and wife (2)

16.22 With which citizenship do you identify yourself most?

- Citizenship of your village/town (1)
- Citizenship of your district (2)
- Citizenship of your province (3)
- Citizenship of your country (4)

16.23 To whom should a man feel closer?

- To his mother/father/brothers/sisters (1)
- To his wife (2)

16.24 What news interests you most?

- News about your village (district) (1)
- News about your province (2)
- National news (about your nation) (3)
- World News (4)

16.25 If it is guaranteed that your income will increase 100 percent (will double) if you are asked to go to work in another place away from here would you go?

- No, I prefer to stay in my community (1)
- Yes, I will go (2)

16.26 Do you understand the way of thinking of people from other countries?

- No (1)
- Yes (2)

16.27 Do you plan in advance for things you want to do?

- Never (1)
- Sometimes (2)
- Most times (3)
- Always (4)

- 16.28 Who of the following deserves to be admired more by people?
- A man devoted to religion (1)
A factory owner (2)
- 16.29 Can man be good without religion?
- No (1)
Yes (2)
- 16.30 After how long would you regard a person you are waiting for late for an appointment made with you? (Number of minutes)
- 16.31 How much pay should an employed woman get for doing the same type of jobs done by fellow men employees?
- Less pay (1)
Same pay (2)
- 16.32 To whom should a man get married?
- To a woman that suits his parents (1)
To a woman that suits him (2)
- 16.33 Illicit sexual relationships may develop between men and women working together in the same office or factory. How much does this worry you?
- Much worry (1)
Some worry (2)
Little worry (3)
No worry (4)

17. **Attitude toward change**

To what extent do you agree on these statements?

17.1 Statements

1. We should do farming the way our ancestors did.
2. Farming shall be considered as a way of life and not as business
3. Change is always damaging and shall not be encouraged
4. Today is better than tomorrow

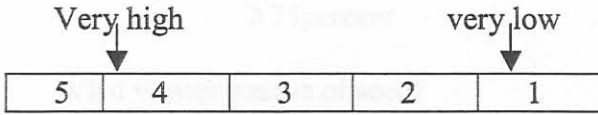
17.2 Degree of agreement

- | | |
|-------------------|-----|
| Strongly agree | (1) |
| Agree | (2) |
| Neutral | (3) |
| Disagree | (4) |
| Strongly disagree | (5) |

19.2 Need tension

19.2.1 To what yield level are you striving for?

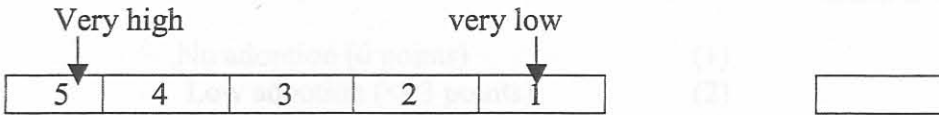
19.2.2 How do you rate this yield level on a five-point scale?



19.3 Self image

19.3.1 What do you think would the average productivity of the village fellow farmers be?/q/ha.

19.3.2 How do you rate the present average level of productivity of your fellow village farmers compared to that of yourself (19.1.1)?



Practice 1-improved variety

20 Adoption

20.1 Which improved maize variety do you normally grow?

- Not applicable (0)
- A-511 (1)
- BH-660 (2)
- BH-140 (3)
- BH-540 (4)
- Pioneer 3253 (5)

20.2 What percent of your plot is usually planted with improved seed?

20.2.1 Actual percentage

20.2.2 Range

- Very high other varieties very low
- Not applicable (0)
- <50percent (1)
- 50-75percent (2)
- >75percent (3)

20.3 What is your source of seed?

- Local variety (0)
- Own improved seed (1)
- Own + fresh (2)
- Fresh (3)

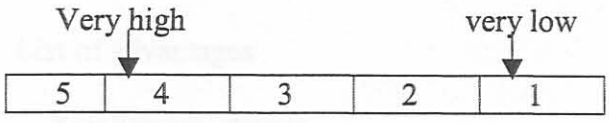
20.4 General level of adoption of improved variety (out of 7 points) (To be field by enumerator)

- No adoption (0 points) (1)
- Low adoption (<=3 points) (2)
- Partial adoption (4-5 points) (3)
- Full adoption (6-7 points) (4)

20.5 Use the 7 point scale below and show how your choice is superior over the other varieties; if the average point for others is determined to be 4 on the following parameters?

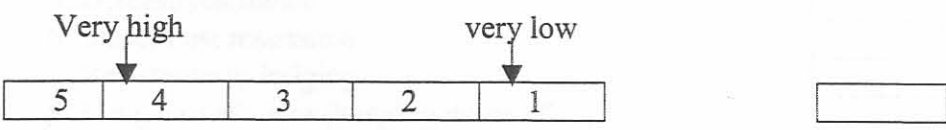
- 20.5.1 Parameters
1. Yield
 2. Grain quality
 3. Early maturity
 4. Pest and disease resistance
 5. Lodging
 6. Storability
- | |
|--|
| |
| |
| |
| |
| |
| |

21.2.3 How do you rate your goal of use of improved variety on a five-point scale?



21.3 Self image

How do you rate the present average level of use of improved variety of maize of your village fellow farmers compared to that of your own scale of 21.1.1?



21.4 Need compatibility

Your current yield as you have put it to me is..... quintals/ha.

What do you think it would have been without the use of recommended variety?

22 Perception of technology attributes

22.1 What are the advantages of using improved variety of maize?

22.1.1 List of advantages

Relative advantages

A. Economic aspects

1. High productivity/ yield advantage
2. Early maturity
3. Quality grain
4. Higher green cob price

B. Technical

5. Disease resistance
6. Insect Pest resistance
7. Resistance to lodging
8. Long harvest time (hanging down of ear)
9. Good husk cover
10. High harvest index

22.1.2 Scale / 5= v. high, 1= v. low/

22.2 Take five most important advantages of improved seed and rank them in order of importance

22.2.1 Rank of advantages

1 st	2 nd	3 rd	4 th	5 th

22.2.2 List of advantages (Refer to 22.1.1)

22.3 What are the disadvantages of using improved variety of maize?

22.3.1 Parameters of disadvantages
Relative advantages

1. Low storability
2. Drop in market price, at time of harvest
3. low ear placement (short)
4. Regular need for fresh seeds
5. Contamination

Compatibility

- 6 High seed cost
7. Seed unavailability (at right time, quality, place & type)
8. Incompatibility with taste
9. Unavailability of credit
10. Bureaucratic credit and input administration
11. Low productivity

22.3.2 Rate the disadvantages on five point scale
(5= v. high, 1= v low)

22.4 Choose five most important constraints and rank them in order of importance

22.4.1 Rank

1 st	2 nd	3 rd	4 th	5 th

22.4.2 List of disadvantages (Refer 22.3.1)

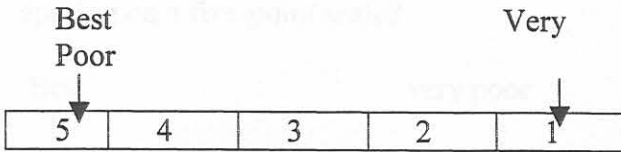
Practice 2- spacing/ row planting

23	Adoption	
23.1	What spacing do you use between plants?	<input type="text"/>
23.1.1	Actual spacing (CM)	<input type="text"/>
23.1.2	Range	<input type="text"/>
	Not applicable	(0)
	<25cm(drilling)	(1)
	25cm, 1 seed/hill	(2)
	50cm, 2 seeds/hill	(3)
23.2	What spacing do you use between rows?	
23.2.1	Actual spacing (CM)	<input type="text"/>
23.2.2	Range	<input type="text"/>
	Not applicable	(0)
	<50cm	(1)
	50-80cm, 1 seed/hill	(2)
	80cm, 2 seeds/hill	(3)
23.3	What is your yardstick?	<input type="text"/>
	Not applicable	(0)
	Stick	(1)
	Foot steps	(2)
	judgement/estimation	(3)
23.4	General level of adoption of spacing (to be field by enumerator out of 9 point)	<input type="text"/>
	No adoption (0 points)	(0)
	Low adoption (<=3 points)	(1)
	Partial adoption (<=6 points)	(2)
	Full adoption (<=9 points)	(3)

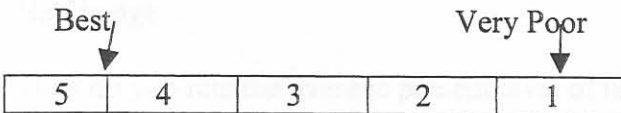
24 Problem perception

24.1 Perceived current efficiency/PCE

24.1.1 How do you rate on a 5 point scale your current level of spacing or row planting (23.1-23.3)



24.1.2 Enumerator/researchers rating based on 23.4



24.2 Need tension

What is your goal (are you striving for) regarding the appropriate use of spacing?

24.2.1 Actual spacing (b/n plants)

24.2.2 Range (b/n plants)

- Not applicable (0)
- <25 cm (1)
- 25cm 1 seed/hill (2)
- 50cm 2 seed/hill (3)

24.2.3 Actual spacing (b/n rows)

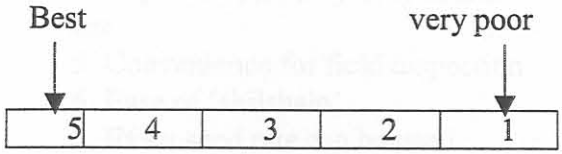
24.2.4 Range (b/n rows)

- Not applicable (0)
- <50 cm (1)
- 50-80cm (2)
- 80cm (3)

24.2.5 Yard stick

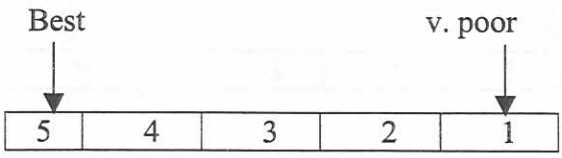
- Not applicable (0)
- Stick (1)
- Footsteps (2)
- Imagination (3)

24.2.6 How do you rate your goal of application of appropriate plant spacing on a five-point scale?



24.3 Self image

How do you rate the average present level of use of plant spacing of your fellow village farmers?



24.4 Need compatibility

Your current yield as you have put it to me is..... Quintals/ha. What do you think it would have been without the use of recommended spacing?

25.3 What are the disadvantages of row planting?

25.3.1 List of disadvantages

Relative disadvantages

1. Waste of land

Compatibility

2. Incompatibility with beliefs and traditions

3. Requires skills

25.3.2 Scale / 5= v. high, 1= v. low

25.4 How do you rank the disadvantages?

25.4.1 Rank (first to third)

1 st	2 nd	3 rd

25.4.2 List disadvantages / Refer 25.3.1 /

Practice 3 rate and type of fertilizer application

26 **Adoption**

26.1 Which fertilizer type do you normally use?

- Non (0)
- Urea (1)
- DAP (2)
- Both (3)

26.2 At what rate? (Kg/ha.)

26.2.1 Actual rate DAP

26.2.2 Actual rate Urea

26.2.3 Range

- Not applicable (0)
- ≤ 100 kg of one (1)
- 50-100kg of each (2)
- 100kg of each (3)

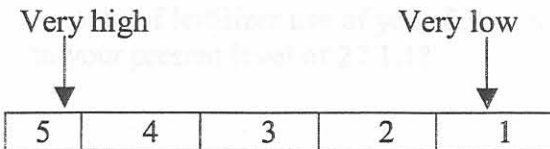
26.3 General level of adoption of recommended type and rate of fertilizer (out of 6 = by enumerators)

- No adoption (0 point) (0)
- Low adoption (≤ 2 point) (1)
- Partial adoption (≤ 4 point) (2)
- Full adoption (≤ 6 point) (3)

27 Problem perception

27.1 Perceived current efficiency/PCE

27.1.1 In question 26.1 and 26.2 you have determined the present level of the type and amount of fertilizer you use. How do you rate this on a five-point scale?



27.1.2 Enumerators/ researchers rating based on 26.3 above

27.2 Needs tension

What is your goal (what are you striving for) regarding the type and the amount of fertilizer to be used/

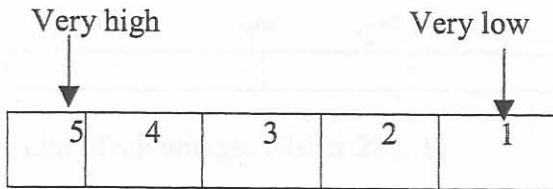
27.2.1 Type

- No applicable (0)
- Urea (1)
- DAP (2)
- Both (3)

27.2.2 Rate

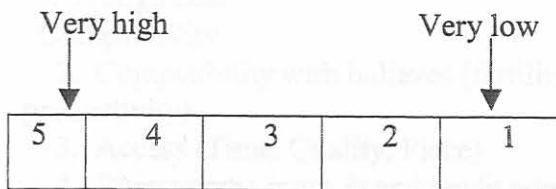
- Non (0)
- ≤ 100kg of one (1)
- ≤100kg of each (2)
- 100kg of each (3)

27.2.3 How do you rate your goal on a five-point scale?



27.3 Self image

How do you rate the present average level of the type and amount of fertilizer use of your fellow village farmers compared to your present level of 27.1.1?



27.4 Need Compatibility

Your current yield as you put it to me is ----- Q/ha. What do you think it would have been without the use of recommended type and rate of fertilizer?

28 Perception of technology attributes

28.1 What are the advantages of using recommended type and rate of fertilizer?

28.1.1 List of advantages

A. Economical

1. High grain yield
2. High Stover yield

B. Technical

3. Facilitate maturity
4. Dark green looking stand

28.1.2 Scale (5= v. high, 1= v. low)

28.2 How do you rank the advantages (5 highest)

28.2.1 Rank

1 st	2 nd	3 rd	4 th

28.2.2 List of advantages (Refer 28.1.1)

28.3 What are the disadvantages of using recommended type and rate of fertilizer? on a 5 point scale (5 = highest)

28.3.1 List of disadvantages

Relative disadvantages

1. High cost
- Compatibility
2. Compatibility with believes (fertilizer kills soil productivity)
3. Access (Time, Quality, Place)
4. Bureaucratic input & and credit administration
5. Belief that fertilizer burns seed
6. Fraud

28.3.2 Scale (if 5= v. high, 1= v. low)

28.4 Rank the disadvantages in their order of importance

28.4.1 Rank

1 st	2 nd	3 rd	4 th

28.4.2 List of disadvantages (Refer 28.3.1)

Practice 4 - Spot application of fertilizer

29 Adoption

29.1 How do you judge the quantity when you spot apply fertilizer?

Not applicable (0)

Coca Cola cup (1)

Imagination (2)

29.2 How do you apply the seed?

Not applicable (0)

Together with the fertilizer (1)

Besides the fertilizer (2)

29.3 General level of adoption of spot application technique (out of 4- by enumerators)

No adoption (0 point) (0)

Low adoption (<=2) (1)

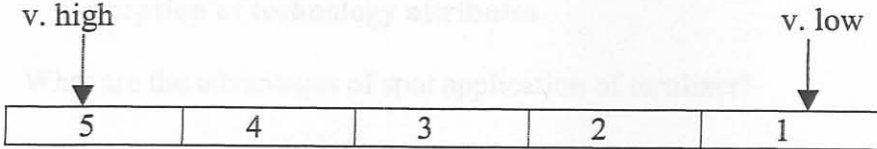
Partial adoption (3 points) (2)

Full adoption (4 points) (3)

30 Problem perception

30.1 Perceived current efficiency/PCE

30.1.1. In question 29.1-29.3 you have determined your present level of spot application, how do you rate this on a 5point scale below?



30.1.2 Enumerators/ researchers rating based on 29.3 above

30.2 Need tension

What is your goal (what are you striving for) regarding spot application?

30.2.1 Judgment of quantity

- Not applicable (0)
- Use of coca cola cup (1)
- Imagination (2)

30.2.2 Methods of seed application

- Not applicable (0)
- Together with fertilizer (1)
- Besides the fertilizer (2)

30.2.3 How do you rate your goal of level of spot of application on a five-point scale? (5= very high, 1= very low)

30.3 Self image

How do you rate the present average spot application level of your fellow village farmers compared to yours of 30.1.1? (5= highest, 1= lowest)

30.4 Need compatibility

Your current yield as you put it to me is _____ Q/ha. What do you think it would have been without the use of spot application technique?

31 Perception of technology attributes

31.1 What are the advantages of spot application of fertilizer?

31.1.1 Parameters of advantages

Relative advantages

1. Economic use of fertilizer and seed
2. Increase fertilizer use efficiency by the plant

31.1.2 Scale (5= v. high, 1= v. low)

31.2 What are the disadvantages of spot application fertilizer?

31.2.1 Parameters of disadvantages

Relative disadvantages

1. Laborious
2. Toxic to seed

31.2.2 Scale / 5= v. high, 1= v. low

