

Chapter Five

Results and Discussion

Following the completion of the interview, the data were tabulated and analyzed. Following is the summary of the findings.

Household Characteristics

Population Profile

The total number of household heads interviewed was 140, representing a total household population of 1,048. The average household size for the sample was 10.77, the smallest being one and the largest being 13 or more (*Table 8*). The average household size for the four peasant association areas shows a general consistency. However, the average household size is higher than the national rural average family size which ranges between 6 and 7 persons. This is because of polygamy in the area.

Table 8: Distribution of Household in the Sample by Number of Persons per Household

Number of Persons per Household	Frequency of Households	Percent of Households
1	1	0.7
2	2	1.4
3	13	9.3
4	15	10.7
5	11	7.9
6	8	5.7
7	13	9.3
8	17	12.1
9	29	20.7
10	9	6.4
11	8	5.7
12	10	7.1
13 or more	4	2.8
Total	140	100

Most of the farmers (57.86 percent) reported that they reside in the village, 32.14 percent on the farm, and 10 percent in the town. Among the 140 respondents, 118 (84.3 percent) indicated that they were born in the woreda, while 22 (15.7 percent) were born outside the woreda. Of the total population, children (below 15 years of age) constituted 44.27 percent and adults (25-59) constituted 27.86 percent. It would therefore appear that the age structure of the population is predominantly young, unproductive and dependent on the rest of the heads of the household population (*Table 9*).

Table 9: Age Distribution of the Survey Population

Age Group	Total Population in the Age Group	Percent Population in the Age Group
0-04	115	10.97
5-09	175	16.70
10-14	174	16.60
15-19	168	16.03
20-24	87	8.30
25-29	52	4.96
30-34	50	4.77
35-39	50	4.77
40-44	46	4.39
45-49	40	3.82
50-54	28	2.67
55-59	26	2.48
60-64	13	1.24
65-69	14	1.34
70-74	5	0.48
75+	5	0.48
Total	1048	100

It was also found that among the total population 51.7 percent were male and 48.3 percent were female.

Language and Literacy

It was found that the primary language for 54.5 percent of the population was Oromogna, and for 23.9 percent Amharic. It was reported that 18.8 percent of the respondents speak both Oromogna and Amharic.

An analysis of the data relating to the literacy of the population shows that 43.84 percent are illiterate, 5.51 percent read only, while 50.65 percent read and write (*Table 10*).

Table 10: Language and Literacy

Literacy	Total Household Number	Percent Household Number
1. Illiterate	406	43.84
2. Read only	51	5.51
3. Read and write	469	50.65
Total	926	100

The educational achievement frequency distribution of the population showed that 30.45 percent have attained Grade 1-3, 24.14 percent have attained Grade 4, 23.96 percent have attained Grade 7-8 and 19.28 percent have attained 9-12 (*Table 11*).

Table 11: Educational Level

Education Level	Frequency	Valid Percent
1-3	169	30.46
4-6	134	24.14
7-8	133	23.96
9-12	107	19.28
Above 12	12	2.16
Total	555	100

Occupational Characteristics

The occupational frequency distribution of the population in the study sample showed that 34.38 percent of the respondents were primarily occupied in food crop cultivation. From the data, it appears that the highest number of persons (40.09 percent) are engaged in school. This is partly due to the school expansion policy in the rural areas (*Table 12*).

Table 12: Occupational Structure

Occupational structure population	Number of persons	Percent in the classification
1. Farming	295	33.40
2. Trading	6	0.70
3. Handicraft	1	0.12
4. Student	344	40.09
5. Church/mosque	8	0.93
6. House wife	116	13.52
7. Dependent	88	100
Total Valid Cases	858	100

However, those engaged in school and other activities also assist their families in farming activities.

Pattern of Land Holding

Before the land reform of 1975, 27.2 percent of the respondent were tenants, 4.4 percent tenant-owner cultivators and 19.1 percent owner cultivators (*Table 13*).

Table 13: Pattern of Land Holding before 1975 Land Reform Proclamation

Pattern of land holding	Frequency of household heads	Percent of household heads
1. Owner cultivator	26	19.1
2. Tenant owner cultivator	6	4.4
3. Tenant cultivator	37	27.2
4. Cash rent cultivators	2	1.5
5. Others	69	47.8*
Total	140	100.0

*Others refers to those participants who were children, labourers, students etc. at the time of the reform

At the time of the study, the average size of land cultivated by the non-participants was 2.04 ha per household, while for the one year and two year participants, it was found to be 2.94 ha and 3.33 ha respectively. In the terms of total household numbers, it was found that the average household size of the non-participants was 6.79 while the one year and two year participants was 8.11 and 8.55, respectively. It is interesting to note that two year and one year participants cultivate larger areas of land, respectively, and have larger numbers of households compared to non-participants. This is partly due to the redistribution of land based on the number of household size.

Table 14: Size of Land Cultivated and Number of Household Heads

Size of land (ha.)	Total No. household heads	Percent of households
0.25-1	12	8.57
1.25-2	47	33.57
2.25-3	56	40.00
3.25-4	16	11.43
4.25-5	2	1.43
5.25-6	2	1.43
6.25+	5	3.57
Total	140	100

As shown in *Table 14*, 82.14 percent of households cultivate less than 3 ha located in separate plots. It was found out that the 140 household heads included in the sample cultivate a total of 436 separate plots with an average of 3.11 plots per household, located at different places away from the residence (*Table 15*).

Table 15: Number of Parcels Cultivated and Distance from Residence (kms)

Distance from residence	Number of plots							Total
	1	2	3	4	5	6	7	
1. less than 1km	96(68)	43(36)	32(33)	11(23)	8(44)	4(40)	3(2)	197
2. one to two kms	23(17)	49(41)	38(39)	16(34)	4(22)	2(20)	-	132
3. two to three kms	13(9)	19(16)	20(20)	13(28)	3(17)	1(10)	-	69
4. four to six kms	8(6)	8(7)	5(5)	4(9)	3(17)	3(30)	-	31
5. more than six kms	-	1(.8)	3(3)	3(6)	-	-	-	7
Total	140	120	98	47	18	10	3	436

As indicated in *Table 15*, of the total number of plots cultivated, 49.18 percent were located at a distance of less than one kilometre and the rest (8.72 percent) were located at a distance exceeding four to six kilometres from the farmer's dwellings. It appears that the fragmentation of land has resulted, in part, when family size increases and due to the intention of some farmers to get additional plots of land for cultivation through the informal land rent arrangements. The fragmentation of land holding partly resulted also due to the previous government land policy of sharing land of different levels of fertility in an equitable manner.

Contact with the Extension and Research and Development System

An attempt was made to find out if the farmers have obtained advice for improving their farming conditions, using six improved agricultural practices claimed by the extension agents to have been diffused in the survey area. 93.78 percent of the interviewees indicated that their source of advice was the Extension Agent while 2.52 percent identified the peasant association leader and 1.18 percent the previous CADU/ARDU agents as their major source of advice on the improved agricultural practices (*Table 16*).

Table 16: Source of Advice for Improving Farming Conditions

Source of advice	Improved seed	Fertilizer	Insecticide	Herbicides	Breed of cattle
1. Extension agent	127(94.08)	124(91.18)	84(95.45)	129(96.99)	94(91.26)
2. P. A leader	1(.74)	2(1.47)	3(3.41)	1(.74)	8(7.77)
3. Production cadre		1(.74)			
4. Friend		1(.74)		2(1.46)	2(1.50)
5. CADU/ARDU agents	1(.74)	3(2.21)	1(1.14)	1(.75)	1(.97)
6. EMTP participating farmers	4(2.96)				1(.74)
7. Relative		2(1.46)			
8. Other	1(.74)				1(.74)
Valid cases	135	136	88	133	103

Source of Influence in the Adoption of Selected Agricultural Practices

The interviewees were further asked to indicate who influenced them in the adoption of the selected improved agricultural practices. An overwhelming number of respondents indicated that the Extension Agent was the major source of influence in the adoption of the selected improved practices (*Table 17*).

Table 17: Source of Influence in the Adoption of Agricultural Practices

Imp. Agri. Practices	Ext. agent	PA	Source of Influence CADU/ARDU leader	SG. agent	Relative participant	Friend	Total
1. Imp. seed	103(83.74)	-	9(7.32)	9(7.32)	-	2(1.62)	123
2. Fertilizer	108(82.44)	-	15(11.45)	4(3.05)	2(1.53)	2(1.53)	131
3. Insecticide	60(86.96)	-	7(10.14)	2(2.90)	-	-	69
4. Herbicide	115(89.84)	-	7(5.47)	4(3.13)	-	2(1.56)	128
5. Cross breeds	50(80.65)	-	9(14.52)	1(1.61)	-	2(3.22)	62
6. Vaccination of animals	85(80.19)	6(5.66)	9(8.49)	1(.94)	2(1.89)	3(2.83)	106
Total	521(84.17)	6(0.97)	42(6.79)	21(3.39)	4(.65)	11(1.78)	619

Furthermore, the farmers were asked if the extension agent of the area was helpful. 80.70 percent of the respondents indicated that the extension agent was helpful, while the remaining 19.3 percent indicated that the extension agent was not helpful. The respondents were further asked which extension services were most useful. 90.65 percent ranked the extension agent as the first, the EMTP participating farmers as the second most useful and the vaccination service as the third extension service.

It seems that the EMTP participating farmer is rated as the second most useful extension service due to the fact that 50 percent of the respondents are EMTP participating farmers. They may have responded that way on account of their perceived role (*Table 18*).

Table 18: Helpful Extension Services that Assist Farmers in the Community

Extension Services	Number of Respondents Ranking as Helpful		
	1	2	3
Extension agent	126(90.65)	7(6.67)	2(2.63)
Home agent	-	4(3.81)	17(22.37)
Vaccination service	6(4.32)	31(29.52)	45(59.21)
EMTP participating farmer	7(5.03)	63(60)	12(15.79)
Valid Cases	139	105	76(100)

Farmers' Perceptions of Production Problems

It was assumed that several climatic, biological, resource and institutional factors influence the adoption of improved agricultural practices. Asked to identify the major climatic, biological, resource, and critical institutional problems that impede development in the area, the respondents ranked the following problems.

Climatic Problems

Asked to identify the major climatic problems in the area, in order of importance, 28.10 percent of the respondents identified drought and frost as the first critical problem, while 28.1 percent identified wind as second climatic problem that impedes development in the area (Table 19). The major climatic problems identified show consistency in the different peasant associations.

Table 19: Major Climatic Problems in the Area

Climatic Problems	Number of Respondents Ranking as Helpful		
	1	2	3
1. Drought	34(28.10)	14(15.73)	2(6.25)
2. Flood	17(14.05)	12(13.48)	3(9.38)
3. Wind	28(23.14)	25(28.09)	15(46.88)
4. Frost	34(28.10)	35(39.33)	8(25.00)
5. Other	8(6.61)	3(3.37)	4(12.50)
Valid cases	121	89	32

Biological Problems

When asked to identify the major biological problems in the study area 38 percent ranked weed as the first problem, 31.5 percent ranked pest and insects as the second, while 24.7 percent identified cattle diseases as the third most critical problem (Table 20).

Table 20: Major Biological Problems in the Area

Biological Problems	Number of Respondents Ranking as:		
	1	2	3
1 Decline of soil fertility	29(21.2)	14(11.00)	3(4.1)
2 Soil erosion	9(6.60)	12(9.4)	2(2.7)
3 Wild animals	1(0.7)	3(2.4)	5(6.8)
4 Weeds	52(38.00)	42(33.1)	20(27.4)
5 Pests and insects	35(25.50)	40(31.5)	20(27.4)
6 Cattle diseases	10(7.3)	15(11.8)	18(24.7)
7 Human diseases	1(.7)	1(0.8)	5(6.8)
Total	137	127	76

Resource Problems

Asked to identify the major resource problems in the area, 78.4 percent ranked shortage of land as the first problem, 45.1 percent ranked lack of oxen as a source of power as the second, and 42.9 percent identified lack of wood, coal, cow dung for cooking as the third critical problem impeding development in the area (Table 21).

Table 21: Resource Problems

Resources Problems	Number of Respondents Ranking as		
	1	2	3
1. Shortage of land	105(78.36)	17(17.70)	4(9.5)
2. Lack of oxen	12(8.96)	46(45.1)	15(35.7)
3. Lack of wood, coal for cooking	6(4.48)	34(33.3)	18(42.9)
4. Lack of drinking water	9(6.72)	4(3.9)	5(11.9)
5. Others	2(1.49)	1(1.00)	-
Valid cases	134	102	42

Institutional Problems

Asked to identify the major institutional problems in the area, 48.1 percent ranked credit service as the first institutional problem, 31 percent ranked lack of veterinary service as the second problem, and 26.6 percent identified lack of extension services as the third institutional problem in the area (Table 22).

Table 22: Institutional Problems

Institutional Problems	Number of Respondents Ranking as:		
	1	2	3
1. Lack of extension service	33(24.8)	25(22.1)	25(26.6)
2. Lack of veterinary service	12(9.0)	35(31.0)	36(38.3)
3. Lack of health service	23(17.3)	33(29.2)	17(18.1)
4. Lack of credit service	64(48.1)	20(17.7)	16(17.0)
5. Other	1(0.8)	-	-
Valid cases	133	113	94

Major Farm Operation Problems

Asked to identify the major farm operation problems in the area, 52.14 percent named primary ploughing as the first problem, 24.44 percent ranked storage as the second and 23.8 percent identified weed control as the third major farm operation problem. The respondents were further asked to enumerate the farm implements and facilities that need improvement. 52.5 percent indicated ploughing implements was the first problem, 27.6 percent identified harvesting equipment and weeding as the second, and threshing as the third major farm

implements that need improvement. The responses were based on the efficiency of the farm implements used. The respondents identified the *maresha* (that part of the hand plough which cuts into the soil) and the machette as implements that need improvement (Table 23).

Table 23: Major Farm Implements and Facilities that Need Improvement

Farm Facilities and Implements	Number of Respondents Ranking as:		
	1	2	3
1. Ploughing implements	62(52.5)	16(15.2)	12(14.6)
2. Harvesting equipment	15(12.7)	29(27.6)	15(18.3)
3. Weeding	14(11.9)	29(27.6)	14(17.1)
4. Threshing	10(8.5)	13(12.4)	21(25.6)
5. Transporting	12(10.2)	13(12.4)	13(15.9)
6. Storing Facilities	3(2.5)	4(3.8)	6(7.3)
7. Milling equipments	1(0.8)	-	1(1)
8. Cooking facilities	1(0.8)	-	1(1.2)
Valid Cases	118	105	82

Farmers' Knowledge of the Improved Practices Studied

Year Started Using Fertilizer

The respondents were asked what year they started using fertilizer to determine if they had used it prior to the launching of the SG-2000 project in the area. 75.71 percent indicated that they had used fertilizer prior to the launching of the project, while 9.29 percent of the respondents used fertilizer during the years of the launching of project (Table 24).

Table 24: Year Started Using Fertilizer

Fertilizer year	Number of Respondents	Household percent
1. 1965-1974	47	33.57
2. 1975-1990	59	42.14
3. 1991-1996	13	9.29
4. Don't Recall	21	15.00
Valid Cases	140	100

Application of the Recommended Fertilizer Rate

When the respondents were asked if they applied 100 kg of DAP and 100 kg of UREA recommended by the extension agent of the area, 51.45 percent responded yes, while the remaining 48.55 percent responded no (Table 25). Even those who reported having used fertilizer during the survey used much less than the recommended rate/hectare. Perhaps a more basic question that must be asked in this connection is whether the standard rate

prescribed by the research and development system is appropriate for the varied ecological conditions.

Table 25: Application of the Recommended Fertilizer Rate

Response	Household numbers	Percent of household
1. Yes	71	51.45
2. No	67	48.55
Valid Cases	138	100

It was found that the response follows the trend of the number of the EMTP participants in the samples. The EMTP participants are required to apply the recommended rate of farm inputs.

Crop Priority for Application of Fertilizer

The respondents were further asked to what crop they would apply one quintal of fertilizer if it was given to them free of charge. 94.3 percent responded that they would apply it to wheat and 2.9 percent to teff (*Table 26*).

Table 26: Crop Priority for Application of Fertilizer

Name of crops	Frequency of household heads	Percent of household heads
Teff	4	2.9
Maize	3	2.1
Wheat	132	94.3
Barley	1	0.7
Valid Cases	140	100

Farmers' Knowledge of the Best Method of Production

Best Method for Increasing Yield

The respondents were asked to enumerate what they consider to be the best practice for increasing yields of their crops. 30 percent ranked crop rotation as the first practice, 30.7 percent ranked the use of fertilizer, as the second practice, 27.5 percent ranked the use of improved seed as the third best (*Table 27*). With regard to the rate of fertilizer application, it was found that the mean DAP fertilizer rate applied was less than 50 kg/hectare, for the non-EMTP participants, while the EMTP participants were required to apply the recommended rate of 100 kg of DAP and 100 kg of UREA.

For further information, the respondents were asked to specify the areas under crops during the season then, and in the preceding two years. Response indicated that they were planting wheat after wheat in the preceding three years, apparently mining the soil nutrients. Although the respondents enumerated crop rotation as the first best method for increasing yield, in reality

they do not practice it. The respondents were further asked for their fertilizer preference and the mode of application. 90.71 percent of the respondents prefer using DAP alone while 8.57 percent prefer using both DAP and UREA despite the fact that a combination of both is the recommended package for the area. Most of the farmers suggest application of UREA is only beneficial if used in water logged areas. This suggests the need for determining the time of Urea applications.

Table 27: Knowledge of the Best Method of Production

Farming Practices	Number of Respondents Ranking as:		
	1	2	3
1. Use of fertilizer	34(24.3)	43(30.7)	29(21.0)
2. Use of improved seed	11(7.9)	34(24.3)	38(27.5)
3. Use of manure	8(5.7)	11(7.9)	9(6.7)
4. Better weeding	6(4.3)	11(7.9)	20(14.5)
5. Better ploughing	39(27.9)	16(11.4)	11(8.0)
6. Crop rotation	42(30.0)	22(15.7)	25(18.1)
7. Using pesticide	-	3(2.1)	-
8. Using herbicides	-	-	6(4.3)
Valid Cases	140	140	138

Although all the respondents were well aware of the combination of farm inputs that would give more production, they mainly used fertilizer with own seed and herbicides due to the fact that improved seeds, which are highly responsive to fertilizer, are not sufficiently available, except to the EMTP participants.

Frequency of Farm Inputs Use

The respondents were asked to indicate how frequently they used following farm inputs. 94.9 percent indicated they often used fertilizers and 84.3 percent used herbicides. 86.4 percent indicated they sometimes used improved seed. However, most of the farmers used fertilizer, own seed and herbicide. The so-called improved seeds are not easily available to the non-EMTP participants. (Table 28).

Table 28: Frequency of Farm Inputs Use

Farm Inputs	Number of Respondents Ranking as:			
	Often*	Sometimes*	Don't use	Total
1. Fertilizer	130(94.9)	7(5.1)	-	137
2. Improved seeds	34(24.3)	87(62.1)	19(13.6)	140
3. Pesticides	35(33.0)	19(17.9)	52(49.1)	106
4. Herbicide	118(84.3)	18(12.9)	4(2.8)	140
5. Insecticide	29(31.5)	16(17.4)	47(51.1)	92

* *Often* refers to every year in the past 5 years and *Sometimes* refers to two times in the past five years.

When asked why they use fertilizers often, they all claimed that the soil would not produce crops without the application of fertilizers. Some farmers argued that the soil needs to be "corrupted" to produce crops by giving it fertilizer.

The respondents were further asked for their opinion of the combination of farm inputs which give higher yields. 95.7 percent identified use of fertiliser with improved seed and herbicides as the first, 93.5 percent identified using fertilizer with improved seed as the second, and 91.8 percent identified use of fertilizers with own seed as the third combination of farm inputs which will give higher yields. In practical terms farmers mainly use fertilizer, own seed and herbicides.

Constraints for Improving Farm Enterprises

The respondents were asked to identify some of the major constraints to the improvement of their farm enterprises. 64 percent ranked lack of good land as the first, 30.6 percent ranked lack of oxen as the second, and 18.8 percent ranked lack of availability of farm inputs as the third major constraint (Table 29).

Table 29: Constraints in Improving Farm Enterprises

Constraints	Number of Respondents Ranking as:		
	1	2	3
Lack of good land	89(64.0)	16(12.9)	10(12.5)
Lack of labour	11(7.9)	21(16.9)	7(8.8)
No oxen	10(7.2)	38(30.6)	15(18.8)
Ill health	3(2.2)	1(0.8)	3(3.8)
Lack of farm inputs	6(4.3)	15(12.1)	5(18.8)
Cost of farm inputs not affordable	11(7.9)	14(11.3)	14(17.5)
Limited access to credit	3(2.2)	13(10.5)	11(13.8)
Not sufficient rainfall	6(4.3)	3(2.4)	3(3.8)
Low output price	-	3(2.4)	2(2.5)
Valid Cases	139	124	80

EMTP Participants' Interaction

The EMTP participants were asked if they had given any advice to the surrounding farmers. Out of the 70 household heads that are EMTP participants in the sample, 65.2 percent responded yes, while the remaining 34.8 percent responded no (Table 30).

Table 30: Frequency of Interaction

Response	Number of Respondents	Percent of Household
Yes	45	65.22
No	24	34.78
Valid Cases	69	100

The EMTP non-participants were also asked how often they had been consulted by the EMTP participating farmers. 62.1 percent indicated that they were not consulted by the EMTP participants, and 24.24 percent said they were consulted sometimes (*Table 31*)

Table 31: Frequency of EMTPs Participants Consultation

Frequency of Consultation	Total household heads	Percent of household heads
Sometimes	16	24.24
Often	9	13.64
Never	41	62.12
Valid Cases	66	100

On further inquiry, the few who claimed to have been consulted indicated that it happened through discussions when they casually visited their fields to see what was going on in the field of the EMTP participating farmers. It appears that the frequency of consultation of the EMTP participating farmers with the surrounding farmers is not as great as assumed in the project approach. The frequency of the project can also be measured with the frequency which EMTP farmers are contacted by the surrounding farmers and similarly the frequency with which farmers are contacted by the EMTP participating farmers and what goes on in the interaction process.

Farmers Perceived Role of the Extension Service

The respondents were asked what they thought was the role of the extension agent in the area. Fifty percent of the respondents indicated that the extension agent supplied them with farm inputs – fertilizers, improved seeds, as the first role – 36 percent said he finds solutions to their farming problems, and 17.8 percent indicated that he teaches farmers modern farming methods (*Table 32*).

Table 32: Farmers Perceived Role of Extension Service

Perceived Role of Extension	Number of Respondent Ranking as:		
	1	2	3
One who teaches on modern farming methods	56(40.6)	31(23.3)	22(17.88)
One who finds solution to our farming problems	8(5.8)	48(36.1)	57(46.3)
One who supply us with farm input i.e. fertilizer, improved seed	69(50)	43(32.3)	23(18.7)
One who collect credit	5(3.6)	11(8.3)	21(17.1)
Valid Cases	138	133	123

It is interesting to note that the extension agent was seen as one who supplied farm inputs and collected credit. This has been a concern of the extension agents themselves.

Extension Agents Perception of Problems of Production

In order to solicit additional information from the extension agent working in the area 14 of the 25 extension agents were asked to fill in a questionnaire designed to probe the extension agent's perception of the problems of production and his role in the area and also to cross-check the responses of farmers in the area. It is interesting to note only a few of the problems the peasants had not identified emerged. Asked to identify the major farm operation problems in the area, the extensions agents enumerated the following:

1. Shortage of farm inputs, especially improved seeds.
2. Farmers' reluctance to apply the recommended rate of fertilizer, especially the unwillingness in most cases to apply UREA.
3. Pests and insect infestation.
4. Shortage of land.
5. Decline of soil fertility.
6. Weed infestation.
7. High cost of farm inputs.
8. The unavailability of credit to buy farm inputs.
9. Infestation of supplied improved seed with insects and pests.
10. Lack of new improved agricultural technologies.

The extension agents were further asked if farmers in the area applied all elements of a package as recommended or only elements of it. 92.3 percent of the respondents indicated that most farmers applied only elements of the package. Asked which elements of the package were mainly used, 61.5 percent indicated local seed, fertilizer and herbicides; 30.8 percent indicated local seed and fertilizer; while the remaining 7.7 percent indicated use of improved seed, fertilizer and herbicides (*Table 33*).

Table 33: Application of Recommended Packages

Package of practices	Frequency	Valid percent
Improved seed, fertilizer and herbicide	1	7.7
Local seed, fertilizer and herbicide	8	61.5
Local seed and fertilizer	4	30.8
Total	13	100

Linkage of Extension Agents with Farmers

The respondents were asked which group of farmers they worked mostly with, 53.8 percent of respondents indicated that they very often worked with the EMTPs presently participating farmers followed by the EMTPs graduate farmers (Table 34).

Table 34: Linkage of Extension Agents with Farmers

Classification of Farmers	Intensity of work		
	Sometimes	Often	Very often
1. EMTP graduates	9(69.2)	2(15.4)	2(15.4)
2. Presently participating	3(23.1)	3(23.1)	7(53.8)
3. Non participating farmers	11(84.6)	1(7.7)	1(7.7)

Asked how often they visited the different categories of farmers, 61.5 percent of the respondents indicated that they worked more frequently with the EMTP participants and EMTP graduates, which is understandable since extension agents spent most of their times with the EMTPs participants measuring, laying out their fields and following up the field operations. (Table 35).

Table 35: Frequency of Extension Agents' Visit of the Different Categories of Farmers

Categories of Farmers	Frequency of Visits				
	Once a wk	Twice a wk	Once a mth	Once in 3 mths	Never
EMTP Grand	2(15.4)	2(15.4)	8(61.5)	1(7.7)	*
Participants	8(61.5)	4(30.8)	1(7.7) 0	*	*
Non-participants	3(23.1)	1(7.7)	5(38.5)	3(23.1)	1(7.7)

Asked about the present status of the SG 2000 graduates, 69.2 percent of the respondents indicated that few had discontinued; 23.1 percent indicated that some had discontinued; and 7.7 percent responded that all had discontinued. (Table 36).

The table shows that in the present approach, the farmers have no equal access to the extension service. This suggests that the extension agents mostly work with a small proportion of the farmers and concentrate their efforts on the selected EMTP participating farmers.

Table 36: Status of the SG-2000 Graduates

Responses	Frequency of respondents	Percent respondents
Few discontinued	9	69.2
Some discontinued	3	23.1
All discontinued	1	7.7

On the difference in the SG-2000 approach compared to previous extension approaches they participated in, 92.3 percent of the respondents indicated that the farmers participated in the management of the fields while 7.7 percent indicated the necessary farm inputs were readily available.

Educational Level on the Extension Agents

In order to find out if the extension agents had formal training in extension education they were asked to indicate their level of education and years of experience in extension activities 92.3 percent of the respondent indicated they were high school graduates with 5 to 9 months of training in agriculture. Out of the 13 interviewees, only one of the respondents was a diploma graduate from the former Debrezeit College of Agriculture. The extension agents had no formal training in extension education. However, their work experience ranged from 3 to 21 years (Table 37)

Table 37: Years of Extension Agents Experience

Number of years of experience	Number of respondents	Percent of respondents
16	2	15.4
21	1	7.7
3	4	30.7
4	5	38.5
6	1	7.7
Total	13	100.0

Linkage of the Extension Agents with the Research and Development System

In order to determine the linkage of the extension agent with the research system, the extension agents were asked if the following statements are true or false. It was found out that, except for questions 11 and 12, all the respondents indicated that all other statements were false (*Table 38*).

Table 38: Linkage of extension Agents with the Research and Development System

Statements	Number of Respondents stating:	
	True	False
1 Extension agents identify farmers problems and send them to researchers.	0	13
2 Researchers request us to identify farmers' problems and send it to them.	0	13
3 Researchers are responsive to our requests for research results or advice	0	13
4 Extension agents request researchers for research results based on the problems identified by the farmer.	0	13
5 There is a frequent exchange of ideas between researchers and extension officers.	0	13
6 We receive regular research reports from researchers.	0	13
7 Extension agents usually receive research results to be tried at the field level.	0	12
8 There is collaboration between the extension agents and researchers in undertaking adaptive research at the field level.	0	12
9 I am making enough contact with the researchers.	0	12
10 The researchers are very active in this Woreda	0	12
11 Extension agents actively participate in the formulation of the package of improved practices	5	8
12 Farmers participate in the formulation of the package of improved practice	5	8
13 Extension agents simply apply the recommended packages at the field level.	4	6

The responses to the statements clearly show the weak linkages of extension and research system. If all the responses except statement 13 were true, it would have suggested a strong linkage between the extension and research and development system in the study area (i.e the Kulumsa Research Centre of EARO and Seed Multiplication Centre and Ethiopian Seed Enterprise).