

Chapter Four

Methodology and Limitations

Selected Area of Study

This chapter examines the Agricultural Research and Delivery System of the SG 2000 approach which is presently the basis for the National Extension System using Hitosa District as a case study. A federal structure of government was introduced in Ethiopia in 1996 and the country is presently divided into 11 regional states. The Oromia Region has a population of 18,732,525 million, 35.03 percent of Ethiopia's population. The region has 12 zones, divided into 178 woredas (districts) of which Arsi Zone is one. Arsi zone has 20 woredas, and is among the highest of the 12 zones. It has a population of 2,217,245 with total area of 23,724.44 square kilometres. Hitosa Woreda has a population of 154,129 with a total of 114,101 hectares. Hitosa Woreda has five sub-districts, and the highest number of EMTPs by the SG-2000 Project. The study area, Hitosa District, has benefitted from the previous CADU/ARDU project, that was launched in 1967 with assistance from Sweden. Support came from Kulumsa Research Centre of the Ethiopia Agriculture Research Organization (EARO), and the SG-2000 project in collaboration with the Ministry of Agriculture. This study was conducted in this woreda due to the high number of EMTPs in order to draw lessons from the SG-2000 approach and lessons from many years of experience in the generation and diffusion of improved agricultural practices in the area.

The SG-2000 Project started in Arsi Zone in the 1993 crop season in two woredas (Tiyo and Hitosa). During the 1993/95 crop season, out of the 288 EMTPs in five districts in Arsi Zone, 103 EMTPs were in Hitosa District as shown in *Table 4*.

Table 4: Comparative Distribution of Wheat, EMTPs of Arsi Zone by Districts 1993 to 1995 Crop Season

No.	District	1993	1994	Broad-casting	Row planting	Total EMTPs
1.	Digalu and Tijo	23	50	65	*	65
2.	Hitosa	20	50	90	13	103
3.	Tiyo	*	20	50	*	50
4.	Huruta	*	20	50	*	50
5.	Gadeb	*	*	20	*	20
	Total	43	140	275	13	288

Source: Kedir Bati, Sasakawa Global 2000, Agricultural Project in Arsi Zone, Annual Report, 1993-1995 Crop Season. December, 1995 Note: The figure are cumulative from the previous year.

The capital of Hitosa Woreda is Itaya, which has about 21,160 inhabitants and serves as a commercial and administrative centre. The only all-weather road to the study area runs from Addis Ababa via Nazareth to Assela, a distance of 175 km. Beside this main road, there are several tracks which make most parts of the area accessible by car from Itaya. The area has good soil and climate which make it one of the most promising agrarian areas in the country. The Woreda has 49,498 ha. of cultivated land, out of which wheat covers 24,720 ha., barley 12,772 ha., teff 4,602 ha., field peas 2,944 ha., faber bean 1,198 ha., maize 1,138 ha., flax 900 ha. sorghum 122 ha., lentils, 126 ha., rape seed 91 ha., and soybean 85 ha.

Research Methodology

Efforts were made to obtain as much information as possible on the study area. There was, however, little information to be found on which to base the analysis. An alternative approach was sought requiring the gathering of information required for sampling. This was gathered through a survey of the entire area to find the variability that might exist in the peasant associations. The peasant associations were taken as a sampling frame. There are 37 associations in the area.

The Sampling Method

In the first stage of sampling, the peasant associations where the SG-2000 project was undertaken, the groups were included for the purpose of generating the necessary information. In the woreda, nine peasant associations participated in the SG-2000 project. In the nine peasant associations, 273 heads of household participated in the SG 2000 project out of whom

221 participated for one year, while the remaining 52 participated for two years. The four peasant associations where the highest number of EMPTs were undertaken were selected on purposive sampling bases for the purpose of administering the questionnaire. In the second stage of sampling, the sample frame was developed by obtaining the names of farmers who had participated in the SG 2000 project within the peasant association from the office of the MOA, based on the number of years of participation. The names of farmers in the peasant associations where the SG-2000 project was undertaken were also acquired from the office of the peasant association. Those who had not participated in the SG-2000 project were systematically screened out from the names of the respective members of the PAs. Based on the acquired list of farmers in each PA, the farmers were further classified as participants and non-participants (*Table 6*). The participants were further classified as Two-Year and One-Year participants based on the number of years of their participation. The household heads to be interviewed were subsequently selected based on random sampling. A total of 140 household heads (70 from two years and one-year participants and 70 from non-participants) were selected randomly for administering the review schedule (*Table 6*)

Table 6: Peasant Associations and Number of Participants in the SG-2000 Project (93/94 to 97/98) in Hitosa Woreda

Name of PAs	93/94	94/95	95/96	96/97	97/98	Total
1. Gonde Finchama	10	20(12,8)*	22(17,5)	*	10(9,1)	62(48,14)
2. Boru Hantuta	10	10(7,3)	15(12,3)	6(6,0)	9(9,0)	50(44,6)
3. Boru Lencha		10(10,0)	23(13,10)	51(43,8)	14(8,6)	98(74,24)
4. Sero Ancheta		10(10,0)	32(24,8)	*	*	42(34,8)
5. Shake Sherara		*	2(2,0)	*	*	2(2,0)
6. Hate Andode		*	3(3,0)	*	*	3(3,0)
7. Abe Gouche		*	*	*	1(1,0)	1(1,0)
8. Bonje Ido		*	*	*	1(11,0)	11(11,0)
9. Oda Odajila		*	4(4,0)	*	*	4(4,0)
Total	20	50(39,11)	101(75,26)	57(49,8)	45(38,7)	273(221,52)

The figures outside of the brackets indicate the total number of participants (* one year participants, *two year participants) and the figure in the brackets indicate those, who participated in EMPTs for one year and the second figure in the bracket indicate those who participated for two years

The peasant association and the DAs (development agents) have helped in taking appointments and bringing the randomly selected household heads to the specified place in the peasant association area. In a few cases, the reserves from the randomly selected household

heads were interviewed in the absence of the originally selected interviewees. This study is based on data and information generated by employing the interview method with the help of a structured questionnaire, and dialogue. The questionnaire was developed to collect information on household characteristics, resource utilization, contact with the research and development system, farmers perception of the problems of production and their role in the area, linkage with the research system and the major constraints in undertaking the extension service activities. This formula was used to determine an acceptable sample size: $THP\% = \frac{HHP_i}{THH} \times 100$ 252.

$SSTP_i = THP\% \times THH_i$ where $i = 1, \dots, 4$, Pas

The sampling size of the total participants and the number of years of participation are summarized in *Table 7* using the above formula.

Table 7: Total Household Participants in the Peasant Associations and the Number of Years Participating

Name of PA* selected for study	THH of PAs	THH %	THP,s	2yps	1yps	THPs %	SSTPs	SSNP
1. Gonde Finchama	620	19	62	14	48	25	16(4,12)	16
2. Sero Ancheta	854	26	42	8	34	17	7(1,6)	7
3. Boru Hantuta	801	24	50	6	44	20	10(1,9)	10
4. Boru Lencha	1023	31	98	24	74	38	37 (9,28)	37
Total	3298	100	252	52	200	100	70(15,55)	70

*THH (Total Household Heads No), YP (Number of Year Participating), SSTPs (Sample Size of Total Participants). SSNP (Sample Size of Non Participants, THP% (Percent of Total Household Participants).

Number of Households Selected

Out of the total of 3,298 household heads of the highest EMTP participating peasant association, only 252 (7.64 percent) participated in the SG 2000 project. Out of the 252 household participants, only 52 participated for two years (20.63 percent) and 200 participated for one year (79.37 percent). Out of this, 15 heads of households who participated for two years and 55 household heads who participated for one year only were selected randomly. Similarly, using the same proportion, 70 heads of households from the non-participants in the same PAs area were selected randomly for administering the questionnaire using the above formula. The sample size for the SG 2000 participants is 28 percent, while 2.17 percent of the THH (Total Household Heads) is for non-participants. The non-participants account for 92.36 percent of the total household heads.

The Schedules

The interview was administered from mid May to the end of August 1999. The questionnaire was prepared in English. The enumerators translated the questions into Oromifa or Amharic depending on the primary language of the respondent. Following the completion of the

interview, a discussion was held with enumerators to comment on the attitudes of the interviewees toward the various questionnaire items and to assess the degree of reliability of the information obtained. The views were expected to be of some help in the interpretation of the data later.

Following the completion of the interviews, the data were tabulated and analyzed. The bulk of the data collected was descriptive and categorical. Descriptive statistics using frequencies and percentages was therefore used and analyzed using SPSS software.

Limitations

There are some limitations in this study which can broadly be classified into two groups: those arising from the assumptions of the project and lack of a neat classification of the respondents into Adopters, Imitators and Laggard's as assumed at the beginning of the study. The non-participants in the SG 2000 project in some cases were found to use the improved agricultural practices equally with those of participants and are also aware of the improved practices from the previous CADU/ARDU activities. Those who have graduated from the SG 2000 project have been made to join the new extension system of the MOA. Nevertheless, it would be fair to submit that the two approaches employed the same activities in the area, and probing into the approach can be considered as a sound basis upon which further improvement and refinement may be introduced.