

Smallholder Risk Management Solutions (SRMS) in Malawi and Ethiopia

Replicable Business Model, Ethiopia: Seed Supply Survey, 2017

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(Revised Version)



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Acronyms

Acronym	
ARARI	Amhara Agricultural Research Institute
DA	Development Agent
ETB	Ethiopian birr
FHH	Female-headed household
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
OPM	Oxford Policy Management
RBM	Replicable Business Model
RMS	Risk Management Strategy
SAIRLA	Sustainable Agricultural Intensification Research and Learning in Africa
SPSS	Statistical Package for the Social Sciences
SRMS	Smallholder Risk Management Solutions
USAID	United States Agency for International Development

Note: in 2017, 1 US dollar (USD) = 27 Ethiopian birr (ETB)

Abstract

This report analyses experience with the Replicable Business Model (RBM) introduced by Smallholder Risk Management Solutions (SRMS) in three kebeles in South Wollo Zone, Ethiopia, in the 2017 crop season. The RBM reduces systemic risks that constrain the commercialisation of teff by using a revolving seed fund to increase smallholder access to improved teff varieties. Of the 300 households that were selected to receive certified seed, 261 were interviewed. The results show that the criteria used by the participating cooperatives to select the farmers who received improved teff seed was socially inclusive, and that based on socio-economic indicators one-quarter of recipients could be classed as 'poor'. Of the 261 farmers interviewed, nine in ten actually received seed and of these virtually all received seed on time. Because threshing was not yet complete, only four in 10 recipients had so far repaid teff grain to the cooperative. Farmer-to farmer diffusion of improved teff seed was low in 2017 but over six in 10 farmers reported that they would share or sell seed to family and non-family members in 2018. Improved varieties performed well in farmers' fields, with over eight in 10 farmers reporting good germination and good yields and nine in 10 reporting higher yields than with local teff varieties. The report concludes with seven recommendations for the SRMS project to improve the effectiveness of the RBM in the coming crop season.

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1 Introduction

Sustainable Agricultural Intensification Research and Learning in Africa (SAIRLA) is a five-year programme (2016–2020) funded by the UK Department for International Development. SRMS is one of eight projects funded by this programme and implemented in Malawi and Ethiopia by a consortium led by Oxford Policy Management (OPM).

The general objective of the SRMS project is to explore the potential for smallholder commercialisation in the face of systemic investment risks. Specifically, the project focuses on four systemic risks: (1) risks from natural shocks (e.g. rainfall); (2) economic coordination risks (input and output markets); (3) price risks (volatility); and (4) opportunism risks (quality of inputs).

A key objective of the SRMS project is the development of an RBM that addresses these systemic risks. The SRMS's Scoping Study identified teff as the entry point for smallholder commercialisation in Ethiopia (Orr *et al.*, 2017). An RBM was developed during a stakeholder workshop that included agricultural extension, agricultural researchers, and smallholders (Weber and Tiba, 2017). The workshop identified a market failure in the supply of improved teff varieties. Two features of these varieties reduce systemic risks. They are early maturing, reducing the risk of drought, and that they have white grains, which attract a price premium (Minten *et al.*, 2013). Despite these advantages, however, the seed system in Ethiopia is unable to meet smallholder demand for improved teff varieties.

Government policy in Ethiopia restricts the production and distribution of improved seed to state-run seed farms. However, the supply from this seed system is unable to meet current demand. To improve availability and access to improved seed, the SRMS project has developed an RBM based on a seed revolving fund. In this business model, farmers each receive 4 kg of certified seed in Year 1 and return 8 kg of grain after harvest, which can be sold as grain and the income used to buy more certified seed for distribution in Year 2. This RBM has three advantages. First, it increases the availability of improved seed by using existing institutions – government cooperatives – rather than introducing new institutions such as private retailers that might conflict with the current policy of state control. Second, it increases access to improved seed for smallholders, the majority of whom are members of cooperatives and who already use this channel to obtain other inputs such as inorganic fertiliser. Third, in this model the demand for improved seed is driven by smallholders themselves and not by centralised state institutions that focus primarily on supply rather than on smallholder preferences.

The general objective of this report is to monitor this risk management strategy (RMS) in the 2017 season, and provide feedback to improve the design of this RMS in the 2018 season. Specifically, the report provides:

- 1 A socio-economic profile of smallholders who received seed of improved teff varieties;
- 2 An assessment of how farmers used the seed of improved teff varieties; and
- 3 An assessment of the performance of these improved varieties in farmers' fields.

The monitoring survey was conducted in April 2018, after the harvest of teff planted in the 2017 crop year but before farmers had finished threshing. Consequently, we were not able to measure the share of farmers who returned teff to the cooperative or the average quantity they returned. However, this information will be captured in the records of the cooperatives that distributed the improved seed.

2 Data and methods

The SRMS project operates in Tehuledere woreda. This woreda was selected in the inception phase by three project partners – the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), the Amhara Agricultural Research Institute (ARARI), and Wollo University (Orr *et al.*, 2017). Three kebeles in this woreda (Hitecha, Gobeya, and Basso Mile / Jare) were then selected by participants in the value chain workshop (Weber and Tiba, 2017). The kebeles were purposely selected because they were already the site of complementary research activities by ICRISAT and Wollo University and they were accessible from Dessie Town.

The Development Agent (DA) in each of the three farmer cooperatives identified 100 cooperative members to receive 4 kg of certified seed of improved teff varieties. Recipients were selected based on their reputation as ‘good’ farmers and the expectation that they could be trusted to return 8 kg of teff grain to the cooperative after harvest. The cooperatives kept a written record of farmers selected to receive seed and this list was used as the sampling frame for the survey. Since the total number of farmers selected to receive certified seed in Year 1 was quite small – 300 farmers – we decided to interview all the farmers listed rather than just a sub-sample.

Of the 300 farmers selected, 21 could not be interviewed (Table 1). In seven of these cases, farmers had received seed but (for unknown reasons) given it to another farmer. Four households were not interviewed because they claimed not to have received seed. This was a mistake, since these households should have been interviewed in order to complete the socio-economic profile of farmers who were selected to receive seed. In the remaining 10 cases, farmers had either shared land with another farmer (one case) or were unavailable for other reasons (nine cases). Four names on the list of 300 farmers were found to be fake. Thus, the survey uncovered irregularities in the distribution of improved seed. As a result, only 279 farmers (93%) on the list of 300 were successfully reached and interviewed.

Table 1: Reasons why listed farmers were not interviewed

Reason	Gobeya	Hitecha	Basso Mille/Jare	Total
Gave seed to another farmer		5	2	7
Did not receive seed	1		3	4
False name			4	4
Died	1		1	2
Sick		2		2
Shared land with another farmer		1		1
Refused interview		1		1
Total	2	9	10	21

Source: SRMS Seed Survey, 2018

Of these 279 farmers, we discovered that 18 of the names on the list were for two members of the same family. All these cases were in Basso Mille/Jare kebele, where the DA managing the cooperative claimed that he had not understood the criteria for distribution. To avoid distorting the results, the cases based on interviews with other family members (wives, sons) were dropped and only the cases where the respondent was the head of the household were included in the analysis. Consequently, the final sample size was 261 households (see Table 2).

Table 2: Sample households for the seed supply survey, , 2017 season

	Kebele			Total
	Gobeya	Hitecha	Basso Mille/Jare	
Households selected to receive improved seed	100	100	100	300
Households interviewed	98	91	90	279
Households included for analysis	98	91	72	261

Source: SRMS Seed Survey, 2018

The questionnaire was designed by the lead author in consultation with Joachim Weber, who facilitated the design of the RBM. The lead author pre-tested the questionnaire in the three kebeles in May 2018. The survey was administered in early April 2018 under the supervision of OPM. The enumerators were selected staff members from Wollo University who had previous experience of household surveys. Data were collected on hand-held tablets. The dataset was cleaned, stored, and analysed using SPSS. The data were analysed using simple frequency distributions, cross-tabulated by kebele. To test for statistical significance between means and frequencies, we used the F-test for analysis of variance for continuous variables and the Chi-Square for categorical variables

3 Survey results

3.1 Social inclusion

The objective of this section is to provide socio-economic information about the farmers selected to receive improved teff seed. We need this information in order to judge whether the RBM is socially inclusive or is reaching only better-off farmers. Ideally, we should compare the treatment group of those selected to receive improved teff seed with those who were not selected. A rigorous comparison of treatment and control groups will be made in our planned study of social inclusion in Year 3 of the project (OPM, 2016). For the time being, we have information only for the treatment group. However, the socio-economic indicators we have selected do allow us to make inferences about the poverty status of the treatment group.

To measure social inclusion, we used a range of socio-economic indicators. These were identified from secondary literature, including studies of poverty indicators in South Wollo (Seid and Singh, 2016; Shumiye, 2007) as well as national-level studies of wealth indicators in different livelihoods zones (LIU, 2010). Based on this literature, poorer households were characterised by the following indicators:

1. Household food insecurity, measured by a low self-sufficiency in cereals (Shumiye, 2007; LIU, 2010);
2. Low or nil ownership of draught animals (Seid and Singh, 2016; LIU, 2010);
3. Higher dependency ratios (Seid and Singh, 2016);
4. Sale of labour as a source of cash income (LIU, 2010);
5. Food aid as a source of cash income (LIU, 2010);
6. Smaller farm size (Seid and Singh, 2016); and
7. Female head of household (Shumiye, 2007).

Table 3 shows that a sizeable share of the sample households met these poverty-related criteria. For example:

- 1 Thirteen percent of households were headed by women;
- 2 Twenty-one percent did not own any oxen for ploughing;
- 3 Twenty-six percent sometimes borrowed money to buy food;
- 4 Twenty-two percent received government rations after the 2015/16 El Nino drought;
- 5 Ten percent had a family member working as a farm labourer;
- 6 Only 18% used any hired labour;
- 7 Agriculture accounted for 73% of household cash income;
- 8 Average area cultivated was 3.4 temads (0.43 ha); and
- 9 Households were not self-sufficient in teff (eight months) or sorghum (four months).

We can compare the frequency of these indicators among our households with other estimates. A stratified random sample of households in 16 rural kebeles in Tehuludere woreda in 2005/06 found the share of female-headed households (FHHs) averaged 27% (Shumiye, 2007). However, the share of FHHs growing teff may be smaller. Nationwide, only about 5% of teff-growing households are headed by women (Minten *et al.*, 2013).

Based on indicators 1–4, which are accepted proxies for poverty in Ethiopia, between 13 and 26% of the households selected to receive improved teff seed may be classed as 'poor'. Unfortunately, it is not possible to compare the frequency of these socio-economic indicators in our sample with indicators for South Wollo zone, because these figures are not given (LIU, 2010). Similarly, since we did not collect household income-

expenditure data, it is not possible to relate these poverty indicators to a monetary poverty line. Interestingly, official figures estimate that the share of households living below the poverty line in Ethiopia in 2016 was 23.5% (World Bank, 2018). The corresponding figure for Amhara regional state in 2011 was 30.5 (World Bank,). This figure is based on the level of household expenditure required to meet basic needs. Although we cannot draw direct comparisons with these monetary estimates, nevertheless it is reassuring that our estimate of poor farmers based on just four socio-economic poverty indicators (13-26%) is of the same order of magnitude. . We conclude that, although the three cooperatives deliberately selected 'good' farmers who could be trusted to repay the seed, this criterion did not bias selection toward better-off farmers. The RBM has thus not excluded poorer smallholders.

Among the nine socio-economic indicators we used as proxies for poverty, there were some significant differences between kebeles. Table 3 shows that:

- 1 The share of FHHs was higher in Gobeya and Basso Mille/Jare;
- 2 Ownership of oxen for ploughing was lower in Basso Mille/Jare;
- 3 The share of income from agriculture was highest in Basso Mille/Jare; and
- 4 Self-sufficiency in teff was lowest in Basso Mille/Jare and self-sufficiency in sorghum was lowest in Hitecha.

Although these results suggest do not point consistently to higher poverty in Basso Mille/Jare, other indicators suggest that households in this kebele are poorer than in Gobeya or Hitecha. Households in this kebele had the lowest:

- 1 Value of owned livestock (ETB 38,861);
- 2 Income from khat (1,400 ETB/year); and
- 3 Ownership of a knapsack sprayer (11%).

Greater poverty in Basso Mile/Jare may reflect the smaller number of households selling khat (4%), which deprives households of a lucrative source of cash income. To compensate, households in this kebele had the highest average income from cereal crops (1,339 ETB/year).

Table 3: Socio-economic indicators of farmers selected to receive improved teff seed

Indicator	Gobeya (n=98)	Hitecha (n=91)	Basso Mille/Jare (n=72)	All (n=261)	P-value (p>)
Member of seed production group? (Yes)	95	83	69	247	.189
Proxy indicators for poverty					
Female-headed (no.)	7	14	13	34	.080
Own plough oxen? (Yes)	86	68	53	207	.033
Borrow money to buy food? (Yes)	24	29	15	68	.254
Share of income from agriculture (%)	75	65	81	73	.032
Received government rations in 2016? (Yes)	22	16	20	58	.298
Any household member work as farm labourer? (Yes)	9	9	7	25	.985
Use hired labour? (Yes)	13	21	14	48	.212
Share of income from agriculture (%)	75	65	81	73	.032
Land suitable for crops (temads) 1	3.5	3.1	3.5	3.4	.333

Household eats own teff (months)	9.0	8.6	7.5	8.4	.010
Household eats own sorghum (months)	6.3	0.5	7.8	4.7	.000
Other socio-economic indicators					
Total value of livestock (ETB)	47,837	41,121	38,861	43,019	.057
Households selling khat (Yes)	70	72	11	153	.000
Total income from khat (ETB/year)	6,248	5,550	1,400	5,571	.041
Own knapsack sprayer (Yes)	41	86	8	95	.000
Total income from sales of cereal crops (ETB/year)	613	479	1,339	766	.010

Source: SRMS Seed Survey, 2018

Notes:

¹ One temad = 0.125 ha.

3.2 Use of improved teff seed

The rest of this report focuses on the utilisation and performance of improved teff seed. Of the 261 farmers interviewed for the survey, 233 (89%) received improved seed and 28 farmers (11%) did not (Table 4). We did not ask this latter group of farmers why they failed to receive seed, since the reasons for exclusion were presumably outside their control. Indeed, they may not even have known they had been selected. The results and discussion of tables 4 and 5 below are based on the 233 respondents who received improved seed, and exclude non-recipients.¹

Table 4 shows that the RBM has improved awareness, availability, and access for improved teff seed. The evidence is summarised below:

- 1 Twenty-five percent of recipients had never heard of the improved variety that they received. Thus, the RBM significantly increased farmers' awareness of improved teff varieties;
- 2 Fifty-six percent of recipients had never before planted the variety they received. Thus, the RBM has significantly increased farmers' access to the seed of improved teff varieties;
- 3 Ninety-seven percent of recipients planted the seed they received. Thus, the majority of farmers are willing to experiment with improved varieties.
- 4 Eighty-eight percent of those who planted improved teff seed planned to replant it on their own fields next season. Thus, improved varieties have at least some of the traits that farmers want.

Diffusion of improved seed through farmer-to-farmer exchange was minimal. Only a small minority of farmers who received improved seed shared some with their family members (3%) or non-family members (1%). However, it is important to note that farmers received only 4 kg of seed. Once this crop is harvested, we can expect to see an increase in diffusion through farmer-to-farmer exchange in the next season. Sixty-five percent of farmers who planted improved teff seed in 2017 planned to give seed to family members in 2018. A common practice is for farmers with improved teff seed to give it to their family members in exchange for local teff seed. Fifty-seven percent also planned to supply seed to non-family members, mostly

¹ Farmers in Gobeya and Hitecha kebeles received the teff variety Quoncho while those in Basso Mille/Jare kebele received the teff variety Zobel, which is more suitable for lowland areas.

on a cash-sale basis. In future we can expect to see fairly rapid diffusion of improved teff seed through informal channels.

The success of a revolving seed fund depends on farmers' willingness to repay a share of their harvested grain. In this case, the RBM requires farmers who received 4 kg of improved teff seed to return 8 kg of grain to the cooperative. So far, only 85 (38%) of those who planted improved teff seed had returned any grain. Some farmers (16%) had not yet finished threshing but the majority (43%) seemed to be waiting for the cooperatives to insist on repayment. For those who had already given back grain, the average quantity returned was 7 kg or 1 kg short of the agreed amount. During interviews for the household survey, many recipients were unhappy about returning twice the amount of grain because they disapproved of charging interest on loans. They believed that the cooperative was taking advantage of them. However, farmers are not aware that the additional 4 kg will be used to benefit other farmers in the community. Once this is understood we do not expect farmers to default in repaying grain.

Table 4: Farmers' use of improved teff seed, 2017 season

Indicator	Gobeya (n=98)	Hitecha (n=91)	Basso Mille/Jare (n=72)	All (n=261)	P-value (p>)
Received seed?					
No.	88	86	59	233	.036
(%)	(90)	(95)	(61)	(89)	
All figures below relate to households that received seed (n=233)					
Heard of this variety before? (No)	70	66	40	176	.253
Planted this variety before? (No)	53	54	23	130	.010
Received seed on time (Yes)	88	86	58	232	.227
Did you plant the seed? (Yes)	83	86	57	226	.088
Did you plant all the seed? (Yes)	77	78	56	211	.199
Reasons for not planting all the seed:					
Shared with relatives	2	4	0	6	.224
Shared with neighbours	1	2	0	3	.530
Kept for next season	4	4	1	9	.912
Sold as seed	0	0	0	0	Na.
Ate as grain	3	0	1	4	.205
Other	3	0	1	4	.233
All figures below relate to households that planted improved seed (n=226)					
Have you repaid any seed yet? (Yes)	34	13	38	85	.000
Average quantity repaid (kg)	7.3	4.3	7.3	6.8	.208
Reasons for not yet repaying:					
Not yet finished threshing	16	16	5	37	.418
Yield was too low	5	7	6	18	.030
Other	30	58	9	97	.073
Planned uses of improved teff grain in 2018 season:					
Plant on own fields					
Yes:	77	77	45	199	.040
No:	6	9	12	27	
Supply as seed to other family members (Yes)	62	49	30	141	.013
Supply as seed to non-family members (Yes)	52	44	29	125	.239
Sell as seed to non-family members (Yes)	46	42	29	117	.104

Source: SRMS Performance Survey, 2018

3.3 Performance of improved teff seed

The viability of the RBM also depends on the performance of improved teff varieties under farmers' field conditions. In this section, we review some key indicators of crop performance. We recognise that this performance is also determined by farmers' crop management. We discuss crop management elsewhere (Orr *et al.*, 2018). In this performance review, we focus on some agronomic determinants of crop yield.

Of the 233 farmers that received improved seed, 226 (97%) did plant the seed (see Table 5). Of these, the majority (96%) planted the improved teff seed in the Meher season when rainfall is more reliable than in the Belg season. In general, the performance of improved teff seed met farmers' expectations. The evidence for this good performance is summarised below (Table 5). The figures relate to farmers who actually planted the seed:

- 1 Eighty-seven percent reported that the seed germinated well;
- 2 Seventy-two percent reported that yields were 'good';
- 3 Yields with improved seed averaged 3.3 quintals per temad (2,640 kg ha⁻¹); and
- 4 Ninety percent reported higher yields than with local teff varieties.

On the other hand, some indicators showed that there was scope to improve crop performance:

- 1 Thirty-eight percent had to replant with saved seed after germination;
- 2 Five percent reported 'poor' germination;
- 3 Fourteen percent reported yield losses from pests and diseases; and
- 4 Eleven percent reported that the yield of improved seed was 'poor'.

Table 5: Performance of improved teff varieties, 2017 season.

Indicator	Gobeya (n=98)	Hitecha (n=91)	Basso Mille /Jare (n=72)	All (n=261)	P-value (p>)
Did you receive the seed (Yes)	88	86	59	233	.036
Did you plant the seed? (Yes)					
No.	83	86	57	226	.088
%	(94)	(100)	(97)	(97)	
All figures below relate to households that planted seed (n=226)					
Planted in Belg season (Yes) 1	10	2	0	12	.002
Planted in Meher season (Yes) 1	82	84	57	223	.489
Germination:					
Good	81	66	51	197	.010
Average	7	14	4	25	.109
Poor	0	7	4	11	.028
Did you have to replant (Yes)	24	33	28	85	.040
Area planted to improved seed (temads) 2	2.0	2.3	1.9	2.1	.018
Actual or expected yield (kg)	2.7	4.6	2.0	3.3	.026
Perception of yield:					
Good	66	59	37	162	.123
Average	10	20	9	39	.247
Poor	7	7	11	25	.072
Reasons for poor yield:					
Drought/low rainfall	2	1	6	9	.198
Insect pests	7	7	11	25	.101
Plant diseases	3	1	3	7	.491
Weeds	2	0	0	2	.061
Other	4	6	6	16	.140
Higher yield than local varieties (Yes)	80	78	46	204	.009

Source: SRMS Performance Survey, 2018

Notes:

¹ One temad = 0.125 ha.

² Any crop harvested between March and August is considered a Belg season crop, while any crop harvested between September and February is considered a Meher season crop.

4 Conclusions and recommendations

The SRMS project identified several systemic risks in the commercialisation of teff. One systemic risk is the lack of economic coordination in the supply of certified teff seed. To address this risk, the project developed an RBM based on a revolving seed fund, which was piloted in the 2017 crop season.

The objective of this report is to analyse experience with this RBM in its first year of operation. The analysis focused on three aspects of performance: social inclusion, and the use and performance of certified seed. These are not the only criteria to evaluate the performance of this revolving seed fund and the RBM. Ultimately, the success of the RBM depends on the sustainability of the revolving seed fund, which must be able to function independently after the life of the SRMS project. This report does not address the issue of sustainability, which requires evidence from more than one crop season.

Our findings are based on a survey of 261 of the 300 households that were selected to receive certified seed. Based on this survey, we conclude that:

- 1 In terms of social inclusion, the criteria used by the cooperatives to select farmers to receive improved teff seed did not exclude poorer farmers. Based on socio-economic indicators that are proxies for poverty, between 13 and 26% of those farmers selected to receive improved seed can be classified as 'poor'. This is close to the official estimate of households living below the poverty line in Ethiopia in 2016 (24%). This suggests that the RBM is socially inclusive.
- 2 In terms of farmers' use of improved teff seed, a high proportion (87%) of the farmers selected by the three participating cooperatives did receive and plant improved seed. A high proportion of these farmers reported plans to share improved teff grain with family members (65%) and with non-family members (57%), which suggests that next season will see rapid diffusion of improved seed through farmer-to-farmer exchange. Finally, although threshing is not yet complete, 42% of farmers who planted improved teff seed have already repaid an average of 7 kg of teff grain. This will ensure that the RBM will be able to operate in the coming season.
- 3 In terms of crop performance, the improved teff seed met farmers' expectations, with the majority of those farmers who planted (72%) reporting good germination, good yields (72%), and higher yields with improved teff varieties (90%).

However, the results also show room for improvement. We have identified seven action points to improve the performance of the seed revolving fund in the 2018 crop season. Some of these action points require further information. However, this information does not require an additional formal survey; it can be obtained through the records of the cooperatives or informal meetings and discussions with farmers.

- 1 The DAs believe that the RBM will function better if those selected to receive certified seed are better-off farmers, on the grounds that they are more likely to use good crop management and to return the agreed amount of grain to the cooperative. Our survey results show, however, that about 20% of the farmers selected to receive certified seed in 2017 can be classified as 'poor'. Once cooperative records on the final amount of grain returned become available, the project should test the hypothesis that poorer farmers are less likely to return the agreed amount of grain. If this hypothesis is found to be false, the project should consider targeting poorer farmers for inclusion in the RBM.
- 2 About 22% of farmers selected to receive improved teff seed in Basso Mille/Jare belonged to the same household, while four names among the 300 selected farmers were found to be fake. All the DAs were instructed to distribute 4 kg of certified seed per household. This message needs to be reinforced before distribution in the 2018 season. The DA in Basso Mille/Jare requires closer supervision.

- 3 About 11% of farmers selected by the three cooperatives never received improved teff seed. The SRMS project should follow up with the DAs to identify the reasons for this and take corrective action to ensure that all farmers who are selected in the 2018 season actually receive seed.
- 4 About 5% of farmers who planted improved teff seed reported that the yield was 'poor'. The most important reason given for poor yields was damage from insect pests. Although the focus of the RBM is not on crop management, to strengthen the seed revolving fund the participating cooperatives should increase farmers' knowledge of pest management strategies for teff and if necessary help them obtain access to inputs.
- 5 About 9% of farmers who planted improved teff seed in 2017 reported that they would not replant this improved teff variety in 2018. The most likely reason for this is low yields, for which the main reason was damage by insect pests. The SRMS project should investigate the reasons why these farmers have decided not to adopt these improved teff varieties and seek ways to improve the rate of adoption.
- 6 At the time of the survey only 38% of farmers who planted improved seed had repaid grain to their cooperative. The cooperative records the amount of improved teff seed that farmers receive and return. The SRMS project should obtain this information to reach a final figure for the repayment of seed.
- 7 Many farmers who received certified seed were unhappy about returning twice the amount of grain because they disapprove of charging interest on loans. The project should reinforce the message that the additional 4 kg is not for the benefit of the cooperative but will benefit other farmers in the community.

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