

CRS Farmer to Farmer Final Report

Volunteer: Lisa Haynes

Host Organization: Robe Catholic Secretariat

Assignment: ET26 Post-harvest management practices on grains (wheat, barley, and other highland grains)

Dates of Assignment 8/2/15- 18/2/15

Days Worked: At least part of all but the first Sunday

1.2.1 Improved harvest, post-harvest handling, and storage methods

a) Progress

Sanitation was discussed and recommendations given.

b) Expected Impact/Results

Fewer rodents and insect pests should result from recommendations.

c) Recommendations

Grain storage needs to start out free of pests for the new crop. Regular bags should be shaken out, turned inside out and carefully cleaned and the contents burned, or washed in very hot water when possible to kill pests. The grain storage area needs to be swept out of old grain and insects and the contents burned. Old grain that is infested should be used up or fed to livestock before the new crop is stored. Even so, grain often comes in from the field with some level of infestation.

Grain in bags (or traditional storage) should be stored on raised platforms away from walls, to facilitate inspection of bags and to deter rodents from attacking grain stores. Raised platforms in the storage area help avoid contamination due to spills of items in the storage area or urine from animals that might wind up in the grain storage area, as well as water infiltration due to heavy rain or other.

1.2.2 Storage pest management and quality assurance methods

a) Progress with the Objective

Hermetic storage in the form of PICS bags were introduced and samples given to model farmers.

b) Expected Impact/Results

Less to no insect pressure in hermetic stores, hopefully leading to adoption of the technology. More valuable grain with fewer defects. Farmers may be able to market top quality grain later in the year when prices are higher.

c) Recommendations

Sort grain to reject all broken pieces, insect damage and mold. Do not feed moldy grain to people or livestock as it can make them sick. It should be noted that none of the farmers at the 4 presentations felt that mold was a problem for them. Also, from a brief walk through market, it appears most grain was fairly well sorted for quality. Some (wheat especially) may not have held up to stricter international standards, although this isn't a problem for domestic use.

Adopt hermetic storage for crops held more than 3 months. Regular bags or traditional storage are fine for short term storage. Hermetic grain bags are subject to the same requirements as regular bags with regard to storage. Additionally, the bags should not be stored in direct sunlight (a good idea for the life of a bag anyway) or near a heat source. This would allow moisture in the grain to migrate from the hot side of the bag and condense on the cool side, which can lead to mold problems. It isn't a good idea to use highly infested grain, or store near highly infested grain. Some insects will chew through plastic, rendering the bags useless for insect control. Hot water should not be used to wash the inner bags.

Poisons for the use of storage insect pests were not recommended due to the danger to the farmer, family, and livestock.

Rodents do not like to be out in the open where they are more vulnerable to predation. Hiding areas that rodents like to use in and immediately adjacent to the storage building, such as piled debris, straw, or vegetation need to be cleared. This type of sanitation, cats and traps were recommended. Poisons were not recommended due to the danger to children and livestock in the area, even with appropriate bait stations. It was unknown what types of rodent control are available locally.

1.2.3 Information on modern threshing equipment and store construction

a) Progress with the Objective

Not covered

b) Expected Impact/Results

A typical gas motor powered threshing machine, such as the one manufactured by Selam Children's Village costs between 40,000 and 58,000 Birr which would be out of reach of even large cooperatives of smallholder farmers. It also appears that being able to rent some sort of equipment might involve a cash fee of up to 20% of the value of the crop, which farmers feel is too expensive. A demonstration showing less grain being wasted during threshing might make that price seem fair. Farmers might do better to negotiate a crop share payment rather than cash as it gives the equipment owner an incentive to do the best job possible. An

alternative to animal threshing would be to use threshing tables, where the farmer beats the grain against a screen. As noted by the previous F2F representative to the area, Dr. Tinsley, smallholder farmers do not have the caloric intake necessary to do even more manual labor. After talking to a few people, the feeling was that this method of threshing would be much harder on the farmer physically than animal threshing. Expensive alternatives to current grain stores also are not to be expected to be adopted. The cheaper alternative of hermetic bags were introduced.

c) Recommendations

Demonstrate threshing equipment if reasonable options to rent exist for the smallholder farmer to demonstrate efficiency and prove the technology. Talk to farmers about negotiating a crop share payment rather than cash. And/or find an agency to help find funding for threshing machines to be donated or loaned to farmer cooperatives. (Yes, I read the footnote advising that large capital expenditures are not good recommendations.)

1.2.4 Advice on careful means of local grain transportation

a) Progress with the objective

I did not observe grain transport situations that were terrible, and certainly not worse than animal threshing. Most people seemed to have sacks of grain on donkey carts on the way in to market or grain on the side of the road waiting for transport. If the initial food safety problem of animal threshing cannot be solved, transport and marketing problems (open air on tarps with people and the occasional animal walking on tarps trying to eat grain) are irrelevant.

b) Expected impacts/results

Recommendations were given.

c) Recommendations.

To be safe, grain should never be stored or transported with items such as gas, oil, chemicals, manure, or any other item that could hurt its quality. Even if they don't spill directly on the grain, the grain can absorb the odor of some of them.

1.2.5 Seasonal post harvest calendar

a) Not prepared based on current knowledge.

b) Expected impacts/results

c) Recommendations

Give any future volunteers more detailed knowledge of the current state of agriculture prior to assignment, including pictures, and resources for where to find supplies they might want to discuss. This might be especially important if visa problems continue and trips need to be cut short. Schedule a visit or two to a local farm to observe before presentations begin where time allows.

Additional:

Post-harvest management of straw was mentioned. Straw is currently fed to livestock or used in building construction. Almost all of the straw piles observed seemed to be set up to nicely shed water. Despite being quite low quality forage (with the exception of teff straw), these may be the best uses for it. It would be preferable from a soil health standpoint to till it back into the soil. However, the majority of farmers plow their fields with livestock, so this is not practical. It also wouldn't break down quickly enough for the next crop since it is fairly large pieces, and the land is quite dry after harvest. Additionally, forage during the dry season appears to be extremely scarce, so any type of feed is needed. Animals eating straw effectively compost the material and some of it winds up back in the field, or at least on communal grazing land, adding to tilth. This is far preferable to burning, which would be a typical alternative for disposal of large quantities of organic matter.

Composting the material would be another alternative, although impossible to maintain the correct C:N (30:1) balance during dry season and another extremely large energy expenditure for the farmer to properly manage a compost pile, turning it as often as necessary. Straw, for example, has a C:N ratio of 75:1, while grass has a C:N ratio of 20:1, and weeds 30:1. Balancing the compost pile to keep it composting would take too much land area for the Nitrogen part of the equation, even during rainy season. As the land is also needed for other uses, composting could never be expected to be adopted communitywide. The pile also needs to stay adequately wet to compost properly, so this would be a difficult task immediately post harvest during dry season.

1.3 Number of people Assisted

- a) Through formal training
- b) Through direct technical assistance (Do not double count)
- c) Out of these above, number of host staffs
- d) Training/assistance by field

Category	Total	Males	Females
Members/ owners			
Employees	1	1	
Clients/ Suppliers			

Smallholder Farmers	110	83	17
Total	111	84	17

1.4 Gender

- a) What gender roles did you recognize in your host community? Did these roles play a part in your assignment? How?

I only noticed that there were far fewer women. I was pleasantly surprised to be greeted with respect by the men after talking to another female F2F volunteer who had served in Tanzania.

- b) How might CRS or the host organization improve opportunities for the women in this host or host community?

Since specific farmers were invited to these meetings, Extension or SDCOR could add more women farmers to the list, or host women only meetings.

1.6 Value of volunteer contribution in \$

- Hours volunteer spent preparing for assignment
25
- Estimated value of all material contributions volunteer contributed to host during assignment
\$300

1.7 Value of hosts' contribution in \$ (Please consult the host as well)

- Meals Paid by volunteer
- Transportation 160 Birr/day = 960 Birr = \$48
- Lodging 100 Birr/day = 600 Birr = \$30
- Translation 200 Birr/day = 1200 Birr = \$60

1.9 Host Profile Data:

Did you obtain any data that supplements or corrects the data in the existing host information as detailed in the SOW? Please list it.

Maize is a bigger crop than I anticipated. Farmers (at least those at meetings) do not seem to have problems with mold.

1.10 Recommendations for CRS:

Provide a lot more information for future volunteers about the current state of things before they arrive. Pictures would be helpful as well. It was a bit shocking to experience how time flows in Ethiopia- a warning would have been helpful. I frequently felt tense as things were running late (by an hour or more) and made the presentation a bit shorter than I would have had we been running on time.

In retrospect, I was probably the only person upset by it.