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FINAL REPORT ON THE WOMEN'S TIME USE STUDY BAY REGION, SOMALIA

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by
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Purpose of Project

The purpose of this project was to conduct research to the labor inputs of Somali women into farming in the Bay Region. The specific objective was to investigate obstacles to women's greater participation in agricultural and livestock production.

Proposed study questions included: 1) How do women currently use their time, in both market and household production activities? 2) What activities are most time consuming? 3) What substitutes for their own time do women employ? 4) What returns do women receive for time spent in market production and what incentives exist for them to increase their time in market production?

Methodology

The nature of this study was qualitative. The objective was to study a few households intensively in order to gain a detailed picture of activity patterns and the division of labor. The primary method of data collection was direct observation of time use; supplemental information was collected with a questionnaire.

Time Use Data

Subjects were observed for two days each between the hours of 6:30 a.m. and 5:00 p.m. Self-report of time uses before and after those hours was used. Estimates of time spent in self-reported activities were derived from time spent in those activities by the subject earlier in the day or by time allocated to that activity by other subjects.

The time use observations were made by the principal investigator (PI) and, after training, by a research assistant, Habiba Ali Nurr, an agronomist with the Bay Region Agricultural Development Project (BRADP). Interviews with

the PI's subjects were conducted with the aid of the research assistant. Habiba also acted as interpreter and helped to resolve many of the logistical problems which arose during the course of the study.

Questionnaire

The questionnaire (Appendix A) was constructed primarily with open-ended questions. It was tested during the first two weeks and a modified version was used during the last nine weeks. Interviews were used to gather socio-economic data, information about resource constraints potentially affecting time use, and information on agricultural problems and decision-making. The questions were designed both to elicit information about family economics and to provide feedback to agricultural researchers on the BRADP. The short questionnaire was intended only as a supplement to the time use observation activity. The questionnaires were only given to the women, although sometimes men answered questions about insects and their experience with extension. We made this compromise only on questions without gender specificity.

Time Period of Observation

The observations were made between May 19 and July 23, covering the Gu and Haga seasons and all of the major agricultural tasks except tilling and planting. By May 19, fields had already been planted, rains were frequent and the primary agricultural task was weeding, which continued until the beginning of July. Labor shortages are reportedly greatest during weeding and the majority of observations were made during that time. In June the households also began moving their livestock either from distant regions into the Bay area or from household enclosures to grasslands near their fields. These activities consumed a substantial amount of time for some households. Near the end of the weeding season farmers began harvesting cowpeas and mungbeans.

The harvest of sorghum began during the latter two weeks of July, accompanied by the cutting of sorghum stalks and bean plants for fodder.

Sample

The selection of both villages and subjects within the village was purposive. The first three villages were those targeted by the National Monitoring and Evaluation Force (NMEF). In these communities the chiefs suggested subjects. A list of communities is in Appendix B.

The other villages and subjects were a subset of those surveyed in 1983-84 by the Socioeconomic Baseline Study (SBS) team. If an SBS respondent was unavailable, another woman from the village was purposively selected. The sample included both market and nonmarket towns as well as female heads of households and married women.

The sample included 23 households composed of 29 women and 21 men. Typically the household contained only one woman, her children and a husband if she were married. However, where more than one woman shared a yard or worked cooperatively on a routine basis time use was observed on all of the women. Time use of the husband was also recorded; self-report supplemented direct observation.

RESULTS

Description of Sample

Seventy-two percent of the female sample members were married; the others were widows. The women tended to have no education; only 13 percent of them had attended Koran school. On the other hand only 16 percent of the men had never been to school. About 80 percent had attended Koranic school and more than 20 percent had attended the six-month course in the Somali language offered a few years ago.

The women's ages ranged between 17 and 80 years with a mean of 40 and a

median of 35. There were four women ages 60 and above but most were in their twenties and thirties. The men had a similar mean age, 40, but the median was 41, indicating that the range was not as skewed. The men ranged from ages 19 to 90 but only one person was 90 and the next oldest man was 56.

The average woman had 3 children; the same mean was reported in Massey et al. (1984). Half of the households had children aged 2 and under. About 14 percent had all children ages 4 and below; 50 percent had at least one child 4 and other children 18 years old or younger; 18 percent had all children older than 4 but 18 years of age or younger and 18 percent had all children over 18 years old.

TIME USE

Allocation of time of men and women is reported in Table 1. Women spent an average of 205.53, and men 158.61 minutes per day in agricultural production. The difference was not statistically significant due to small sample size and large variation. Manufacturing activities consumed a half hour of women's days, but three quarters of an hour of men's. Time in household work accounted for the largest differences between women and men and imposes the greatest obstacle to women's participation in agricultural work. Women allocated an average of 416 minutes per day to household work versus the 39 minutes per day spent by men. In sum, women and men spent approximately 11 and 4 1/2 hours in all types of productive activities, respectively.

Table 1. Average Time Spent in Productive Activities by Men and Women and Results of T-tests for Differences.

Activity	Mean Minutes per Day Women	Men
Total Time in Agricultural Work (TTAGWK)	205.23 (248.05)	158.60 (164.01)
Major Crop Production (MJC)	143.10 (135.53)	88.02* (83.80)
Minor Crop Production (MNC)	0.17 (0.93)	0.10 (0.44)
Animal Husbandry (AH)	34.41 (51.71)	36.72 (107.20)
Poultry (PL)	1.31 (4.17)	0.84 (1.89)
Food Preparation for Sale (FPS)	17.45 (33.33)	.30** (1.04)
Selling (SELL)	7.34 (26.78)	32.67 (113.44)
Construction (CON)	1.79 (9.66)	0.00 (0.00)
Total Time in Household Work (TTHHWK)	416.05 (149.38)	39.17**** (40.57)
Food Production for Consumption (FP)	228.19 (102.68)	6.02**** (8.98)
Cleaning (HC)	18.26 (16.29)	.52**** (2.29)
Physical Child Care (PCC)	55.12 (51.19)	4.83**** (14.09)
Nonphysical Child Care (NCC)	12.60 (24.47)	1.48** (4.15)
Physical Care of Others (PCO)	8.14 (26.45)	0.00 (0.00)
Nonphysical Care of Others (NCO)	3.91 (15.37)	0.00 (0.00)
Management (MG)	13.78 (15.68)	5.74** (9.18)

Table 1. (continued)

Activity	Mean Minutes per Day Women	Men
Clothing Care (SEW)	8.59 (22.46)	0.00 (0.00)
Shopping (SH)	16.52 (47.75)	17.62 (42.37)
Fuel Gathering (FU)	19.48 (28.29)	2.31*** (9.81)
Water Gathering (WA)	31.47 (32.78)	0.64**** (2.95)
Total Time in Other Work (TOTHER)	28.95 (60.36)	46.34 (61.33)
Paid Work (PW)	0.00 (0.00)	19.49*** (34.99)
Clothing Construction (SEW)	0.00 (0.00)	1.05 (3.51)
Manufacturing (MF)	33.90 (92.77)	25.81 (60.19)

[1]Differences in time allocations were determined with t-tests; levels of significance were designated as follows: *$p \leq .10$ **$p \leq .05$ ***$p \leq .01$ ****$p \leq .001$.

Agricultural Production

Most of the time spent in agricultural production was allocated directly to crop production. Women spent nearly 2 1/2 hours per day and men, 1 1/2 hours per day in major crop production as Table 1 shows. Minor crops were defined as garden crops, like tomatoes, and as few households grew these, they consumed minute quantities of time. Animal husbandry chores varied by gender. Women tended to do the milking, although in one case, it was primarily the husband's task. Men were more likely to herd the animals, but only one husband was a full-time herder. Neither men nor women allocated much time to chickens but women's time exceeded men's.

Women's responsibility for food production for consumption transferred to that for sale as well, thus the significant difference between men's and women's time in food preparation for sale. It appeared that while women allocated more time to production than men, men also spent time selling than women, although differences weren't statistically significant.

Other Work

Time in other work was accounted for primarily by time in paid work and manufacturing. Women spent no time in paid work during the observation period. Manufacturing tasks differed by gender with women weaving baskets and mats and men doing carpentry and sewing. However, in one household the husband and wife engaged cooperatively in basketmaking and seemed to be operating quite a prolific household industry. Many of the women indicated they were too busy with other activities during the agricultural season to perform the level of weaving they preferred.

Household Work

A closer view of time in household work shows that women spent more time

in food preparation for household consumption than in any other single activity, an average of nearly 4 hours, but the time ranged between one and 10 hours. Child care, the second most time consuming activity, occupied slightly more than an hour per day. Both men and women allocated most of that time to physical child care. For women it was primarily nursing. Little time was dedicated to conversing, playing or other nonphysical interactions with children.

The third most time consuming activity, water gathering, was done everyday by most women and often twice. It required an average of one-half an hour. Each of the other household productive activities consumed less than 30 minutes per day, although on a given day much more or less time might be dedicated to given chores.

The results of the correlation analyses for household production are interesting. It was expected, a priori, that the more time allotted to one activity the less time available for the others as available time is fixed. However, as Appendix C shows, where the relationships are statistically signficant, they are also positive, indicating that those who do more of one chore also tend to do more of the others. Only one man in the sample had been ill on an observation day, however, women's health was more varied. One woman was incapacitated with polio, at least one was ill one day and more than one was very lethargic. The latter probably reflected the stress of nutritional inadequacy compounded by the nutritional demands of pregnancy and lactation. Other women were pregnant.

FINDINGS OF SURVEY

Agricultural Production

Time Related Items

To explore latent demand for labor substitutes or supplements, the women were asked how they felt about their work. They tended to most enjoy weaving and weeding, cooking and other household work. They least liked weeding and pounding. Their likes were partially congruent with how tiring the task was. Weeding was considered the most tiring task and cooking the least tiring.

As weeding was considered to be so tiring it was thought that time in agricultural production would have increased during harvesting, however the data don't support this hypothesis, possibly due to small sample size. It seemed to us that respondents spent more time in the field during sorghum harvesting than weeding, however.

Animal Traction

About 8 percent (n=2) of women had used animal traction and one women had used a tractor. Considering how tiring the task of weeding is nearly all were interested in animal traction as they felt it would be easier and more productive than using the yambo. Eighty-one percent preferred an ox to either a camel or donkey. No one expressed interest in using donkeys. They seemed to think that the donkey's shoulders would not hold a yoke and that oxen could do more work. The oxen were available and could be managed more easily than camels. Familiarity was another factor. When asked where they would keep the ox they replied that it would be kept near the house, and when it was sufficiently old, they'd butcher it.

Farm Labor

Animal traction might be economically substituted for labor in plowing and weeding. Sixty-three percent of the households reported hiring help this

agricultural season for either weeding or plowing, a typical pattern for these households. Weeding labor had been used for an average of 5 1/2 days but one-half had hired labor for 2 or fewer days. At the high end, four farmers reported employing weeders for 10 to 20 days. The number of weeders hired per day averaged 6 although the median was 5 as the distribution was skewed by the two farmers hiring 17 and 21 laborers per day.

The reported wage paid to laborers was 35 shillings per tab although the low was 10 and the high, 125. Tabs vary in size by region so it is difficult to gauge the relationship. Some of the women had reported working as weeders for 10 shillings per tab and other farmers in the area had reported paying the same so the low wage is not atypical. Some farmers also reported paying in kind with shots of sorghum or milk.

There was vast disparity in the total amount of money reportedly paid for weeding per day, from 20 to 2000 shillings with half paying less than 100 shillings and half paying more. The larger total expenditures reflect the sizeable crews hired as well as the disparity in resources among farmers

Eighty-two percent of households hiring people to plow, employed them for 3 or fewer days, 18 percent for 20 days. They hired between 1 and 21 persons per day with a median of 4 and paid them from 30 to 1000 shillings per day. A few paid in shots (liters) of sorghum or milk.

Only two households had received plowing or weeding help from relatives. One household had help from children attending the village Koran school. Both sources were more likely to have helped weed than plow. The relatives worked an average of 2 days and were paid with food.

Livestock Ownership

The average household owned 10 cattle. Only 15 percent reported owning none while 18 percent owned 22 or more. A larger percentage (52%) owned no

camels. Thus median ownership of camels was zero while the average was 12 as 20 percent reported possessing 20 or more camels and the maximum herdsize was 170. Few households owned sheep; the mean was .5.

A large minority of households, 42 percent, owned goats. The average was 8, median, 0 and the largest herdsize was 40. Nearly every household included chickens. Thens. They were especially plentiful during the gu and thus the average ownership was 13. We noticed many places, notably Durey Calle Galle with exceptionally healthy-looking chickens. However, we also witnessed the effects of a disease which killed most of the chickens in another community. Women had wrapped their chickens in cloth to keep them warm as they fell ill.

The animals are grazed near the fields during the gu season especially during June and July when the grass is tall. As Massey et al. (1984) pointed out this would be an excellent time to take a census of animals. The women also reported allowing the animals to graze in their fields during the harvest season and we witnessed this.

Forage during the driest season is provided from saved sorghum stalks and the residue of pounded sorghum. About 15 percent buy sorghum from others' fields sometimes. One household reported moving to the lower Shabelle. Forage during jilaal didn't seem to be a major concern.

Seed Selection

About 40 percent of sample members had planted red sorghum this gu while an equal percentage planted mixed, red and white. Only one household planted white primarily while others planted light red. The most commonly noted selection factors were storage quality, resistance to birds, taste and looks. They felt red sorghum was clearly superior to white on the first two criteria but that the reverse was true for the latter criteria. The preference criteria are listed by preferred type of sorghum in Table 2.

Table 2. Criteria for Seed Selection by Color of Sorghum Selected

	Color of Sorghum			
Criteria	Light Red	Red	White	Mixed
Good taste	3	1		
White does not store well	1	2		
Looks good	2	1		
Increases in size when cooked	1			
Red stores well		4		7
Red resistant to birds		6		1
Red resistant to insects		1		
They are equal		1		
White looks good			1	
They had red seed on hand				1
Red is larger				1
White is easier to pound				3
It is traditional				2
White sells well				1
White tastes good				1
White makes better angeros				1
White is preferred				1
White looks good				2

The data indicate that Somali women in the Bay Region tend to actively participate in seed selection. About 63 percent of the time women had selected the seeds for the 1986 gu season. The husband reportedly chose 26 percent of the time. (One personal observation was that it seemed some of the women were giving the socially acceptable response here, i.e. that the women may have actually selected the seeds.) As a check, we also asked who had selected the seeds for the previous season and the distribution of responses was similar. Overall, 75 percent of the women claimed to choose the seeds usually.

Criteria for seed selection were varied. Some of the more popular responses were big thick heads, medium-sized heads, lighter red and heavy. About 11 percent revealed that no specific criteria were used. The reason for selection of large heads seems obvious. Those preferring medium-sized heads explained that the larger ones were easier to pound, bearing more sorghum per amount of pounding and thus large heads were preferred for consumption. This is a perspective that women who do both the pounding and selection, would incorporate into the seed selection process. Likewise one of the reasons women reported preferring white sorghum was that it pounds more easily and makes better angeros. Thus seed development without considering the concerns of women and without education for them could increase women's work effort or seed rejection.

A case in point is dabar. About 43 percent of the sample members had planted dabar at least once however, they tended not to have replanted it. One person suggested dabar did not store well while five (71 percent) reported having eaten it all as it was a dry season. One person noted that the seeds were small although the heads were large. Having women alerted to its benefits or checked with women about their reactions to it may have encouraged

its continued use.

Crop Variety

In addition to sorghum most farmers had planted some maize and beans. Of the 13 people responding to this question, 4 also had planted watermelon. They ate watermelon when it was unripe by cutting it into smaller pieces and boiling it. The other most common crop was gourds.

We approached food from a speculative as well as factual side, asking the women which other foods they would most like to have. The average woman named 5 other foods. The most commonly desired foods (Table 3) were pasta followed by rice and sugar. Much less frequently mentioned was meat.

Women rarely volunteered vegetables or fruits as preferred foods so we began to inquire about them specifically. Tomatoes were most often specified and onions secondarily. Aside from potatoes, fruits were the other commonly wanted food items. The farmers attributed the absence of gardens to lack of water. Other reasons such as insect destruction, lack of suitable land and lack of time were also offerred. From casual and formal observation it appeared as though it would be culturally acceptable for both men and women to have small gardens. In one village the wellkeeper, a man, had a lovely garden growing next to the well. At one of the sample households both husband and wife seemed responsible for their tiny garden while in another household the woman seemed to be the responsible party. However, if irrigation were needed water carrying would add to the women's time and effort regardless of their role in gardening per se.

This study did not include a measure of actual food consumption. However, self-produced food was rarely supplemented by purchased food and thus the reported crops fairly accurately describe the diet of these farming households. The purchased food that we observed during the three months

Table 3. Most Desired Supplementary Foods

Item	Frequency n=25	Percent of Households
Pasta	23	.92
Rice	21	.84
Tomatoes	8	.32
Sugar	6	.24
Ghee (oil)	6	.24
Meat	5	.20
Flour	4	.16
Tea	4	.16
Milk	4	.16
Mango	4	.16
Onions	4	.16
Bananas	3	.12
Potatoes	3	.12
Sweets	2	.08
Spices	2	.08
Bread	1	.04
Papaya	1	.04
Cookies	1	.04
Dates	1	.04
Camel milk	1	.04
Limes	1	.04
Mango	1	.04

included camel meat for one or two days in one town and sugar and tea which were commonly consumed. The quantities of foods that were eaten usually seemed adequate, especially as it was harvest season and the beans were devoured with relish. Milk was available for most families; however, even during the plentiful rainy season some families (those without animals) consumed small quantities of milk. The beans and milk complement the sorghum to produce a complete protein and thus protein seemed to be satisfactory during this time period. However, the lack of vegetables and fruits (except for a green leafy vegetable gathered from nearby areas) was apparent. Furthermore the diet provided no regular source of iron. The green leafy vegetable was helpful in this respect but insufficient. Eggs were available in small quantities but were eaten infrequently. The lack of iron, a chronic problem in developing nations especially for women, is thus also a concern in the Bay Region of Somalia. It may account for the lethargy of some of the women. The generally inadequate diet may also have contributed to the skin disease prevalent among women and children.

Clearly there is a need for an expanded variety of foods but the types of food desired by the women also reveal another aspect of the problem -- lack of knowledge of nutrition. The most attractive foods, pasta, rice and sugar, would add needed calories but would not provide the missing nutritional elements in the diet. Like consumers elsewhere these women's wants aren't necessarily congruent with their needs. Obviously an educational component is needed as part of a crop marketing strategy in the Bay Region.

Insects and Other Pests

Milipedes, stalk borers, and smut posed problems for 90 percent or more of sample members while redfeather affected about 70 percent. The list of other reported crop-related pests is in Table 4. About 55 percent of the

Table 4. Crop Pests

Item	Frequency n=22	Percent of Households
Birds	17	.77
Saranan	10	.45
Aphids	8	.36
Crickets	8	.36
Shegele	4	.18
Boars	3	.14
Rats	2	.09
Hinches	2	.09
Capri	2	.09
Histe Bug	2	.09
Kurtell	2	.09
Turn Leaves White	1	.04
Squirrels	1	.04
Girgir	1	.04
Chashito	1	.04
Tashiri	1	.04
Belgadute	1	.04

Table 5. Reasons for Not Using Seed Dressing This Gu

Reason	Frequency n=10	Percent of Households
Government brought last year but not this year	1	.10
Extension agent didn't bring it	1	.10
Woman was too busy	1	.10
Felt crickets were bad this gu	2	.20
They had no money	1	.10
None was bought	1	.10
Woman had no man to get it for her	1	.10
Did not know where to go in Baidoa to get it	2	.20
Was herding camels while fields were sown	1	.10
Looked for it but did not find it	1	.10

farmers estimated that these pests destroy one half or more of their crops while the others felt that less than one half of the crop is destroyed. As some of them put it, "sorghum survives than doesn't."

When asked whether pest problems were worse in the gu or dayr seasons 70 percent concluded the former; 20 percent, the latter and 10 percent felt the problems were similar in each. The severity of pest problems during the gu was attributed principally to the short rains and cold weather. Likewise cloudy weather was also cited as a cause. One farmer suggested that crickets were much worse during the gu.

The most frequently mentioned storage pest was the whune. Of secondary importance were rats, hedehede, termites, and crickets. Occasionally mentioned were rabbits, brinbaro, firinjer, snakes, rot and hindis.

All who were asked abut buying insecticides were interested in using them and only one farmer expressed concern -- about poisoning. She also informed us that she wouldn't have enough water available to wash the crop to remove the insecticide before cooking it.

Three-fourths of those who were asked, had used seed dressing at some time. About one-fourth reported having used each of the following colors of seed dressing: 1) red and white, 2) red, 3) blue and 4) red and blue.

Only 12 percent of the sample reported having used seed dressing this gu but 67 percent reported having used it during the previous gu. (This may mean they used it sometime in the past.) Their reasons for not using the seed dressings were varied and are listed in Table 5. The given reasons imply several things. Among them, its cost is important, especially for women who lack money. In husband-wife households money is slightly less of a problem and men seemed very favorable to seed dressing and thus would be likely to buy it if they had the money. Another implication is that free samples may be

being distributed for a price in the villages. The profit provides an incentive for distribution but may contradict other project goals such as equitable distribution.

Women seem less likely than men to travel to Baidoa and thus have less access to Plant Protection than men. Therefore, the comment, "I had no man to get the seed dressing," implies that local sources are needed. One of the reasons women may confine themselves largely to local markets is that they are very busy, as the one comment in Table 5 implies.

Several of the comments imply a passive attitude toward the obtaining of seed dressing, especially "the government brought it last year but not this; the extension agent did not bring it; none was brought." Seed dressing will undoubtedly be used with more regularity when it is more widely distributed for individual access. One farmer noted that he knows that seed dressing works as he ran out of it and saw the difference between the two halves of his field.

The sources of seed dressing mentioned were government, Plant Protection, the chief of a village (not necessarily their own), shops in Berdaale, and traded with neighbors. Plant Protection was the most frequently noted source; 50 percent of the sample members quoted it.

Planting Decisions

The farmers' decisions to plant are based on time. They count the days or the months before the rain. Some plant when the acacia trees have bloomed and green leaves have emerged. Some reported watching what their neighbors do.

Ninety-five percent reported no influence from the sheikh. However, in some cases he sheikh is the one who counts the days. One sheikh told us that he tries to influence the planting decisions of the members of his community.

After the first few times of asking when they begin to weed and receiving, "when the weeds come out," we ceased asking the question.

Extension

Ten percent of sample members reported having ever spoken with an extension agent but 82 percent had heard of the extension service. About one-third of the husbands had ever spoken with extension agents. They tended not to tell their wives about what they learned from the extension agents.

HOUSEHOLD ECONOMICS

Sources of Household

Like people elsewhere, Somalis are reluctant to discuss their incomes nevertheless an attempt was made to explore their access to and use of cash. Some women told us that women had problems obtaining cash. In one village it lead to walking nearly 30 minutes to a war for water versus paying the nominal fee to use the nearby well. The women farmers obtain money by selling items they produce, working as weeders or in teashops and if married, from their husbands. These sources of income seem to substitute for each other.

A variety of items are sold by women as shown in Table 6. Most commonly they sell milk, eggs, ghee, beans and mats or baskets. These are small items commanding rather low prices and can offer the woman but a paltry income. Some of the women, about 73 percent, keep at least part of this money. The others give all or part of it to their husbands automatically due to custom, or they give it to their husbands only on request.

About 24 percent of the women had ever worked for wages or in teashops. However, one of these developed a crippling disease and could no longer operate the teashop. She reported having made a lot of money (with a smile) and really having liked the business. Thus, one-fifth (n=5) of the sample

reported currently working in this capacity. Sixty percent earned wages by weeding others' farms; the other 40 percent currently owned teashops. The weeders worked for nearby farmers while the teashop owners worked from home and lived in market towns. The weeders worked from 1 to 20 days. The teashop owners had been in business for several years. However the weeders reported having earned 10 to 13 shillings per tab and about 100 shillings per day.

Monetary contributions from the husband to the wife vary. Men make the larger sales and thus control larger amounts of cash than women. When asked whether he gave her cash the last time he made a big sale by selling a lot of sorghum or an animal, about 30 percent of the women responded in the affirmative. These women had received one-half the money or less; they reported receiving 10 to 20 percent of the proceeds.

Typically, 30 percent receive no cash from their husbands, 40 percent usually do. Twenty percent of their husbands sometimes give them cash and another 10 percent give their wives money only when needed for purchases. The women also reported that some of their husband buy the things they need, including food and one husband paid the well fee.

Table 6. Items Produced by Women

Item	Frequency n=27	Percent of Households
Eggs	14	.52
Ghee	14	.52
Beans	14	.52
Milk	12	.44
Sorghum	12	.44
Chickens	9	.33
Woven Items	9	.33
Maize	2	.07
Cattle	2	.07
Goats	2	.07
Vegetables	1	.04
Forage	1	.04
Wax	1	.04
Hides	1	.04
Sticks for Building	1	.04

Table 7. Preferred Uses for Extra Farm Expenditures

Item	Frequency n=27	Percent of Households
Weeding Labor	24	.89
Cattle	5	.18
Planting Labor	4	.15
Goats	4	.15
Ox for Weeding	2	.07
Enlarge Field	2	.07
Harvesting Labor	2	.07
Seeds	2	.07
Forage for Jilaal	1	.04
Cattle Herders	1	.04
Yambo	1	.04
Harvesting Knife	1	.04
Nothing	1	.04

Expenditures and Consumer Wants

We asked the women how they ordinarily spent cash, i.e. about their daily or typical expenditures. Women most often reported buying sugar and other types of food, clothes and kerosene. The average number of ordinary expenditures was 3.

To explore latent demand and economic priorities women were also asked what they would buy for their farms and families if given an extra 4000 and 2000 shillings, respectively. The overwhelming response to the first question was labor for weeding, see Table 7.

Table 8. Preferred Uses for Extra Household Expenditures

Item	Frequency n=27	Percent of Households
Clothes for Children	20	.74
Food	14	.52
Sugar	9	.33
Milk	4	.15
Ghee	3	.11
Camel Mat	2	.07
Mats	2	.07
Bowl	2	.07
Milk Container	2	.07
Winnowing Basket	1	.04
Blankets	1	.04
Meat	1	.04
Tennis Shoes	1	.04
Grinder	1	.04
Sheets	1	.04
Knife	1	.04
Sorghum	1	.04
Water jars	1	.04
Matresses	1	.04
Pan	1	.04
Save Some of It	1	.04
Fibers for Mats	1	.04
Rice	1	.04
Pots	1	.04
Cups	1	.04
Spoons	1	.04

Priorities for extra household income included clothing and food for their children and themselves. This implied that men buy their own clothing and extra food. Specifically women most often mentioned sugar as the food desired. Other items desired are listed in Table 8.

To encourage elaboration we began to ask about what specific goods and types of equipment they desired. These are listed in Table 9 and there is overlap among responses. The average woman named more than 3 goods. The most popular items were clothes for their children and themselves and food. Knives, bowls, plates and milk containers were also in demand. It seemed that they were more responsive to questions about equipment they would like to own versus the more general term, goods. Bowls, cups, pans and thermoses the most often mentioned types of equipment.

Water and Wood

About 60 percent have access to a well during jilaal. However, sometimes the walk to the well is 3 to 15 km. Four percent are able to obtain water from the local war; another 4 percent dig into a dry streambed. One household of two women reported going to Mogadishu for the duration of the season. The others tend to have long walks of a half hour at minimum. They go to the water source at least every other day, but some go more often (as often as twice a day, daily). One woman complained about accomplishing little else during jilaal.

Wood is also collected by women from nearby "forests." They collect wood by breaking or chopping off dead branches. Slightly more than half of them obtain the wood from areas within 30 minutes of their homes. About 42 percent of them walk farther than 30 minutes and one person reported buying firewood.

Table 9. Goods Desired

Item	Frequency n=25	Percent of Households
Clothes for her & her child	8	.32
Food	7	.28
Knife	7	.28
Bowls	5	.20
Milk Container	4	.16
Plates	4	.16
Mats	3	.12
Metal Bed	3	.12
Pans	2	.08
Rice	2	.08
Milk	2	.08
Fibers for Mats	2	.08
Table	2	.08
Cups	2	.08
Bedcover	2	.08
Sugar	2	.08
Water Jar	2	.08
Chickens	1	.04
Tennis shoes	1	.04
Goats	1	.04
Pasta	1	.04
Ghee	1	.04
Watch	1	.04
Meat	1	.04
Cattle	1	.04
Pestle	1	.04
Flour	1	.04

Nearly all of them felt the wood was becoming scarcer; they attributed the scarcity to population expansion. They also indicated that the areas near their villages had been stripped of wood and they were having to glean farther away.

Table 10. Equipment Desired

Item	Frequency n=25	Percent of Households
Bowls	14	.56
Pan	10	.40
Cups	10	.40
Thermos	10	.40
Metal Bed	8	.32
Milk Container	6	.24
Hoori Mats (House Mats)	5	.20
Knife	5	.20
Dishes	4	.16
Tables	3	.12
Lamp	3	.12
Yambo (Hoe)	3	.12
Water Jar	3	.12
Teakettle	2	.08
Spoons	2	.08
Big Sorghum Bag	2	.08
Winnowing Basket	1	.04
Chairs	1	.04
Camel	1	.04
Sticks for Bed	1	.04
Pestle and Mortar	1	.04
Cupboard	1	.04
Angero Cooker (Crepe Cooker)	1	.04
Kowowa	1	.04
Camel Container for Sorghum	1	.04
Fibers for Mats	1	.04
Thatch	1	.04

CONCLUSIONS

1. Women contribute at least as many labor hours to farming in the Bay Region as men, and are actively involved in nearly every aspect of agriculture.

2. The principal constraint to women's increased participation in agricultural and manufacturing activities is the tremendous amount of time consumed by household production, especially food preparation. Preparation of food is both time and energy draining as indicated by both time use and questionnaire data.

3. Women are actively involved in livestock production, especially that of cattle, chicken and goats. They are not as involved with camels as men and are not as likely to herd cattle, goats or camels as men or children.

4. The need for animal or mechanical traction was evidenced in numerous ways. First, little time was available for weeding, although there was much weeding to be done. Second, various answers on the questionnaire point to the physically demanding nature of weeding and to women's interest in animal traction, consistent with the findings of Martin (1986), who interviewed men primarily.

Most households hire labor or receive some some sort of help weeding. However the amount expended is small and one season's expenditure would be insufficient to cover the cost of a plow. A few farmers have the resources to pay for a plow as indicated by the amount they spent on labor in this gu alone.

5. Livestock were owned by most households but those without cattle or camels were also without a source of milk and thus, a complete protein as well as all the other nutrients supplied by milk.

6. Chickens seemed plentiful and people seemed to like eating chicken and eggs. However, disease in chickens was evident and eggs were scarce.

7. Women make at least some of the agricultural decisions in husband/wife households. In particular women select the seed or have joint input into the decision-making process. Their decisions reflect not only agricultural but also food production for consumption considerations.

8. The variety of crops grown is meager. Consumption tends to be limited to crops produced. Thus diets are lacking in essential nutrients, especially iron and vitamins. Latent demand for food is focussed on low nutrient-density foods.

9. Insects and other pests pose extension problems for farmers. The modal response to the query regarding extent of damage was 1/2 the crop. The most readily available agricultural input in the Bay Region, seed dressing, had been used by most of the farmers. The farmers had often received it from the village chiefs but many knew they had obtained seed dressing from Plant Protection. A few had purchased seed dressing in the larger local markets.

10. In constrast with farmers' knowledge and use of Plant Protection was their experience with Extension. While most had heard of it, only one woman and few of the men had ever talked with an extension agent. This was true in communities with agents as well as those lacking them.

11. Women produce a variety of items for sale but proceeds tend do be meager. Even so, while a few married women keep the entire revenue from a sale, most give some or all to their husbands. Some husbands likewise return some of their earnings to their wives, but it tends to be a small fraction of total revenue. Thus women have limited access to cash and to market goods which may enhance their agricultural productivity and family well being.

Female heads manage their own money, but have fewer resources with which to manufacture and sell products. Men tend to possess most of the money within the household, purchase some things the family needs and seem to have preemininent decision-making power within the household with regard to expenditures.

12. Women's health varied dramatically. Their energy is likely a consequence of their diet which lacks variety, is nearly devoid of vegetables and daily sources of iron. Of course, the nutritional demands of pregnancy and lactation compound problems due to dietary deficiencies.

13. The scarcity of trees is beginning to be felt as women report having to walk farther to find wood than a few years ago.

14. One bright spot is the increasing availability of water supplies due to the large number of wars (water ponds) that have been constructed in recent years. In many communities wars are supplemented with wells and villages have access to water year-round. A few of the communities lack year-round sources of water; women in those villages reported spending much time walking long distances and sometimes paying high prices for water during Jilaal.

15. There is a great need for education in basic sanitation. There are few latrines in the villages and animals are allowed to use the wars for drinking as well as excreting. One testament to the lack of knowledge about basic sanitation is the high proportion of the population afflicted with skin diseases. In addition, information on treatment of basic wouonds and sores, especially puncture wounds, is needed.

16. The stated demands for consumer goods are quite modest, but there seems to be a negative correlation between age and demand, with younger women desiring more goods than older women. Food and clothing are the most overriding demands. The number and types of desired goods and equipment are

indications of the level of living and may be used in the future to measure changes in levels of living.

Recommendations

1. Since women do at least half of the farm work, they should be receiving at least an equal share of benefits from the BRADP. For example, women should have greater access to training and improved seed, and their needs should be considered when animal traction equipment is designed and improved seed varieties are developed.

2. Hire more female employees and make greater use of them to design and implement programs for women farmers. However, programs for women farmers should not be limited only to those designed and implemented by women.

3. One phase of project training, seed selection, should be aimed primarily toward women, as they tend to be responsible for this activity in the household. A first step in implementing programs for women might be to target female heads of households. These women are likely to have the freedom to participate in training seminars held outside the village, e.g., when the extension service frequently buses farmers to Baidoa for training. Child care services during the seminar would be inexpensive and easy to provide if needed. Many female household heads have older children not requiring child care.

4. The development and promotion of labor-saving technologies or household production would increase the amount of time women have available for household production and would increase the amount of time women have available for agricultural activities. The availability of household technologies would also release children for schooling. Development of household production technologies could complement animal traction research.

5. Women could also benefit from further training in manufacturing and marketing of agricultural and non-agricultural products. For example, women might be especially effective in selling large quantities of seeds or fertilizer in smaller packets as these inputs become available. Putting all marketing in the hands of men will make cash even less available to women, reducing their well-being absolutely and relatively as their society continues the metamorphosis from a self-sustaining to cash-reliant system.

6. Animal and mechanical traction are in high demand and efforts to introduce them should be intensified.

7. A component of the veterinary program aimed at strengthening poultry production would directly and expediently improve the adequacy of the villagers' diets.

8. Dissemination of seeds for a wider variety of crops and information about their cultivation would improve nutritional adequacy, expand sources of cash and reduce farming risk.

9. Introduction of vegetables and gardening practices would improve nutrition, which would increase not only general health and well-being but also agricultural productivity.

10. Insecticides are needed! Since it is expensive and difficult to import insecticides, the possibility of making organic insecticides from the neem tree should be investigated. Women should be involved from the outset in the development and dissemination of this technology, since the production of the insecticide requires collecting and poiunding seeds, traditional women's work although time constraints may limit the production of the insecticide.

11. Care needs to be taken in the marketing of seeds, insecticides or any other agricultural inputs as women see the benefit of using these inputs but lack the cash with which to buy them. To enable women to buy these products

they need to be packaged in small quantities. Distributing them through relatively small, local markets would also facilitate their distribution to women who often journey to small markets but less frequently to the larger markets frequented primarily by men.

12. Introduction and dissemination of leucaena and other trees would help to stem the deforestation which, among other things, increases the amouont of time women spend collecting firewood and forage - should be made to women.

13. Continued well installation decreases time and energy women spend fetching land carrying water, and improves water quality and thus, health.

14. Extension should be aimining its educational efforts equally at men and women, providing each group with agricultural information and, in addition, hire more employees, providing women with information regarding methods of increasing efficiency of household production. The household production component should not be offered in place of the agricultural component but in addition to it.

Train both men and women extensionists to work with mixed groups of men and women. The Somali culture seems to allow considerable interaction between men and women.

In order to reach other women, it will be important for extension agents to begin to hold community training sessions in the village itself. These could be held in the evening or mid-afternoon, as those are the least busy times of women's days. Women frequently leave their children at home while they work, so it may be unnecessary to provide child care at these meetings.

Training regarding and marketing of agricultural inputs will be most effective if aimed jointly at husbands and wives and single female heads of households. This is because the product will likely be purchases by husbands but used by wives. Female heads of households will, of course, play both roles.

FOOTNOTES

[1]The only time recorded for men was that in agriculture and other productive time. As men were often distant their time use was not as detailed as women's. Women's time use was the focus of the study.

REFERENCES

Massey, Garth, Nyhus, Sheila M., Glasscock, Anthony P., Glasscock, Judith S., Merryman, James L. and Merryman, Nancy H. (1984). Socioeconomic Baseline Study of the Bay Region, Vols. 1 & 2, U.S. A.I.D. Project Number 649-0113, Laramie, WY: University of Wyoming.

Appendix B

Names of Villages and Number of Households in Each

Villages	Number of Households
Toratora	2
Caliyo Munmih	2
Aushinle	4
Durey Calle Galle	1
Moode Moode	2
Buulo Suban	2
Daynunnay	2
Garmegal	2
Kadhikoy	2
Taflow	2
War Isha	2

APPENDIX C

Correlations Between Variables[1]

	HC	PCC	NCC	PCO	NCO	MG	CC	SH	FU	WA	TOTHHWK
FP	.50****	.37***	.01***	.14	-.06	.32***	-.01	-.01	.40***	.60****	.92****
HC	.	.	.	.	.	.	.	.	.	.51****	.55****
PCC	.	.	.28***	.	.	.	.	.	.	.	.58****
PCO	.	.	.	.	.28***	.	.	.	.	.59****	.
FU	.	.	.	.	.	.	.	.	.	.40**	.
TOTHHWK	.	.	.36****	.27****	.	.	.31**	.	45****	.68****	.

[1]Abbreviations are in Table 1. Nonsignificant correlations among time use variables were not reported.

	MJC	MNC	AH	PL	FPS	SELL	CON	TOTHP	MF	PW
TOTAGWK	.71****	.	.39***	.	.	.43****	.	-.03	.	.
MJC	.	.	.	.24**	.	.	.	.	.	.
MNC	.	.	.35***	.	.	.	.	.	.	.
TOTHHWK	.	.	.	.	.	.	.	.	.	.34***

[1]Abbreviations are in Table 1. Nonsignificant correlations among time use variables were not reported.

Appendix C continued

	TOT AG	TOT HH	TOT OTHPR	MF
GENDER[2]	.	-.84****	.	.
Wife's Education	.	.26**	.	.
Husband's Education	.	.73****	.	.
Wife's Age	.	.	.31**	.36**
Husband's Age	.	.	.40*	.58**
HEALTH[2]	.24*	.	.	.
Number of Animals	.60***	.	.	.

[2]Women were coded 1, men 2. Health was coded 3 for healthy both days, 2 for healthy one day, 1 for healthy neither day.