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WOMEN'S CONTRIBUTIONS TO FARMING SYSTEMS  
AND HOUSEHOLD INCOME IN ZAMBIA

By

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Abstract: This paper examines women's contributions to farm household income on small farms in three areas of Zambia. Data collected from a sample of 112 women show that females contribute more than half of the hours of agricultural labor done by their households as well as more than four-fifths of the hours of household labor. In addition, females contribute more than half of the average household's off-farm income (gained from wage labor and small-scale trading). When net farm income is allocated on the basis of hours contributed and this is added to off-farm income, females generate 55% of the average household's cash income.

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## WOMEN'S CONTRIBUTIONS TO FARMING SYSTEMS AND HOUSEHOLD INCOME IN ZAMBIA<sup>1</sup>

Women's contributions of labor to the farming systems in tropical Africa are beginning to be well documented (Due 1979; Spencer 1976; Delgado 1979); frequently females contribute more than one-half the labor inputs. The extent of their contributions to household incomes, however, is less well known; anthropologists, novelists (Armah 1969), and poets have articulated the importance to African women of sources of income independent of their spouses. Our study of rural farm and market women in three locations in Zambia was undertaken in the fall of 1982 to assist in documentation of women's labor and financial inputs into farming systems, household incomes, and market activities.<sup>2</sup> How important are female contributions of all kinds? Economic development policies might change significantly if these roles were better understood.

A sample of 112 rural and 30 market families was chosen in three areas of Zambia differing by level of agricultural development. The three areas were Mpika in Northern Province, a traditional farming area, Mazabuka in Southern Province, an area where average farm size is expanded by use of oxen and ploughs and hired tractor operations, and Mumbwa in Central Province, an area where agricultural practices are mid-way between the other two areas (See Figure 1). These were the sites recommended to Due by government and university officials for an earlier study of the access of small farm families to credit in Zambia (Due 1979). To make the sample representative of small farms, farms of 2 to 25 acres were selected.

### Sample Selection

In conversations with government personnel, it was ascertained that less than 5 percent of the male farmers in the areas chosen had multiple wives. Since the estimation of household income would be much more complicated with multiple than with single wives, it was decided to select only monogamous families. In each household, it was the wife who was interviewed. Households with single female heads (whether divorced, widowed or never married) comprise fourteen percent of the farm sample.

In Zambia each province is divided into districts<sup>3</sup> and each district is subdivided into wards (party or political units) and the wards into agricultural camps (extension units), each having a certain area, number of agricultural assistants (AAs), and number of families under its jurisdiction. Small farms primarily producing domestic rather than export crops were chosen; farm families in settlement schemes were excluded because of special services provided to them. Districts with concentrations of small farms were chosen to reduce transport costs. Wards were chosen at random within the districts as were the farm families; AAs in some cases had lists of all families in their camps or these could be complemented by ward and village registers. Some AAs also had data on farm size and yields. In each province, the same districts and wards were chosen as in 1976 with a planned sample of 40 farm households being drawn in each province.<sup>4</sup>

The study was undertaken jointly with personnel of the Rural Development Studies Bureau (RDSB), University of Zambia; the questionnaire was designed by Due and Mudenda and pretested in the Mumbwa area. Two staff members of RDSB participated in data collection and hired the two University of Zambia students who participated. An effort was made to recruit female students for this research but none agreed to serve because of the short term nature of the employment. To reduce costs, RDSB personnel and the students slept in sleeping bags in AA offices or unused houses and cooked their own meals while in the field.

There was concern that farm wives would not be "allowed" to be interviewed by males without their husbands' consent; this was not a problem in the field as the AA of each camp or the ward counsellor informed the families before or at the time of the interview of the nature of the study. At first the AAs brought the husbands to their offices for interviews in spite of instructions that it was the wives who would be interviewed! That problem was soon corrected and females were interviewed at their homes or at AA offices, whichever was more convenient.

#### Socio-economic Characteristics of the Farm Households

A profile of these farm women shows that they were on the average in their early 40's and had 2.2 years of formal education, while their husbands had an average of 3 years of formal education. Households averaged 6.9 persons and were farming an average of 4 acres in Northern Province, 9 acres in Central Province, and 16 acres in Southern Province. These women were spending an average of 6.6 hours per day in agriculture during the farming season compared with 5.7 hours per day for their spouses; children were spending an average of 5.3 hours per day and others in the household 1.6 in farming. In addition, the women allocated 4.1 hours per day to household activities (food preparation, child care, household maintenance, etc.) while their spouses contributed 0.4 hours, the children 2.3 and others 0.5 hours per day. These data are shown for families sampled in each province in Table 1.

#### Allcations of Labor Inputs

It is important to stress that farm females (of all ages) allocated more hours per day to agriculture than males during the farming season; on the average, the females in a household spent a total of 8.5 hours per day engaged in agricultural activities and 5.0 hours in household tasks for a total of 13.5 hours; males spent 7.4 hours in agriculture and 1.1 hours in the household for a total of 8.5 hours (Table 2).<sup>5</sup> Both males and females allocated more total hours to work in Southern Province than in the other areas; total hours were fewest in Northern Province where acreage in crops was also lowest. Thus, during the farming season, females contributed, on the average, 53% of the total hours in agriculture while males contributed 47%; in household tasks females contributed 82% of the total hours while males of all ages contributed 18%. Males assisted more in household tasks in Southern Province where commercialization of agriculture is greatest. These data are shown in Table 2.

### Crops Grown

What crops are these Zambian families growing and in what acreages? All of the farm families in each of the areas sampled grew maize--the major food staple. Average acreages varied from 12 per household in Southern Province to 2 per household in Northern Province (Table 3). The second most common crop grown by these families was groundnuts, followed by beans. Beans were much more important to the Northern Province families where all but 3 of the 30 families sampled grew them in 1982. In the other provinces, less than one-quarter of the families produced beans. Cotton and sunflower were also common crops in Southern Province and Central Province.

A great variety of "other" crops was grown: cassava; millet; wheat; vegetables; and potatoes. Fruits were not mentioned except for bananas. Major crops grown are shown in Table 3 together with number of families growing each crop.

### Production, Consumption and Sales of Crops

Average production, consumption, and sale of crops grown by the sampled farm households is shown in kilograms (kg) and Kwacha<sup>6</sup> in Table 4. Crops were valued at the prices at which sales were made if part of the crop was sold; otherwise official government prices were used. Official government prices in 1982 were as follows:

Maize (bag of 90 kg)	K13.50
Beans (mixed)(bag of 90 kg)	10.00
(sugar)(bag of 90 kg)	17.00
Cotton (per kg)	0.50
Groundnuts (bag of 80 kg)	44.00
Peas (bag of 90 kg)	33.00
Sorghum (bag of 90 kg)	9.00
Soybeans (bag of 90 kg)	42.00
Sunflower (bag of 50 kg)	16.00

Value of total production (VTP) per household varied from K1,267 in Southern Province to K678 in Central Province and K519 in Northern Province when each crop was valued at its market price. Maize contributed most to the VTP in each province; this varied from 69% in Southern Province to 46% in Northern Province. In Northern Province "other crops" made up 32% of the VTP, these were primarily millet, cassava, and vegetables.

For the total sample, 59% of total production was sold and 41% consumed by the household; this varied from 70% of the VTP sold in Southern Province to 51% in Central Province and 41% in Northern Province. As expected, the level of commercialization was higher where the level of agricultural development was highest. Percentages of each major crop sold are given by province in Table 5.

Drought conditions varied by area in Zambia in 1982 with parts of Southern Province near Magoye being particularly hard hit. How did maize yields vary by area? Average maize yields per acre were 5.3 bags of 90 kgs. each in Southern Province, 4.4 in Central Province, and 6.6 in Northern Province.

#### Who Decides on Products for Sale?

Farm women were asked, "Who decides what farm products to sell?" In 40% of the families, the respondent replied that the husband decided, in 3% the respondent decided, and in 57% the respondent and her spouse made the decision jointly. These responses by province are shown in Table 6.

The quantity of food stored for family use throughout the year is a very important decision, and it is interesting that decisions as to the quantities of food sold and stored are made jointly by the husbands and wives in over half of the families sampled.

#### Livestock

Many of these farm families owned cattle (including oxen), poultry, sheep, and goats. More families in Southern Province (90%) owned livestock than in the other provinces (Table 7); in Central Province 52% owned cattle and 30% owned them in Northern Province. The corresponding percentages for the ownership of oxen were 38, 14, and 3.

Livestock were important both for consumption and for sale. The values of livestock consumed and sold by these sampled families are shown in Table 8. Livestock numbers per family were highest in Southern Province where livestock sales contributed 27% of average total farm cash income; in Northern Province livestock sales contributed only 14% to the average total farm cash income.

#### Farm Operating Expenses

To ascertain net income from farming activities, the respondents were asked what input, labor, transport and other costs were encountered for farming operations. The largest expenditure was for fertilizer which averaged K160 per household in 1982 (Table 9). Seed was the second highest expenditure averaging K44 per household with hired male labor at K26 and hired female labor at K2 per household. Other chemicals (insecticides, etc.) rent, transport, and tools made up the other minor costs. Rent paid for land and for use of oxen and mechanized operations was highest in Central Province. Total farm operating costs in 1982 averaged K288 per household, as shown in Table 9; these varied from K508 in Southern Province to K214 in Central Province and K97 in Northern Province.

Thirty-six of the 112 households hired male day labor for an average K82 per household hiring; 10 hired female day labor for an average K27 per household hiring. Seventy-nine male laborers and 14 female laborers were hired.

### Net Farm Income

Net farm income is income generated by sales of farm products minus operating expenses (Table 10). The importance of livestock in the farming systems of these sampled households in Zambia is apparent; livestock sales were equivalent to 37% of total income from crop sales in Southern Province, 33% in Central Province and 17% in Northern Province.

Average net farm cash income per farm varied from K702 in Southern Province to K243 in Central Province and K150 in Northern Province. Average net farm cash income per acre (net farm income divided by average acres in crops) was K43 in Southern Province, K26 in Central, and K34 in Northern Province. It is interesting that average net cash income per acre was higher in Northern than in Central Province in 1982.

### Sources and Amounts of Off-farm Income

Many farm families earn extra income from off-farm employment, and petty trade as well as receive gifts and other income from friends or relatives. How significant was this type of income to farm families in Zambia? Data on off-farm income was gathered for males and females separately to provide a better understanding of who was earning the off-farm income.

Average total off-farm income per household was K214 in 1982; of this, females earned K125 or 58% while males earned K89 or 42%. Households in Northern Province had higher average off-farm incomes (K289) than those in the other areas sampled (Table 11).

Wage employment was the principal source of off-farm income. Males working in construction, blacksmithing, carpentry, and as civil servants earned totals of K942 in Southern Province, K2,277 in Central Province, and K2,426 in Northern Province. Female earnings were from fishing, weeding, and as a civil servant; females earned totals of K2,985 in Southern Province, K750 in Central Province, and K47 in Northern Province. Petty trade--the selling of fish, vegetables, beer, fruits, and clothing--yielded significant amounts of additional income, particularly to women. These petty trading earnings averaged K70 per household for females and K15 for males; the highest average petty trade earnings were in Northern Province where the brewing and selling of beer was the largest single source of petty trade income.

Gifts from friends and relatives (including some child support) averaged K31 per household with K13 coming to male and K18 to female members of the household. Other income, primarily from sale of a gun and renting a house, averaged only K9 for males and K2 for females or K11 per household.

### Who Decides Use of Husband's Earnings?

The farm women were asked who decided on the use of the husband's cash earnings, if any. When female-headed households were excluded, the decisions were made by the husbands in 40% of the farm families, by the wives in 2%, and by husbands and wives jointly in 58%. Responses by province are shown in Table 12.

In Southern Province, the most commercialized farming area sampled, husbands and wives jointly made 75% of the decisions about the use of the husband's income; in Central Province households, more husbands made the decisions alone than made them jointly with their wives. In the most traditional province, Northern Province, decisions about the use of the husband's income were never made by wives alone.

### Who Decides on the Use of Wife's Earnings?

The respondent was also asked who decided on the use of her own earnings. When female-headed households were excluded, the decision was made by the wife alone in 31% of the remaining households, by the husband alone in 12%, and by husband and wife jointly in 57%. More joint decisions were found in Southern Province (76%) while the wives alone made more of the decisions in Central Province (43%). These choices are shown in Table 13.

### Family Living Expenses

Average allocations for household consumption in 1982 were K603 in Southern Province, K403 in Central Province and K420 in Northern Province. An average of 30% of the total household expenditures was for food and an additional 9% for beer and other beverages<sup>7</sup> for a total of 39% on food and beverages. Another 8% was allocated to grinding grain for food. Clothing and footwear was the second highest allocation--25% of the total. The importance of education to these Zambian farm families is clear from the allocation of 11% of total expenditures to books, school uniforms, fees, supplies, and so forth. These expenditures are shown in Table 14.

### Cash Income, Living Expenditures and Potential Savings

Cash income for these households comes from sales of crops and livestock (Table 10) plus off-farm income (Table 11). From these income sources, potential savings or investments are available when farm operating expenses and living expenses have been subtracted.<sup>8</sup> These are shown in Table 15.

Table 15 shows that the sampled households in Central Province and Northern Province had very little remaining for saving or investment after expenses had been paid (K19). In Southern Province, families had K289 on average; these families had significantly larger areas under cultivation and much greater potential for savings.

### Income Generation by Sex

Data were obtained on members of the household that generated off-farm income (which includes income generated from petty trading, beer brewing, etc., on or off the farm). If one assumes that income from farming and livestock activities was generated by males and females in the same proportions as the hours put into the activities (i.e., that management was allocated in the same proportion as other labor), then one can distribute net farm income between the sexes. Table 16 shows household income generation calculated in this manner.

Thus on average females generated K327 in 1982 and males K269 on farms or females generated 55% of the household cash income; in Southern Province females contributed 56%; in Central 56% and in Northern Province 51%.

### Use of Credit

The official government agencies established to provide credit for farm inputs are the Agricultural Finance Company (AFC) and the Lint Board. The Lint Board provides inputs, extension services, and marketing outlets for cotton and soybeans. Inputs for all other crops must be obtained from commercial banks (which provide loans principally to the commercial farmers), AFC, friends and relatives, the cooperatives or credit unions. Only 49 (44%) of the respondents reported any borrowing in 1983; of these borrowers, almost half the loans (22) were from AFC; the next most important source was the Lint Board (12), followed by friends and relatives (10), credit unions (3) and coops (2). Amounts borrowed varied between K2 and K3,640; average amounts per family borrowing are shown by province in Table 17. As would be expected, the larger farms in Southern Province borrowed the largest amounts (K812); Central Province borrowers averaged K747 and Northern Province borrowers K414. The most frequent amount borrowed was K300 in Southern Province, K100 or less in Central Province, and K50 or less in Northern Province.

Twenty-four of the 49 borrowing families used the credit to obtain fertilizer or hybrid seeds; 10 obtained insecticides; 3 obtained unspecified farm inputs; 2 purchased cattle; and 1 used the credit for education and to purchase materials for resale.

Only five households, all in Southern Province, had more than one source of credit; three borrowed from AFC and friends (AFC for fertilizer, friends for seed or dowry); one borrowed twice from AFC, once for a plough and for seeds and once to finance a student; and one family borrowed from both the local credit union and a cooperative. These multiple loans averaged K849 per household borrowing.

Forty-two of the 49 borrowers made some repayment; the percentage of borrowers that repaid some amount varied from 76% in Northern Province to 89% in Central Province; the percent of the amount borrowed that was repaid varied from 70% to 90% as seen in Table 18.

### Who Borrowed?

In 86% of the cases, borrowing was done in the name of the husband and by the husband. In only 20 of the 49 families who borrowed, however, did the husband decide on amounts to be borrowed; wives made the decision in 6 cases and together they made the decision jointly in 22 cases. Thus a joint decision was made as frequently as a husband only decision.

### Who Repaid?

In 40 of the 49 instances of borrowing, the husband returned the borrowed money; the wife did it in 4 instances; they returned the amount together in 5 cases.

### Women's Savings Associations

In many African societies, there are women's savings or thrift and credit associations. Forty of the 112 women sampled (36%) reported some kind of savings association in their areas but only 25 were members. Deposits were small, averaging K1 to K8; deposits were made once a year.

Similar men's associations were reported in only 16 cases; men's deposits were larger, varying from K7 in Northern Province to K14 in Southern Province.

### Bank Accounts

Only 24 (21%) of the 112 women surveyed reported any member of the household having a bank account. Of these accounts 14 were in the name of the husband and 4 in the name of the wife. There was no data on the remaining accounts.

### Postal Savings Accounts

Only 11 households reported having postal savings accounts, 7 in the husband's name, and 4 in the wife's name.

### Visits by Extension Agents

Respondents were asked if the AAs visited them during the year and if they had attended farmer training or home economics courses. Staudt (1975), Mook (1976), Wiley (1981), and Robertson (1983) all found that extension agents visit female farmers much less often than they do male farmers; 61 (54%) of the Zambian female farmers interviewed had been visited during 1982; the highest frequency of visits was one to four times per year. Sixty percent of the Northern Province women, 55% of the Southern Province women, and 50% of the Central Province women in our sample reported visits, but it must be remembered that the AAs may have been visiting either males or females.

Although over half of the farm women had been visited by an AA in 1982, only 6 (5%) had attended farmer training courses and 16 (14%) had attended home economics courses. In Northern Province, no women had attended farmer training courses, and in Central Province and Southern Province only 2 and 4 attended. The number attending home economics courses was also highest in Southern Province. It may be that women are more likely to be included when agriculture is more developed.

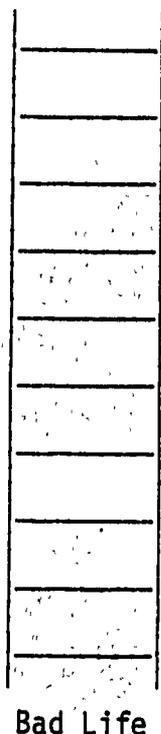
Some of the farm women commented on the lack of AA visits; 6 believed they were not visited because their farms were too small; 5 said they met AAs only in the beer halls; 3 thought AAs did not visit them because loans were not available to women and 2 thought AAs did not visit because they had no information on drainage problems.

### Women's Clubs

Are women's clubs available in these areas? In general the answer is "No." There were 3 women in gardening clubs, 3 in sewing clubs, 4 in knitting clubs, and 5 in handicraft (pottery making) clubs. There were no cooperatives for women.

### How do Farm Women Assess Their Level of Well-being?

An additional set of questions was designed to ascertain whether the women believed their level of well-being had improved or deteriorated in the last five years. The scale was developed by Cantrill (1963) for use in cross-cultural comparisons. It asks each respondent to determine her current level of well-being on a scale of 0 to 10. The scale is shown at the left; it is in the form of a ladder with the "good life" at the top and the "bad life" at the bottom.



On the average, farm respondents in the sampled areas of Zambia in 1982 believed that they were on rung 5.2, that they had been at a level of 5.9 five years ago, and that they would be at 6.7 five years hence. Responses by province are shown in Table 19; Northern Province respondents currently view themselves at a slightly higher level of well-being than those in the other provinces.

What factors did these respondents believe constituted a "good life?" Adequate food, good farming, availability of equipment, and good health were stated most frequently. Similarly the "bad life" consisted of respondents or their families experiencing poor health, little capital equipment, lack of food, and poor farming conditions.

### Summary and Conclusions

This study has documented the hours allocated to agriculture and household tasks by household members farming 2 to 25 acres in three areas of Zambia at different levels of economic development. It was found that adult females spend an average of 6.6 hours per day in agriculture during the farming season compared with 5.7 hours spent by adult males; at the same time, adult women contribute 4.1 hours per day to household tasks compared with 0.4 for adult men. When the time allocated by all household members to these tasks is totalled by sex, females contribute 53% of the total hours in agriculture and 82% of the total hours in household tasks.

Data were obtained on crops and livestock raised, on farm operating expenses, on income generated by off-farm activities (including petty trade), on family living expenses, and on who made decisions as to the percentage of crops sold, use of the husband's income and use of the wife's income. Net farm income added to off-farm income gave the average farm household a total cash income of K596 (\$751) in 1982. Of this amount, females had generated 55% and males 45%.

NOTES

1. Funds for this research were contributed by the Research Board of Center for International Comparative Studies and the African Studies Programs, University of Illinois and by the Rural Development Studies Bureau, University of Zambia. Data were collected in Zambia by James Malungo and Christopher Shandipu (university students), Steve Kapoyo and K. Sipula of the Rural Development Studies Bureau, and Jean M. Due. The authors wish to thank government officials and families without whose cooperation this research would not have been possible. This is one of three reports from data collected in the fall of 1982. The first, "How Do Rural Women Perceive Development? A Case Study in Zambia," is in Illinois Agricultural Economics Staff Paper No. 83-E-265, July 1983, 18 pp. and Michigan State University Working Papers on Women in International Development #63 (1984), 19 pp. This paper, covering only the rural women prepared for presentation at the 1983 African Studies Association annual meeting, was the second report. The final report will include data on the market women.
2. See note 1.
3. For administrative purposes for Ministry of Agriculture responsibility.
4. Because of time and budget constraints, the sample in Northern Province was 30 farm women.
5. Children's hours were converted to adult equivalents on the basis of children aged 8 to 11 equivalent to 0.3 and 12 to 17 to 0.5 of an adult hour.
6. One Kwacha was equivalent to US\$1.26 at the time of the study.
7. Zambians are heavy beer drinkers so "beer and beverages" were itemized separately from food.
8. It should be pointed out that each interviewer was instructed to total income and expenditures before leaving the interviewee so that questions could be asked regarding negative or positive balances.

REPUBLIC OF ZAMBIA  
POPULATION DISTRIBUTION

Fig. 1  
Map of Zambia  
Showing Three  
Study Sites.

Base CENSUS:  
One dot represents 500 persons

Town populations:

- 10,000
- 50,000
- 100,000
- 200,000

- Roads
- Railways
- Rivers
- Swamps
- ← Airfields
- - - Provincial boundaries
- - - International boundaries

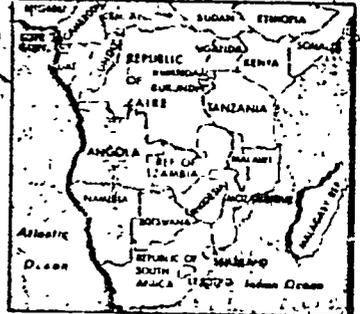
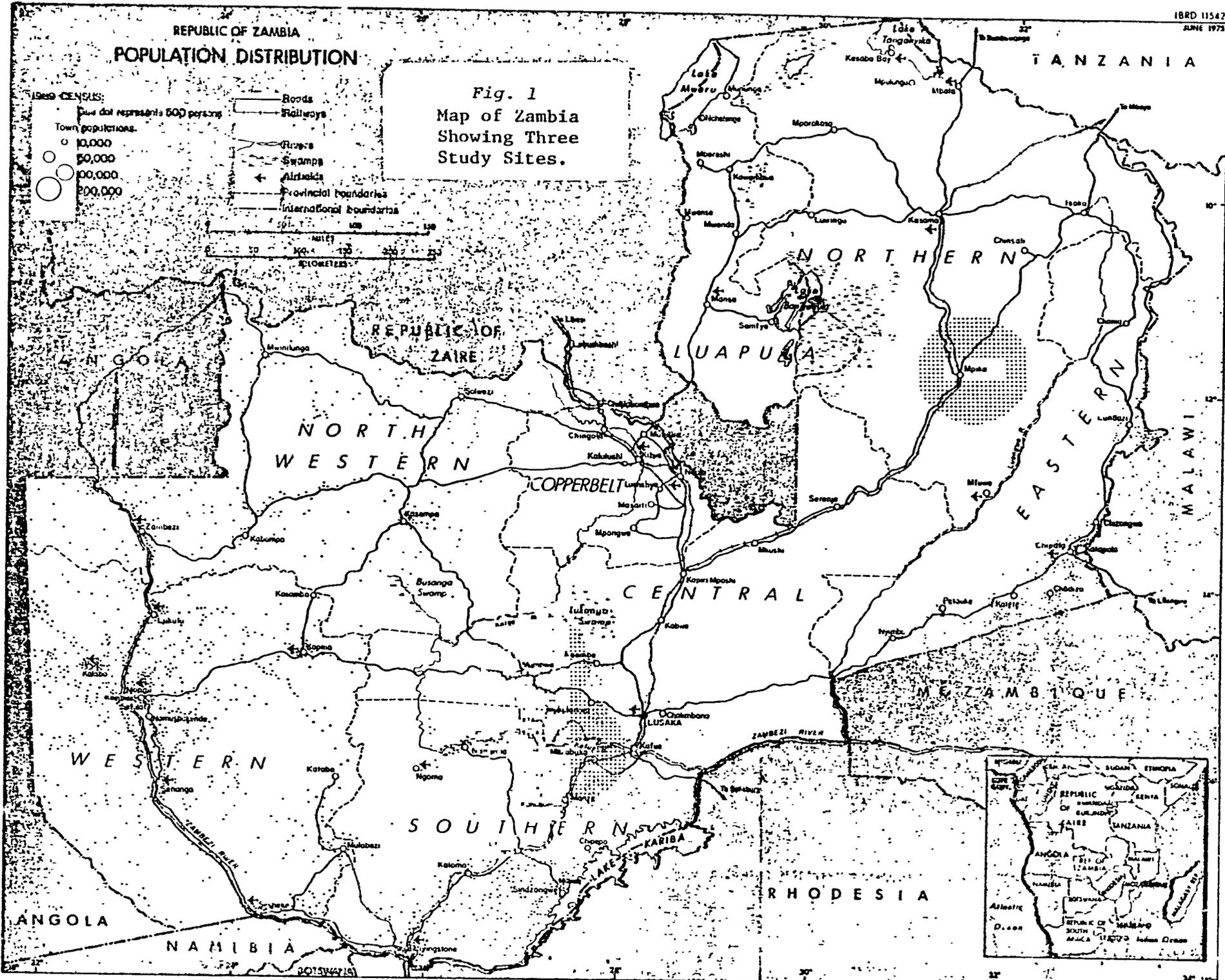
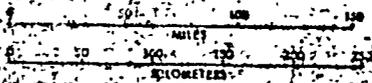


Figure 1

Table 1. Socio-economic Data of Sampled Zambian Farm Households, by Province, 1982.

	<u>Southern</u>	<u>Central</u>	<u>Northern</u>	<u>Totals<sup>2</sup></u>
Sample Size	40	42	30	112
Means of:				
Age of wives	43.7	41.3	41.7	42.2
Age of husband	45.4	42.9	42.7	43.7
Level of education				
Wife	3.0	1.9	1.5	2.2
Husband	4.0	3.0	2.0	3.0
Number in household	7.7	7.1	5.8	6.9
Male person equivalents <sup>1</sup>	2.3	1.8	1.7	1.9
Female person equivalents <sup>1</sup>	2.1	2.0	1.9	1.9
Total adults farming <sup>1</sup>	4.4	3.8	3.6	3.9
Size of farm (acres)	16.4	9.2	4.4	10.4
Hours/day worked in farming				
Wife	6.8	7.0	6.0	6.6
Husband	6.4	5.6	4.9	5.7
Children 8-11	2.1	2.3	1.7	2.1
12-17	3.4	3.6	2.2	3.2
Others	2.5	1.5	0.6	1.6
Total farming	21.2	20.0	15.4	19.2
Hours/day worked in household				
Wife	3.7	4.2	4.6	4.1
Husband	0.6	0.4	0.1	0.4
Children 8-11	0.6	1.0	0.2	0.6
12-17	1.7	2.2	1.1	1.7
Others	0.6	0.6	0.3	0.5
Total household	7.2	8.4	6.2	7.3

1. Children aged 8-11 are equivalent to 0.3 adults and aged 12-17 to 0.5; male and female days are equal.

2. Totals are an average of the samples in the three provinces.

Table 2. Allocation of Hours per Day to Farming and to Household Tasks per Family by Sex, Sampled Farm Households, Zambia, 1982.

Means of:	<u>Southern</u>	<u>Central</u>	<u>Northern</u>	<u>Totals<sup>2</sup></u>
Hours per day worked in farming:				
Respondent	6.8	7.0	6.0	6.6
Spouse	6.4	5.6	4.9	5.7
Children 8-11 <sup>1</sup> Males	.2	.2	.2	.3
Females	.3	.5	.2	.3
Children 12-17 <sup>1</sup> Males	.7	.8	.7	.7
Females	1.0	1.0	.4	.8
Others Males	1.5	.3	.4	.7
Females	1.0	1.2	.2	.8
Total hours/day farming				
Males	<u>8.9</u>	<u>6.9</u>	<u>6.2</u>	<u>7.4</u>
Females	9.1	9.7	6.8	8.5
Hours/day worked on household tasks:				
Respondent	3.7	4.2	4.6	4.1
Spouse	0.6	0.4	0.1	0.4
Children 8-11 <sup>1</sup> Males	0.1	0.1	0.0	0.1
Females	0.1	0.2	0.1	0.1
Children 11-17 <sup>1</sup> Males	0.4	0.4	0.3	0.4
Females	0.5	0.7	0.3	0.5
Others				
Males	0.3	0.1	0.1	0.2
Females	0.3	0.5	0.1	0.3
Total hours per day in household				
Males	<u>1.4</u>	<u>1.0</u>	<u>0.5</u>	<u>1.1</u>
Females	4.6	5.6	5.1	5.0
Total hours per day				
Males	<u>10.3</u>	<u>7.9</u>	<u>6.7</u>	<u>8.5</u>
Females	13.7	15.3	11.9	13.5

1. For adult equivalencies, see note 1, Table 1.

2. See note 2, Table 1.

Table 3. Cultivation of Major Crops, Sampled Farm Households by Province, Zambia, 1982.

Crop	District average for sample farms in acres			Number of farm families growing		
	Southern	Central	Northern	Southern	Central	Northern
(Sample Size)	40	42	30	40	42	30
Maize	12.0	6.0	2.0	40	42	30
Beans	0.2	0.2	0.7	9	10	27
Groundnuts	1.2	0.8	0.4	29	26	17
Cotton	1.7	1.7	0.0	16	12	1
Sunflower	1.1	1.0	0.0	19	14	1
Other	<u>0.2</u>	<u>0.1</u>	<u>1.3</u>	6	10	23
TOTAL	16.4	9.2	4.4			

Table 4. Average Production, Consumption and Sales per Sampled Household of Major Crops by Province, Zambia 1982.

	<u>Southern</u>	<u>Central</u>	<u>Northern</u>	<u>Total<sup>2</sup></u>
Number of families	40	42	30	112
<u>Maize:</u> Production (kg)	5775	2356	1189	3371
Consumption (kg)	1976	1266	426	1333
Sales (kg)	3799	1090	763	2038
Production (value in k) <sup>1</sup>	878	387	240	523
Consumption (value in k)	302	201	86	206
Sales (value in k)	576	186	154	317
<u>Beans:</u> Production (kg)	61	31	134	69
Consumption (kg)	7	31	80	36
Sales (kg)	54	0	54	33
Production (value in k)	28	3	53	26
Consumption (value in k)	3	3	24	9
Sales (value in k)	25	0	29	17
<u>Groundnuts:</u> Production (kg)	206	168	100	163
Consumption (kg)	155	96	66	108
Sales (kg)	51	74	34	55
Production (value in k)	99	75	60	79
Consumption (value in k)	75	48	38	55
Sales (value in k)	24	26	22	24
<u>Cotton:</u> Production (kg)	450	222	0	244
Consumption (kg)	6	0	0	2
Sales (kg)	444	222	0	242
Production (value in k)	214	100	0	114
Consumption (value in k)	3	0	0	1
Sales (value in k)	211	100	0	113
<u>Sunflower:</u> Production (kg)	150	78	2	83
Consumption (kg)	1	8	2	4
Sales (kg)	149	70	0	79
Production (value in k)	48	34	1	30
Consumption (value in k)	1	3	1	1
Sales (value in k)	47	31	0	29
<u>Other:</u> Production (kg)	0	63	836	247
Consumption (kg)	0	63	798	237
Sales (kg)	0	0	38	10
Production (value in k)	0	78	165	74
Consumption (value in k)	0	78	159	72
Sales (value in k)	0	0	6	2
<u>Total:</u> Production (kg)	6643	2919	2657	4179
Consumption (kg)	2144	1463	1513	1720
Sales (kg)	4499	1456	1144	2459
Production (value in k)	1267	678	519	846
Consumption (value in k)	384	335	308	345
Sales (value in k)	883	343	211	501

1. k = Kwacha. One Kwacha was equivalent to US\$1.26 at the time of the study.  
 2. See note 2, Table 1.

Table 5. Percentage (by Weight) of Major Agricultural Products Sold by Sampled Households in Each Province, Zambia 1982.

	<u>Southern</u>	<u>Central</u>	<u>Northern</u>	<u>Total</u> <sup>1</sup>
	%	%	%	%
Maize	66	46	64	60
Beans	88	0	41	49
Groundnuts	25	44	34	34
Cotton	99	100	--	99
Sunflower	99	90	0	94
<u>Other</u>	<u>--</u>	<u>0</u>	<u>5</u>	<u>96</u>
Total	68	50	43	59

-- none was produced

0 none was sold

1 see note 2, Table 1

Table 6. Decisions About Sales of Farm Products in the Sampled Households<sup>1</sup>  
Zambia 1982.

Decision made by:	<u>Southern Province</u>		<u>Central Province</u>		<u>Northern Province</u>		<u>Total<sup>2</sup></u>	
	#	%	#	%	#	%	#	%
Husband alone	15	41	15	44	6	30	36	40
Wife alone	1	3	1	3	1	5	3	3
Husband and wife jointly	<u>21</u>	<u>56</u>	<u>18</u>	<u>53</u>	<u>13</u>	<u>65</u>	<u>52</u>	<u>57</u>
Total	37	100	34	100	20	100	91	100

1. This table omits female-headed households and those that gave no reply to the questions.

2. See note 2, Table 1.

Table 7. Total Livestock Owned by Sample Households and Proportion of Farm Households Owning Livestock by Province, Zambia 1982.

Type	Livestock Numbers			Number and (%) of Households Owning Various Types of Livestock		
	Southern	Central	Northern	Southern	Central	Northern
Poultry	466	n.a.	139	15 (38%)	23 (55%)	13 (43%)
Cattle	1149	210	83	36 (90%)	22 (52%)	9 (30%)
Oxen	50	19	1	15 (38%)	6 (14%)	1 (3%)
Sheep & goats	38	16	1	6 (15%)	6 (14%)	1 (3%)
Pigeons	---	32	---	---	1 (2%)	---

Table 8. Value in Kwacha of Livestock Consumed and Sold per Sampled Household, Zambia, 1982.

	<u>Southern</u>	<u>Central</u>	<u>Northern</u>	<u>Total</u> <sup>1</sup>
Consumption	K20	K66	K4	K33
Sales	K327	K114	K36	K169

1. See note 2, Table 1.

Table 9. Average Operating Expenditures (in Kwacha) per Farm by Province, Sampled Household, Zambia, 1982.

Category of expenditure	Southern Province	Central Province	Northern Province	Total <sup>1</sup>
Hired labor - male	29	27	23	26
- female	3	3	0	2
Seed	72	43	9	44
Fertilizer	318	103	27	160
Other chemicals	35	13	0	18
Farm tools & supplies	27	3	23	17
Transport	15	3	2	7
Rent	9	18	12	13
Other	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>
Total	508	214	97	288

1. See note 2, Table 1.

Table 10. Average Net Farm Cash Income (in Kwacha) per Household, by Province, Sampled Households, Zambia 1982.

	Southern Province	Central Province	Northern Province	Total <sup>2</sup>
Crop Sales	883	343	211	501
Livestock sales	<u>327</u>	<u>114</u>	<u>36</u>	<u>169</u>
Income from crops and livestock sales	1,210	457	247	670
Farm expenses	<u>508</u>	<u>214</u>	<u>97</u>	<u>288</u>
Net farm income	702	243	150	382
Net farm income/acre <sup>1</sup>	43	26	34	37

1. Calculated by dividing net farm income.

2. See note 2, Table 1.

Table 11. Average Off-Farm Income in Kwacha per Sampled Farm Household, Zambia, 1982.

	Southern Province	Central Province	Northern Province	Total
Number:	40	42	30	112
Source of Income:				
Employment	102	73	85	87
Male	25	55	83	52
Female	77	18	2	35
Petty Trade	52	78	139	85
Male	3	24	19	15
Female	47	54	120	70
Gifts	34	26	27	31
Male	20	1	12	13
Female	14	25	15	18
Other income	2	1	38	11
Male	2	1	31	9
Female	<u>0</u>	<u>0</u>	<u>7</u>	<u>2</u>
Total	190	178	289	214
Male	50	81	145	89
Female	140	97	144	125

1. See note 2, Table 1.

Table 12. Who Decides on the Use of the Husband's Earnings? Sampled Farm Families<sup>1</sup>, Zambia, 1982.

	Southern Province		Central Province		Northern Province		Total <sup>2</sup>	
	#	%	#	%	#	%	#	%
Husband alone	8	22	19	54	11	46	38	40
Wife alone	1	3	1	3	0	0	2	2
Husband & wife jointly	<u>28</u>	<u>75</u>	<u>15</u>	<u>43</u>	<u>13</u>	<u>54</u>	<u>56</u>	<u>58</u>
Total	37	100	35	100	24	100	96	100

1. Female-headed households are excluded here.

2. See note 2, Table 1.

Table 13. Who Decides on the Use of Wife's Earnings? Sampled Farm Families<sup>1</sup>, Zambia, 1982.

	Southern Province		Central Province		Northern Province		Total <sup>2</sup>	
	#	%	#	%	#	%	#	%
Husband alone	2	5	6	17	3	13	11	12
Wife alone	7	19	15	43	8	33	30	31
Husband & wife jointly	<u>27</u>	<u>76</u>	<u>14</u>	<u>40</u>	<u>13</u>	<u>54</u>	<u>55</u>	<u>57</u>
Total	37	100	35	100	24	100	96	100

1. Female-headed households are excluded here.

2. See note 2, Table 1.

Table 14. Mean Expenditures in Kwacha of Sampled Farm Households by Province, Zambia, 1982.

Category	Southern	Central	Northern	Total	% of expenditures
Food	183	110	133	142	30
Beer and beverages	14	44	79	42	9
Grain milling	39	40	25	36	8
Clothing & footwear	160	109	77	119	25
Fuel, kerosene, & batteries	14	17	19	16	3
Pots, bedding, furniture	26	11	27	21	4
Medical expenses	10	7	3	7	1
Educational	90	33	41	54	11
License, fines, fees	11	5	2	6	1
Transportation	27	15	11	18	4
Gifts and other	<u>29</u>	<u>12</u>	<u>3</u>	<u>18</u>	<u>4</u>
Total	603	403	420	479	100

1. See note 2, Table 1.

Table 15. Average Total Cash Income, Living Expenses, and Potential Savings per Household (in Kwacha) by Province, Sampled Farm Families, Zambia, 1982.

	Southern Province	Central Province	Northern Province	Total <sup>1</sup>
Crop sales	883	343	211	501
Livestock sales	327	114	36	169
Off-farm income				
Males	50	81	145	89
Females	<u>140</u>	<u>97</u>	<u>144</u>	<u>125</u>
Total cash income	1,400	635	536	884
Farm operating expenses	508	214	97	288
Family living expenses	<u>603</u>	<u>403</u>	<u>420</u>	<u>479</u>
Total expenses	1,111	617	517	767
Balance	289	18	19	117

1. See note 2, Table 1.

Table 16. Generation of Household Cash Income in Kwacha per Household by Sex by Province, Sampled Households, Zambia, 1982.

<u>Activity</u>	<u>Southern Province</u>	<u>Central Province</u>	<u>Northern Province</u>	<u>Total</u> <sup>1</sup>
Net income crops & livestock				
males	344	102	72	180
females	358	141	78	202
Off-farm income				
males	50	81	145	89
females	<u>140</u>	<u>97</u>	<u>144</u>	<u>125</u>
Total cash income				
males	394	183	217	269
females	498	238	222	327

1. See note 2, Table 1.

Table 17. Average Amounts and Sources of Credit by Province, Zambian Farm Households Borrowing, 1983.

	<u>Southern Province</u>	<u>Central Province</u>	<u>Northern Province</u>	<u>Total</u> <sup>1</sup>
Average borrowed all families	446	225	124	276
No. of families borrowing	22	18	9	49
Average borrowed per family borrowing	812	747	414	633
Sources:				
AFC	14	5	3	22
Lint Bd.	5	7	0	12
Friends and relatives	0	4	5	9
Coop	0	2	0	2
Credit union	2	0	1	3
Com. bank	1	0	0	1
TOTAL	<u>22</u>	<u>18</u>	<u>9</u>	<u>49</u>

1. See note 2, Table 1.

Table 18. Mean Amounts Borrowed and Repaid, Number Who Repaid, Percentage Repaid, Sampled Households, Zambia, 1982.

	<u>Southern Province</u>	<u>Central Province</u>	<u>Northern Province</u>	<u>Total</u> <sup>1</sup>
Number borrowing	22	18	9	49
% Families borrowing	55	43	30	44
Amount borrowed (k)	812	525	414	633
Amount* repaid (k)	732	347	292	565
Percent repaid	90	66	70	89
Number repaying	19	16	7	42
Percent repaying	86	89	78	86

\*Per family who repaid.

1. See note 2, Table 1.

Table 19. Assessment of Levels of Well-being Perceived by Sampled Farm Women, by Province, Zambia, 1982.

	<u>Southern Province</u>	<u>Central Province</u>	<u>Northern Province</u>	<u>Total</u> <sup>1</sup>
Current Level	5.2	5.0	5.7	5.2
Level 5 years ago	6.1	5.8	5.6	5.9
Level 5 years hence	7.1	6.3	6.6	6.7

1. See note 2, Table 1.

REFERENCES

- Armah, Ayi Kwei  
1969 The Beautiful Ones Are Not Yet Born. Boston: Houghton, Mifflin.
- Cantril, Hadley  
1963 A Study of Aspirations, Scientific American 208(2): 41-45.
- Delgado, Christopher L.  
1979 Livestock Versus Food Grain Production in Southeast Upper Volta: A Resource Allocation Analysis. Ann Arbor: Center for Research on Economic Development, University of Michigan. P. 98.
- Due, Jean M.  
1979 Agricultural Credit in Zambia by Level of Development. Rural Development Studies Bureau, University of Zambia, Occasional Paper, April.
- Due, Jean M. and P. Anandajayasekeram  
1982 Two Contrasting Farming Systems in Morogoro Region, Tanzania. Department of Agricultural Economics, University of Illinois, aAE-4535.
- Moock, Peter R.  
1976 The Efficiency of Women as Farm Managers: Kenya. American Journal of Agricultural Economics 58(5): 833-835.
- Robertson, Claire  
1983 Women in African Agriculture: Is Southern Africa a Model for the Future? Paper presented at the African Studies Association Conference, December, 1983.
- Spencer, Dunstan S.C.  
1976 African Women in Agricultural Development: A Case Study in Sierra Leone. Washington: American Council on Education, OLC, paper 9.
- Staudt, Kathleen  
1975 Women Farmers and Inequities in Agricultural Services, Rural Africana 29: 81-94.
- Wiley, Liz  
1981 Women and Development: A Case Study of Ten Tanzanian Villages, A Report for Arusha Planning and Village Development Project, Arusha, Tanzania. Regional Commissioner's Office, Arusha.

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