

Using Male Research and Extension Personnel to Target Women Farmers

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This document is a pre-print for the chapter of the same title published as Chapter 28 in *Gender Issues in Farming Systems Research and Extension*, edited by Susan V. Poats, Marianne Schmink, and Anita Spring (Boulder, CO and London, England : Westview Press, © 1988).

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To many Farming Systems Research and Extension (FSR/E) proponents, commodity-oriented scientists do not focus on the whole farming system and therefore they cannot appreciate the complexities of small farm management and smallholder needs and problems. This is analogous to the way those involved in research on gender issues feel about the lack of appreciation and consideration of gender issues and intra-household dynamics displayed by many FSR/E practitioners. Farming systems researchers did not invent the fact that farmers have to deal with a multitude of environmental, familial, infrastructural and other factors, so that a focus on a single commodity might not remedy the problems of the farming system. So too, researchers who consider women's role in agriculture did not invent the sexual division of labor, the semi-autonomous nature of different family members, the differential access to land, labor and capital, or the fact that women are becoming more involved in the smallholder sector in some developing countries because of extensive male migration (Chaney and Lewis 1980; Gladwin et al. 1984).

Evidence is accumulating that technology transfer is frequently hindered when intra-household dynamics are not taken into account (see for example Rogers 1979; McKee 1984). Often, technologies are ill-suited or only partially adopted because the resource base – personnel, capital, land and equipment – is inappropriate or inadequately understood. A consideration of intra-household labor allocations and decision-making shows that in many places female family members will have to provide the labor and will either make or be involved in the decision as to whether or not to adopt the technology. A failure to look at who does what farm operations, who makes which decisions, and who receives the remuneration and makes further investments, will affect the practice of FSR/E. For example, a higher yielding cereal variety might require more labor in managing, harvesting, processing and storing, especially in synchronously maturing varieties (Ferguson and Horn 1985; McKee 1984) or a livestock intervention might target one group of producers at the expense of another. For example, in a case from Senegal, men made decisions about the planting of cereal crops, but women contributed much of the labor for the crops' weeding, harvesting and processing. Women made decisions about legume, vegetable, and condiment crops. If women did the extra work for the new variety of cereal crop, they had less time for the crops that they managed. In livestock production, male farmers favored livestock interventions that "would increase live-weight and quality of stock" because size and number of the herd were determinants of

wealth. But women controlled the milk allocation and sale of milk products and "would gain most from interventions which increased calf survival or ... permitted an increase in the number of animals under current land or labor constraints" (McKee 1984: 598-599).

There are specific methodologies needed to understand intra-household variables within the FSR/E process (McKee 1984). In the pre-diagnostic stage, the ethnographic literature that provides information on the household's division of labor, decision-making, and allocation of resources must be reviewed for specific recommendation domains. In the diagnostic stage, the types of households and the types of representative farmers need to be considered. For example in areas where there are many households headed by women, as in the case of much of Africa and the Caribbean, it is necessary to include such households in the sample and to ask if their resources and needs are the same as or different from the households headed by men. Socioeconomic and agronomic variables have to be assessed in terms of various household members in the different types of households. The interventions have to be geared to the needs of the types of households and the constituent members. In the technology design stage, it is necessary to make sure that the researchers do not use incorrect assumptions about gender; McKee suggests the input of female scientists and field workers, but this is not always possible or even a guarantee that gender issues will be considered. There is no reason why both male and female scientists cannot work on the problem. In the testing stage McKee says that one must monitor "how the farm household actually copes with the reallocation of resources required by the new requirements" (McKee 1984: 602). In the final extension stage, McKee argues that it is important "to involve women farmers and farm workers, as well as female extension agents, in diffusing technologies for crops and tasks in which women predominate" (McKee 1984: 602).

The major thrust of this paper is that men as well as women agricultural researchers and extensionists have to become involved and to target farmers of both genders. The argument here first considers the gender-related characteristics of extension services and how these characteristics affect reaching a variety of farmers, especially women. Then, a case study from Malawi shows that women are important in agriculture but neglected in extension services and in the practice of FSR/E. In order to study and correct the problem, the results of two sets of trials are presented. In one, the analysis shows the results of using different groups of farmers in the sample. In the other, mechanisms by which the male staff can work with women farmers are described. Based on the lessons learned, the paper concludes with a

recommendation that the mandate of male extensionists can be extended legitimately to include female farmers.

CHARACTERISTICS OF EXTENSION SERVICES

Researchers tend to use the extension and research services as they already exist in the host country. This increases the difficulty in including women farmers in FSR/E because it is usually male extension personnel who work with researchers to locate, interview, select trial cooperators, and target disseminators. The number of male extension workers far exceeds the number of women who receive training and who are employed as extensionists in most places.

Many writers comment on the paucity of female extension workers compared with male ones (Jiggins 1986; Berger et al. 1984; Staudt 1975-76). Worldwide, including North America and Europe, only 19 percent of the agricultural extension staff members are women. The average number of female extensionists for Africa is 3 percent; for Latin America and the Caribbean it is 14 percent and for Asia and Oceania the figure is 23 percent. Only in the Philippines are 40 percent of the staff members female. Berger et al. (1984) estimate that of extensionists specially designated as agriculturalists, 41 percent do home economics rather than agriculture.

Table 28.1 shows the number of men and women trained in Malawi, a country where women are critical in agricultural production. This table shows that women extensionists are found in the bottom education tier and that their training is much shorter than that for men. As a consequence, women extensionists often are not regarded as professionally competent as men in their knowledge of field crops and of livestock. Female workers are often pressured to work in home economics programs rather than to work in the agricultural programs for which they were trained. The contacts of female extension workers with male farmers tend to be limited concomitantly; the male extensionists tend to deal with male farmers rather than with all farmers (Jiggins 1986). Since only a small proportion of farmers usually are reached by extension services, there is even less reason to further restrict extension to only male farmers. For example, Table 28.1 shows the low number of women trained in Malawi, the country that is the subject of this paper and where women are critical in agricultural production.

TABLE 28.1

GRADUATES OF MALAWI AGRICULTURAL TRAINING INSTITUTIONS:
 BUNDA COLLEGE OF AGRICULTURE, COLBY COLLEGE OF AGRICULTURE,
 AND THUCHILA FARM INSTITUTE (FARM HOME ASSISTANTS) BY YEAR
 AND SEX

	Male	Female	Total Percentage Female
<u>Bunda</u>			
Degree (5 year)	273	24	8
Diploma (3 year)	797	124	13
<u>Colby</u>			
(2 year)	2255	45	2
<u>Thuchila*</u>			
(1 year)	-	291	100
Average per year		22	

Note: *Course for women only.

In the extension services themselves, male personnel hold a variety of positions, including decision-making ones that affect programs and policies. The female extensionists, with the exception of a few supervisors, usually are concentrated in the lower ranks. Often male workers are (given the tasks of offering practical agricultural services either through the training and visit system or through other regimes, while the female workers are supposed to form women's groups for small scale income generating activities. Most extension services in developing countries were modeled after the systems in North America and Western Europe during the last century with men providing agricultural information to male farmers and women providing home economics and nutrition information to women (Mead 1976; Berger et al. 1984). Ironically, home economics programs in the developed countries have changed a great deal since the 1930s and have become relevant to the needs of American farm women today, focusing on such topics as human development, consumer education, household finances, and marketing. By contrast, the teaching of domestic science in Africa is mostly focused on sewing, embroidery, cooking and basic hygiene/nutrition.

Coupled with this restriction of women to home economics programs, is the notion that there is better communication between members of the same sex than between members of the opposite sex. Sometimes these notions are strongly stated in terms of tradition or cultural constraints and operationalized so that only women are permitted to work with women and only men are permitted to work with men. However, the paucity of women in agricultural services assures that rural women will remain uncontacted and unassisted. Although it is probably true that many people prefer to learn or to work with people of their same sex, coeducational programs have worked in a large portion of the world. Berger et al. remark that "since\ very little empirical work has been done in this area, there is really no basis on which to judge the relative effectiveness of men and women agents in assisting women j farmers" (1984:54).

The polarization of extension services by gender contributes to the inability of FSR/E to assess intrahousehold dynamics and differential access and control over resources by household members. This failure in turn detrimentally affects the design of technology testing and dissemination. The question to be asked is what would happen if the equation were changed and if extension and research programs in practice were geared to all farmers regardless of sex. This might entail new procedures to target and reach the neglected farmers rather than the standard procedure of assuming that one method works for all. A case study from Malawi examines the problem of relying on male extensionists in FSR/E and reports on some methods that were undertaken to change extension and FSR/E procedures to reach female as well as male farmers.

CASE STUDY FROM MALAWI

The Women in Agricultural Development Project (WIADP) was funded by the office for Women in Development, USAID, and operated in Malawi from 1981 to 1983. It was of national scope and its aims were multifaceted: to research women's and men's roles in smallholder farming; to use farming systems research to ascertain smallholder, and especially women's needs; to disaggregate agricultural data by sex; to work with extension and research units to target women as well as men farmers; to evaluate women's programs; and to orient policy makers to consider women farmers in agricultural programs.

Primary and secondary research by the WIADP showed the contributions by gender for various commodities (Clark 1975; Spring et al. 1983b) Women formed the bulk of the agriculturalists in the rural areas. They spent as much time on their farm work as on their domestic work. Approximately one-third of the

households in the country were headed by women, but in some areas as many as 45 percent of the households were female-headed. Women were assuming management of more family farms, not only in households they headed, but also in married households because of male out-migration. Farm operations were differentiated by sex in some areas and in some households, while in other places and households they were not. The so-called standard sexual division of labor where men prepared the land and women planted, weeded, and harvested had given way to expediency in many places (Spring et al. 1983b). The adult who was home on the farm did the operations and in many cases this meant that the women were doing the work and making the farm decisions. Women were involved in all aspects of farming including land clearing, plowing, applying fertilizer, crop protection, etc., either routinely or when male labor was unavailable. Women were involved in a variety of cropping patterns from mixed subsistence to cash crops, and grew maize, groundnuts, rice, cassava, tobacco, cotton, coffee, and tea. They performed many operations, such as spraying cotton and planting tobacco seedlings that were commonly believed to be done by men only (Clark 1975). Women in many areas were involved in the care of livestock, especially of small ruminants and poultry. Free ranging cattle were mostly owned by men and cared for by boys and men, but when the animals were brought into the village for fattening in stall feeding projects, their care fell to women (Spring 1986a).

Agricultural development projects had increased the amount of time in hours per day and in days per month that both men and women had to work (Clark 1975). The agricultural services provided by integrated development and local projects such as training, inputs, and credit programs, and agricultural extension, mostly by-passed women. As a result, the farming efficiency of many households was reduced. However, some women were able to participate in development programs to increase their productivity. Some male extensionists included women farmers with the male farmers they targeted for training, credit and visits (Spring et al. 1983b).

The WIADP documented the delivery of agricultural extension services to men and to women in a variety of ways. First, the WIMP analyzed the extension survey that was part of a large national multi-instrument survey conducted by the ministry of Agriculture and financed by the World Bank. Second, the WIADP interviewed and observed extension personnel in the field in terms of the way they worked with clients. Third, the WIADP conducted FSR/E surveys and trials and studied the ways the extension personnel were utilized to identify and to work with farmers. Fourth, meetings and interviews were held with the staff and

managers of agricultural projects who supervised extension and research efforts to examine their procedures.

Extension Survey

The results from the national survey (The National Sample Survey of Agriculture or NSSA) showed that farmers' contacts with extension workers, including personal and field visits, attendance at group meetings and demonstrations, and participation in training courses, differed by sex (Table 28.2) (Spring et al. 1983b). Contact with extension workers was the major source of advice for both men and women farmers, but men received more personal visits and more advice than women. Group meetings tended to reach more farmers than personal visits, but men were the primary participants. Relatively few farmers of either sex viewed extension demonstrations, but more men than women learned from this method. Field visits reached even fewer women and the WIADP observed that many male extensionists simply dismissed the women working in the fields while they concentrated on the men.

The WIADP disaggregated the NSSA data into three categories: male household heads, female household heads, and wives of the male household heads. The data showed that men received more services than women and wives) received more services than female household heads. Very few wives received agricultural information from their husbands. The presumed transfer of technology from husbands to wives and from men to women in the household did not take place. The assumption that if men are trained or assisted that other family members learned or were assisted was not confirmed by the data (Spring et al. 1983b).

TABLE 28.2

TYPE OF EXTENSION CONTACTS FOR MALE HOUSEHOLD HEADS (MHH), FEMALE HOUSEHOLD HEADS (FHH), AND WIVES FROM THE NSSA EXTENSION SURVEY, MALAWI (IN PERCENTAGES), 1980-81

Type of Contact	Lilongwe			Ngabu			Karonga	
	MHH (N=147)	FHH (N=35)	WIVES (N=35)	MHH (N=95)	FHH (N=31)	WIVES (N=95)	MHH (N=70)	WOMEN* (N=73)
Personal Visit	41	28	23	28	12	4	44	29
Group Meeting	66	44	49	43	12	8	61	34
Demonstration	13	6	6	5	1	0	16	10
Field Visit	13	9	6	15	5	2	16	4

Note: *Female Household Heads and Wives tabulated together.

Source: Spring, et al. 1983b.

FSR/E Surveys

Analysis of FSR/E surveys and trials indicated that women farmers were contacted infrequently by reconnaissance or survey teams and were not often part of the recommendation domains delineated. Host country and expatriate researchers tended to ignore the women in the fields during rapid reconnaissance surveys. When production and social scientists relied on the extension workers, which they often did, the extension workers usually took them to interview and work with the men. Only male cooperators were selected for on-farm farmer managed trials. Sometimes the male cooperators carried out trial work themselves. Other times their wives and female relatives assisted or did much of the work, sometimes producing errors in the way the trials were conducted. This may have happened because these women had not received the instruction directly and the male cooperators did not pass on the information. To understand the problem, the WIADP asked trial cooperators who actually performed each operation. The information obtained showed that wives and female relatives carried out many of these tasks (Spring's notes from Kawinga and Phalombe FSR surveys).

The WIADP participated in several attempts to change the way in which surveys and trials were conducted. The WIADP conducted its own FSR surveys in three different regions of the country and worked with a German team in Central Region (Spring 1982; Spring, et al. 1982; Spring et al. 1983a). Each time, male extension workers who accompanied the teams tended to direct the teams to the better male farmers. To remedy the situation, it was explained to staff and team members that it was necessary to examine a range of environments, family types, and economic situations.

The WIADP prepared guide sheets that detailed the types of households and families that needed to be considered and requested that the following categories of farmers be sampled by teams doing the diagnostic survey:

- (1) A diversity of economic situations: low resource farmers, including those who must work for others; subsistence farmers; and wealthy farmers who grow cash crops and hire laborers.
- (2) A diversity of household types: families composed of
 - (a) a wife, a husband, and children;
 - (b) a husband, two or more wives, and children;
 - (c) a married woman with children, but the husband was away; and
 - (d) an unmarried woman and children.
- (3) A diversity of ages and life-cycle situations: older people and recent widows and widowers; young couples just beginning to farm; long time farmers; and women recently divorced or on their own (Spring 1982).

The WIADP also helped to place women researchers and extensionists on the teams, and subsequently it became fairly standard practice to have women on FSR/E teams.

On-Farm Experimentation

The WIADP conducted its own on-farm experiments and worked with another USAID project on its trials (Hansen 1986). Two examples of trials that included female farmers illustrate the problems in obtaining women cooperators as well as the lessons learned by considering women. The first example concerns trials held in a low resource area, where there is land shortage, a drought-prone climate and 37 percent of the households are headed by women. Average holding size was one hectare, but more than 60 percent of the households cultivated less than a hectare and almost a third cultivated less than half a hectare. Male out-migration was pronounced and women and children remained to work family farms. The trials consisted of comparing an improved cultivar with a local variety using "a simple nonreplicated 2 x 2 factorial arrangement with two maize varieties and two levels of fertilizer (0 and 30 kilograms per hectare)" (Hildebrand and Poey 1985: 127-8). Since area farmers intercrop, all the treatments had a mix of maize, cowpeas, and sunflowers (Hansen 1986).

The village headmen and the extension workers who selected the farmers were specifically asked that half of the cooperating farmers be women. However, only 40 percent in one village and 30 percent selected in the second village were women. In some cases the women and the men farmers selected in a village were not comparable as farmers. The men tended to be vigorous individuals in their middle years and many were high resource farmers who owned cattle. Most of the women tended to be low resource, older individuals at the end of their life cycle. They were probably selected because age is revered and it was considered an honor to be selected. Therefore, comparisons between male and female farmers in terms of management and yields would not be valid to show gender differences in farming skills (Table 28.3). However, the data show differences between high and low resource farmers and more women are in the latter category.

TABLE 28.3
 MAIZE YIELDS FROM FARMER-MANAGED ON-FARM TRIALS,
 PHALOMBE, MALAWI, 1981-82

Four Treatments	1	2	Farmers in First Village						Treatment Mean for Village
			3	4*	5	6*	7*	8*	
— tons/hectare —									
Local Maize	2.2	2.2	1.9	1.2	1.3	0.9	1.0	0.5	1.4
Fert. Local	3.6	3.7	4.3	3.2	2.3	2.3	3.1	2.8	3.2
CCA Maize	3.5	2.0	2.9	0.4	0.6	0.5	0.6	0.3	1.3
Fert. CCA	5.0	4.7	4.3	3.5	2.4	1.7	3.0	2.8	3.4
Mean for Farmer	3.6	3.2	3.3	2.1	1.7	1.3	1.9	1.6	2.3

Four Treatments	1	2	Farmers in Second Village				Treatment Mean for Village
			3	4*	5	6*	
— tons/hectare —							
Local Maize	1.8	1.1	1.6	1.0	1.6	0.6	1.3
Fert. Local	3.2	2.5	2.9	1.2	1.9	0.8	2.1
CCA Maize	2.2	0.7	0.9	0.3	1.1	0.3	0.9
Fert. CCA	2.9	2.5	2.1	1.1	0.8	0.4	1.6
Mean for Farmer	2.5	1.7	1.9	0.9	1.4	0.5	1.5

Note: *Female Farmer (Designation added by Spring).

Source: Hansen (1986); Hildebrand and Poey (1985).

A modified stability analysis was carried out on these data by Hildebrand (Hildebrand and Poey 1985: 126- 134) and by Hansen (1986). Because of the inclusion of a range of farmers, young and old and male and female, an evaluation of the types of environments could be made where "environment ... becomes a continuous quantifiable variable whose range is the range of yields from the trial" (Hildebrand and Poey 1985: 126). In the same area, there were a range of environments in terms of farmer management, soils, rainfall and the like, and the cultivars responded differently. The local cultivar was superior in "poor" maize environments while the improved maize was superior in "good" maize environments (Figures 28.1 and 28.2). Both cultivars responded "favorably to fertilizer in both good and poor environments" (Hildebrand and Poey 1985:129). The analysis demonstrated that there were two different recommendation domains. Although there were both men and women in each domain, there was a tendency for the women farmers to be in the poorer environment, probably because more of them were low resource farmers. Further analysis using confidence levels allowed the high and low environment farms to be compared. The results showed that only farmers in the better environments should choose the improved variety (the composite) and that they should fertilize the crop

(Hildebrand and Poey 1985: 133). In the poorer environments, the local variety was better (Hildebrand and Poey 1985: 134). Fertilizer helped but only for the farmers who could afford it. Farmers who owned cattle and used the manure on their fields were in the better environments. Women did not own cattle too frequently, although the one high resource farmer in the sample did. The final recommendation was "to fertilize the local maize variety in the poorer environment and to use the composite maize with fertilizer in the better environment" (Hildebrand and Poey 1985: 132).

By comparing people at different ends of the spectrum, two recommendation domains were defined. All but one of the farmers in the better environment were men. Most of the farmers in the poorer environments were women, although there were some men. Recognizing different segments of the population, including those at particular risk, resulted in the delineation of multiple domains and technology solutions within a fairly homogeneous area. The female-headed households constrained by labor and cash would find it difficult to use fertilizer, coupled with their smaller holdings and lack of extension advice this would make their use of the improved cultivar disastrous. Another study on these households documented that they were being ignored by extension and credit programs (Evans 1981). A British researcher devised a multi-step method to remedy the situation. First, the cooperation of male extensionists and male village leaders was sought to bring women into the extension arena and to enable them to articulate their problems. Second the notions of "credit worthiness" had to be changed. Finally, the actual credit packages had to be modified.

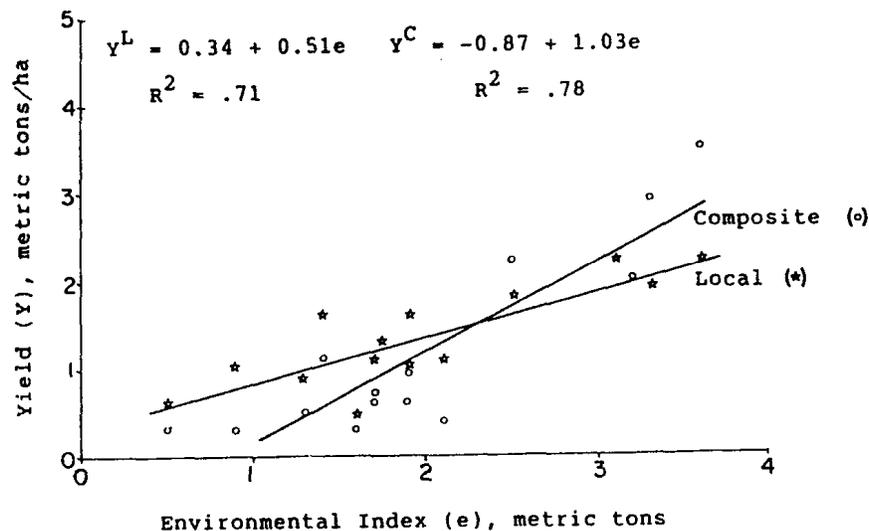


FIGURE 28.1

GRAIN YIELD RESPONSE FOR LOCAL MAIZE (L) AND
 CCA COMPOSITE (C) TO ENVIRONMENT, WITHOUT FERTILIZER,
 PHALOMBE PROJECT, MALAWI

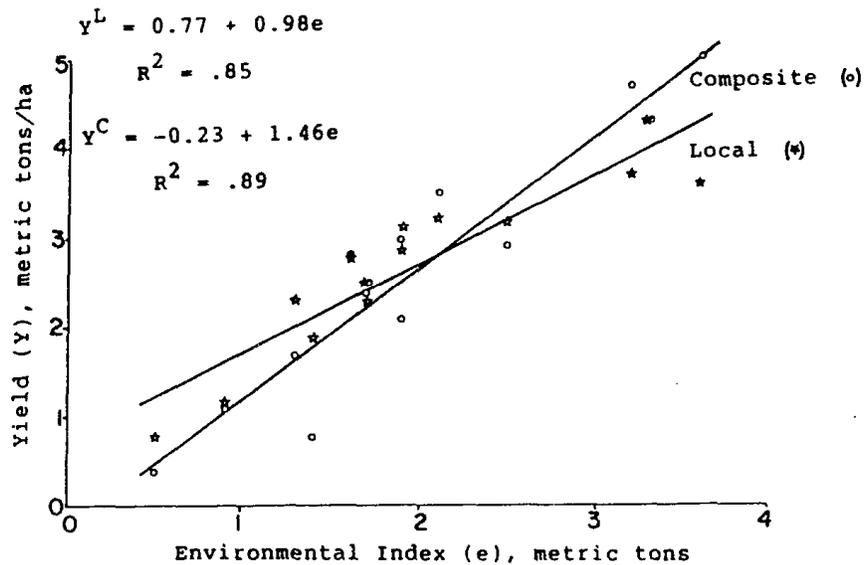


FIGURE 28.2

GRAIN YIELD RESPONSE OF LOCAL MAIZE (L) AND
CCA COMPOSITE (C) TO ENVIRONMENT, WITH FERTILIZER,
PHALOMBE PROJECT, MALAWI

Source: For Figures 28.1 and 28.2 Hildebrand and Poey, 1985: 130.

Male village leaders were asked to designate women farmers for leadership training. The women were taught leadership skills by both male and female extension personnel. Then they were able to articulate their problems in farming. In general, they noted that extension services by-passed them in terms of credit and training. To solve the problem of credit services by-passing women, the male staff members were told to target women. But a different method of determining "credit worthiness" had to be devised for these women and a way for them to pay back the cash for inputs had to be found. Since these women were not members of farmers' clubs organized by the male workers and they lacked collateral, their "credit worthiness" was nil by the usual standards. A new method was devised in which they could be vouched for by male village headmen. It was not known how these women would pay back the loans since these households were thought to have no cash sales; the inputs supplied were to help them attain food self-sufficiency. The women, much to everyone's surprise, began paying back the loan from the sale of beer and crafts even prior to the harvest (Evans 1983).

Another difficulty was that the standard credit packages of improved seed and fertilizers (in multiples of one acre) were too large. The solution to the actual credit package itself was the creation of mini-technical (for 1/2 acre) packages of

fertilizer and seed with the assistance of the male extension staff, the number of women getting credit in the project increased from 5 percent to 20 percent of the credit recipients in a single year. These households went from food deficient to food self-sufficient households. However, non-standard techniques had to be used and the male extension staff members' contacts with women farmers were important to the success of the endeavor.

The second example of using women as trial cooperators concerns demonstrations and trials with soybeans (Spring 1985, 1986b). The Ministry of Agriculture determined that soybeans would improve the rural diet deficient in fats and proteins. Female extensionists were therefore instructed in the preparation of recipes for soybeans in their annual refresher course. However, the female extensionists were not taught the appropriate cultivation techniques for soybeans. In particular they lacked training on rhizobium inoculation and the use of fertilizers. In a test of whether or not the male extension staff could work with women farmers, the WIADP held demonstrations one year and gave inputs and instruction to fifty-nine female cooperators. There were a range of environments and it was possible to compare the performance of women farmers. The better farmers had better management and viable inoculum. The poorer farmers had problems with pests and unviable inoculum because they failed to reinoculate after late rains and delayed planting. As a result of the demonstrations and surveys of both men and women farmers involved in soybean production in a number of areas, the problem of how to get viable inoculum to the rural areas was identified as a general problem affecting both men and women. There were also gender-specific smallholder problems such as the lack of training and the limited seed given to women. Trials were held the following year with twenty female cooperators selected by the male extension staff. In addition to trying to solve the technical problems, two other questions were asked. Could women do on-farm research with precision? Could the male extension staff work with women and what were the methods that worked best? The answers to both of the questions were affirmative. The women were able to learn to conduct the trials correctly. Second the male extension staff had no difficulty in identifying, instructing, and monitoring the women cooperators (see Spring 1986b for a full discussion of the trials).

To capitalize on the discovery that women could be part of trials and that the male extension staff could work with women the WIADP prepared an extension circular. The circular, entitled "Reaching Female Farmers Through Male Extension workers," was published in August 1983 and issued by the Ministry of Agriculture (MOA) rather than by the WIADP (MOA 1983). Extension circulars from the MOA are regarded as technical recommendations for the entire extension staff and must be heeded by them. As a MOA publication, the circular legitimized and advertised the fact that male extensionists could work with women as well as with men farmers in their areas and that working with women farmers was not only the concern of the few female extensionists. It was distributed to all grassroots workers and to agricultural project managers.

The circular drew attention to the fact that extension services need to reach women because of women's involvement in Malawi's smallholder agricultural sector it pointed out that where women have been offered agricultural programs, they have learned new technologies and increased their production. The circular used photographs taken from the MOA's own collection and depicted women in various farming operations, attending extension demonstrations led by male extensionists, attending village meetings with male farmers, receiving credit inputs along with men, and receiving a certificate of recognition for excellence in farming.

The circular presented methods for improving the delivery of extension services to women and for getting women into extension and research activities. Techniques were given that explained how to use leadership training to encourage women to attend village meetings and agricultural training courses and how to increase women's participation in credit and soil conservation programs and farmers' clubs. The male extensionists were directed to include women at their demonstrations, trials, and field days.

They were also told to keep records of contacts and program involvement in terms of the number of women and men participating. The circular noted that there are a variety of household types and that women both as wives and women heads of households needed to be targeted.

CONCLUSIONS

Those involved in FSR/E must consider gender issues and intra-household dynamics at all stages of their work in the pre-diagnostic stage, they must consider primary and secondary sources that detail the sexual division of labor and the changing roles of various household members. Sometimes this type of information is available, but where it is not, researchers may have to disaggregate agricultural data sets in order to ascertain gender differences or to collect their own data from local women and men farmers.

Researchers must confront extension workers with the need to include in their surveys a diversity of farmers in terms of resources and households and to consider people at different points of the life cycle in the diagnostic stage. Strict instructions need to be given to extension personnel for them to include in their surveys (1) low as well as high resource farmers, (2) women farmers with both low and high resources, and (3) women as both household heads and wives. The sexual division of labor and differential management strategies will have to be described. If questions about the allocation of labor and resources, problems and needs, and remuneration and investments, cannot be answered for different categories of farmers, the work is incomplete. If only men provide the answers about women, the data are most likely biased.

In the design of trials, intra-household dynamics and the needs of various household members must be considered; a range of farmers and of environments need to be included. In the actual trials, women as well as men have to participate as cooperators. In some trials it may be necessary to restrict the cooperators to the sex that actually is responsible for a particular commodity, e.g., groundnuts are often grown by women in some areas. In others, recognition of the fact that women and men do different farm operations means that both male and female household members will have to be considered as trial participants and that both will have to be instructed accordingly. The extension and research workers who help select and monitor the trials will require strict instructions as to how to choose and to work with these farmers. Researchers should not be fearful about including a range of environments, but they need to be careful about how they select too many farmers in certain categories and in comparing farmers at different resource levels. Recommendation domains and technologies tested may or may not be gender specific. In the dissemination of information, the male research and extension staff members will be important to the success of adopting a technology. The WIMP recognized that it was often difficult for individual extension workers on their own to make special attempts to deal with neglected segments of the population.

Although these techniques might not work in every corner of the world, the general argument that states that men cannot work with women farmers needs to be reexamined. New methods and techniques have to be devised that are feasible and that consider cultural traditions. Female extensionists must not be left out. The number being trained in agricultural subjects must be increased and incentives and promotions need to be recommended for them. The curriculum of the home economics courses for rural women must be modified to include materials that are directly related to- ' women's productive-roles. Usually the FSR/E personnel will have the clout to influence policy and sometimes to provide motivation and incentives for the work that extension is doing. FSR/E personnel can therefore attempt to set the tone and to require that women as well as men be targeted. They can assist extension workers in discovering the techniques that will work in an area.

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