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**BRIDGING THE GENDER GAP  
IN AGRICULTURAL EXTENSION**

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## EXECUTIVE SUMMARY

Women in developing countries are actively involved in agriculture and urgently need assistance to improve farming practices, purchase more productive inputs, decrease their workloads, and improve the processing, storage, and marketing activities they perform. But despite their critical role in agricultural production, women have been virtually ignored by agricultural extension units. When women do receive visits from extension agents or attend extension training courses, they are frequently taught home economics and other subjects unrelated to their agricultural roles.

Women active in agricultural production in developing countries generally fall into four categories--farm owners or managers, farm partners, unpaid family workers, and agricultural wage laborers. This paper focuses primarily on women who are farm owners or managers in their own right, and on those whose share in decision-making, ownership, and labor indicates that they are more or less equal partners in farm management with their husbands or other family members. Women who are farm managers are the most logical candidates for direct contact with extension services; yet studies have shown that these women are less likely to have such contact than women partners in joint (male-female) managed farms. Even in joint managed farms, however, women rarely receive agricultural information from their husbands or other male household members, particularly when work on specific crops or tasks is divided by sex.

In order to explain women's lack of access to extension services, it is necessary to examine the orientation and structure of institutions providing agricultural extension services, the kinds of services provided, the types of delivery programs utilized, and the staffing of these institutions, all of which have a crucial impact on their ability to provide effective assistance to women farmers. These factors must be considered in conjunction with the characteristics of women farmers as well as the current clientele of extension programs.

Different types of agricultural extension organizations can be found in every nation state, but these can be classified into four distinct institutional models: general, government-sponsored extension services; extension services within crop-specific programs; extension services within integrated rural development projects; and extension services within programs specifically for women. Because of the characteristics of many women farmers, those institutional models that seem to have the greatest potential for assisting women are the general programs (not crop-specific) at the level of the Ministry of Agriculture, the integrated rural development projects, and agencies that focus on food crops. These models, as well as redesigned crop-specific programs, increasingly include a food crop component; when this is the case, women are more likely to receive agricultural extension services than otherwise.

Even when extension services include food crop components, however, the number of women reached by such services depends upon the delivery of those services. The mechanisms currently used by most extension services for providing technical advice to farmers--the contact farmer approach, the use of farmer training centers, reliance on private sector efforts, and the large group approach of mass media or demonstrations--tend to channel services to those who have the greatest access to certain means and resources important to production. Women farmers, who are more likely to be involved in subsistence production and generally have smaller land holdings and less access to other resources, are therefore not typical of the clientele served by many agricultural extension programs. Other characteristics of women farmers, such as their relative lack of education, their limited control of land in their own names, and their dual responsibilities for both household maintenance and subsistence or market production,

also serve to limit their participation in agricultural extension programs that operate with the standard delivery mechanisms.

In order to benefit greater numbers of women farmers, delivery approaches should attempt to focus more on small farmers or average farmers, rather than those labeled "progressive." Mass communication training techniques can be strengthened to increase their effectiveness, especially with the illiterate and poorly educated, many of whom are women. Farmer training could be offered in ways that do not require extensive periods of absence from the home or village, since women lack the time and ability to travel for training. When farmer training centers are used, the curricula could be modified to emphasize training of the farmer couple, by offering courses in agricultural techniques to both husband and wife and selecting couples on the basis of the activities of both husband and wife. In addition, arrangements should be made to accommodate women farm managers who are heads of household.

Perhaps the most important issue in improving women's access to extension services is whether to adopt a women-specific or an integrated approach. Although they are most likely to reach women, many women-specific programs have a low potential for training women in farming techniques because of their home economics orientation. In addition, these programs are more likely to view women's farming activities from a subsistence or nutritional, rather than a commercial perspective, thus limiting their effectiveness for raising the efficiency and incomes of women farmers. While they may be an appropriate means of assisting women who are unpaid family workers, these programs will not be sufficient to meet the needs of independent women farm managers or farm partners.

The use of female extensionists has become increasingly popular as the primary means of aiding women farmers, and a number of governments are already taking steps to expand the number of women extension agents they employ. Unfortunately, there is insufficient evidence available to conclude whether this is the most effective method of providing assistance to women farmers. Although women field agents may be more likely than men agents to establish contact with women farmers, they will not be effective if they are not able to offer a "product" or service that will yield material benefits for these farmers. Even if women field agents are employed by the agricultural division of the extension organization, the characteristics of existing delivery mechanisms or the types of crops emphasized may still put a barrier between them and the women farmers who need assistance.

Women extensionists and village level para-professionals should be incorporated into mainstream extension activities on an equal basis with men, not just to work with women. In addition, both men and women extensionists should receive training to increase their awareness of the needs of women farmers and allow them to work more effectively with women. Finally, incentive systems should be structured to reward men and women extension staff who are successful in reaching and assisting women farmers.

Very little is yet known about what "works" to bridge the gender gap in agricultural extension. In order to isolate some of the problems with these new approaches and to identify lessons for future extension programs, additional research will be necessary. This paper has attempted to provide a framework for the thorough analysis of current experimentation that is essential to the development of cost-effective methodologies for reaching women farmers.

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## INTRODUCTION

A wide gap separates the woman farmer in the developing countries from the basic information she needs to increase production, efficiency, and income. On the one hand, women in developing countries are actively involved in agriculture and urgently need assistance to improve farming practices, purchase more productive inputs, decrease their workloads, and improve the processing, storage, and marketing activities they perform. On the other hand, they have been virtually ignored by agricultural extension units, the very organizations designed to provide these services.

Recent studies have shown that extension agencies, staffed primarily by men, give preference to male farmers, sometimes even when women are wealthy and innovative managers of large farms (Staudt, 1982; see also Table 2, p. 10). They also reveal that female assistants may be more likely to reach women farmers (Knudson and Yates, 1981; Institute for Social Studies Trust, 1982). As a result, many have called for the use of female extensionists as the primary means of aiding women farmers, and a number of governments are already taking steps to expand the number of women extension agents they employ (Smithells, 1972; Ashby, 1981; Staudt, 1982; DeLancey, 1984; Shaner, Philipp, and Schmehl, 1982; Fortmann, 1978; Bettles, 1980; Palmer, Subhadhira, and Grisanaputi, 1983; Howard-Merriam, 1981).

But will the addition of new women extensionists really solve the problem? The prejudice of male-oriented services against women farmers and the lack of female agricultural extension agents are not the only factors that limit women's participation in agricultural services. The orientation and structure of institutions providing agricultural extension services, the kinds of services provided, the types of delivery programs utilized, and the staffing of these institutions all have a crucial impact on their ability to provide effective assistance to women farmers.

Certain structural features of extension programs tend to channel services to those who have access to means and resources important to production. Studies abound that show that the most commonly used delivery programs favor large, wealthy, and

politically powerful farmers whose influence guarantees them access to the extension service, and whose resources enable them to undertake innovations in agricultural production. Women farmers, who are more likely to be involved in subsistence production and generally have smaller land holdings and less access to other resources, are therefore not typical of the clientele served by many agricultural extension programs.

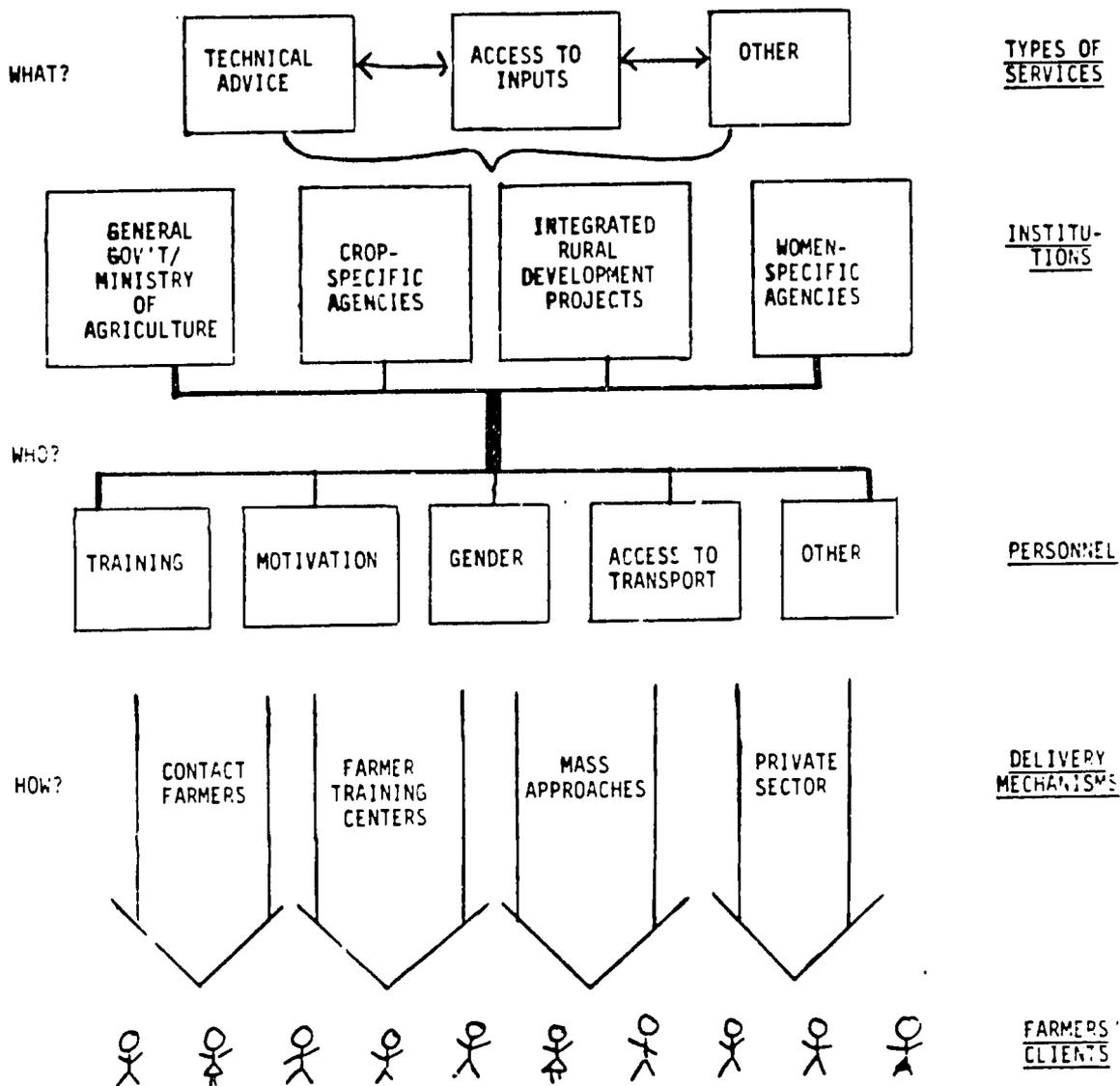
Another major factor that helps to explain women's limited participation in agricultural extension is the historical emphasis of governments and agricultural services on cash crop production for export, instead of food production for local consumption. Generally, male farmers have been more involved in cash crop production, though women may provide essential labor on their fields and produce food crops for exchange as well as home use. But today, debt-strapped nations formerly self-sufficient in food production are increasingly concerned about their dependence on food imports and interested in developing local food production. It is thus imperative that agricultural extension systems adapt to meet the needs of food producers, many of whom are women.

When extensionists do contact women, it is often to provide information and advice that pertains to women's household, rather than farming, responsibilities. Some Ministries of Agriculture have separate extension units for women that are devoted to home economics, which generally touch on agricultural matters only insofar as they relate to nutrition and family welfare. Other governments provide this type of extension service for women within a separate agency or ministry, such as a Ministry of Social Welfare. In farmer training centers, instruction for women is also oriented toward home economics. This approach offers little hope for including women in the expanding commercialization of food production that is taking place as Third World countries develop.

In order to better explore some of these issues, this paper focuses on the structure of agricultural extension services and the characteristics of the extension agents, to explain their limited effectiveness for women farmers and identify possible methods of improving that effectiveness. Figure 1 illustrates the major supply-side factors that influence farmer's access to extension services. These, along with the characteristics of women farmers on the demand side, will be explored in greater detail in the following sections of the paper.

FIGURE 1

PRINCIPAL SUPPLY-SIDE FACTORS DETERMINING FARMERS' ACCESS TO AGRICULTURAL EXTENSION SERVICES



This paper is organized around a series of questions:

- Why do rural women need agricultural extension services? The first section of the paper provides a brief overview of women's farming roles and reviews the evidence of their lack of access to existing extension services.
- What does agricultural extension encompass? This question relates to the types of information and services transmitted to farmers—both male and female--by extension agents. Section two describes the goals of agricultural extension, the content of the messages and assistance delivered, the relationship between extension and research, and the evolution of extension services in developing countries.
- How are extension services provided? This primarily concerns the approach taken to the delivery of extension services, e.g., farmer training centers, mass demonstrations, or working through a few contact farmers. Section three describes these approaches and assesses the effectiveness of each for assisting poor farmers and the costs involved. It examines the characteristics of farmers who are reached by existing delivery mechanisms and compares them to the characteristics of women farmers, highlighting available data on women farmers' access to seven key resources—land, labor, capital, time, education, organizations, and political power--in order to illustrate how access to these resources influences participation in extension programs.
- Who is responsible for agricultural extension? Section four examines the institutional context of extension services as well as the characteristics of individual extension agents, such as their training, motivation, and gender, and how these affect their ability to assist women farmers.

The two remaining sections address the question of how extension services can be improved to better meet the needs of women farmers. Section five provides some examples of projects and country-wide programs that contain specific extension components for women. The final section offers conclusions and recommendations for changes at the policy and project levels to expand women's access to agricultural extension services.

## WOMEN'S ACCESS TO AGRICULTURAL EXTENSION

### Women and Farming in Developing Countries

A lack of knowledge among government and development officials and planners regarding women's participation in agriculture serves to reinforce the Western notion that men, not women, are the principal farmers in developing countries. However, in recent years documentation of women's roles in agricultural production has made their contribution more visible. Estimates based on censuses, national surveys, and United Nations data show that women provide most of the agricultural labor essential to both food and cash crop production in the developing world. The United Nations claims that women farmers grow at least 50 percent of the world's food, and as much as 90 percent in the rural areas of some African nations ( Roodkowsky, n.d., p. 5). According to recent estimates based on ILO and FAO data, women constitute 38 percent of the agricultural labor force in developing countries—46 percent in Sub-Sahara Africa, 45 percent in South and Southeast Asia, 31 percent in North Africa and the Middle East, and 18 percent in Central and South America (Dixon, 1982). These results are presented in Table 1 below.

**TABLE 1**

FEMALES AS PERCENT OF THE AGRICULTURAL LABOR FORCE  
ACCORDING TO ILO ESTIMATES, FAO CENSUSES OF AGRICULTURE,  
AND REVISED ESTIMATES, 1970

<u>Region</u>	FAO Census		ILO Estimate		Revised Estimate	
	<u>No. of Countries</u>	<u>Mean</u>	<u>No. of Countries</u>	<u>Mean</u>	<u>No. of Countries</u>	<u>Mean</u>
Sub-Saharan Africa	11	47.2	40	36.6	40	45.9
North Africa & Middle East	5	27.0	16	11.1	16	30.7
South & Southeast Asia	5	40.2	19	35.5	19	45.3
Caribbean	2	—	7	26.0	7	39.6

SOURCE: Ruth Dixon, "Women in Agriculture: Counting the Labor Force in Developing Countries," Population and Development Review 8 (September 1982), p. 560.

Official estimates systematically undercount the number of women working in agriculture, since they are based on incomplete definitions of economic activity that tend to exclude working women and children. These enumeration systems undercount unpaid family labor and fail to record women's multiple and seasonal responsibilities in household and market production (Boulding, 1983; Dixon, 1982). Even surveys that question women directly about their economic activities may produce extremely biased results. Relying on the perceptions of women or men about women's contribution to agricultural production, instead of observation of actual participation rates, results in measurement errors, especially in more traditional societies where women are expected to be housewives or where a wife's idleness is a status symbol. In a survey of women in agriculture in Cajamarca in Peru, for example, only 4 percent of the women said their principal occupation was farming. Yet when asked about specific agricultural tasks, 46 percent of the women were found to be the primary or secondary person in charge of crop production, and through a detailed agricultural labor accounting system, 86 percent were found to participate in agricultural field labor (Deere and Leon, 1982).

Women active in agricultural production in developing countries generally fall into four categories--farm owners or managers, farm partners, unpaid family workers, and agricultural wage laborers. The distinctions among these categories are based on the woman's decision-making power, time spent in farming, and agricultural tasks. This paper focuses primarily on women who are farm owners or managers in their own right, and on those whose share in decision-making, ownership, and labor indicates that they are more or less equal partners in farm management with their husbands or other family members. Although women who are agricultural wage laborers or unpaid family workers with little input into decision-making are certainly affected by the content and delivery of agricultural extension services and will often be responsible for carrying out the recommendations of extension agents, those who have a management role are more likely to be the targets of such services. A discussion of the characteristics of women farmers in different categories and how they are affected by agricultural extension services appears below.

1. Women who are farm owners or managers are the principal decision-makers in agricultural production, devote a major portion of their labor to farming, and are responsible for most agricultural tasks. Women with adequate resources may hire others or barter for labor to carry out some of the work, while women without sufficient means must perform the tasks themselves or rely on help from resident household members. Women farm owners or managers often become principal farmers and heads of household due to their husbands' employment, migration, desertion, or death. But in some societies,

where matriarchal patterns of inheritance prevail with respect to land, or where women and men have traditionally had individual rights to separate tracts of land, women are farm managers throughout most of their lives (Palmer, Subhadhira, and Grisanaputi, 1983; Boserup, 1970).

Women farmers in sub-Saharan Africa are the most likely to be farm owners or managers. That fact, together with the almost universal bias of extension toward land owners/managers, helps to explain why a large portion of the research on women in agriculture and, more specifically, on women's access to agricultural extension has focused on this region. In Kenya, studies indicate that 36 to 40 percent of farms are managed by women (Staudt, 1978; Moock, 1976). In the rural areas of Zambia, the number of women heads of household, a group generally involved in agriculture, reaches 47 percent (Jiggins, 1980). In Botswana, an examination of household decisions concerning the time of plowing and type of seed planted showed that women made these decisions alone in 31 percent and 57 percent of the cases respectively, and with other household members, 13 and 20 percent of the time. Women were also more likely to discuss the decisions they made with others, indicating that new agricultural ideas may diffuse faster through women farmers than through men (Bond, 1974).

In other regions of the world, women also work as farm owners and managers. In Peru, for example, 21 percent of the peasant women in one study were farmers on their own account, with their husbands (who often migrated in search of work) deriving income from other sources (Deere and Leon, 1982). In Guyana, 44 percent of the women in a rural sample were heads of household and farmers, and in a St. Lucia study, 25 percent of the farm operators were women (Odie-Ali, 1982; Knudson and Yates, 1981). In Jamaica, women are typically responsible for their family's agricultural production until their husbands leave their jobs in the urban areas at about the age of forty. At that point, the wives and husbands assume joint management of the farm (Harder, 1981).

2. Women farm partners share the responsibility for agricultural production with another household member, usually their husbands. Decisions are made collaboratively, both partners devote a major portion of their labor to farming activities, and tasks, though often divided by the prevailing sexual division of labor, are considered essential and complementary to each other. In some areas, women control separate fields, frequently in subsistence food production, and provide labor as required on their husbands' plots. In other areas, agricultural tasks are performed by women and men together in family fields.

A study of eight villages in Nepal showed that women make 42 percent of household agricultural decisions and decide jointly with adult males in another 12 percent of the cases (Acharya and Bennett, 1981). While Nepali men may decide what crop to plant, women decide when and how to carry out the work necessary for the production of that crop (Schroeder and Schroeder, 1979). In Thailand, where women also participate widely in agriculture, one study found that decisions on whether to borrow money and how to dispose of the products of family labor are often decided jointly in 40 and 50 percent of the cases, respectively (Whyte and Whyte, 1982). While decisions on land transactions have traditionally been made by men in Kenya, decisions concerning the use of land and agricultural resources are largely made by women (Pala, 1976). In Tanzania, though the husband may decide to use fertilizer, the wife decides how much will be used and when (Fortmann, 1978).

Women's share in agricultural decision-making varies, not only by region and country, but also by socioeconomic class. Women from near-landless and smallholder families seem to have more control and decision-making power than women from middle and upper class strata. For example, one study of Peruvian farming showed that women in near-landless and smallholder households share equally with their male partners in the decision of which crops to grow, while men in middle- and upper-class farm families make that decision alone in 79 percent of the cases (Deere and Leon, 1982). In Indonesia, women's contribution to subsistence production and decision-making is greater among low-income households than among middle-income households (Stier, 1974).

3. Women farm workers have less responsibility for decisions about family farm production, yet are active in agricultural work. Their husbands or other relatives make the major agricultural decisions, and the women's tasks, though essential to production, are often limited to certain activities which vary by season. Women farm workers, however, are often responsible for the processing and marketing of the household's agricultural products, an important component of production that may or may not be incorporated into statistics of labor force participation. Women farm owners/managers and farm partners may also be involved in this activity.

A majority of women who are reported to be economically active in agriculture are either farm partners or farm workers. They are often classified in censuses and surveys as unpaid family workers. The proportion of all economically active women who are considered unpaid family workers is high. For instance, in India and Malaysia the proportions are 41 percent and 31 percent, respectively (Whyte and Whyte, 1982). The incidence of unpaid labor is generally much greater among agricultural women as

compared to men--for example, it is five times as high in Algeria and Libya, four times as high in Jordan and Morocco, and three times as high in Iran, Pakistan, and Syria (Bennett, 1979). However, women farm workers may be excluded from labor force statistics altogether since their field work varies greatly by season and other tasks they perform may be considered "house work" and not even included under the heading of unpaid family labor (Beneria, 1982, p. 123).

4. Women who work principally as agricultural wage laborers will generally not be considered here, since agricultural extension services are not oriented to clients without access to land or input into agricultural decision-making. It is important to note, however, that due to the commercialization of agriculture and the current economic crises in the Third World, landlessness has increased, forcing both women and men farmers from the three other categories into temporary wage labor (Lassen, 1980). In Bangladesh, for instance, the proportion of near-landless and landless of all rural households is 75 percent; in India, 59 percent; in Java, 84 percent; and in the Philippines, 77 percent (Rosenberg and Rosenberg, 1978). These countries are experiencing a shift in women's agricultural labor from unpaid family workers to wage earners. In some countries female participation in salaried agricultural labor, generally on plantations, is also high. In Sri Lanka, for example, 72 percent of the female agricultural labor force is salaried (though women receive only 66 to 75 percent of the male wage), and in India 50 percent of the tea plantation labor is female (Blumberg, 1981). In Honduras, women make up 40 percent of the wage laborers in tobacco and almost 90 percent in coffee (Buvinic, 1982).

#### Women's Participation in Agricultural Extension

Given the evidence of women's significant responsibility for and contribution to agricultural production in the developing world, one would expect women to participate actively in programs delivering the information, instruction, and inputs to farmers. Yet the limited data available on the participation of women in agricultural extension programs show that few women benefit directly. Studies in Africa show that male heads of household and farmers with access to basic resources are the primary clients of agricultural extension services (Fortmann, 1982; Muntamba, 1982; Staudt, 1982; Bettles, 1980; Cowle, 1979; Bond, 1974; Leonard, 1974). Data from Bolivia, St. Lucia, and Jordan also indicate that few, if any, women participate in extension training or agricultural schools (Eddy de Arellano, 1976; Knudson and Yates, 1981; Harfoush, 1980). Table 2 below summarizes the recent empirical studies of women's access to agricultural extension.

TABLE 2

Research Findings: Women's Access to Agricultural Extension

<u>Region</u>	<u>Country</u>	<u>Source</u>	<u>Findings</u>
Sub-Saharan Africa	Botswana	Bettles, 1980	In the mid-1970s the government of Botswana sought to expand women's access to agricultural extension services by creating a women's component within the Agricultural Field Services Department. Efforts were made to involve women in all extension activities (meetings, demonstrations, visits by extensionists, etc.), to broaden women's representation in village organizations, work with existing women's groups on agriculture and health-related activities, and encourage women farmers to attend courses at Rural Training Centers (p. 11).
		Bond, 1974	"Although farming is practiced by most families very little agricultural extension is reaching rural people. Contact is made with some women, but in the main extension is reaching families through the men, and this favors households headed by a male" (p. 2).
	Gambia	Dey, 1981	Technical teams implementing three rice development projects invited only male household heads to participate in the projects, despite the fact that women are the major rice producers in the area. These men were offered free gifts of inputs and cleared the land for the project with help from junior men, thereby establishing ownership rights to it, and implicitly excluding women (p. 118).
	Kenya	Moock, 1976	"Women seem not to benefit, as the men, from extension contact, perhaps due to the marked male orientation of the services as provided by Kenya's Ministry of Agriculture. The staff consists almost entirely of men, the few exceptions dealing exclusively with "home economics." Moreover, much of the ministry's agricultural instruction takes place at the chief's <u>barazas</u> (weekly meetings), attendance at which is seen particularly as the prerogative of male elders (p. 835).
Kenya	Pala, 1978	Among the Joluo of Kenya, a survey of women farmers showed that 92 percent had access to 1.5 to 4.5 hectares of land for cultivation. However, no female farmer had access to the minimum of 6.07 hectares (1.5 acres) required to participate in the government agricultural loan program for small farmers—the Guaranteed Minimum Returns Scheme (pp. 5-6).	

<u>Region</u>	<u>Country</u>	<u>Source</u>	<u>Findings</u>
	Kenya	Staudt, 1982	Agricultural information and demonstrations may be given by extension agents at <u>barazas</u> (weekly meetings) which only men attend (p. 209). One-third of trainees at Training Centers are women but are often the wives of chiefs, assistant chiefs, or the agricultural staff. The courses offered are 70 percent home economics, 30 percent agriculture (p. 24). One-half of female-managed farms were never visited by an extension agent, vs. one-fourth of joint-managed farms (p. 217). Women farm managers are less likely to be visited by extensionists, even when controlling for wealth (p. 218), farm size (p. 219), and willingness to adopt new methods (p. 220). Women who are farm partners with their husbands receive more attention because the presence of a man brings them into the communication network of extension (p. 213).
	Malawi	Perraton, Jamison, and Orivel, 1983	Of the 88,000 farmers trained in residential and day training centers during 1979-80, 47,000 were women. However, only 3 of the 16 types of courses were offered to both men and women (crop storage, family health and horticulture). Courses for women only were in home economics, nutrition, needlework and handicrafts, and poultry-raising. Men's courses included farming, forestry, credit, and animal husbandry (pp. 155-156).
	Tanzania	Fortmann, 1982	In one region, extension agents visited 58 percent of men participating in a national maize information program, but only 20 percent of women (pp. 193-194). Women's reliance on indirect communication from their husbands is detrimental to the project because it decreases the accuracy of the information transmitted and often, women are the ones who actually implement the decisions that are made by their husbands on the basis of extensionists' advice (p. 6).
	Tanzania	Mbilinyi, 1982	Women have unequal access to education and the productive inputs needed to increase their production. Women respondents in a Farmer Training Scheme survey stated that they were rarely visited by extensionists. Most village leaders are men and they are generally the only ones who have direct access to the extension services, unless agents are able to develop demonstration plots and group discussions that involve ordinary villagers. Villagers can also call on the assistance of extension agents, but women rarely do so (p. 62).

<u>Region</u>	<u>Country</u>	<u>Source</u>	<u>Findings</u>
	Zambia	Cowle, 1978	Agricultural assistance was only given to village households with higher incomes and peasant households (those with larger land allotments). The low-income village households headed by women and men received no formal aid from agricultural services in a village survey. Six of the high-income households received such aid. Among peasant farm households, agriculture extension, including access to Farmer Training Centers, reached some senior male heads of household (pp. 62-63, 65, 69).
	Zambia	Muntemba, 1982	"As late as 1974, one Farm Institute in the region gave courses to 288 women, compared to 704 men. While courses given to men ranged across various aspects of agricultural production, women's courses covered only poultry, maize, and groundnut production (two courses) and female extension (seven courses). Female extension trained women to sew and knit and helped them establish sewing clubs in their home areas... However, the government did encourage poultry clubs for women, giving such clubs loans where necessary" (pp. 93-94). Unmarried women have less access to technical knowledge than married women who depend on their husbands for training (p. 98).
	Zimbabwe	Cheater, 1981	Only those few women who owned or leased farms in their own right had received the Master Farmer Certificate and had direct access to agricultural advisors. These women had access to other resources, including labor and farm machinery (p. 367).
Middle East & North Africa	Egypt	Howard-Merriam, 1981	A study of two villages revealed a lack of contact between village women and women extensionists, rural women's lack of participation in local social and political organizations, and women's preference for video communication and home visits (p. 13). Female extensionists receive inadequate training and support (pp. 21-22) and lack knowledge about the rural environment (p. 17).
	Jordan	Harfoush, 1980	Men are the primary beneficiaries of agricultural training. Female secondary students are not allowed in agricultural courses of study, even though women and children make up the majority of the agriculture labor force (pp. 7, 30).

<u>Region</u>	<u>Country</u>	<u>Source</u>	<u>Findings</u>
Asia	India	Institute of Social Studies Trust, 1982	Extension is weak or non-existent for activities primarily handled by women, e.g., silkworm rearing and reeling of silk filament (pp. 42-45). Training planned for one month periods will be difficult for women to attend because training centers are far away. Identifies need to reformulate extension program to train both women and men, and to increase the number of training locations to make them more accessible to women (p. 37). Women farmers surveyed had positive response to female extension agents, but male farmers felt there was nothing they could learn from female extensionists in the area (p. 40).
	Thailand	Palmer, Subhadhira, Grisanaputi, 1983	Despite the prominent position of women in Northeast Thailand (due to female descent of land and matrilineal marriage), few women attend agricultural demonstrations (pp. 1,2,5). A survey of the project's target population showed that home visits are infrequent and disproportionately made to households with larger farms or where someone is a member of the village committee, and that very few women are spoken to during these visits (p. 6). Nearly all 413 survey respondents said women would be more interested in agricultural extension if there were more women extensionists (p. 10).
Latin America & Caribbean	St. Lucia	Knudson and Yates, 1981	Although one-half of the farm population surveyed had received some sort of agricultural extension services, only 17 percent of women farmers had received information from extension personnel. Most women acquired agricultural information from parents (p. vi).
Various	Kenya, W. Nigeria, Uganda, Trinidad, St. Vincent, Puerto Rico, Jamaica	Smithells, 1972	Focused on the need to train additional female agricultural extension personnel. In most developing countries agricultural extension is part of government administration (generally, a Ministry of Agriculture), or semi-governmental organization (e.g., a university with a faculty of agriculture). Programs for rural women have been grafted onto these structures, focusing informal education on home economics related to agriculture and rural living (p. 10). The author found few women extensionists in the countries studied and of those most were trained in home economics (p. 10).

Of the four types of women in agriculture, women farm managers are the most logical candidates for direct contact with extension services; yet studies have shown that these women are less likely to have such contact than women partners in joint (male-female) managed farms (Staudt, 1977). Even women in joint managed farms, however, rarely receive agricultural information from their husbands or other male household members, particularly when work on specific crops or tasks is divided by sex (Fortmann, 1978).

Low-income rural women farm partners should also be an important target for agricultural extension programs, given their participation in making agricultural decisions. In the past, many projects have suffered by ignoring women's role in agricultural decision-making and failing to provide them with training in new techniques. For example, when the failure of a project designed to introduce high-yield wheat in northwest Bangladesh was investigated, it was discovered that extension efforts had been mistakenly targeted to men. The women in the area, who generally select the seeds for planting, had received no training from the extensionists and were choosing the wrong seeds (Roodkowsky, n.d., p. 12). Similarly, in the Casamance region of Senegal, a project aimed at improving traditional water control systems in swamp rice farming completely destroyed the rice farming land. Land subject to acid sulphate toxicity was drained for the project, leaving it totally infertile. This tragedy could have been avoided if field staff had simply consulted the women farmers who had previously worked the land and were familiar with its condition (Dey, 1983, p. 14). Thus, concentrating efforts on male farmers alone and overlooking the fact that women make decisions regarding inputs, the schedule of work, and so on, is not only detrimental to the welfare of women, but can doom entire projects to failure--particularly those aimed at the poor.

The failure of extension services to take account of the activities of women who are unpaid farm workers has frequently led to increasing workloads for these women. The introduction of new techniques often implies a reduction of labor time for men, but sometimes this comes at the expense of the already overburdened women on the farm (Lele, 1975; Cleave, 1974; Burfisher and Horenstein, 1982). In addition, extension services have long neglected the introduction of labor-saving technologies, such as grinding mills or more efficient cook stoves, that could make women's tasks more efficient and free up their time for income-earning pursuits (Carr, 1980).

In other cases the introduction of certain innovations, particularly the mechanization of agriculture, has been accompanied by a reduction in the number of jobs available to women, and therefore their opportunities for earning income. Boserup (1970)

argued that new tools and machinery are given to men, increasing their control over agriculture and widening the gap between men's and women's productivity. Mechanization may also serve to make female wage labor redundant, eliminating jobs for women in agriculture without providing alternative sources of employment (Lele, 1975, p. 77).

Why have women farmers been neglected by extension services? Aside from outright discrimination, lack of land and limited economic and political power are two of the major constraints cited to explain women's low participation in extension programs. When women do receive visits from extensionists or attend extension training courses, they are frequently taught home economics and other subjects not directly related to their agricultural roles. Although the data available on women's access to agricultural extension programs is very limited, women's restricted access to such programs seems to be due to factors such as the following:

- women often do not have title to the land they farm and thus cannot qualify for agricultural loans; when women do have legal rights to land, their fields may be smaller and more distant than those of men and, as a result, they may not be viewed as good potential clients by extensionists
- the limited cash incomes of women farmers hinder their ability to purchase agricultural inputs and, particularly in the case of female managers who have fewer household members available for farm work, to hire the necessary labor or draft power to implement new techniques disseminated by extension services
- because of their dual household and productive responsibilities rural women already work longer hours than men, but many new agricultural techniques require greater amounts of women's time, although they may reduce men's work; women not only lack the time to attend agricultural training courses but also to undertake new farming practices that may only increase their work loads
- education improves farmers' abilities to innovate and make accurate agricultural decisions, yet fewer females than males are literate or attend school

- agricultural organizations, which often provide inputs, educational services and credit, tend to restrict membership to farmers who own land or head households, thereby excluding many women farmers
- the political structures of villages and nations are dominated by men, resulting in an unequal distribution of resources and influence in favor of male farmers, even when women play significant agricultural roles

The following section reviews the major structural and institutional features of extension services that produce these outcomes, examines the constraints on women's access to key resources for agricultural production and extension, and suggests some measures that may help to improve the situation.

## EXTENSION SERVICES IN DEVELOPING COUNTRIES: THE INSTITUTIONAL SETTING

### The Relationship Between Agricultural Research and Extension

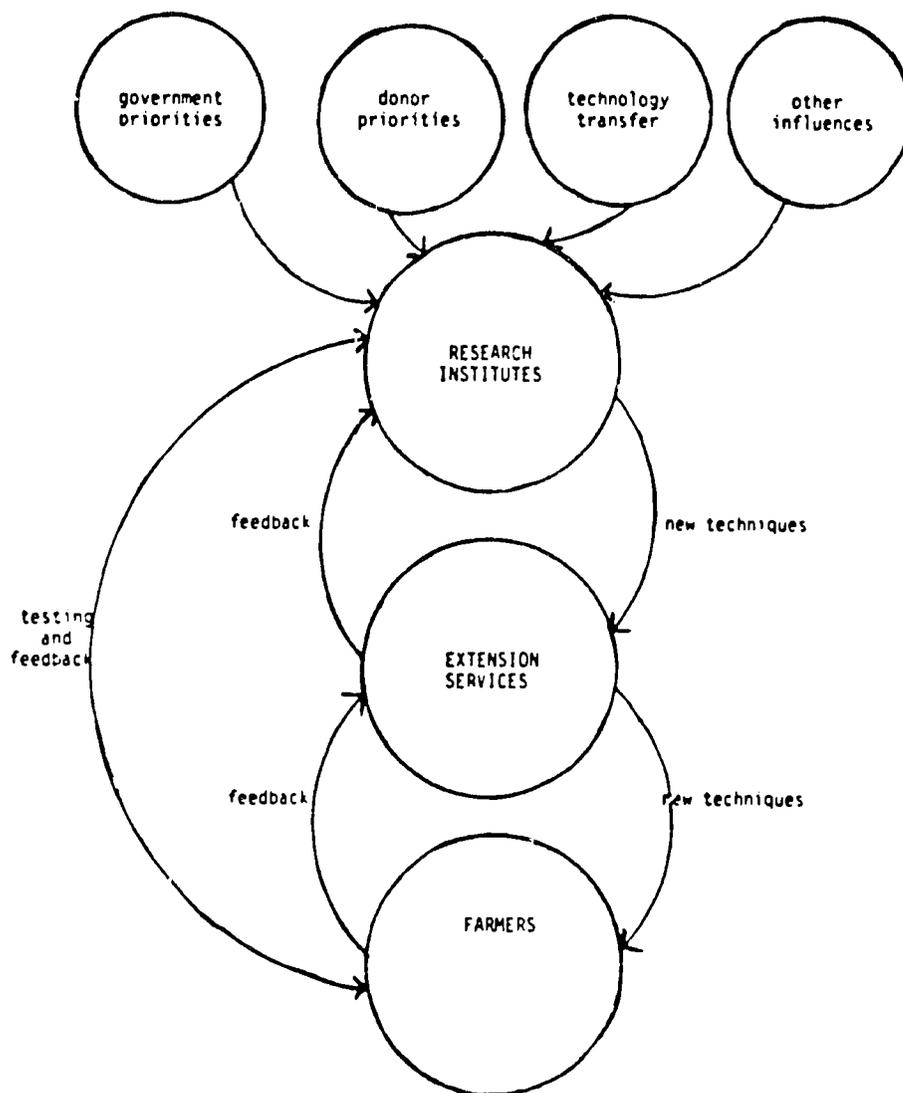
The success of extension efforts depends to a large extent on the nature of the technical advice they seek to transfer to farmers. In this paper it is generally assumed that agricultural research can and does make available technical solutions that are both useful and practical to the farmers targeted by extension services. Based on this assumption, the paper has focused on the problems of getting that information across to farmers. However, these two problems are not unrelated. Not only is a sound research program necessary to the effectiveness of extension, but extension mechanisms are also important channels of information on the application of new techniques in the field and the needs of farmers.

Ideally, agricultural extension and agricultural research should be closely related in all extension models. Extension agents are supposed to promote new farming methods and technologies that have been developed and tested by research institutions. In addition, extension agents, through contact with farmers, can learn of specific agricultural problems of the farmers and communicate these to the relevant institutions for research and solutions. Figure 2 illustrates how the links between agricultural research, extension, and farmers can be formed to provide an effective transfer of techniques and feedback that contributes to the development of new ones.

A great deal of controversy exists about the effectiveness of research institutions in developing countries, about the relevance of the research to the practical needs of farmers, and thus about whether or not the research has been able to provide extension agents with a valid message to extend. The World Bank (1971, p. 74) notes that:

Where land and water resources are poor, improvements that can be proposed based on current knowledge are often marginal. This is in itself an impediment to successful innovation because a substantial gain is usually required if a technical package is to be readily accepted by farmers.

FIGURE 2  
LINKS BETWEEN AGRICULTURAL RESEARCH AND EXTENSION



Thus, there must be a successful technical package or proven, innovative method to extend. Traditionally, the development of technical packages has been quite strong for the most common export crops of developing countries, such as tea, tobacco, sugar cane, cotton, and rubber. But since women farmers are more likely to be involved in food production, they are not well served by research on these export crops. Technical packages may be somewhat weaker for traditional food crops and may not be effective in harsh climates. However, important research on food crops in developing country climates is being carried out by the International Agricultural Research Institutions (IRACS).

In general, agricultural research tends to ignore women's roles as major actors in the processing, preserving and marketing of agricultural produce. Because they do not take account of the sexual division of labor in agricultural production, innovations that are designed to be labor-saving for men may increase women's work loads by increasing the amount of time spent weeding or processing. Even worse, they may prevent women from earning income through the production and marketing of certain crops by adding tasks that redefine those crops as "male." In order to make agricultural innovations attractive to women farmers, therefore, they should involve concrete benefits for the women themselves, such as improvements in crops that women control.

One research approach that has promise in terms of women's concerns is Farming Systems Research (FSR), which focuses on the farm as a whole, not just specific crops. The objective of this approach is to develop techniques that are "appropriate to the production and consumption goals of rural households in specific microenvironments" (Eicher and Baker, 1982, p. 159). Since FSR explicitly considers the roles of different household members in agriculture, women's work is recognized and addressed in the development of new technologies (Axinn, 1982). FSR also relies on field tests of new methods under actual conditions--in the fields of small farmers--rather than the usual demonstration plots at the research station (Shaner, Philipp, and Schmejl, 1982). A number of the IRACs began cropping systems research using this approach in the 1970s; the International Rice Research Institute (IRRI), for example, recently sponsored a three-day conference on "Women in Rice Farming Systems."

It is logical that the research-extension cycle cannot be completed if extension agents do not reach all groups of farmers, some of whom have unique problems, and relate those problems back to research institutions for solution. For example, if extension agents fail to contact those who actually grow traditional food crops to discover their most important needs and problems, those needs and problems may never be communicated to existing research institutions. Thus, the development of technical packages or solutions to specific problems related to food crop production may never occur if food crop farmers, in many cases women, are not reached by extension workers. Finally, even if appropriate technical packages are available, the messages which agents extend from research institutions may go no further than the individuals actually contacted by the extension agents. If diffusion of the messages is not effective or is not complete, women farmers may not receive the extension messages, since they are generally not contacted directly by extensionists.

## Types of Services Provided by Agricultural Extension

Many development projects and programs involve an extension, outreach or diffusion component. Although extension efforts in education, forestry, community development and others may overlap with agricultural extension, they are rarely coordinated and sometimes even provide conflicting messages to the households they contact (Eicher and Baker, p. 150). In the case of agricultural extension for women, the picture is further confused by the addition of extension services that are primarily focused on women's household roles but provide some agricultural training as well. These services may or may not be coordinated with a mainstream agricultural extension program, or they may substitute for agricultural extension where women farmers are the principal targets. This paper will focus primarily on agriculture-specific extension services, but the question of their relationship to women-oriented extension will be explored later in this section.

Agricultural extension services are the link between agricultural research institutions and farmers, designed to help farmers raise their productivity and overall output. This is achieved by providing information on new technology and production methods, including improved land preparation; use of new varieties of seeds and new techniques of planting and cultivating; application of fertilizers, pesticides, and herbicides; improved methods of harvesting and preparation of crops for the market; and introduction to organized marketing (Orivel, 1983). It is also achieved by motivating farmers to employ the new technology and production methods, and by assisting them in overcoming difficulties encountered in doing so. However, with the major exception of those that include a farming systems approach, most extension services concentrate primarily on technical problems related to farming, and put little emphasis on managerial and social constraints (Eicher and Baker, 1982, p. 152). One further objective of extension services is to obtain feedback from farmers on technological and other problems which they consider important, and to relay those concerns to appropriate organizations for research and resolution (Benor and Harrison, 1977).

Thus, agricultural extension encompasses:

- individual and group counseling/training for farmers to spread new techniques and inputs or ensure more effective use of existing ones
- assistance to farmers in the adaptation of research results to local conditions (including physical, social, and economic characteristics of the area)
- applied research for the development of better farming techniques (including tests of new methods and inputs in actual farmer fields), and
- gathering information on farmers' problems, successful and unsuccessful farming practices, and the results of the use of new techniques

Initially, extension agents in developing countries were overburdened with multiple, conflicting tasks required of them as both extension agents per se and official representatives of a colonial, and later national, government. Many of their functions were regulatory--to prevent land erosion, conserve water, prohibit the growing of certain crops, and prevent the spread of livestock and plant diseases, as well as to collect taxes and sometimes facilitate the recruitment of labor for roads, mines, and plantations.

In recent years, extension work has become much less regulatory and more advisory and service-oriented. There is a greater tendency to attempt to introduce innovations and new technology, including new varieties of seeds, fertilizers, insecticides and herbicides, irrigation pumps, draft animals, ploughs, and other farm equipment or machinery. Some agents have become involved in the extension and collection of agricultural credit for various institutions and in assisting the development of farmer credit and marketing organizations (Eicher and Baker, 1982; Moris, 1966; Chambers, 1974). Extension agents may also collect data on acreage planted and other aspects of production. This helps them successfully carry out their other functions, but increases their work load as well (Chambers, 1973, p. 436).

## Origins of Extension Services in Developing Countries

The structure of agricultural extension in most developing countries was modeled after systems in Western Europe and North America (Smithells, 1972, p. 10). Most of the extension systems in Africa and Asia were created by British, French, or Dutch colonial administrations, mainly to increase the supply of primary agricultural commodities to those European countries. These systems were oriented toward improving production of specific export crops such as tea, coffee, rubber, cocoa, peanuts, sugar, and indigo (Stavis, 1979, p. 6). For example, in the former French colonies of Africa there were a number of sectoral development societies, each focusing on a different crop (Stier, 1974, p. 456). The extension services associated with these programs were largely regulatory or supervisory in nature, relying on direction, persuasion and at times coercion from above to reach given targets (Orivel, 1983; Anthony, Johnston, Jones, and Uchanda, 1979). Although women were active in agricultural production in many parts of the colonial world, particularly in Africa, only men were encouraged, and sometimes forced, to grow export crops (Boserup, 1970). As a result, male farmers were generally the only ones contacted by agricultural field agents. Women's production of locally-consumed crops was ignored.

After World War II, when the colonies gained independence, many of the existing extension programs changed following the formulation of new agricultural and rural development policies. Although extension services often continued to emphasize export production, the new policies initiated more generalized rural development, in the form of "community development" or "animation rural," including work with food crops as well as export crops and encouraging changes in the entire socioeconomic environment (Stavis, 1979, p. 8). Community-oriented programs such as the Traditional Community Development (TCD) programs were developed in India and the Philippines, and later spread throughout Asia and Africa (Anthony, Johnston, Jones, and Uchanda, 1979, pp. 470-1). They were highly influenced by the U.S. experience, as were those on the west coast of South America developed under the Alliance for Progress. Although the community development approach has certainly been beneficial in terms of increasing participation, it also brings new costs, since more time is generally required to implement participatory projects and disagreement within the group can lead to inaction (Orivel, 1983, p. 15). Agricultural advice may be diluted by attempts to deal with all of the community's needs at once. In addition, small-scale projects that rely on community participation often utilize unpaid labor from women exclusively, adding the burden of voluntary labor to women's already heavy responsibilities (Tendler, 1982).

A number of the modern extension services, notably those in Latin America, were built with large inputs of U.S. aid, and based on the U.S. system of combining agricultural research, higher education, and extension, as the U.S. land grant colleges do. The U.S. model also involved the division of extension services by sex—with men providing agricultural advice to male farmers and women teaching home economics and nutrition to women (Ashby, 1981; Mead, 1976). It was assumed that advances in agricultural practices and technologies, as well as the U.S. extension model, could simply be transferred from the developed to the developing countries (Higgs, 1976, p. 251; Stavis, 1979, p. 10). Though later developments in the field determined that agriculture was a location specific activity, requiring farming methods, plant varieties and technology tailored to specific socioeconomic-geographic environments, the earlier approach left a lasting influence on developing country extension services (Cochrane, 1974, p. 23).

### Organization of Agricultural Extension Services Today

Different types of agricultural extension education organizations can be found in every nation state (Axinn and Thorat, 1982, p. 3). Four distinct institutional models can be identified and are examined more closely below:

- (1) general, government-sponsored extension services
- (2) extension services within crop-specific programs
- (3) extension services within integrated rural development projects, and
- (4) extension services within programs specifically for women.

#### 1. General, Government-Sponsored Extension Services

Most developing countries organize agricultural extension functions as part of the government administration, often within a Ministry of Agriculture (World Bank, Lesotho, 1981, p. 18; USAID/Botswana, 1974, p. 16; Bettles, 1980, p. 10; Smithells, 1972, p. 10). The typical organization in formerly British countries is inherited from the colonial days—a Deputy Director or Chief Agricultural Officer heads the Extension Division of the Department of Agriculture, under a Director; a Senior or Provincial Agricultural Officer is responsible for departmental work at regional levels; and Agricultural Officers under

him are in charge of districts. Practical extension services take place at the district level, where direct contact is made with the farmer either by field agents or in farmer training centers.

The Agricultural Extension Department may be autonomous, or it may fall under a more general Department of Community Development or Rural Development within the Ministry of Agriculture. Sometimes Rural Development is a completely separate ministry. All of these organizations tend to use "generalist" extension workers at the farm level, although they may be supported by subject matter specialists at regional levels (Stier, 1974). A divided type of organization may also exist, where each technical department or division within the Ministry of Agriculture has its own extension service, which may include extension agents who have specialized knowledge in certain areas. This was the case in most Asian countries during the 1960s, although these countries have since consolidated their extension services. In India, such services now lie within state Departments of Agriculture and have been based, since 1974, on the generalized Training and Visit System which will be described in greater detail below (Cernea and Tepping, 1977, p. 3; Benor and Harrison, 1977).

These services form a complex web, sometimes overlapping, as when Ministry of Agriculture extension services and crop-specific programs operate in the same area. However, services occasionally leave gaps in geographic areas that may have the greatest need for extension assistance, particularly where there is no integrated rural development project and little export crop production. If Ministry of Agriculture services are not adequate to cover an entire country, poorer areas may be bypassed, due to their low potential for cash crop production.

## 2. Crop-Specific Programs

Attempts to increase the effectiveness of limited staffs have often resulted in concentrating extension efforts in a limited geographic area or on a few, specialized activities, frequently a single crop. In general, the type of crops emphasized by extension services, whether administered at the broad Ministry of Agriculture level, or by crop-specific agencies, is an important determinant of the service's recipients. Because of the historical origins of extension services and the developing countries' ongoing need for foreign exchange, the focus tends to be on export crops grown primarily by men (Eicher and Baker, 1982, p. 151; Boserup, 1970).

The crop-specific approach has been used very effectively in some countries by parastatal organizations and private corporations, such as Gulf & Western in the

Dominican Republic and the British American Tobacco Company in Kenya. Corporation agents supply inputs such as fertilizer, seeds, insecticides and herbicides, and credit to buy those inputs at government-subsidized prices. The farmers may then be required to sell all, or a large proportion of certain crops to the corporation at predetermined prices to assure repayment of the input loans or to maintain state or company control over those commodities (Freeman and Karen, 1982; Eicher and Baker, 1982).

Special agencies and programs have been established to work with farmers who plant specific types of crops, particularly those that are important for export earnings. Examples include the Societe de Developpement de Coton (SODECOTON) in Cameroon and the Compagnie Malienne pour le Developpement de Textiles (CMDT) in Mali, both of which are associated with research and extension for cotton production. While some of these sectoral development companies have evolved into more generalized development institutions, they continue to emphasize the promotion of a specific commodity, usually an export crop that can be grown by smallholders, such as cotton, oil products, or tea. These companies employ their own expert advisors--either nationals or expatriate contractors--who carry out extension services in place of regular government extension agents. They are especially knowledgeable about the particular crop that is emphasized.

Because the parastatals or companies are usually commodity-specific for an important commercial crop, many criticize this extension approach for having little impact on other crops; however, others believe that there are indeed spread effects to other crops (Freeman and Karen, 1982). If there is some spread effect to other crops, women may be reached indirectly. In those cases where the company has assisted in the production of food crops in the same areas as the commercial crops, it is more likely that women will be directly reached.

It is a common misconception that because women mainly produce food crops, they are not involved in production for the market. In fact, in some cases, women farm managers and partners even grow export crops such as cocoa (Vellenga, 1983), or perform vital tasks in the preparation of export crops, such as drying coffee beans (Roodkowsky, n.d., p. 5; UNDP, 1980). In addition, women can be an important source of farm labor on large plantations, particularly in Asia (Blumberg, 1981). But more important, a significant portion of women's food crop production, including staple foods and vegetables, is cash crop production, in the sense that it is marketed domestically in developing countries. For example, in Asia and Africa, women farm managers, partners, and family workers contribute to all aspects of the growing, processing, storage and marketing of rice, one of the most important crops in the rural economy (Dey, 1983).

Women's dominant role in the marketing of local produce, particularly in West Africa, is also well documented. Thus, women's agricultural production is actually, or at least potentially, a profitable undertaking, not just a subsistence activity (Vellenga, 1983; Safilios-Rothschild, 1981; Axinn, 1982) and should be treated as such by crop-specific and other extension services.

### 3. Integrated Rural Development Projects

Agricultural extension is often included as a component of regional, integrated rural development projects (IRDPS) that seek to address multiple needs of the local population, such as water, agriculture, education, and off-farm employment. When this occurs, regular agricultural extension agents may be replaced. For example, in Cameroon, country-wide extension services (excluding livestock) have been the responsibility of the Directorate of Agriculture within the Ministry of Agriculture. However, that system has encountered numerous problems that have limited its effectiveness. Therefore, by mutual agreement, when new, integrated rural development projects, such as the ZAPI (Zones d'Action Prioritaires Integrees), are established in particular zones, regular government extension services are transferred out and the ZAPI becomes totally responsible for farm-level agricultural assistance (World Bank, Cameroon, 1978, Annex 3). The practice of attaching extension services directly to the development project, rather than utilizing government extension agents, is also being followed in other regions of Cameroon, such as the Northwest Province, where MIDENO (Northwest Development Authority) operates, or in the West Province where UCCAO administers the Integrated Rural Development Project of the Western Highlands.

In these locations, extension workers are "generalist" in orientation, and may even be multi-purpose development workers. Sometimes, as in MIDENO, attempts are made to employ female as well as male extension workers, since so many farmers are women. Elsewhere, as in ZAPI, a separate staff of female extension workers, primarily concerned with women's programs such as food production and marketing, may be assigned to the zones (DeLancey, 1984).

Because of their multipurpose orientation, extension services attached to IRDPs are more likely to contact women in the areas they serve. Whether or not they actually transfer agricultural advice to women is an open question. With so many areas to be covered, they may simply concentrate on assisting women with other activities such as

basic education and nutrition, reserving agricultural assistance for men. However, the structure of these projects certainly offers the potential, at least, for reaching women farmers with useful technical advice.

#### 4. Women-Specific Programs

Systems that provide parallel but separate types of extension programs for men and women are very common and come in many varieties. When specific programs for women exist, they may be integrated into the regular extension structure, organized as a separate women's division of the extension service, or housed in a different department of the Ministry of Agriculture, such as the Department of Community Development. They may even be located in a separate Ministry, such as the Ministry of Social Welfare. Alternatively, they may be supported through a separate, national-level Women's Bureau which coordinates all activities directed toward women (World Bank, Lesotho, 1981).

Ashby (1981) stresses that extension strategies for women have historically focused primarily on women's reproductive, child care, and homemaker activities. Two worldwide UNESCO surveys on the access of rural women to education bear this out. The 1964 UNESCO survey found that in out-of-school programs for women in thirty-eight low-income countries, home economics subjects predominated, with health education second, and rural economy, accounting, and cooperative management as subsidiary activities. The only specific agricultural content of these courses related to kitchen gardening. A subsequent survey in 1973 found that extension programs for women offered courses in home economics, hygiene, nutrition, child care and sewing (UNESCO, 1964, 1973). The U.S. system of providing agricultural extension for men and home economics extension for women has been copied in many parts of the world. As Margaret Mead (1976, p. 10) argues, this dual system is firmly entrenched, and its impact has been negative:

The Euro-American tendency to attribute the concern with agricultural production (with food before it leaves the harvest field) to men and to attribute the concern with food after it leaves the harvest field to women led to the dual assumption that scientific agriculture was a male field and scientific food knowledge (food preservation, nutrition, child rearing, and home management) was a female field. This seemed to be a step in the right direction when it first was developed in the United States and initially was spread around the world through technical agricultural schools for males and home economics schools for females. Actually its effects have been disastrous.

Mead (1976) argues that the dual system has led to the devaluation of nutrition as a professional field, because it is now seen as a women's field. But the male/female split she describes has also led to the undervaluation of women's work in agriculture both before and after the harvest. Under this kind of dual system, even if they are recognized as having a valuable role in agricultural production, women may not be seen as potential targets of the regular agricultural extension services because it is assumed that they will be reached through women's programs.

By definition, women's programs have been the most likely to reach women farmers. However, as noted, these extension programs have usually concentrated not on farming, but on nutrition, child care, and other domestic science topics (Ashby, 1981). In some cases Home Economists or Community Development Assistants who are not highly trained in agricultural science, but who are trained in group dynamics, work with the government agricultural extension services to encourage women's food crop farming (DeLancey, 1984; AHEA, 1981). However, where home economics extension programs do incorporate an agricultural component, they tend to focus mainly on subsistence crops that supplement family diets, not on production of staples or marketable crops.

#### Appropriate Institutions to Assist Women Farmers

As shown above, there is nothing inherent in the Ministry of Agriculture or IRDP extension services that would exclude women, unless their scope is limited to larger, wealthier, or more powerful farmers (a problem discussed below) or to particular crops that are not produced by women. In fact, IRDPs have a high potential for reaching women farmers if they include food crops in their extension efforts. On the other hand, crop-specific programs may or may not be able to incorporate women in their activities, depending on which crops they target.

Although they are most likely to reach women, women-specific programs have a low potential for training women in farming techniques, because of their home economics orientation. In addition, these programs are more likely to view women's farming activities from a subsistence or nutritional, rather than commercial perspective, thus limiting their effectiveness for raising the efficiency and incomes of women farmers. Finally, women's programs generally have access to very limited financial and human resources, and are often outside the mainstream networks that could provide greater levels of assistance (Buvinic, 1984). Because they rely largely on volunteer or very low-paid labor, their staffs tend to have a generalist orientation and lack specific technical expertise related to agricultural production. Thus, it makes sense to take advantage of

the resources available elsewhere by integrating women's concerns into the larger agricultural extension programs--either instead of, or in addition to, women-specific efforts.

The institutional context in which agricultural extension services are organized is just one of the factors that determines their ability to assist women. Even if the institutional setting does not exclude women, the approach to service delivery or other characteristics, such as the qualifications of extension personnel, may limit women's participation. The following sections address these problems as they relate to women.

## EXTENSION APPROACHES

Given the institutional framework under which extension services are provided, how will the approach to service delivery affect potential women clients? Which approaches offer the most hope for reaching women?

In most developing countries, the sizes of extension staffs and budgets are small relative to the number of farmers. Various approaches to the delivery of extension services have been devised in an attempt to spread the resources of the extension institutions as far as possible (Stavis, 1979, p.4 ; Anthony, Johnston, Jones, and Uchanda, 1979, p. 234; Eicher and Baker, 1982, p. 152-6). These range from direct one-to-one contact between the extension agent and each farmer, which usually reaches a limited number of farmers, to mass communication methods that have the potential to reach a great many farmers. This section of the paper outlines the major approaches to delivery of extension services--the use of contact farmers, particularly progressive farmers; resident farmer training centers; commercial channels; and community/group approaches, such as mass communication or demonstrations. Each approach is discussed in relation to the population it is most likely to reach and its potential impact on women farmers.

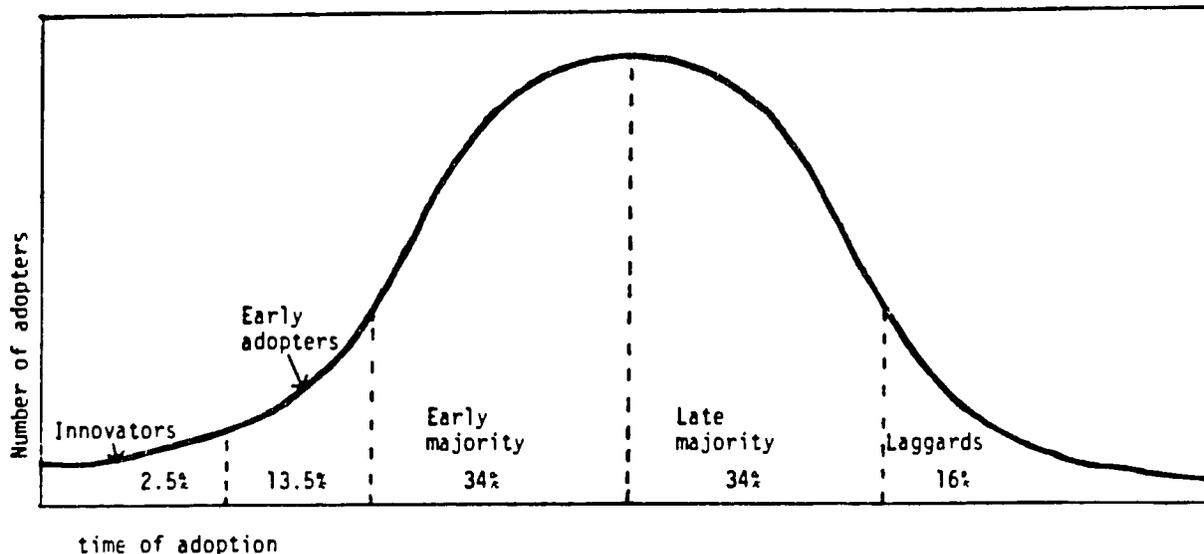
### Contact Farmers

Perhaps the most common delivery approach is for extension agents to make personal visits to a small number of contact farmers. In particular, efforts are concentrated on "progressive" farmers, those most willing to adopt the innovations provided by extensionists. According to Røling, Ascroft and Chege (1981, p. 227):

There are few extension service workers in any country who do not classify their farmers in terms of progressiveness or innovativeness, and make use of this classification to concentrate on those farmers who are quicker to follow their advice, who are of sufficient economic means, more knowledgeable, and more homophilous with the extension workers.

Figure 3 shows the distribution of farmers from innovators to laggards, assuming a normally distributed population. Progressive farmers belong to the innovator and early adopter categories.

FIGURE 3  
BELL-SHAPED CURVE OF ADOPTER CATEGORIES



SOURCE: Niels Roling, Joseph Ascroft, and Fred Chege, "The Diffusion of Innovations and the Issue of Equity in Rural Development," in Bruce R. Crouch and Shankariah Chamala, eds., *Extension Education and Rural Development*, v. 2 (Chichester: John Wiley & Sons, 1981).

By definition, contact farmers, especially progressive farmers, are a minority of all farmers, whether male or female. For example, the African Improved Farming Scheme in Mazabuka District in Zambia increased the number of "improved farmers" from 355 in 1952 to 1,410 in 1969, but even then reached only 10 percent of the farmers in the area (Anthony, Johnston, Jones, and Uchanda, 1979, p. 239.) In one province of Kenya, Leonard (1977) found that on average extension agents spent 57 percent of their visits with "progressive farmers" (the most advanced 10 percent of all farmers). In contrast, they spent only 6 percent of their visits with "traditional farmers" (47 percent of all farmers). Thus, they made over half their visits to a very small proportion of all farmers. Citing evidence from World Bank evaluation reports, Orivel (1981, p. 14-16) found from his review of the literature that "only a minority in the farming community has had effective contacts with the agents and those covered have been contacted less frequently than would be necessary to insure the assimilation of all the new farming practices to be introduced." In one Nigerian project, for example, only 3 percent of the farmers had been contacted by extension agents.

Similarly, field research in Botswana found that direct as well as indirect agricultural extension reached only a small proportion of farmers (Bond, 1974). Only 6 percent of the respondents to the questionnaire had had regular contact and discussed farming with the Agricultural Demonstrator (AD); a further 6 percent had had some contact during the last year. Very few of those surveyed had any knowledge about the various agricultural officers and their jobs.

Bettles (1980) confirmed Bond's findings for the early 1970s. She estimated that, as a result of extension work being based upon the "Pupil Farmer" and "Pupil Stockman" schemes with each AD having 25 farmers to graduate from "pupil" to "master farmer," the ADs were spending as much as 90 percent of their time with 7 percent of all farmers, who were becoming an elite group. As a result, the system was changed so that the AD became responsible for all 250-300 farmers in the area. The government decided to integrate women's extension into existing services and create a new post of Agricultural Officer/Women's Extension at the headquarters level. No later data on numbers and types of farmers reached are available to measure the change that may have occurred.

Even though few farmers are reached with this approach, extension agents' direct contacts with progressive farmers supposedly have a multiplier effect, since innovations are assumed to diffuse through local channels of communication (Roling, Ascroft, and Chege, 1981). Progressive farmers can set an example and provide assistance to other farmers in acquiring new knowledge and skills. This implies that there is no need for extensionists to focus on more than a fraction of farmers. Indeed, if claims about diffusion are correct, it would be inefficient to make contact with more than a few progressive farmers. One criticism of the progressive farmer approach, however, is that it leads to inequitable development by increasing differentiation between the contact farmers and those who are not contacted directly (Crouch and Chamala, 1981). McCallister (1981) argues that it may be unwise to introduce new techniques through the most innovative farmers in a community since they may try to control the spread of the innovation and thereby increase their own power.

Diffusion from progressive farmers to others, therefore, may not be as effective as was originally thought. Benor and Harrison (1977) argue that contact farmers should be those who are apt to be in contact with average farmers, rather than the most progressive. Roling, Ascroft, and Chege (1981) cite a successful Kenyan experiment in which intervention focused directly on the "laggards" (the least innovative) and had a 100 percent adoption rate among that group and an immediate three to one spin-off for each farmer contacted. Because of institutional and personal biases in extension services and

lack of access to resources, women are rarely selected as contact farmers, even when efforts are made to contact average farmers (Benor and Baxter, 1984, pp. 172-3). This problem is compounded by the lack of diffusion of technical advice from men to women, even in the same family (Fortmann, 1982). The following section explains in detail why the progressive farmer approach is more likely to reach men than women.

### Reasons for Women's Limited Participation in Progressive Farmer Programs

Progressive farmers are expected to be psychologically predisposed to change. They are able to understand and adopt innovations introduced by extension workers, and act as opinion leaders for other farmers in the area (Leonard, 1977, p. 178). In practice, they tend to be more educated than others in their local area, have access to more financial resources, land, capital, labor and political power, and may even have had some specific type of agricultural training in the past (Orivel, 1983; Crouch and Chamala, 1981).

Because men have historically had more education and training opportunities and greater access to resources than women, progressive farmers tend to be men. This extension approach, then, is more likely to reach men in any of its institutional forms. Since women lack access to certain key resources—education, land, credit, income, labor, and political power—they are not likely to be reached by this approach. In addition, they will be at a disadvantage with respect to other types of extension programs. The following section explains how women's limited access to productive resources may exclude them from progressive farmer schemes.

Education. Education enhances the ability of farmers to acquire accurate information, evaluate new production processes, and use new agricultural inputs and practices efficiently (Ashby, 1981). Better educated farmers are twice as likely to be in contact with agricultural extension agents, indicating that farmers with higher levels of education benefit most from extension services (Lele, 1976). In addition, educated farmers may push the extension system to deliver what they need and make sure the knowledge is appropriate to their resources (Singh, 1979; Orivel, 1983).

The impact of schooling seems particularly significant for women farmers, though men who complete more schooling often seek off-farm employment. In a study in Kenya 34 percent of male farmers and 33 percent of female farmers had completed one to three

years of education. However, 43 percent of the men and only 16 percent of the women had four years or more of schooling. The one to three years of education were positively associated with higher yields for women, and both female and male farmers with four years or more of education obtained overall a higher output per unit of input (Moock, 1976). Studies cited by Jamison and Lau (1982) show that production is increased on average 7.4 percent as a result of farmers' completing an additional four years of education.

In most developing countries, women have lower rates of literacy and less education than men, especially in rural areas. In Indonesia, for example, 60 percent of the rural women and 30 percent of the rural men are illiterate; in Pakistan, the figures are 87 percent and 62 percent, respectively (U.N., 1979). In Ghana and Kenya, 77 percent of rural women vs. 54 percent of rural men are illiterate (Smock, 1982). Women heads of household surveyed in a study in rural Paraguay were less educated than male heads; 42 percent of the women had no formal education compared to 18.6 percent of the men (Laird, 1977). Data from St. Lucia show that 30 percent of women on small-scale farms had no education (Ellis, 1981). United Nations data (1982) attest to a similar situation in most developing countries. Rural women, who generally have lower educational levels than males, may consequently seek less agricultural information, interact less well with educated agricultural agents, and fail to speak up and push the extension system to provide appropriate information, instruction, and inputs for production. This problem carries over into other approaches to extension as well, since women with less education will be at a disadvantage in receiving agricultural training and interpreting instructional materials.

Land Ownership. Farmers with access to land, preferably title to land, are generally said to be more willing to invest in innovations because they have no fear of losing their investment through the loss of access to the land. Agricultural extension services consequently tend to concentrate on those who own the land they farm, or at least have stable leasing arrangements. Furthermore, research has shown that farmers with large holdings tend to be selected as contact farmers (Orivel, 1983; Chambers, 1974). This leaves women at a disadvantage, since land ownership is often vested in the men; when women do own or control land they tend to have smaller holdings than do men.

Land ownership and tenancy rights are important criteria for the selection of clients by extension services. Over the years, women's access to land has become more limited. Where women once enjoyed usufructuary rights through their relationships to

other family members or through clearing and cultivating the land, individual land ownership is now the norm. Colonial policies, land reform legislation, and land resettlement schemes have generally awarded land titles to male heads of household, even when the land was worked by women. In addition, since men tend to produce cash crops or work for a wage, they have an advantage over women in purchasing land, because their money incomes are higher (Boserup, 1970). In the vast majority of cases, then, men effectively control the land tenure system. Despite the fact that women may be the principal cultivators of the land, men often have the sole right of its disposal. Even if males are absent for a long period of time, they can often sell land out from under their rural wives (Blumberg, 1981; Bennett, 1979).

In a survey in Kenya, for example, only 5.9 percent of the land was registered in a woman's name, either alone or jointly with a son. Very few female farmers had the minimum of 6 hectares necessary to qualify for a government agricultural loan program for small farmers, though 92 percent of them did have access to 1.5 to 4.5 hectares (Pala, 1978). In India, land titles are generally given in the husband's name and wives are not recognized as joint owners of property acquired during the marriage (Bennett, 1979). In Lesotho, only men have the legal capacity to administer property; women cannot enter into contracts for farm equipment, labor, and agricultural loans in their own names, despite an 85 percent female agricultural labor force participation rate (Bennett, 1979). In Iraq, land was distributed on a family rather than individual basis with the male head of household designated as the title owner (Bennett, 1979).

Inheritance rights, which tend to favor male heirs, often deny women ownership of land (Bennett, 1979; Westergaard, 1982). Under the traditional law in some areas of Africa, women once gained access to land farmed by their mothers. Studies of the Ga in Ghana and the Mandinka in the Gambia, for instance, show that daughters have traditionally been allowed to inherit their families' or mothers' rights to land. Yet civil inheritance laws now favor sons when "female" land is handed down from generation to generation (Dey, 1981; Bennett, 1979).

Women who are separated or divorced may suffer particular disadvantages in terms of access to land (Bennett, 1979; Bukh, 1979). Many must return to their natal families where they have no guaranteed access to land, tools, and family labor. Divorce often excludes a woman from using her husband's land even if she cares for the children (Muntemba, 1982). In Morocco, where the divorce rate is very high, a woman must turn to her brothers for help in farming; in return she is expected to give her property to her brothers on demand (Jones, 1981). A study of divorce in Ghana found that a divorced

woman often receives nothing but her personal effects in settlement. Whether or not she must pay back the bride price depends on who initiated the divorce and keeps the children. In Nepal, a widow has usufructuary rights to land during her lifetime, but a divorced woman, who has no such rights, often becomes destitute (Acharya and Bennett, 1981). However, Nepali women living separately from their husbands may continue to use some of their husband's land, usually the land to be inherited by their sons (Schroeder and Schroeder, 1979). In other areas, divorced or widowed women may be allowed formal access to land as, for instance, in the Indian state of Kerala, where only divorced women and never married women are eligible to own land (Bennett, 1979). Likewise, in Peru divorced or widowed women may receive rights to land in land reform programs (Deere and Leon, 1982).

While sometimes granting access to widows or single mothers, land reform laws have generally excluded women as potential beneficiaries (Deere, 1984). Land reform laws in Colombia distributed land to the needy, defined as married males of least eighteen years of age (Jones, 1981). In other countries, the experience has been much the same (Spring and Hansen, 1979; Wilson, 1982; Deere, 1977; Safilios-Rothschild, 1983). However, a study of land purchase in a district of Peru shows that when women are given the opportunity to buy land, they can and will. Forty percent of the marginal hacienda land subdivided and sold to peasants in the 1950s and 1960s was registered in the names of both the wife and husband; 30 percent of the subdivisions was registered in the wives' name alone (Deere, 1982).

When women do have traditional or legal rights to land, their holdings may be smaller and of lower quality than those of men. Many of the holdings that women work as farm managers, partners, or unpaid workers are insufficient to meet a family's subsistence needs (Rosenberg and Rosenberg, 1978). In addition, acreage that is more fertile and closer to a village may be devoted to the cash crop production of men, requiring women to travel further to their fields (Blumberg, 1981). In Paraguay, a study showed that 59 percent of the women cultivated less than three hectares of land in 1977-78, compared to 33 percent of the men (Laird, 1979). In Sub-Saharan Africa where land is more evenly distributed, women's fields are also smaller than men's. In Botswana, for instance, female heads of household owned an average of one-third less land than male heads (Bettles, 1980). A Ghana survey revealed that 68 percent of the female agricultural holdings were less than an acre, 23 percent one to two acres, and only 9 percent two to twenty acres. The corresponding acreages for the male holdings were 17 percent, 22 percent and 61 percent, respectively (Bukh, 1979). A similar pattern is

found in many other countries (see for example, Marter, 1979; Moock, 1976; Kerven, 1979; Staudt, 1978).

Women's limited control of land has important consequences for their ability to maintain and expand production as well as their access to extension services. Women who must provide for their family's food requirements are reluctant to risk undertaking new agricultural technologies or crops on their small and perhaps less fertile holdings. Lack of land ownership or tenancy rights prevents them from gaining credit and controlling the capital generated by their production, thus preventing them from investing in agricultural innovations.

Income and Wealth. According to Chambers (1974, p. 58), "there is overwhelming evidence from all over the world that extension benefits go mainly to those who are already more prosperous." Even in socialist Tanzania, a survey showed that 59 percent of the wealthy farmers had a high level of extension contact while only 29 percent of the poor farmers had such contact (DeVries, 1978). The ability to invest in farm production is essential, not only for gaining access to extension services, but for maintaining and expanding farm output in general. Wealthy farmers have the resources to adopt innovations if they believe they will be profitable (Anthony, Johnston, Jones, and Uchanda, 1979; Lele, 1976).

Because of their poverty and limited control over land and the fruits of production, women farmers are particularly disadvantaged in hiring labor, obtaining draft power and tools, and gaining loans. In studies in Paraguay and Peru, for instance, female-managed farms were more heavily represented at lower income levels than male farms, and female farm partners who need to hire paid labor for assistance in the fields must rely on their husbands to provide them with the cash to pay for the labor (Laird, 1979; Bourque and Warren, 1979).

Data from Botswana show that the mean household income of female-headed households in 1974 was half that of male-headed households. On average, female heads of household possessed only one-fourth as many cattle as males heads, an indication of the latter's wealth and access to the necessary draft power to plow their fields. Households owning draft power were the the first to plow, and plowed an average of 70 percent more land per household than those who borrowed, exchanged for, or hired draft power. While female and male farm managers had nearly equal production, female managers had a net profit per acre only two-thirds as large as that of male managers (Fortmann, 1982; Kerven, 1979). In another Botswana study, male heads of farm households produced 1.9 bags of sorghum per acre, while female heads produced only 1.2

bags. This lower production may result from difficulties in buying fertilizers and other inputs, hiring labor and draft power, and having a smaller residential work force (Chaney and Lewis, 1980). Finally, a Zambian study showed that only 2 percent of the women independently owned modern implements, ox-drawn plows, and planters (Muntemba, 1982).

Access to Credit. Credit is one of the most urgent needs of the small-scale farmer. Progressive farmers generally own property that can be used as collateral, allowing them access to credit which they may use to adopt innovations. Without collateral or steady cash incomes, women cannot qualify for credit and must often persuade their husbands or other male relatives to put up the collateral for a loan (Lycette, 1984). A Kenyan study revealed that only 14 percent of the women received loans; further, these women were mainly farm partners, not farm managers (Staudt, 1982). In six villages of a Tanzanian Rural Development Bank's Smaller Farmer Food Crop Loan Program, women received only 10 percent of the loans (Fortmann, 1982). A small study in Zambia found that no women received loans for agricultural tools and inputs; such loans could be vital to women farmers since a husband or his kin keep all the farming tools in the event of divorce or a husband's death (Muntemba, 1982). On the other hand, in areas where women do own or control land, as in the cocoa regions of Ghana and in Sumatra, they have been able to gain credit to buy more costly inputs and machinery and employ men to help harvest (Blumberg, 1981).

Access to agricultural credit through cooperatives may also be directed to larger farmers, who tend to be male. Women's participation in cooperatives is limited. Even when substantial numbers of women are able to join, they seldom take an active role and have little voice in management (Safilios-Rothschild, 1982; Lycette, 1984). In Bolivia, 95 percent of the funds distributed in agricultural credit programs in 1974 went to larger farmers, and in Brazil, 88 percent of all loans were to large agricultural operations (Eddy de Arellano, 1976; Lassen, 1980). Women farmers in a 1980 St. Lucia study received only 1 percent of the total loans disbursed by the Agricultural and Industrial Bank. Though there were no legal restrictions to women securing credit, land was frequently required as collateral. Attempts to use crop liens as alternative collateral in government credit schemes have not been satisfactory, perhaps due to unfamiliarity with credit procedures and unwillingness to sell crops at official prices (Knudson and Yates, 1981).

Lacking access to credit, women face tremendous difficulties in purchasing inputs or hiring additional labor and draft power which may be crucial in undertaking the agricultural innovations recommended by extension services. Their limited resources are

expended on maintaining family food production and on producing simple-technology, secure, and readily marketable crops. Without capital, however, their potential for expanding production of these crops is limited.

Access to Labor. Farmers who are chosen to be contact farmers are often those who can command additional labor. The size, composition, and age of the family labor force is critical in labor-intensive activities and peak periods of small-scale farming. Indeed, some argue that the amount of land a family can cultivate is not limited as much by the availability of land as by the labor to cultivate it (Norman, 1974). Male managers can utilize their wives to supply additional labor as needed on the fields, but women who are managers in their own right generally have no spouse to turn to for assistance. In general, farm households headed by women have fewer household members, especially those able to handle heavy farmwork, than male managed farms; and this lack of labor is exacerbated by the limited availability to women of farm equipment and animals (Buvinic and Youssef, 1978).

In other cases, the small size of land plots is the chief constraint to farming, rather than a lack of labor power. The work of family members in income-generating activities and off-farm employment is essential to complement the family's often insufficient agricultural production. For example, in Guatemala, the average net income of small subsistence farms covers only about one-half the average expenses of a farm family (Lassen, 1980). In parts of Mexico where the land and available resources cannot support commercial production, women contribute more labor than men to subsistence agriculture, while men migrate to the United States to gain a cash income (Wilson, 1982).

In sum, lack of access to labor may hinder women farmers' abilities to maintain or increase agricultural production, given the small size of their resident labor forces. Without adult male labor, women are disadvantaged in clearing their fields and in making exchanges for labor and draft power. Their lack of capital prevents women farmers from hiring replacement labor, limiting the amount of cultivated acreage and agricultural output. The need for women farm partners and workers to devote more of their labor to cash crop production on male-managed fields may also result in less production on their separate plots. Because of the many claims on their time and their inability to supply replacements for their own labor, women do not have time to meet with extensionists or to attend training sessions.

Political Power. Some individuals do not wait to be selected as contact farmers or progressive farmers by local extension agents. They have the power to command services or to arrange to be elected by local governing institutions to serve as "model

farmers" if they so wish (Anthony, Johnston, Jones and Uchanda, 1979, p. 238). In other cases, extension agents who want to advance their careers will choose politically powerful farmers as their contacts. If local governing institutions are composed of men, it is likely that men will be selected as model or contact farmers, unless the extension service specifically requests that a woman be chosen.

Women's limited political participation hinders their ability to gain access to agricultural extension services. Formal decision-making, which may determine the goals, orientation, and delivery of extension programs, takes place without the input of women farmers. Decisions concerning access to other resources such as land, credit, and education may also be taken without incorporating the concerns and needs of women. Furthermore, agricultural agents, failing to view women as a politically important constituency, may make only minimal attempts to reach female farmers.

In some areas of Kenya, agricultural extension information is disseminated through barazas, the local government meetings attended primarily by men. While women are permitted to listen, it is not customary, and few have the time to attend. The women who participated in one Kenyan farmer training program tended to be wives of chiefs, assistant chiefs, or agricultural extensionists, not low-income female farmers, indicating that the politically powerful are more likely to gain access to training programs (Moock, 1976; Staudt, 1982).

Women have only marginal representation and power in most of the political and government institutions of the developing world. In some cases women's authority structures do parallel men's structures, as in the cases of Nigerian market women, the Mende in Sierra Leone, the Bamileke in Cameroon, and the Kikuyu in Kenya, for instance. Yet in general women have not been given the tools or the structures to participate in modern political circles. As the power structures of traditional societies become more affected by governments, parliamentary politics, and state bureaucracies, women lose their customary influence. In Nigeria, for example, where there is a strong indigenous tradition of women participating as leaders, women's involvement in modern politics and their voting rate is low compared to men (Staudt, 1981).

Rural women, and low-income women in particular, are especially disadvantaged in the area of political power. Men's dominance in official decision-making has served to allocate scarce resources to male farmers and accord higher value to men's work. In Latin America, rural women are rarely represented in local councils. In an agricultural community in Peru, for instance, women do not attend the communal assemblies, vote in communal elections, or hold office (Bourque and Warren, 1979). Women in Tanzania are

usually not represented in village governments, except in the Pare District where they played a crucial part in the resistance against taxation in the 1940s and hold 25 percent of the leadership positions. In a few villages, women have been elected as village chairpersons, including one case where half the households were headed by women and another where the men became so outraged that the area commissioner arranged a new election, which was won by a man (Fortmann, 1982).

Some governments, such as Kenya, Guinea-Bissau, and the Sudan have attempted to encourage women's political participation by reserving quotas, typically 5 percent or less, of national parliament seats for women (Bennett, 1979). Yet women must gain greater political experience, leadership skills, and organized alliances to increase their effective representation in local and national decision-making in order to gain power over the distribution of agricultural resources.

#### Variations Of The Contact Farmer Approach

Training and Visit Extension. There are several variations of the conventional contact farmer approach. One of these is the Training and Visit (T & V) system developed by Daniel Benor (Benor, Harrison, and Baxter, 1984). Village extension workers receive regular training on seasonally relevant topics, and then go to villages on a strict schedule to advise groups of "contact farmers" on the agricultural techniques mastered in the training period. This approach was designed to overcome some of the most commonly cited overall problems with agricultural extension by (a) making village-level agents responsible for agricultural extension only; (b) establishing a single hierarchical line of administrative control; (c) improving the ratio of field agents to farmers; (d) establishing a fixed schedule of visits and steady communication between farmers and extensionists; (e) providing technical back-stopping through on-going biweekly training of agents by subject matter specialists; and (f) establishing or strengthening organizational linkages with applied research institutions.

Village Extension Workers (VEWs) who receive regular training in the operation of the system, extension methods, and agricultural techniques are guided in the field and supervised by Agricultural Extension Officers (AEOs), who, in turn, are supervised by Subdivisional Extension Officers (SDEOs), and supported by Subject Matter Specialists (SMSs). The District Extension Officers (DEOs) are responsible at the district level, and

are supervised either directly by the state extension headquarters or an intermediate supervisor. These levels of control exist in order to ensure that close personal guidance and supervision is provided at each level.

Particularly in the initial stages of contact, the T&V system emphasizes inexpensive, relatively unsophisticated changes in farming practices that will increase yields without the addition of new, costly inputs such as fertilizers and insecticides (Cernea, 1981, p. 233). Most of the extensionist's field work is carried out through contact farmers who share the information and serve as an example to other farmers. An attempt is made to select average farmers in order to improve the chances of dissemination of innovations to similar farmers. As Benor, Harrison, and Baxter put it (1984, p. 27):

Contact farmers...should not be the community's most progressive farmers, since neighbors usually regard these farmers as exceptional and their neighbors tend not to attempt to imitate what they do... Contact farmers must be of good standing in their community so that their views on new practices will be respected by other farmers. All major agricultural, economic, and social conditions in a farmers' group should be represented by one or more contact farmer, as each farmer in the group must have at least one contact farmer whom he regards as imitable.

Because of the constant training, rigid scheduling, and controls employed, this can be an expensive approach to use, and may be difficult for many countries to introduce. Eicher and Baker maintain that while results of this system are promising in India and Turkey, the system would not work well in Africa at present, because of the required level of trained manpower and the transport and communication infrastructure needed to meet the schedules (Eicher and Baker, 1982). Nevertheless, some of these countries are attempting to institute the T&V approach. For example, Cameroon has included a variation of this approach in its current five-year Development Plan and has begun organizing it as a major part of a newly-established integrated rural development project, using both male and female village extension workers and attempting to reach female food crop farmers.

There is no information available on the sex composition of the T&V contact farmers actually chosen. Though contact farmers are not supposed to be more progressive and wealthy than others, they are expected to "be of good standing in their community so that their views on new practices will be respected by others" (Benor, Harrison, and Baxter, 1984, p. 27). Since they are less influential politically and are generally perceived as having inferior status, women farmers may not fall into this category. It is also suggested that contact farmers be selected in consultation with

village leaders or elders, another factor which may prevent women from being chosen (Benor, Harrison, and Baxter, 1984).

In addition, since women's roles in farming are not taken into account, the type of innovations that T&V seeks to spread, requiring few new inputs but relying on altered farming practices, may actually be disadvantageous to women, because they require increased inputs of family labor. For example, line transplanting of rice--one of the improvements cited in case studies of T&V--may increase rice yield but also requires more weeding, often considered a woman's job. Efforts by the extension services in Madagascar and the Casamance region of Senegal to introduce this practice (while not connected with the T&V system) have met with strong resistance from women for this reason (Dey, 1983, p. 14). In addition, because of their lack of access to labor, women who are independent farm managers may not be able to implement the suggested labor-intensive changes in farming practices.

Benor and Baxter (1984, pp. 170-7) have acknowledged the difficulties that the T&V system and other agricultural extension approaches have in reaching women farmers and providing them with useful technical advice. They suggest that field agents and training and research staff receive orientation on the agricultural activities and needs of women farmers in their areas, that women extensionists and researchers be recruited, that SMSs be trained and directed to handle the technological requirements of both women and men farmers, and that VEWs be directed to work with women contact farmers who are representative of women farmers in the area. If necessary, Benor and Baxter (1984, p. 175) propose that positions be created for SMSs whose primary responsibility would be "to ensure that the extension service, and through it research, develops and promotes feasible, appropriate production recommendations to meet the needs of farm women." Another method they suggest for ensuring effective contact between VEWs and women farmers is to organize the women into village groups that can meet with the VEW during the regular visits to the village.

Little information is available, however, on the actual implementation of these suggestions. It appears that further research is required to determine whether the T&V system has proved to be an effective mechanism for the delivery of agricultural extension services to women in the countries where it has been tried, and whether it can be adapted to suit women's needs in other countries.

Model Farmers. Another variation of the conventional method is to organize village groups, each of which elects a "model farmer" to attend weekly or biweekly training programs at local administration centers. Rather than having extension workers

advise individual farmers or members of the village group on agricultural techniques, the model farmer is obliged to report to the group what he or she has learned at the local training center. Because of their relative lack of political influence, women farmers are unlikely to be elected as model farmers for their villages. Even if women were chosen, many of them would have difficulty in attending training programs, due to domestic responsibilities which make it hard for them to travel away from home for an entire day.

### Farmer Training Centers

One of the most common alternatives to the contact farmer approach is providing training at local Farmer Training Centers. These centers have been established in many countries, with resident programs that generally last from several days to a few months, offering short courses on technical subjects. Some programs are designed to train couples or entire families for as long as a complete agricultural year. Although contact with farmers is easier and more effective in such a controlled environment, it has been found that short-term training programs have only a limited effect and that the technical bias of the courses may be too strong for many of the target farmers (Eicher and Baker, 1982, pp. 154-5). They can also be relatively costly, given the limited number of farmers reached.

This approach has two major drawbacks in terms of reaching women farmers. First, because of their dual household and income-earning responsibilities, women often lack the time to attend courses away from their villages. Second, when women do receive instruction at Farmer Training Centers, it is generally in home economics and nutrition, not agriculture.

The burden of women's dual responsibilities is reflected in time budgets of families in the developing world. In some societies women spend more of their day in productive activities than men. Studies in Zambia, for instance, indicate that the labor input of women per acre is substantially higher than that of men (Jiggins, 1980). In the Sudan, women in the south work in the fields five to eight hours a day, depending on the season, in addition to other tasks (Hansell, 1977). The FAO (1979) estimates that in peak seasons women work six to nine hours per day in fields in western Kenya, up to ten hours in Lesotho, and nine to ten hours in Zambia. A study by Whyte and Whyte (1982) showed that women in Bangladesh spend about six hours a day in agricultural duties and another six hours in domestic tasks; in Java, women work eleven hours daily, compared to eight

hours for men. They also found that a Pakistani woman typically works fourteen hours a day in the planting and harvesting seasons; during the wheat harvest she works ten hours in the fields (Whyte and Whyte, 1982).

Women who are heads of household and independent farm managers have an even greater work load. In Nepal, for example, a study of eight villages showed that women heads of household had greater work loads than women in extended families, with longer hours than men in all agricultural, animal husbandry, manufacturing and income-earning activities (Acharya and Bennett, 1981). As men increasingly turn to wage labor and migration, women must devote more of their valuable time to productive tasks, in addition to fulfilling their household responsibilities. Women farmers, therefore, may find little time to participate in agricultural meetings, farm demonstrations, and farmer training courses. They may also be reluctant to undertake new farming practices and new crops that demand more of women's labor (Fortmann, 1978; Spencer, 1976).

Unless entire families are trained, the most likely participants in Farmer Training Centers will be farmers who have flexible schedules. Women farmers--who are tied to regular, daily tasks such as providing and cooking food for a family and carrying out other domestic duties, as well as looking after children--have difficulty finding time to attend courses, particularly if they last for long periods. This is particularly true if the course is not in a location where the farmer may return home each night (Bond, 1974). If women have difficulty in leaving their homes for the one-day training sessions required for model farmers, they may find it even more difficult to leave for several days or weeks, especially when there is no extended family system to assist with the domestic duties. In addition, in some societies, husbands may not allow their wives to travel alone for training. Women who are heads of household will have even greater difficulty in attending training courses, since their workloads are heavier and they do not have access to additional family labor to perform agricultural tasks in their absence.

When women farm partners have participated in resident training courses with their husbands, they generally receive little instruction in agricultural techniques, but instead are taught skills that are related more to their household roles. In one area of Malawi, for example, about 88,000 farmers were trained in ten-day residential training programs between 1979 and 1980; about 47,000 of these farmers were women. Yet of sixteen courses, only three were for both women and men--crop storage, family health, and horticulture. Seven courses were specifically for women--child care, home improvement, laundry, needlework and handicraft, nutrition and cookery, poultry keeping, and preparation for display. Courses for men included credit, crop husbandry,

farm management, forestry management, and land husbandry (Perraton, Jamison, and Orivel, 1983). At farmer training centers in Kenya, although one-third of the trainees are women, only 30 percent of their instruction is in agricultural subjects. The rest is in home economics (Staudt, 1975). In Zambia, courses at the farm institutes varied by sex of the farmer. All courses for male trainees were in agriculture, while only three farming courses--poultry, maize, and groundnuts--and seven courses in sewing and knitting were taught to women (Muntemba, 1982).

### Private Sector

A very different approach to extension operates through commercial channels. For example, retail stores and merchants who sell agricultural inputs, tools, and equipment often are willing to advise their customers on the best use of these products (Stavis, 1979). In addition, large firms that contract with individual farmers to obtain certain crops may provide their own extension services. Such an approach can complement government extension programs in many different institutional settings, and governments can influence its expansion by providing a supportive economic climate.

The main recipients of extension services that operate through suppliers of agricultural inputs tend to be the wealthier farmers, farmers with title to land, and farmers who have large farms or plantations. Poor farmers do come into contact with private suppliers, but they are less likely to receive technical advice from these sources. The better-off farmers are the only ones able to purchase for cash or on credit the required inputs, such as fertilizers, insecticides, herbicides, seeds and mechanical farm equipment. They also are the ones who operate on a large enough scale to have profits which they are willing to risk to purchase such inputs and equipment. Women would be less likely than men to have access to this type of extension since, as we have seen, women generally have fewer resources and capital than men and would be less likely to purchase agricultural inputs, tools, and equipment.

Another type of private sector involvement in agricultural extension that has the potential to reach very small farmers is contract farming. In this approach, a private firm, often a multinational corporation, provides technical advice, seeds, fertilizers, pesticides, tools, credit, and other necessary inputs to individual farmers who are under contract to sell all their crops to the firm. In the Dominican Republic, for example, Gulf and Western has multi-year contracts with independent farmers that guarantee the

purchase of the farmers' sugar cane crops at market prices. Payments for inputs and services provided by Gulf and Western are deducted from the amount the farmer receives when the crop is harvested. Farming is supervised by Gulf and Western extensionists, who serve a regulatory as well as an advisory role. The company also provides training for livestock raising, since oxen play important roles in the harvest. In addition, the company has become involved in establishing an agricultural cooperative, providing educational, housing, medical and other services and setting up an Industrial Duty Free Zone which employs about 10,000 (Freeman and Karen, 1981, p. 17-19).

Another example is the British-America Tobacco Company (BAT), which is active in a number of African countries. In Nigeria, for example, it has established "Block Farms" which bring together small farmers with access to as little as one hectare into a larger parcel to take advantage of mechanized bush clearing and land preparation, as well as improved storage and marketing facilities. BAT also encourages the farmers to grow food crops on other plots of land, introducing high yield varieties to increase output. In Kenya, BAT (Kenya), a subsidiary jointly owned by the parent company, a Kenyan parastatal (Industrial and Commercial Development Corporation) and local investors, works with very small farmers, generally those with one-half to one hectare of land. As in many contract farming schemes, farmers' production targets are set in advance and field extension personnel, employed by the company, closely monitor production at each growing stage and direct the farmers as to which techniques to use (Freeman and Karen; Currie and Ray, 1983).

Research on contract farming does not indicate whether women are reached by the extension services provided by private firms. Despite the fact that unpaid family labor is an important component of this approach, it is not clear how this affects women's work. Insofar as the extensionists deal only with farmers who own land, who can afford to purchase new inputs, and who are already involved in export cash-cropping, women may be ignored by this approach. In addition, even if participation in contract farming schemes raises farmers' incomes, the resulting switch to crops purchased by the contracting firm and the firm's introduction of more intensive farming methods may require additional unpaid family labor, pulling women away from the production of their own crops or adding to their overall work burden. This aggravates the problem of women's lack of access to extension. As unpaid family workers women are less likely to receive extension services, even if they are involved in cash crop production. Furthermore, if women have to devote more labor to crops controlled by their husbands, they will have less time to receive advice or training from extensionists on the

production of crops they control. Finally, since contract farming depends heavily on unpaid family labor, women who are farm managers in their own right will be less likely to become involved in these schemes due to their lack of access to additional labor.

### Large-Scale Group Approaches

In contrast to approaches that attempt to maximize the effectiveness of the limited numbers of extension agents by concentrating resources on particular groups, geographic areas, activities, or crops, large-scale group approaches aim to reach as many farmers as possible, through local-level membership organizations, mobilization campaigns, or mass communication media (Anthony, Johnston, Jones, and Uchanda, 1979, p. 234). For example, regularly scheduled radio programs may offer advice to farmers, and demonstrations may be made at market places, fairs, or agricultural shows (Stavis, 1979). In theory, these approaches seem to offer the best hope of reaching large numbers of women farmers and small farmers in general. In practice, however, the effectiveness of the information transmitted has been limited. While these programs operate at a low cost per farmer reached, they may produce only limited results.

### Mass Communication

Such an approach to extension is usually channeled through the general extension services of the Ministry of Agriculture. This approach makes information accessible to nearly all farmers, including women, in the area where it is tried. The farmers may receive extension messages over the radio or in the market place or local agricultural show. In addition, it is possible to direct specific extension messages toward women through these media.

Mass media extension programs generally rely on radio broadcasts, although visual and print media have also been used. Various approaches include regular radio programs, radio "schools," specialized or targeted radio campaigns, radio programs with feedback mechanisms (along the lines of correspondence courses), and group learning sessions linked to radio broadcasts.

Radio schools in Latin America teach adults to read and write and provide other basic education, including agricultural techniques. They are organized around small groups or families that receive printed matter and send correspondence lessons back to the school's headquarters. Each group has a literate member who helps the others and a

volunteer monitor trained by the headquarters who visits the groups regularly to serve as a bridge between the headquarters of the school and the groups (Perraton, 1982, pp. 84-5). Although it is difficult to estimate the number of people actually served by this type of radio program, studies show that radio schools reach less than 5 percent of the target rural adult population per year. A study in the Dominican Republic revealed that 57 percent of those listening to radio education programs were women (Perraton, 1983, p. 87). It is even more difficult to determine whether the programs are effective in educating the target group, particularly in regard to agriculture. However, there are indications of some success, particularly in the case of health education linked to homemakers' clubs (Perraton, 1983, p. 89).

Other radio correspondence programs that focus more specifically on agriculture include INADES-Formation, an Ivory Coast-based program that serves a number of African countries, and Radio Educative Rurale in Senegal. These basic agricultural courses have had little success in reaching women and illiterates (Perraton, 1983, p. 102). However, a study in Cameroon provided evidence that the program was effective in improving the agricultural practices of men farmers (Jenkins and Perraton, 1981).

A similar type of program is the farm forum, which generally consists of a membership-based farmers' group that gets together on a regular basis to listen to a radio broadcast, read explanatory materials and discuss what has been learned and how to act on it. In general, both men and women listen to the broadcasts, but in separate groups. There is limited evidence that farmers learn from these forums and change their farming methods as a result (Perraton, 1983). Some forums have been successful in reaching women; in Ghana, for example, 54 percent of the program participants were women, three-fourths of whom were engaged in farming. In Niger, however, less than 10 percent of the forum members were women (Perraton, 1983, p. 91).

Only mass communication approaches have the potential to directly reach a large number of average and poor farmers, including women farmers. Perraton (1983, p. 105) estimates that radio-based extension can reach about 30 percent of the rural population in developing countries. However, mass communication approaches may be too general to be successful. Without follow-up activities or channels for feedback it is questionable whether farmers will change their agricultural practices. In addition, diffusion of new techniques is likely to be less widespread.

## Organizations

Another group approach to reach large numbers of "average" farmers operates through voluntary associations of farmers that are self-controlled and self-financed. Farmers in these associations jointly determine their specific needs for extension. Training may then be provided at local meetings of the association members. This approach may be used with any of the institutional extension models described. It is most successful if the farmers have relatively accurate information on the costs and benefits of the available options in order to determine their extension needs. Farmers may be guided in their decisions by well-trained extension personnel. One drawback to this approach is that administrative procedures may be cumbersome and time-consuming, resulting in higher costs than would be anticipated, given its volunteer component (Orivel, 1983).

It is often through participation in formal organizations and cooperatives that farmers gain access to services, agricultural information, and credit. Unfortunately, such organizations frequently exclude women who are not landowners and heads of household. Despite widespread, high-level support for women's participation in the cooperative movement, women's membership is limited because members must be recognized "farmers," "heads of household," or "landowners" (Bennett, 1979; Safilios-Rothschild, 1983). Women who are de facto farm managers may be able to participate in cooperatives, but often only if they are single or widowed (see Eddy de Arellano, 1976, for example). Even when women's membership is high, incorporating those who are farm partners, women tend to play a limited role in cooperative management; men generally exercise the votes and control the disposition of revenues from the sale of agricultural products. In some countries, e.g., the Philippines and Malaysia, there are separate cooperatives for women. However, these usually play a secondary, non-competitive role in relation to men's cooperatives. In addition, they often concentrate on areas other than agriculture per se, functioning as simple credit unions, for example (Lamming, 1983; Westergaard, 1982).

On the other hand, women's organizations have sometimes been successful in securing agricultural services. For example, one organization among the Woloff in Senegal complained to government authorities that newly introduced mechanical sowers and weeders were only available for use on women's plots one to two weeks after those of the men and farmer partners, making women's yields lower. As a result, the government agreed to make the technology available to the women farmers at the appropriate time (Staudt, 1981). In Tanzania, however, women's organizations were less successful. One

chapter of the national women's organization was denied land to grow coffee but was granted land to cultivate beans and maize. Since permanent crops, such as coffee, are the property of the person who plants them, Fortmann (1982) speculated that male farmers feared giving women permanent possession of a cash source.

In some areas of Asia, women's informal work organizations provide an important source of labor for women farmers. In Nepal, most women's agricultural work is performed in cooperative work parties with four to six women working their fields on a rotating basis. Poor women, however, participate less frequently since these women have limited land holdings and often turn to wage labor to support themselves and their families (Whyte and Whyte, 1982). A Kenyan study found that more than 90 percent of the women surveyed belonged to some type of organization, including church groups, mutual aid societies, and informal work groups, but these had failed to become an integral focus of extension services (Staudt, 1982).

Some have suggested that more women farmers could be reached by incorporating agricultural extension services into the activities of existing women's groups (see for example, Ashby, 1981, pp. 182-5). In Botswana, for example, 21 percent of the women in a survey belonged to women's clubs where a variety of lessons, including agriculture, were taught (Bond, 1974). In rural Kenya, up to 90 percent of the women belong to church, mutual aid or communal labor groups, and some agricultural information is exchanged at their meetings (Staudt, 1982). This method may be very effective for reaching large numbers of women, although not necessarily the target recipients. Most women's groups are organized for other objects and may not be appropriate for or responsive to transmission of information on agricultural extension, particularly if that information is perceived as non-traditional. Such information may be ignored or rejected. Aggressively attaching agricultural activities to an inappropriate group may even destroy the group if it causes women to avoid meetings. This approach may also serve to perpetuate or strengthen the dual system of production-oriented extension services for men and home economics for women, since many of the existing women's organizations already focus on domestic subjects.

Furthermore, women farmers may be unable to gain access to agricultural extension services through organizations that are dominated by women of higher socioeconomic status. Elite women have different interests and economic activities. In Kenya, for example, wealthy women are five times more likely to have been exposed to domestic training in government programs than low-income women, and do not see

agriculture as a women's issue (Staudt, 1981, 1978). Women's groups may therefore not represent or be beneficial to poor women farmers as far as agricultural production is concerned.

In sum, women may be excluded from participation in agricultural organizations and cooperatives, due to restrictions favoring male heads of household and land title holders, even though the women provide much of the family labor requirements in cooperative ventures. Poor women may also fail to participate in groups because of their heavy productive and household responsibilities, which preclude spending valuable time in active membership. In addition, established women's organizations may not be appropriate vehicles for agricultural extension because they are generally organized for different purposes. Women therefore lack access to a forum and a mechanism for receiving agricultural services and for making visible their farming needs.

### Appropriate Delivery Mechanisms for Reaching Women Farmers

Women's lack of access to key resources for agricultural production makes particular approaches to extension delivery disadvantageous to them in different ways. For example, while lack of time may be one of the most formidable obstacles to women's participation in Farmer Training Center programs, their limited ownership of land and other assets may pose a greater constraint to their access to contact farmer schemes. Table 3 summarizes these constraints as they have been discussed in the paper.

**TABLE 3**

#### FACTORS AFFECTING FARMERS' ACCESS TO EXTENSION SERVICES UNDER DIFFERENT APPROACHES

Reaches Farmers With Access to	<u>Extension Approach</u>			
	<u>Contact Farmer</u>	<u>Farmer Training Center</u>	<u>Commercial/ Private Sector</u>	<u>Groups/ Mass Communication</u>
land	X	X	X	
wealth	X		X	
labor	X	X	X	
credit	X		X	
political power	X	X		
time	X	X		
education	X	X		X
organizations				X

While it is recognized that there is great variation in women's access to resources within and across regions in the developing world, this paper argues that, in general, women's access to extension services is constrained by lack of control over land, labor, capital, income, credit, political power, time, education, and organizations. However, as one study found, even when women do have access to material resources such as land, and show themselves to be progressive/innovative farmers, they still receive less attention from extension sources than do male farmers (Staudt, 1982). In selecting a delivery mechanism to reach women farmers, extension services should consider the characteristics of those farmers in their area and adjust their approach accordingly. For example, although the contact farmer approach is generally less effective for women farmers since it tends to focus on "progressive," wealthy farmers, if some of the contacts are average farmers and/or women farmers, the advice they receive may be more readily diffused to women farmers.

Another issue that must be considered is that of cost-effectiveness. In order to keep programs that reach women going and to replicate them in other locations, extension services should strive to maintain project costs at a level consistent with their results as well as the number of farmers affected. Radio programs, for example, may potentially reach a large number of women farmers at low cost, but they have not proven to be very effective in influencing farming practices (Perraton, 1983). Thus, if these programs cannot be strengthened to produce a more noticeable impact on farmers' productivity, funds might be better spent on another approach even if it means reaching fewer farmers. However, as many have pointed out, it is extremely difficult to measure the impact of extension on crop yields and farmer income because one cannot separate the effects of technical advice about new inputs from the effects of the inputs (e.g. seed, fertilizer) themselves and preexisting field conditions or farmer characteristics (Benor, Harrison, and Baxter, 1984, pp. 63-4; Crouch and Chamala, 1981). Therefore, conventional project evaluation techniques, such as cost-benefit analysis, must be adapted to take these measurement difficulties into account (Cernea and Tepping, 1977).

## AGRICULTURAL EXTENSION PERSONNEL

This paper has shown how the institutional context in which extension services operate and the approach to service delivery influence women's access to agricultural extension, given the characteristics of women farmers. Assuming that institutions can be modified and new delivery methods chosen to enhance the usefulness of agricultural extension services for women, in what ways will extension staffing arrangements affect a program's impact on women farmers?

Obviously, factors such as training, commitment, and incentives will affect the performance of extensionists vis-a-vis all potential clients, including women. But by calling for more women extensionists as the primary means to reach women farmers, many have implicitly argued that the gender of the extensionists is perhaps the most important factor in determining the extent and quality of contact between women farmers and the extension service. The logic of the argument is that agricultural innovations are not reaching women because there are too few female extensionists involved in agriculture, because male extensionists do not or cannot communicate with women farmers, and because agricultural extension messages and innovations are not spread from men to women farmers.

However, since very little empirical work has been done in this area, there is really no basis on which to judge the relative effectiveness of male and female agents in assisting women farmers. Efforts to conduct comparative studies may be frustrated by the fact that few attempts have been made to give women field agents an active role in agricultural extension services. In addition, it is difficult to isolate the effect of gender of extension agents from other variables that determine the effectiveness of extension staff, such as education, organization, and motivation. Some of these variables--education, for example--are very much related to gender as well.

The following section is a preliminary effort to examine some of the factors related to the composition of extension staff that influence their ability to deliver extension services to women farmers. A later section investigates some of the concrete attempts that have been made to expand women's access to agricultural extension, including a few that incorporate women field agents.

## Training

It is not possible to find cross-country comparative data on the number of students enrolled in courses that prepare them to become agricultural extensionists. However, available studies indicate that insufficient numbers of agents have been trained. In some countries, too few secondary school students are qualified for and interested in entering agricultural programs (USAID Botswana, 1974, p. 25). Highly educated students do not often desire to become involved with the everyday, farm-level problems of increasing agricultural production, and are unwilling to enter courses of study leading to such employment (Lele, 1976, p. 20). But, while it may be necessary to train some individuals to the degree or certificate level, those individuals may not always be the best persons to work in the field (Leonard, 1973; Lele, 1976, p. 72). Higgs (1976, pp. 254-5) notes that in most Latin American countries, training and socioeconomic background make extension officers remote from the campesino, and thus unable to communicate.

Studies show that very few women study subjects related to agricultural development, and of those most are in home economics courses. Only a few women have been trained in other aspects of rural or agricultural extension work (World Food Programme, 1975, p. 21). This educational bias has historical origins; colonial administrators did not encourage women's education in agricultural subjects (Lele, 1975, p. 77). Though improving nutritional value in food preparation, fostering hygienic practices, and introducing means to conserve labor in the home have significant value and should not be abandoned, women's extension programs have too often been exclusively oriented toward domestic science or home economics. Today, developing countries are beginning to develop a hierarchy of women staff geared to meet the needs of rural women (Smithells, 1972). To implement this new goal, some countries have taken positive steps to open their agricultural colleges to women. Nevertheless, most women still continue to enter courses in home economics.

The effectiveness of agricultural extension agents--both men and women--depends largely upon the relevance of their training. Too often, agents have only limited agricultural training or have received very theoretical training with little practical experience. Even fewer agents have been trained in extension methods per se; they may know what message they want to deliver but not how to communicate it. Highly technical training may be irrelevant to the particular needs of small farmers, as it fails to provide training in the communication skills and socioeconomic orientation that extension workers need to communicate effectively at the village level (Higgs, 1976). As one means of getting around this problem, some have recommended training extensionists

in the farming systems approach (Shaner, Philipp, and Schmehl, 1982). Even when field agents receive such training, however, it is unlikely that they will receive instruction on women's roles and their specific needs. Such training is crucial to refocus the efforts of male-oriented extension staff, make them aware of the need to take account of women's needs, and enable them to identify areas where women farmers need extension support (Benor and Baxter, 1984).

### Performance Incentives

The effectiveness and performance of extension personnel depend not only upon training but also upon institutional support, rewards, and incentives. Anthony, Johnston, Jones, and Uchanda (1979, pp. 232-3) claim that organization and incentives, rather than individual competence, are the most important determinants of staff performance. Because their conditions of service are poor and incentives in terms of salary and promotion prospects are low, extension workers lack motivation for taking initiative. On the other hand, extensionists' salaries are often much higher than the earnings of small farmers, creating a psychological barrier between the two groups (Lele, 1975, p. 22). Hence, extensionists tend to seek out farmers with whom they can communicate and who will enable them to fulfill their duties as easily as possible: progressive farmers; the most accessible farmers, both geographically and culturally; or very few farmers at all (Jiggins, 1975, pp. 1-4). Under these circumstances, women farmers are unlikely to have much contact with extensionists.

Agents generally work in the field with little regular contact with their supervisors. While they may have a set of duties to perform, they must make their own daily schedules, set priorities, and make their own contacts. Thus, they are more subject to local political and social pressures over which they have little control, than to the needs of their clients or the requirements of the job. In addition, the lack of a clear chain of command in agricultural extension services leaves field agents without direction, supervision, systems of reward, or motivation (Benor, Harrison, and Baxter, 1974).

Extensionists' prospects frequently depend upon paper qualifications rather than field competence and experience, and opportunities for advancement from the field to higher levels of service are usually limited. Agents may not perceive that good work is rewarded or that poor work is penalized; thus there is little economic or career incentive

for good work. Promotions are often based upon seniority, office-based skills, and visibility to management. It becomes more important to please superiors than to carry out immediate field tasks, to fulfill "paper" objectives than to achieve actual results in the field. Furthermore, promotions are sometimes related to family or ethnic connections, rather than work performance (Jiggins, 1977; Chambers, 1974, pp. 59-60).

However, although job security is usually high, transfers are frequent. In addition to being unsettling to the individual and his/her family, transfers make it difficult for agents to become thoroughly knowledgeable about and involved in the problems of the local environment. Harsh climates and lack of transportation also contribute to the difficulty of the job. It is not uncommon for an agent to be expected to work without transportation or with only a bicycle, when a motorcycle or four-wheel-drive vehicle may be needed (Jiggins, 1977, p. 3). For women agents, lack of "appropriate" transportation is a constraint often cited by superiors as a reason for not sending them into the field (Howard-Merriam, 1981; Oxby, 1973, p. 7).

Since decisions are made centrally from a head office, the only way for a field agent to advance is to move into the central office, where skills and experience from the field may not be necessary. Generally, there is no satisfactory career advancement structure within the field organization, or within the district with which the field staff are most familiar. Partly for this reason, administrators are reluctant to spend time in the field away from opportunities to advance, living in what they consider to be uncomfortable conditions. Women working in agricultural extension services may face even greater difficulties in getting promotions. In Cameroon, for instance, one extension supervisor expressed interest in attaching a female extension agent to his office because she could be assigned to do typing at a lower salary than a secretary (DeLancey, 1984).

Salaries and allowances for the junior staff of government extension services are low, often lower than those for staff with similar qualifications in other fields, and lower than those with similar positions who are employed by commercial schemes. Allowances are often late in payment, and few other material benefits are offered. It is generally agreed that "salary structures are governed by nationally, or regionally, determined norms and grading; individual effort and competence is not directly, or even often, related to reward" (Jiggins, 1977).

Lele (1975, pp. 71-3) summarized the consensus on incentives, suggesting that increasing pay, rationalizing promotional opportunities, and restructuring the supervisory system would be an obvious means of improving staff morale and performance. The lack of incentives for extension field workers invites them to fulfill the stereotype held by

their superiors that portrays them as spending only a few hours a day at work, making the minimum number of visits to the most accessible farms, and contacting those who are most eager to adopt whatever advice is given (Chambers, 1974, pp. 55-7). The lack of incentives discourages field workers from seeking out farmers who most need their help, since they are likely to be least accessible. This group includes the majority of female farmers, who have small farms at a greater distance from the village and may be reluctant to talk with a male extension agent.

### Gender of Extensionists

A recent review by Germaine (1981), summarizing data from the International Directory of National Extension Systems, concluded that there are "virtually no female agricultural extension workers" in the world (see also Swanson and Rossi, 1981). There are only a few exceptional cases, such as the Philippines, where one-half are women, and Thailand, where one-fourth are women. In other countries, such as Botswana, Malaysia, and Nigeria, women constitute a small fraction of the total. For example, Bettles (1980) found in Botswana that of 185 Agricultural Demonstrators, 16 were women; of 19 District Agricultural Officers, 1 was a woman; and that all 6 of the Regional Agricultural Officers were male. Table 4 shows the number of women and men extensionists in twelve African countries. Information on other countries is provided in Table 6 (see Appendix).

Overall figures indicate that about 3 percent of agricultural extension personnel in Africa are women, 23 percent in Asia and Oceania, and 14 percent in Latin America and the Caribbean, with a world-wide average (including Europe and North America) of 19 percent (Swanson and Rassi, 1981). Of these female extensionists, approximately 41 percent are engaged in home economics-related programs. This fact highlights the problem of dual extension systems--market-oriented agricultural assistance (largely by men) for men; and home economics or household/subsistence-oriented assistance (by women) for women. In such an institutional context it is difficult for women extensionists to have a positive impact on the farming practices of women.

**TABLE 4**

**Male and Female Extension Personnel in Agricultural Programs:**  
**Africa**

	<u>Agriculture</u>		<u>Home*</u> <u>Economics</u>		<u>Other</u>		<u>Total</u>		<u>Totals</u>	
	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>
Botswana	186	13		2	178	9	364	24	388	
Gabon	80	-	-	-	11	2	91	2	93	
Gambia	170	6	-	-	457	9	627	15	642	
Mauritius	56	-	-	-	18	2	74	2	76	
Namibia	11	4	-	-	8	-	20	4	24	
Nigeria	1106	104	-	-	680	9	1786	113	1899	
Senegal	1088	3	-	1	71	-	1159	4	1163	
Seychelles	11	3	-	-	3	1	14	4	18	
South Africa	1107	-	-	2	563	-	1670	2	1672	
Togo	-	-	-	-	212	-	212	-	212	
Tunisia	-	-	-	-	12	3	12	3	15	
Zimbabwe	1682	23	-	-	551	72	2233	95	2328	

Source: Burton E. Swanson and Jaffar Rassi, International Directory of National Extension Systems (Urbana - Champaign: University of Illinois, Bureau of Educational Research, 1981).

\* Note: Data shows home economics extensionists working under agricultural programs only.

Data available, but not disaggregated by sex: Central African Republic, Ethiopia, Guinea, Lesotho, Liberia, Malawi, Rwanda, Swaziland, Upper Volta.

In the most complete review of the subject of women and extension to date, Ashby (1981, p. 169-70) argues that women extensionists are necessary for two reasons. First, the existence of separate communication channels for men and women means that messages received through male extension agents may be ignored by women farmers. Female extensionists, on the other hand, will be able to tap into women-specific networks. Second, research demonstrates that extension agents who are most like their target clients are apt to be the most successful in introducing new practices that involve risk or uncertainty (see also Rogers, 1973).

In some cases, the use of women extensionists is the only option to reach women farmers. For example, one project in Pakistan reviewed by the FAO was "forced" to rely on women extensionists, not just for the sake of reaching women, but to achieve the overall goals of the project. The project involved the vaccination of village chickens to eradicate infection. Many husbands from the villages involved had migrated, leaving women solely in charge of the household animals. Since male veterinary assistants were prohibited by local custom from visiting these women, their birds could not be inoculated, posing a threat to new breeds that were to be introduced into the villages. The problem was solved by training female extension workers who were able to improve contacts with village women (Oxby, 1983, pp. 6-7).

However, while women farmers in some regions may be reluctant to talk with men, in other regions women agents may not be more effective than men in communicating information on agriculture. Contrary to other findings discussed in this paper, some research has shown that high-status individuals may be more effective, in general, in transmitting messages than low-status individuals (Bem, 1970; Buvinic, 1984). One study demonstrated that farmers are more likely to choose people of higher social status and technological competence as sources of farm information (Van der Ban, 1981, p. 306). In societies where women are perceived to be low-status communicators, therefore, they may be less effective than men as extension agents. In such cases, it is doubly important to train and encourage men to extend their messages to women.

Certainly, from the point of view of equity and expanding employment opportunities for professional women, increasing the number of women extensionists is a desirable goal. However, if women are simply inserted into the existing institutional structure of extension services, they are unlikely to be any more effective than present male agents in helping women farmers to increase their productivity. Without special orientation, women with technical agricultural training may continue to contact the same type of clients the extension services are already reaching--male farmers (Benor and Baxter, 1984). They may also be marginalized within the extension service, recreating the dual system of women working only with women on "women's subjects," and men working only with men on "men's subjects." In addition, given the lack of trained women agronomists and others who could fill substantive field level positions and the lack of incentives for women to enter the field, increasing the proportion of women extensionists must be a medium or long-range goal. Meanwhile, considerations of

efficiency and effectiveness do not necessarily require women extensionists in order to reach women farmers. Retraining or reorientation of male agents in the short run, as well as changes in the structure of extension services and the approaches to delivery can go a long way toward expanding women's access to agricultural extension.

## TARGETING WOMEN IN AGRICULTURAL EXTENSION PROJECTS

Until recently, few agricultural extension services specifically addressed the needs of women farmers. In fact, agricultural projects generally ignored women, despite their important role in farming. As recognition of women's productive activities grows, efforts are being made to increase direct contacts with women farmers in the field through existing extension channels (often by incorporating women extension agents) and to give women agricultural training at Farmer Training Centers. In addition, a few special extension programs have been designed specifically for women (see, for example, the Botswana case described below).

Table 5 below illustrates the type of agricultural extension projects designed with women's farming roles in mind, through a review of several recent USAID projects in Africa and the Caribbean. This review is based solely on information provided in project documents, and in many cases reflects only the design of the interventions and not their actual implementation. In implementation, projects that do not spell out mechanisms for including women can have very favorable impacts on women's productive roles. On the other hand, those designs that do not specifically mention women may, as a result of including substantial numbers of women in the implementation stage, shift from their productive goals toward the welfare orientation that often characterizes women's projects (Buvinic, 1984, p. 2).

In order to isolate some of the problems with the approaches taken so far and to identify "lessons" for future extension programs, additional research will be necessary. The projects selected here present a good indication of the kinds of initiatives that should be studied in greater detail to explore the effectiveness of various options for reaching women farmers.

The project interventions outlined in Table 5 generally fall into three categories:

1. interventions designed to reach more women (wives) at Farmer Training Centers;
2. interventions that will increase access to extension services for small farmers; and
3. interventions that provide or facilitate separate or supplementary extension services for women.

TABLE 5

SELECTED PROJECTS TO INCREASE WOMEN'S  
ACCESS TO AGRICULTURAL EXTENSION (1974-84)

<u>Project Title, Country, and Number</u>	<u>Sources of Information</u>	<u>Duration</u>	<u>Beneficiaries</u>	<u>General</u>	<u>WID</u>	<u>WID Implementers</u>	<u>Results/Comments</u>
Botswana Agricultural Technology Improvement (#633-0221)	USAID/ Botswana (1981)	FY-79-84	Ministry of Agriculture research and extension units	Strengthen capacity of Ministry of Agriculture Dept. of Research to develop solutions for small farmers; institute system of on-farm research and experimentation; institutionalize linkages between Research Dept. and Extension/field service; expand capacity of seed multiply unit to produce quality seeds for major crops	Project uses farming systems research approach and targets small farmers (1 to 10 hectares), 40 percent of whom are women	Anthropologist/rural sociologist on Farming Systems Research Team	Unknown
Senegal Cereals Production II (#685-0235)	USAID/ Senegal (1979)	FY-79-84	Ministry of Agriculture research extension units	Improve extension and research capabilities to reach the entire farm family, focusing on peanut and millet; institute system of off-station applied research; train extensionists in new agricultural and audio- visual techniques; integration of research and extension activities	Establishment of Women's Extension Unit; provide women with agricultural inputs; installation of grinding mills in villages; assist in building women's producer cooperatives; train (women) village extension workers to provide daily technical advice; disseminate labor - saving devices for women; test training materials for women in nutrition, health, home economics; help the extension service address specific needs of women farmers	3 (female) staff of Women's Extension Unit; (women) village extension workers	Unknown
Training of farmer women for decreased agricultural Chad (#698-0388.6)	USAID/Chad (1978)	2 years	Women farmers from joint- managed farms (farm partners)		Two-year training for 200 women farm partners (whose husbands are receiving training) at 5 Farmer Training Centers-- 70% of training time in agricultural techniques, 30% in home economics, marketing, literacy etc.; women will grow food for sale with proceeds going to a revolving loan fund to allow them to purchase tools and seeds at end of training; village demonstrations by (female) monitrices	(Female) Director of Training Programs, Division of Education and Professional Training, Ministry of Agriculture; monitrices. Peace Corps volunteer/assistant to monitrices	Unknown

<u>Project Title, Country, and Number</u>	<u>Source of Information</u>	<u>Duration</u>	<u>Beneficiaries</u>	<u>General</u>	<u>WID</u>	<u>WID Implementers</u>	<u>Results/Comments</u>
Caribbean Agricultural Extension, Caribbean Region (#538-0017)	USAID, RDO/C (1979) Knudson and Yates (1981)	6 years	University and government extension services	Analysis of existing agricultural services; training of personnel; design of new delivery systems; provision of vehicles and communication equipment; expansion of outreach staff and newsletter; development of audio- visual materials	Training/workshops for extension personnel on women in development; research and design of models for transmitting technology to women farmers, testing models in three territories; strengthening of WID capability within local institutions by establishing a Regional Agricultural Extension Coordinating Committee, to include a staff member of University of West Indies WID Unit	Women and Development Unit (WAND), University of West Indies, Barbados	Preliminary research by UWI has shown that women are very active in agricultural labor, but do not receive adequate access to extension services
Botswana Ministry of Agriculture Women's Extension Unit	Bond (1974) Bettles (1979)	1974- present	Government extension service		Establishment of a women's component within the Department of Agricultural Field Services in the Ministry of Agriculture; attempts to integrate women farmers into extension activities, Farmer Training Centers, and integrated farming projects; in 1977, establishment of a permanent Women's Unit under the Department of Field Services	Agricultural Officer/Women's Extension	Attempts to integrate women into all extension activities and increase their representation in local Farmers Committees; special training for women in home economics and agricultural production; sale of seeds for vegetable gardening; no recent information
Economic and social development for women in several villages in Casamance, Senegal (#698-0388.7)	USAID/ Senegal (1976); Jeffalyn Johnson and Associates (1980)	1976-78	Farm women and girls		Establishment of women's cooperatives for vegetable production and marketing in 13 villages; set aside 2 hectares land in each village for use in vegetable gardening; installation of wells and pumps for irrigation; training by government community development organization in literacy, cooperative management, production, and marketing	Community development field agents of Promotion Humaine	By 1980, vegetable gardens had been planted in only 7 of 13 villages; wells were installed but tended to run dry; only 2 of 26 pumps were operating due to lack of spare parts; literacy training was primarily to men because women lacked time to attend classes; low yields and little or no profits from vegetable gardens, but nutritional status improved

<u>Project Title, Country, and Number</u>	<u>Sources of Information</u>	<u>Duration</u>	<u>Beneficiaries</u>	<u>General</u>	<u>WID</u>	<u>WID Implementers</u>	<u>Results/Comments</u>
Niamey Department Development Project Phase II, Niger (# 683-00240)	USAID/Niger; Roberts, Ware and Barnett	1981-85	Farm families-- men and women farm partners	Construction of seven new Farmer Couple Training Centers with capacity to train 20 couples each growing season; graduates (pilot farmers) to provide village-level demonstrations on returning home; \$3 million in seed funds provided to establish village cooperatives	Training for women in improved agricultural techniques, literacy, livestock, nutrition, and health education; follow-up visits to women by (female) <u>animatrices</u> ; training of two (female) village <u>animatrices</u> in each village; millet grinding mills for women at Farmer Training Centers and in selected villages; \$50,000 set aside from seed funds for loans to women	Technical assistance by WID consultant, <u>animatrices</u> to follow-up with women trained, villages <u>animatrices</u> selected & trained	New Farmer Couple Training Centers operating at full capacity, but technical packages are not adequate; cooperatives' operations are limited; farmers lack short-term credit for farm inputs; loan repayment poor; little information on WID outcomes, except that women are being trained
Agricultural Office's Training, Mali (#688-0207)	USAID/Mali	3 years	Agricultural Technicians	Improvement in training of junior-level agricultural technicians; strengthening the Centres (D'Apprendisage Agricole (Agricultural Training Centers)	Train women extensionists for the first time-- integrated training with men in first two years, special training component for women starting in the third year-- 20 places for women out of 160 at each of two centers	Expatriate home economics/ rural development consultant; (female) Program Director, full-time teacher, nurse, visiting professors	Unknown
Extension Education Training for Human Resource Development, The Sudan (#650-0010)	Sheffield and Kobes (1977); Thacher et al (1980); Cramer (1980)	FY77-80	University Extension Training Program		Training of Ahfad University College for women students, staff, and personnel of technical ministries and private agencies in non-formal education for adults; designing and implementing extension education program at Ahfad; gathering base line data; designing integrated extension curricula; promoting adult education, self-help and income- generating activities for poor urban and rural women	Advisory assistance from World Education; Ahfad University staff and students	One group of students and staff of other agencies received training; extension curriculum completed; extension sites not established; extension goals not accomplished and judged unrealistic by the auditor because of lack of institutional capacity

Two components that are often added to these projects are technology transfer to decrease women's household work burden, and non-agricultural training such as literacy, home economics, nutrition and health. These projects, particularly those in the third category, seem to share a number of the characteristics typical of projects for women in the Third World--implementation by women, reliance on women's low-paid or volunteer labor, working with women in groups, and income-generation activities in stereotypical female fields (Buvinic, 1984, p. 4).

Generally speaking, a common feature of interventions on behalf of women farmers--whether women-specific or integrated into mainstream extension services--is their subsistence, rather than commercial orientation. When farming techniques are taught to women, the emphasis is often on vegetable gardening and small livestock raising, farming activities that are generally supplemental (although not unimportant) in terms of women's overall responsibilities and their contribution to household income.

In the apparently unsuccessful Economic and Social Development Project for women in Casamance, Senegal, for example, there seems to have been little attempt made to strengthen the agricultural activities in which women were already involved, or to provide them with access to the mainstream agricultural extension service. The small area of land devoted to agricultural production for women, the supplemental crops planned, the incorrect timing of planting, and the selection of a training organization with previous experience in literacy training and community and cooperative development, indicate that women's agricultural activities--at least within the project framework--were treated as a secondary occupation, and that the focus was oriented toward improving nutritional status rather than income.

In the Senegal Cereals Production Project, initial interviews with local women's groups led to the identification of four priority areas of intervention: installation of millet mills, construction of new village wells, training in vegetable gardening and processing, and assistance with sheep raising on an expanded scale. Although the expressed focus of the project as a whole is on millet and peanut production, and women are particularly active in the latter, there are no specific mechanisms outlined for helping women to increase production of this income-yielding crop.

Many "agricultural" programs continue to emphasize nutrition, home economics-oriented activities and traditional income-generating projects for women, such as sewing, embroidery and other crafts (World Bank, 1980). Projects often fail to consider the value of women's labor time and the economic viability of proposed activities for women. Thus, extension may focus on stereotypical activities. Further, when technical advice

related to agriculture is provided to women, it is diluted by the addition of training and inputs that relate to women's household or family roles, rather than their economic needs. To a certain extent, this seems to be occurring at Farmer Training Centers, in the Senegal projects, and in the Botswana Ministry of Agriculture.

Another common feature of the projects reviewed in Table 5 is the tendency to rely on or form new women's organizations in order to achieve the project's goals. However, as in the Niger project, which will utilize a national women's group, organizations not set up for productive purposes may be unable to handle such a responsibility. In addition, the attempt to graft inappropriate activities onto existing women's organizations may actually serve to weaken those organizations. Other projects that seek to create new organizations for women, such as cooperatives (Senegal Cereals Production) or revolving loan funds (Chad), will have to ensure that adequate technical and management assistance is provided to allow these new institutions to operate effectively.

Finally, with the exception of the Botswana Agricultural Technology Improvement Project, these projects rely heavily on women implementers to deliver information and inputs to women farmers. In nearly all cases identified, women professionals will be used to train female extensionists and/or farmers. In the case of the Botswana Ministry of Agriculture, for example, a separate Women's Unit has been established within the Ministry, and is staffed entirely by women. Some projects, such as the Niamey Department Development Project and the Senegal Cereals Production Project, also plan to train village women to serve as paraprofessional extension workers at the local level. However, the few evaluations now available of these projects have generally not commented on the effectiveness of women instructors and extensionists.

## CONCLUSIONS AND RECOMMENDATIONS

Although women play a critical role in producing the majority of food consumed within most developing countries, they have received very little assistance from agricultural extension services in improving and increasing food crop production. This conclusion is not unique to this paper. In its World Development Report 1982, the World Bank (1982, p. 73) states, "in particular, extension services are often biased toward work with men and neglect the very important role of women as farmers in most parts of the world." Lele (1976, p. 76) also claims that "associated with the failure of many programs to reach the majority of small holders is the tendency for agricultural extension services to focus their attention on male farmers." Field and archival research in several countries, particularly in Sub-Saharan Africa, have led others to the same conclusion (see Table 2, p. 10).

So far, much of the evidence seems to show that the existing agricultural extension services are not working very well for small farmers in general, much less women farmers. Many of the changes that could help make those services more beneficial for women farmers will actually benefit the rural population as a whole by:

- removing obstacles to women's access to extension, which will enable the extension programs to reach all small farmers more effectively (men as well as women)
- raising productivity and incomes of women-managed farms, thus improving the standard of living and welfare of their households and increasing the demand for goods and services (as well as the demand for labor) in rural areas
- and improving the distribution of income, since woman-headed households are among the poorest, and in joint-headed households women's economic contribution is most important among the poor.

Thus, finding a solution to the problem of women's lack of access to effective agricultural extension services promises to have these additional benefits for small farmers in developing countries, who constitute the majority of the world's farmers.

Today, development practitioners are beginning to recognize the validity of these arguments and there appears to be an emerging consensus that women farmers should receive greater access to agricultural extension services. But most development practitioners and policymakers have yet to determine how to bridge the gender gap that

exists in agricultural extension programs. Although the projects described in the previous section demonstrate that efforts are being made to include women as targets of agricultural extension in different countries, there has been no attempt to assess the effectiveness of these approaches. Such an assessment of current experimentation is essential to the development of cost-effective methodologies for reaching women farmers that can be adapted to different local circumstances.

While the lack of evaluation research on existing efforts to include women in extension programs makes it difficult to reach any firm conclusion, the analysis presented in this paper points to certain recommendations for change in agricultural policies and programs. First, there is a clear need for the development of agricultural technologies that help women. This paper has focused on the delivery of extension services, assuming that effective or appropriate messages already exist. In fact, however, the development of technical solutions related to women's farming roles may be given a low priority by research units. In many cases, this could be due to a lack of information on the specific needs of women farmers or the perception that women's needs are identical to those of men. If extension is to be effective, the research-extension cycle should allow for feedback, testing of new techniques, and identification of the needs of women farmers.

It is important that extension services coordinate with research units to develop technical solutions to increase women's productivity, particularly in the production of crops that women can or do control. This last consideration will ensure that women have a material incentive for adopting new, more productive techniques, since they will stand to benefit directly from the increased production. Even when male farmers are the primary targets of extension, governments and international institutions should put a higher priority on agricultural research that takes account of the whole farming system, including the intrahousehold allocation of labor and the control of particular crops and cash income.

The next, and perhaps most important issue in improving women's access to extension services is whether a women-specific or an integrated approach should be taken. One alternative is for governments to set up a separate women's extension service or a women's component within the mainstream extension service to cater to the specific needs of women farmers--both agricultural and household--or, where such services already exist, to add or strengthen agricultural/technical components. The other alternative is to improve the capability of mainstream extension services to assist

women farmers, making them more responsive to women's needs, but to deliver similar messages to male and female farmers. The case for a women-specific approach is made very convincingly by a number of observers, including Carol Bond. She argues:

In view of the important role of women, both in controlling and carrying out much of the crop production, and also the little contact they have at present with the extension services, there would appear to be an obvious need for some agricultural extension to be directed at women. However, agricultural production, particularly subsistence food production, is not an isolated part of a woman's life but is strongly related to her family and domestic responsibilities. For example, while time is being spent on domestic chores, crop work cannot take place, also nutritional improvement should be linked with food growing. Consequently, an integrated package of extension advice covering all aspects of their life should be available to women (Bond, 1974, p. 3).

Women farmers often have access to home economics extension services. These programs have a demonstrated ability to reach women, but generally not with information relevant to agricultural productivity. In addition, they tend to have a "welfare," not a productive, development orientation. One advantage home economics programs offer, however, is that they take account of women's household responsibilities. A new generation of home economics programs is seeking to blend past concern for women's reproductive roles with the recognition that women in developing countries play significant productive roles as well.

In a sense, this women-specific approach is the easy way out. It promises to produce snapshots of extensionists shaking hands with rural women, but whether such contact can be effective in helping women farmers improve their productivity and incomes is open to question. First, the history of women-specific projects and women-only institutions over the past ten years has shown that they have difficulty incorporating productive goals and putting these ahead of the social welfare goals that now guide the implementing institutions (Buvinic, 1984). Therefore, in spite of their important political function, these institutions have generally been unable to ensure real economic benefits for women through employment and income-generation projects.

Second, it will be difficult for women-only programs to marshal sufficient resources, in terms of both funding and technical capabilities, to provide women farmers with agricultural extension services at least as effective as those provided to male farmers by mainstream programs. In addition, extension programs must expand from the small, highly localized efforts characteristic of women's projects if they are to serve the needs of the millions of women who are small farmers in developing countries. Women-

only programs have a tendency to become marginalized and to be kept alive for humanitarian or political reasons, and are not expected to produce tangible economic benefits.

Finally, as with all agricultural assistance efforts, women's extension services must deal with the issue of efficiency. Insofar as the women extensionists provide the same technical agricultural advice agricultural extensionists do, it may not be cost-effective to duplicate agricultural services already being provided elsewhere. Funds might be more wisely spent in redirecting existing services to reach more women or in providing information that is of use to women. On the other hand, if women's extension services attempt to address all aspects of women's productive and reproductive roles, providing advice on home economics, nutrition, child care, and crafts, in addition to agricultural advice, they run the risk of overdiversifying the messages delivered and reducing their effectiveness.

In order to avoid marginalization of women into women-only programs, make efforts on behalf of women more cost-effective, and take advantage of the resources of large-scale programs, an understanding of women's responsibilities should be integrated into all agricultural extension services. This is particularly important when dealing with women farm managers, who tend to be de facto heads of household. In some cases, however, where social or cultural restrictions severely limit women's access to extension services, it may be advisable to rely on women-specific programs. Such programs could also help to reinforce the assistance women receive from integrated programs.

Because of the characteristics of many women farmers, those institutional mechanisms that seem to have the greatest potential for assisting women are the general programs (not crop-specific) at the level of the Ministry of Agriculture, the integrated rural development projects, and agencies that focus on food crops. In many countries, the historical emphasis on export crop production and the provision of extension services for the male farmers who grow these crops has continued to pervade the institutional and delivery systems even after independence. This emphasis has been particularly strong in the general extension services that are usually organized within the Ministry of Agriculture, as well as in crop-specific programs. It is also important in the more recently created integrated rural development projects. However, such projects, as well as redesigned crop-specific programs, increasingly include a food crop component. When this is the case, women are more likely to receive agricultural extension services than otherwise. But even then, the number of women reached by such services continues to depend upon the delivery of those services.

It is crucial to incorporate explicit recognition of the sexual division of agricultural labor into the design and execution of all agricultural projects, particularly when women are partners in farm management with their husbands. In this respect, farming systems research and development that focus on the farm as a whole offer a promising alternative to traditional approaches to agricultural development. In taking women's current farming responsibilities into account, however, extension services (whether integrated or women-specific) must be careful to avoid locking women into the existing division of labor in a way that may work to their disadvantage, given the changing structure of the agricultural sector in most developing countries. As Beneria and Sen (1981, p. 287) remarked, "teaching women better techniques in subsistence cropping...would have been like treating cancer with a bandaid." Care must be taken to ensure that women's economic participation is not frozen in patterns that are inappropriate to the changing economic situations of their countries. Women should not be discouraged from taking advantage of new economic opportunities by programs that are based on traditional notions of their economic roles.

In order to benefit greater numbers of women farmers, the delivery approaches of integrated programs should attempt to focus more on small farmers or average farmers, rather than those labeled "progressive." Outreach could be made to those with less education, land, wealth and other resources. Mass communication training techniques can be strengthened to increase their effectiveness, especially with the illiterate and poorly educated, many of whom are women. Farmer training could be offered in ways that do not require extensive periods of absence from the home or village, since women lack the time and ability to travel for training. When Farmer Training Centers are used, the curricula could be modified to emphasize training of the farmer couple, by offering courses in agricultural techniques to both husband and wife and selecting couples on the basis of the activities of both husband and wife. In addition, arrangements should be made to accommodate women farm managers who are heads of household. For example, one way to increase their access to Farmer Training Centers would be to offer them stipends or other compensation for their absence from the farm. Women farm partners could also be given access to training in their own right, through the use of shortened, intensive courses, for example.

Other specific steps that can be taken to assist women farmers include disseminating technologies that help alleviate the drudgery of women's chores, such as fetching water, food processing and preparation. More efficient techniques in these areas will not only improve the productivity of the household and agricultural work of

women who are unpaid family workers, but will free up their time for training and other activities. Extension services could also be provided to farm women to help them commercialize economically viable activities such as food processing and small-scale manufacture, but care should be taken to do the proper feasibility and marketing studies first.

With respect to field staff, extension services need to establish incentives for reaching women by measuring the impact on women farmers in the evaluation of programs and personnel, and rewarding or promoting those who have made a significant contribution to assisting women. In general, incentive systems should also be structured to reward effective extension agents without removing them from field work. Women extensionists and village level para-professionals should be incorporated into mainstream extension activities on an equal basis with men, not just to work with women. And both men and women extensionists should receive training to increase their awareness of the needs of women farmers and allow them to work more effectively with women.

Probably the most frequently recommended approach to improving women's access to agricultural extension services is the use of female extension agents. Unfortunately, there is insufficient evidence available to conclude whether this is the most effective method of providing assistance to women farmers. But the goal of expanding women farmer's participation in agricultural extension programs should not simply consist of increasing the number or even the proportion of women contacted. Once contacted, women must be provided with the type of services that will contribute toward improving and expanding their agricultural production and raising their income levels. Thus, while women field agents may be more likely than men agents to establish contact with women farmers, they will not be effective if they are not able to offer a "product" or service that will yield material benefits for these farmers. The danger in simply adding women extensionists is that their place in the extension structure may prevent them from providing the type of product or service that women need to support their farming roles. Even if women field agents are employed by the agricultural division of the extension organization, the characteristics of existing delivery mechanisms or the types of crops emphasized may still put a barrier between them and the women farmers who need assistance.

Ultimately, the effectiveness of extension agents--whether women or men--in reaching and assisting women farmers will probably depend on the features of the extension system in which they operate and the quality of the message they have to extend. As this paper shows, individual extension agents, whatever their gender, will be

constrained by the parameters of the existing extension system--its focus, the institutional framework that defines it, the delivery mechanisms in use, and personnel issues (other than gender). In particular, the ability to reach large numbers of women farmers in a meaningful way will depend on how these factors shape the interaction of the extension service with smaller farmers.

TABLE 6

Male and Female Extension Personnel in Agricultural  
Programs: Latin America and the Caribbean, the Middle  
East, and Asia and the Pacific

	<u>Agriculture</u>		<u>Home Economics</u>		<u>Other</u>		<u>Total</u>		<u>Totals</u>
	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	
<u>Latin America and the Caribbean</u>									
Belize	35	-	-	-	13	-	48	-	48
Bermuda	5	-	-	-	6	-	11	-	11
Bolivia	122	-	-	-	36	-	158	-	158
Costa Rica	57	-	-	45	168	40	225	85	310
El Salvador	128	-	-	76	215	61	343	137	480
Grenada	27	8	-	-	32	2	59	10	69
Guadeloupe	-	-	-	-	57	1	57	1	58
Guatemala	254	-	-	64	288	-	542	64	606
Honduras	180	2	-	53	156	8	336	63	399
St. Kitts, Nevis, Anguilla, St. Vincent	31	3	-	1	10	1	41	5	46
Trinidad & Tobago	118	7	-	-	19	3	137	10	147
Uruguay	33	5	-	-	148	25	181	30	211

	<u>Agriculture</u>		<u>Home Economics</u>		<u>Other</u>		<u>Total</u>		<u>Totals</u>	
	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>		
<u>Middle East</u>										
Bahrain	5	-	-	-	3	1	8	1	9	
Jordan	90	-	-	-	98	-	188	-	188	
Qatar	8	-	-	-	2	-	10	-	10	
Saudi Arabia	208	-	1	-	424	-	632	-	632	
United Arab Emirates	43	-	-	-	20	-	63	-	63	
Yemen People's Dem. Rep.	83	-	-	-	38	2	121	2	123	
<u>Asia and the Pacific</u>										
American Samoa	4	-	-	-	10	-	14	-	14	
Korea	4651	-	2	342	2647	6	7300	348	7648	
Malaysia	2612	383	-	384	1141	105	3753	872	4625	
Maldives	6	-	-	-	3	3	9	3	12	
Nepal	5000	-	-	-	132	17	5132	17	5149	
New Caledonia	36	-	-	1	69	20	105	21	126	
Philippines	6767	3642	-	1270	4639	2702	11406	7614	19020	
Thailand	3672	936	27	765	2002	84	5701	1785	7486	
Tonga	23	-	-	9	44	1	67	10	77	
Vanuatu	44	-	-	-	5	-	49	-	49	

SOURCE: Burton E. Swanson and Joffar Rassi, International Directory of National Extension Systems (Urbana/Champaign: University of Illinois, Bureau of Educational Research, 1981).

Note: Data shows home economics extensionists working under agricultural programs only.

Data available, but not disaggregated by sex: Latin America and the Caribbean: Barbados, Dominican Republic, Ecuador, Guyana, Haiti, Mexico, Montserrat, Nicaragua, Paraguay, Venezuela; Middle East: Iraq, Kuwait, Lebanon, Syria, Yemen Arab Republic; Asia and the Pacific: Bangladesh, Fiji, India, Laos, Pakistan, Papua New Guinea, Sri Lanka, Western Samoa.

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