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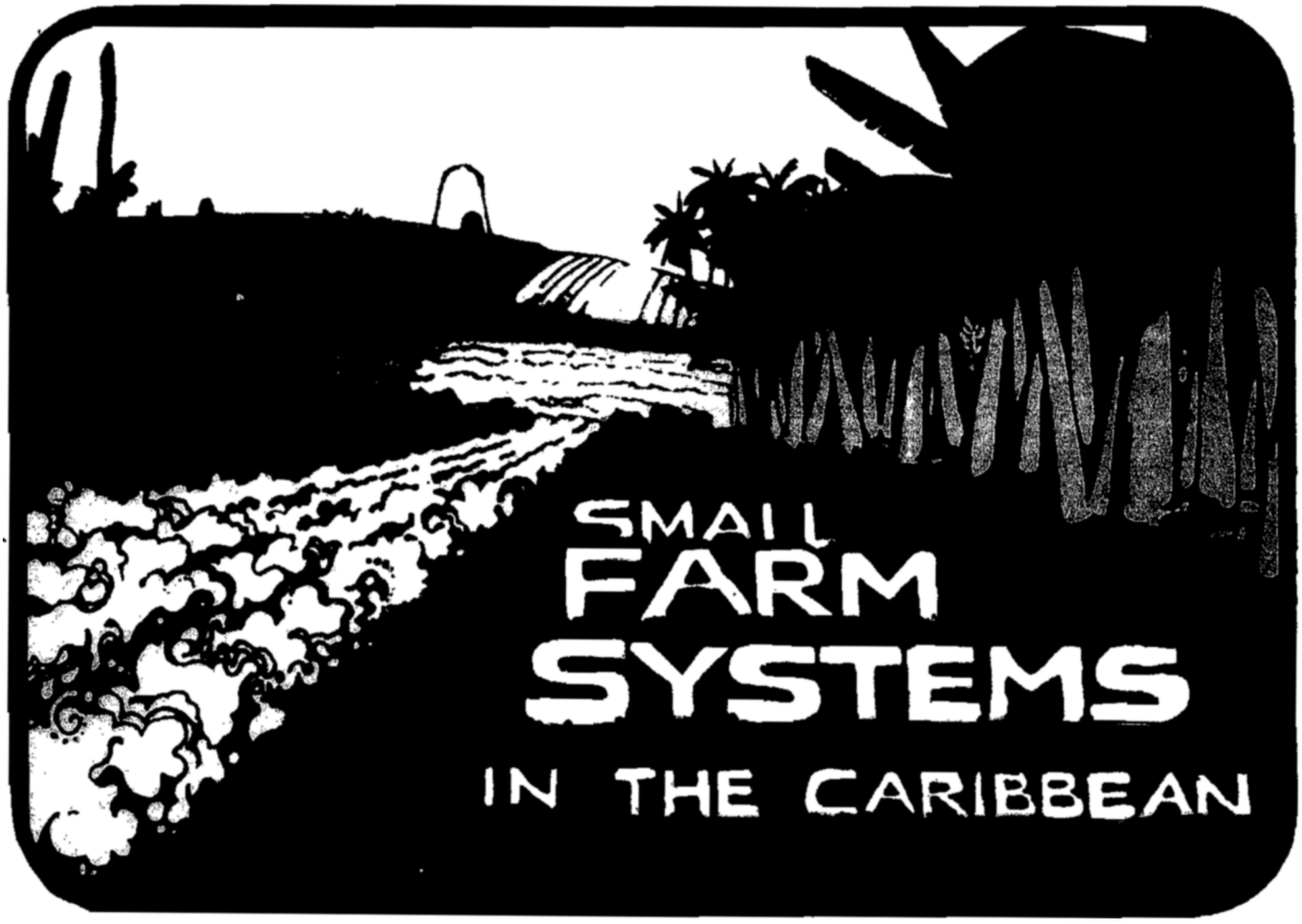

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North American Women and Their Children: Valuable Resources in Food Production

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The production of the world's food supply is a complex process involving technical skills and human resources. While often thought of as a male's occupation, agriculture has profited from the work contributions of women. This paper reports the results of a study designed to determine the current work role of women and their children in agricultural production in North Dakota, U.S.A. Results indicate that women and children make significant contributions through various types of farm work. Furthermore, women are increasingly seeking employment off the farm in order to earn the income that will allow the family to continue farming during difficult financial times.

As agricultural technologies become more complex, additional skills will be required to manage finances, utilize computers, analyze market informaton, and program farm operations. These skills do not require physical strength, but do require time and energy. Women can make significant contributions to agriculture by performance of these skills.

The integration of technological skills performed by women with physical farm work performed by men will contribute greatly to the increased effectiveness of agricultural production and management.

Today only 3% of the population in the United States live on farms. However, over 20% of the world's grains are produced on United States farms, and North America accounts for 20% of the global production of meat (United States Department of Agriculture, 1984; Winrock International, 1983). Recent research has confirmed the significant contributions of contemporary women to this agricultural production (Axinn, 1982; Heffernan et al., 1981). This paper will present a review of the literature related to specific contributions of farm women and their children to agricultural production in the United States and will present the results of a study to determine the role of women on farms in North Dakota, an agricultural state in the United States.

The Work of Farm Women

Traditionally, farming has been regarded almost exclusively as a male enterprise (Coughenour and Swanson, 1983). However, the idea that farming is a partnership between husband and wife has existed for some time. While women's work has been extensive, women have been, and continue to be, the silent partners. Perhaps one reason for this is that agricultural production has often been thought of as only field work. However, a multitude of other tasks, frequently performed by women, are associated with both crop and animal production. For instance, activities necessary for crop production include providing personal services for workers (*e.g.*, preparing meals); processing agricultural products; transporting, storing, and marketing the grains; and hauling seed, fertilizer, and equipment parts for farm machinery. Among the activities associated with animal production are care and feeding, milking, shearing sheep, gathering eggs and marketing of animals and/or their by-products. All of these activities, which are frequently performed by women, must be taken into account when analyzing the labor in farm production (Deer and deLeal, 1981).

Further evidence of women's significant role in agriculture is given by Maret and Copp (1982) who stated the average value of products sold is up to three times greater when the wife is directly involved in agricultural labor. The extent of women's involvement in farm work was reported by Scholl (1983). Drawing her data from the 1980 National Farm Women Survey, Scholl stated that 55% of the women who were surveyed considered themselves to be one of the main operators of their farms. Almost 60% of the married women reported they could run the farm operation if necessary without their husbands.

Women Who Subsidize Agriculture

In spite of the value of the economic contribution of women to the farming operation, farm women have entered the labor force at a much higher rate than their urban counterparts. The paid labor force participation rate of farm women increased 400% between 1930 and 1980 (Scholl, 1983). The majority of these women are employed to earn money for farm-related expenses. Off-farm employment is often necessary to subsidize low net farm income and add capital to the farm operation.

Decision Making

According to research on decision making of farm families, husbands assumed the major role in decisions related to farm operations, *e.g.*, crops to plant, fertilizer purchases, and brand of machinery. Joint decisions between husband and wife were more likely to occur in borrowing money, buying and renting land, and buying major farm equipment (Sachs, 1984). Most studies conclude that women's decision making role is limited in highly successful farm operations. As high technology farming increases, it is likely that women will have less impact on critical decisions (Sachs, 1984).

The Work of Children on Farms

Historical records confirm the extensive and important role of children on United States farms (Drache, 1970; Stratton, 1981). Recent studies indicate that farm children continue to make significant work contributions (White and Brinkerhoff, 1981). Additionally, farm families are less likely to distinguish between the work of male and female children in farm-related tasks.

The Current Study

The sample for this study was comprised of 760 randomly selected farm women residing on farms in North Dakota, United States of America. Ninety-seven percent were currently married; only 1.6% were divorced, widowed or separated; and 1.4% were never married. They had been married an average of 22 years and had an average of three children. The average age of the women was 44 years. The women had an average of 12.7 years of formal education; their husbands had an average of 11.4 years.

The average size of the North Dakota families' farms was 1,461 acres. Twenty-nine percent of the farm women's husbands were employed part time or full time off their farm.

Instrumentation and Procedures

Socio-demographic variables were identified in the literature as potentially influencing women's farm work contributions. A questionnaire was used to gather data pertaining to these variables: women's educational level, husband's educational level, annual family income, number and age of children.

The work contributions were assessed by a questionnarie designed specifically for this project. The agricultural production activities defined by Deere and deLeal (1981) provided the framework for the questionnaire. The subjects were asked to describe their involvement in the operation of the farm or ranch. The following choices were given, with instructions to check all that applied to them:

1. I am not involved in the farm work.
2. I do the bookkeeping
3. I'm involved in decision making, such as purchase of equipment, land or livestock.
4. I operate farm or ranch equipment.
5. I care for livestock.
6. I prepare meals and/or do laundry for men working on our farm or ranch.
7. I do other types of work (please be specific).

The women were asked if they received a salary for the work they did on the farm or ranch. They were also asked if they were currently employed off-the-farm or ranch, and if so, the type of employment.

The work contributions of the children were determined by asking the women if their children helped with household and/or farm chores. If their answer was "Yes," they were asked if their child/children helped "very little, some, or a great deal."

The research instruments were mailed to the women. An enclosed, self-addressed envelope was included for the return of their completed instruments. The data were analyzed using analysis of variance procedure.

Women's Farm Work

The overall responses indicate an extensive involvement of the women in farm work. Over 93% of the women were involved in some way; only 7% reported they were not involved. Seventy-six percent prepared meals and/or did laundry for men working on the farm. Seventy-six percent prepared meals and/or did laundry for men working on the farm. Sixty-one percent were involved in major decision making and 60% did the bookkeeping. Equipment was operated by 54% of the women and 42% cared for livestock. Twenty-two percent reported doing other types of work, including running errands, getting repairs for equipment, taking seeds, chemicals, fuel and fertilizer to the fields, and delivering eggs to customers after the eggs had been gathered, washed, candled and packed. Only 7% reported they received a salary for the farm work they did.

The Decision Makers

Because decision making represents a higher level of involvement in agricultural production than other types of farm work, characteristics of those women involved in decision making were investigated. Several significant differences were found between women involved in decision making and those that were not.

The decision makers had fewer children, 3.05 compared to the non-decision makers with 3.34 children. The decision makers had higher family income ($51,300) compared to their counterparts ($41,100). Decision makers belonged to more clubs and organizations, 2.5 compared to 2.2 for the non-decision makers. The decision makers were also extensively involved in agricultural production. Sixty-seven percent of the decision makers compared to 34% of the non-decision makers operated farm equipment. Fifty-two percent of the decision makers and only 25% of the non-decision makers cared for livestock. Sixty-nine percent of the decision makers did the bookkeeping for the farm compared with 45% of the non-decision makers. The differences related to agricultural production were all significant at the .05 level.

It is interesting to note that while not significant, more (30%) non-decision makers were employed off-the-farm than decision makers (25%). Slightly more (78%) of the decision makers reported being involved in meals and laundry than non-decision makers (72%).

Children's Work

The mothers reported that their children became involved with farm work at a very early age. Twenty-three percent of the mothers reported that their four-year-old children helped with farm chores. The percentages of children helping with farm chores increased until age 11; 100% of the children between ages 11 and 19 were helping with farm chores.

Women who reported their children under the age of 11 helped with the farm chores were significantly older (34 years) than women whose children did not help (28.1 years). Mothers with offspring who helped had significantly more children (2.7)compared with their counterparts (1.7); they had significantly less education (13.5 years compared with 14.1 years); their husbands had significantly less education (12.5 years compared with 13.7 years); and were married significantly longer (13.13 years compared with 6.57 years). The differences were significant at the .0001 level.

The women's work involvement in the farm and ranch operation had a significant effect on their children's work contributions to the farm, but not to household tasks. Significantly more women who operated farm equipment and cared for livestock reported their children also did farm work and cared for livestock ($p = .05$). No relationships were found between the women's involvement in farm work and children's.

Employed Farm Women

Twenty-seven percent of the farm women were employed off-the-farm. Their occupations included working as a teacher, nurse, secretary, waitress, salesperson, nurse's aid or postmaster. The employed farm women were significantly younger (average age 41 compared to 46 years for the non-employed women). Age was included as a covariate in the following analysis. Women employed off-the-farm had fewer children, 2.71 compared to 3.34, were better educated (13 years of formal education compared to 12 years), and had better educated husbands (12 years versus 11 years). These differences were significant at the .01 level.

DISCUSSION AND CONCLUSIONS

The acreage of farms in North Dakota, U.S.A., is relatively high. One might think that, as the acreage has increased, the involvement of women and children would have decreased. In other words, family farms are usually thought of as being small. However, the results of this study indicate that, while family farms, *i.e.*, small farms, are not common in North Dakota, fami-

ly farming is very common. Farm wives and their children are extensively involved in farm labor, and thus, contribute significantly to agricultural production.

This is to the advantage of production. Previous literature has shown that the value of farm products increases when women are actively involved in production of farm producrs. Additionally, the results of this study suggested that farm women serve as models for their children; when the mothers work on the farm, the children work on the farm also.

An important trend in American agriculture is the ever-increasing number of employed off-the-farm women. Their income may make the difference between the family remaining on the farm during tough financial times and having to sell the farm.

New skills will be necessary to handle new agricultural technology. These skills do not require physical strength. Women and older children, many of whom will have become computer knowledgeable through their schools, can make important contributions to agricultural production by performing such skills as using compurers for accounting, managing finances, decision making, programming of farm operarions, analyzing market information, and interpreting this type of information for use in decision making (Johnson and Wittwer, 1984).

Integration of these skills performed by women with the work that requires physical strength performed by men can result in increased efficiency of farm management. Such integration of women's work with men's work can ultimarely result in increased productiviry.

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