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Agricultural Development and Nutrition: An Overview



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by

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Introduction

The inclusion of a nutritional perspective in agricultural development programs and projects is essential in order to better achieve and maintain food security for the farm family. This perspective will enable agricultural initiatives to: 1) more fully address the food needs of farm families; 2) identify and promote new technologies that are compatible with their food preferences; and 3) enhance efforts to achieve agricultural sustainability.

Current efforts to create sustainable agricultural development reinforce the need to approach agricultural research and development projects from a perspective that emphasizes the protection and enhancement of household food security. Projects can not be considered successful if they fail to physically sustain the target population.

This discussion outlines several issues related to the impact of agricultural change on household nutrition. These are discussed under four broad categories: 1) Awareness, 2) Implementation, 3) Utilization, and 4) Evaluation. Most of the issues focus on household food consumption rather than individual nutritional status. This is because agricultural production activities are more directly linked to food consumption than to nutritional status. Furthermore, questions regarding household food consumption can be more readily incorporated into agricultural production surveys than is generally the case with nutritional status assessment.

This brief summary is intended to stimulate discussion of and attention to the interrelationship of agriculture and nutrition. This is based on the premise that agricultural projects can be designed to have a significant positive impact on the food consumption of rural populations at nutritional risk. This view lends support to current USAID efforts to identify, test and evaluate alternative ways of integrating nutritional considerations into the design, implementation and evaluation of appropriate agricultural development programs and projects (26).

I. Awareness

An awareness among program planners, project designers, managers and researchers of the importance of food security to small farm households is the first step towards the inclusion of a nutritional perspective in agricultural programs and projects.

Food consumption-related criteria should be among those utilized in the selection of project target area and beneficiaries.

One of the most common reasons that agricultural programs and projects fail to have a positive food consumption impact is that they are not targeted to the populations at greatest nutritional risk. Greater awareness of the importance of targeting and identification of nutritionally vulnerable populations is essential. By identifying and including populations at high nutritional risk in the selection of target areas and households, there is a better chance that new technologies will reach those at greatest need and production increases achieved by the project will improve consumption levels. Although flexibility in the selection process is usually limited by program mandates and government policy directives, a balance can be struck between potential nutritional benefits and agricultural returns.

The production goals of small farmers often include both securing adequate food supplies and income maximization.

These goals are not always compatible. For example, the goal of securing sufficient food for household consumption may constrain the adoption of new, improved agricultural technologies to increase production if these are perceived as risky. Furthermore, the prevailing assumption that an increase in household cash income will result in an increase in the quantity and quality of food consumed underestimates the complexity of the linkages between agricultural production and food consumption. Some of the key linkages include:

- (1) Crop diversity – As small farm households become integrated into a market economy, the production of non-food cash crops often replaces traditional subsistence crops. This shift from subsistence to cash cropping may result in decreased crop diversity and a concomitant increased dependency on outside food sources. As a result, food consumption and nutritional status may be adversely affected. Some other consequences of shifts to cash cropping include: less land available for food crop production; a breakdown of traditional food sharing networks; and the elimination of important minor crops and wild plants which provide essential nutrients during pre-harvest periods when staple foods are often in short supply (4;6;7;13).
- (2) Income – Household income is a major determinant of family food consumption. Factors such as the control and form of income, and the regularity of its receipt may be equally or more important than total income in understanding the nutritional effect of agricultural development initiatives. When women control household income, they are more likely to spend it on food and health care. Continual or periodic forms of income are more often spent on food than lump sum income. In-kind (food) income is more likely used for family consumption than cash income. Increasing income is often associated with the increased consumption of purchased foods, especially foods of animal origin. Diets dependent on purchased foods, however, don't necessarily meet nutritional needs more adequately than diets which rely on agricultural products and wild foods (4;6;7;10;11;13;19;27).
- (3) Seasonality of production – In most areas of the world there is a seasonal dimension to agricultural production, food availability, and malnutrition. Many farm families must cope with a cyclical period of deprivation referred to as the "hungry season." This occurs in the weeks preceding harvest when food stocks are low and food prices are high. Such periods of stress have a negative impact on children's nutritional status and growth. Adults may lose as much as 7% of their body weight during the hungry season. This tends to coincide with the agricultural cycle's peak labor period when a farmer's energy expenditure is at its highest. Food shortages before harvest also coincide with peaks in infection rates for diarrhea, malaria and other debilitating diseases (7;13;15;19).
- (4) Role of women in agricultural systems – The effect of women's participation in agricultural production on family consumption and nutritional status is closely tied to the income earned and labor demanded by this activity. Most income earned by women from agricultural activities is used for food purchases. Children of working women are less likely to be malnourished than children of non-working women. However, activities which increase the labor demands on women's time may lead to changes in cooking habits, the preparation of less nutritious and/or fewer meals, the cultivation of less labor intensive and less nutritious food crops, and less time devoted to breastfeeding and child care (6;7;12;13;15;25;27).

- (5) Crop production and processing labor requirements – The introduction of new cash crops may require more human energy than previously grown crops, and the added energy requirement may be greater than the value of the output. These increased energy demands could also have deleterious effects on intrahousehold food distribution if some members of the household require a higher food intake to meet labor demands (6;7).
- (6) Food preferences and utilization – Improved crop varieties should have acceptable quality characteristics for successful adoption by farm families. They should satisfy local tastes in terms of flavor and texture otherwise they are unlikely to be adopted for subsistence and may only be produced for commercial purposes. New varieties should also have acceptable cooking qualities. New varieties that take longer to cook may require more fuel, water and labor than indigenous varieties. In addition, time- and resource-efficient preparation methods should be introduced concomitantly in order to better ensure the use of new crop varieties to meet consumption needs (6;7;24).
- (7) Market prices – Market prices and market access can have a significant impact on the consumption patterns of small farm households. For example, in most developing countries, high consumer prices coincide with food shortages in small farm households. In addition, government price and trade policies may adversely affect domestic producer prices which, in turn, serve to keep the purchasing power of farmers low. Finally, market inefficiency and periodic market instability can place households that are dependent on purchased food to meet their food needs in a vulnerable position (6;7;14).

Food consumption objectives should be incorporated in the design of agricultural projects from the very beginning rather than as add-on components.

If project designers recognize the importance of consumption considerations to household food security, they are more likely to incorporate consumption objectives in the initial phases of project design. This will better ensure that consumption issues are explicitly addressed by the project and viewed as complementary to the project's production objectives and its overall goals.

II. Implementation

The issues discussed in this section deal with the collection of a minimum set of consumption data during the various stages of project implementation, namely:

- (1) Target area selection – Secondary data which provide information on the nutritional situation should be used to aid in area selection. These may draw from previous nutrition and consumption surveys, household budget surveys, and/or health and census data. Data disaggregated by socioeconomic status and cropping patterns can allow for the targeting of interventions to households at greatest risk.
- (2) Baseline data collection – Questions concerning various aspects of household food consumption should be included in the agricultural production baseline survey questionnaire. More specifically, survey data should include information on the source of household food supply, types of food consumed, preparation techniques, food preferences and habits, seasonality of consumption, food storage, preservation, and processing practices.

- (3) Intervention selection – Consumption status indicators should be included along with agroecological and economic criteria in the selection of appropriate interventions. Examples of such indicators include: a) the amount of food stored in the household and the income or liquid assets (i.e., animals) available just prior to harvest; and b) the frequency of consumption of key foods within a 24-hour period.
- (4) Intervention field-testing – Data can be collected to help assess a proposed intervention's potential impact on food consumption. For example, project staff can elicit farmers' opinions on the qualities of new crop varieties regarding agronomic, marketing, storage, cooking, and taste characteristics. Specific food consumption information might include: food preferences and beliefs, preparation techniques, post-harvest practices, and consumption status indicators.

Project staff must clearly identify the persons who are responsible for or will be needed to collect consumption-related information.

Explicit mention in project documents of the duties and responsibilities of persons responsible for collecting consumption data is more likely to ensure that the information will be obtained. In addition, project staff will be able to determine in a timely manner when they need to elicit the help of consultants (e.g., nutritionists, food technologists, etc.) on a short-term basis.

Researchers should receive the necessary resources and logistical support to effectively collect food consumption data. Since much of this information can be obtained in conjunction with production data collection, the additional resource requirements should be minimal.

Designated project staff should analyze, document and disseminate food consumption data in a time effective manner. This will improve the chances that the data will be utilized in project decision-making. This feedback may be presented in the form of reports and/or presentations to project staff.

III. Utilization

Once the food consumption data are collected and analyzed, they should be incorporated in the selection and testing of new agricultural technology. This section discusses issues relating to the utilization of these data.

Periodic meetings between project staff and extension personnel should be held to exchange information and to promote a better understanding and utilization of the food consumption data.

Food consumption data should feed directly into the design and testing of recommended project interventions. Some examples of how this can work are:

- (1) Crop interventions – Seasonal food shortages might be addressed by introducing: a) early maturing food crop varieties; b) intercropping or relay cropping strategies; or c) improved water management. Improved food consumption may be achieved by focusing on: a) integrated food and cash crop production strategies; b) crop diversity; or c) minor food crops grown by women. To avoid increasing the labor demands on women's time, attention could focus on: a) labor-saving technologies; b) cash crops that don't compete with food crops; and c) supplementary non-staples.

- (2) Animal husbandry interventions – Seasonal food shortages might be resolved by encouraging farmers to invest in small livestock. The latter provide a hedge during times of food insecurity.
- (3) Post-harvest interventions – Improvements in storage, processing and preservation techniques may help overcome seasonal food shortages. In addition, the development of labor-saving technology for food processing could help reduce the demands placed on women's time.
- (4) Marketing interventions – Farmers could be encouraged to purchase non-perishable foods in bulk right after harvest with money earned from cash crop sales in order to avoid seasonally high food prices later on.
- (5) Community interventions – Community grain banks might be promoted to avoid seasonal food shortages and high food prices. Women's credit associations, cooperatives and childcare facilities could be promoted and/or strengthened to increase women's access to cash and labor inputs in order to maintain adequate food production levels.

IV. Monitoring and Evaluation

Monitoring and evaluation of efforts to incorporate food consumption concerns in agricultural projects help to determine project impact on household food consumption and to identify constraints to household food security which might be addressed in future agricultural initiatives.

Project status indicators should encompass both production and consumption outcomes.

Food consumption measurements collected prior to the project can be compared with measurements collected both during and after the project, taking possible outside influences into account. This will help determine whether a given intervention has resulted in improvements in the quality and quantity of food consumed. Such assessments help determine whether the present intervention should be repeated in future agricultural projects and/or extended to other farm households.

Project assessments should clearly delineate those aspects of projects which help or hinder the inclusion of food consumption issues.

By identifying the key factors responsible for the successful incorporation of nutritional considerations into agricultural initiatives, project planners can integrate similar components into future projects. Similarly, identified constraints which have hindered the process might be resolved in follow-on agricultural development efforts.

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