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HOUSEHOLD DECISION-MAKING ON HOMESTEAD FOOD PRODUCTION: PERCEPTIONS ON PLANTING, PRODUCTION, AND PURCHASES IN BANGLADESH

A QUALITATIVE STUDY

This publication was made possible by the support of the American people through the U.S. Agency for International Development under Cooperative Agreement AID-OAA-A-11-00031, the Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project.

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ABOUT SPRING

The Strengthening Partnerships, Results, and Innovations in Nutrition Globally Project, SPRING, is a five-year USAID-funded Cooperative Agreement to strengthen global and country efforts to scale up high impact nutrition practices and policies and improve maternal and child nutrition outcomes. The project is managed by JSI Research & Training Institute, Inc., with partners Helen Keller International, The Manoff Group, Save the Children, and the International Food Policy Research Institute.

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ACRONYMS

BCC	Behavior Change Communication
HFP	homestead food production
HKI	Helen Keller International
IFPRI	International Food Policy Research Institute
JSI	JSI Research & Training Institute, Inc.
NGNESP	Nutrition Education and Nutrition Surveillance Project
PPI	Progress out of Poverty Index
SBCC	social and behavior change communications
SPRING	Strengthening Partnerships, Results, and Innovation in Nutrition Globally
USAID	United States Agency for International Development
WEAI	Women's Empowerment in Agriculture Index

EXECUTIVE SUMMARY

SPRING/Bangladesh seeks to improve the nutritional status of women and children by improving nutritional practices, increasing dietary diversity and food quality, and decreasing the burden of disease in Barisal and Khulna Divisions. The program addresses the need for increased dietary diversity and food quality by introducing and promoting the cultivation of nutrient-dense foods (primarily fruits and vegetables), poultry rearing, and fish farming, to increase the availability of nutrient-dense foods within the household, thereby increasing women and children's access to higher-quality foods. Success in increasing dietary diversity and food quality will require that members of households either: (1) grow and consume homegrown produce of higher nutritional value than normally present in their diets, or (2) use income gained from improved agriculture in ways that improve dietary diversity and food quality. This study provides insight into the factors that motivate households to take up production of nutrient-dense foods, to consume nutritious foods that they produce rather than sell, and to purchase foods of higher nutritional value. The findings will be included into the current SPRING/Bangladesh social change, behavior change, and communication (SBCC) materials targeting increased production, home consumption, and purchase of nutrient-dense foods.

OBJECTIVES

This study sought to investigate mens' and women's motivations behind household choices concerning:

a.) Crops to plant in an improved/developed garden

b.) Consuming versus selling crops harvested from an improved/developed garden

c.) Food and non-food purchases from the market using proceeds from the sale of homestead garden produce

METHODS

Two study sites were selected within each of SPRING's Khulna and Barisal working areas. Within each of these sites, a convenience sample of 25 households was selected from participants in SPRING's homestead gardening intervention (100 households total in four sites). Household selection criteria included participation in the SPRING-led homestead gardening intervention, two-parent household, and parents of an infant/child younger than two years. Households that did not allow the wife to be interviewed separately were excluded. In each working area, a team of four interviewers and one supervisor conducted in-depth interviews of wives and husbands (separately) from each of the selected households. The language of the interview and the questionnaire was Bangla, but interviewers also recorded open-ended responses in English, with completed questionnaires checked nightly.

Data collection occurred during a period of political unrest, and, despite the intention of interviewing 100 couples, only 92 households were reached, and only complete 65 households were available when both husband and wife were present. Six husbands were interviewed whose wives

were not available, and 27 wives were interviewed whose husbands were not available. Questionnaire responses were entered into a Microsoft Access Professional 2010 database using an EPIInfo Version 7-based data entry program. All analyses were conducted in STATA version 12.

RESULTS

CHARACTERISTICS OF STUDY GROUP

The respondents in the study, who were selected from the SPRING participant pool, reflect SPRING's targeting criteria: poor families with young children—many with several children—having few assets, little or no land, and very small dwellings. Notably, a large percentage of households have members who work for a daily wage, which may reflect both the study area's proximity to urban areas as well as an inability to obtain sufficient income through agricultural activities. Roughly half or more of households were producing sweet gourd, bottle gourd, radish, red amaranth, yardlong bean, and poultry.

WOMEN'S DECISION-MAKING AUTHORITY AND ROLE IN HOUSEHOLD ECONOMIC ACTIVITIES

Scope of Input into Household Decisions

The areas where the highest percentage of women reported frequently having a say in household decisions were homestead gardening, livestock production, and use of income from livestock production. While all men in the study sample reported having input into at least some decisions about (field crop) agricultural production, the areas where women had the greatest input (homestead gardening, livestock production, and use of income from livestock) were the only categories in which some men said that they had no input.

Primary Responsibility for Decisions

Overall, although women do not have as much primary responsibility for household decisions as men do, the majority of women say that they have input into at least some decisions related to household production and income, and that they have the most responsibility for decisions related to gardening and livestock production. A high percentage of both husbands and wives attribute decision-making authority for home gardening and livestock—both production and use of income—to women.

Motivations for Decisions

Using categories developed for Feed the Future's Women's Empowerment in Agriculture Index (WEAI), husbands and wives were asked to rate their motivations for making decisions about specific types of household economic activity (e.g., agricultural production or homestead production) according to three constructs: a) avoiding punishment or seeking reward, b) avoiding blame or seeking for others to speak well of them, and c) making decisions that reflect their own personal values or interests. Respondents additionally were asked to rate their level of satisfaction with the decisions that they make.

Both men and women overwhelmingly reported that decisions for agricultural production and home gardening reflect their own personal values and interest. Differences exist, however, in the influence of specific motivations. In all categories, motivation to avoid punishment or receive reward was far more common among women than among men. Another area where major differences exist between men and women is the level of satisfaction about decisions taken for crops to plant and inputs to purchase for agricultural production, about decisions taken about crops to plant for home gardening, about consuming or selling home garden production, and about how to use income gained from home gardening. For decisions about crops and inputs for agricultural production, women were far less satisfied than men about the decisions being made, and for decisions related to home gardening—including decisions about purchases to be made using income derived from home gardening—women were equally as satisfied as men.

MOTIVATION FOR UNDERTAKING HOMESTEAD PRODUCTION

When asked why they had undertaken household food production, the most common response among men and women was a desire to produce more food. The second most common response was a desire to increase income, followed by a desire to produce more vegetables.

DISTRIBUTION OF HOMESTEAD FOOD PRODUCTION LABOR WITHIN THE HOUSEHOLD

Among men, most, if not a majority, feel that husbands alone bear primary responsibility for land preparation, weeding, and transport to market, and a majority of the largest percentage of respondents feel that wives alone are responsible for planting, harvesting, drying, and storage. Among women it is most common to claim that husbands and wives together are responsible for all activities except for drying, storage, and transport to market, with most stating that drying and storage are the wife's responsibility, and that transport to market is primarily the husband's responsibility.

REASONS FOR GROWING SPECIFIC CROPS IN CURRENT GARDEN

Four primary reasons were given for growing specific crops: "always eat it," "like taste or texture," "good for health/nutrition," or "want to sell for cash." "Good for health/nutrition" was overwhelmingly the most common response for all crops and livestock. For all crops and livestock, roughly 10 percent of both women and men said the primary reason for growing/raising was "to sell for cash."

An examination of the frequency of "very important" reasons by crop showed that by far the most common reasons for women were "someone taught me to grow it" and "the seeds were free." Men showed less consensus but the most reasons common were "inexpensive to grow," "grows well," and "good for health/nutrition."

DISPOSITION OF CURRENT PRODUCTION

The plan to consume at least a portion of all crops cultivated, and of poultry and fish raised, is nearly universal. For that portion of home production that the household does not consume, rice was a first choice, especially among women. Beef, dal, and fish were common planned purchases for both men and women, although the plan to purchase beef or fish was more common among men and a plan to purchase dal more common among women. For both men and women, a plan to purchase cooking oil and salt was most common. Both men and women planned to use income

from homestead food production (HFP) to purchase medicine, especially with proceeds from the sale of poultry and fish. Men additionally mentioned plans to pay for school fees using income derived from sale of home-produced vegetables, and to pay toward loans using income from all home production except amaranth and tomato.

POST-HARVEST DECISION INFLUENCES AND CONTROL

While nearly half of women felt that the ability to store produce affects their decision concerning sale of home-based production, far fewer men mentioned this as influencing their decision. When asked to explain how storage affects decisions about sale, the overwhelming majority of both men and women mentioned a need to sell because the lack of storage facilities—especially cold storage—resulted in spoiled crops if they did not sell them. One male respondent, who apparently did have a storage facility, mentioned being able to hold crops when market prices were low.

CROPS PLANNED FOR UPCOMING SEASON

Of eight crops that SPRING will promote for the next vegetable growing season, the majority of households planned to plant six of them: Indian spinach, okra, bitter gourd, papaya, ash gourd, and country bean. Similar to responses given as reasons for planting their current crops, households commonly mentioned health and nutrition benefits as a primary reason for planning to plant the SPRING-promoted crops in the coming season. Wanting to sell the crop for cash was more common for crops planned for the upcoming season than it was for the currently grown crops. For those households that did not plan to plant the SPRING-promoted crops, common reasons given were "not our custom" (strangely, the SPRING-promoted crops are widely grown throughout Bangladesh), but also "difficult to grow" and "high risk."

DISCUSSION

The findings suggest that women have more input into decisions about homestead food production than they do about row crop production, and that both men and women accept women's authority either to be the sole decision-maker or to participate jointly with their husbands in decisions related to crops to plant (or livestock to raise), consumption versus sale of harvested crops, and purchases to be made with proceeds from selling homestead production. Notably, men more commonly said that decisions about these purchases were jointly made than they said that these are made solely by the wife. Nonetheless, women have more influence and control over homestead production—and income gained from it—than they have over row crop production. Many studies have shown that income under the control of women translates into improved health and nutrition outcomes for the household than does income under the control of men, so introduction of homestead food production may achieve nutritional benefits even for that portion of produce that households sell rather than consume.

The nutritional value of crops and livestock produced by SPRING households is a major factor motivating homestead production. Ratings for a list of varied motivational factors for current crops, however, tell a more nuanced story. Women, who presumably face gender constraints in accessing inputs, appear to need no further motivation for cultivating specific homestead crops or livestock than the acquisition of skills and availability of inputs. Men, who already have access to inputs and may have the requisite skillset for gardening, apparently are most concerned that

homestead production should not be too much work, cost too much money, and involve too much risk.

Reasons for selecting crops to plant for the upcoming season showed some agreement with the reasons for choosing currently grown crops in that "good for health and nutrition" was a common reason. Selling for cash was cited more often for crops planned for the upcoming season than it was for those in current production. When asked what they plan to purchase in the event that they do sell (rather than consume) homestead-produced crops or livestock, both husbands and wives commonly state their desire to purchase rice. From this study, it is not possible to know if these households experience frequent or even occasional rice shortages, but certainly all consume rice as their primary staple. Since the foods produced in the homestead provide under-consumed nutrients that are not found in rice, their sale to obtain rice represents a nutritional forfeiture.

Cooking oil is the next most commonly named food item to be purchased. Since fat consumption in Bangladesh is meager, with consumption among mothers almost universally far less than the recommended 20 percent of total energy, the nutritional benefits of increased fat consumption may be as great as or greater than those that might be gained from consumption of the homestead-produced crops or livestock.

RECOMMENDATIONS

SOCIAL CHANGE

Many respondents, both male and female, reported that they would not plan to cultivate some of the highly nutritious SPRING-promoted crops because growing or consuming them is "not our custom." While taste preferences, or production risks, may be extremely resistant to change, it may be possible to influence what is considered "custom" through the creation of "champions" to promote these specific crops. Champions would be individuals who appeal to husbands' and wives' aspirations (such as celebrities, sports stars) or types of individuals representing either aspirations or authority. Types of individuals who may appeal to aspirations may be wealthy, "modern," or educated archetypes, and established authority figures who may be influential may include doctors and other health professionals.

BEHAVIOR CHANGE

Promoting Production of Specific Crops and Livestock

Men interviewed in this study reported concerns about risk, labor input, and cost. Women reported primarily to be influenced by having someone to teach them the necessary skills and the opportunity to obtain inputs, especially seeds. Promoting specific crops with men should focus on how trouble-free the experience can be, with the benefits of increased food access and potentially increased income. For promoting homestead production among women, SPRING has already launched an initiative to build skills for home gardening, and poultry and fish production. Although the women mentioned that free seeds are a major factor in women's choice of crops to plant, SPRING will not provide seeds for participants following graduation from the SPRING program. Continued expansion of homestead gardening thus will require other strategies for ensuring women's access to seeds.

Promoting or Discouraging Specific Purchases

Rice. If levels of food security are adequate for avoiding rice shortages, efforts should be made to discourage households participating in homestead food production from selling their produce or livestock for the purpose of purchasing rice. The most straightforward promotional message would be that rice can be had from a variety of income sources, but the "vitamins" that children and women need are only available from vegetables, eggs, chicken, and fish.

Cooking oil. Because fat consumption is very low in Bangladesh, and because appropriate fat consumption promotes adequate fat- soluble vitamin, sale of homestead production for the purpose of oil purchase should not be discouraged.

Promoting Women's Decision-Making for Purchases with Homestead Food Production Income

Although most households claimed that women made decisions about income gained from the sale of commodities produced through homestead food production, most households also claimed that husbands and wives jointly decided on purchases to be made with this income—likely because men make the actual purchases in the market for cultural reasons. The promotion of door-to-door vending, which would allow women to make purchases directly rather than through their husband, may facilitate women making their own purchases of food for the family.

Promoting Consensus

Several important areas of consensus between men and women were shown: a) both recognized the nutritional value of crops, poultry and fish in homestead food production systems, b) both plan to consume rather than sell at least a portion of their production, and c) both recognize the elevated (relative to other household decisions) role of women in decision-making about production and consumption/sale of homestead production. SPRING may want to take advantage of this consensus to promote discussion between husbands and wives about how they can maximize the nutritional benefits of their own production, and about trade-offs that inevitably arise when deciding about sale versus home consumption. The appropriate decision will be different for each family and their situation, but by promoting sale/consumption of home production as a family decision, women's influence in this area may result in greater consideration being given to nutritional benefits.

Photo courtesy of Agnes Guyon

INTRODUCTION

SPRING/Bangladesh seeks to improve the nutritional status of women and children by improving nutritional practices, increasing dietary diversity and food quality, and decreasing the burden of disease in Barisal and Khulna Divisions. The program addresses the need for increased dietary diversity and food quality by introducing and promoting the cultivation of nutrient-dense foods (primarily fruits and vegetables), poultry rearing, and fish farming, to increase the availability of nutrient-dense foods within the household, thereby increasing women and children's access to higher-quality foods. Success in increasing dietary diversity and food quality will require that members of households either: (1) grow and consume homegrown produce of higher nutritional value than normally present in their diets, or (2) use income gained from improved agriculture in ways that improve dietary diversity and food quality. This mixed methods study will provide insight into the factors that motivate households to take up production of nutrient-dense foods, to consume nutritious foods that they produce rather than sell them, and to purchase foods of higher nutritional value. The findings will be included into the current SPRING/Bangladesh social change, behavior change, and communication (SBCC) materials targeting increased production, home consumption, and purchase of nutrient-dense foods.

Photo courtesy of Agnes Guyon

The decision-making processes that any farm household follows are complex, and they are perhaps even more so in Bangladesh, where men are, in general, responsible for the majority of interactions with society outside the extended family. That is, men buy seed and other inputs for cultivation, men perform most field crop work (fields lay outside the homestead), men are responsible for selling the farm's produce, and men are the primary food purchasers for the family. The research

"…household economics views the household as a harmonious microcosm or entity which shares the same resources and aims to increase its utility or welfare through production and consumption of "commodities" such as good health, and aesthetical and gastronomic utility from food." (Chernichovsky and Zangwill 1988). [1]

sought to explore if this situation may change when crops and livestock are produced within the homestead, with women having more responsibility for the work of cultivation or rearing, and perhaps more say in the crops planted, inputs acquired, products sold, and food purchased. Even in the homestead production setting, however, women are unlikely to be the ultimate decision-makers concerning the purchase of food from the market because these purchases ultimately are made by men regardless of whether women have input into the decision (Quisumbing and de la Brière 2000).

This study sought to investigate men's and women's motivations behind household choices concerning:

- Crops to plant in an improved/developed garden
- Consuming versus selling crops harvested from an improved/developed garden
- Food and non-food purchases from the market using proceeds from the sale of homestead garden produce

1. The simplification of a household into a "single unit" overlooks a great deal of complexity in how household members arrive at consumption versus sale decisions, and in how household members individually contribute to the overall household economy. Husbands and wives may have differing views of maximum utility for themselves, and of the value of commodities produced and consumed. Under the "conjugal contract" household model, for example, the household is seen not as a single unit but as competing, gendered spheres of decision-making and activity that determine the exchange of goods, income, and services through the terms of a contractual arrangement through marriage (Carter and Katz 1995). The ability of females to have a voice in the terms of this contract, or to leave the contract, has important consequences for the benefits available from new economic opportunities.

BACKGROUND

WOMEN'S ROLE IN AGRICULTURAL LIVELIHOODS

Cultural norms in Bangladesh value female seclusion and tend to undervalue female labor, although in the poorest households, women actually are fairly active in the agricultural sector as day laborers (Sraboni, Quisumbing and Ahmed 2012). Studies by IFPRI in the areas where USAID's Feed the Future initiative and SPRING are active, found low levels of women's empowerment in agriculture, with 80 percent of women not rated as empowered according to the WEAI, and nearly half of women stating that they feel they have little input in decisions relating to agricultural production (Ibid.) Control over household resources was seen as a primary domain in which women remain unempowered.

Homestead gardening may provide an exception from traditional agriculture in terms of women's empowerment and decision-making authority, as homestead gardens are traditionally considered to be women's responsibility (Bushamuka et al. 2005). Evidence from Helen Keller International's (HKI's) Nutrition Education and Nutrition Surveillance Project (NGNESP) suggests that homestead gardening may result in women gaining more decision-making influence over how families use household land, the type and quantity of fruits and vegetables that households consume, and the allocation of women's workload in the household's livelihood system (Ibid.)

This gain in decision-making authority grows as a function of being involved in the gardening intervention and, apparently, continues to grow after participation ends. (Bushamuka et al. 2005). Regarding using this information for designing behavior communication change (BCC) initiatives, targeting women with promotional activities at the start of the intervention may be ineffective if they have not yet gained the increased authority that develops through participation. Changing decision-making over time may need to be addressed by modifications in BCC initiatives over the course of implementation by SPRING and those who sustain those efforts after the project ends.

DECISIONS CONCERNING CROPS TO CULTIVATE

Regardless of whether men or women are the primary decision-makers concerning crops to cultivate, the factors that motivate choices are varied. When considering new crops or new technologies, poorer households tend to avoid risk and choose proven production strategies, even if the risk may confer substantial benefit (Barrett et al. 2006). In India, a study assessing reasons why farmers would choose to plant pearl millet found that the characteristics that appeal to net-consuming households are different than those that appeal to net-selling households, with nutritional characteristics having no influence on the planting decision for those households with primarily a commercial interest in growing the crop (Birol et al. 2011). Thus the potential for higher nutrient value may not be effective motivating factors for choosing crops to cultivate.

DECISIONS CONCERNING CONSUMPTION VERSUS SALE OF PRODUCE

Household decisions concerning whether they will sell or consume their agricultural produce are complex, and relate to a larger question of the household's micro economy.

According to this theory a household is a joint production-consumption unit, interchanging consumption from its own production with market purchase depending on a variety of factors that motivate a farm family to maximize the utility it gains: the "combination of outputs which are in their most basic form the sources of satisfaction of wants for the household members" (Franklin n.d.) Nonetheless, evidence suggests that households are fairly willing to substitute between market and home-produced goods (Rupert, Rogerson, and Wright 1995).

Most assessments identify these factors in economic terms (Singh, Squire, and Strauss 1986). In the decision equation, the household weighs the cost of purchasing a good from the market (e.g., food) against the savings of consuming a commodity they produce—a savings value which includes the household's cost of production inputs, including labor. This also can be stated as weighing the income to be gained by selling a commodity against the income lost by consuming it. When the income to be gained by selling more than offsets the value of the commodity (including inputs and labor), households will want to sell and use the income gained to buy other goods (e.g., foods) from the market. Importantly, the level of farm income and the availability of goods in the markets influence the size of these effects. In making decisions about these trade-offs, however, the family is not necessarily weighing the value of nutritional benefits that may be derived from the commodity in question, and, based on a straightforward cost assessment, they may sell a highly nutritious commodity and purchase a less nutritious commodity with the profit. In Bangladesh, men generally control the purchasing and marketing of rice, the major staple crop, and are responsible for purchasing most of the food from the market (Quisumbing and de la Brière 2000). This may be due to cultural norms reinforcing beliefs that men should be responsible for activities requiring interaction outside the household (Fontana 2004). Habits also play a role. Men tend to have control over the sale of household production (including women's production) and all of the household's public affairs (Zaman 1995). Thus, understanding men's motivations for selling household resources and for purchasing food and other items is important for influencing the entire household's marketing practices.

Less is known about how households value the nutritional content of foods when making these decisions. Studies of purchasing behavior, as discussed below, demonstrate that nutrition education initiatives result in increased purchase of nutritious foods, suggesting that households ascribe greater value to foods of higher nutritional value when made aware of its potential benefits. Therefore, it would seem that increased knowledge concerning a crop's nutritional value influences the decision-making process, raising the perceived value of a more nutritious crop both when considering whether to sell that crop as well as whether to purchase it.

DECISIONS CONCERNING FOOD PURCHASES FROM MARKETS

FACTORS OTHER THAN NUTRITIONAL VALUE THAT INFLUENCE FOOD PURCHASE CHOICES

A number of influences affect household food purchases, including income, food prices, parental education, nutritional knowledge, local customs, household habits, and food preferences (Bouis and Novenario-Reese 1997). Several models describing the process of consumer choice have been proposed and tested and these suggest a wide range of factors beyond knowledge that influence what people spend their money on. For example, expenditures can serve to establish an individual's status relative to others in her or his peer group, and not making specific purchases may be associated with a loss in status (Hopkins and Kornienko 2004). In the context of market purchases by men in Bangladesh, with the awareness of being seen publicly, the purchase of some nutritious foods (e.g., vegetables) may be considered to be of a lower status than the purchase of other "higher-status" foods; men therefore might consider what others will think, rather than the nutritional benefit of the food. Furthermore, studies have shown that when considering trade-offs between giving up items families usually buy, comfort with the status quo can favor small rather than large changes in purchasing behavior (Tversky and Kahneman 1991). The use of income to purchase nutritious foods, while desirable for the promotion of better nutrition, may pose some financial risk to poorer households if, in doing so, they sacrifice food or non-food items that are more important to the family's livelihood or survival.

FOOD PURCHASE IN RESPONSE TO INCREASED INCOME

Several studies have assessed household food expenditures in Bangladesh from an economic standpoint (e.g., Ahmed, 1993), assessing income elasticity[2] associated with expenditure on various food items. This elasticity, however, simply describe changes in purchasing practices with differing levels of income, not the motivations behind making these purchases or the influence of the household's own production on them. Evidence exists to suggest, however, that the elasticity for food item purchases is higher than for purchases of clothing, housing, durable goods and other items (Han and Wahl 1998), which may indicate that the perceived need for a specific food or a food's aesthetic value make them more desirable for purchase. This also may indicate that clothing, housing, durable goods etc. have the highest priority and food expenditure increases only when income rises above the amount necessary for meeting these basic needs.

Experience from HKI's NGNESP in Bangladesh demonstrates households' purchasing behavior in the context of additional income gained specifically through homestead production (Kiess et al. 1998). Various studies have shown that the majority of households use income gained through participation to purchase supplementary food items, such as meat, and fish (Ibid.), with as much as 70 percent using income from homestead gardening to purchase additional food for the household (Talukder et al. 2010). Other uses of income derived from gardening included essential household expenses and investment in productive assets, including reinvesting in gardening (Kiess et al.

2 Income elasticity describes the relationship between demand for a product and a rise in income. Positive income elasticity suggests that demand for a product rises with rising income, and an elasticity of one implies that the percentage increase in demand rises at the same rate as percentage rise in income. Most products have positive elasticities lower than one (normal goods), suggesting that demand rises with rising income but not at the same rate. When one item has greater income elasticity than another, in response to a rise in income demand for the former increases at a greater rate than demand for the latter.

Photo courtesy of Agnes Guyon

1998). While this may simply reflect the higher income elasticity of food items in comparison with non-food items, it also may reflect the fact that women tend to have more input into or control over the use of income gained through homestead production.

THE ROLE OF NUTRITION EDUCATION

When determining whether a food item to be purchased from the market is "worth the price," a consumer typically weighs a variety of factors like quality, taste, convenience, fuel, and preference (Pelto et al. 2011). Nutritional value is also an important factor in this assessment (Variyam et al. 1999; Block 2002; Block 2003; Chowdhury et al. 2009; Birol et al. 2011), but knowledge of the nutrient content of foods generally is low. This suggests that nutrition education may provide an important means for influencing food choices to support improved diets.

SUMMARY

In the Bangladesh context, research suggests that gender considerations to be important for the promotion of nutrition-sensitive agriculture but not only in the sense of providing income generation opportunities for women or promoting agricultural activities typically under the control

of women. In settings where women have little say in what crops are grown, in whether the household's production will be sold or consumed, or in what foods are purchased using homestead food production income, understanding and influencing men's decision-making will be essential for encouraging increased dietary diversity. Similarly, even though in situations where women may have greater influence over these kinds of decisions—as would be expected in the context of homestead production—nutritional concerns may be more likely to factor into the household's choices. Within this context men's concerns cannot be ignored as men are likely to maintain at least some influence over production and selling decisions, and to ultimately make food purchases. Additionally, past experience has shown that, even in homestead production schemes, women's empowerment for production- and sale-related decision-making increases only over time, and men may thus exert more influence during the initial period of the household's participation in a homestead program. Because women tend to use resources more efficiently for nutrition (Haddad and Hoddinott 1994; Quisumbung et al. 1995; Smith et al. 2002), however, efforts to increase women's empowerment will be an important element of efforts to increase the nutritional impact of agricultural interventions (Talukder et al. 2010).

Because nutritional value has been shown to influence food purchases (Variyam et al. 1999; Block 2002; Block 2003; Chowdhury et al. 2009; Birol et al. 2011), raising awareness about the nutritional value of specific foods is likely to increase the value of those foods in the minds of household members. Nutrition education therefore may result in an increased tendency to grow these foods, to keep a portion of their production, or to purchase these foods more often. Nutrition education alone, however, is unlikely to induce major changes in diet because of the wide variety of other factors that influence choices about crops to cultivate, about selling or keeping home production, or about purchasing specific foods from the market. Influencing decisions about which crops to grow will also likely require sensitization so that families understand that the change will not jeopardize the household's established income stream(s), and that the benefits of introducing new crops are worth the effort associated with learning and adopting new practices. Since one consideration for how households decide about selling or consuming what they produce is based on an assessment of whether they gain more from selling it than they lose by keeping it, it is important to consider nutritional trade-offs when designing for SBCC. For example, if a family sells the costly nutritious food they produce to purchase less nutritious foods, the nutritional benefits of growing vegetables may be lost. Although we cannot know this definitively, it should be a consideration in program planning along with consideration of habit, and promoting the purchase of more nutritious foods will need to take into account social pressures for purchasing certain items.

METHODS

Two study sites were selected within each of SPRING's Khulna and Barisal working areas. Within each of these sites, a convenience sample of 25 households was selected from participants in SPRING's homestead production intervention (100 households total in four sites). Household selection criteria included participation in the SPRING-led homestead gardening intervention, two-parent household, and parents of an infant/child younger than two years. Because the purpose of the study was to develop communications strategies for influencing practices among households participating in SPRING's nutrition activities, these households were targeted despite the possibility that SPRING nutrition training could influence their responses. Households that did not allow the wife to be interviewed separately were excluded. In each working area, a team of four interviewers and one supervisor conducted in-depth interviews with wives and husbands (separately) from each of the selected households. The interview and the questionnaire were conducted in Bangla, but interviewers also recorded open-ended responses in English, with completed questionnaires checked nightly.

Data collection occurred during a period of political unrest, and, despite the intention of interviewing 100 couples, only 92 households were reached, and only complete 65 households were available when both husband and wife were present. Six husbands were interviewed whose wives were not available, and 27 wives were interviewed whose husbands were not available. Questionnaire responses were entered into a Microsoft Access Professional 2010 database using an EPIInfo Version 7-based data entry program that restricted entry to allowable ranges, accepted entry only according to the questionnaire skip patterns, and prompted required fields. Data were subjected to range and logical checks as well as visual inspection, and inconsistencies and errors were checked against original questionnaire forms for making corrections. All analyses were conducted in STATA version 12.

RESULTS

CHARACTERISTICS OF RESPONDENTS

The responses represented in Table 1 comprise the "Progress out of Poverty Index®" (PPI®),[3] a poverty measurement tool developed by the Grameen Bank to compute the likelihood that the household is living below the poverty line.

More than half of households had more than one child, but less than five percent had more than one child under two years. Five households (7.1 percent) did not have children under the age of two, despite this being a requirement for participation in the SPRING intervention and this having been communicated as an essential inclusion requirement.[4]

An overwhelming majority of households (85.9 percent) had a *pacca* latrine (pit or water seal), and more than 60 percent lived in a dwelling with two or fewer rooms. Only 11 percent lived in a dwelling with brick or cement walls. Only 30 percent owned land, and only one of the landowning households had holdings larger than one acre. Perhaps surprisingly, 30 percent owned a television—twice as many as owned a wristwatch.

As might be expected among households having no or very small landholdings, a large majority of households have at least one member working for a daily wage.

Table 1. Characteristics of Respondents (Male Only)

		%
Children under 12 years	None	3
	1	45
	2	31
	3	15
	4 or more	6
Children under 2 years	None	7
	1	89
	2	4
Type of latrine	***Kaccha*** (temp or perm)	14
	Pacca (pit or water seal)	86
Number of rooms	1	35
	2	29
	3	17

3. Accessed at http://www.progressoutofpoverty.org/country/bangladesh A new version of the PPI for Bangladesh released in March 2013 was not available at the time of data collection.
4. Because members of these households were SPRING participants, they were included in subsequent analyses.

		%
	4	17
	6	1
Type of Walls	Mud/brick	14
	Hemp/hay/bamboo	11
	CI sheet or wood	58
	Fired brick/cement	17
Land owned	No land	71
	0 to ¼ acre	12
	¼ to ½ acre	11
	½ to ¾ acre	5
	¾ to 1 acre	0
	1 acre or more	1
Television		29
Cassette or CD player		4
Wristwatch		17
Family Member(s) earning a daily wage		68

Table 2 shows, based on the Grameen Bank's estimates, the probability of falling below various poverty line estimates based on a household's PPI score. While relatively few households (4) have a greater than 50 percent likelihood of falling below the Bangladesh national poverty level, 77 percent have a greater than 50 percent likelihood of earning less than US$1.25/day, and essentially all households have a greater than 50 percent likelihood of earning less than US$2.00/day.

Table 2. Likelihood of Living Below Poverty Lines and Distribution of Study Households

PPI SCORE	BANGLADESH POVERTY LINE (%)	$1.25 2005 PPP (%)	$2.00 2005 PPP (%)	$2.50 2005 PPP (%)	HH	%
1014-	64	89	98.	100	4	6
1519-	46	82	97	100	9	14
2024-	37	78	97	100	9	14
2529-	27	66	92	99	12	18
3034-	19	57	88	98	10	15
3539-	15	50	84	97	6	9
4044-	13	41	80	95	8	12

Photo courtesy of Thomas Schaetzel

4549-	7	33	69	91	5	8
5054-	4	24	60	88	0	0
5559-	1	14	50	84	2	3

The respondents in the study, who were selected from the SPRING participant pool, reflect SPRING's targeting criteria: poor families with young children—many with several children—having few assets, little or no land, and very small dwellings. Notably, a large percentage of households have members who work for a daily wage, which may reflect both the study area's proximity to urban areas as well as an inability to obtain sufficient income through agricultural activities.

WOMEN'S DECISION-MAKING AUTHORITY AND ROLE IN HOUSEHOLD ECONOMIC ACTIVITIES

Table 3 shows couples' participation in economic activities. The most common activities for women were home gardening, livestock raising, and wage and salary employment. Food crop farming is the next most common, but far less common than the others in the table. These same categories were the most common activities for men as well, with roughly the same percentage of

men participating as women—the percentage of women participating in food crop farming, home garden production, livestock raising, and wage and salary employment is actually slightly higher among women than men, and the percentage of women participating in cash crop farming is far higher than the percentage of men. In fact, the only type of activity in which men more commonly reported participation was non-farm economic activities.

Table 3. Percentage of Respondents Participating in Household Economic Activities

ACTIVITY	MALE		FEMALE	
	n	%	n	%
Food crop farming	29	45	30	46
Cash crop farming	11	17	17	26
Home garden production	54	83	54	83
Livestock raising	52	80	54	83
Non-farm economic activities	16	25	15	23
Fishing or fish culture	16	25	19	29
Wage and salary employment	50	77	52	80

SCOPE OF INPUT INTO HOUSEHOLD DECISIONS

Table 4 and Figures 1 and 2 show respondent's own assessment of the scope of their input into household decisions about economic activities.

Predictably, all men in the sample reported having input into at least some decisions about (field crop) agricultural production. Less predictably, the only categories of agricultural economic activity which men said they have no input into were homestead gardening, use of income from homestead gardening, livestock raising, and use of income from livestock raising. These categories of agricultural economic activity were thus the ones for which the greatest percentage of women reported having a say in at least some decisions.

Table 4. Percentage of Respondents By Extent of Input Into Decisions Related to Household Economic Activity

ACTIVITY	NO INPUT		INPUT INTO VERY FEW DECISIONS		INPUT INTO SOME DECISIONS		INPUT INTO MOST DECISIONS		INPUT INTO ALL DECISIONS		DECISION NOT MADE	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Food crop farming												
Production decisions	0	3	0	27	14	30	14	33	72	7	0	0
Use of income	0	3	3	13	10	17	14	30	55	7	17	30
Cash crop farming												
Production decisions	0	6	9	12	27	23	9	59	55	0	0	0
Use of income	0	6	9	12	27	29	18	53	45	0	0	0
Home gardening												
Production decisions	4	2	11	6	15	17	28	70	43	6	0	0
Use of income	2	0	7	6	9	7	31	35	22	9	28	42
Livestock raising												
Production decisions	4	0	11	9	23	22	29	63	33	6	0	0
Use of income	6	1	13	4	19	17	21	43	23	13	17	22
Non-farm economic activities												
Production decisions	0	0	6	20	12	33	25	20	56	27	0	0
Use of income	0	7	12	28	6	7	19	33	62	27	0	0
Wage and salary employment												
Production decisions	0	2	2	15	10	35	24	44	64	4	0	0
Use of income	2	4	0	6	10	25	16	58	70	8	2	0
Fish cultivation												
Production decisions	0	5	6	21	25	37	25	37	44	0	0	0
Use of income	0	0	0	21	31	21	6	37	56	0	6	21

Figure 1. Self-Report by Men and Women of Scope of Input Into Household Decisions Related to Agricultural Economic Activity (Only Those Who Report These Decisions Being Made)

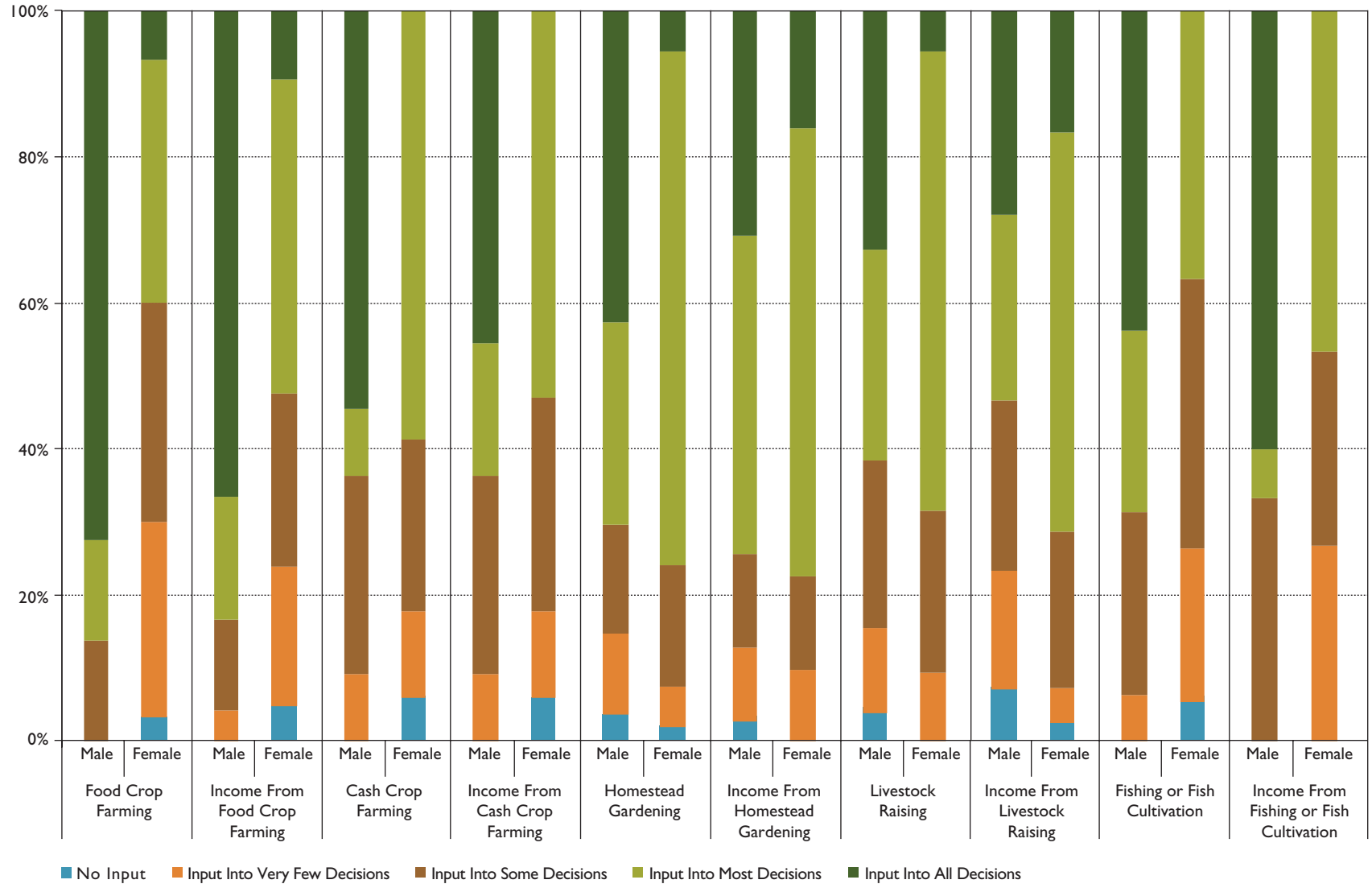
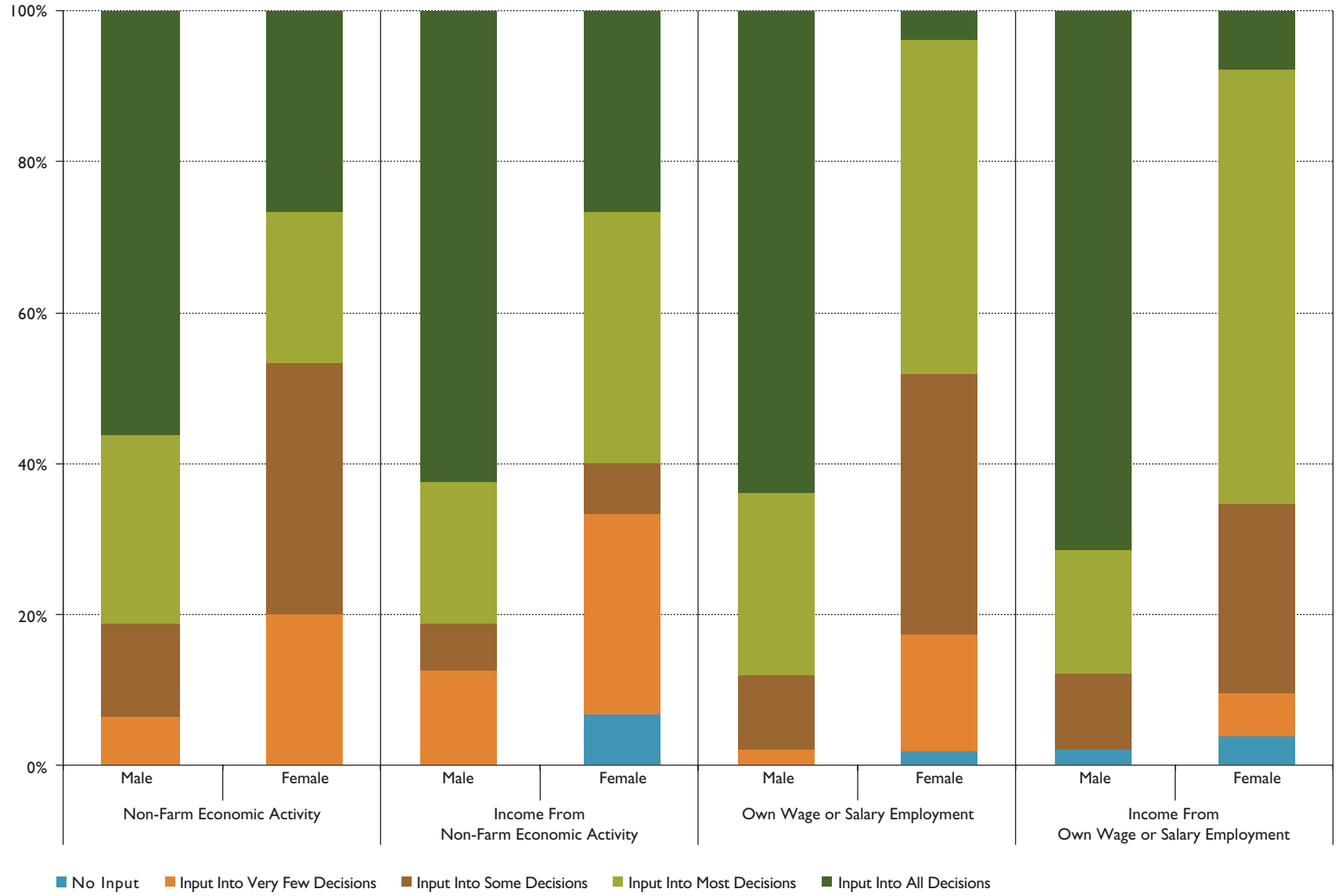


Figure 2. Self-Report by Men and Women of Scope of Input Into Household Decisions Related to Non-Farm Economic Activity (Only Those Who Report These Decisions Being Made)



INPUT INTO DECISIONS

Figure 1 shows that women have relative parity with men in decisions related to cash crop farming, but far less input than men in decisions related to food crop farming, fish cultivation, non-farm economic activities and wage/salary employment—although for non-farm economic activity and wage/salary employment women tended to have more parity in participating in most or all decisions concerning income resulting from the activity than they have for food crop production or fish cultivation. The questionnaire specifically asked about "fish cultivation" without mentioning "fishing" (capture), so the responses may refer specifically to fish farming (traditionally a male activity) and exclude capture of small fish for consumption (traditionally a female or child activity).

Homestead gardening and livestock are the only activities where the percentage participating in most or all production decisions is higher for women than for men. The percentage of women participating in most or all decisions about the use of income derived from livestock raising is higher than the percentage of men doing so.

The areas where women are most excluded from decision-making (no input or input into very few decisions) are production decisions for food crop farming and fish cultivation, and use of income from fish cultivation and non-farm economic activities—even though for the latter nearly 60 percent of women claimed to have input into most or all decisions. Women are least excluded from decisions about home gardening and livestock raising production, and decisions about the use of income from these as well as wage and salary employment. Only one-fourth as many women as men said that they have little or no input into decisions concerning the use of income from livestock raising.

As shown in Figure 3 below, decisions about homestead food production, crops to plant in home gardens, and livestock raising were the economic decisions cited by the greatest number of men and women as made by the wife or main female alone. Importantly, the wife or main female was cited as the sole decision-maker (and not the husband or another man) for minor household purchases and whether to sell or keep produce from a home garden more often than for any other decision.

Similarly, Figure 4 shows that of the economic-related decisions queried, homestead food production, whether to keep/sell production from a home garden, and crops to plant in a home garden were the decisions that the highest percentage of women felt to a medium or high extent that they could make the decision themselves. The percentage who felt this about agricultural production or inputs from agricultural production was less than half as great as that for decisions related to homestead food production or home gardening.

Overall, these data show that although they do not have as much input into household decisions as men do, the majority of women say that they have input into at least some decisions related to household production and income, and that they have the most input into decisions related to gardening and livestock production. A high percentage of both husbands and wives attribute decision-making authority for home gardening and livestock—both production and use of income—to women.

Figure 3. Patterns of Household Decision-Making for Agriculture Related Economic Activity As Reported by SPRING Husband and Wives

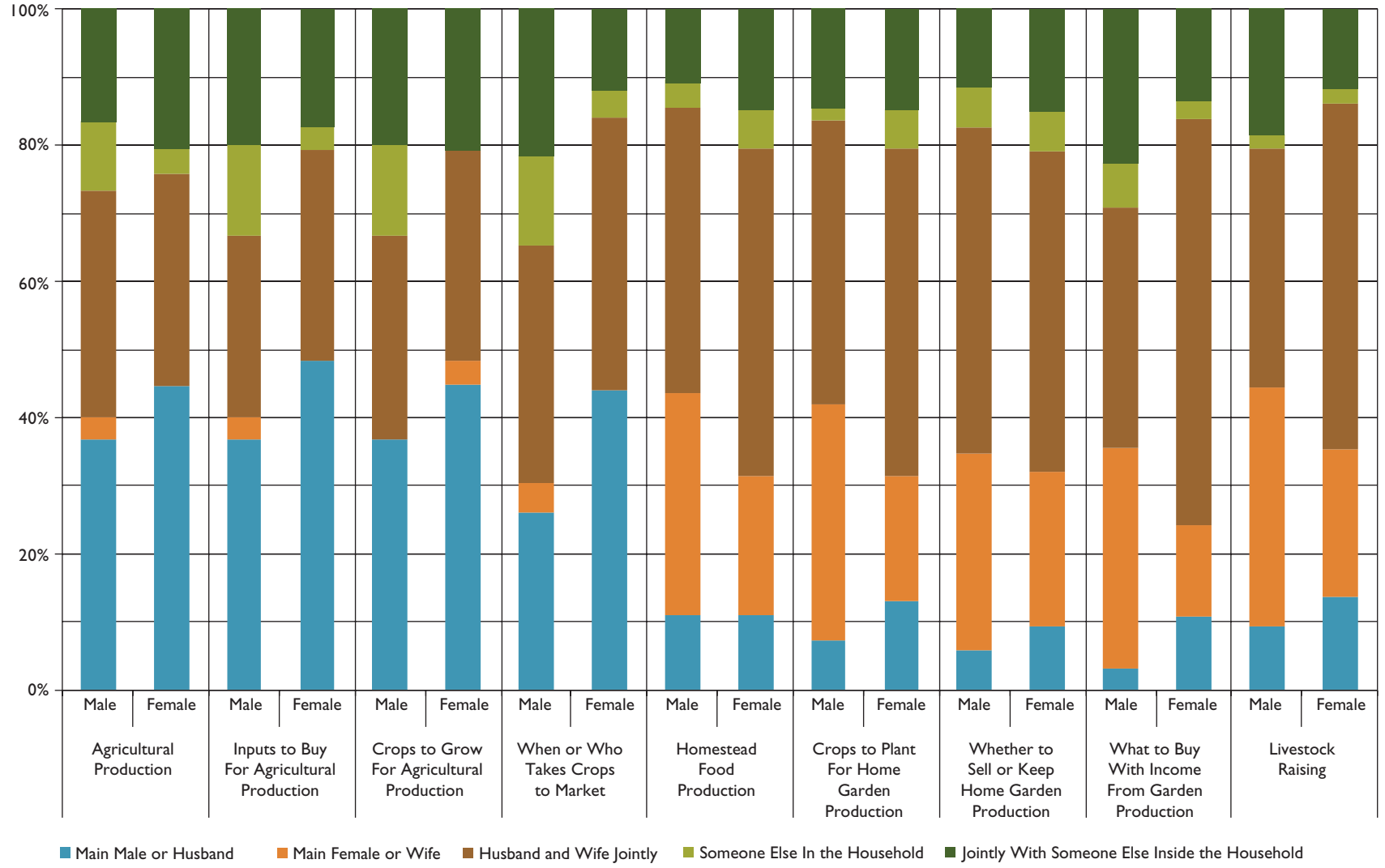
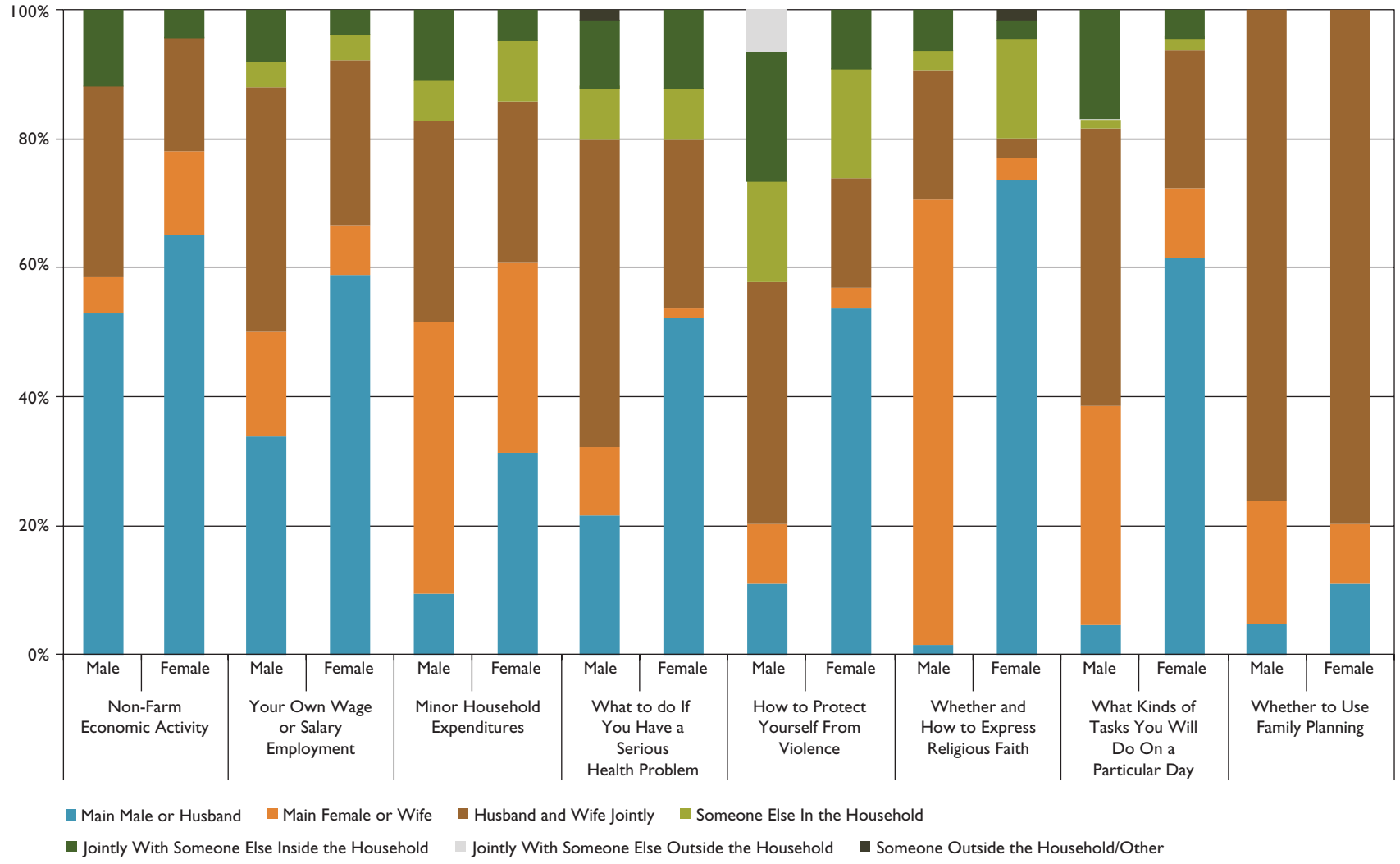


Figure 4. Patterns of Household Decision-Making for Non-Farm Economic Activity As Reported by SPRING Husband and Wives



MOTIVATIONS FOR DECISIONS

Respondents were asked why they might undertake activities in domains ranging across various household activities. Responses are shown in Figures 5–12 for wives and husbands separately.

Agriculture Production

The majority of both men and women reported not making decisions about agriculture production (55 percent men, 54 percent women). Of those who do make the decision, respondents were asked if actions with respect to agriculture production were motivated by a desire to avoid punishment or gain reward. Women especially were strongly motivated in this domain, with 89 percent saying that they are always motivated by this desire and only seven percent saying they were never motivated by it. In the domain of acting to avoid blame or to have others speak well of them, the majority of both men and women rejected this motivation as never true, although the percentage of men making this claim was considerably higher than the percentage of women. Men (83 percent) and women (85 percent) both strongly claimed that their actions are always motivated by and reflect their own values. The majority of both men and women claimed to be very satisfied with decisions they make about agricultural production, although only just more than half of women felt this way compared to nearly 90 percent of men.

Inputs to Buy for Agriculture Production

Fifty-five percent of men and 53 percent of women reported that decisions were not made on input purchase for agricultural production. For those who did participate in this decision, input selection was motivated by avoidance of punishment or to gain a reward by a majority of women and by nearly half of the men. The decision was never motivated by this factor for 28 percent of men but only 12 percent of women said they were never motivated this way. Few men or women said that they always made decisions about inputs in order to avoid blame or to be well spoken of, and the majority of both men and women claimed that they were never motivated by these factors. The individual's own values and interests were claimed to always be a motivating factor by more than 80 percent of both men and women, with only a single man and a single woman saying that they were never motivated by this. The level of satisfaction about decisions taken concerning inputs to buy for agricultural production different greatly between men and women, with 83 percent men and only 36 percent of women being very satisfied with these decisions. However, no men or women reported not being satisfied at all.

Types of Crops to Grow for Agricultural Production

Respondents were asked if they participated in decisions made about what types of crops to grow for agricultural production. Of those who made these types of decisions, three times as many women (73 percent) as men (28 percent) said they are always motivated by a desire to avoid punishment or gain reward. Almost 40 percent of men said that this motivation would never apply to them. Seventeen percent of men and 27 percent of women said it would be true to say that they are motivated by a desire to avoid blame or so that other people speak well of them when making decisions about types of crops to grow, but roughly half of both men (50 percent) and women (54 percent) said this would never be true for them. The overwhelming majority of both men (80 percent) and women (70 percent) said that it is always true that decisions made about crop type for agriculture production are motivated by and reflect their own values and interests. Nearly twice

the proportion of men (86 percent) as women (42 percent) reported being very satisfied about decisions made about agricultural crops to grow, with other women reporting that they were either somewhat satisfied or neutral in terms of satisfaction.

When or Who Would Take Crops to the Market

Of those that reported making decisions about taking crops to market, slightly less than half of the men and slightly more than half of the women said they always make this decision to avoid punishment or gain a reward. At the same time, nearly a third of men (28 percent) and only 5 percent of women said they were never motivated by these factors. When asked if these decisions are motivated by a desire to avoid blame or so that other people speak well of you, the majority of men and approximately a third of women (37 percent) said that this never motivates them. Another third of the women reported that for these decisions to be motivated by this is somewhat true. Only eight percent of men and 26 percent of women reported this as always true. When asked if these decisions are motivated by personal values and interest, 76 percent of men and 75 percent of women reported this as always true, and only one man and one woman said that this was never a motivation. Seventy-two percent of men and half (50 percent) of the women were very satisfied with decisions made about taking crops to market, while nearly the entire other half of women reported being neither satisfied nor dissatisfied about these decisions.

Home Garden Production Initiation

Of those who reported participation in home gardening production decision-making, the desire to avoid punishment or gain reward was claimed to be always true for the majority of women (80 percent) yet this desire was always true for only a third of the men (37 percent) with another third (35 percent) saying that the statement that they were motivated by this was never true. Twenty-three percent of men and nine percent of women reported this as being somewhat true. Six percent of men and eight percent of women reported this as not very true. Thirty-five percent of men and two percent of women reported this as never being true. The desire to avoid blame or to be well spoken of was never an influence for approximately 40 percent of both men and women. The majority of respondents reported actions with respect to home gardens as always being motivated by and reflecting their own values and interests. Sixty-five percent of men and 71 percent of women were very satisfied with decisions concerning home garden production, while 31 percent of men and 21 percent of women were somewhat satisfied. Two percent of men and eight percent of women were neutral. Only one respondent—a man—reported being dissatisfied (no men or women reported being very dissatisfied).

Crops Planted for Home Garden Production

Forty-three percent of men and 72 percent of women who reported making decisions about crops to plant in home gardens were always motivated by a desire to avoid punishment or gain reward. On the other hand, a third of men and only eight percent of women reported that this was never a motivation. The desire to avoid blame or to be well-spoken of was never a motivation for approximately half of both men (46 percent) and women (49 percent), but at the same time a third of women (30 percent) said that they were always motivated by this desire. Respondents reported actions with respect to crops planted for home gardens as always motivated by and reflecting values and personal interest for 72 percent of men and 75 percent of women. No women reported that they never followed their own values and interest. When asked how satisfied respondents

were with decisions made concerning crops planted for home gardens, the majority of both men (70 percent) and women (60 percent) were very satisfied, and the rest of the men were somewhat satisfied (28 percent) while the remaining women were either somewhat satisfied or neutral.

Decisions to Keep or Sell Home Garden Production

Of those who participated in decisions concerning consumption or sale of home garden production, the majority of women (72 percent) but only 39 percent of men reported it as being very true to say that actions relating to keeping or selling home garden production are motivated by a desire to avoid punishment or gain rewards. That this would be a motivation was "never true" for 37 percent of men but for only two percent of women. Twenty-eight percent of men and 22 percent of women were always motivated by a desire to avoid blame or so that other people would speak well of them, but nearly half of both men (43 percent) and women (46 percent) said that this was never true. Actions with respect to keeping versus selling home garden production were always motivated by and reflected personal values and interest for the overwhelming majority of both men (83 percent) and women (70 percent), and only two percent of men and women said that this they would never say that this was a motivation for them. This was "somewhat true" for 13 percent of men and 26 percent of women, "not very true" for two percent of men and women, and "never true" for 2 percent of men and women. The majority of both men (65 percent) and women (63 percent) were very satisfied with decisions made with regard to keeping or selling produce, and none of the respondents, men or women, was very dissatisfied.

Purchases with Home Production Income

Of those that had made decisions about what to purchase with income earned from the sale of home production, 46 percent of men and 74 percent of woman reported always being motived by a desire to avoid punishment or gain rewards. At the same time, being motivated by these factors would never be true for 34 percent of men and nine percent of women. Roughly a third of both men (29 percent) and women (35 percent) said they were always motivated by a desire to avoid blame or so that other people would speak well of them, while 44 percent of men and 41 percent of women said the opposite that this was never true. That purchases with home garden income were always motivated by and reflected personal values and/or interests was always true for the majority of both men and women, but nearly a third (29 percent) of women said that this statement would be somewhat true for them. When asked about satisfaction regarding decisions made in this domain, 63 percent of men were very satisfied, and the majority of women were either very satisfied (62 percent) or somewhat satisfied (14 percent).

Both men and women overwhelmingly report that decisions for agricultural production and home gardening reflect their own personal values and interest. Differences exist, however, in the influence of specific motivations. In all categories, motivation to avoid punishment or receive reward was far more common among women than among men. Another area where major differences exist between men and women is seen in the level of satisfaction about decisions taken for crops to plant and inputs to purchase for agricultural production, and in decisions taken about crops to plant for home gardening, about consuming or selling home garden production, and about how to use income gained from home gardening. For crops and inputs for agricultural production, women were far less satisfied than men about the decisions being made, and for decisions related to home gardening—including decisions about purchases to be made using income derived from home gardening—women were equally as satisfied as men.

Figure 5. Wives' Responses Concerning Desire to Avoid Punishment or Gain Reward as Motivations For Actions in Various Domains

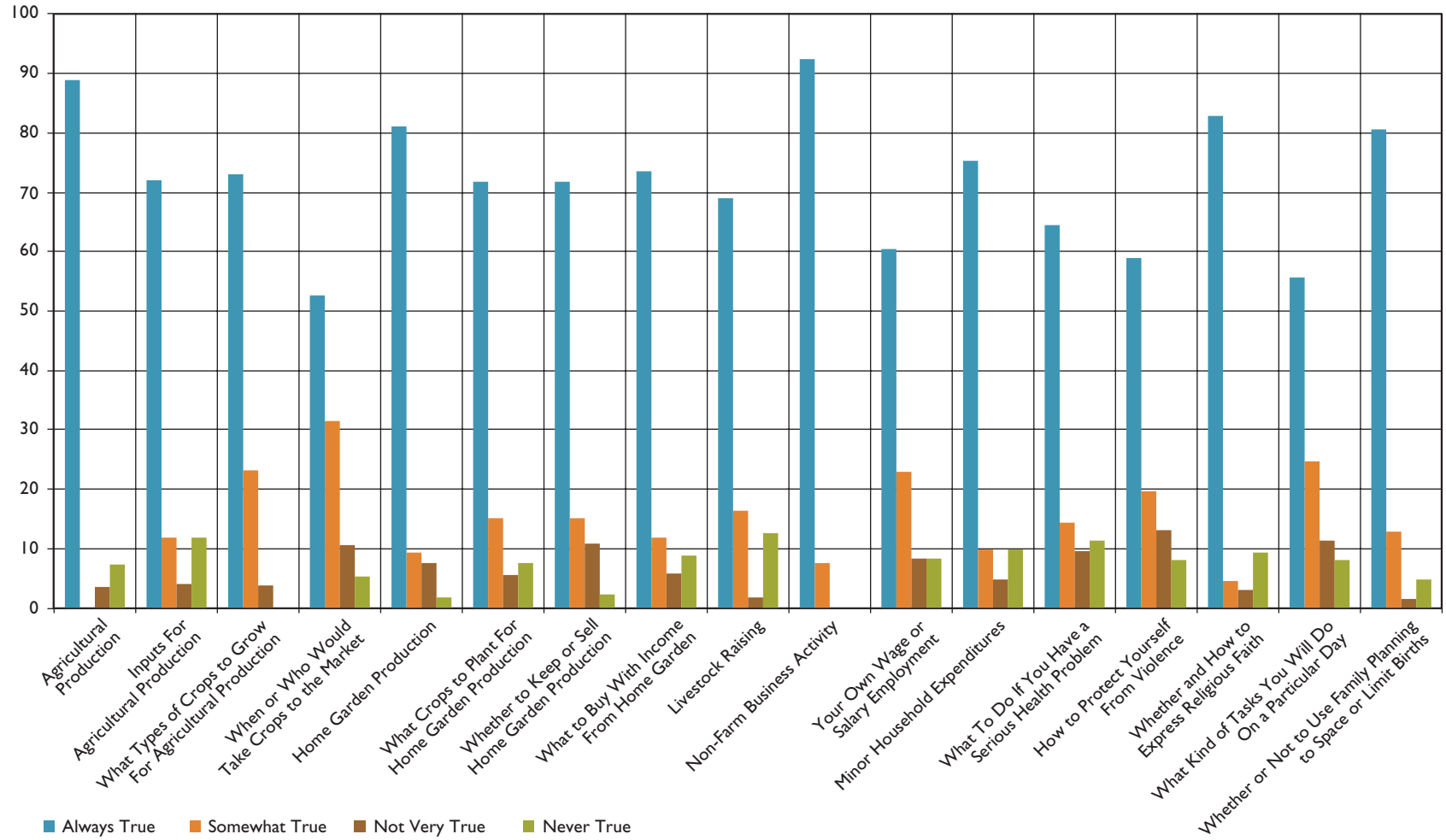


Figure 6. Husbands' Responses Concerning Desire to Avoid Punishment or Gain Reward as Motivations For Actions in Various Domains

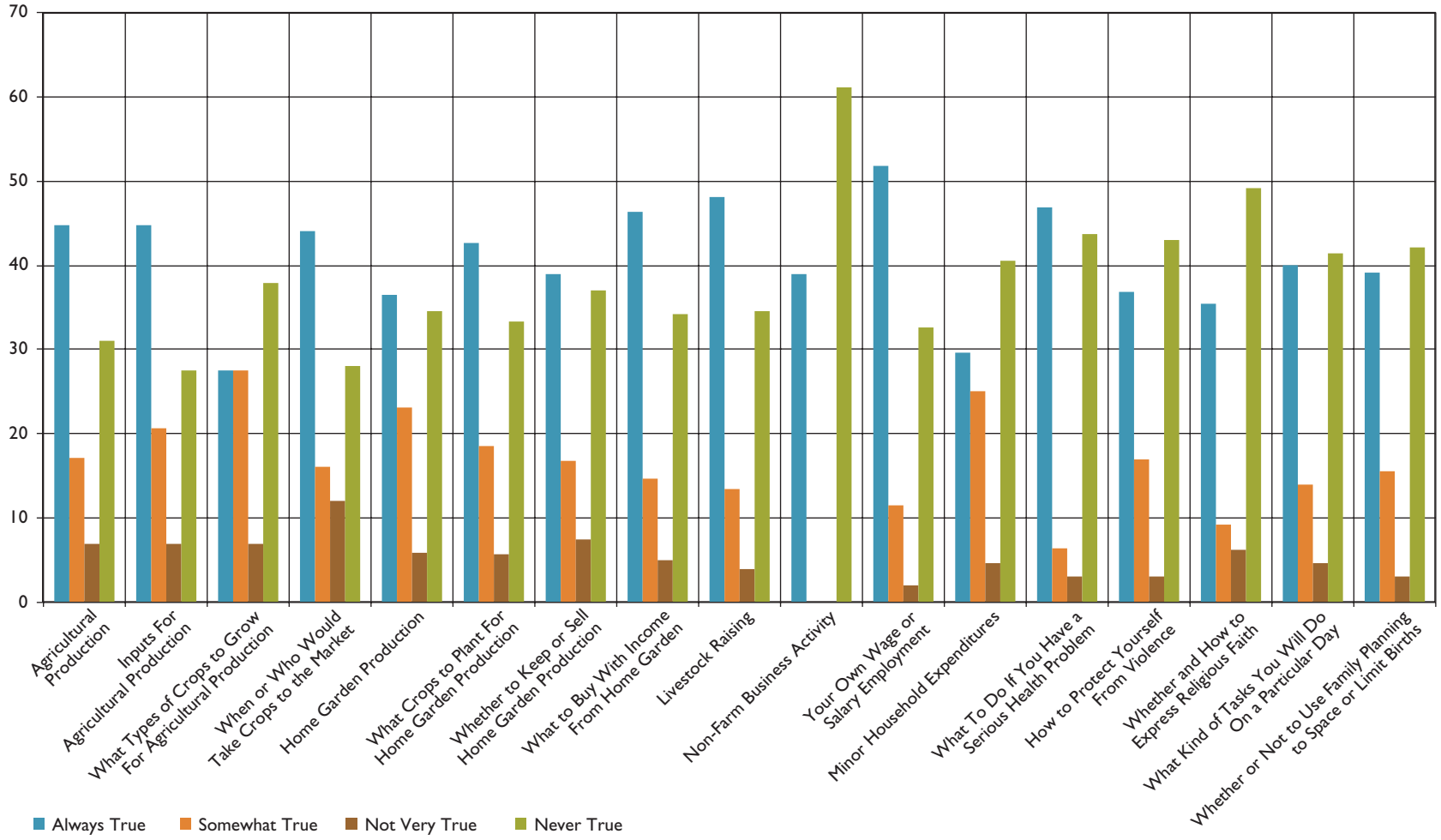


Figure 7. Wives' Responses Concerning Desire to Avoid Blame or Gain Praise as Motivations For Actions in Various Domains

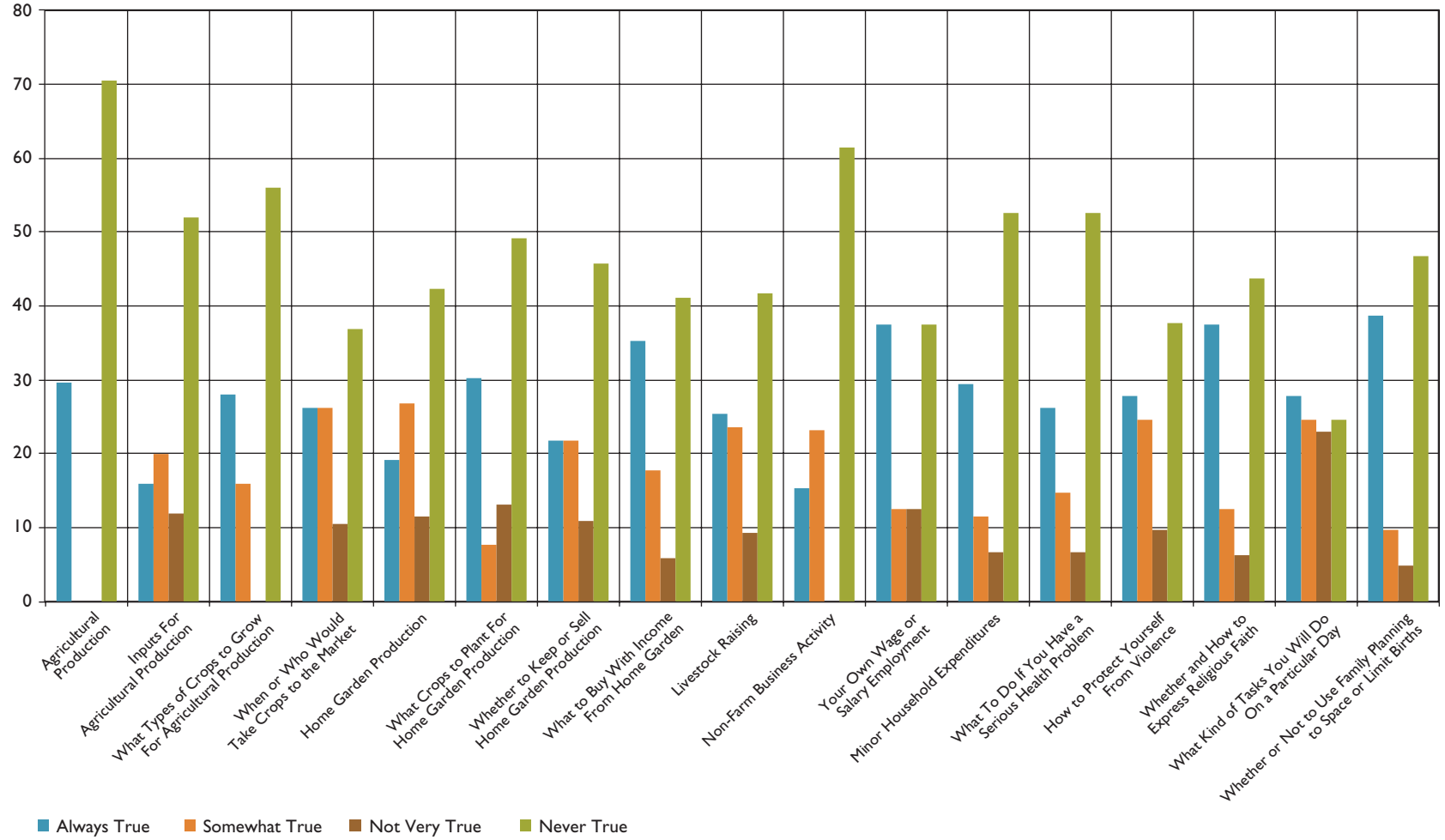


Figure 8. Husbands' Responses Concerning Desire to Avoid Blame or Gain Praise as Motivations For Actions in Various Domains

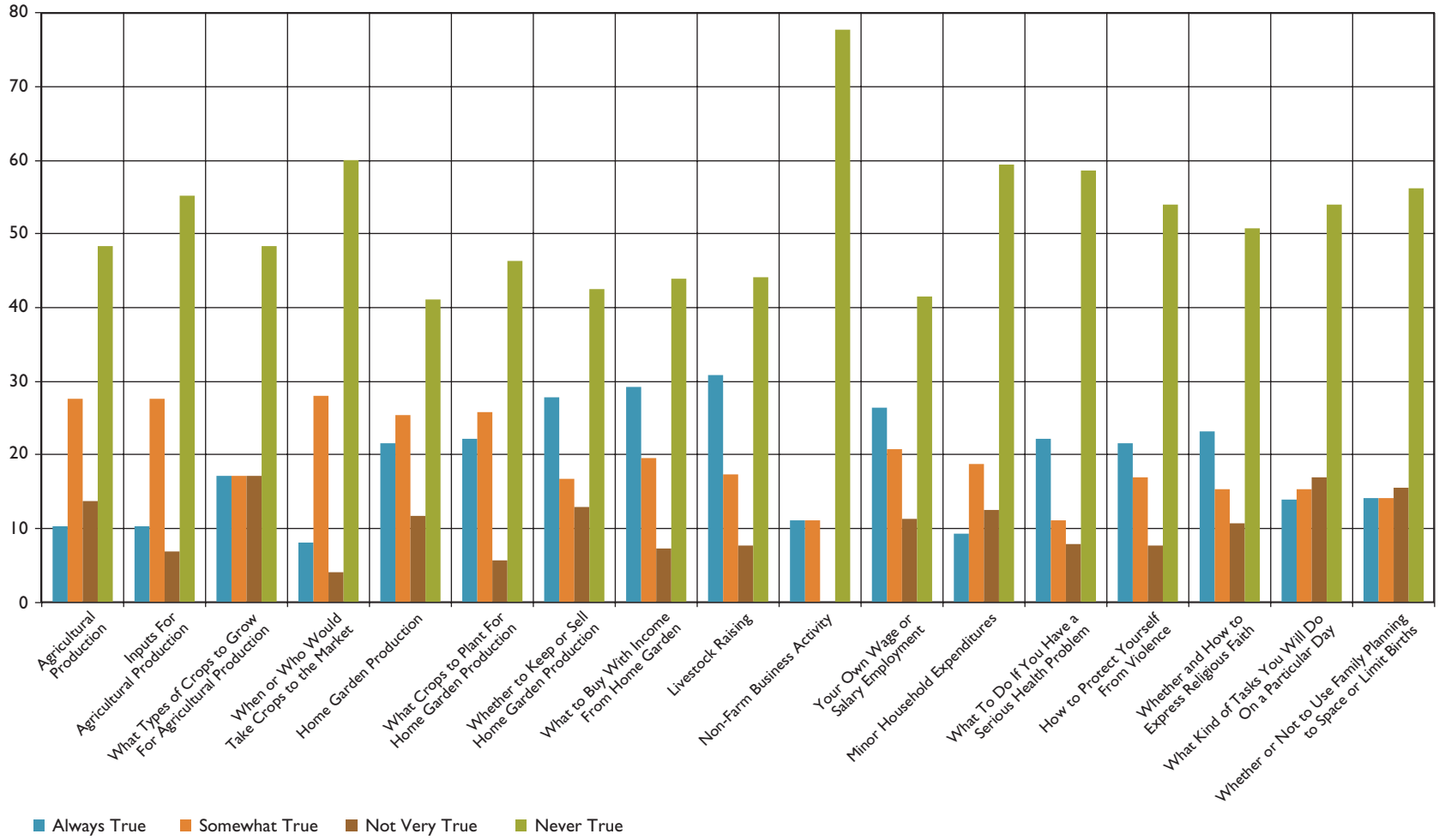


Figure 9. Wives' Responses Concerning Action Motivations in Various Domains Reflecting Their Own Values and Interests

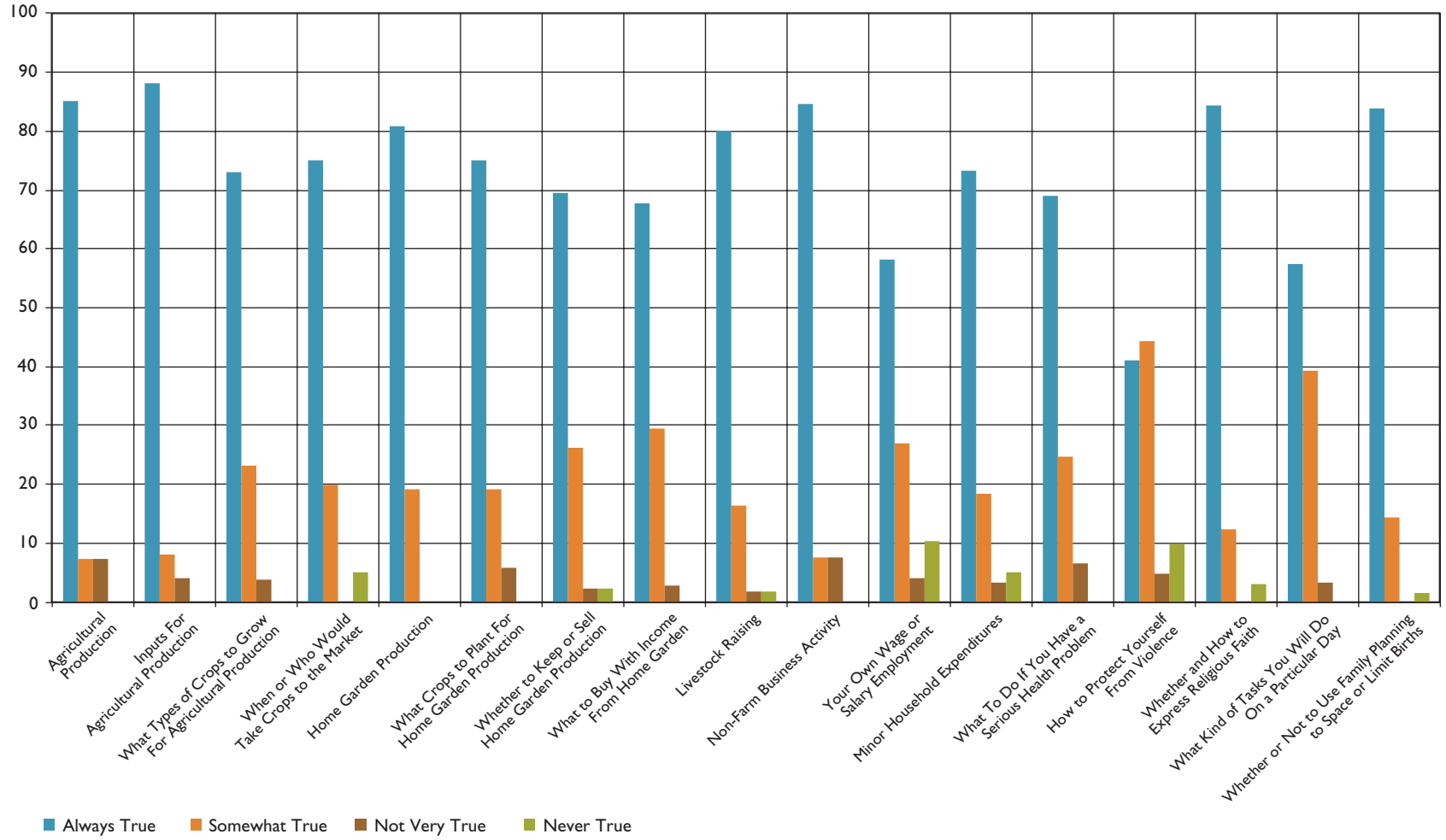


Figure 10. Husbands' Responses Concerning Action Motivations in Various Domains Reflecting Their Own Values and Interests

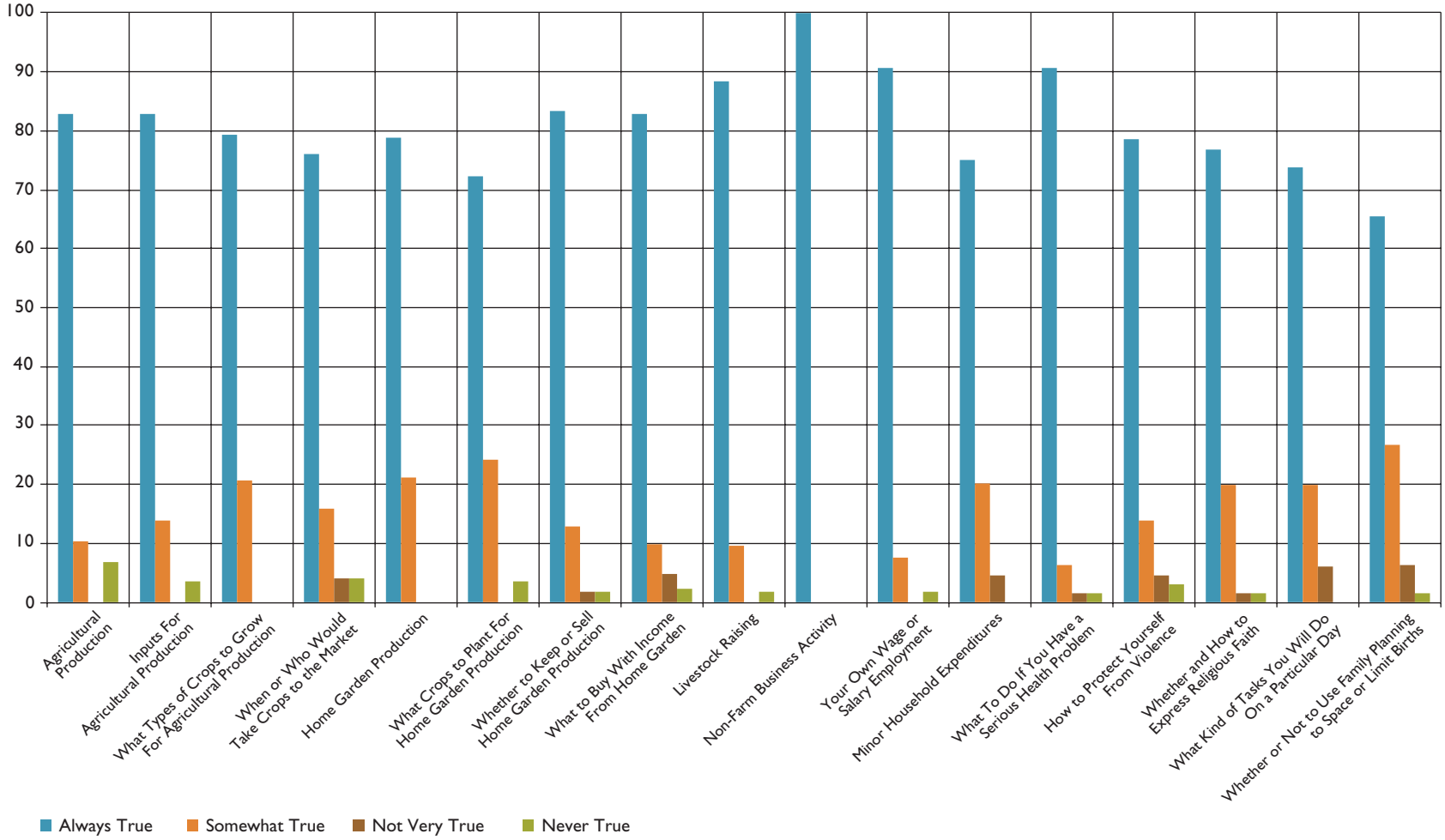


Figure 11. Wives' Level of Satisfaction With Decisions Made in Various Action Domains

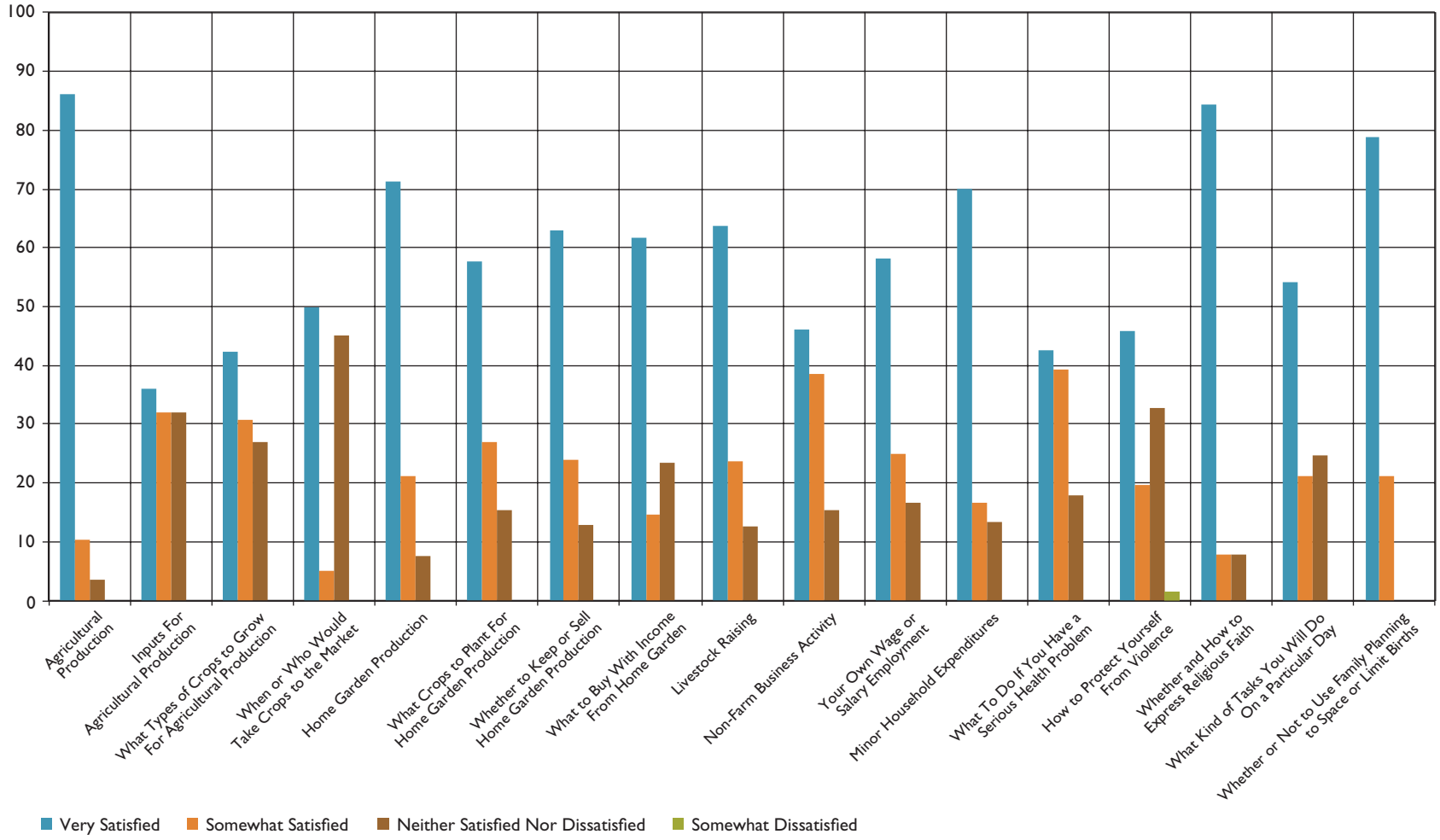
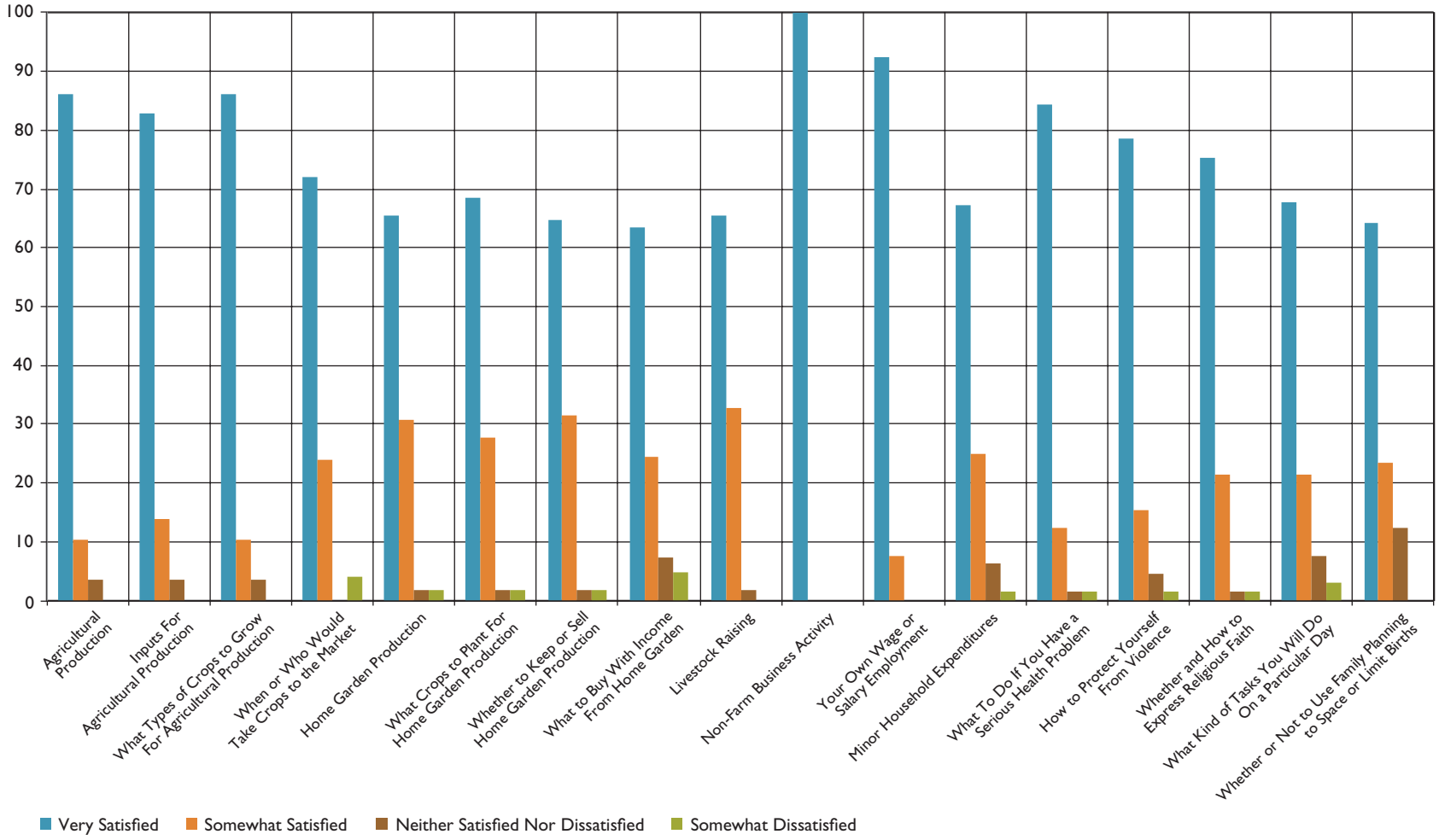


Figure 12. Husbands' Level of Satisfaction With Decisions Made in Various Action Domains



MOTIVATION FOR HOMESTEAD PRODUCTION

When asked why they had undertaken household food production, the most common response among men (45 percent) and women (40 percent) was a desire to produce more food. The second most common response was a desire to increase income (20 percent of men and 23 percent of women), followed by a desire to produce more vegetables (18 percent and 17 percent). A small percentage of women (five percent) stated that they have undertaken household food production simply in order to participate in a development project. Roughly 15 percent of both men and women had "other" reasons; many stated that they did not have land for a garden—suggesting that as many as 15 percent of respondents actually may not currently be undertaking homestead production.

SPRING Bangladesh's goal was for 100 percent of participants to be activity practicing household food production. The percentage of households that claimed not to be conducting HFP is higher than expected, although this may simply reflect that the project was in its earliest phases at the time of the study. SPRING may wish to assess targeting at this later date to ensure that targeting criteria are being followed.

DISTRIBUTION OF HOMESTEAD FOOD PRODUCTION LABOR WITHIN THE HOUSEHOLD

Table 5. Distribution of Household Labor For Homestead Production-Related Activities According to Husbands and Wives

LABOR ACTIVITY	RESPONDENT	HUSBAND ONLY	WIFE ONLY	HUSBAND AND WIFE JOINTLY	CHILD/CHILDREN	SOMEONE ELSE IN THE HOUSEHOLD	SOMEONE OUTSIDE HOUSEHOLD	DO NOT KNOW	OTHER
Land preparation	Male (61)	54	11	11	26	11	0	5	5
	Female (63)	24	16	32	0	17	0	8	3
Planting	Male (61)	26	38	15	0	11	0	5	5
	Female (63)	14	22	36	0	16	0	8	3
Weeding	Male (61)	34	26	18	0	11	0	5	5
	Female (63)	13	24	33	0	17	0	8	5
Harvesting	Male (61)	11	44	23	0	11	0	5	5
	Female (63)	6	29	35	0	17	0	9	3
Drying	Male (61)	0	51	8	0	8	0	5	28
	Female (63)	5	29	25	0	14	0	8	19
Storage	Male (61)	2	51	13	0	8	0	5	21
	Female (63)	5	32	33	0	14	0	11	5
Transport to market (if sold)	Male (61)	44	5	5	0	7	0	7	33
	Female (63)	29	6	19	0	13	0	10	24

Some curious patterns emerged from participants' responses concerning the allocation of labor for home production activities. Among men, a majority or plurality feel that husbands alone bear primary responsibility for land preparation, weeding, and transport to market, and a majority or the largest percentage of respondents feel that wives alone are responsible for planting, harvesting, drying, and storage. Among women, a plurality claim that husbands and wives together are responsible for all activities except for drying, storage, and transport to market, with most stating that drying and storage are the wife's responsibility, and that transport to market is primarily the husband's responsibility.

LAND PREPARATION

Respondents were asked who is primarily responsible for home garden land preparation. The majority of men claimed the responsibility fell solely to the husband, while the greatest percentage—but not a majority—of women felt than husbands and wives shared this activity. Almost 55 percent of men and 24 percent of women said the husband alone was responsible, while 11 percent of men and 16 percent of women reported that only the wife was responsible. Eleven percent of men and 32 percent of women reported it being a joint responsibility between the husband and wife. Eleven percent of men and 17 percent of women reported the task was done by someone else in the household, while five percent of men and eight percent of women could not say who was primarily responsible.

PLANTING

The largest percentage, but not the majority, of husbands reported that wives alone are responsible for planting the home garden, while the most common response among wives was that husbands and wives shared in this activity jointly. Relatively few husbands—15 percent —reported that planting was a joint activity. Twenty-six percent of men and 14 percent of women reported that husbands alone are primarily responsible for planting, while 37 percent of men and 22 percent of women reported that it is the sole responsibility of the wife. Eleven percent of men and 16 percent of women reported that the tasks are done by someone else in the household, with five percent of men and 8 percent of women unable to say who bears planting responsibility.

WEEDING

Thirty-four percent of men and 13 percent of women reported that men are primarily responsible for weeding, and the percentage reporting that the wife alone is responsible was similar for men and women: 26 percent of men and 24 percent of women. Eighteen percent of men and 33 percent of women reported that the husband and wife are jointly responsible. Eleven percent of men and 17 percent of women reported that someone else in the household is responsible, while five percent of men and eight percent of women were not able to say who is primarily responsible for weeding.

HARVESTING

For primary harvesting responsibility, the most common response among men was that wives alone were responsible, and the most common response among women was that husbands and wives are jointly responsible. Neither of these responses was common enough to represent a majority among men or women. Eleven percent of men and six percent of women reported that the husband is primarily responsible for harvesting. Forty-four percent of men and 29 percent of

women reported that the wife is solely responsible. Twenty-three percent of men and 35 percent of women reported that harvesting is a joint responsibility for the husband and wife. Eleven percent of men and 17 percent of women reported that someone else in the household is responsible, with five percent of men and 10 percent of women not able to say who is responsible.

DRYING

The majority of men (51 percent) said that wives alone are responsible for drying crops harvested from the home garden, while a roughly even percentage of women said this task either fell solely to the wife (29 percent) or was undertaken jointly by men and women (25 percent). No men reported that drying was the sole responsibility of husbands, and only a small percentage (eight percent) claimed that husbands and wives share this responsibility. Eight percent of men and 14 percent of women reported that someone else in the household is primarily responsible, with five percent of men and eight percent unsure of who is responsible.

STORAGE

Two percent of men and three percent of women reported storage as the husband's primary responsibility. Fifty-one percent of men and 32 percent of women reported storage as the wife's responsibility. Thirteen percent of men and 33 percent of women reported the responsibility is shared jointly between the husband and wife. Eight percent of men and 14 percent of women reported that it is someone else in the household's responsibility. Five percent of men and 11 percent of women reported they do not know. Twenty-one percent of men and five percent of women reported it is someone else's responsibility.

TRANSPORT TO MARKET

Forty-four percent of men and 29 percent of women reported that it is the husband's primary responsibility to transport the produce to market, and 33 percent of men and 24 percent of women reported that transport is the responsibility of someone other than husbands, wives, children, household members, or even persons outside the household. Perhaps some intermediary, such as a neighbor or a farm gate purchaser, is responsible for this activity. Seven percent of men and 10 percent of women reported that they do not know who is responsible.

CURRENT HOMESTEAD PRODUCTION

SPRING/Bangladesh emphasizes the production and consumption of selected vitamin A-, zinc-, and iron-rich foods, as well as promoting rearing chicken and raising fish. Therefore the questionnaires focus on these targeted products.

Table 6. Crops Reported to Be Grown By Participants (64 Couples)

CROP	MALE	FEMALE
Sweet Gourd	49	51
Bottle Gourd	68	68
Knol Khol	38	41
Radish	49	49
Red Amaranth	54	55
Amaranth	38	46
Yardlong Bean	49	55
Eggplant	41	41
Tomato	40	43
Poultry	71	74
Fish	23	26
Other	65	51

It is not possible to give a certain answer why the divergence on some of the specific crops. Nonetheless, place of production might be responsible, for example yardlong bean, if it is not produced in a garden. At one time it was common to promote this bean as something a woman could plant on the side of her house and let it climb the wall. While a husband may not think of yardlong bean as a crop, the wife who planted it may very well consider it a crop. Amaranth is also a crop that doesn't necessarily need a garden to grow—it can just be thrown into a piece of open ground.

REASONS FOR GROWING SPECIFIC CROPS

Figures 13 and 14 show husband and wife responses concerning the primary reason for growing each of the crops or livestock types assessed. Even though respondents were given 13 possible reasons to cite, all responded that either they "always eat it," "like the taste or texture," believe it is "good for [their] health/nutrition," or that they "want to sell [the crop] for cash" as the primary reason. "Good for health/nutrition" was overwhelmingly the most common response for all crops, and for all livestock, at approximately 60 percent for both women and men. For wives, "always eat it" (our food habit) was the second most common, at 30–33 percent for all crops and livestock, whereas for men the "always eat it" and "like the taste/texture" responses were roughly equally represented as the second most common reason (again for all crops and livestock) at a little more than 10 percent. For all crops and livestock roughly 10 percent of both women and men said the primary reason for growing/raising was "to sell for cash."

Figure 13.SPRING HFP Husbands' and Wives' Primary Reasons For Growing Specific Crops

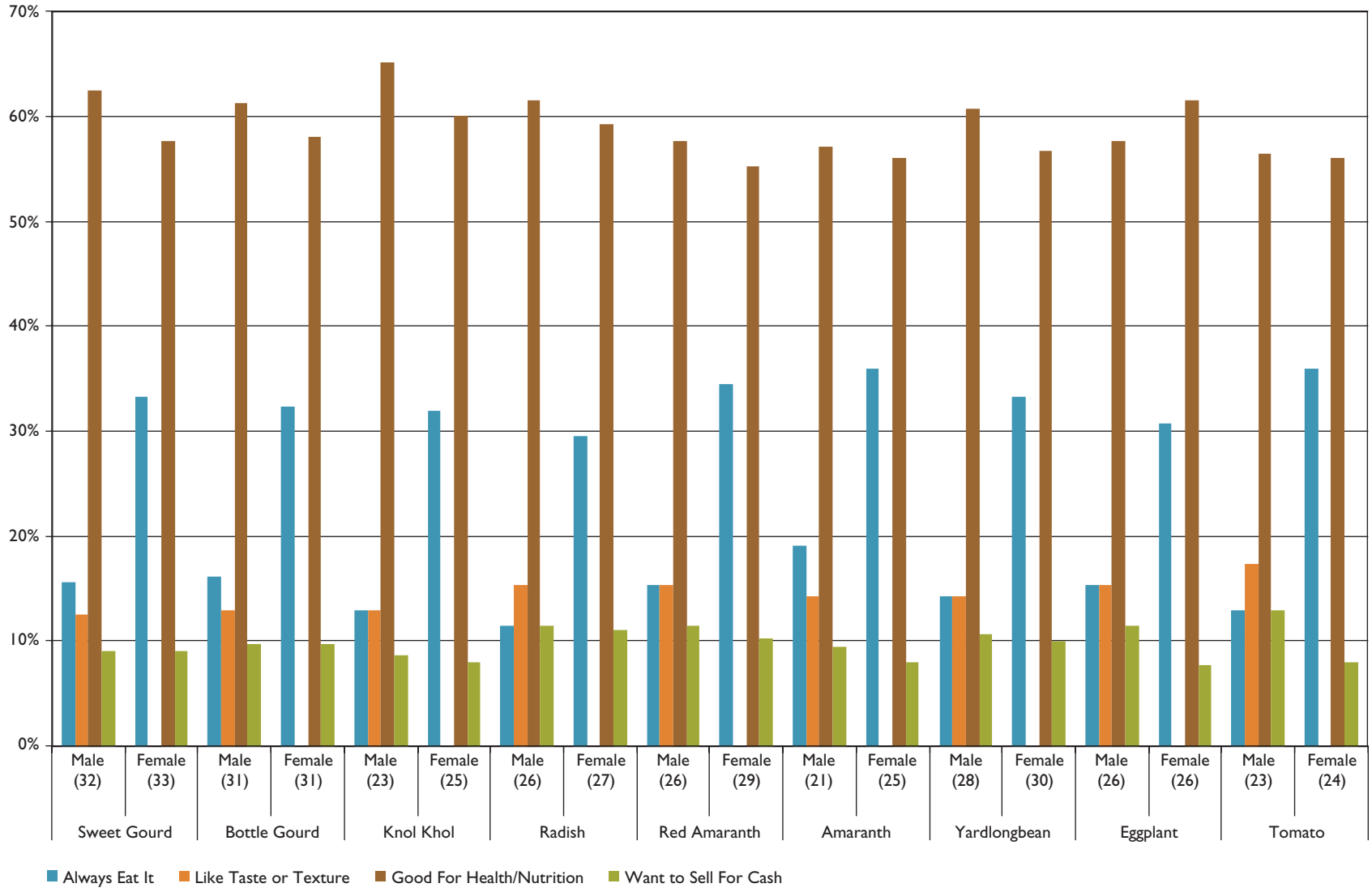
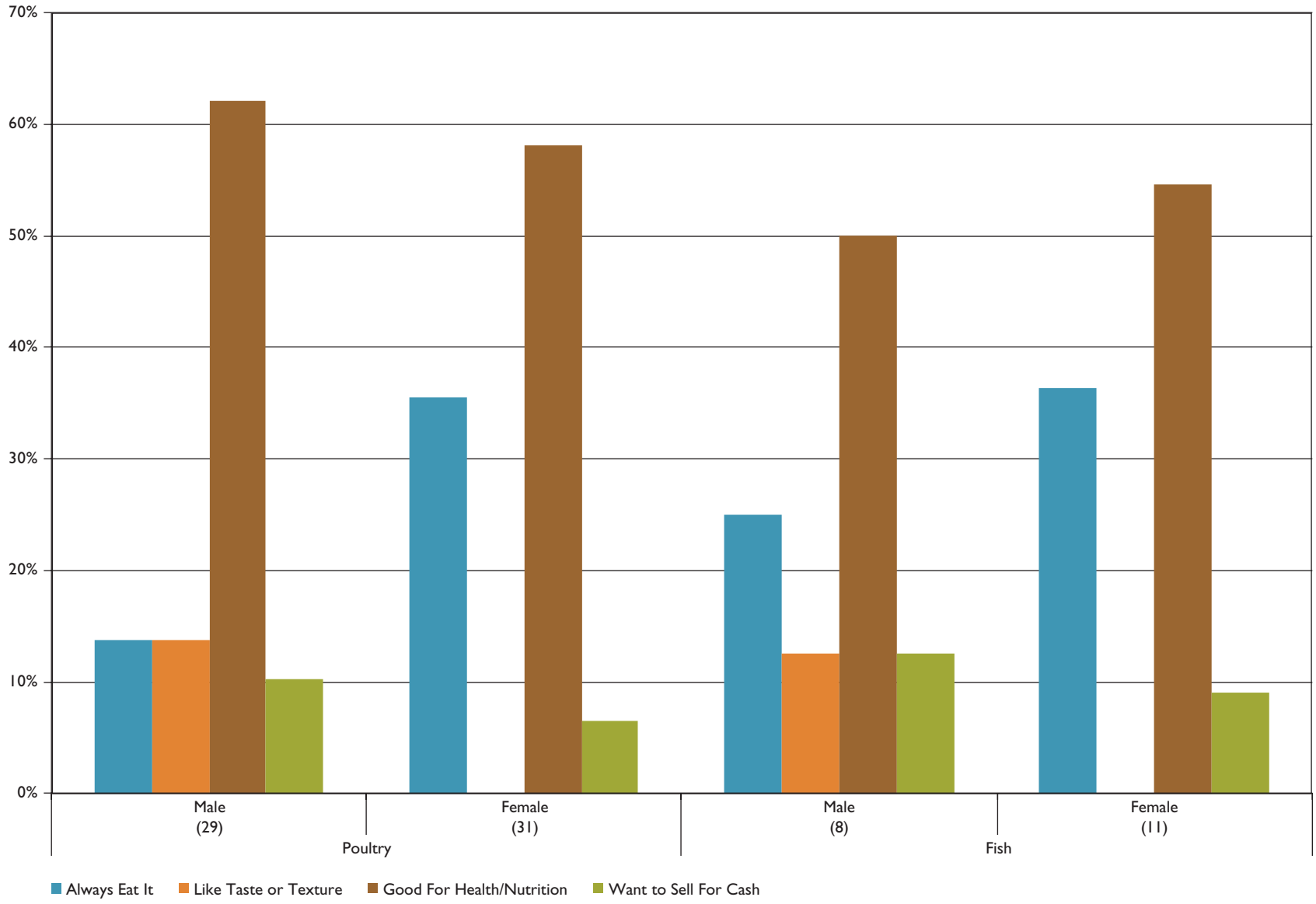


Figure 14.SPRING HFP Husbands' and Wives' Primary Reasons For Growing Poultry And Fish



Individuals and households may have more than one reason for growing a crop, and the combination of reasons—not just the primary reason—may in fact best describe the reason for growing specific crops or rearing specific livestock. Tables A-1 through A-9 in Annex 1 show the distribution of women's and men's responses, respectively, when asked to rate each item of a list of reasons as "very important," "important," or "not important." An examination of the frequency of "very important" reasons by crop produced Table 7, which shows the three most frequent "very important" responses for each crop as well as for poultry and fish. As the color-coding (the same color for the same response) in Table 7 highlights, by far the most common reasons that women cite as very important are first "someone taught me to grow it," followed by "the seeds were free." Men showed less consensus for the top three very important responses, but the most common were "inexpensive to grow," "grows well," and "good for health/nutrition."

Table 7. Women's and Men's Three Most Common "Very Important" Reasons For Growing Specific Crops And Livestock (65 Couples)

CROP	WOMEN	MEN
Sweet Gourd	Good for health/nutrition	Good for health/nutrition
	The seeds were free	Stores well
	Someone taught me to grow it	Inexpensive to grow
Bottle Gourd	Good for health/nutrition	Good for health/nutrition
	Like taste or texture	Like taste or texture
	Always eat it	Our custom to grow it
Knol Khol	Good for health/nutrition	Inexpensive to grow
	Someone taught me to grow it	Grows well
	The seeds were free	Does not require much work/is easy to grow
Radish	Someone taught me to grow it	Inexpensive to grow
	Grows well	Grows well
	The seeds were free	Want to sell for cash
Red Amaranth	Good for health/nutrition	Good for health/nutrition
	Someone taught me to grow it	Low risk to grow
	Our custom to grow it	Inexpensive to grow
Amaranth	The seeds were free	Grows well
	Someone taught me to grow it	Low risk to grow
	Grows well	Inexpensive to grow
Yardlong Bean	Someone taught me to grow it	Inexpensive to grow
	Good for health/nutrition	Does not require much work/is easy to grow
	The seeds were free	Grows well

CROP	WOMEN	MEN
Eggplant	Someone taught me to grow it	Our custom to grow it
	Want to sell for cash	Grows well
	Grows well	Does not require much work/is easy to grow
Tomato	Our custom to grow it	Grows well
	Good for health/nutrition	Good for health/nutrition
	Like taste or texture	Our custom to grow it
Poultry	Good for health/nutrition	Our custom to grow it
	Always eat it	Good for health/nutrition
	Like taste or texture	Like taste or texture
Fish	Always eat it	Always eat it
	Good for health/nutrition	Like taste or texture
	Like taste or texture	Good for health/nutrition

Kangkong. Both men and women, when elaborating what makes *kangkong* (water spinach) "good for health/nutrition" relate the reason to vitamins. Two women mentioned specifically iron when discussing kangkong, while all other respondents generally mention vitamins.

Indian spinach. Both men and women report eating Indian spinach because they like how it tastes. Children also like to eat it. Reportedly, it is good for health and nutrition because it "contains vitamins," "contains nutrition," and "contains nourishment." Further elaboration of what is meant or benefits for consumption of vitamins, nutrition, and nourishment were not mentioned. A predominant reason why Indian spinach is grown is because it is costly to buy. For the same reason, many respondents also report growing it to sell because it is valued at a high price at the market.

Okra. Reasons for cultivating okra are mostly taste or nutrition. Equally men and women report that okra is "tasty to eat and contains vitamins." "It is good for health," and "contains nourishment, so we like to cultivate [it]." One female respondent reported it is good for nutrition because it "contains much calcium." Respondents report it is easy to grow ("does not require much work") and stores well. Again, this crop is also grown to sell for money.

Bitter gourd. Nutrition (vitamin) availability of bitter gourd and its taste are mentioned frequently. Two female respondents elaborate more than "nutrition" and "vitamins," reporting that "this vegetable prevents various kinds of disease and it is good for health" and that "it is helpful to control diabetes and also good for health." Those that choose to sell bitter gourd do so because it values at a high price and is a "costly crop" so they can earn money at the market.

Tomato. Tomato is another vegetable respondents report giving to children because they "like it." One male respondent said "I do not get fresh vegetables in the market so I cultivate it. It has a high market price." Men and women both report they grow it because it "contains vitamins,"

is “good for health,” is a “nutritious food,” and “vitamins are available.” One female specifically mentioned tomatoes to “contain vitamin C and is good for health.” All respondents sell tomatoes because they are a “demandable crop in market,” a “costly vegetable” and that “we sell for good price.”

Papaya. Primary reasons for growing papaya varied. Reasons are similar within each category of responses and between men and women. For health and nutrition, respondents “consume for taste and nutrition”, and because “it is good to eat and contains nutrition.” One female respondent specified that papayas “contain vitamin A.” Households can “get papaya all season,” it is “not expensive to grow” and “narrow space is enough to grow it.” “For selling, we get money,” it has a “high market price.”

Ash gourd. Ash gourd is reported to be a crop that households “always eat;” reasons cited for this include because it is “good for health,” “tastes good,” “contains nutrition,” and “vitamins are available.” “It is a costly crop, so we cultivate it.” Respondents note it is sold for “cash at the market.”

Country bean. Country bean was grown for three primary reasons: taste, health/nutrition and sold for cash. It is expensive to buy at the market; “I cannot buy from [the] market because of high prices,” and this presents a major reason why it is cultivated and sold. Both men and women like the taste, and report that “everybody eats beans.” When elaborating on what makes the bean good for health/nutrition, respondents say it is because “vitamins are available,” it is “good for children’s health,” and it “contains nutrition.”

Further investigation into the difference between wives’ and husbands’ “very important” reasons for growing specific crops was conducted by comparing wives’ and husbands’ response for each crop. A score was created, with mean of 0 and range of -2 to 2, by subtracting a wife’s coded response (very important=1, important=2, not important=3) from her husband’s within each household. Thus, if a husband responded that a specific reason was “very important” and his wife responded that the same reason was “not important,” the couple would have a score of “-2” for that crop (1-3 = -2). Negative scores thus reflect greater importance for the husband, and positive scores reflect greater importance for the wife, and scores of “0” would indicate agreement in the degree of importance for that reason (not greater or lesser importance, but agreement about the importance).

Figures 15 to 25 show the agreement tendencies between husbands and wives for the crops and livestock assessed, with the bars showing the mean and one standard error above and below the mean.

Figure 15. Agreement Between Husband and Wives Concerning Reasons For Growing Sweet Gourd

Figure 16. Agreement Between Husband and Wives Concerning Reasons For Growing Bottle Gourd

Figure 17. Agreement Between Husband and Wives Concerning Reasons For Growing Knol Khol

Figure 18. Agreement Between Husband and Wives Concerning Reasons For Growing Radish

Figure 19. Agreement Between Husband and Wives Concerning Reasons For Growing Red Amaranth

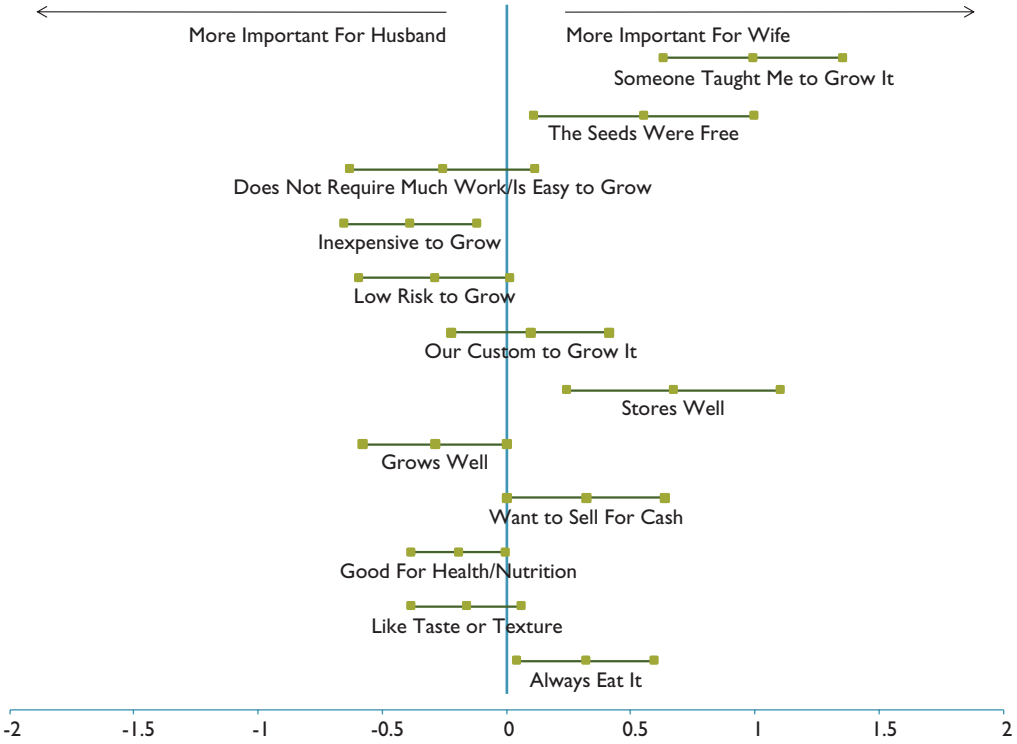


Figure 20. Agreement Between Husband and Wives Concerning Reasons For Growing Amaranth

Figure 21. Agreement Between Husband and Wives Concerning Reasons For Growing Long Bean

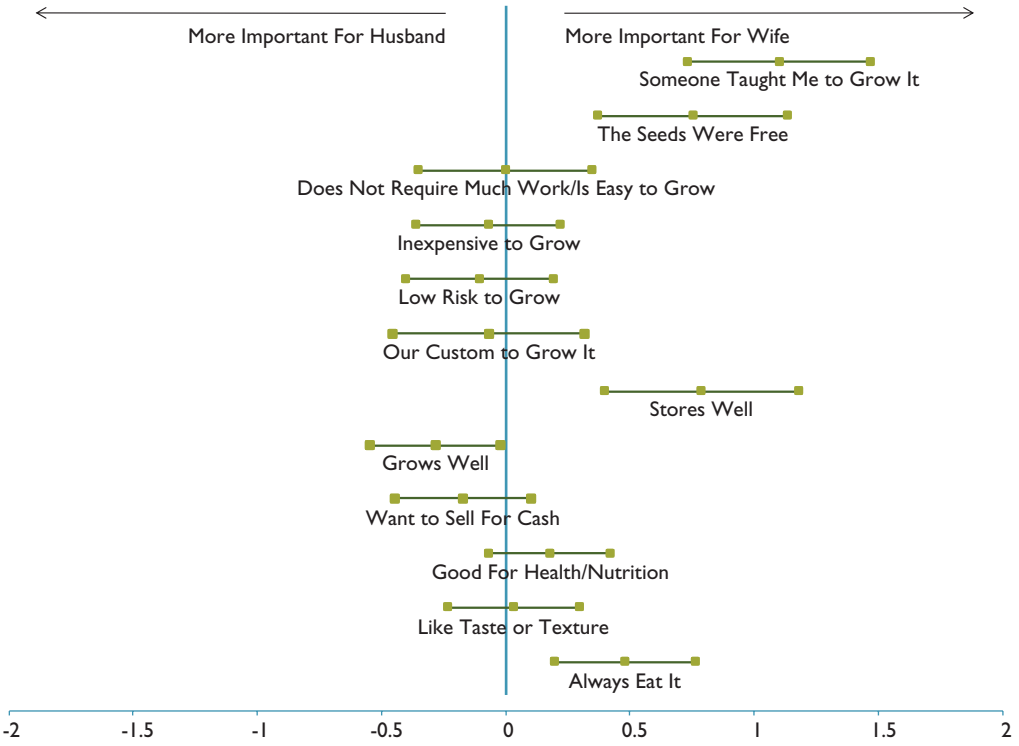


Figure 22. Agreement Between Husband and Wives Concerning Reasons For Growing Eggplant

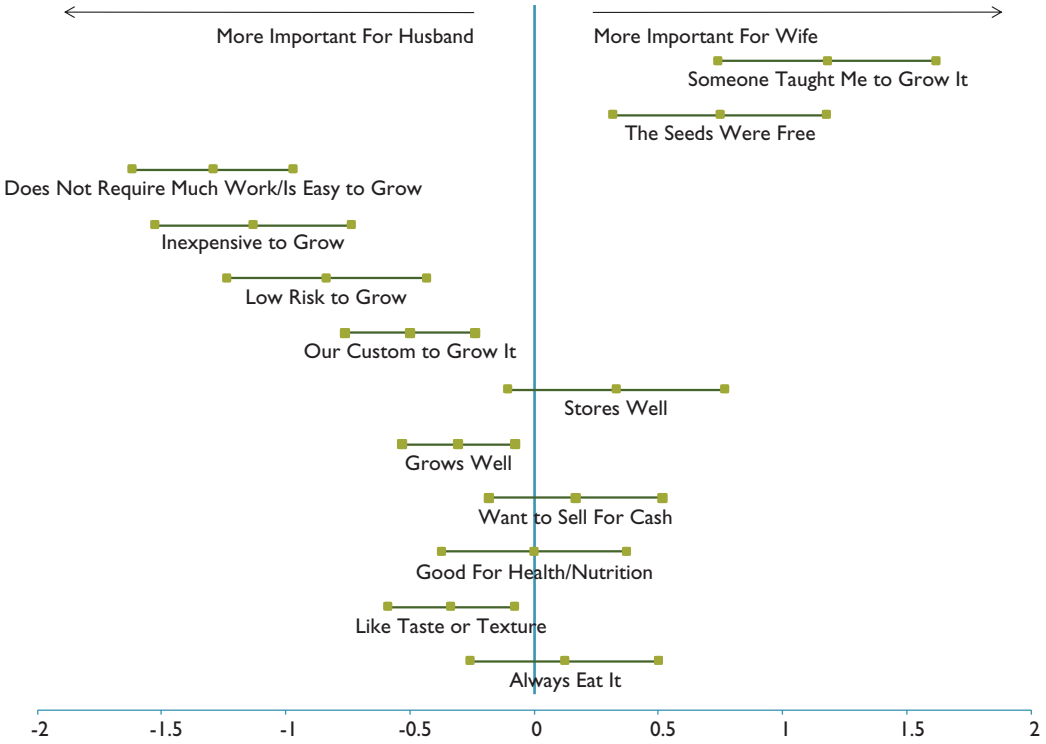


Figure 23. Agreement Between Husband and Wives Concerning Reasons For Growing Tomato

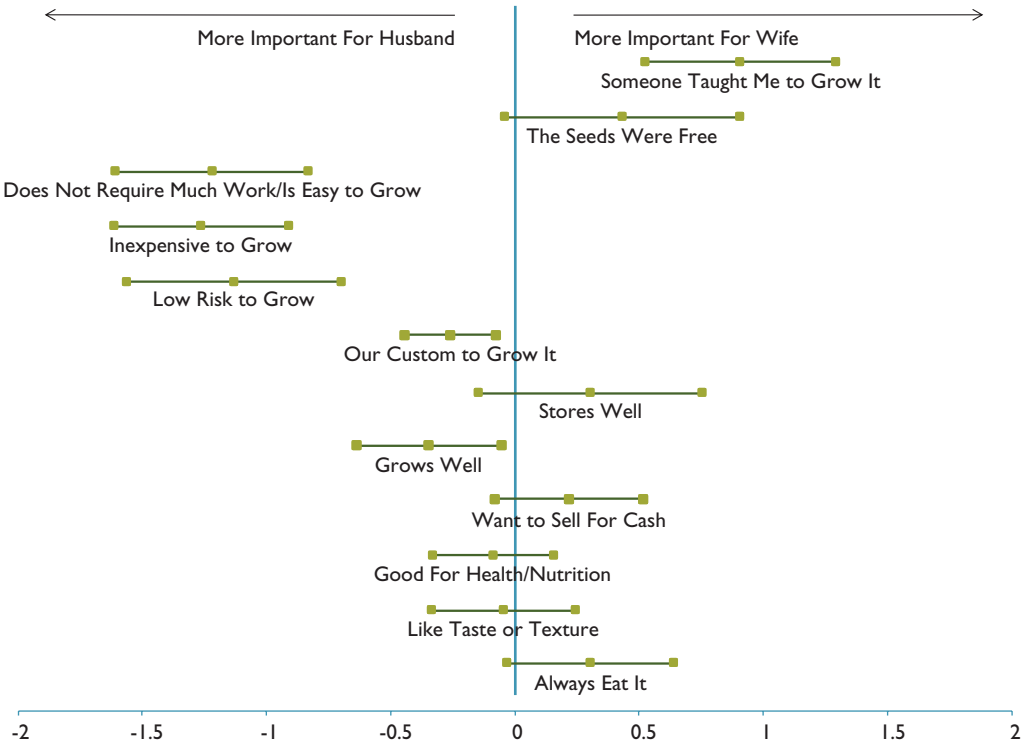
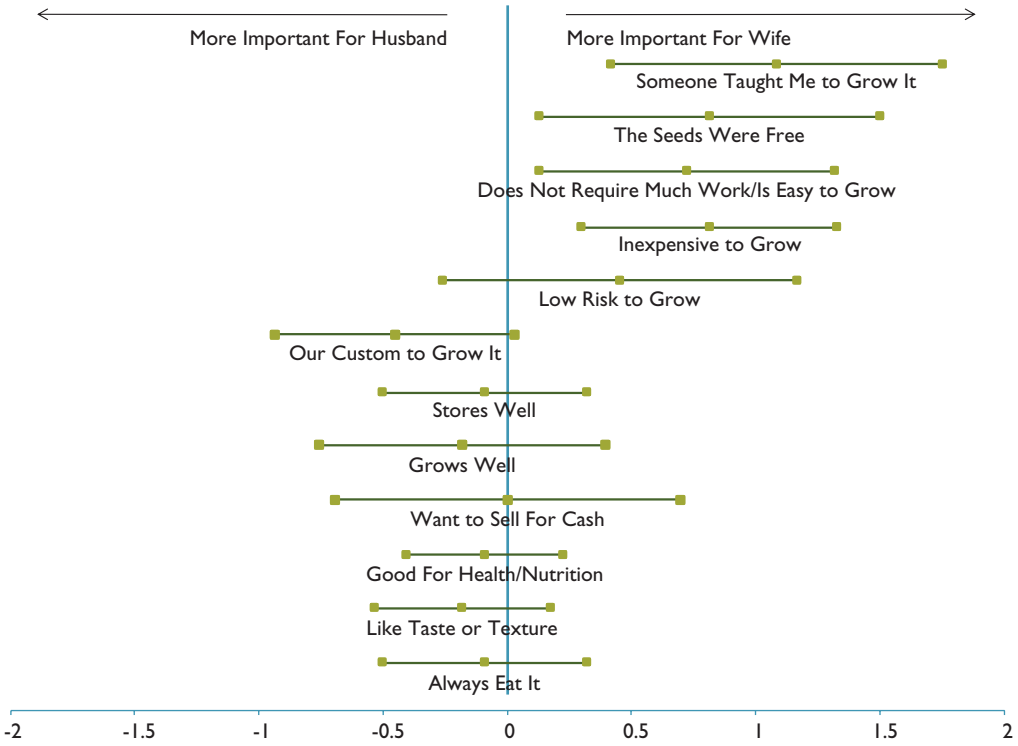


Figure 24. Agreement Between Husband and Wives Concerning Reasons For Raising Poultry

Figure 25. Agreement Between Husband and Wives Concerning Reasons For Cultivating Fish



The extent to which husbands and wives disagree can be interpreted as demonstrating which factors are more important to husbands, and which are more important to wives. For garden crops, the primary factors that matter much to men and little to women tend to be related to risk, labor, and habit. In general, men far more than women, rate low risk to grow, not much work to grow, and inexpensive to grow. Women on the other hand, differ greatly in the importance that they give to being taught to grow a crop, and in the importance of free seeds. For poultry and fish, women were more interested in someone teaching them to raise it, and in free chicks/fingerlings, but, unlike for crops, they placed more importance than their husbands on the ease and low cost of production.

Clearly men and women differ in their motivations for their current production of specific garden crops, or for raising poultry or fish. Men's most commonly cited motivations tended to focus on a crop's or livestock's risk and cost of production, and labor requirement. Women, on the other hand, expressed these motivations for choosing specific crops/livestock/fish far less often, focusing more on having the technical knowledge to produce the commodity (i.e., "someone taught me") and on whether they had access to seed, chicks, or fingerlings.

DISPOSITION OF CURRENT PRODUCTION

Figure 26 shows husbands' and wives' responses concerning their plans for disposing of current crops, and current poultry and fish production. Essentially none of the households appears to be undertaking homestead production solely for the purpose of cash sale. In fact, with the exception of bottle gourd, for which slightly over two percent of wives said their plan was to sell, no wives

Photo courtesy of Agnes Guyon

claimed that their sole plan for any crop was to sell their produce. Some men stated that their sole plan was selling for bottle gourd, radish, red amaranth, yardlong bean, tomato, and poultry, but even among men the percentage voicing this plan was less than five percent for all but red amaranth, for which the percentage was 6.1 percent.

For every current crop, as well as current fish and poultry production, the majority of male and female respondents plan to both consume and sell their produce. The question arises, therefore, whether households cultivate specific crops (or livestock species) with specific purchases in mind.

PURCHASES FROM PRODUCTION

FOOD PURCHASES

Figures 27 and 28 show respondents' plans for food purchases according to the specific crops or livestock they are producing. For the majority of crops, and for fish, rice is the most common or is tied as the most commonly planned purchase for women. Fish purchase was the most common plan among women for proceeds from selling sweet gourd and bottle gourd (although for the latter it tied with rice), although it was not mentioned for a plan with proceeds from selling red amaranth, eggplant, tomato and, predictably, fish production. Beef purchase was a commonly planned purchase, with at least some percentage planning to purchase beef from proceeds of sale of all

crops except red amaranth, and from poultry and fish. Dal (lentils) was a common purchase plan for proceeds from selling eggplant and tomato. Women mentioned chicken as a planned purchase for proceeds from selling sweet gourd, bottle gourd, red amaranth, and yardlong beans. They mentioned eggs as a planned purchase only for knol khol and eggplant, and even for these crops it was rarely mentioned.

Although rice was a commonly cited planned purchase among husbands, men did not mention it as frequently as women did. Among men, it was the most commonly cited planned purchase only for knol khol, yardlong beans, and eggplant, and tied for the most common for red amaranth, tomato, and fish. The purchase of dal was mentioned for most crops, but not for knol khol, amaranth, or tomato. Men planned to purchase fish from the proceeds of all crops and poultry, but not for homestead-produced fish. Men mentioned chicken as a planned purchase for proceeds from the sale of sweet gourd, bottle gourd, knol khol, and amaranth and beef as a planned purchase from selling all crops, poultry, and fish. Men mentioned eggs as a planned purchase more often than women, citing them as a planned purchase for proceeds from bottle gourd, sweet gourd, radish, red amaranth and amaranth, and yardlong beans.

HOUSEHOLD ESSENTIAL PURCHASES

Figures 29 and 30 show respondents' plans for household essential purchases according to the specific crops or livestock they are producing. Wives in the study planned to use proceeds from the sale of all crops to purchase cooking oil and salt, and all except fish to purchase sugar. Cooking oil was the most commonly planned or tied with salt as the most commonly planned purchase for all crops except for knol khol, amaranth, and tomato. Sugar was the most commonly-planned purchase with proceeds obtained from selling knol khol and amaranth. Men's focus groups held among participants revealed that tea is primarily a men's product, and wives' responses supported this finding: none of the wives reported planning to purchase tea with proceeds from HFP.

Men most commonly reported planning to purchase cooking oil for all crops and livestock except for fish, followed by salt purchase as planned disposition for proceeds from all crops/livestock except for tomato and poultry (for which sugar purchase was more commonly cited than salt purchase). Nearly 80 percent of male respondents planned to use proceeds from the sale of sweet gourd to purchase cooking oil. Fewer than five percent of male respondents planned to use proceeds from sweet gourd and yardlong bean sales to purchase sugar. The only commodity for which male respondents planned to use sale proceeds to purchase tea was radish, but slightly less than 10 percent planned to make this purchase.

NON-FOOD PURCHASES

Figures 30 and 31 show respondents' plans for non-food purchases according to the specific crops or livestock they are producing. Wives reported planning to purchase "medicine" with proceeds from all crops and livestock except for knol khol and radish, and did not cite any other non-food purchases more often. Notably, wives reported planning to use proceeds from the sale of eggplant and tomato to purchase tobacco—something no husband reported planning (or admitted to planning) to purchase. In this context, medicine may be either pharmaceuticals or folk remedies.

Women mentioned payment of school fees as plans for disposition of profits from selling sweet gourd, red amaranth, amaranth, poultry, and fish. Loan repayment was mentioned only for red

amaranth, eggplant, poultry, and fish. No non-food purchases were planned using proceeds from knol khol and radish sales.

Similarly to wives, husbands most commonly mentioned medicine as a planned purchase, citing it for disposition of proceeds from the sale of all commodities, except for sweet gourd, and citing it most commonly for all commodities except for bottle gourd. The percentage of men who cited medicine purchase was much higher than the percentage of women who did so, with the exception of plans for purchase of medicine based on the sale of poultry and fish, for which the percentages for men and women were roughly equal. While women mentioned school fee payment only for sweet gourd, red amaranth, and amaranth, in addition to fish and poultry, men planned to use proceeds from all crops, except for amaranth and eggplant, for this purpose, yet no men cited school fee payment as a plan for use of proceeds from fish or poultry sales. Men also differed from women in their plans for loan repayment, citing this as their planned disposition of proceeds from the sale of all crops except for amaranth and tomato.

The plan to consume at least a portion of all crops cultivated, and of poultry and fish raised, is nearly universal. For that portion of home production that the household does not consume, rice was a first choice, especially among women. Beef, dal, and fish were common planned purchases for both men and women, although the plan to purchase beef or fish was more common among men and a plan to purchase dal more common among women. For both men and women, a plan to purchase cooking oil and salt was most common. Both men and women planned to use income from HFP to purchase medicine, especially with proceeds from the sale of poultry and fish. Men additionally mentioned plans to pay for school fees using income derived from sale of home-produced vegetables, and to pay toward loans using income from all home production except amaranth and tomato.

Figure 26. Male And Female Responses Concerning Disposition of Current Homestead Food Production Crops And Livestock

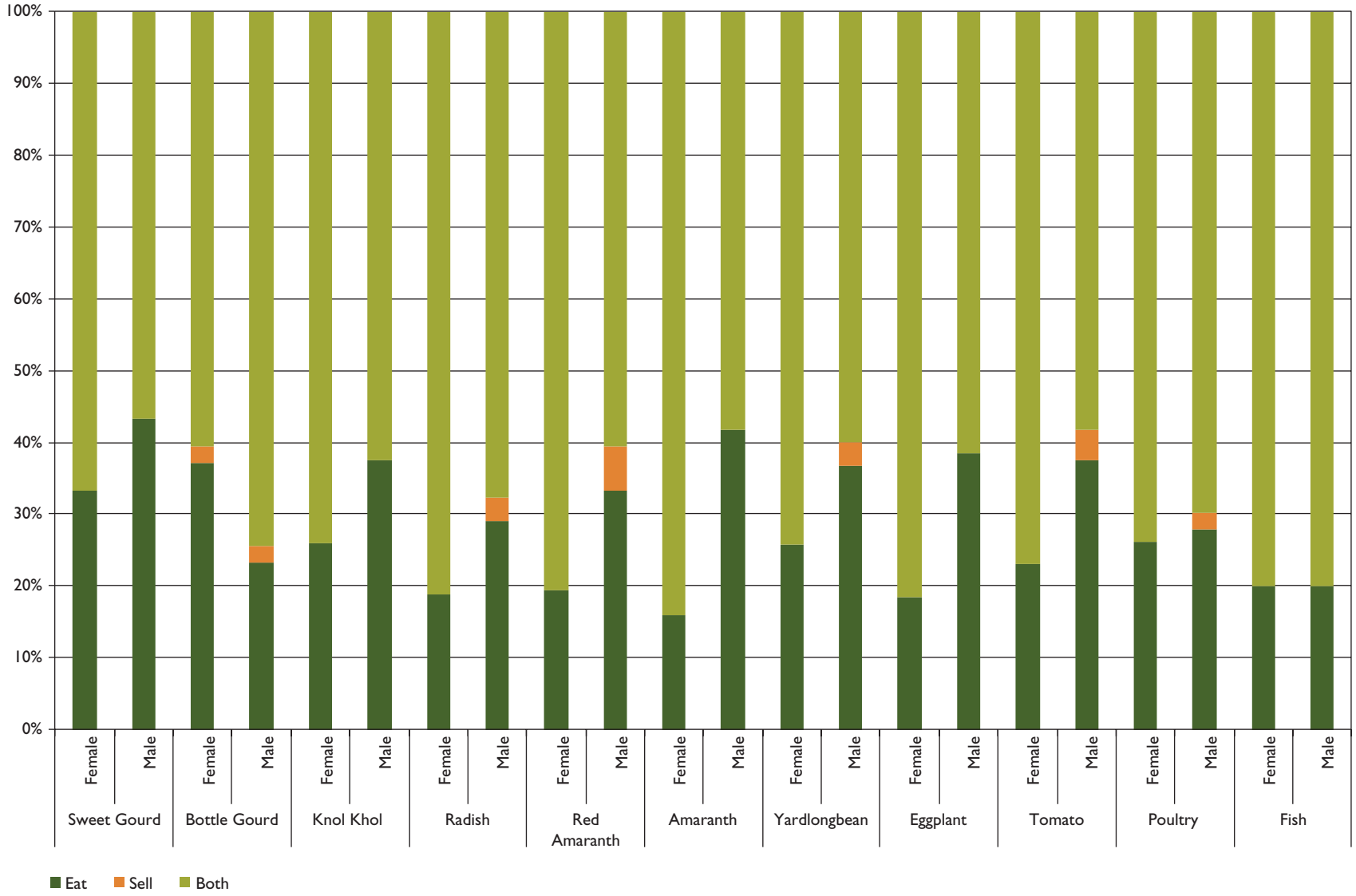


Figure 27. Female Planned Purchases From Sale of Garden Produce or Livestock, By Food Items Planned For Purchase (Only Respondents Who Planned to Sell, or Both Consume And Sell; "Other" Category Not Displayed

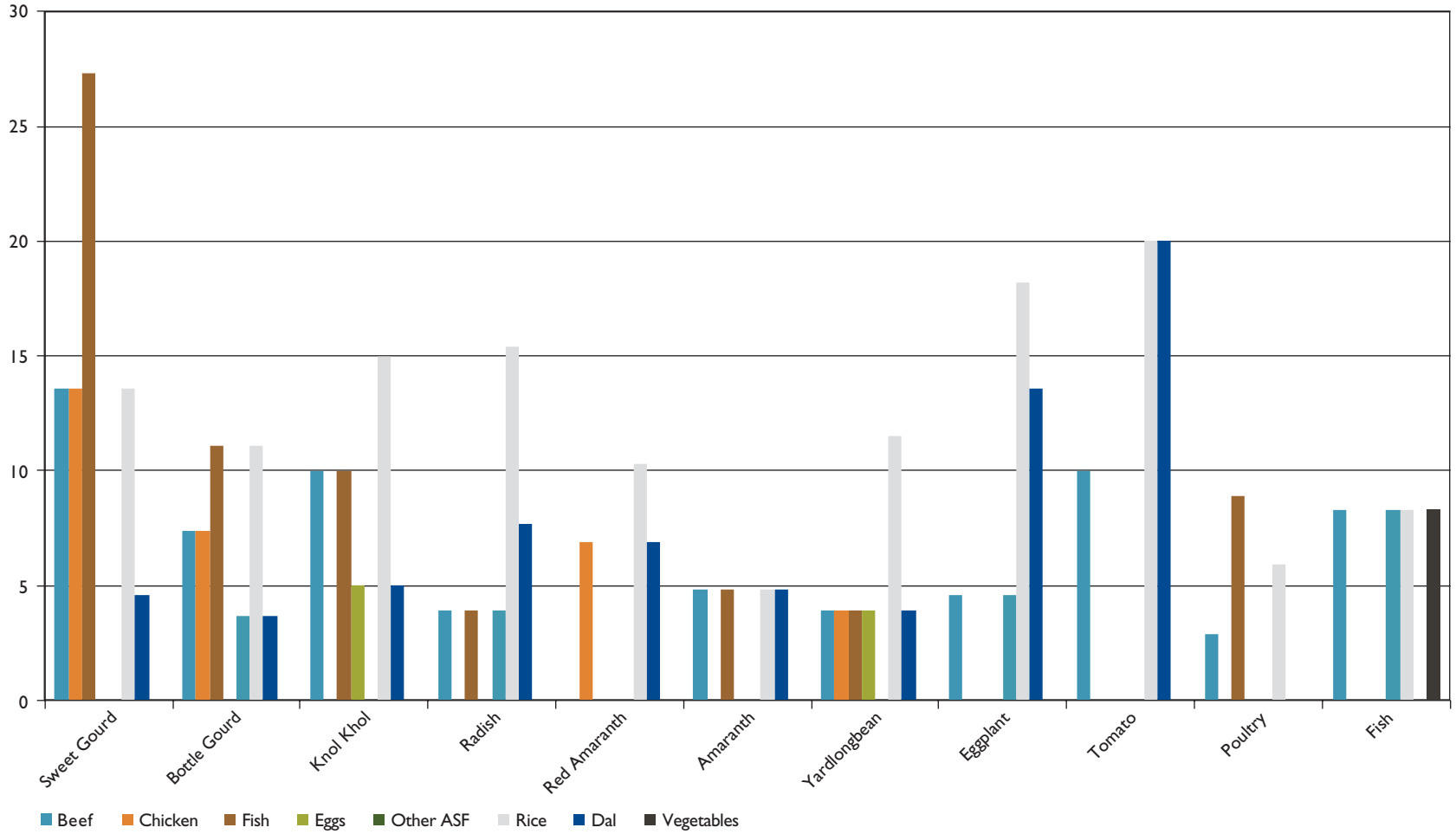


Figure 28. Male Planned Purchases From Sale of Garden Produce or Livestock, By Food Items Planned For Purchase (Only Respondents Who Planned to Sell, or Both Consume And Sell; "Other" Category Not Displayed

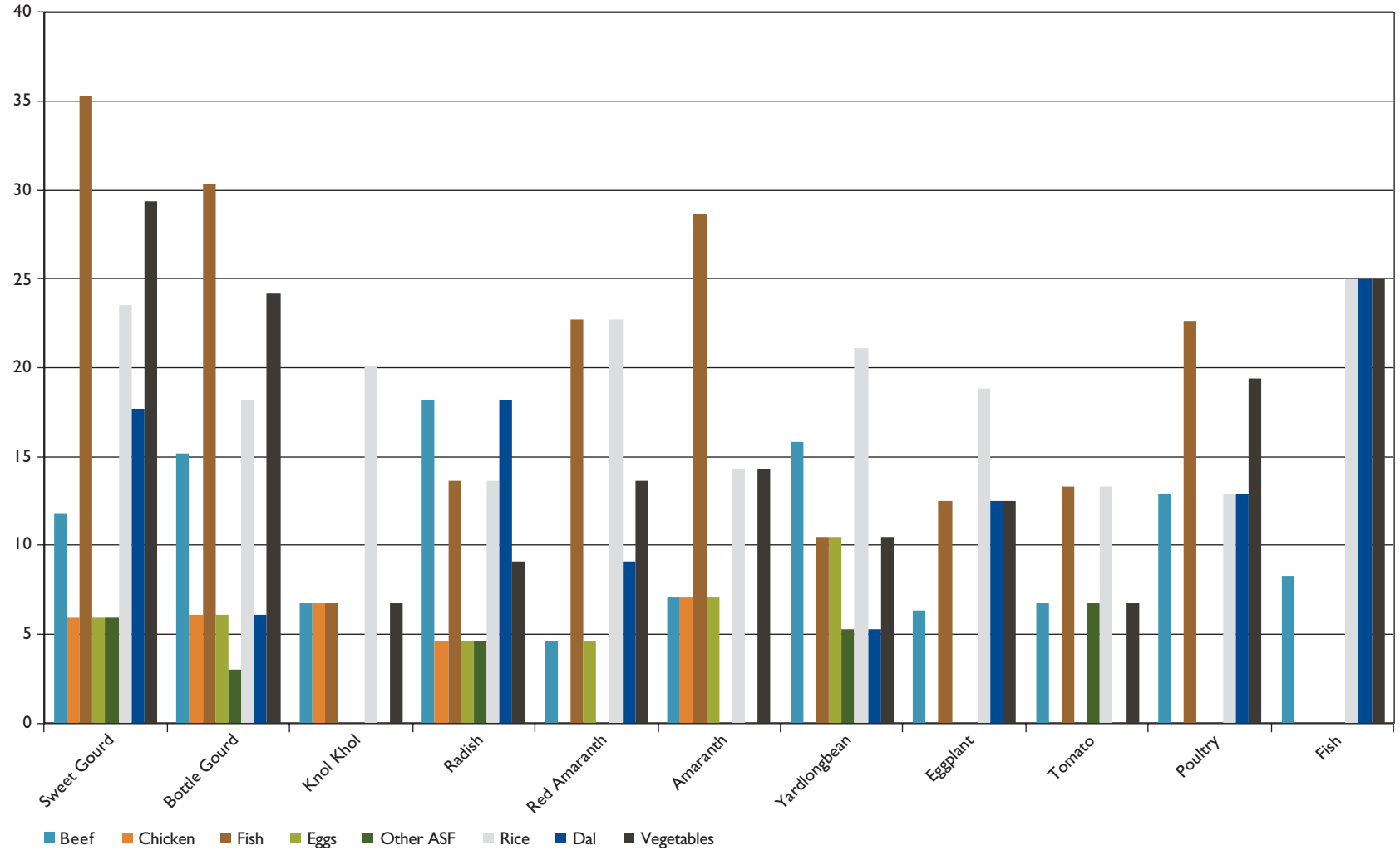


Figure 29. Female Planned Purchases From Sale of Garden Produce or Livestock, By Household Essential Items Planned For Purchase (Only Respondents Who Planned to Sell, or Both Consume And Sell; "Other" Category Not Displayed

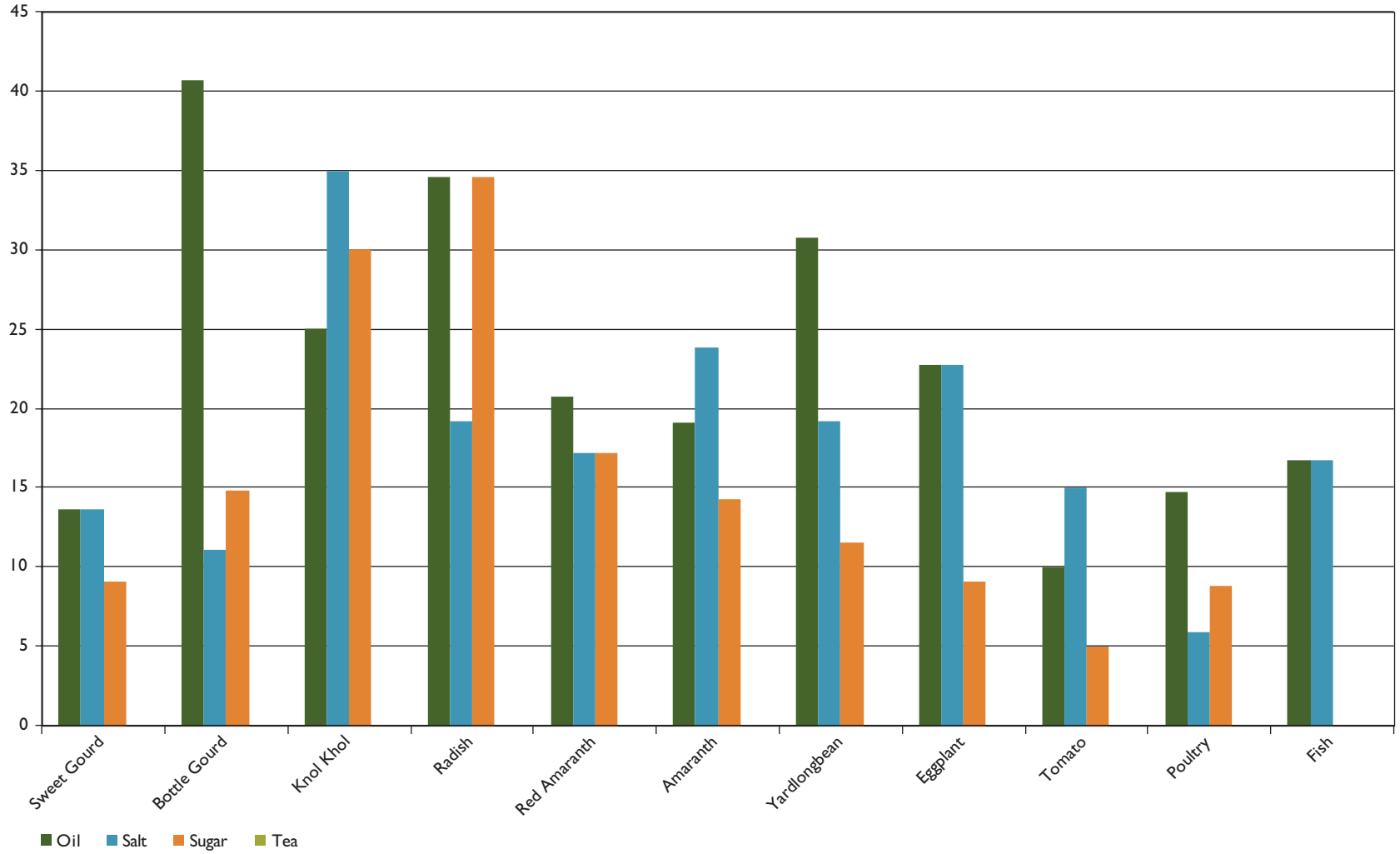


Figure 30. Male Planned Purchases From Sale of Garden Produce or Livestock, By Household Essential Items Planned For Purchase (Only Respondents Who Planned to Sell, or Both Consume And Sell; "Other" Category Not Displayed

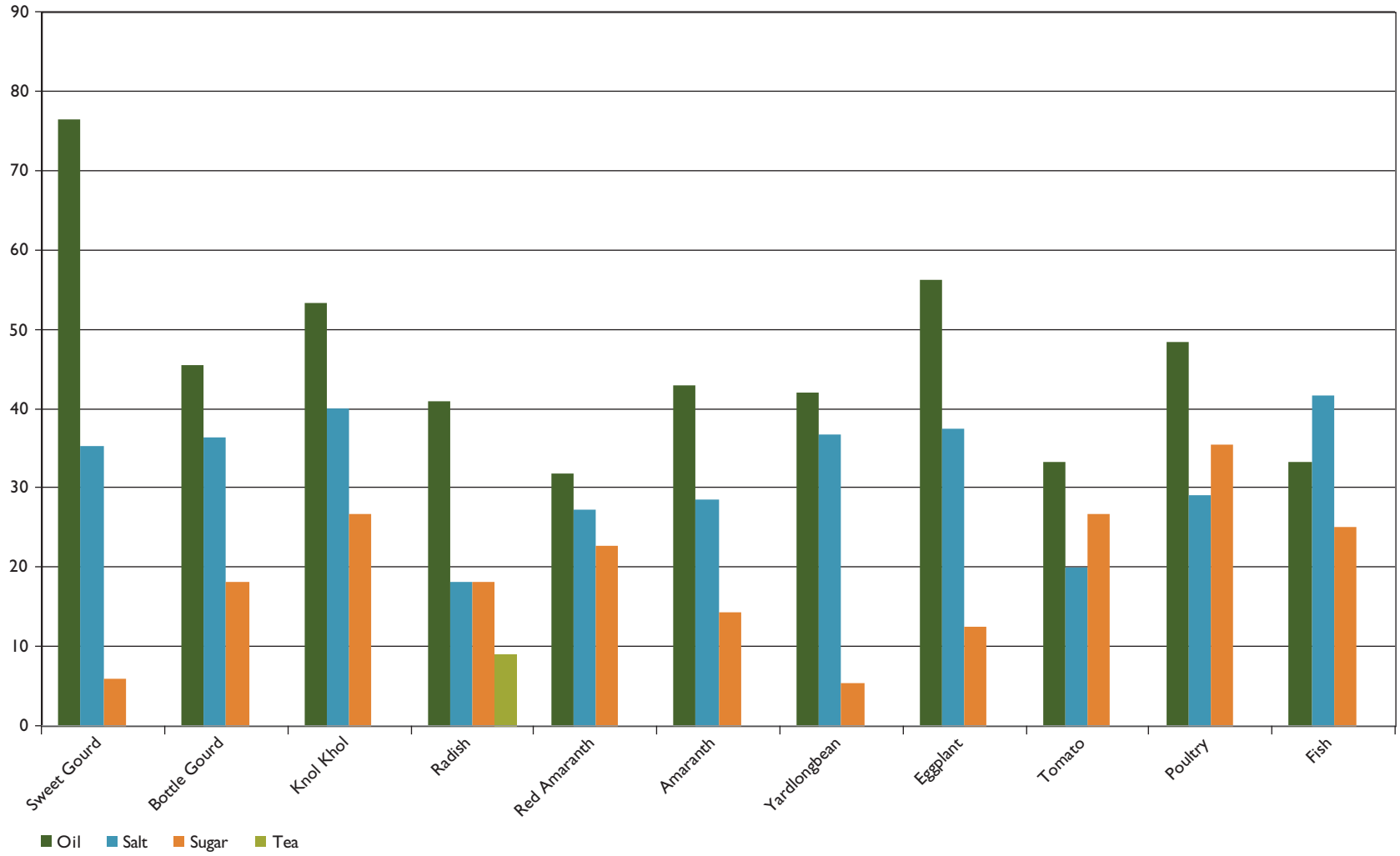


Figure 31. Female Planned Purchases From Sale of Garden Produce or Livestock, By Non-Food Items Planned For Purchase (Only Respondents Who Planned to Sell, or Both Consume And Sell; "Other" Category Not Displayed

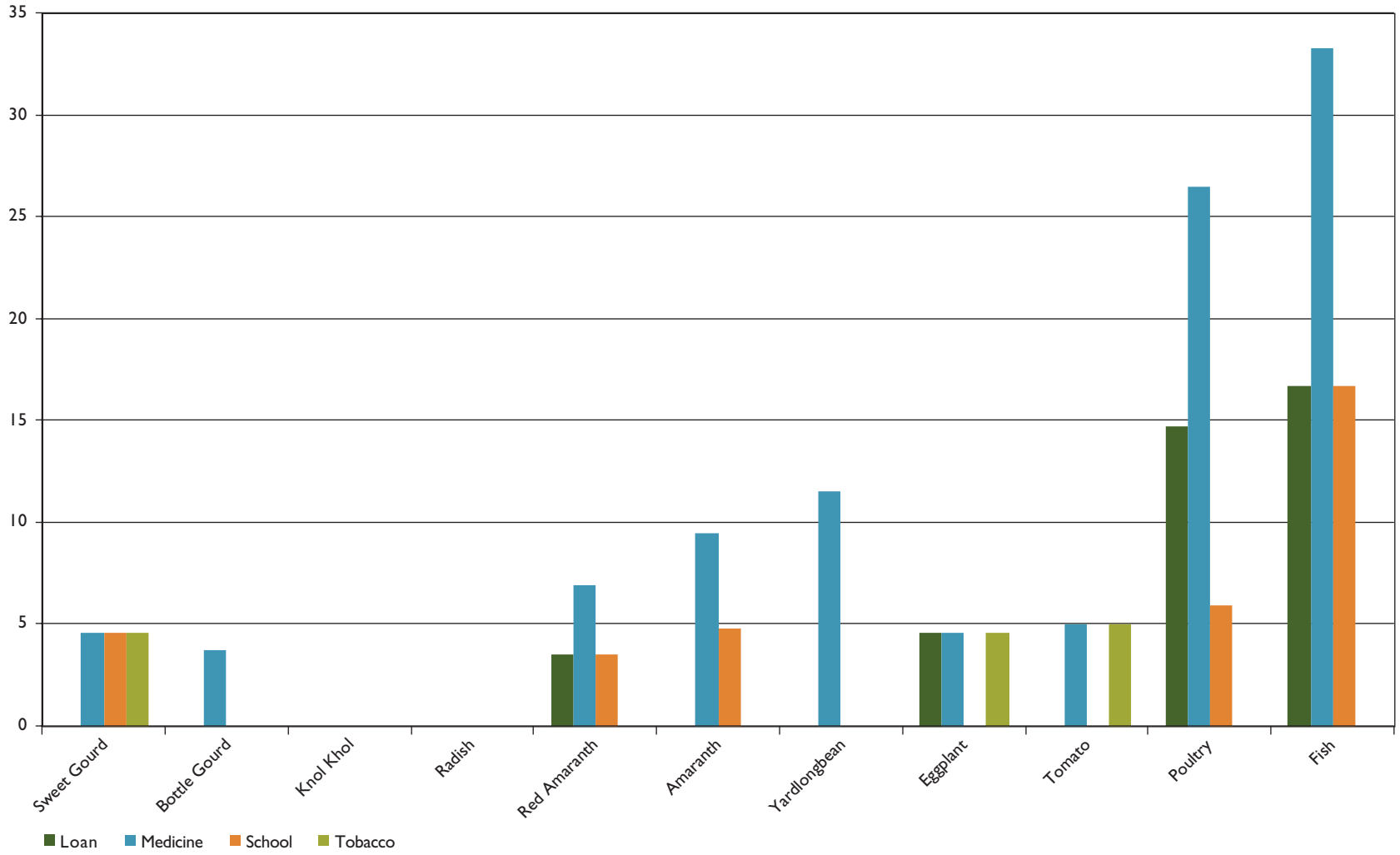
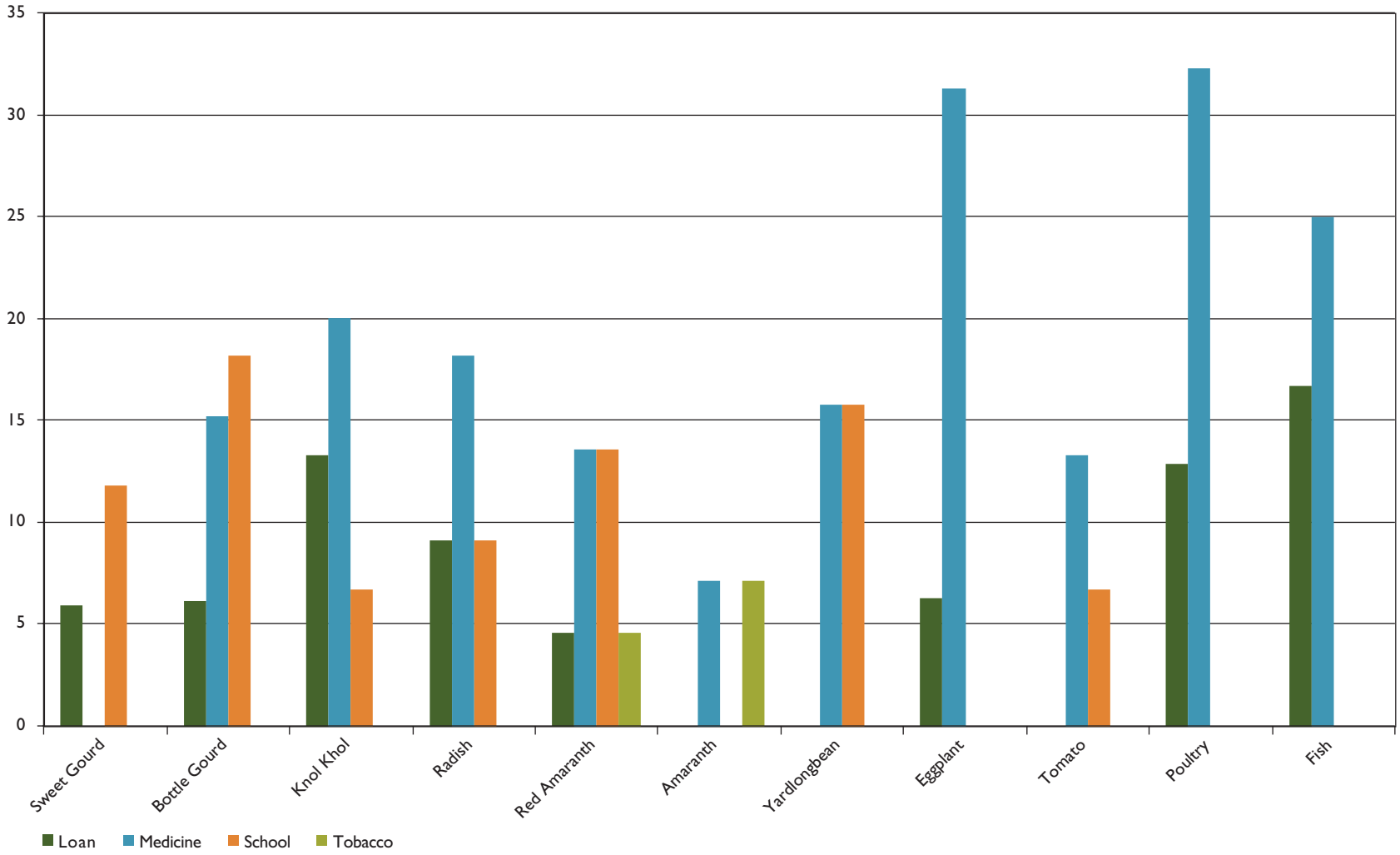


Figure 32. Male Planned Purchases From Sale of Garden Produce or Livestock, By Non-Food Items Planned For Purchase (Only Respondents Who Planned to Sell, or Both Consume And Sell; "Other" Category Not Displayed



POST-HARVEST DECISION INFLUENCES AND CONTROL

While 41 percent of women felt that the ability to store produce affects their decision concerning sale of home-based production, only 13 percent of men mentioned this as influencing their decision. When asked to explain how storage affects decisions about sale, the overwhelming majority of both men and women mentioned a need to sell because the lack of storage facilities—especially cold storage—resulted in spoiled crops if they did not sell them. One male respondent, who apparently did have a storage facility, mentioned being able to hold crops when market prices were low.

Table 8 shows that by far both husbands and wives in most households claim to make decisions about the sale or consumption jointly. In households where either the husband or the wife is responsible for this decision, sole decisions by the wife were far more common. Notably, both husbands and wives most commonly stated that the wife alone is the sole recipient of funds realized from the sale of home production, while decisions about purchases most commonly were made jointly.

Table 8. Control of Decisions Concerning Sale or Consumption of Homestead Production (65 Couples)

INDIVIDUAL	DECISION-MAKER REGARDING KEEPING OR SELLING HOME PRODUCTION	
	Male	**Female**
Main male or husband	2	8
Main female or wife	16	15
Husband and wife jointly	49	40
Someone else in the household	6	8
Jointly with someone else inside the household	9	11
Jointly with someone else outside the household	0	0
Someone outside the household/other	2	0
Decision not made	17	18

Table 9 shows that even if women have some decision-making authority over income from sales of home production, it is still jointly with their husbands that wives make the decision to purchase any products.

Table 9. Control of Income Realized From Sale of Home Production, And of Purchases Made Using Home Production Income (64 Couples)

INDIVIDUAL	RECIPIENT OF MONEY REALIZED FROM SELLING HOME PRODUCTION		DECISION-MAKER REGARDING PURCHASES USING MONEY GENERATED FROM HOME PRODUCTION ACTIVITY	
	Male	Female	Male	Female
Main male or husband	8	6	3	5
Main female or wife	44	41	6	15
Husband and wife jointly	9	17	48	41
Someone else in the household	3	9	0	8
Jointly with someone else inside the household	3	1	9	6
Jointly with someone else outside the household	0	0	0	0
Someone outside the household/other	0	0	0	0
Decision not made	32	25	33	25

CROPS PLANNED FOR UPCOMING SEASON

When asked what they will plant in the next cropping season, husbands and wives said they plan to plant most of SPRING-promoted crops. For all crops, except kangkong, okra and bitter gourd, the percentage of men planning to cultivate the crop was higher than the percentage of women. The low percentage of respondents who mentioned plans to produce poultry and fish reflects that few will *add* poultry and fish to their production, not that only few will produce them. More than half of men and women planned to cultivate all of the SPRING-promoted crops, except for kangkong and tomato.

Table 10. Crops Respondents Plan to Grow Next in Their Garden (65 Couples)

CROP	MALE	FEMALE
Kangkong	34	43
Indian spinach	69	63
Okra	59	63
Bitter gourd	53	61
Tomato	48	41
Papaya	73	55
Ash gourd	62	51
Country bean	59	52
Poultry	2	0
Fish	2	0

PRIMARY REASON FOR SELECTING CROPS FOR UPCOMING SEASON

As Figure 33 shows, health and nutrition benefits were an important reason for selecting the crops to be introduced in the homestead for the upcoming season. Unlike for the current crops, however, health and nutrition benefits are not the most common primary planting reason for all crops either for women or for men. For example, both men and women more often cited "sell for cash" as the primary reason for growing okra, and wives (not husbands) most commonly cited this as the primary reason for growing bitter gourd and country bean. "Always eat it," which was a common reason cited for growing current crops, has very little influence on decisions about the upcoming season.

PRIMARY REASON FOR NOT SELECTING SPECIFIC CROPS FOR PLANTING IN THE NEXT SEASON

The primary reasons that husbands and wives cited for *not* selecting specific SPRING-promoted crops can be seen in Figure 34. Among wives, "not our custom" was by far the most common reason for not planning to grow okra, bitter gourd, and tomato, and "do not know how to plant/grow" along with "not our custom" were much more common than other reasons for not planning to cultivate kangkong. "Other" responses for men were so common that no discernible pattern is seen for primary "not planning to grow" reasons.

IMPORTANCE OF VARIOUS REASONS FOR NOT PLANTING SPRING-PROMOTED CROPS

As can be seen from Figure 35, "very important" reasons not to grow SPRING-promoted crops cluster within "not our custom" and "difficult to grow" for men. That is, a high percentage of men named these reasons as very important for avoiding most crops. Women's responses, however, do not provide such a clearly observable pattern of majority "very important" reasons for avoiding these crops. For those SPRING-promoted crops which had the lowest planned uptake, kangkong

and tomatoes, "not our custom" and "difficult to grow," respectively, were the most common important reasons for not growing among men, and "not our custom" was the most common reason not to cultivate for both crops among women.

Discernible "spikes," where a single reason stands out above all others, are seen for "not knowing how to grow" kangkong among both men and women, but especially for women; "high risk" was associated with growing country beans among men; and requiring "too much work" was the mean reason cited for not growing tomato and country bean among men and country bean among women.

As with current production, nutritional benefits were cited commonly as a primary reason for growing nearly all crop species, poultry, and fish. Selling for cash was mentioned slightly more often as a reason for crops planned for the next season than it was for current production. In terms of reasons why respondents did not plan to cultivate the crops that SPRING will promote for the coming season, lack of familiarity and "not our custom" were given often by men and women, a surprising response considering that all of the crops to be promoted are commonly grown and consumed throughout Bangladesh.

Figure 33. SPRING HFP Husbands' And Wives' Primary Reasons For Growing Crops Planned For Next Season

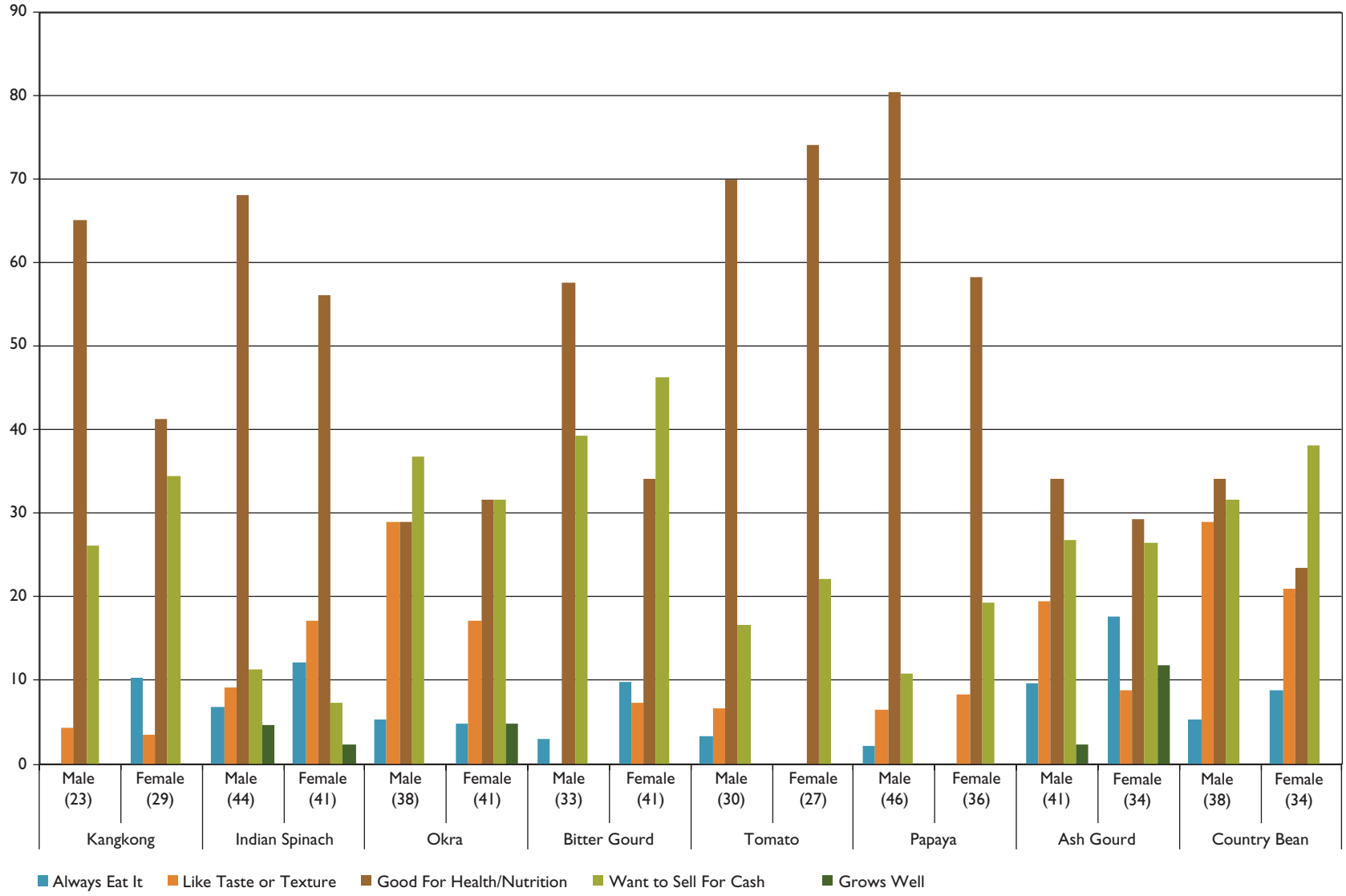


Figure 34. SPRING HFP Husbands' And Wives' Primary Reasons For Not Planning to Grow Crops Planned For Next Season ("Other" Responses Omitted)

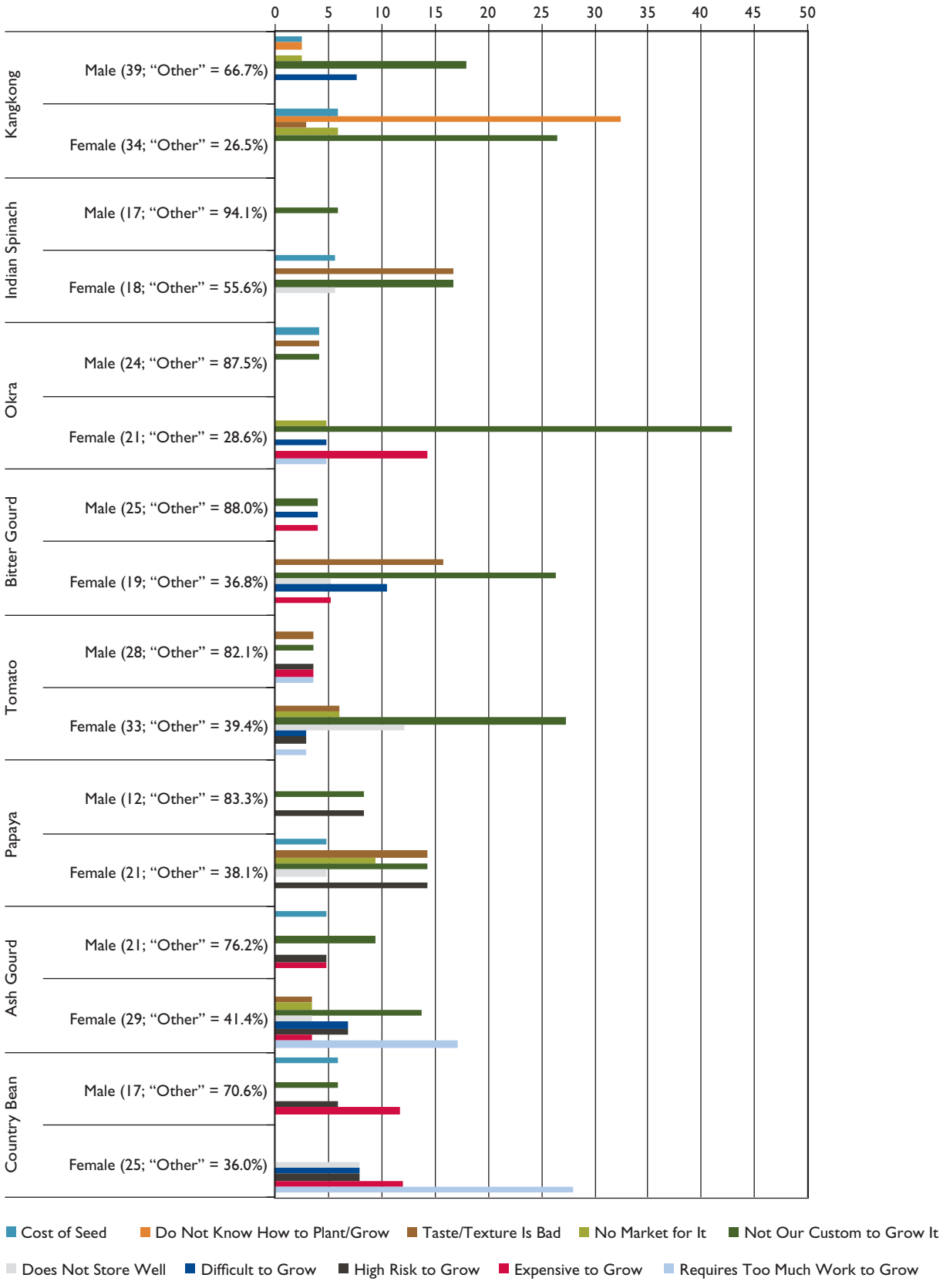
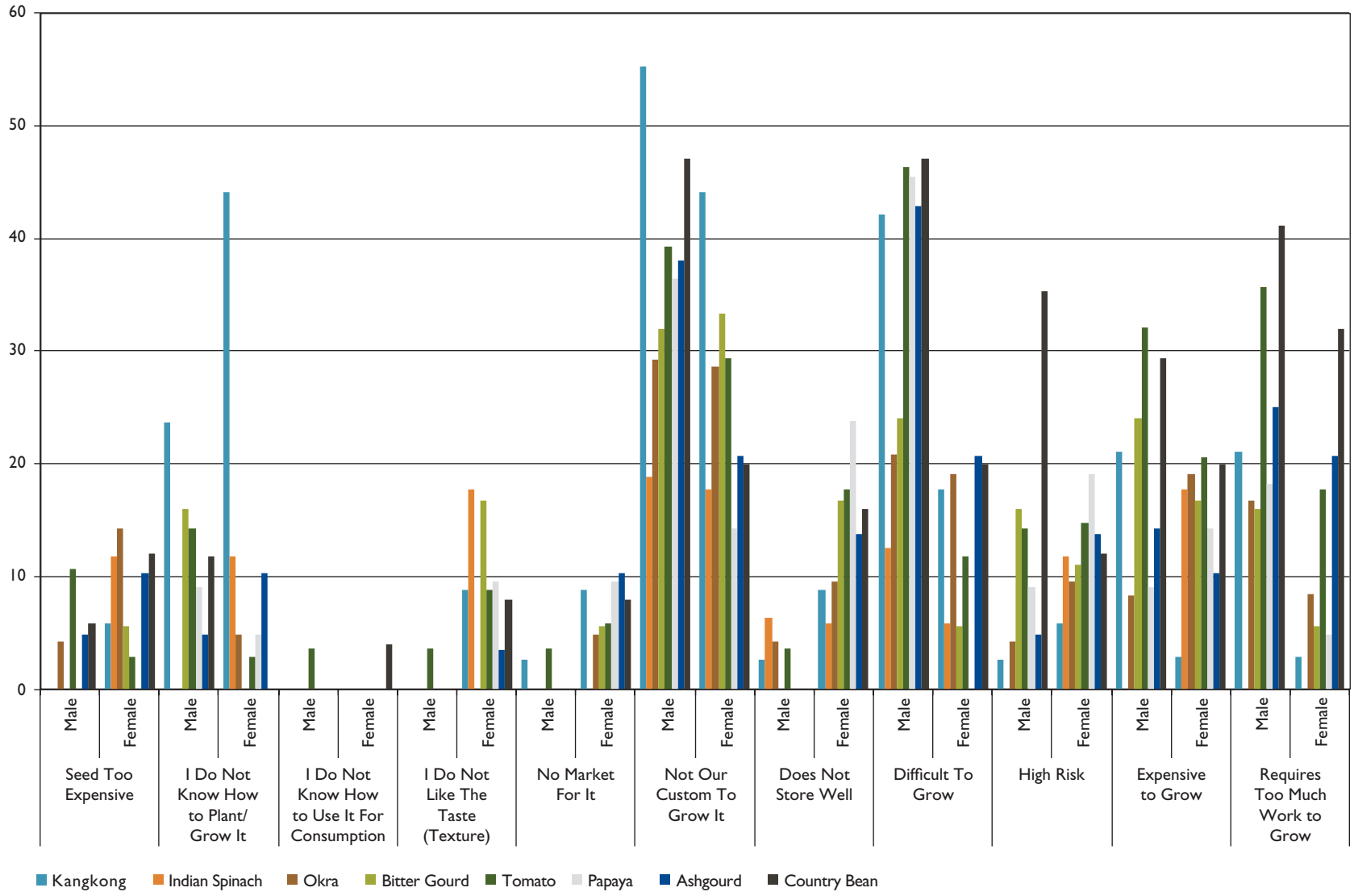


Figure 35. Reasons Cited by Husbands And Wives As "Very Important" For Why They Do Not Plan to Cultivate SPRING-Promoted Crops in The Upcoming Season



DISCUSSION

The study was designed with mixed data collection methods combining closed-ended as well as open-ended responses from participants. The political unrest at the time, however, severely limited the ability to conduct the study as planned.[5] Qualitative data collection suffered as a result, limiting study findings primarily to responses to pre-determined, closed-ended questions. Caution is necessary when considering the results, since they give the impression of a quantitative survey yet are based on a non-representative convenience sample. At the same time, the findings represent a large amount of information that can inform the development of promotional strategies for HFP.

The households in this study meet the criteria of SPRING participation according to both the biological standard of having children under two years, and the economic standard of low income and meager assets. Landholdings are small (in many cases too small for meaningful field crop production), possessions are few, and income is inconsistent due to day-labor status. The completeness of responses from men indicates that they are equally involved in homestead production.

The finding that women have little involvement or authority for most decisions related to field crop production and other household economic activities is not unexpected. However, the finding that this exclusion is less common for decisions related to homestead production supports the conventional wisdom that women have more control over production and income decisions related to homestead production than for field crop production. Perhaps more importantly, both men and women reported overwhelmingly that women are the primary decisions-makers concerning consumption or sale of homestead production, and the recipients of the proceeds from this sale.

Increases in income under the control of women have been shown to translate better to improved household nutrition and health outcomes (Haddad and Hoddinott 1994; Quisumbung et al. 1995; Smith et al. 2002). These findings suggest that homestead production is likely to be a more efficient agricultural route than field crop production for improving nutrition,[6] but the potential for this increase likely is limited by joint husband-wife decision-making about purchases made with proceeds from the sale of homestead production, as reported by the majority of households. In the Bangladeshi context, joint decision-making about purchases may reflect social customs about who makes the actual purchase (i.e., men) as much or more than customs about who has the authority to make these decisions.

One possibly contradictory finding is that women are highly excluded from decisions concerning fish cultivation—an important element of home food production. The questionnaire asked about "fishing or fish culture," which in the Bangladeshi context could have captured several different activities. For example, it could refer to the cultivation of large fish in ponds, the harvest of small fish from ponds, capture of small fish in paddy fields or irrigation trenches, and so on. Women may have different levels of authority for decision-making in each of these types of "fishing or fish culture," and it is not possible to tease out whether this is true from the available data. Further research is needed to understand if increased capture fishing, especially for small fish, might be under women's control and, thus, an efficient means of increasing income under women's control.

5. Some members of the data collection teams (including the field supervisor) dropped out of the study due to fears for their personal safety in the field or for their family's safety while they were away from home.

6. The potential for either field crop or homestead food production to improve nutrition by improving women's incomes needs to be weighed against any constraints in women's time for child care and feeding that they might introduce.

Clearly, the nutritional value of crops and livestock produced by SPRING households is a major factor motivating homestead production: for all current crops and livestock, "good for health/nutrition" was the most commonly given primary reason for selecting that particular crop/livestock for production, and the same reason factored important (although to a lesser extent) for crops planned for the next season. Ratings for a list of varied motivational factors for current crops, however, tell a more nuanced story. Women, who presumably face constraints in accessing inputs, appear to need no further motivation for cultivating specific homestead crops or livestock than the acquisition of skills and availability of inputs. Men, who already have access to inputs and may have the requisite skillset for gardening, apparently simply do not want this "homestead thing" to be too much work, to cost too much money, or to involve too much risk. For the improvement of women's and children's nutrition, this situation may provide benefits beyond having more fresh, nutritious food at the household's disposal: if men do not want to be too involved with the homestead production, women are more likely to be able to dispose of homestead production as they see fit, which most likely would contribute to better health and nutrition for the entire household.

Reasons for selecting crops to plant for the upcoming season showed some agreement with the reasons for choosing currently grown crops in that "good for health and nutrition" was a common reason. Selling for cash was cited more often for crops planned for the upcoming season than it was for those in current production. In this context it is important to note that responses about current activities are qualitatively different than those about future plans. It is possible that the crops that households actually plant in the coming season will be different than those they said that they planned to plant. For the same reason, the reasons that respondents give for their planting choices *after* deciding to plant them may be different than those they consider *before* they make their final decision. Furthermore, concerning plans about crops to plant in the upcoming season, respondents were asked only about crops that SPRING will promote for that season. It is not possible to determine the extent to which the reasons given for planting the current crops were influenced by SPRING promotional activities, and promotional activities may influence both the choices of and rationale for crops eventually planted in the coming season.

Similarly, when analyzing the reasons that respondents gave for *not* planting specific crops in the coming season, it is important to remember that they were asked only about the crops that SPRING will promote. Additionally, this study did not include a measure of the intensity with which they hold their reasons for planting or not planting crops in the next season. It is possible that, with specific crops in mind for the coming season—crops not on SPRING's list of promoted crops—they provided reasons supporting their choice and rejecting the SPRING-promoted crops without much conviction. This might explain, for example, the overwhelming primacy of "good for health and nutrition" for current crops, but not for planned crops. It is possible that promotion of specific crops as a "best mix" for nutrition may have substantial influence over plans for the next cropping systems and the reasons supporting the crop choices those plans represent.

Furthermore, findings about motivations for growing current crops suggest specific promotional strategies. Promoting homestead food production, and specific nutritious crops, among men should focus on low labor requirements, low risk, and low overall costs. Fortunately, these qualities have been established for the gardening system that SPRING promotes—based on technologies developed by HKI in Bangladesh—which is characterized by low labor requirements and both low risk and low cost (Marsh 1998).

Promoting the same among women should focus on skills development and access to inputs (especially seeds, chicks, or fingerlings). SPRING already applies substantial effort for homestead production skills development. It is possible, however, that their responses reflected the fact that women essentially have no access to inputs, in which case ensuring access to inputs for women equal to men's access would be as efficacious as "free" inputs in motivating the adoption of homestead production practices.

While most households intend to sell at least a portion of their home production, increased food availability is the primary reason that households undertake the practice; increased consumption of nutritious foods is a likely outcome of SPRING's work to introduce it. Presumably families will sell surplus production that cannot conveniently be consumed or preserved within the household, since the inability to keep food without spoiling was an important factor supporting the influence of storage versus sale or consumption.

Both husbands and wives commonly name rice as a food they plan to purchase using proceeds from their activities. From this study it is not possible to know if these households experience frequent or even occasional rice shortages, but certainly all consume rice as their primary staple. Since the foods produced in the homestead provide under-consumed nutrients that are not found in rice, their sale to obtain rice might represent a nutritional forfeiture. Unless the household would otherwise be unable to purchase sufficient rice without this sale, this practice should be discouraged.

Cooking oil is the next most commonly-named food item to be purchased. Fat consumption in Bangladesh is meager,[7] with consumption among mothers almost universally far less than the recommended 20 percent of total energy. A recent study found women's mean fat intake to be only 7.8 percent of total energy.[8] Furthermore, additional cooking oil consumption of as little as 20 ml/day from mid pregnancy to six months post-partum has been shown to increase Bangladeshi women's plasma retinol and breastmilk retinol concentrations at three months postpartum.[9] Thus, the nutritional benefits of increased fat consumption may be as great as or greater than those that might be gained from consumption of the homestead-produced crops or livestock; the sale of homestead production for cooking oil purchases should not be discouraged.

Men more often mentioned eggs as a purchase they planned to make using proceeds from the sale of home food production. While it would be important to encourage women to consider eggs as a desirable purchase, the fact that men already are disposed to purchase eggs may present a promotional opportunity, based on findings from the study of men's market purchase motivations[10] that found that men frequently give children snacks, especially in the morning before breakfast is prepared, to pacify their children. These snacks tend to be sweets, but eggs or fruit may be possible nutritious alternatives if children will accept them in the place of sweets. Promotion of boiled egg or fruit purchase—especially among men—using income gained from the sale of homestead

7. *Food-based Nutrition Strategies in Bangladesh* (2004) Bhattacharjee L, Saha SK, and BK Nandi. Bangkok: Food and Agriculture Organization of the United Nations, p.2.
8. Yakes et al. 2011. Intakes and breast-milk concentrations of essential fatty acids are low among Bangladeshi women with 24—48-month-old children. *British Journal of Nutrition*; 105:1660-1670.
9. Alam, D.S. et al. Effect of dietary fat supplementation during late pregnancy and first six months of lactation on maternal and infant vitamin A status in Bangladesh. *J Health Pop Nutr*; 28(4): 333-342.
10. Market purchase motivations among rural men in the Khulna district in Bangladesh. SPRING 2014

food production may represent an opportunity to maximize nutritional benefits from homestead production that the family does not directly consume.

While health and nutrition benefits were the most common reasons for growing all currently grown crops, this curiously was not the most common reason for selecting all crops to be planted in the upcoming season. Rather, selling for cash took greater importance, and "custom to eat" was also more common than for current crops. In the case of "selling for cash," the effect may be seasonal in the sense that the current crops were being grown in *rabi* season, the traditional vegetable growing season (September through March or April). Vegetables grown outside of *rabi* season, when vegetables are less common in the market, are likely to attract higher prices.

Custom was influential not just for why households planned to grow specific crops, but "not our custom" also as a common reason why both husbands and wives did *not* plan to grow many of the crops promoted by SPRING. Obviously, customs can change, and successful promotion of these crops will require intensive efforts to introduce a custom for growing and eating items, such as okra, bitter gourd, tomato, and kangkong in this area. Bitter gourd, although common in Bangladesh, has a quite particular taste that some individuals may not like, but respondents specifically mentioned "custom" much more commonly than "taste" as a motivating factor for choosing what crops to grow in the coming season, suggesting that popularity rather than specific taste is the key issue. Not growing tomatoes because it is "not our custom" is difficult to explain, especially because a substantial percentage of households were producing tomatoes in the current season.

It is important to consider that "not our custom" may be code speak for perceived negative characteristics. For example, these vegetables may be considered "poor people's food," and households do not want to associate themselves with poverty. Addressing the perceptions of these crops may be as important as considering food habits. Associating these crops with famous people, or with wealthy or highly educated people, may provide the best means for changing ideas about whether they are "customary."

Finally, the opinion of many of the husbands that kangkong is difficult to grow suggests that they are unfamiliar with the crop. Kangkong is extraordinarily easy to grow as long as it has sufficient water, which is unlikely to be a problem during the rainy season or if households plant it along pond banks. Importantly, the primary objection to kangkong among women is that they do not know how to grow it. SPRING may achieve some success in introducing this crop simply by showing women how to grow it, and they can then educate their husbands.

RECOMMENDATIONS

SOCIAL CHANGE

IMPROVING NUTRITION THROUGH AGRICULTURE

The findings of this qualitative study suggest that, homestead food production has direct linkages with nutrition through greater food availability and increased empowerment of women and represents an efficient strategy for improving household nutrition in Bangladesh. Both women and men report that in homestead food production women have more self-determination in their time use, more control over the means of production and inputs required, more decision-making authority over sale versus consumption decisions, and more control of income gained from sale of home-produced commodities. Given the association between women's control of assets and income and improved household health and nutrition, as long as the labor required for it does not interfere with women's time for child care and feeding homestead food production thus appears to be a more efficient route for improving maternal and child nutrition through agriculture-related intervention.

CUSTOMARY CROPS AND FOODS

Many respondents, both male and female, reported that they would not plan to cultivate some of the highly nutritious SPRING-promoted crops because growing or consuming them is "not our custom" which is surprising as the initial careful selection process undertaken by SPRING determined what indigenous vegetables would be most acceptable to households that were also highly nutritious. It is important to note that this is a different issue from disliking a particular food's taste or texture, or concern about high costs or risks associated with producing the crop. While taste preferences, or production risks, may be extremely resistant to change, "custom" can be more amenable to change. For example, many Bangladeshi households—rural and urban—customarily consume *chapati* or *paratha* at breakfast, even though wheat consumption was uncommon just one or two generations earlier. Similarly, the advent of satellite television has brought with it many products that were virtually unknown in Bangladesh prior to its arrival.

Associating nutritious crops with specific individuals or with types of individuals to appeal to husbands' and wives' aspirations can help to increase their appeal and result in people wanting them to be part of their "custom." Celebrities and sports stars are examples of individuals whom people aspire to emulate, and associating foods that are less "customary" with these kinds of people can help to promote them as desirable. Types of individuals whom others want to emulate most would include wealthy, "modern," educated and authoritative[11] people. Promotional messages delivered by these types of people can appeal to individual aspirations and influence whether those individuals will want to adopt a "custom" than makes them similar to their ideal.

Partners in these promotional activities would include, of course, the Ministries of Agriculture and Health, but also input dealers (e.g., seed and fertilizer), market sellers, and others involved in the agriculture sector. Involving the education sector to promote consumption of specific nutritious foods also may be effective for influencing attitudes in the long-term (although it is unlikely to

11. Market purchase motivations among rural men in the Khulna district in Bangladesh. SPRING. 2014

achieve much impact during the life of the SPRING project). Images of champions or "desirable types" at input or marketing sales locations can create impressions that can be reinforced by interpersonal communications approaches. Mass media approaches may be useful as well, but the expense associated with them may require addressing nutritious foods as a group rather than promotion of individual crops, as may be possible with print media.

INDIVIDUAL BEHAVIOR CHANGE

PROMOTING SPECIFIC CROPS AND LIVESTOCK

The findings of this study clearly demonstrate that men and women rely on very different factors when deciding which crops to plant and animals to raise. Men interviewed in this study reported concerns about risk, labor input, and cost. Women apparently have a higher pent-up demand for nutritious crops and lack the skills to cultivate them and the access to inputs, especially seeds.

Promoting specific crops with men should focus on how trouble-free the experience can be, with the benefits of increased food access and potentially increased income. In addition to interpersonal means, input dealers would be a logical channel for this promotion. Point-of-sale promotion to male farmers who are purchasing other seeds (e.g., rice, dal seeds, etc.) can increase the uptake of specific crops by encouraging them to obtain vegetable seeds at the same time. Seed (and input) dealers can be trained in the basic technology of production for each seed so they can answer questions that the farmer may have concerning planting, watering, harvesting, etc.

Promotion of poultry and fish among men is, by the nature of their production, more complicated, but could conceivably be conducted at seed/input point of sale as well. While the seed/input dealer is unlikely to be able to provide chicks or fingerlings, referral linkages could be built so that dealers could link interested farmers to appropriate outlets where they can obtain them.

As mentioned above, women appear to require skills development and access to inputs in order to initiate homestead food production. SPRING has already launched an initiative to build skills among women for home gardening, poultry production, and fish production. Although the findings of this study show that free seeds are a major factor in women's choice of crops to plant, SPRING will not provide seeds for participants following graduation from the SPRING program. Sustainable expansion of homestead gardening thus will require other strategies for ensuring women's access to seed. Options for increasing access to seeds may include the creation of women's cooperatives that can purchase seed in bulk at lower prices, creation of a door-to-door female (or male, if possible) sales force that can sell seeds directly to the household, or (most ambitiously if SPRING were to undertake it) developing and extending techniques for saving seeds from home production.

Partners for promoting specific crops among men will include seed and other agricultural input dealers, as well as providers of poultry and fish stock. The suggestion of creating means to provide women with affordable seeds is more ambitious, and would require partnerships with government cooperatives officials and with business entrepreneurs who may show an interest in creating a door-to-door sales mechanism. The creation of home-saved seed techniques would require collaboration with agricultural research and extension agencies.

PROMOTING OR DISCOURAGING SPECIFIC PURCHASES

Rice. Efforts should be made to discourage households participating in homestead food production from selling their produce or livestock for the purpose of purchasing rice. The most straightforward promotional message would be that rice can be had from a variety of income sources, but the "vitamins" that children and women need are only available from vegetables, eggs, chicken, and fish. If levels of food insecurity are such that households suffer rice shortages this recommendation does not apply.

Cooking oil. The majority of husbands and wives say that they want to purchase cooking oil with income gained from the sale of homestead food production. Because fat consumption is very low in Bangladesh, and because appropriate fat consumption promotes adequate fat soluble vitamin nutriture, oil consumption should not be discouraged.

Eggs. The parallel study on men's marketing motivations determined that men commonly purchase inappropriate, non-nutritious snacks for children and feed them as a way to placate a fussy child. Men mentioned the purchase of eggs with income gained from the sale of homestead food production, and their use as an alternative snack to replace sweets may provide an opportunity to direct income from homestead food production directly toward improved nutrition for children.

PROMOTING WOMEN'S DECISION-MAKING FOR PURCHASES WITH HOMESTEAD FOOD PRODUCTION INCOME

Although most households claimed that women received the income gained from the sale of commodities produced through homestead food production, most households also claimed that husbands and wives jointly decided on purchases to be made with this income—likely because men make the actual purchases in the market for cultural reasons. Because income under women's control is more likely to lead to improved household nutrition, efforts may be made to assist women in making purchases with the income that they gain from homestead food production. As mentioned above, door-to-door vending, which is common in more urbanized or peri-urban areas, may be organized in rural settings as well. A system of vendors carrying vegetables, eggs, cooking oil, etc. may be able to facilitate women making their own decisions about purchases of food for the family and, potentially, purchasing more nutritious foods than the husbands would.

Developing the vendor system would require partnership with vegetable sellers, and with at least one business willing to undertake this as business venture. SPRING's contribution could be to promote this business through word-of-mouth and local media.

PROMOTING CONSENSUS

Several important areas of consensus between men and women were shown throughout the data: a) both recognized the nutritional value of crops, poultry and fish in homestead food production systems, b) both plan to consume rather than sell at least a portion of their production, and c) both recognize the elevated (relative to other household decisions) role of women in decision-making about production and consumption/sale of homestead production. Perhaps the consensus that exists for the former can be used to influence the latter, as the nutritional value of their production may be a strong motivating factor for consuming more rather than less of what they grow and raise. SPRING may want to promote discussion between husbands and wives about how they can

maximize the nutritional benefits of their own production, and about trade-offs that inevitably arise when deciding about sale versus home consumption. The appropriate decision will be different for each family and their situation, but by promoting sale/consumption of home production as a family decision women's influence in this area may result in greater consideration being given to nutritional benefits.

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ANNEX 1.

RANKING OF REASONS FOR GROWING CURRENT HOMESTEAD PRODUCTION

Table A-1. Ranking of Reasons For Growing Sweet Gourd

REASON		VERY IMPORTANT	IMPORTANT	NOT IMPORTANT
Always eat it	Male (32)	47	34	19
	Female (33)	70	21	9
Like taste or texture	Male (32)	78	19	3
	Female (33)	58	42	0
Good for health/ nutrition	Male (32)	91	9	0
	Female (33)	79	21	0
Want to sell for cash	Male (32)	22	44	34
	Female (33)	33	30	36
Grows well	Male (32)	73	22	6
	Female (33)	61	39	0
Stores well	Male (32)	87	9	3
	Female (33)	48	36	15
Our custom to grow it	Male (32)	75	25	0
	Female (33)	67	27	6
Low risk to grow	Male (32)	72	28	0
	Female (33)	24	42	33
Inexpensive to grow	Male (32)	84	16	0
	Female (33)	58	27	15
Does not require much work/ is easy to grow	Male (32)	69	22	9
	Female (33)	61	27	12
The seeds were free	Male (32)	37	28	34
	Female (33)	73	18	9
Someone taught me to grow it	Male (31)	23	19	58
	Female (32)	72	6	22

Table A-2. Ranking of Reasons For Growing Bottle Gourd

REASON		VERY IMPORTANT	IMPORTANT	NOT IMPORTANT
Always eat it	Male (44)	41	36	23
	Female (43)	63	23	14
Like taste or texture	Male (43)	77	23	0
	Female (44)	64	34	2
Good for health/ nutrition	Male (44)	77	23	0
	Female (44)	80	18	2
Want to sell for cash	Male (44)	41	34	25
	Female (44)	34	30	36
Grows well	Male (44)	70	27	2
	Female (44)	45	45	9
Stores well	Male (44)	22	16	61
	Female (44)	32	34	34
Our custom to grow it	Male (44)	73	18	9
	Female (44)	45	41	14
Low risk to grow	Male (44)	57	39	5
	Female (44)	32	39	30
Inexpensive to grow	Male (44)	68	32	0
	Female (44)	50	30	20
Does not require much work/ is easy to grow	Male (44)	57	27	16
	Female (44)	50	36	14
The seeds were free	Male (44)	34	16	50
	Female (43)	51	23	26
Someone taught me to grow it	Male (43)	16	12	72
	Female (43)	58	16	26

Table A-3. Ranking of Reasons For Growing Bottle Knol Khol

REASON		VERY IMPORTANT	IMPORTANT	NOT IMPORTANT
Always eat it	Male (24)	12	46	42
	Female (27)	63	26	11
Like taste or texture	Male (24)	54	33	12
	Female (26)	65	19	15
Good for health/ nutrition	Male (24)	50	50	0
	Female (27)	78	18	4
Want to sell for cash	Male (24)	42	29	29
	Female (27)	44	26	30
Grows well	Male (24)	62	33	4
	Female (27)	59	30	11
Stores well	Male (24)	12	21	67
	Female (27)	33	48	18
Our custom to grow it	Male (24)	12	54	33
	Female (27)	59	26	15
Low risk to grow	Male (24)	54	37	8
	Female (27)	48	30	22
Inexpensive to grow	Male (24)	75	17	8
	Female (27)	52	37	11
Does not require much work/ is easy to grow	Male (24)	62	25	12
	Female (27)	56	33	11
The seeds were free	Male (25)	52	12	36
	Female (27)	74	7	18
Someone taught me to grow it	Male (24)	50	17	33
	Female (26)	77	8	15

Table A-4. Ranking of Reasons For Growing Radish

REASON		VERY IMPORTANT	IMPORTANT	NOT IMPORTANT
Always eat it	Male (31)	26	48	26
	Female (32)	50	41	10
Like taste or texture	Male (31)	45	48	6
	Female (32)	34	50	16
Good for health/ nutrition	Male (31)	39	55	6
	Female (32)	47	41	12
Want to sell for cash	Male (31)	52	19	29
	Female (32)	53	22	25
Grows well	Male (31)	55	45	0
	Female (32)	59	34	6
Stores well	Male (31)	19	23	58
	Female (32)	25	59	16
Our custom to grow it	Male (30)	47	30	23
	Female (32)	56	37	6
Low risk to grow	Male (31)	52	42	6
	Female (32)	41	50	9
Inexpensive to grow	Male (31)	64	35	0
	Female (32)	34	47	19
Does not require much work/ is easy to grow	Male (31)	52	42	6
	Female (32)	34	44	22
The seeds were free	Male (31)	35	13	52
	Female (32)	59	25	16
Someone taught me to grow it	Male (31)	29	3	68
	Female (31)	77	3	19

Table A-5. Ranking of Reasons For Growing Red Amaranth

REASON		VERY IMPORTANT	IMPORTANT	NOT IMPORTANT
Always eat it	Male (34)	50	44	6
	Female (36)	64	25	11
Like taste or texture	Male (34)	73	26	0
	Female (36)	58	33	8
Good for health/ nutrition	Male (34)	94	6	0
	Female (36)	72	28	0
Want to sell for cash	Male (34)	21	44	35
	Female (36)	44	28	28
Grows well	Male (34)	62	38	0
	Female (36)	42	50	8
Stores well	Male (34)	26	9	65
	Female (36)	39	43	20
Our custom to grow it	Male (34)	71	16	15
	Female (36)	67	33	0
Low risk to grow	Male (34)	79	18	3
	Female (36)	53	33	14
Inexpensive to grow	Male (34)	79	21	0
	Female (36)	50	42	8
Does not require much work/ is easy to grow	Male (34)	76	15	89
	Female (36)	47	42	11
The seeds were free	Male (34)	38	19	50
	Female (36)	61	22	17
Someone taught me to grow it	Male (34)	26	12	62
	Female (35)	69	20	11

Table A-6. Ranking of Reasons For Growing Amaranth

REASON		VERY IMPORTANT	IMPORTANT	NOT IMPORTANT
Always eat it	Male (24)	33	62	4
	Female (28)	57	32	11
Like taste or texture	Male (24)	71	29	0
	Female (28)	50	39	11
Good for health/ nutrition	Male (24)	67	33	0
	Female (28)	50	46	4
Want to sell for cash	Male (23)	26	35	39
	Female (28)	50	21	59
Grows well	Male (24)	87	12	0
	Female (28)	61	32	7
Stores well	Male (24)	29	25	46
	Female (28)	46	29	25
Our custom to grow it	Male (24)	79	12	8
	Female (28)	61	39	0
Low risk to grow	Male (24)	87	8	4
	Female (28)	61	32	7
Inexpensive to grow	Male (24)	87	12	0
	Female (28)	54	43	4
Does not require much work/ is easy to grow	Male (24)	79	17	4
	Female (28)	61	29	11
The seeds were free	Male (24)	46	17	37
	Female (28)	75	14	11
Someone taught me to grow it	Male (24)	25	8	67
	Female (27)	70	15	15

Table A-7. Ranking of Reasons For Growing Yardlong Beans

REASON		VERY IMPORTANT	IMPORTANT	NOT IMPORTANT
Always eat it	Male (30)	23	70	7
	Female (35)	60	26	14
Like taste or texture	Male (30)	53	47	0
	Female (35)	49	49	3
Good for health/ nutrition	Male (29)	65	31	3
	Female (35)	74	23	3
Want to sell for cash	Male (30)	50	27	23
	Female (35)	37	29	34
Grows well	Male (29)	76	17	7
	Female (35)	40	51	9
Stores well	Male (30)	23	27	50
	Female (35)	51	37	11
Our custom to grow it	Male (30)	63	27	10
	Female (35)	57	29	14
Low risk to grow	Male (30)	63	33	3
	Female (35)	49	34	17
Inexpensive to grow	Male (30)	80	17	3
	Female (35)	66	31	3
Does not require much work/ is easy to grow	Male (30)	77	13	10
	Female (35)	63	29	6
The seeds were free	Male (30)	43	20	37
	Female (35)	71	20	9
Someone taught me to grow it	Male (30)	27	10	63
	Female (34)	80	6	15

Table A-8. Ranking of Reasons For Growing Eggplant

REASON		VERY IMPORTANT	IMPORTANT	NOT IMPORTANT
Always eat it	Male (25)	28	64	8
	Female (27)	44	44	11
Like taste or texture	Male (25)	68	32	0
	Female (27)	44	41	15
Good for health/ nutrition	Male (25)	40	56	4
	Female (27)	41	44	15
Want to sell for cash	Male (25)	44	28	28
	Female (27)	56	15	30
Grows well	Male (24)	79	21	0
	Female (27)	56	41	4
Stores well	Male (25)	8	32	60
	Female (27)	30	30	41
Our custom to grow it	Male (25)	92	8	0
	Female (27)	56	33	11
Low risk to grow	Male (25)	48	40	12
	Female (27)	18	18	63
Inexpensive to grow	Male (24)	62	29	8
	Female (27)	22	11	67
Does not require much work/ is easy to grow	Male (25)	72	24	4
	Female (27)	15	22	63
The seeds were free	Male (25)	16	24	60
	Female (27)	56	15	30
Someone taught me to grow it	Male (24)	4	8	87
	Female (26)	58	15	27

Table A-9. Ranking of Reasons For Growing Tomatoes

REASON		VERY IMPORTANT	IMPORTANT	NOT IMPORTANT
Always eat it	Male (25)	28	64	8
	Female (28)	54	32	14
Like taste or texture	Male (25)	60	40	0
	Female (28)	61	32	7
Good for health/ nutrition	Male (25)	84	16	0
	Female (28)	75	21	4
Want to sell for cash	Male (25)	32	44	24
	Female (28)	54	14	32
Grows well	Male (25)	88	12	0
	Female (28)	57	29	14
Stores well	Male (25)	16	12	72
	Female (28)	25	29	46
Our custom to grow it	Male (25)	84	12	4
	Female (28)	76	16	8
Low risk to grow	Male (25)	76	16	8
	Female (28)	18	11	71
Inexpensive to grow	Male (25)	76	20	4
	Female (28)	14	21	64
Does not require much work/ is easy to grow	Male (25)	76	20	4
	Female (28)	21	11	68
The seeds were free	Male (25)	24	16	60
	Female (28)	46	11	43
Someone taught me to grow it	Male (25)	12	8	80
	Female (27)	59	8	33

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