In Mozambique there has been substantial interest over the past decade in soybean production, largely to support growth in the poultry sector. Global production statistics indicate significant expansion and it is likely that this trend will continue into the future. In Mozambique, soybean-based efforts have successfully been undertaken to expand soybean production. However, in a recent report Walker and Canguara (2016) note: ‘The extent to which they (soybeans) are a ‘smallholder’s’ crop bears watching.’ (p.3) Research conducted by the USAID Feed the Future Soybean Innovation Laboratory (SIL) project seeks to understand the impacts of soybean expansion in Mozambique on smallholder farmers and their households.

Research in Action. The USAID Soybean Innovation Laboratory (SIL) project covers multiple research sites in Central and North Mozambique. The sites, located in the five districts of Sussundenga, Angonia, Gurué, Lichinga and Malema, comprise the Mozambique Learning Laboratories where multiple research, extension/outreach and training activities take place. Examples of activities include distribution of Soy Success Kits, extension activities related to showing both men and women farmers how to grow and market soybean, and nutrition training to boost protein consumption from soybean. Participating villages were carefully selected by the Mozambique Institute for Agricultural Research (IIAM) in collaboration with the SIL team. Diversity in agro-ecological conditions and access to markets were taken into account.

A baseline survey called the WEAI+ Mozambique Baseline Survey 2014-15 provides data on soybean seed access, soybean adoption uptake, inputs used in soybean production, receipt of income from soybean, and social and economic characteristics of households and individuals within households, across the sites. The Women’s Empowerment in Agriculture Index (WEAI) framework developed by the International Food Policy Research Institute (IFPRI) and other researchers was used as the basic framework for the research. Since the Feed the Future initiative targets improving the lives of smallholder women and children, the survey included questions to understand women farmers’ empowerment - ie, their ability of make choices. Additionally, supplemental questions were added to the WEAI to create what we refer to as the WEAI+. Supplemental questions relate to cultivation of crops, especially soya and other legumes. It is well known that legumes contribute to human health and soil health, twin goals for African development.

Over 800 individuals answered the WEAI+ Mozambique Baseline Survey. A random sample was used and whenever possible, the survey was administered separately to a male decision-maker and a female decision-maker within the household.
**Access to Soybean Seed and Current Practices in the Field**

**Experience with soybean.** About half of farmers report that they have grown soybean, even if it was several years ago. This was true for both men (47%) and women (46%) farmers. The majority of men (84%) and women (77%) felt confident that they would not have to be shown how to grow soybean before trying to grow the crop themselves. However, many farmers, both men and women, said they would have to see others grow soybean successfully before they would try it. Men reported being more hesitant to grow soybean if they had not already seen it successfully grown.

Farmers in the Northwest villages (Tete Province) were the most familiar with soybean. Among survey respondents, 65% of smallholder farmers in the Northwest sites (Tete Province) answered that they themselves had tried growing soybean. This compares to 29% in the Central region (Manica Province) and 45% in the Northeast (Zambezia, Nampula/Niassa Provinces).

In all three regions -- 49% in the Northwest, 35% in the Central, and 44% in the Northeast -- a good number of farmers reported that they would need to see others succeed before they would try growing soya. The differences in soybean uptake by smallholders is backed up by graphics indicating household labor use in soybean production across the calendar year (WEAI+ Mozambique Baseline Survey Report, 2016). The percentages of women engaged in soybean production -- soybean field preparation, harvesting, marketing/selling soybean, and working on a non-relatives farm to plan/harvest soybean -- are shown (in box, at left) by region. Large regional differences can be seen. In the Northwest, almost half of women farmers report being engaged in soybeans. In the Northeast, this is somewhat lower, and in the Central region, few women smallholders report growing soybean. Men are found to have similar trends at SIL sites.

Regardless of region, there is strong interest in trying out packets of free improved soybean seed -- 89% in the Central region, 91% in the Northeast, and 91% in the Northwest. Percentages are lower when respondents were asked if they were ‘very interested’ in purchasing improved soybean lines: 58% in the Central region, 48% in Northeast, and 39% in Northwest.
Lack of money, lack of information. Many farmers do not know where to buy soybean seed that grows well in their region. When asked “What is the one factor most likely to prevent you from purchasing new improved soya seed”, over half (55%) of men and even more women (62%) reported lack of money. Not knowing where to buy seed that grows well locally is also a problem; 66% of men and 70% of women reported not knowing. In comparison, when asked about common bean seed, 39% of men and 43% of women, said they didn’t have this knowledge of where to buy common bean seed that grows well.

More generally, when survey respondents were asked if they themselves had ever given any kind of improved seed (soya, common bean, etc.) by a relative in their village, 39% of respondents said yes. In total, 22% received improved seed from a relative in another village and 17% from an agricultural extension agent. Women were more likely than men to receive (free) improved seed from relatives within the village; men were more likely to receive from relatives outside the village than women. NGOs are active in distributing free seed.

When asked if they themselves had ever purchased any kind of improved seed (soya, common bean, etc.) from a relative in their village, 39% of all of the respondents said yes. Additionally, 14% said they purchased improved seed from a relative in another village, 13% said they purchased improved seed from a friend in their village, and 22% they purchased improved seed from a local market.

Inputs directed to soybean production. When asked if inoculum, an important low-cost input to enhance yield, was used on soybeans at planting time, 85% of the 207 men and 92% of the 288 women who responded to the question answered no. In Mozambique, the availability of effective inoculum is low. If they did report using inoculum, the majority (75% men and 76% women) obtained it from an agricultural extension agent. Almost all (89%) of men respondents reported that they did not use phosphorus fertilizer on their soybeans at any time before harvest. Among women, 94% responded that they did not use. None of the respondents reported using pesticides on soybeans. Clearly, input utilization on soybean is low.

Planting practices. Soybeans planting is by hand in rural Mozambique. When asked about how far apart each hill of soybeans was planted, a wide variety of answers were given. This may indicate a lack of understanding of the question. This also was the case when asked how far apart each row of soybeans was planted. When asked how many soybean seeds per hill they planted, 94 men and 117 women responded with the following: 61% of men and 52% of women said 3 seeds per hill, 22% of men and 27% of women said 4 seeds per hill, and 11% of men and 11% of women said 5 seeds per hill.

When asked how many soya seeds were planted per foot if they planted them in rows, 99 men and 93 women responded as follows: 33% of men and 32% of women said 3 seeds per foot, 24% of men and 27% of women said 2 seeds per foot, 19% of men and 14% of women responded 4 seeds per foot. Survey results show a wide variety of practices in soybean production. The responses suggest that additional training in soybean production practices could benefit smallholder farmers.

Soybean for Income, Soybean for Nutrition

Soybeans can provide needed income and can have important nutritional benefits when prepared correctly. On the income side, women and men participating in the WEAI+ survey were asked if their household received income from soybean production, to gauge the
extent and when farm households across the selected villages receive income from soybean sales.

Both men and women smallholder farmers answered, providing an assessment of the percentage of households in each region that receive at least some income from soybean sales. Answers from women smallholders are included in the box (right).

The receipt of income from soybeans shows important regional differences. In follow-up focus groups held in Angonia and Gurue in 2017, soybeans were listed a crop commonly produced for income. However, in bad years, soybeans were described as being among those crops most negatively affected. This underscores the need for soybean seed lines well adapted to local growing conditions across Mozambique.

Soybean shows promise in Mozambique, and is found to impact smallholder farmers, both men and women. SIL research shows important regional differences in diffusion of the new crop among smallholder farmers and interest in and access pathways to quality seed.

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Further reading


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