

Connecting people, agriculture and the environment through appropriate technologies

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# Introducing Mozambican Honey at Bee Summit 2023

In November 2023, the Bee Summit was held at the Tsukuba International Congress Center in Ibaraki Prefecture. The event brought together researchers, beekeepers, and businesses in apiculture, providing a platform for information exchange and collaboration. It was one of the first large-scale, in-person gatherings of its kind since the COVID-19 pandemic.

A highlight of this year's summit was the introduction of honey from Mozambique. Led by a former Japan Overseas Cooperation Volunteer who had promoted beekeeping in Mozambique, the project aimed to assess the honey's potential in the Japanese market. I supported the initiative, drawing on my own volunteer experience in beekeeping development in Mozambique.

Beekeeping promotion in Inhambane Province, Mozambique, began in 2012 through the JICA volunteer program. Although traditional honey harvesting had been practiced for generations and the region is rich in nectar sources, yields remained low. Volunteers introduced modern techniques—including improved hives—to help farmers increase productivity and improve their livelihoods.

Over the years, many volunteers contributed to this effort. In some cases, their work resulted in higher yields and new market access. One notable success involved connecting honey producers with an off-season coconut oil factory to bottle and distribute the honey—a major breakthrough for farmers who previously lacked formal sales channels.

Despite these achievements, domestic demand for highquality honey in Mozambique remains limited, and securing fair prices is still difficult. To address this, the team turned to the Japanese market, using the Bee Summit to showcase the product and gather feedback from industry professionals.

Two varieties of Mozambican multi-floral honey were featured. Though both were made from diverse local blossoms, they differed in flavor and appearance depending on their region of origin. One, produced through a volunteer-facilitated company, had a dark color and rich, brown sugar-like taste. The other, made by JICAtrained farmers, had a reddish-amber hue and a savory, miso-like note.

These distinctive characteristics drew attention from Japanese visitors, and the honey's Mozambican origin sparked additional interest. Many attendees described the taste as "unusual but intriguing," with some suggesting it would suit savory dishes, such as Chinese cuisine, more than traditional uses like yogurt or tea.

Overthesummit'sthreedays, all 90 bottles(about 120g each,totaling10kilograms)soldout. Feedback fromconsumersandindustryprofessionalswas

overwhelmingly



Miso-flavored honey (left) and honey with a brown sugar-like taste (right)

positive, offering valuable insight into the honey's potential in the Japanese market.

Looking ahead, sustained success will require more than early enthusiasm. Stable production, consistent quality, reliable filtration, and suitable pricing strategies will be key to long-term viability.

While challenges remain, we are committed to supporting ongoing efforts to bring Mozambican honey produced through the dedication of local farmers and JICA volunteers—to broader markets in Japan and beyond.

(February 2024, Ioki)

# Effects on the Development and Practice of Recommended Technologies

The Northern Uganda Farmers' Livelihood Improvement Project (NUFLIP), in which AAI was involved from 2015 to 2021, focused on two core pillars: Market-Oriented Agriculture (MOA) and Quality of Life (QOL) Improvement. This series highlights how the social approach, Improvement of Quality of Life, affected the adoption and dissemination of MOA technologies.

# Impact on the Development of Appropriate Technologies

In the process of developing appropriate technologies, vegetable production techniques were first tested at experimental plots and then verified in farmers' fields. As this was mainly a technical process, the social approach had only limited direct influence. However, when creating training materials, the QOL component, especially its emphasis on considering socially vulnerable people, contributed to the design. By using many photos and illustrations, the materials became easier for illiterate farmers to understand. This improved both the quality and accessibility of the training.

#### Impact on the Practice of Recommended Technologies

The impact of the social approach was more significant at the stage when farmers began practicing the recommended technologies. Training sessions on "Consideration of Gender and Socially Vulnerable people," which addressed gender roles and the inclusion of community members such as the elderly, persons with disabilities, and widows or widowers, and "Action Plan Making," which was developed with these considerations in mind, were especially effective.

Most of the farmers targeted by NUFLIP were smallscale subsistence growers with experience mainly in food crop production using extensive methods. They were unfamiliar with the intensive management required for market-oriented vegetable production. Practices such as daily monitoring of nurseries and fields, mulching, and staking were entirely new. It was necessary to change their mindset before they could begin learning these new techniques.

To support this, the project provided demonstration fields where group members could practice vegetable production and gain experience in intensive management. However, the results varied depending on group characteristics. In more individualistic groups, members often prioritized personal convenience over co-working in the demonstration field. This led to lower performance and lower rates of technical adoption. On the other hand, cooperative groups worked together on the demonstration fields, achieved better results, and allowed individual members to adopt the techniques more successfully. In the first case, changes in mindset depended mainly on personal motivation, while in the second, group interaction helped influence many individuals.

Including socially vulnerable people in a profit-oriented activity like vegetable production also gave the work a deeper meaning. This helped strengthen group unity and increased motivation to learn and apply new techniques. Recognizing this, the project placed more emphasis on teamwork and encouraged groups to spend more time developing thoughtful action plans.

At the household level, the social approach had a positive effect as well. In the target area, gender roles were traditionally rigid. However, the intensive management required for vegetable production needed shared responsibility. Households that participated in gender training began sharing both farm and domestic tasks. This cooperation allowed families to continue vegetable farming together even after the training ended.

NUFLIP's training program consisted of 15 sessions covering 32 topics. "Consideration of Gender and Socially Vulnerable People" and "Action Plan Making" were introduced in Session 2, while technical sessions began in Session 6. Addressing social aspects early helped shift

traditional attitudes and encouraged group cooperation. This laid a strong foundation for farmers to benefit fully from the technical training and to apply the recommended technologies effectively.



A scene from training on "Consideration of Gender and Socially Vulnerable People"

# Oil Crops

Oil crops are indispensable to humankind, and in Sudan too, fats and oils are important in the daily diet, as they are used as cooking oil for fools (boiled broad beans) and as a dressing for vegetable salads with unsweetened peanut butter. A large amount of cooking oil is also used for fish, 'tamiya' (chickpea croquettes), and fried wheat flour snacks. Typical oil crops in Sudan include soybeans, sunflowers, groundnuts, sesame, and cottonseeds, which are mainly grown in the rain-fed belts of Gadaref and Sennar states, and the process of extracting oil from the seeds is carried out in oil mills in various places. On the other hand, olives, which are commonly used as cooking oil in Middle Eastern countries along the Mediterranean coast, are not grown in Sudan. The long high temperatures of summer and the lack of sufficient low temperatures and their duration in winter are considered to be the limiting factors for cultivation.

The author has been working on the introduction and dissemination of oil crops to support farmers in improving their incomes in the flood irrigated agricultural areas of Kassala State (hereafter, KS) and the state irrigation scheme of River Nile State (hereafter, RNS).

When the introduction of oil crops in KS began 13 years ago, the first goal was for farmers to sell their harvested agricultural products, and contract cultivation through vendors was planned to bring them to private oil mills. However, the main farmers in the flood irrigated areas of KS were actually pastoralists. For pastoralists, therefore, the primary concern was sheep and goat production, and they did not like to cultivate crops in a complicated way, so at the farmers' meetings, cottonseed and sunflower oil crops, which can be grown with relatively extensive management, were selected. Their traditional experience of growing sorghum for food and feed was originally limited to this crop, but they were encouraged to try growing a cash crop as an extension of that, and the oilseed crops were chosen. Supporting the introduction of new crops to pastoralists who were not accustomed to growing crops was a series of unexpected difficulties, but the seasonal irrigation that relies on flooded rivers in the flood irrigation area and natural fertilization made for favorable soil conditions, and they were able to produce a satisfactory harvest.

Based on the experience in KS, the irrigation scheme in RNS also started to deal with highly liquid oil crops. The high temperature conditions in RNS have been mentioned many times in AAINews, but in general, field work is restricted and it is called the "death season" for crop production locally. The only summer crop in RNS is sorghum for feed. We considered the potential of three oil sunflower, groundnut, and crops, sesame, and recommended them as a source of income for farmers in the summer. Sunflower was popular with farmers because of the ease of weed control in cultivation management, followed by groundnut, but ultimately sesame was adopted

by many farmers due to its soil conditions and profitability. The difference from the activities in RNS is that we did not limit it to simple contract sales of harvested agricultural products. Based on the



**Harvesting Sesame** 

experience of the irrigation scheme in RNS, the basic strategy was to have farmers carry out the oil extraction process after harvesting according to the level of farmers in RNS, and to sell the oil in the local market through added value. This proved successful, and small-scale oil extraction plants in RNS operated by farmers functioned as regional processing bases and sales destinations (markets). The motivation of surrounding farmers to produce oil crops has increased, and the area under cultivation has been steadily increasing. Oil crops have been "useful" from the beginning, but the synergistic effect of cultivation techniques under stable irrigation conditions

and oil extraction processing techniques is further increasing the usefulness of oil crops in RNS for local farmers and consumers.



Installing small-scale oil extraction machine

### The Small Farm, Sakura (2)

Continuing from the previous issue, this article introduces "The Small Farm, Sakura" which practices pesticide-free and chemical-free agriculture in Sakura City, Chiba Prefecture. As reported in the previous issue, we visited the farm on August 25, 2023, to experience harvesting rice.

Rice paddy harvested by combine harvesters is transferred to a dryer in the barn, where it is dried overnight to a moisture content of 15%. The paddy is then immediately hulled to make brown rice, which is packed in 30 kg bags for low-temperature storage. The Brown rice produced is subjected to an agricultural inspection. The inspection classifies the brown rice as 1st, 2nd, or 3rd grade according to appearance, which affects the price of rice. There is concern that pesticide-free cultivation will result in an increase in rice spots caused by stink bugs, which will lower the grade of the rice, but the brown rice from "the small farms" usually passes the first grade without problems. There are two reasons for this. First, the timing of rice cultivation is synchronized with that of surrounding rice fields, so that the heading dates of panicles are uniform and damage on the grains is not concentrated in a single field. The second reason is that even when rice is damaged, the brown rice is sorted using a 1.9 mm sieve, 0.1 mm larger than normal, to sift out damaged or immature brown rice grain that is slightly smaller size than the normal size of brown rice grain.

The brown rice that has been sifted out is sorted again with a regular 1.8 mm sieve and sold as "Value packed rice". The high percentage of unripe green rice in the value packed rice makes it softer and more tender when it is cooked and it is recommended to the customers who purchase brown rice. Cold-stored brown rice is sold as brown rice or milled and vacuum-packed in small packages, depending on the order.

The farm's rice production usually ranges from 3 to 3.5 tons in terms of brown rice. While yields are high in the well-developed paddy fields on the plains, yields are low in the rice fields in the valleys, which are called "yatsuda", despite the time and effort required to cultivate and manage them. Mr. Ogawa, the owner of the farm, believes that the current production volume is just right, although improving the productivity of the "yatsuda" is an issue. The amount of effort spent on cultivation is inversely

proportional to the amount of effort spent on sales promotion. If he spends more time on production, production will increase, but rice will remain unsold, and if he spends more time on sales, he will not be able to grow enough rice and production will decrease. In the past, he had expanded his paddy rice cultivation area by being commissioned to manage a neighbor's paddy field, but he became so busy managing the cultivation and sales that he gave up vegetable cultivation and continued to eat vegetables from the supermarket, which he did not find tasty and did not enjoy his life. Therefore, from the following year, he refused to accept consignment cultivation. Since then, he has settled down to his current production level.

The sales channel for rice has become more stable, with direct sales to individual customers spreading by word of mouth, as well as the recent acquisition of a major customer. Vegetable sales are not large; at one time the farm sold vegetables wholesale to retailers, but now they are mainly sold at an unmanned direct sales stand set up in the fields. In addition, there are opportunities to participate in events to display and sell rice, vegetables, processed products, etc., but the volume of sales is not large. Mr. Ogawa feels that events are rather valuable as a place to meet people than a market channel.

He has been working on his farm based on the hypothesis that "the symbiosis between small creatures and crops will bring healthy, delicious, and vigorous harvests". He says that while he feels a



"Yatsuda" in the small farm

sense of accomplishment in his activities, he also sometimes feels the limitations of his small individual efforts. However, when he meets people who are tackling environmental and agricultural issues in his neighborhood at local events, or when he comes into contact with the FAO's "Decade of Family Farming," which has become a hot topic in recent years, or with concepts such as "agroecology" and "holistic agriculture," he is encouraged to realize that there are people around him and around the world who are working with the same awareness of the issues.