Conserving indigenous food plants in Botswana – the case of the morama bean

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***Tylosema esculentum* (Burch.) Schreiber, the morama bean** PHOTO: K. MOGOTSI

In Botswana, Kew's Project MGU – Useful Plants Project (UPP) strives to conserve indigenous plants which are important to rural communities. The project is delivered by the Botswana College of Agriculture (BCA) through seed conservation and propagation activities, planting in community gardens, and promotion and sustainable use of plants in marketable products.

The rural communities involved in Botswana since the first phase of the Project (2007-2010) are from Tsetseng and Pilikwe villages. More recently, two new communities have joined the Project: Shaikarawe and New Xadi, whilst four others have been involved in some of the activities.

Of the target list of around 170 species compiled in collaboration with local communities, 70% are food plants and among these, *Tylosema esculentum* (Burch.) Schreiber, the morama bean, has been prioritised by all communities for its high nutritional value.

The morama bean is highly prized by the people of the Kalahari Desert (Botswana, Namibia and South Africa), where it occurs naturally in grassland and open woodland. Seeds are usually roasted, resembling roasted cashews or chestnuts. The extracted oil is similar to almond oil and is suitable for domestic purposes, having a pleasant nutty flavour, although with a slightly bitter aftertaste. Morama beans are also boiled with maize meal, or ground and pounded to a powder, for making porridge or a cocoa-like beverage. In some areas small tubers and young stems are also roasted and eaten, having a pleasant flavour.

The composition and nutritional value of the seed competes with that of common cultivated leguminous plants (for example, pigeon peas and cow peas) as it is rich in oil and protein: protein content is around 36%. The bean also contains significant amounts of vitamins (A, B_3, B_6, folic acid, B_{12} and E) and minerals (iodine, iron and zinc) (Müseler & Schönfeldt, 2006). It is also reported to be a potential source of phytonutrients, which have been shown to contribute to health (Jackson et al., 2010). Some village elders proclaim to use this species to cure or prevent some illnesses such as diarrhoea, headaches, and women's reproductive system problems.

Through the UPP, different ecotypes of the morama bean have been collected, banked and tested. Communities are involved in the collection of beans for cultivation, consumption, sale and processing into numerous marketable products. The Tsetseng community, through their community trust, have become leading innovators in marketable morama products. They collect and buy dry morama beans from other communities to process and sell in various forms.

The UPP has triggered another project, the Morama Bean Project, which is led by BCA in collaboration with other organisations in Botswana and Namibia. This project aims to increase awareness of indigenous grain utilisation for nutritional security and improved livelihoods, and therefore complements the UPP.

The Tsetseng community has hosted workshops throughout Botswana on cultivation and adding value to the morama bean. Practical sessions provide experience in processing the bean into various products. Research on plant physiology, involving both undergraduate and Masters students, is being conducted to find the best conditions to introduce the morama as a potential crop. It has potential commercial value both as a cash crop and in value-added products, particularly in the semi-arid lands where it is found (Jackson et al., 2010). Together, the UPP and the Morama Bean Project are contributing to the cultivation and promotion of the morama bean and are setting the stage for a global market.

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Products developed from the morama bean PHOTO: T. ULIAN