Wild Vegetables
Tamed to Decrease Hunger

There is a new drive towards enhancing the status of indigenous crops in South Africa in the hope to improve nutrition among local households while conserving home-grown knowledge. *Lani van Vuuren* reports.

Historically, South African communities have supplemented their diets with an array of indigenous vegetables, mostly collected (by women) where they grew wildly in the veldt. Indigenous crop species such as *Amaranthus*, black jack, gallant solider, and spiderplant (*Cleome gynandra*), collectively known as morogo or imifino, are believed to be excellent sources of micronutrients (including vitamin A, folate, vitamin C, iron, and protein). Other indigenous crops include legumes such as cowpea and bambara groundnut.

In addition, these traditional African crops can be grown more easily in rural subsistence farming as compared to adopted crops, such as spinach and cabbage, since natural selection has adapted them well to local growing conditions. It is believed that these crops usually require lower inputs of water, chemical fertilizers and pesticides.

Yet, indigenous crops have received limited research attention to date. At this stage, little is known about the role of these vegetables in the overall food acquisition system of vulnerable people in different parts of the country, especially in terms of their contribution to the intake of important micronutrients.

Knowledge on the water and agronomic requirements of these crops, their different uses, their nutritional value and the bio-availability of the nutrients they contain is also scanty. The Water Research Commission (WRC) is now funding a research project to grow South African knowledge on these indigenous crops,

especially regarding their water use. The research is being conducted by the University of Pretoria, together with the Tshwane University of Technology, the Agricultural Research Council (ARC) and the Medical Research Council (MRC).

CONQUERING FOOD INSECURITY

South Africa is a net exporter of food, yet a considerable section of its population experiences food insecurity and malnutrition. This malnutrition occurs particularly in the form of 'hidden hunger' or micronutrient deficiency. "An estimated 25% of children in South Africa show stunted growth, 10% are underweight, 33% suffer from vitamin A deficiency and 21% from anaemia," reports Dr Mieke Faber of the MRC Nutritional Intervention Research Unit.

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She was speaking at a recent symposium on indigenous crops, organised as part of the WRC project. The symposium was aimed at bringing together experts in the field of nutrition and agriculture, with the specific focus on the contribution of indigenous and traditional crops to human nutrition and livelihoods.

Dr Faber said deficiencies of micronutrients such as vitamin A, iron, zinc and iodine can cause learning disabilities, mental retardation, poor health, low work capacity, blindness, a reduce immune response and even premature death.

One of the main causes of these deficiencies is the lack of variety in the diet – maize and bread remains the most commonly consumed foods in South Africa. Consumption of food and vegetables remains low, mostly due to a lack of access (in particular, the lack of availability in rural areas and relative high retail cost). Another is that people are simply not growing their own food anymore. Less than 10% of households in the country engage in crop production.

According to Dr Faber, advancing the cultivation of traditional vegetables could be an important step towards a workable strategy to assist rural households to cope with food insecurity. "Traditional vegetables require minimum production input, grow quickly, and can be harvested within a short period of time. Research undertaken in villages in the Valley of a Thousand Hills, in KwaZulu-Natal showed that traditional vegetables were often available at times when others, such as spinach, were not."

WANING POPULARITY

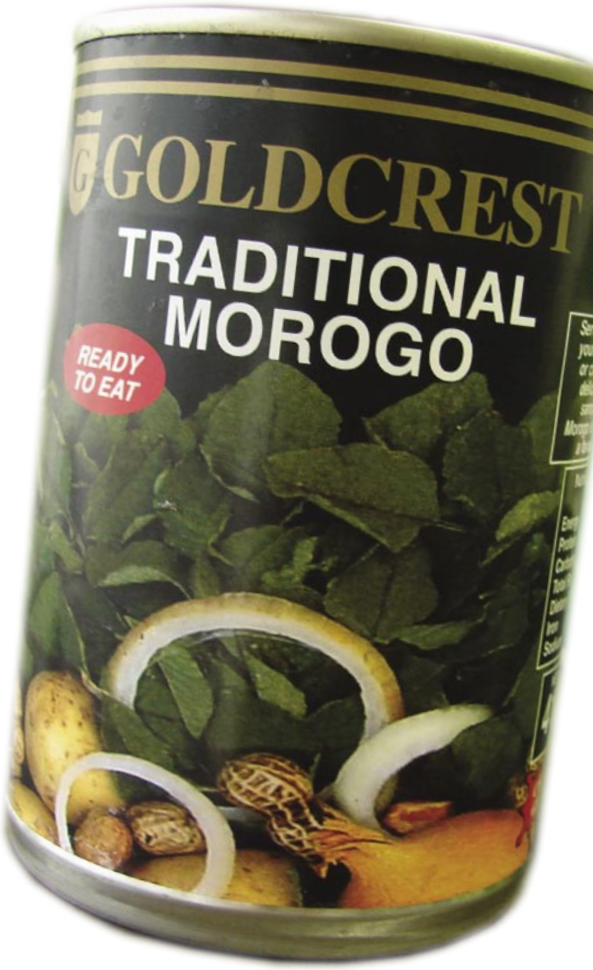
So why aren't these vegetables being grown in large quantities already? Preliminary results of a survey being undertaken by the Department of Agriculture (DoA) countrywide indicated that indigenous crops are seen by many as 'poor people's food', and there is a perception that one may be looked down upon for eating them. "Many people are not aware of the nutritional value of these plants, and many regard them as inferior," reports Thabo Ramashala, senior manager: plant production at the department.

Adoption of Western culture seems to have much to do with this negative perception, leading to young people being less willing to eat traditional vegetables and learn about it, and thus a declining knowledge about these plants. At present, there are no formal interventions to seek to encourage people to use traditional vegetables as sources of essential micronutrients, with health educators rather encouraging the consumption of 'exotic' vegetables, such as orange-fleshed sweet potato to enhance the intake of micronutrients such as vitamin A.

Marketing of 'exotic' vegetables has decreased the popularity of indigenous crops.

RAISING THE STATUS OF INDIGENOUS CROPS

The DoA is currently finalising its policy on indigenous crops. With government initiatives encouraging farmers to grow more of these vegetables all indications are that this nutritional heritage could be reinstated in many parts of South Africa.



Cowpeas, a popular crop in many parts of Africa, originated from KwaZulu-Natal.

FURTHER READING

- *Home Gardens to Address Vitamin A Deficiency in South Africa: A Food-based Approach.* Available through ARC, contact Estia Joubert, Tel: (012) 841-9611; Fax: (012) 808-1127; E-mail: ejoubert@arc.agric.za
- *Screening of Cowpea, Bambara Groundnut and Amaranthus Germplasm for Drought Tolerance and Testing of the Selected Plant Material in Participation with Targeted Communities*, WRC Report No 944/1/04. Contact Publications at Tel: (012) 330-0340; E-mail: orders@wrc.org.za

Apart from the WRC project, there are other initiatives to learn more about these crops. Researchers from the ARC-Roodeplaat Vegetables and Ornamental Plant Institute have studied the effect of drought stress on some indigenous crops, including amaranthus and cowpea. Breeding programmes have been initiated to develop genotypes with improved drought tolerance, improved yield and photoperiod insensitivity.

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The North West University's Microbiology Group, School of Environmental Sciences and Development has initiated a Morogo Research Programme (MRP) which has as its long-term goal the advancement of these indigenous leafy vegetables in subsistence farming and the safe storage thereof in resource-limited rural communities.

According to the MRP's Dr Retha van der Walt, the programme investigates health-related aspects as well as low-cost technologies to improve crop yield in subsistence farming. Like commercial crops, certain health risks are also associated with fungal infestation and mycotoxin contamination of traditional morogo. The programme has already

Nutrient composition per 100 g of edible portion of African leafy vegetable plant compared to cabbage

	Amaranthus	Spider plant	Cowpea	Jews mallow	Pumpkin leaves	Cabbage
Iron (mg)	8.9	6.0	3.9	6.3	15.9	0.7
Protein (g)	4.6	4.8	4.1	5.2	4.2	1.7
Moisture (%)	84	86.6	87.6	81	87.3	91.4
Calories	42	34				26
Carbohydrates (g)	8.2	5.2	6.8	10.3	5.0	6.0
Ascorbic acids/ Vitamin C (mg)	64	13				54
Calcium (mg)	410	288	221.1	548.5	382.9	47
Phosphorus (mg)	103	111	80.1	136.4	119.2	40
B-Carotene/ Vitamin A (mg)	5 716		2 249.35	3 662.99	1 694.55	100
Thiamine	0.05		0.05	0.07	0.12	0.04
Riboflavin	0.42					0.1
Folic acid (mg/100 g)	122		107	90		

Source: ARC

About one third of South Africa's children suffer from vitamin A deficiency which agricultural scientists and nutritionists believe can be alleviated by raising the status of indigenous crops.

identified 26 different botanical species as traditional morogo in its study areas located mainly in Limpopo and North West.

Research is also underway at various institutions to develop production practices for some of these crops. "Unlike conventional vegetables, there is no documented information about the stage of plant development to define harvest maturity for wild leafy vegetables," Dr Albert Modi of the University of KwaZulu-Natal Department of Crop Science at the School of Agricultural Sciences & Agribusiness points out. "It is likely that for some of these vegetables there is a preferred stage of plant development when flavour and palatability are favourable for human consumption."

While they have been around for hundreds of years, we are only now starting to understand these crops. It is hoped that these various programmes will go a long way towards safeguarding South Africa's heritage while wiping out hunger and malnutrition.

AMARANTHUS

Also known as Thepe in Tswana, Imbuya in Xhosa and Utyutu in Zulu, amaranthus is a common weed. It is a very nutritious leafy vegetable which can be harvested from wild-growing or cultivated plants. The plant is adaptable and grows easily under various weather and soil conditions. Various types occur, however, the green types are less bitter than the reddish ones. There is a belief in some parts of the country that eating the reddish-coloured leaf amaranthus would make one insane.

BAMBARA GROUNDNUT

Also known as izidlubo, jugo, njugo, dopboontjies or round beans, these legumes are widespread in Africa. Bambara groundnut is confined to Limpopo, Swaziland and KwaZulu-Natal where it is a popular crop due to its resistance to drought and the ability to produce a reasonable crop when grown in poor soils. The immature seeds are boiled and eaten as an early harvested source of food while the fully matured seeds are cooked or made into flour. Occasionally, the young whole pods are washed and boiled or used in soups.

COWPEAS

Cowpeas (also known as Dinawe in Ndebele, Imbumba in Zulu and Monawa in Pedi) originated in South Africa. It is a protein-rich crop which leaves nitrogen in the soil, and therefore has a beneficial effect on the follow-up crop. Cowpeas can be planted as an intercrop or in rotation and can tolerate drought.

PIGEON PEAS

Also known as the Cajan pea, Congo pea, red gram or duif-ertjie (Afrikaans), pigeon peas are an indigenous seed crop consumed by humans and animals. It has good potential to provide a valuable source of nutrition in areas with very hot, dry climates. It is an important protein food.

SPIDERPLANT (*CLEOME GYNANDRA*)

The leaves of the spiderplant are said to be more nutritious than most exotic leafy vegetables. Throughout Africa, the tender leaves or young shoots, and even the flowers on occasion, are eaten boiled as a potherb, tasty relish, stew or side dish. Fresh leaves are used as ingredients in other mashed foods, while dried leaves are ground and incorporated in weaning foods. Eating the vegetable is believed to reduce dizzy spells in pregnant women and easing childbirth. It is also traditionally eaten by boys after circumcision to restore blood supply as it contains high levels of iron.

Source: DoA and ARC