# INDIGENOUS CROPS – A market ripe for the picking

***Maize, wheat, rice, potatoes. The globalisation of our food systems has made us dangerously over-reliant on a handful of food sources. Growing and preserving our knowledge of traditional South African crops is an important step towards preserving food crop biodiversity while enhancing food security and reducing malnutrition. Lani van Vuuren reports on the Symposium on Water Use and Nutritional Value of Indigenous Crops hosted by the Water Research Commission (WRC) earlier this year.***

According to the Food and Agriculture Organisation of the United Nations (FAO), throughout history over 7 000 crops have been used for human consumption. Unfortunately, many of these so-called traditional, indigenous or indigenised crops have disappeared or have been neglected or abandoned in favour of westernised food.

Rising water scarcity, potential climate change and a growing population demand that we find innovative solutions to meeting our nation's growing food security needs. It has been recognised that previously neglected indigenous crops could play a role in this regard. However, this means propelling them from the peripheries of subsistence agriculture to the promise of commercial agriculture through scientific research.

In partnership with institutions such as the Department of Agriculture, Forestry and Fisheries (DAFF), the WRC has led the way in terms of enhancing knowledge about the agricultural production of indigenous crops. Several studies have been published in the last few years focusing specifically on the water use and nutritional value of indigenous crops, while the Commission also published the country's first production guide for African leafy vegetables.

As pointed out by WRC CEO Dhesigen Naidoo, many of these crops were not only shown to be extremely nutritious, but many also used less water than their conventional counterparts. "By expanding the production of indigenous crops we have the opportunity to develop completely new agricultural value chains," he told delegates at the symposium.

"South Africa has one of the greatest biodiversities in the world," added Thabo Ramashala, Director of Plant Production at DAFF. "These natural assets are often abundant in rural areas where poverty is most acute. It is in these rural areas where indigenous foods form an integral part of rural livelihoods."

According to Ramashala, the reliance of rural communities on indigenous foods to compliment diets and as a survival mechanism in times of hardship or drought had resulted in the creation of a large indigenous knowledge base in the use and processing of natural products. The challenge was now to capture and grow that knowledge in order to move the production of indigenous crops into the commercial farming domain.

"While South Africa has focused little on its indigenous crops the rest of the world have taken note of their potential. So, for instance, the kei apple is being cultivated in California while horned melons are produced commercially in New Zealand, France, Israel, and California."

DAFF has developed a National Strategy on Indigenous Food Crops to support research and technology development of these crops, while promoting their sustainable production and consumption, and improving productivity and profitability of these crops through market development.

Ramashala said that government, research institutions, training institutions and the private sector had to work together in order to develop a prosperous and sustainable indigenous food crop sector. "Through our indigenous crops we have an important opportunity to diversify our food basket and reduce our reliance on conventional staple foods. We must use the opportunities we have now to develop this sector."

The latest report on indigenous crops to be published by the WRC, *Water use and drought tolerance of selected traditional crops* (**Report No. 1771/1/13**) focused on identifying and characterising indigenous food crops with agronomic potential in South Africa. A series of trials were then undertaken on the selected crops, which included among others traditional maize, Bambara groundnut, cowpeas, amaranth, pearl millet and taro to understand the agronomy of these crops and determine whether or not they were drought tolerant.

The studies on crop water use were diverse and represented current trends in determination of yield response to water availability. These included water use efficiency and water productivity as distinct parameters indicating yield response to water availability.

While we now know much more about the agronomy of these indigenous crops thanks to this study, it also aimed to develop a crop model for indigenous crops. For the latter the FAO's AquaCrop model was tested for the first time on indigenous crops.

## Research reports from the WRC focusing on indigenous crops

- Water use and drought tolerance of selected traditional crops (**Report No. 1771/1/13**)
- Nutritional value and water use of African leafy vegetables for improved livelihoods (**Report No. TT 535/12**)
- Production guidelines for African leafy vegetables (**Report No. TT 536/12**)
- Nutritional status of South Africans: Links to agriculture and water (**Report No. TT 362/P/08**)
- Screening of cowpea, bambara groundnut and *Amaranthus* germplasm for drought tolerance and testing of the selected plant material in participatation with targeted communities (**Report No. 944/1/04**)

To order any of these reports, contact Publications at Tel: (012) 330-0340; Fax: (012) 331-2565; Email: orders@wrc.org.za or Visit: www.wrc.org.za to download a free copy.

"It is uplifting to see the growing number of researchers in the indigenous crop research field," noted Prof Albert Modi of the University of KwaZulu-Natal and project leader of the WRC study. "This growing field of research has not only brought more attention to the potential of these crops, but also allowed us to reach out to the communities who are the custodians of indigenous knowledge on the production of these crops."

The WRC's support to this subject matter has now been extended to a new research study focusing on water use of traditional and indigenous cereal and grain crops. The study is still in its early stages. ❑

Lani van Vuuren

*WRC Executive Manager, Dr Gerhard Backeberg, DAFF's Thabo Ramashala and WRC CEO Dhesigen Naidoo and at the recent indigenous crops symposium.*