

## Orphan crops need attention too

Pearl millet, cowpea, cassava, finger millet - these are but some of the less popular food sources neglected by the world and science and are often referred to as orphan crops. Two scientists in the CSIR's plant biotechnology research group, Dr Bridget Crampton and Dr Maretha O'Kennedy, are contributing to a new global wave of scientific interest in these crops. Crampton presented their research to peers recently at a conference titled 'New approaches to plant breeding of orphan crops in Africa', which was held in Bern, Switzerland.



Scientists want to see pearl millet and other 'neglected crops' share the same level of importance as maize

"Orphan crops are often referred to as neglected crops; not much scientific work has been put into the research of these crops because people have abandoned them for cash crops. More money is to be made from maize and sorghum and more than often this is a politically motivated decision," explains Crampton.

"The motivation for this particular conference was to raise awareness and to promote current research on these crops," she adds.

Crampton presented her PhD thesis, 'The salicylic signalling pathway confers tolerance to a biotrophic rust pathogen in pearl millet' to delegates at the conference. The aim of her studies was to elucidate defence response mechanisms in pearl millet and to evaluate the pearl millet defence signalling pathway involved in leaf rust - *Puccinia substriata* - tolerance. Crampton also spoke of the research of O'Kennedy, which centres on developing a transgenic (a gene or genetic material that has been transferred by any of a number of genetic engineering techniques from one organism to another) pearl millet for resistance to Downy mildew. This is a fungal disease also known as green-ear disease that causes total loss of the crop. "The response to our research was good," says Crampton "There was great interest in Maretha's work, perhaps because it involves transgenics and tissue culture-related work." The research of the two scientists is ongoing.

While many orphan crops grow abundantly in greater Africa, much research on them is being undertaken in South Africa. Cowpea and cassava are two crops under study at the University of Pretoria and the University of the Witwatersrand. Crampton also presented this work at the conference. At the CSIR, work on pearl millet stretches back several years, with the organisation becoming the first scientific research institution in the world in 2000 to transform pearl millet.

But is there a need for South Africa to commit research efforts to these crops? "The world is becoming drier and crops like maize are not as well adapted to dry climates," explains Crampton. "The message I derived from the conference is that we need to try to look at marginal land and sorghum; pearl millet can thrive on marginal land. With the population growing, more land and more food are needed and that's why we need to farm on marginal land."

While scientists are exploring all avenues, government support is also crucial. "Through concerted efforts, governments need to put more money into research on African crops," she concludes.