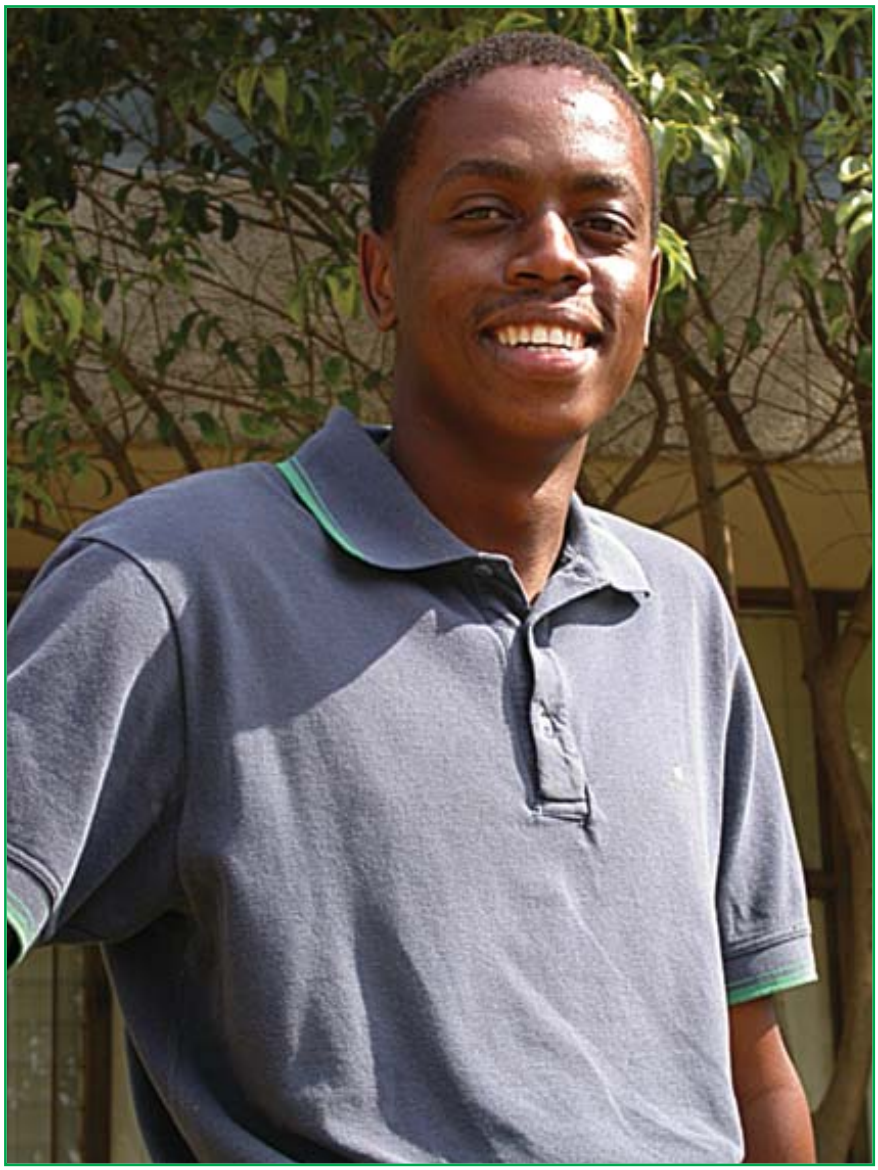
Tshepo Maeko: Rooted in Africa



Tshepo Maeko is a young man with both feet firmly planted on South African soil.

As a Master's graduate of the University of Pretoria's Department of Plant Production and Soil Science, Tshepo has the kind of talent and passion for his subject that could open international doors. But, he says, he's not going anywhere just yet.

"Global experience would be great, but as an irrigation management specialist, I think there's a lot of work to be done here first," he smiles.

Most recently, this has involved the practical research and testing of a new irrigation management device, the Wetting Front Detector (WFD). Originally, WFD was developed by Professor Richard Stirzaker at CSIRO in Australia, the commercial product is expected to be available on the local market towards the end of this year. Tshepo has played an integral role in the fieldwork conducted at the university, which has since led to the patenting of the product in South Africa.

The detector – an affordable irrigation management tool – addresses what Tshepo describes as a major

challenge facing the South African agricultural industry. "There is a huge resource gap between big commercial farmers and small-scale producers," he says. "For example, the new water laws mean farmers have to be far more knowledgeable about how they use and manage water for irrigation. But most irrigation management products and technologies in the market are complex and costly, and far beyond the reach of small-scale farmers. The Wetting Front Detector is a very simple, user-friendly and highly effective product that could cost less than a tenth of other irrigation management tools."

Tshepo explains that the detector enables farmers to monitor the depth of water penetration into the soil during and after irrigation or rainfall. The design is simple enough that anyone can use it without having to understand the science behind it.

"With this kind of information, farmers can quickly establish whether they are over- or under-watering, and can adjust the amount or regulate their irrigation accordingly. It also helps farmers to learn from previous irrigation patterns, and use this experience to make future decisions. By not over-watering farmers also prevent the leaching of nutrients in the soil."

SCIENCE AND FARMING

It's not often that students get the chance to see their research in practice, and this quietly-spoken 23-year-old agrees that it has given him valuable new insight into the role of science in agriculture.

"Many people don't really appreciate the real value of science in farming," he says. "In terms of an academic career, farming is often classed as 'dirty work', but – as any water professional or agriculturist knows – there is a lot more science behind it than you think. In South African agriculture, science seems to have a very low profile. It's time we gave it more credit."

Tshepo's fieldwork has also taught him that "science and technology" is more about people than it is about laboratories. "Good technology is useless without good communication," he says. "By working side by side with the farmers to establish their real needs, and by communicating our progress, we have been able to make a real difference in their lives. We need more effective communication between farmers, scientists and various organisations. Successful water management in South Africa depends on it."

HOME TOWN

While Tshepo's recent experiences may have "unleashed" his research capabilities, the university's experimental farm is many miles from his home town, and he is quick to credit his parents for making his journey to academic excellence possible.

Born and raised in the rural village of Ga-Modjadji, north-east of Tzaneen, Tshepo attended the local primary school before his parents sent him to Tshebela High, a boarding school near Pietersburg (now Polokwane). Having discovered a passion for science, agricultural studies and geography, he matriculated in 1996 and completed his degree at the University of the North, before enrolling for his Master's in Pretoria, in 2001.

"I have a great deal of respect for Tukkies as a scientific and agricultural research institution," he says. "What South African learners need is good mentorship, and I have been lucky enough to have it. I have been blessed with the guidance and tutorship of people like the department's Professor John Annandale, and Dr Martin Steyn, who I have worked with on a daily basis. Fellow researcher, South African-turned Aussie, Professor Richard Stirzaker, has also been the wind beneath my wings. They have all made it simple for me."

One of Tshepo's long-term goals, ("apart from making loads of money and establishing my reputation as a scientist", he laughs), is to improve general awareness of the importance of irrigation management in South Africa.

WATER USE

"Despite our erratic rainfall and strict new water regulations, there is still vastly inefficient water use in South Africa. Greater awareness of the importance of irrigation management will lead to a more productive agricultural sector, sustainable crop production and therefore food security for a very large segment of the population. It will also allow us to build up a strong scientific basis for meeting the needs of local farmers."

Tshepo backs this up with a refreshingly positive view of the future of local agriculture. "With the training and capacity building that is starting to take place, we can expect to see many more young people entering the market, who are well-equipped to give South African farming a boost," he says.

If they're anything like Tshepo, the industry has a lot to look forward to.