

Zinc link made in barley breeding

Chromosomal regions conferring zinc efficiency in barley, recently identified by three WA researchers, could have important implications for improving the zinc status of the human diet.

Behzad Sadeghzadeh, PhD student and Professor Zed Rengel, both of the School of Earth and Geographical Sciences, Faculty of Natural and Agricultural Sciences (FNAS) at the University of Western Australia (UWA), worked with Dr Chengdao Li from the Department of Agriculture and Food WA (DAFWA) on the project.

Zed said the discovery of genetic markers contributing to improved barley productivity and nutritional quality in zinc-deficient environments is promising because as an essential trace element for humans – zinc has a crucial role in more than 300 enzymes in the human body.

According to Zed, zinc is vital for physical and mental development, fertility, vision and resistance to infections, yet many of the world's soils and therefore foods are zinc-deficient.

“Zinc deficiency is a problem in many developing countries and is the fifth leading cause of diseases, especially diarrhoea and pneumonia in children.”



Iranian PhD student Behzad Sadeghzadeh, at UWA's glasshouse, discovered that some barleys grow and yield well, even in zinc-deficient soils, because they are zinc efficient and have zinc-dense seed.

Barley is zinc efficient

Behzad Sadeghzadeh, whose PhD is supported by the Government of Iran, discovered that some barleys grow and yield well, even in zinc-deficient soils, because

they are zinc efficient and have zinc-dense seed.

A doubled-haploid population of 150 barley lines derived from a cross between a zinc-inefficient Australian cultivar, 'Clipper' and a zinc-efficient Algerian wild barley, 'Sahara 3771' were screened for seed zinc content under field conditions at UWA's Shenton Park Field Research Station.

Comprehensive molecular mapping of doubled-haploid populations, using 302 markers, enabled Behzad to identify quantitative trait loci (QTLs) for zinc accumulation in barley seed.

“Two regions on chromosome 2H in barley associated with zinc concentration and content in seed could explain 45 per cent and 59 per cent of the total variation in the seed zinc concentration and content, respectively,” he said.

“Identifying molecular markers linked to genetic loci controlling seed zinc will allow more rapid and efficient screening of barley lines than traditional techniques.

“By selecting lines with zinc-dense seed, barley breeders will be able to produce cultivars that yield better in zinc-deficient soils and also contribute required amounts of zinc to the human diet,” Behzad said.

For more information contact Prof. Zed Rengel,
Ph: 08 6488 2557,
E: Zed.Rengel@uwa.edu.au



Licence No. TAG 1608

ABN 57085 828011

New Guinea Agricultural Tour 2008



Papua New Guinea is our closest neighbour and a country remembered fondly by several generations of ex-pats and any Australian with a knowledge of the historic battles fought there during World War II.

There are also some exciting agricultural opportunities, ranging from coffee to palm oil, cocoa, coconuts, timber and specialty crops. During this 12 day tour in June, we will enjoy a first hand look at these modern industries plus inspect some of the region's traditional farming methods.

We will also experience one of the most scenic countries in the world. PNG is right on our doorstep, but most Australians don't see it as a tourist destination – mainly because of the perception that it's not safe. This may be true in some places, but as long as you use your common sense in the larger centres like Port Moresby and Lae, the people in most of the country are incredibly friendly and welcoming to travellers.

PNG is an undiscovered gem. Our tour will take you in comfort and safety for an unforgettable experience.

The New Guinea Agricultural tour is scheduled for June 2008 and the estimated cost of the 12 day tour is approximately \$6500 depending on numbers and final 2008 prices from various PNG operators. This price estimate includes all flights ex-Brisbane, first class accommodation, farm visits, guides, transport and just about all meals.

There are also some great optional add-ons available with this trip including: Diving, Fishing, Trekking and Surfing.

Call Greenmount Travel on 07 4759 3555 for more information.

