



Ground Cover

Go to an area within 'For Growers'

for growers
for researchers
for consumers
bookshop
what's on?
about GRDC
harvest radio
useful sites

home
search
site map
site help
what's new
linking
privacy
feedback
copyright
disclaimer
subscribe



Issue 59, December 2005/January 2006

Durum

Research to keep ahead of danger

Brad Collis speaks to international durum researcher Dr Miloudi Nachit, who is collaborating with Australian colleague Dr Ray Hare to ensure the Australian industry is protected against diseases and insects that experience shows will eventually reach this country

They say forewarned is forearmed, and in the case of durum, this means growers being covered in advance against the arrival from overseas of potentially devastating pests or diseases.

Dr Ray Hare, at the Tamworth Agricultural Institute, and Dr Miloudi Nachit, from the International Center for Agricultural Research in the Dry Areas (ICARDA) in Syria, are collaborating to develop Australian durum varieties with resistance to some of the crop's most serious threats.



[Photo (left) by Brad Collis: "Collaborative research is vital": Dr Miloudi Nachit, durum breeder at ICARDA in Syria]

The intention is to give the industry in Australia a safety net against pests and diseases that have not yet hit Australia but which are considered inevitable.

"My role is anticipatory breeding," Dr Nachit explains. "That means making sure Australian growers have replacement disease and pest-resistant varieties when they are needed."

The research facilities at ICARDA, in a region that shares a similar climate to most of the Australian grain belt, enable breeders to work with pests and diseases that cannot be brought into Australia for research and breeding. "However, we can do all the disease pressure work here (in Syria) and alleviate the need for Australia to worry about quarantine issues," he says.

Durum threats being worked on at ICARDA include Septoria tritici blotch, durum virulent leaf rust and Hessian fly, which can destroy entire crops. Neither Hessian fly or the durum virulent leaf rust exist in Australia, but history has shown that this can no longer be taken for granted. Septoria tritici blotch is in Australia but highly virulent pathotypes on durum are not known. The Mediterranean coastal plain in Syria is considered an ideal location for Septoria screening.

Dr Nachit and Dr Hare are working to introduce resistances to these pathogens into current Australian varieties and advanced breeding lines, so that the Australian breeders will have ready access to resistant Australian-adapted breeding lines if a disease or pest incursion happens.

The GRDC-supported work at Tamworth and ICARDA is being done in conjunction with national breeding programs in Morocco and Lebanon, where durum is an important cash crop. Morocco and Lebanon are regarded as 'hot spots' for durum-attacking diseases and pests, making them ideal screening locations.

"We've been making good progress through the use of biotechnology, such as molecular markers," Dr Nachit says. "We are also mapping the durum genome, and developing rust resistance for Australian durum varieties."

Dr Nachit says durum development in the Mediterranean part of the world needs the input of

Australian research because Australia is the only country with a dry Mediterranean climate that also has a high level of agricultural research.

The collaborative project is considered mutually beneficial to both the Tamworth and ICARDA programs. Durum research and breeding development, covering a wide range of topics, is freely shared, including breeding materials, data and protocols and research findings on biotechnology, physiology, grain quality and disease resistance.

"Durum is an important cash crop in this part of the world, used for pasta, couscous, burghul (a cracked wheat) and frike (a grain harvested at dough stage and used in home cooking)."

Dr Nachit says the demand for durum is increasing around the world, especially as people's awareness of the health benefits of grains-based foods increases. "However, collaborative research is vital if we are to realise this crop's potential to create a huge market in which there will be room for all of the major producers."

Dr Nachit says the ongoing development of superior durum varieties across all durum-producing nations will help establish durum's competitiveness against substitute grains, and its reliability for quality and supply: "The last thing durum growers want is for the price of high-quality grain to become prohibitive and the supply to become irregular. Millers and pasta makers would turn away from durum and look for substitutes."

GRDC research code DAN00064

For more information: Dr Miloudi Nachit, M.Nachit@cgiar.org; www.icarda.cgiar.org

[◀ article index](#) [◀ issue index](#)

[▶ top](#)