

Borlaug legacy keeps wheat farmers ahead

By NEIL LYON

THE world's leading wheat scientists gathered in Mexico recently for a special Borlaug Summit marking the 100th birthday anniversary of renowned international wheat breeder Norman Borlaug.

Borlaug, who died in 2009, spent much of his working life with the international wheat and maize research organisation, CIMMYT, in Mexico and was credited with developing wheat varieties that saved Mexico, India and Pakistan from famine in the mid-1900s.

He was awarded the Nobel Peace Prize in 1970 and became popularly known as the Father of the Green Revolution.

The week-long program of conference sessions and field visits was held at Obregon in the Yaqui Valley in Mexico's north-west where Borlaug conducted much of his work.

The Yaqui Valley is one of Mexico's key breadbasket regions built around a 220,000-hectare, wheat-based irrigation area fringed by desert.

It is the site of a large field station, the Norman E. Borlaug Experimental Station, where CIMMYT scientists develop new varieties and farming systems, primarily for the developing world.

Australia has had long-standing links with CIMMYT through extensive levels of funding and the involvement of a large contingent of Australian agricultural scientists over many decades.

The majority of wheat varieties grown in Australia have been derived from the CIMMYT program.

CIMMYT director general Thomas Lumpkin said Australia contributed to the work at CIMMYT "far and beyond its global per capita size".

"Often some of our best scientists come from Australia. Australians tend to be pioneers. They are robust and can handle physically uncomfortable situations. They are open-minded and have a can-do attitude," he said.

The CIMMYT Board of Trustees chair is South Australian farmer Andrew Barr who said the wheat germplasm that had flowed out of CIMMYT had



□ CIMMYT Board of Trustees chairman and South Australian farmer Andrew Barr in a wheat field at the Norman E. Borlaug Experimental Station, Obregon, Mexico, during the Borlaug Summit.

brought immeasurable benefits to Australian farming.

"Of all the places around the world where genetic resources have contributed to Australian wheat breeding, CIMMYT has by far the biggest influence," he said.

Dr Barr said the organisation was continuing to expand on the work conducted in the 1970s and 1980s by Borlaug who developed a "shuttle breeding" program utilising high altitude and low country sites that gave researchers in Mexico the opportunity to grow two generations of crop in a year, vastly speeding up research.

"In more recent times CIMMYT has expanded

that shuttle breeding program that was previously just in Mexico to include places in other parts of the world that contribute different things now to the genetic base in CIMMYT," he said.

"The change in the past 10 years has been the incorporation of Njoro in Kenya near where the new stem rust race, Ug99, occurred. It is a very virulent rust and knocked over 79 per cent of the world's wheat varieties.

"Australia hasn't had stem rust Ug99 yet, and we don't have some of the stripe rust races that are in Kenya either.

"But Australian breeders have had a chance to see how their material would fare against a formidable opponent. It is pre-emptive action."

Dr Barr said CIMMYT offered Australian researchers the unique opportunity to access 600 trial sites throughout the world.

"So, if we want to breed for resistance for a particular disease we can identify the most reliable sites in the world," he said.

"We have done that for stem rust, stripe rust, leaf rust, fusarium, septoria, heat stress, drought stress, waterlogging, acid soils – all the things that affect the way a wheat plant performs.

"We don't have to make compromises. We can use our funding to pick the best sites that we know year-in, year-out the particular disease or event happens."

Dr Barr said the biggest challenge facing Australian wheat producers and breeders was "always rust", followed closely by the need to keep increasing yield.

He said there was debate among scientists at the

summit over whether wheat yields had plateaued and whether there was any realistic chance of further yield increases, but figures showed the global rate of yield gain was being maintained at 1pc.

□ Neil Lyon travelled to Mexico with the assistance of the Crawford Fund and the Department of Foreign Affairs and Trade's Council on Australia Latin America Relations.

WHAT IS CIMMYT?

- Spanish acronym for The International Maize and Wheat Improvement Centre based in Mexico;
- One of 16 internationally-funded research centres around the world supported by the Consultative Group on International Agricultural Research;
- Holds the largest collection of wheat varieties in the world;
- The majority of Australian wheat varieties originated from CIMMYT;
- At last week's Borlaug Summit, CIMMYT was presented with the World Food Prize for its work in improving the quality, quantity and availability of food around the world.

WHO WAS NORMAN BORLAUG?

- Born in Iowa in 1914;
- Developed high-yielding, disease-resistant wheat varieties and farming practices;
- Introduced dwarf wheats that helped Mexico, India and Pakistan become self-sufficient in wheat production;
- Credited with saving as many as 1 billion people from starvation;
- Became known as the Father of the Green Revolution.
- Won Nobel Peace Prize in 1970;
- Died in 2009 aged 95.

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