INTERNATIONAL TEAM EFFORT TO FIGHT CHICKPEA DISEASE

WA scientists have pitched into a multi-million dollar international effort to lift chickpea productivity here and in Bangladesh and, in turn, help feed 30 million protein deficient Bangladeshis and balance the developing nation’s trade deficit.

Prominent WA scientist, Kadambot Siddique, Director, Centre for Legumes in Mediterranean Agriculture (CLIMA) at the University of WA, will lead CLIMA, the WA Department of Agriculture, the Indian-based International Crops Research Institute in the Semi Arid Tropics (ICRISAT) and collaborating organisations throughout the eastern states, Bangladesh and Nepal, in a bid to increase Bangladesh’s pulse production capacity.

“More than 45 million Bangladeshis live below the poverty line, which means animal protein is not an option and so alternative protein sources must be found,” Professor Siddique explained.

“Pulse crops such as chickpea are high in protein (21 per cent) and carbohydrates (60 per cent) and so are a valuable dietary staple for less affluent people.

“However, Bangladesh is becoming dependent on imported pulses for low cost protein because the nutritious chickpea crop, which once grew readily on local farms, has been wiped out by the fungal disease, Botrytis Grey Mould (BGM).”

In the past 10 years, BGM has slashed the area sown to chickpea in Bangladesh from 100,000 hectares to 16,000 ha, forcing the import of more than 55,000 tonnes of chickpeas (costing $US31 million).

“Meanwhile, the more impoverished citizens paid the health price of improper nutrition,” Professor Siddique said.

BGM can also cause serious sporadic damage to chickpea in parts of Australia, where it can cut yields by 10 to 90 per cent and diminish seed quality.

Field screening for BGM in Australia would probably be hindered by the presence of Ascochyta blight, a disease which does not occur in Bangladesh.
So, with the support of the Australian Centre for International Agricultural Research (ACIAR), CLIMA is driving an ambitious international collaborative effort to fight the disease in Australia and Bangladesh.

With an average value of $A350 per tonne, the success of this project could provide a $A10 million per annum boost for the Australian chickpea industry.

The project will assemble and screen a wide range of chickpea germplasm from Australia, Bangladesh, ICRISAT and Nepal against BGM, under field conditions at sites in Bangladesh and Nepal where there is reliable natural disease pressure.

It will also DNA fingerprint genetic variation within populations of BGM and hence improve the screening of chickpea germplasm.

Bangladeshi scientists will be trained in research and development techniques, foliar disease resistance screening and breeding so they can conduct field trials in BGM hotspots and breed for enhanced genetic resistance.

The most suitable integrated disease management packages to control BGM will be identified and taught to Bangladeshi farmers, via the Bangladesh Agricultural Research Institute and the Bangladesh Department of Agricultural Extension, with local consultants also working closely with farmers.

“Armed with the best varieties and practices and with trained scientists working locally to improve technology, this project should help Bangladeshi growers increase chickpea production to better meet the nutritional needs of their communities.

“And, of course, Australian growers will benefit from improved varieties and integrated BGM management packages to control BGM here at home,” Professor Siddique said.

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BACKGROUND

Supplementary background information for your convenience:

- Australia was the first nation from the developed world (and fourth overall) to recognise Bangladesh following its independence in 1971 and 2002 marks the 30th anniversary of diplomatic relations between the two countries.

- Australia is Bangladesh’s 13th biggest import source and 23rd biggest export destination.

- The collaborating organisations (besides CLIMA) are:
  - The Bangladesh Agricultural Research Institute (BARI), Bangladesh.
  - International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India.
  - Co-opted local Consultants, Bangladesh.
  - WA Department of Agriculture.
  - Victorian Institute for Dryland Agriculture.
  - Molecular Plant Genetics and Germplasm Development Group, University of Melbourne.
  - NSW Agriculture.