



PROLIFIC PEA BREEDER DR. DJ BING HONOURED WITH 10TH ANNUAL ALBERTA PULSE INDUSTRY INNOVATOR AWARD



Dr. Dengjin Bing accepted the award in person during APG's director-advisor meeting in Lethbridge in March.

celebrate Bing and his achievements at an award luncheon during APG's Joint Director-Advisor meetings in Lethbridge in March. APG Chair Shane Strydhorst presented Bing with the trophy.

"Each year, APG recognizes a person or organization whose progressive thinking and tireless efforts helped build Alberta's pulse industry into the flourishing sector that it is today," Strydhorst explained. "Farmers recognize Dr. Bing's research contributions that have demonstrated success and advanced the growth of pulses in their businesses. The strength, consistency and performance of the field pea varieties released from Dr. Bing's program have regularly provided, and continue to provide, excellent returns to the farm gate."

*"I became very interested in crop breeding from the very beginning of my undergraduate education and chose plant breeding as the major in both graduate studies."
— Dr. DJ Bing*

The prolific pea breeder who won the 10th annual Alberta Pulse Industry Innovator Award said that he was motivated to develop more than 30 pulse varieties in part by research investments from Alberta Pulse Growers (APG).

"Alberta pulse producers really understand the importance of pulse crops," said Dr. Dengjin (DJ) Bing, who continues to produce strong field pea varieties with traits desired by farmers. "APG has been steadily investing in multiple areas of pulse research, including breeding, and has been exploring the possibility

of growing/diversifying other pulse crops including lupins and mung beans. This is very encouraging and motivating for pulse researchers. As a field pea breeder, I am sensitive to the interests of producers. High yield, excellent standability and disease resistance have been the key traits demanded by field pea producers. However, the producers and pulse industry are paying more attention to a number of other characteristics including content of protein, fibre and starch, as well as the visual quality and seed integrity."

More than 50 pulse farmers and distinguished guests were on hand to

Strydhorst noted that the field pea varieties released from Bing's program based at the Agriculture and Agri-Food Canada (AAFC) Lacombe Research and Development Centre provide excellent returns to his farm and the farms of many other producers in the room for the presentation.

"Dr. Bing's traditional scientific breeding techniques and strong attention to traits addressing increased protein levels, standability and disease tolerance have elevated adoption of his varieties to more than 60% of all field peas in Alberta," Strydhorst continued. "Acceptance of Dr. Bing's varieties is increasing in other parts of Western Canada as well. Another nod to success is the identification and selected demand for his AAFC high protein pea varieties to be used in fractionation for the value-added sector."

Bing said that receiving the award was a great honour and a team effort.

"I want to thank the Alberta Pulse Growers," he said. "It gives me profound pleasure and responsibility because you have supported the program by investing in the program. I always feel that I have the responsibility to produce the products and return your investment. I appreciate this working relationship and your unwavering support for the program. This award is not only recognition of my work, it's recognition for my team and all the people who have worked together and been involved."

Bing's colleagues celebrated his accomplishments in a video that was shown during the ceremony and is available on APG's Youtube channel.

"I would like to congratulate DJ on a very excellent career in pea breeding and thank him for his contributions to the Alberta pulse industry," said Mark Olson, former Alberta Agriculture Unit Head for Pulse Crops and previous Innovator Award

winner. "It's great to see the varieties he's released. He's an excellent breeder here in Alberta."

Bing earned his Ph.D. in Plant Breeding from the University of Alberta in 1996. He previously earned his M.Sc. in Plant Breeding from the University of Saskatchewan and B.Sc. in Agronomy from Gansu Agriculture University in China.

He has served as a Research Scientist (pulse breeder) at AAFC Lacombe Research Centre since 2003, following four years in a similar role with AAFC Morden Research Station, MB. Prior to his work with AAFC, Bing was a canola breeder with Mycogen Seeds Canada in Saskatoon, SK, as well as a lecturer and plant breeder at Gansu Agriculture University.

"I became very interested in crop breeding from the very beginning of my undergraduate education and chose plant breeding as the major in both graduate studies," Bing recalled.

"I stayed in this field in my professional careers in teaching and research. In 1999, I was hired by AAFC as a pulse breeder, which was a good match of my interest with job demand by the employer."

Bing noted that when he started pulse breeding, field pea varieties in Canada were dominated by the varieties developed by the Crop Development Centre, University of Saskatchewan and European breeding programs. Today, AAFC field pea varieties are widely grown in all field pea production regions in Canada. In addition, several AAFC varieties are the best performers in the U.S. Due to the superior characteristics of the AAFC field pea varieties, he said, several international breeding programs have requested many AAFC field pea varieties as germplasm for their breeding programs.

As early as the year 2000, Bing started to breed field pea varieties with improved protein content. He noted that the goal was to differentiate Canadian field peas from those produced in other countries, especially from the competing countries in the global exporting market, which would strengthen Canada's position as the leading field pea producer and exporter in the world. Another goal was to respond to consumers' demands for more plant-based protein.

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Dr. Bing examines peas grown for his research.



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“Although it has been very difficult to improve the protein content without sacrificing the yield, we have demonstrated the negative relationship between the protein content and yield throughout years of study,” he explained. “Based on this knowledge, I have been advocating a balanced approach for the protein content and yield in field pea variety development and suggesting to measure protein production (aka protein yield) instead of protein content.”

The AAFC varieties developed in recent years have higher protein yield without significant reduction in yield, Bing said, pointing out that his team developed breeding lines with protein content of 28-30%. These breeding lines have been used in the research projects of the University of Saskatchewan, University of Alberta, and National Research Council Canada. Several scientific papers have been published from these studies.

AAFC’s field pea breeding program has developed 37 field pea varieties since the year 2003, which are all resistant to powdery mildew, thanks to Bing’s efforts. Today, powdery mildew resistance is a required characteristic for all new field pea varieties in Canada.

In addition to yellow and green peas, Canada also produces marrowfat and maple peas. However, Bing said that the marrowfat and maple pea varieties grown in Canada prior to the year 2000 had poor standability, late maturity, low yield, and were susceptible to powdery mildew. The AAFC field pea breeding program aimed to improve these weaknesses, and developed three marrowfat pea varieties and two maple pea varieties since 2014. In addition, the program also developed the first red pea variety in Canada. Bing noted that these marrowfat, maple and red pea varieties are semi-leafless and resistant to powdery mildew, and

have higher yield, earlier maturity and much better standability than the early varieties.

Bing recalled that the AAFC field pea breeding program developed the yellow pea variety AAC Peace River in 2012. This variety has the earliest maturity among all yellow pea varieties grown in Canada. It was used as the check variety in the pea coop test and licensed to a company in northern B.C., he said, adding that it played a significant role in the crop rotation in that region, especially in the cropping system with winter cereals.

Bing said he would like to see field pea variety development breeding programs focus on developing varieties that:

1. have better resistance to root rot and *Mycosphaerella* blight despite the factor that this is a very challenging task;
2. have higher and more stable yield particularly under adverse conditions, such as drought or heat;
3. have better adaptation to conservation tillage or no tillage;
4. meet specific requirements, e.g. certain levels of protein type and content, resistance starch and slow digestive fibre when there are demands from consumers, processors, or industries;
5. can be planted in the fall in southern production regions (winter pea); and
6. can be better incorporated into intercropping systems.

Bing anticipates a bright future for Alberta’s pulse industry.

“I am confident that Alberta will continuously play a significant, or even more important, role in the Canadian pulse industry, particularly in field pea production, processing and export,” he said. “Alberta has favourable climatic conditions in western Canada for field pea production. Alberta pulse producers really understand the importance of pulse crops in their economy.

They know how to incorporate pulse crops in their cropping systems and they have been avidly investing in pulse research. The combined effect of these factors should strengthen Alberta’s position in the Canadian pulse industry.”

Alberta Pulse Growers celebrated its 25th year as a commission by launching the Alberta Pulse Industry Innovator Award and presenting the organization’s founding president, Lud Prudek, with the first annual award in 2015. Since that time, the award has been presented to acclaimed pulse researcher Ken Lopetinsky, life-long pulse supporter Blair Roth, Dr. Hans-Henning Muendel who developed numerous bean cultivars, Kirsty Ross (Piquette) who was instrumental in building the field pea industry in northeastern Alberta, Mark Olson who explored new pulse varieties and production methods in many roles including as Alberta Agriculture’s Unit Head for Pulse Crops, APG’s first vice-president Craig Shaw, posthumously to seed grower Cliff Cyre, and in 2023 former Pulse Canada CEO Gordon Bacon received the honour.

The nomination form for the 2025 Alberta Pulse Industry Innovator Award is currently available on the APG website.

