THE DEVELOPMENT OF THE FIELD PEA INDUSTRY

By Mark Olson, P. Ag.

About the writer
Mark Olson was raised on a mixed grain and livestock farm west of Edmonton. Currently he is a private consultant that has worked in the agriculture industry for almost 40 years. *His favourite pulse dish is Dakota Chili.*

Field pea, first cultivated to any large extent in Europe some 75 years ago, looked very different from the plants found growing in farmers' fields in Alberta today. Field peas at that time were tall and fully leaved with an excess of vegetative bulk which caused the crop kind to lodge badly.

The first change in the design of the plant towards the modern field pea dates back to the 1950s, when some plant breeders near Helsinki, Finland had noticed the very first spontaneous mutant plant where all the plant's leaflets had been converted into tendrils. This mutation became what's known as the afila genotype. The afila gene was registered for the first time in history in the Soviet Union in 1956. However, an excessively tall, semi-leafless field pea plant was a still problem in growers' fields and did not have any yield advantage. For this reason, the afila gene wasn't incorporated into any field pea breeding programs at that time.
Almost 10 years later, Dr. Julian Jaranowski in Poland used gamma radiation to induce the afila mutation in pea.
At approximately the same time, Dr. Brian Snoad at John Innes Institute in the United Kingdom acquired the mutant first discovered in Finland and started a very extensive pea project in UK in the late 1960s. This is when the race between breeders in Poland and UK to design a better field pea began. In the early 1970s, Dr. Mitch Kielpinski (Jaranowski's assistant) selected the short stem afila plant with regular stipules. This shortened internode made the plant three times shorter. These types were later tested as the SS (semi-leafless, short statured lines) in Alberta and changed the field pea industry forever.

In the late 1980s, Dr. S.T. Ali -Khan, Agriculture and Agri-Food Canada, was breeding conventional field pea types in Morden, Manitoba. Varieties at the time were Century, Trapper, Triumph, Tara, Tipu and Titan. The running joke for those farmers who attempted to grow the crop was, even if the crop hadn't lodged in the weeks before harvest, it would lay down flat on the ground when it heard the combine coming. Harvest was difficult, to say the least.

Alberta farmers who dared try the crop faced many challenges in addition to plant architecture; from having to use a peat inoculant dealing with a sticking agent (milk, corn syrup, honey, sugar, non-toxic wall paper paste) to the lack of herbicides that had good crop tolerance and weed control, as well as, markets to sell into. The initial target market for field pea was as a protein source for feeding hogs, but at the time, many hog producers in Alberta didn't believe field pea could be included in hog rations safely. Much of the field pea grown initially was loaded on ships bound for Rotterdam, Netherlands until local research feeding studies proved the crop safe for use and hog growers became experienced in feeding field pea.

In the late 1980s Harry Arnot (Columbia Seeds) at Grassy Lake, formerly a UK resident, inquired with provincial Alberta Agriculture staff Bob Park (Supervisor of Special Crops, Lacombe) and Ken Lopetinsky (Forage and Special Crops Specialist, Barrhead) about growing the SS lines that were in the UK. Testing of the SS lines (1 through 26) provided through Booker Seeds began. From that testing, the very first SS line known as SS 5 or Radley became registered in spring 1990. Radley was a medium, small green pea with bleaching resistance still unmatched to this day.

Others involved in the fledging field pea industry at the time were John Hladky (District Agriculturist, Morinville), Blair Roth (Special Crops Specialist, Lethbridge) and grower Joe St. Denis (Legal). These individuals were instrumental in what was known as the Pulse Growers Association of Alberta, of which there were Southern and Northern Branches.

As a matter of interest, and maybe as a surprise to our neighbours and friends in Saskatchewan, field pea production with modern SS plant types first began in Alberta not Saskatchewan as many might think. In those early days during the testing of the SS lines, Dr. Al Slinkard and his assistant breeder, Albert Vandenberg, came to Alberta to view the field pea lines that Alberta had imported.

With potential to grow field pea acres across the prairies, soon a number of European genetics companies came into Canada; the most prevalent one being Cebeco Seeds (Jan Meerberg) from the Netherlands (forefather to Limagrain). Cebeco genetics dominated in Alberta for many years, making up 85% of varieties early on. Varieties of note were Montana (early, high yielding, large seeded, yellow), Carrera (high yielding, large seeded, yellow) and Cooper (high yielding, large seeded, green).

Other European breeding companies included Svalof Weibull (forefather to Lantmannen) from Sweden. Bonis & Company Ltd. and the Alberta Wheat Pool were selling the varieties Carneval, Highlight and Majoret from Svalof Weibull's breeding program. Carneval's classic newsprint advertisement of this medium size, yellow field pea was an elephant photoshopped to be standing on top of the crop, indicating superior standability. Not long after, Danisco Seeds from Denmark, registered a large, yellow variety called Eiffel, obviously named after the famous Paris landmark. The University of Saskatchewan Crop Development Centre's field pea varieties started to appear more commonly in the late 1990s with varieties such as CDC Handel and CDC Mozart (both registered in 1999).

Alberta's first and only field pea variety was a medium size, yellow pea named Cutlass (registered in 2002). Dr. Stan Blade, working for Alberta Agriculture, released this high yielding medium size yellow pea which was the result of joint collaboration between Alberta Agriculture and University of Saskatchewan. At the Prairie Recommending Committee for Pulse and Special Crops (PRPSC) meetings that year when the yield data was being presented from the various locations across the prairies, there were audible gasps from the committee members as the yield was so much higher than check varieties of the time. Cutlass remained the Western Field Pea Cooperative check for many years to come.

Blade soon after stepped away from plant breeding. Alberta Agriculture and Agriculture Agri-Food Canada (AAFC) entered into an agreement that brought breeder Dr. Dengjin Bing from Morden, Manitoba to Lacombe. Alberta's contribution was a brand new Wintersteiger plot combine along with pathology staff support (Dr. Kan Fa Chang, Robyne Davidson). Bing's early test numbers started with MP (Morden Pea) which presumably meant the initial cross had been made in Morden, Manitoba.

Bing was a conventionally trained breeder, being very methodical and somewhat discouraged by peers that took what he felt were short cuts in plant breeding. His program had a wide range in diversity (early, late, short, tall, high protein, forage types) which is what one looks for in a breeding program. Yellow seeded varieties from Bing's breeding program that Alberta growers might be familiar with include Lacombe, Barrhead, Profit, Chrome, Peace and Carver.