IT MAY BE TIME TO TAKE ANOTHER LOOK AT FABA BEANS AS AN OPTION FOR YOUR ALBERTA FARM

By Dr. Jenn Walker, APG Research Manager

Faba beans are becoming more and more common across the Alberta landscape. While it is new to many, this crop is a bit of a phoenix. It first made its appearance in the 1990s as a feed source for the hog industry that never really experienced much uptake as a profitable option.

BUT IT'S BACK

And this time it seems that the growth of acres will be sustainable as new food and feed marketing options over the last number of years resulted in a steady climb in acres.

WHY FABA?

Faba beans are resistant to many of the root diseases to which peas and lentils are vulnerable. Fabas are also the highest fixer of nitrogen of the currently grown pulse crops in Alberta, have high seed protein, stand all year long, and they are a breeze to harvest remaining standing even through multiple snow falls.

The question is: Why NOT faba?

While faba beans have a lot going for them, there are things to be aware of before switching all your lentil and pea acres to beans. Firstly, fabas require a longer season than most other crops that are currently grown, so you will not be harvesting in August like you would a field of yellow or green peas - it will more likely be the end of October. Secondly, if there is even a small chance that the herbicide residue from the crop before (or even two crops before) still exists, faba beans will find it. Thirdly, chocolate spot is a foliar disease that plagues faba beans. Control measures exist but when does it pay to spray and can we correctly identify this disease? Finally, while feed markets have accepted faba beans as a standard part of rations, Canadian grown faba beans are not the "go-to" beans for human food markets. These challenges have provided the focus for research projects funded by Alberta Pulse Growers (APG).

CHALLENGE #1

Faba beans require 115+ days to reach maturity and, unfortunately, we can't plant every crop first.

Faba beans do have a few things going for them in the "which crop goes first in the ground" race. Because the seeds are large, they must absorb a lot of moisture before they can germinate and emerge. Planting early will ensure that the plants can maximize the season and, because they can handle frost and cool soils better than other crops, risk of needing to re-seed is low.

However, the unpredictability of the fall frost can reduce both yield and quality of the seed and farmers who choose to plant faba beans assume harvest risk without early desiccation.

Most of the varieties that are currently available for farmers are considered medium/late season crops. Breeding efforts have been successful in reducing the indeterminant nature of this species. Continued work on seed characteristics for the human food markets for both tannin and non-tannin varieties and shortening the number of days to maturity remain

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the focus of breeders. Mark Olson, Pulse Crops Unit Head with Alberta Agriculture and Forestry (AF), has long been an advocate of faba beans and leads a project that focuses on screening germplasm from companies and programs around the globe. The advantage of testing these materials and assisting companies through the final development and commercialization of the lines is that once registered in Canada, the lines are available to Canadian breeders for crossing. Through bringing multiple sources of germplasm together for research in one project, pulse growers can evaluate these lines in our environment using our protocols and accepted data collection methods.

As demand for plant protein grows, ensuring that farmers have varieties that are suited to their landscape, and crop options that are profitable remains a high priority for research investment.

CHALLENGE #2

Faba beans can find herbicide residue like nobody's business, so how do I make sure I don't accidentally kill or stunt my crop?

Robyne Bowness Davidson, AF Pulse Crops Research Scientist based in Lacombe, is conducting a study examining the impacts of various wheat in-crop herbicides as well as pre-seed/pre-emergent herbicides on a faba bean crop. She is finding that the impacts are not always the same across the province, particularly when it comes to pre-seeding/emergence weed control in the same year that faba is planted. Moisture is a key factor in the severity of the effects. If your seeding plans include faba beans following wheat, visual damage may be minimal but yield will likely be reduced if herbicides containing pyrasulfotole + bromoxynil, fluroxypyr + clopyralid + MCPA, or flucarbazone are used.

When tribenuron-methyl + glyphosate or tribenuron-methyl + 2,4-D are used as pre-seed weed control prior to planting faba beans significant impacts are consistently noted. Bowness Davidson notes that plant establishment, growth and yield are all negatively impacted with the severity increasing with low moisture conditions.

CHALLENGE #3

I have brown spots all over my faba beans. Do I need to worry? What should I do?

Faba beans are susceptible to Botrytis sp. which is a foliar disease known as chocolate spot that causes brown lesions on leaves and stems and in severe cases on the pods. Investigation into the development of this disease in Alberta and Saskatchewan environments is the focus of a project led by Dr. Syama Chatterton, a Research Scientist with Agriculture and Agri-Food Canada in Lethbridge. This knowledge will help to build recommendations for control and a greater understanding of when chocolate spot will occur and at what level of infestation farmers need to apply a fungicide for control. Coupled with this project is another, led by Bowness Davidson, which looks at the efficacy of different fungicides for control of the disease. Determining at what disease level yield is impacted will provide farmers with an important tool for maximizing the profitability of this crop.

CHALLENGE #4

Last, but certainly not least, is there a way to increase the demand for faba beans in food products?

While very accepted as a quality source of feed with seemingly sustainable demand, increasing the utilization of faba beans (often referred to as fava in the foodie world), will help to ensure that this crop remains a palatable choice in crop rotations. APG is engaged in several projects looking at fractionating faba beans into starch and protein components, the impact of sprouting on flavour and function of faba beans in various food applications, nutritional profile, and milling properties under various techniques. Gaining insight into these will fill a gap that will support the decision-making process of food manufacturers hoping to incorporate sustainable sources of protein into their products and drive demand.

This second rise of the faba bean in Alberta, is being thoughtfully supported by research addressing the challenges to both successfully growing the crop and working at driving demand as an ingredient. Through collaborations and conversations across the value chain, we are confident that faba beans will take flight as a profitable pulse crop option for Alberta farmers.

For more info on these research projects and others supported by APG across the province, watch for the special research edition of *Pulse Crop News* coming out in the Spring of 2020.

For more information about growing faba beans, check the APG website or connect with staff @APGresearch @APGextension because we are committed to ensuring your success.