



Did you have oats for breakfast this morning?

Maybe you ate an oat variety crafted by Jennifer Mitchell Fetch

Jennifer Mitchell Fetch knows about crossing different lines of oats: the matching of the male pollen from the anther of a given plant with the ovary hidden in the pistil of a female plant is part of her regular work. Being an AAFC researcher since 1998, she has been involved in the creation of eight varieties that are commercialized in Canada, matching together strong features of various oat lines to form varieties that are successful under Canadian weather conditions.

Jennifer Mitchell Fetch studied plant breeding at North Dakota State University where she completed her PhD in 1989; her thesis was about combining high producing oil flax with high yielding straw flax to get a hybrid integrating the best features of both flax lines.

“You take pollen from anthers of the donor plant and you dust this pollen on the stigma of the receiving plant and you hope to get a seed. Then you grow those seeds out in the field and look at them to see if they are segregating for traits you want to combine. You could identify the various traits with DNA analysis, but there are not enough markers available as yet in oat. For the time being, it is better to seed and see which plants carry the combination of the best traits. We try to select the plants that show the traits we can observe in the field and harvest the seed from those plants. When we have more seeds, we can test the lines under more environments and the line that performs the best in any environment, or in several different environments, is the one that we will continue to develop, hopefully to create a variety.”

A few years ago, organic producers expressed concern that every cultivar registered for commercial production in Canada had been developed under conventional management, and they believed that it would make a difference if the lines were developed and selected under organic management systems. Jennifer Mitchell Fetch is now attempting to address this question. The first oat breeding experiments done under organic production systems started in 2003, growing a few organic populations on land at the University of Manitoba, and it slowly increased in size, with organic oat nurseries and yield trials being now grown on the long-term rotation project in Glenlea.

“We haven’t answered the question yet; there are indications that the lines that perform well in many different environments might do better under organic conditions, but I can’t give any final conclusions, only anecdotal reporting. I have 3 lines that were developed and tested under organic conditions, which are now being tested in a conventionally managed variety registration trial in western Canada. Looking at the data, one of the lines is about the 6th highest yielder

across Western Canada; but this is after just one year of testing. It will have to be looked at again next year. If the line still does as well in the registration trial, there is a possibility for that line to be supported for registration in February 2013.”

She is excited about organic production becoming an important part of the Canadian production system. The stewardship of the land and a better environment are matters that she supports. She comments that some lines seem to do better under organic conditions; she has been trying for 3 to 4 years to compare organic and conventional sites but the problem is that these sites are separated geographically, being influenced by their local environmental conditions. Without a side by side comparison, it is hard to get clear results, yet it remains difficult or impossible to find neighboring organic and conventional sites.

But, Jennifer has a curious mind, and she likes looking for answers to questions about what she observes or questions coming from people. The current trend is to cooperate closely with industry and to succeed in getting industry funding to help support research. It offers the chance to have the results of her work commercialized and it is good for the entire value chain. But, as breeding takes at least ten years, she hopes that middle and long term projects will continue to be supported despite the short-term scope often pushed ahead.

Jennifer Mitchell Fetch does not think that genetic engineering will replace plant breeding. Specified traits may be developed through biotechnology, but a breeder would be needed to insert the new traits into a suitable line or cultivar and to make sure that these traits are expressed and selected as the lines are advanced toward becoming a cultivar.

Besides crafting cultivars, Jennifer enjoys crafting arts such as crocheting, scrapbooking, creating jewellery and being involved with her church community. But, her career remains a very important part of her life. She is the wife of Tom Fetch, another AAFC scientist and stem rust pathologist. And, she certainly has a lot of work to do since discovering as a young adult her passion for agronomy and for helping to feed the world at a summer job at the research station of Swift Current, Saskatchewan, where she was raised.

Production of oats in Canada remains important. Oat is a cooler season crop and grows well in Canada. The cost of shipping oats to the mills located in Iowa and Minnesota is affordable. And, as oat production in US has dropped because of the Farm Bill's encouragement of the production of corn and soybeans, plus other factors, the market remains good for Canadian oats to be used in breakfast porridge, food bars, cookies, meatballs and diverse processed food, and as feed for horses and other livestock. A company in Manitoba is also marketing an oat rice-like product to be used as a side-dish.

Jennifer Mitchell Fetch would like, when she retires, to be able to look back at her career and see that the cultivars she was involved in developing being grown widely, used in many of food products and that consumers' health was improved.

So, if anyone wants to talk about oats, she is more than willing to talk with them.