

## Research Priorities for Forage Production in Alberta, Part 2

*In Part 1 of this discussion paper, ACIDF reviewed priorities for research for forage as it pertains to beef and dairy production. Here, we've gathered the views of producers and others on hay for export, alfalfa seed production, grass and legume seed production and adding forages to annual crop rotations.*



### Research must reflect market conditions

The global market for high-quality hay is growing and evolving. Just ask Barry Schmitt, President of forage export company Barr-Ag Ltd. in Olds.

Over the past 20 years, Schmitt has pioneered market development for Alberta-grown hay to Japan, South Korea and Taiwan. More recently, these markets have softened and Schmitt has been doing more in China. In 2013, China imported 850,000 metric tonnes of alfalfa and Barr-Ag shipped the first three containers of Canadian-grown timothy there. Meanwhile, markets in the Middle East are accepting mixed bales of alfalfa and straw.

If you want to know where forage research dollars should be allocated, Schmitt's advice is to reflect the needs of the global market.

"Harvest in Canada is tougher than in the irrigated areas of the U.S.," he says. "We need to create a risk-free harvest. It is about getting the crop off and dry, then efficiently processing it and getting it to the export customer. Drying long-fiber forages is a very important issue."

For Schmitt, finding customers for his product isn't the hardest part of the job. What's harder is securing a sufficient supply of top-quality hay to meet these customers' needs. Barr-Ag farms 20,000 acres of alfalfa, timothy, other forage crops and grain, and provides shipping for other growers too.

He believes that more growers could seek opportunity in hay production if they understood how forages could fit inside a grain and oilseed rotation.

"Not many of our growers are pure hay growers," says Schmitt. "You can have a five- or six-year rotation including forages, depending on the performance of the stand."

Despite strong performance over the past 20 years, Schmitt believes there's a gap between Canadian forage processors and those in the U.S. "There's still work to do on the efficiency side," he notes.

To Barry Schmitt, research on harvest management, processing efficiency and enhancing forage supply will help this growing industry be globally competitive.

### Key issues for alfalfa seed production

Alfalfa seed production has long been an important farm sector in southeastern Alberta, particularly in the area around Brooks. Using leafcutter bees as pollinators, producers have largely avoided the worst of the bee health issues experienced by honeybee keepers over the past decade.

How can research help Alberta's alfalfa seed producers continue to perform? ACIDF spoke with two seasoned producers and asked their views on the subject. Here are their top priorities for alfalfa seed production research.

**Understanding and managing dark seed.** In 2014, a significant proportion of alfalfa seed samples featured a darker coloration than normal. "The germination can still be good," explains Scandia-area producer Brian Slenders, "but visually it just isn't appealing for buyers. We have very little data right now on what causes it and what we can do about it."

Brooks-area producer Karl Slomp agrees that, while the issue may be largely cosmetic, producers want to meet their buyers' desire for a consistent, clean-looking seed.

"If someone is paying \$5 or \$6 per pound for this seed, they want to see a nice bright product," says Slomp.

**Variability in seed yield.** Slenders explains that when the alfalfa plant makes seed, it produces between two and four pods that curl around each blossom. In general, the better-pollinated the field has been, the more curls there will be and the higher production is likely to be. Slenders notes that he can harvest 1,000 lb. of seed per acre one year, and just 200 lb. per acre the next. He'd like to better understand the relationship between pollination, pod activity and yield.

"I wonder if it's just part of the physiology of the plant," he says. "It's a perennial, so it doesn't *have* to produce seed every year. I'd like to know whether there are management techniques that can help, because I've been hunting that dog for years."

**Stopping or regulating plant growth.** Each fall, alfalfa seed growers face a choice. Do they wait for frost to slow down growth before harvesting seed, or take matters into their own hands? "This time of year, you could have a big frost expected," says Slomp, speaking in early October. "Would it help to spray Reglone before the frost, or would it be better after the frost?"

At times, abundant rain can produce a green, rank alfalfa crop. Slenders asks whether selective use of some type of plant growth regulator could limit vegetation and make the crop easier to manage.

**Optimum irrigation timing.** Like many other crops grown under irrigation, alfalfa does not have a universally accepted irrigation schedule that producers can use. "It can be an issue in the summer if your yield seems to be a bit off," says Slomp. "Some say you should irrigate when blooms are filling in. Other people say leave it alone at that point."

Producers rely on experience and sometimes intuition to give the crop what it needs. A more data-driven approach would be welcome.

Slomp and Slenders believe that research focused on these questions would have a positive long-term impact for their industry.

"We just wrapped up a very good harvest of alfalfa seed," says Slomp. "It has been a good industry and a healthy industry to be part of."

### **In the Peace: forage and legume seed production**

Alberta's agriculture industry has many success stories – producers and processors leading the way in serving dynamic global markets. One of the best stories of all may be the grass and legume seed production sector in the Peace Country.

According to Calvin Yoder, Forage Seed Specialist with ARD in Spirit River, the market has two main segments: turfgrass (chiefly fescue) for lawns, golf courses and playgrounds, and forage grasses such as brome, timothy and wheatgrass for pasture and reclamation.

In Yoder's view, producers continue to wrestle with a few long-standing production issues. He'd applaud research and development that would help sort these out.

"It's been largely the same issues for 15 or 20 years," says Yoder. "The first is basic weed control. We need to do some tolerance work on newer herbicides to see if they're safe for grass and legume seed, and also to test their efficacy."

Certain weeds, in certain seed crops, are posing problems for growers. The usual suspects include white cockle in timothy and clover and toadflax and night-flowering catchfly in forage grasses.

Yoder believes that plant growth regulators could help producers increase their yields by keeping crops standing during pollination, which leads to better seed set. Research could confirm this idea and help establish best practices for growers.

It may seem straightforward in other crops, but Yoder believes Peace Country grass and legume seed growers lack basic agronomy work around fertility. He also advocates more work on taking grasses in and out of crop rotations. "We also haven't done a lot with fungicides in grass and legume seed crops," says Yoder.

While a potential research agenda might be plain enough, it's less clear who'd be carrying out the work. As Yoder notes, "we don't have people to do this stuff."

### Local relevance is key

Reuben Loewen has been farming in the Peace region since moving to the area from Saskatchewan in the late-1960s.

Settling first around Grande Prairie, then moving in 2002 to north of Fort St. John, B.C., he'll be the first to tell you: this isn't the easiest place to make a buck farming.

"You have 3 million acres of arable land in the Alberta and B.C. Peace," he explains. "Of that, you have 1 million acres of decent ground around Grande Prairie. The other 2 million acres are grey wooded soils, which is a very different soil type. If you're coming from somewhere else, the first thing you have to understand is, this country is not going to adapt to you. You have to adapt to the country."

Today, Loewen specializes in growing creeping red fescue for seed. As Calvin Yoder noted previously, plenty of seemingly straightforward agronomic research hasn't been done for these crops in this geography. That's led growers like Loewen to take a do-it-yourself approach. Fertility is one example.

"We've been doing some work on applying phosphate fertilizer to fescue," says Loewen, "trying to see if it does anything for yield. We've also looked at using a no-till drill to cut in some phosphate and nitrogen. For us, it seems to work. But with our soils being so different, that might not be relevant to anyone else, even someone 20 miles down the road."

After close to a half-century of farming in this region, Loewen believes a broader research effort could help answer long-standing questions. While his production system has worked well, he's more than open to refining it. "It's the little things," he says, "that make you money."

### **More varieties, better weed control options for grass**

How would Ed Hadland draw up a priority list for forage seed research? This long-time producer – who in 2014 grew ryegrass, smooth brome and meadow brome for seed in the Fort St. John, B.C. area – argues for new chemistries and grass seed varieties.

As new chemistries are registered for annual crops, he notes, they may also be of value for forage seed production. Establishing efficacy and crop safety takes time and costs money, but will help growers like Hadland stay a step ahead of their weed control issues.

“Like a lot of other crops, weeds like cleavers, Canada thistle and wild buckwheat can be a problem,” he says. “Annual bluegrass has also become a real problem in grass.”

When it comes to variety selection, canola and cereal growers are spoiled for choice, with dozens of varieties to choose from. For a grass seed grower like Hadland, the choices are far narrower. In some cases, there’s no choice at all.

“There’s only one variety of ryegrass that’s registered in Canada,” Hadland says. “We’ve all tried varieties from the U.S. Some have worked and some have not. We’re the guinea pig in that case, so most of the time you just stick with tried-and-true.”

A bigger catalogue of registered varieties would give forage seed growers more flexibility and, potentially, higher production.

### **Forage seed processor seeks greater competitiveness**

The Peace Country grows some of the highest-quality grass and legume forage seed anywhere. What’s needed to move the sector forward? Higher per-acre production and returns, to keep a new generation of farmers growing grass.

That’s according to Todd Smith, General Manager of Moore Seed Processors in DeBolt, Alta. The company processes creeping red fescue and timothy, with smaller lines of business in alsike clover and red clover, mainly for the U.S. and European markets.

“Grass seed acres are always in competition with commodity prices,” Smith says, “and grass acres swing dramatically when commodities are weak. We need to get net pounds per acre up to be competitive when commodities are high.”

Smith believes that research into growth regulators, variable seeding rates, market-based variety development and fall seeding would help growers and processors. Increasing production by these means will help grass seed production maintain or grow its acreage base in the face of tough competition from annual crops.

“Farmers are getting bigger and younger,” says Smith. “We need to promote the industry and the need for grasses in their rotations.”

### **Fitting forages in a crop rotation**

If you ask most Alberta farmers about their crop rotation, you're likely to hear about some combination of grains, oilseeds and, perhaps, peas. How would a multi-year forage crop, tucked in among these annual crops, work out?

According to Paul Jefferson, this isn't as much of a stretch as it might sound.

"We all know that transportation costs for hay can be prohibitively high," says Jefferson, Vice-President of Operations for the Western Beef Development Centre in Humboldt, Sask.

"But it's quite likely that you have an inherent market through a neighbor who is a beef producer. This would allow your neighbor to expand their herd without more land."

In Jefferson's analysis, fitting forages into an annual crop rotation could be a topic of valuable research in the coming years. He likes a scenario where a two-year stand of alfalfa or red clover breaks up a conventional wheat-canola-barley setup.

In terms of production, the farmer will get three or four hay crops over the two-year period. If that doesn't sound like much, consider how the current economics of beef production have changed price perceptions for forage crops.

"Guys are getting record prices for cattle," says Jefferson. "The days of selling hay for \$50 or \$100 a tonne are gone. The average price rate now is \$145 per tonne and nobody is choking at that price either."

While the producer is likely to earn a worthwhile return from two years of alfalfa or clover, the benefits don't end there. The nitrogen fixation of these forage legumes will set up a high-yielding cereal crop, with most of the nitrogen it needs already in place. If diseases have been an issue with previous crops, two years of forages could very well break the cycle.

That's the theory. To Jefferson, however, the issue needs research and extension directed toward growers. In fact, this could be an ideal time for annual crop producers to give forages a look.

Says Jefferson: "The perception of hay and its value has changed dramatically. It is not about maximizing yield with no inputs any longer. It is about managing that hay crop for maximum profitability."