

Water and Moisture Management



Nothing happens in farming without water. Whether you have too much, too little or want to be more efficient with it, water-related research is a priority for Alberta crop producers.

Craig Shaw and Matthew Stanford farm 400 kilometers apart, under very different production systems. One has decades of experience and a love of innovation, the other's a young up-and-comer with bold plans for the future.

Yet when Shaw and Stanford attended ACIDF Cropping Initiatives Issues/Solutions Sessions, they both wanted to talk about the same pressing issue: water.

“We’ve seen a lot of wet years recently,” says Shaw, who farms near Lacombe and is a long-time ACIDF Board member. “We’ve found that having too much water has negatively impacted our operation, more so than anything else. Our best, high-organic soils, the cheapest land to farm, tends to be in the lower areas. But at times, our yield monitor data showed that our best land was actually yielding the poorest.”

At the session he attended, Shaw advocated greater research attention on the priority area of *Water and Moisture Management*. Despite this, he’s not waiting around for a breakthrough. In 2013, Shaw began installing tile drainage on his farm. While this method is little known in many parts of Alberta, Shaw thinks it could have potential for Alberta farmers faced with the problem of too much water to manage.

In fact, getting the water out of the way has already brought about a significant change in his spring seeding schedule.

“We’re seeing the first effects of it this season, and we are 100% sold on the results,” says Shaw. “Last year we had lots of snow, lots of moisture and some land we couldn’t get near and couldn’t farm readily. This year, we were able to get on that land a week sooner.”

Aiming to grow more with less

Stanford farms with his family, mostly on irrigated acres, near Magrath south of Lethbridge. He finds it curious that, despite the tremendous technological advances of recent years, certain fundamentals about irrigated crop production aren’t widely understood.

“I’m thinking about pretty basic stuff like water scheduling for different crops,” says Stanford, “or having a basic water use curve for the different crops you can grow.”

In concept, variable-rate irrigation technology should allow growers to give each section of a field the exact amount of water it needs, when it needs it, according to each crop. It’s not that simple, not yet.

“Within any one field, you could have two or three different soil zones,” says Stanford, “from sandy knolls on higher land, to more clay in low areas to a middle-of-the road clay loam up on the flats. I don’t know how you map a field this way, how you figure out which area needs what amount of water. We need to know this if we’re going to use variable-rate technology to its full potential.”

Looking further out, Stanford would like someone to wrap their head around the problem of moving pivots automatically via computer, instead of doing it manually. He’s looking forward to the

day when irrigated crop producers can apply the right amount to the right crop, at the right time, producing more bushels with the same or less water.

Says Stanford: “That’s the idea and it’s totally possible. Getting some basic agronomy work done in a few areas will definitely help.”

Water and Moisture Management:

Issue identified by stakeholders

- how cover crops can fit into an excess moisture cropping system
- economic and environmental benefits of tile vs. surface drainage
- explore high-value crop opportunities for irrigated land
- explore how herbicides, fungicides and desiccants can be successfully applied through an irrigation pivot
- development of variable-rate irrigation systems
- develop/update water use curves for crops grown under irrigation.

Water and Moisture Management:

Action items: what should be researched first

- use of cover crops to mitigate excess moisture
- tile vs. surface drainage
- high-value crop opportunities for irrigated land
- applying herbicides, fungicides and desiccants through a pivot
- more exploration of variable-rate irrigation systems
- develop/update water use curves for crops grown under irrigation.
- informed decisions.