Coors Brewing Company is world-renowned for its premium quality beers. And quality is exactly what Coors emphasizes when selecting the barley malt that goes into their products.

“Coors is the only brewery in the entire country that contracts with U.S. growers to provide 100 percent of their barley used to produce the malt brewed into their beer,” Coors Senior Research Agronomist Jim Jakicic said. “The company has always been extremely quality conscious. For that reason they’ve taken this bottom up approach starting with developing the barley varieties, to contracting the growers to produce the crop, and then actually malting that barley in their own malt houses.”

Jakicic is a key member of Coors Brewing Materials Quality Research and Development Department that has a two-prong mission: to continue to develop new high quality barley varieties for their growers, and to conduct agronomic research as a way of discovering improved production practices.

While most people think of the Rocky Mountains and Golden, Colorado, when they think of Coors, the Malting Barley Research Center in Burley, Idaho, is where Jakicic and crew conduct their research. The research program was set up in the late 1970’s in Golden, but was moved to Burley in 1988 because the largest share of barley production was contracted with growers in Idaho. While Idaho remains one of the top...
contracting states, Coors also buys barley from producers in Colorado, Montana and Wyoming.

**Environmental conditions**

Idaho provides the right environmental conditions for producing barley. "What you really need for quality barley is an arid climate with a good source of irrigation water," Jakicic said. "Relatively cool nights with dry warm days are ideal from a disease suppression standpoint."

However, there is one environmental condition in Idaho that is not conducive to research conducted at the Burley site—wind. In certain irrigation applications, a strong wind can push water away from one specific crop area resulting in dry spots in the field known as wind skips.

"A major concern we have with our small research plots is that if you have a variable wind skip in a variety test area, it could skew the quality of results for that particular test," Jakicic said. "That could cause you to make a wrong decision or an assumption of that test variety based on one variable that you really have no control over. That's something we want to eliminate."

When irrigation began approximately 25 years ago at the Coors Research Center, a gravity flow system was used to water the test plots. The inconsistency in uniform application with the gravity flow system had researchers switching to wheel line irrigation soon after. But the wheel line system still did not provide the desired degree of uniform application and was also susceptible to wind skips.

The desire to eliminate wind skips, and to get the optimum in uniform water application, led the farm managers at the Coors Research Center to Butte Irrigation, a Zimmatic dealership in Burley. With the help of the people at Butte, the Coors managers found the answer to their problem in a Zimmatic Lateral Move System.

**The setup**

Roy Hanson has been with the Coors Brewing Company for 20 years and he describes the production setup at the Research Center in Burley as being "square to the world." With the seven-tower Zimmatic Lateral Move System, Hanson is able to cover an entire rectangular field that includes 12 acres (5 ha) of barley variety test plots, five acres (2 ha) of barley used for seed production, an additional 25 acres (10 ha) of barley used to test production practices and 25 acres (10 ha) of dry edible beans used as a rotation crop.

"Previously we used four wheel lines to cover the field we now irrigate with the one lateral system," Hanson said. "Fewer wheel lines translate into less labor. Effectively we reduced our total number of wheel lines on our farm by a third, so you could say our irrigation labor requirements have been reduced by a third as well."

The biggest advantage the lateral move system offers to the Coors researchers is uniformity of water application. The system sharply reduces wind skips that, as previously mentioned, can cause problems in obtaining accurate research results in the test plots.

In addition, the lateral move gives Hanson the flexibility to more accurately apply water to two crops in the same field that have overlapping growing seasons and different water requirements.

For example, barley is usually planted around mid-March and harvested late July or early August. The beans are typically planted the last week of May and harvested late August or early September. That means the barley may receive two or three irrigation applications before the beans are even planted.

"With the lateral system, we can run it over the north half of the field to cover the barley, stop it when it gets to the beans, run it backwards dry and start watering the barley again," Hanson said.
By running the system back dry, Hanson reduces possible rutting problems in the field. The system is also fitted with boombacks that apply the water in back of the wheels to further reduce rutting.

Results

In the initial year of using the Zimmatic Lateral Move System for barley research and production, Jakicic and Hanson found mostly favorable results.

Yields for the barley grown under the lateral system were nearly identical to the barley grown under wheel line irrigation. However, the lateral system barley outdistanced its wheel line counterpart when it came to comparing protein content, another very important quality measurement. The linear barley protein content was 11.2 percent (considered ideal for malting) while the wheel line barley came in as high as 13.5 percent.

"High protein in your barley is not desirable for malting," Jakicic said. "High protein cuts down on the amount of starch that is actually stored in the kernel and as a result, your malt extract values are lower coming out of the malt house. And malt extract is much like bushels per acre for a malster."

High protein barley can also lead to beer filtration problems and can result in quality detriments such as hazy beer.

Jakicic credits uniform application and reduced wind skips achieved with the lateral system for keeping protein content lower.

What's next?

Jakicic and Hanson have been pleased with the first year's production results on the field using the Zimmatic Lateral Move System and will continue to collect more data in coming seasons. The lateral system has an AMS Advance Panel and R-MAG system that both men feel have been underutilized so far.

"Once we get used to the whole system, fine-tune it and learn to utilize it better, we'll see some additional advantages," Hanson said. "We'll start seeing some different areas of savings we haven't thought of before."

Hanson and Jakicic intend to see to it that those advantages will be used to maintain or increase the quality of the barley they produce. Think of that next time you "Tap the Rockies".

Zimmatic pivots are built thicker, heavier, stronger, and oh yeah—better.

Compare pivot systems and you'll see why Zimmatic is the benchmark. 15% heavier pipe. Over twice the steel at the pivot point. Exclusives like the uni-knuckle connector and formed outlet. And Zimmatic uses more common parts for faster erection and easier maintenance. After all, performance begins with a solid foundation—and nothing is more solid than Zimmatic. To find out more, see your Zimmatic dealer.

ZimmaticDealer
Butte Irrigation, Inc.
Pocatello, ID
208-438-8103