

Evaluating foliar fungicides for controlling *Sclerotinia* white mould on dry bean crops

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Agriculture and Forestry Completed Research | Beans | 2013, 2014, 2015, and 2016 | Yield | New Growers and Producers

A better way to protect beans from white mould

IN 2017, ALL DRY BEAN SEED BROUGHT TO ALBERTA WAS TREATED WITH A PRODUCT KNOWN AS HEADS UP®. RESEARCH FUNDED BY APG AND OTHERS HELPED MAKE THIS ADVANCE POSSIBLE.

Until this year, the agronomic package for dry bean production in Southern Alberta might have been described as a case of two out of three ain't bad.

That's according to Michael Harding, Brooks-based Research Scientist, Plant Pathology, with Alberta Agriculture and Forestry.

"We now have good early-maturing, high-yielding varieties," Harding said, "and pretty good tools for weed control. But disease has continued to be an issue. In most years, white mould is the biggest or one of the biggest constraints to dry bean production in southern Alberta."

In 2013, Harding and a team of researchers embarked on a four-year study to evaluate foliar fungicides for controlling white mould in dry beans.

Among the products for testing was one that was unique. It was a product derived from saponins from a plant called *Chenopodium quinoa*, and had been brought to Harding by an agribusiness entrepreneur who'd wanted to see if it provided a white mould response and hoped to find a market for it.

"It's a product that's normally applied as a seed treatment," Harding said. "White mould usually comes in July or August, so it was hard to imagine it would be effective. It turned out to have a significant effect, possibly due to a phenomenon known as resistance priming. You can prime the plant to use its own natural resistance to the disease. It's a different way of poking at the problem."

A NEW APPROACH ON WHITE MOULD

Through four years of trials at Brooks and Lethbridge, Heads Up® often outperformed the other products. Before long, Harding's results had helped complete a package of performance data that would ultimately support its registration.

The product, now known commercially as Heads Up® Plant Protectant, was used to treat all dry bean seed brought to Alberta by Viterra in 2017.

"We were looking at fungicides for the management of white mould, but we weren't seeing a transformation in the ability to control white mould," Harding said. "That one product showed significant improvement in most years, or a trend to improvement in others. Normally we'd start in the lab and the greenhouse and do growth cabinet trials. In this case, we clearly saw the potential of this product and fast-tracked it to small plot trials."

Another component of this study looked at the use of micro-nutrients within a white mould management program. Despite flashes of performance, no configuration performed consistently enough to offer a real advantage, in Harding's eyes.

Still, this 2013-16 study helped bring dry bean growers a piece of the agronomic puzzle they've long lacked: a new way to manage white mould.

"Part of our job is to try things out so the growers don't have to, so there's less risk for them," Harding said. "That's the purpose. We tried a product out and it was adopted by industry. In that sense, it's one of those projects that has been really satisfying."