

impact

University of Idaho Extension programs that are making a difference in Idaho.

Increased knowledge leads to improved practices and higher crop yields

AT A GLANCE

Ashton field trials showcased studies on soil remediation and chemical interactions in lodging and wild oat control, enhancing local agricultural practices and knowledge.

The Situation

At a recent cereal grain advisory committee meeting eastern Idaho cereal grain producers brought concerns to county UI Extension educators about two specific significant agricultural challenges. Seeking help from University of Idaho researchers, producers reported issues with acidic soils and problems with wild oats and lodging in wheat. Producers struggle to know how much precipitated lime they should apply to acidic soil and how often they needed to make applications to see soil pH response. Another concern producers voiced was that when they tank mixed a common wild oat herbicide, Axial Bold and a common growth regulator, Palisades, that the response in wild oats and in plant height were not apparent.

Our Response

In response to the needs of local producers, the University of Idaho took a proactive approach by initiating two targeted research projects. Recognizing the issues of soil acidity and ineffective weed control as critical challenges, the university's researchers designed studies to address these specific problems. For soil remediation, they investigated the use of precipitated calcium carbonate to improve soil pH, a direct response to



Jared Spackman discusses the results of the liming study. Producers from Fremont and Madison counties participated.

producers' concerns about soil health affecting crop yields. We currently have four field trials in the Ashton area and another two in Soda Springs.

Meanwhile, to tackle issues with wild oat and lodging in wheat, the university conducted a study on the interaction between Palisades and Axial Bold, focusing on optimizing application methods to enhance effectiveness. This targeted research not only aimed to provide practical, science-based solutions but also involved collaboration with local stakeholders to ensure the findings were relevant and directly applicable to the producers' needs, demonstrating a commitment to solving real-world agricultural problems and improving local farming practices. We currently have three field trials, two in Ashton and one in Aberdeen.

Program Outcomes

The Ashton Field Trials program made a significant impact on the participants by providing them with valuable insights and practical solutions to pressing agricultural issues. For those dealing with acidic soils, the research on precipitated calcium carbonate offered a clear method for improving soil pH, potentially leading to better crop yields and more effective soil management practices.

The study on herbicide and growth regulator interactions gave participants a deeper understanding of how to control wild oats and reduce lodging in wheat more effectively, leading to improved crop quality and yield.

Participants reported increased knowledge and confidence in applying these new practices, with some anticipating up to 20 additional bushels of barley per acre. The program facilitated the exchange of knowledge between researchers and industry professionals, fostering a collaborative environment that enhanced the practical application of research findings and ultimately contributed to the overall productivity and economic stability of local farming operations.

- **Improved Soil Management:** Producers gained practical knowledge on using precipitated calcium carbonate to remediate acidic soils, leading to better soil health and potentially higher crop yields. Participants rated their understanding of optimal soil pH ranges before and after the field day, with all reporting increased knowledge. The average knowledge gain was 0.69 on a 1-5 scale.
- **Enhanced Weed Control:** The research on Palisades and Axial Bold interactions provided producers with effective strategies to control wild oats and reduce lodging in wheat, improving overall crop quality. When asked what practices they will apply on their farm, one producer said they will “pay attention to tank mixes and application

timing.” A chemical representative said he will “recommend split applications.”

- **Increased Economic Potential:** Armed with new insights and techniques, producers that attended the field day anticipate yield increases of an average 15.8 additional bushels of barley per acre, an average of 9.17 additional bushels of wheat per acre and 0.92 additional tons per acre of alfalfa.

The Future

We will continue to investigate yields and soil pH in these fields. We have four field trials in their third year of production with data. Two additional fields had precipitated calcium carbonate applied in the fall of 2023. Data will be collected on all six field trials this fall. We will continue to collect data each year to investigate how long the pH stays remediated from its initial application.

The chemical interaction study will be repeated during the 2025 growing season at three locations in southeastern Idaho. In addition to our original treatment structure, stakeholders requested that the work be replicated in barley and that we include a few additional treatments investigating wild oat control. Based on stakeholder feedback this study is timely and answers critical questions about managing wild oats and preventing lodging in small grain crops.

The research team will continue to engage with stakeholders at annual field days and cereal schools to provide updates, gather feedback and adapt the studies to address emerging needs.

Cooperators and Co-Sponsors

The research projects and field days were financially or logistically supported by the Idaho Wheat Commission, the Idaho Barley Commission, Western Sustainable Agriculture Research and Education (Western SARE) grants and farmer collaborators in Ashton.

FOR MORE INFORMATION

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