

Extension education to minimize bruising and quality reduction of potatoes

AT A GLANCE

Excessive bruising costs the potato industry millions of dollars each year through direct losses (via lost incentives and rejections) and indirect losses (via increased weight loss and decay in storage).

The Situation

Potatoes are extensively handled from harvest in the field until reaching the consumer. The potato journey includes harvesting, handling in and out of storage, moving through packing sheds or processing facilities, being transported between locations and finally reaching the consumer. Each time potatoes are handled, the potential for physical damage is heightened, which can result in blackspot and shatter bruises and lower quality and economic returns. Damaged potatoes may be rejected by the buyer, which equates to significant monetary and supply losses for the grower and packer. Proper potato handling and operating equipment is a major component in reducing the potential for damaging the crop and causing bruises. Educating personnel who are handling the crop is the first line of defense to reduce bruising and damaging of Idaho potatoes.

Our Response

Research and education programs were developed to convey new, current and scientifically based information of best management practices to minimize quality reductions due to mechanical damage. Funding by the Idaho Potato Commission allowed us to specifically address the human component and develop



Example of impact damage causing shatter bruise as potatoes are unloaded from storage.

educational materials in various formats to engage and communicate with the industry.

Focusing on the need to educate and inform personnel on how to operate equipment from field to storage, we worked with a professional videographer and growers to develop five training videos. Each video is carefully narrated in both English and Spanish to deliver three to five minutes of specific details on how to adjust and operate various pieces of equipment for bruise reduction. The videos included windrower operation, harvester operation, moving potatoes from truck to piler, best practices for piling potatoes and unloading potatoes out of storage. For example, the harvester operation video emphasizes proper soil loading, use of cushioning at key spots on the harvester and the

importance of minimizing the drop from the boom into the truck.

Another handling operation that can result in a lot of bruising is at the truck unloading stage, which is covered in the third video. A key reminder was made so the operator understands their role in adjusting stingers and other equipment to minimize drops at all transition points. To emphasize this point, bumper stickers, such as “Adjust Stinger” and “Don’t Drop More than Six Inches,” were made in English and Spanish and distributed to the industry to place on equipment as friendly reminders to employees.

Complementary materials and Extension bulletins were developed and distributed including topics on “Preventing potato bruise damage” and “Monitoring tools for a potato bruise prevention program.” Countless presentations and articles were written on bruise mitigation. Three peer-reviewed articles about bruise management and susceptibility have been accessed and downloaded 2,200 times. On-farm and packing shed evaluations were done to help monitor and implement a bruise mitigation program.

We also developed additional videos and fact sheets that cover other aspects of bruise reduction. All of these resources are available for free on University of Idaho’s potato website at <https://www.uidaho.edu/idaho-ag-experiment-station/potatoes/bruise>.

Program Outcomes

The training videos and the consistent and constant dissemination of educational materials and presentations collectively became the foundation of Idaho’s farm bruise management program.

The equipment training videos were easily accessible and viewed over 2,600 times in past few years. In addition, a video on “How to reduce potato bruising” was viewed over 950 times. Having free, online access to training videos has enabled the industry to incorporate

the videos into their management strategies as reminders for seasoned employees or to educate new employees on the best methods to reduce the potential for bruise and damage.

Methods to monitor bruise developed in this program have helped implement on-farm evaluations to reduce bruise damage.

In collaboration with a major retailer, a case study was developed where rejection and downgrade notices from Idaho potato shipments to the retailer’s distribution centers for two years were compiled, which provided a comprehensive overview of the quality-related issues that caused shipment rejections. Approximately 73% of all rejections were due to physical impact-related quality concerns. From the initial year of the bruise reduction education program to the second year, there was a 26% reduction in volume of rejections (3.1% versus 2.3%) that could be partially contributed to the directed bruise mitigation education and research. If the industry follows the trajectory of reducing rejections by 25% per year, this could equate to a \$6.2 million dollar savings of rejection losses each year for the U.S. potato industry.

The Future

Education materials and creative deliveries of information will continue to be developed. For example, newly designed “Everyone loses from potato bruises” posters will be provided at the 2026 Idaho Potato Conference along with online access to print copies as needed. Constant reminders and education on how to harvest and handle potatoes will continue to keep this topic visible to the industry.

Cooperators and Co-Sponsors

- Michael Thornton, emeritus plant sciences professor, University of Idaho
- Idaho Potato Commission
- Bill Schaefer, Wada Farms and Diamond K Farms

FOR MORE INFORMATION

Nora Olsen, Potato Extension Specialist • University of Idaho Department of Plant Sciences • 208-423-6634 • norao@uidaho.edu

Rabecka Hendricks, Research Associate II • University of Idaho Department of Plant Sciences • 208-423-6627 • rhendricks@uidaho.edu

75-25-nolsen-bruising-potatoes • 12/25