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### *Under Pressure: Stress Gene Response in Pressure Bruised Tubers*

Pressure bruise develops in a storage bin, and causes a flattened or depressed area on a potato tuber. Pressure bruised usually results from storage time and height of the potato pile. Potatoes that have pressure bruises may not be acceptable for the fresh market. Losses are estimated at \$298 million annually in the US. Potato bruising causes storage losses due to shrinkage and disease, increases the labor costs for trimming and inspecting, increases the cost of the raw product through greater trim loss. Ultimately, pressure bruising lowers the quality of the final product and increases the incidence of disease, while decreasing potato shelf life. There are many factors that affect pressure bruising - everything from soil moisture, harvesting, storage humidity, stack height, cellar cleanliness, and the duration of storage. Studying specific genes that express during stress conditions can help us understand how tubers respond to stress conditions. Our aim is to use this knowledge to understand how different potato cultivars respond to stress. While all of these can be controlled to an extent, understanding the role that tuber genetics play is less understood. The results showed that the clamp technique was successful in bruising a tuber, four of the five genes showed increased expression on the fourteenth day. The expression pattern of four genes are responding to pressure stress in potato tubers, studying the role of these genes in potato tubers can help us understand the pressure bruising inhibiting qualities, helping them increase the profitability.