

## **Improvement of the Sponge Cake Baking Test for Breeder Line Evaluation and Identification of a Wheat Quality Profile for Sponge Cake Baking Quality.**

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The Japanese sponge cake baking test is an important soft wheat quality indicator for Asian soft wheat buyers and has been used in Pacific Northwest wheat quality labs to evaluate overall soft white wheat quality for Asian markets for the last 20-plus years. However, it is a lengthy, laborious test and requires highly experienced and skillful personnel, and is consequently unsuitable for testing a large number of breeding lines. Because of these test demands, the sponge cake baking test is only used by the Western Wheat Quality Lab and WSU Wheat Quality Program to test the quality of advanced-generation lines that are near to release. However, this means that the breeder has an incomplete quality picture when considering the Asian soft wheat market until several years of work have already gone into a new potential variety.

We would like to enhance our ability to determine the end-use quality of soft white wheat for Asian markets within the breeding process by adapting the existing sponge cake baking test for breeder line evaluation by simplifying and automating the method. We would also explore a simple, fast and reliable non-baking test, that could be readily applicable to screening early generation breeding lines for sponge cake quality, and we would identify a wheat quality profile for sponge cake baking quality. The results would be continued improvement of released varieties for the Pacific Rim soft wheat market, thus preserving the reputation of PNW soft white as the finest confectionary flour in the world.

**Estimated Budget:** \$32,000.00

This will include the salary for a Ph.D. student (~20K), benefits (8K), goods & service (2K) and travel (2K).