

Dear Collaborators,

It appears that this is my first communication with you since I took the director position of the Soft Wheat Quality Laboratory (SWQL) on February 10<sup>th</sup>, 2013. I believe that many of you have either seen me at the WQC meeting/SWQL Research Review/Small Grain Meeting or at least heard about me. I really look forward to further getting to know you and collaborating in quality evaluation of wheat breeding lines and research projects of common interests. It has been very hectic 4 months for me to learn the program, start rebuilding the research capacity and be settled in Wooster.

During the last 4 months, the SWQL has experienced a significant budget reduction from the “budget sequestration” and is also facing a further reduction in the FY14 budget, as a result of the decrease in the appropriated budget and internal reallocation of the SWQL funding within the Corn, Soybean and Wheat Quality Research Unit, where the SWQL now belongs. Compared to the last year, we are currently down by two full-time lab technicians who have helped with quality analyses of wheat breeding lines.

Despite of the challenges, the SWQL is fully ready for another round of quality evaluation of your breeding lines. Considering the reduced resources, however, we are trying to be more efficient in serving you on quality evaluation of wheat breeding lines without compromising the quality of work we do.

**For this year, I would like to propose that we classify the breeding lines into three groups, “preliminary”, “intermediate” and “advanced”, instead of the current “micro” and ‘advance’ groups . Breeding lines of each group will be subjected to the tests summarized in Table I.**

Table I. Quality Testing Plan of Soft Wheat Breeding Lines by the SWQL

Nursery	Test Weight	Grain Protein	Kernel Hardness	Quad. Milling*	Flour Protein	Carbonate SRC	Sucrose SRC	Lactic SRC	Cookie Baking**
Preliminary	x	x	x	x					
Intermediate	x	x	x	x	x	x		x	
Advanced	x	x	x	x	x	x		x	x

\*Quad milling test yields ‘flour yield’ and softness equivalent’.

\*\*Cookie baking test yields ‘cookie diameter’ and ‘top grade score’.

I am proposing these changes to first save our efforts of conducting SRC tests for the micro-milled flour of the Micro group samples. In the current micro-milling procedure, middling portion of flour is not included in flour for the subsequent tests. Only break flour (which is 30-40% of straight grade flour) is used for the SRC tests. The SRC test results of micro-milled flour do not agree with those of the Advanced groups.

For the Advanced groups, straight grade flour, which is a blend of break flour and reduction flour from middling, is obtained from milling and used for flour tests. Accordingly, the SRC results of the Micro and Advanced groups shouldn’t be combined for data analysis. I would like to propose that we drop the SRC tests for Micro group samples. If the SRC tests need to be performed, we should run the test with straight grade flour rather than break flour.

My suggestions for grouping your breeding lines are as follows.

1. If grain characteristics (test weight, grain protein and kernel hardness) and milling quality (flour yield, softness equivalent) are sufficient for screening, categorize them as “Preliminary”. There will be no SRC test for this group.
2. Categorize the breeding lines as “Intermediate”, if the SRC tests are needed in addition to grain characteristics and milling quality. There will be no cookie baking for this group.
3. “Advanced” group will be subjected to the full quality tests.

For the Intermediate and Advanced groups, straight grade flour will be obtained from milling and used for subsequent flour testing. You can help us to reduce our work load by minimizing the number of “Advanced” and “intermediate” group lines.

**The second proposal is the replacement of the sucrose SRC test by the sodium carbonate SRC test.** Because of relatively high viscosity of sucrose solution, sucrose SRC test is much more time-

consuming and difficult to run than water or sodium carbonate SRC tests. In addition, the majority of breeding lines are currently tested using the 1-g sucrose SRC test, which is less reproducible and poorer predictor of cookie diameter than sodium carbonate SRC test. Although the 5-g SRC test tends to be slightly better than or comparable to sodium carbonate SRC test in predicting cooking diameter, it takes much more time than 1-g version and has not been adopted as a routine sucrose SRC test by the SWQL. The carbonate SRC test shows much better relationship ( $r=-0.70$ ) with cookie diameter than 1-g sucrose SRC test ( $r=-0.41$ ) in our 5-year data set of the advanced nurseries.

At this time, I would like to gather your opinion/concerns on the two proposals described above before we start to implement them and conduct the quality testing of your breeding lines for this crop year. Your responses will be greatly appreciated.

In addition to the quality testing of wheat breeding lines, we are willing to collaborate with you for the research projects involving end-use quality evaluation. For the quality testing of research project samples, I would like to learn about the project in advance, so we can best accommodate your needs. If you plan to submit research project samples to the SWQL for quality testing, I would like to have an opportunity to discuss with you the scope of the work, our capacity for performing the quality testing and timeline.

The guideline for submitting your requests, timeline and sample shipping instruction for end-use quality evaluation of breeding lines and research project samples are summarized on the next page. Thank you.

Sincerely,

Byung-Kee Baik, Ph.D.  
Director, SWQL  
USDA-ARS-CSWQRU  
1680 Madison Ave.  
Wooster, OH 44691  
[byungkee.baik@ars.usda.gov](mailto:byungkee.baik@ars.usda.gov)  
330-263-3891

## Guideline for submitting the requests of end-use quality evaluation of breeding lines to the SWQL

We would like to ask you to submit your requests to the Soft Wheat Quality Lab Cooperator Interface. Please complete the request form by Friday, August 09, 2013.

To submit your requests, go to the [Collaborators Login](#). Once you log in, select "New Request", fill in the appropriate spaces, and then submit the request. For each request, please upload a sample list. If you are unable to submit your sample list, you may email Tony Karcher ([Anthony.karcher@ars.usda.gov](mailto:Anthony.karcher@ars.usda.gov)) the list in an Excel Format. Also within this Interface, you are able to view your current requests, past evaluations, and update your account. **If you need to establish a username or password, please contact Tony Karcher** ([Anthony.karcher@ars.usda.gov](mailto:Anthony.karcher@ars.usda.gov)).

The amounts of grain sample needed for conducting the quality evaluation test are as follows.

- 1) Preliminary group – Require 150 grams per sample
- 2) Intermediate group – Require 200 grams per sample
- 3) Advanced group – Require 400 grams per sample.

We would like to cap the number of samples at **400 for Preliminary group, 150 for Intermediate group and 100 for Advanced group.** An Advanced group sample requires about twice the work of a Preliminary group sample. Therefore, we will count each Advanced group sample as two Preliminary samples in the total allowed per program. Please contact Byung-Kee Baik ([byungkee.baik@ars.usda.gov](mailto:byungkee.baik@ars.usda.gov)) in advance if you need to exceed the sample number limits. We will try to find the best way to accommodate them.

## Timeline for Quality Testing of Wheat Breeding Lines by the SWQL in 2013

- June 18<sup>th</sup>: First call for submission of quality evaluation of breeding lines.
- August 9<sup>th</sup>: Deadline for request submission for samples to be processed before December 13<sup>th</sup> 2013.
- September 13<sup>th</sup>: Deadline for request submission for samples to be processed before Friday, May 30, 2014.
- October 11<sup>th</sup>: Deadline for receipt of samples to be processed before Friday, December 13<sup>th</sup> 2013. Samples received after this date will be processed on a first-come-first-serve basis between the first of the year and May 30, 2014.

## Sample Shipping Instructions

- 1) The best shipping materials are heavy sample envelopes. Stapled, thin envelopes are often the poorest sample packaging.
- 2) Consecutive numbering of samples with an electronic entry-list e-mailed at time of shipping or before is required. This list should be in an Excel Format.
- 3) Organizing your samples inside the packaging and clear labeling will speed the processing for your samples.
- 4) Shipping Address:

Tony Karcher  
USDA-SWQL  
1680 Madison Ave.  
Wooster, OH 44691  
Phone: 330-263-3895