Tough Cookies?

WOOSTER, Ohio – If your latest batch of chocolate chip cookies seemed rather tough, your flour may deserve blame.

Ohio State University scientists are analyzing soft wheat kernels at the U.S. Department of Agriculture Soft Wheat Quality Lab located in Wooster at the Ohio Agricultural Research and Development Center Campus.

Small kernels of soft wheat are sometimes considered to be inferior to larger kernels, and they could also possess inferior milling and baking qualities – giving baked goods a harder texture and more dense appearance.

USDA scientist Charles Gaines conducted a study distinguishing kernel size and kernel shriveling. Shriveling greatly decreased the amount of flour produced during milling. The shriveled kernels produced flour that resulted in smaller cookie diameter and higher alkaline water retention capacity, both of which predict how well a wheat will make various pastry products.

Small, non-shriveled kernels had slightly better baking qualities than larger, non-shriveled kernels – making the cookies larger in diameter. Gaines and other scientist think that separating small, sound kernels from small, shriveled kernels will allow millers to adjust their mill for the size of kernels being milled. This will improve flour yield.

"The texture (softness) of soft wheat cultivars has critical influence on milling and baking quality," Gaines said. "The measurement of kernel texture is often perceived to be influenced by kernel size; however, distinction is seldom made between the quality of small, sound wheat kernels and small, shriveled kernels."

Gaines and other scientists measured the effects of small, medium and large-size kernels of wheat. They found that the size of the kernels made little difference to the quality of the cookies. It was the shriveled kernels that had the greatest effect on the cookies.

"Shriveling induced changes in protein content, which affected baking," Gaines said. "As kernel shriveling increased to severe, cookie diameter decreased 8 percent."

The resulting cookie diameters of the severely shriveled grain were unacceptable in the lab's cultivar testing program. The result? Substantially reduced end-use baking potential for soft wheat flour produced from shriveled kernels.

Gaines feels that removal of moderate and severely shriveled kernels will improve both the milling and baking qualities of soft red winter wheats.

"Growers may come to realize that shriveled grain has exceedingly reduced value to the miller and baker," Gaines said. "That knowledge may mediate the way farmers handle situations when they're docked at test weight at the point of sale. It may also cause farmers to make an attempt at better management during production to avoid shriveling for their own benefit and that of the end user."

Gaines said soft wheat flour quality will be improved every time shriveled wheat is avoided in the marketing chain. Flour made from non-shriveled wheat will produce softer, lighter, more tender soft wheat products – like the cookies, cakes, pretzels, pie crusts and donuts everyone loves.

Harvesting beets in January? That's what Robert L. Green of Gettysburg did recently. Actually, the beet was overlooked from last fall's havest and continued to grow during the mild winter. The beet weighed in at 3¼ pounds and was more than 6-inches in diameter. His wife Phyllis said that her recipe for Harvard Beets calls for five medium beets or 1¼ pounds. Using these calculations, this beet would be the equivalent weight of 13 beets.

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