

THE LATEST ADVANCE IN MEAT TENDERNESS TESTING

Shear blade testing has been the preferred method for measurement of the tenderness of meat products for many years. Either the Warner Bratzler shear blade or the Kramer shear cell have commonly been used. Both of these techniques require some amount of sample preparation as well as a fairly sophisticated instrument with very high force capacity. Due to the large geometry of the shear blades, large forces are created. The cost of the shear blade accessories themselves, as well as the equipment required to conduct the test, usually place it out of reach for the average meat processing plant.



Figure 1:
Brookfield's LFRA
Texture Analyzer

Brookfield Engineering is supporting the University of Arkansas' Department of Food Science through a loan of texture analysis equipment (see figure 1). Recent developments there in a research project have resulted development of a small-scale shear blade that has been proven to give comparable results to the much larger Warner Bratzler and Kramer shear blade accessories (see figure 2). Brookfield Engineering is now offering a small-scale shear blade probe for performing meat

tenderness tests using its LFRA Texture Analyzer. The advantages of this method are:

- 1) The ease of sample preparation, only minimal preparation is required.
- 2) A comparatively small amount of sample meat is required for each test
- 3) Correlation between test results and sensory evaluation is as good or better.

- 4) The cost of the equipment required is a fraction of that required for the older methods.

The key statistical parameter is the work required for shearing the sample. For the instrumental test method this is equivalent to the area under the load curve during the downward movement of the shear blade. The shearing action should be done across the grain of muscle fibers and each sample piece should be tested in five different locations. The average of those five values is accepted as the tenderness statistic for that sample. In order to implement this method in your workplace you must first establish some acceptability statistics for your products. Brookfield Engineering is available to provide advice and support to help you. For further information please contact Len Thibodeau at 1.508.946.6200 ext. 199.



Figure 2:
Ready To Eat Breakfast Sausage

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