

## Varietal Differentiation by Chemical Analysis

W. A. Sistrunk  
University of Arkansas, Fayetteville, Arkansas

The differentiation between varieties of bush snap beans by chemical and physical tests appears to offer interesting possibilities to the plant breeder for selecting types that possess characteristics for high quality.

In a study designed to determine differences between Blue Lake lines and commercial varieties, sieve sizes 3, 4, 5 and 6 were analyzed for total sugars and other carbohydrates in both fresh and canned beans. The varieties and lines studied were Gallatin Valley 50, Tenderette, Trugreen, Kentucky Wonder, Asgrow 274 and OSU lines 8224, 8353, 949, 9827 and 9155M. Field conditions and harvesting were kept as comparable as possible in order to obtain optimum quality, but realizing the difficulty of properly sizing Kentucky Wonder.

The Oregon lines and Kentucky Wonder maintained a rather constant level of total sugars during maturation, while the other varieties decreased sharply in sugar content with an increase in size. There was an increase in starch in Tenderette, Gallatin Valley 50, Trugreen and Asgrow 274 with an increase in size, which was closely related to the decrease in total sugars. This difference was demonstrated in both fresh and canned beans. There was an increase in dry matter in most of the varieties and selections during maturation which was largely due to the changes in the seed.

The variety Kentucky Wonder, OSU 8353, and OSU 949 remained practically constant in dry matter in both pods and seed with an increase in size. The difference in composition between sieve sizes was due to the solubility of pectins, hemicellulose and cellulose. The varieties Gallatin Valley 50, Tenderette and Trugreen accumulated considerable starch in the pods as well as the seed during maturation. The accumulation of starch probably accounts for the difference in textural quality of some varieties. Furthermore, it is suggested that high pectins and hemicellulose improve the texture considerably.

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### New Bush Stringless Bean Varieties Resistant to Root Rot Complex

J. B. Sumeghy  
Yanco Agricultural College and Research Station  
Yanco, New South Wales, Australia

Since 1960, in the dry inland areas of New South Wales, the production of dwarf stringless beans for canning has been seriously affected by the occurrence of Root Rot Complex.

Because of this, a breeding program using the varieties FM-1, Processor, Seminole and Contender as parents was commenced to develop white seeded, stringless, bush-type beans resistant to Root Rot Complex. The following lines now have been named and released, and incorporated all the above-required characteristics.