

Supplemental Report to the Oregon Processed Vegetable Commission 2005-2006

Title Cultivar Evaluation for Control of Common Smut in Sweet Corn and High Plains Virus in the Columbia Basin of Oregon and Washington.

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Project Dates July 1, 2005 - June 30, 2006

Objectives

Screen sweet corn varieties for resistance to common smut and High Plains Virus; evaluate processing quality for 'resistant' hybrids.

Processing

Five su corn varieties that have been shown to be smut resistant in field trials (Cinch, GH 2547, Intrigue, Legacy, Sockeye) along with Jubilee as a standard were harvested on September 14, 2005, at the Hermiston Research and Extension Center. Forty to fifty whole unhusked ears of each variety were packed in ice and driven to the OSU Food Science department in Corvallis that afternoon. All varieties were processed on the following day. After husking, six ears were selected for whole ear evaluation. Ears were blanched in a steam kettle, cooled, and frozen in the -35°F blast freezer. Kernels were cut from the remaining ears with a pilot scale TUC cutter, steam blanched on a continuous belt blancher, quickly cooled, spread on stainless steel screens, and frozen in the -35°F blast freezer. Kernels were stirred after a short time in the freezer to keep kernels from freezing together and to produce a product as close to industry IQF corn kernels as possible. Both whole ears and cut kernels were moved to -10°F for storage the following day.

Moisture tests performed on frozen kernel samples gave the following data:

Jubilee – 75.3%
Cinch – 74.0%
GH 2547 – 78.4%
Intrigue – 72.8%
Legacy – 80.4%
Sockeye – 72.9%

Industry Evaluation

Thirty-three industry members attending the November 2005 meeting of the Pacific Northwest Vegetable Association in Pasco, WA, rated frozen whole ear and cut kernel samples for color, ear shape, kernel size & shape, flavor, tenderness, and overall quality. The rating scale ranged from 1 (totally unacceptable) to 9 (superior). Results were analyzed using Analysis of Variance (ANOVA) and Tukey's Honestly Significant Difference test (HSD). The ANOVA test yields a value for the mean score. Tukey's HSD test yields a value for the minimum difference required between two values for that difference to be statistically significant at the 95% confidence limit.

Results

Color: Cinch was rated highest. Cinch, Intrigue, and Jubilee were rated statistically better than Legacy and GH 2547.

Ear Shape: Intrigue was rated highest. Intrigue, Cinch and Legacy were rated significantly better than Sockeye and Jubilee.

Kernel Size and Shape: Cinch was rated highest though there was no statistically significant difference among the varieties.

Flavor: Intrigue was rated highest and significantly better than Jubilee and Sockeye.

Tenderness: GH 2547 was rated most tender. GH 2547 and Legacy were rated significantly better than Intrigue and Sockeye.

Overall Quality: Intrigue was rated highest though there was no statistically significant difference among the varieties.

Jubilee was rated generally in the middle, though lower for flavor and very low for ear shape.

Cinch scored high for color, ear shape, kernel size and shape, and overall quality. It scored in the middle for flavor and tenderness.

GH 2547 scored high for flavor and tenderness. It scored low for color, kernel size and shape, and overall quality.

Intrigue scored high for all attributes except tenderness, where it scored low.

Legacy scored high for tenderness and low for color and kernel size and shape.

Sockeye scored in the middle for color and kernel size and shape. It scored low for all other attributes.