

EVALUATION OF OVERWINTERING ONION FOR PRODUCTION IN THE TREASURE VALLEY, 2005-2006 TRIAL

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Introduction

The objective of the trial was to evaluate onion varieties for overwintering onion production in the Treasure Valley. Bulb yield, grade, single centeredness, and pungency were evaluated. Seven varieties were planted in August 2005, and were harvested and graded in June, 2006.

Procedures

The onions were grown on a field of Owyhee silt loam located northeast of the Malheur Experiment Station on Railroad Ave. between Highway 201 and Alameda Drive. Seed of the 7 varieties (Table 1) was planted in double rows spaced 3 inches apart at 9 seeds/ft of single row on August 31, 2005. Each double row was planted on beds spaced 20 inches apart with a customized planter using John Deere Flexi Planter units equipped with disc openers. All cultural practices were performed by the grower.

Onions from the middle two rows in each plot were lifted, topped by hand and bagged on June 29, 2006. The onion bags were transported to the Malheur Experiment Station and graded.

Before grading, all bulbs from each plot were counted to determine actual plant populations at harvest. During grading, bulbs were separated according to quality: bulbs without blemishes (No. 1s), split bulbs (No. 2s), neck rot (bulbs infected with the fungus *Botrytis allii* in the neck or side), plate rot (bulbs infected with the fungus *Fusarium oxysporum*), and black mold (bulbs infected with the fungus *Aspergillus niger*). The No. 1 bulbs were graded according to diameter: small (< 2¼ inch), medium (2¼ to 3 inch), jumbo (3 to 4 inch), colossal (4 to 4¼ inch), and supercolossal (>4¼ inch). Bulb counts per 50 lb of supercolossal onions were determined for each plot of every variety by weighing and counting all supercolossal bulbs during grading.

In June, 10 randomly chosen bulbs from each plot were shipped via UPS ground to Vidalia Labs International in Collins, Georgia. The bulb samples were analyzed for pyruvic acid content. Bulb pyruvic acid content is a measure of pungency with the unit being micro mols pyruvic acid per gram of fresh weight. Onion bulbs having a pyruvate concentration of 5.5 or less are considered sweet according to Vidalia Labs sweet onion certification specifications.

After harvest bulbs from each plot were rated for single centers. Twenty-five onions ranging in diameter from 3.5 to 4.25 inches were rated. The onions were cut equatorially through the bulb middle and, if multiple centered, the long axis of the inside diameter of the first single ring was measured. These multiple-centered onions were ranked according to the interior diameter of the first single ring: "small double" with interior diameters less than 1½ inches, "intermediate double" with diameters of 1½-2¼ inches, and "blowout" with diameters more than 2¼ inches. Single-centered onions are classed as a "bullet". Onions are considered functionally single centered for processing if they are a "bullet" or "small double."

Table 1. Overwintering onion varieties planted on August 31, 2005.

Company	Variety
A. Takii	Hi Keeper
	T-420
	T-440
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Bejo	Electric
	Olympic
	Stansa
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Sakata	XON-533Y

Results

The fall of 2005 had fewer growing degree days than normal and onion growth was poor. The field had poor stand because the seedlings were uprooted by frost heaving. The variety trial had very poor stand due to Roundup® herbicide injury caused by an earlier emergence date for the variety trial compared to the rest of the field. The low plant stand resulted in too few plots being available for reliable data to be obtained.