

Evaluation of Grape Varieties for Certified Organic Production – Neely-Kinyon Trial, 2005

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Introduction

In 1899, Iowa ranked 11th in the United States in grape production and sixth in 1919. When the focus was shifted to corn and soybean production in the 1930s and 1940s, grape production decreased and with the introduction of the corn herbicide 2,4-D, damage sustained from herbicide drift in the remaining Iowa vineyards was significant enough to cause a great decline in Iowa grape production. In 2000, Iowa had an estimated 30 acres of grapes in production, and continues to grow (Domoto, 2005).

Materials and Methods

On May 25, 2001, four cultivars of grapes (six vines per cultivar) were planted at the Neely-Kinyon Research Farm: Bluebell, Edelweiss, Foch, and Frontenac. Vines were planted 7 feet apart with 9 feet between rows. The vineyard, after the last vine planting, measures 50 feet by 72 feet.

All vines received a 5-lb application of composted turkey litter (Ultra-Gro®, Ellsworth, IA) with a chemical analysis of 2.2-2.8-1.5 (N-P-K), and a 6-in. layer of straw mulch applied to the base of each vine in 2001. In 2004, 5 lb of hoophouse compost was applied to established vines and worked into the surrounding soil. Straw mulch was reapplied to the base of the established vines to maintain a 6-in layer on June 11, 2002, July 16, 2003, and May 17, 2005. Kentucky bluegrass was planted in the late spring of 2002 between vine rows to maintain a ground cover in vineyard middles. The ground cover was maintained by mowing,

on May 17 and June 20, 2005. Vines were supported by untreated wood staples until established. Four alyssum plants were transplanted between the third and fourth vine of each variety to attract beneficial insects on June 5, 2002. The single-cordon trellis system was constructed on June 5, 2002, consisting of vertically placed steel posts 6.5 feet out of the ground with two wires strung between the posts at 3.5 and 6 feet from the ground. The mulched area surrounding the vines was weeded by hand on June 17, 2005. Vines were pruned on April 19. Shoot positioning and cluster thinning was conducted on June 20, 2005.

All vines were sprayed with Champion Wettable Powder® (NuFarm, Burr Ridge, IL) and lime (Good Earth Horticulture, Inc., Lancaster, NY) at 3 lb of Champion®, 6 lb of lime, and 100 gallons of water per acre on May 19, June 3 and 15, and July 6 and 20, 2005. Entrust™ (Dow Agrosciences LLC, Indianapolis, IN) was applied at 2 oz/acre to all vines on August 18 to control lepidopteran pests.

The Bluebell and Edelweiss cultivars were harvested August 17, and Frontenac vines were harvested August 30, 2005. Due to bird damage, there was a limited 'Foch' harvest. Brix data was taken on the Foch cultivar on September 1, and Frontenac on September 2, 2005.

Results and Discussion

There was a significantly greater cluster weight in the 'Bluebell' and 'Edelweiss' varieties compared with the other varieties. There were also significantly more clusters per vine in the 'Bluebell' variety compared with all other varieties. Subsequently, similar to results from 2004, yields were significantly greater in the 'Bluebell' cultivar at 1.37 tons/acre, compared

with all other cultivars, averaging 0.51 tons/acre (Table 1). Disease symptoms were considerably reduced in 2005 compared to 2004, however, and grape quality was excellent.

References

Domoto, P. 2005. ISU Viticulture webpage <<http://www.leopold.iastate.edu/pubs/staff/grapes/grape.htm>>

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Table 1. Plant performance in the organic grape variety trial, Neely-Kinyon, 2005.

Variety	Yield (ton/ac)	Brix (°)	Productivity (clusters/vine)	Average cluster weight (g)
Bluebell	1.37a	N/A	70.00a	32.01ab
Edelweiss	0.81b	N/A	32.17b	39.92a
Foch	0.25c	20.5	18.67b	22.12c
Frontenac	0.48bc	21.0	31.00b	26.69bc
LSD 0.05	0.45	NS	18.97	8.36