

# Evaluation of Grape Varieties for Certified Organic Production – Neely-Kinyon Trial, 2009

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## Introduction

In 1899, Iowa ranked 11<sup>th</sup> 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 2009, Iowa had 398 vineyards, and the industry continues to grow (Domoto, 2010). An organic vineyard was established as a demonstration site at the ISU Neely-Kinyon Farm in 2001 to examine organic techniques for weed and insect management.

## 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 demonstration vineyard, after the last vine planting, measures 50 feet by 72 feet.

At planting, 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-inch layer of straw mulch applied to the base of each vine. Kentucky bluegrass was planted in the late spring of 2002 between vine rows to maintain a ground cover in vineyard middles. 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. Vines were pruned each April from 2002 to 2009.

In 2009, 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® and 6 lb of lime to 100 gallons of water per acre on May 29 and June 5, 11 and 19. Suregard Lime Sulphur Solution (Value Garden Supply, St. Joseph, MO) was applied at 6 gallons to 100 gallons of water per acre on April 29.

‘Foch’, ‘Bluebell’ and ‘Edelweiss’ grapes were harvested on September 7, 2009. The ‘Frontenac’ and ‘Bluebell’ crop were greatly impacted by bird consumption.

## Results and Discussion

Yields were significantly improved in 2009, compared to 2008, with an equivalent of 2.14 tons/acre harvested from the ‘Edelweiss’ vines (Table 1). This yield was significantly greater than 0.12 tons/acre harvested in 2008. Yields were greatest in ‘Foch’ and ‘Edelweiss’ at 1.3 and 2.14 tons/acre, respectively. The ‘Frontenac’ and ‘Bluebell’ crops were greatly affected by bird consumption, completely eliminating the ‘Frontenac’ harvest and reducing the ‘Bluebell’ harvest to very low levels. At harvest, there were more clusters per vine in the ‘Foch’ vines, with an average of 110, compared to an average of 57 clusters/vine in the ‘Edelweiss’ vines. Cluster weight was numerically higher in the ‘Edelweiss’ and ‘Bluebell’ grapes, averaging 2 oz/cluster, compared with 0.6 oz/cluster in ‘Foch,’ as is expected for this cultivar (Table 1). ‘Frontenac’ cluster weight was not measured due to bird consumption. As an example of bird

damage/consumption, 82%, 77%, and 16% of the grapes were eaten in the ‘Bluebell,’ ‘Edelweiss,’ and ‘Foch’ clusters, respectively. Netting options will be considered in 2010.

### References

Domoto, P. 2010. ISU Viticulture webpage. <http://viticulture.hort.iastate.edu/info/iowagrapeexpectationsmap09.jpg>

### Acknowledgments

We would like to thank the Leopold Center for Sustainable Agriculture for their support of the Neely-Kinyon projects. We thank the Wallace Foundation for their input and support. Thanks also go to Bob Turnbull, Xian Gao, Meaghan Bryan, and Hang Qian for their help on production, data collection and analytical aspects of this project.

**Table 1. Plant performance in the organic grape demonstration vineyard, Neely-Kinyon, 2009.**

Variety	Yield ton/ac	Productivity (clusters/vine)	Average cluster weight oz.	Bird-eaten cluster weight oz.
Bluebell	- <sup>1</sup>	-	1.64	0.29
Edelweiss	2.14	57	1.74	0.37
Foch	1.30	110	0.55	0.46
Frontenac	- <sup>1</sup>	-	-	-
LSD <sub>0.05</sub>	-	-	NS	NS

<sup>1</sup> Yields not obtainable due to loss from birds.