

Contract Number #18-13-116
SchillingBridge – Rootstock Grafting Project

Grant Amount
\$1,505

Contact Information

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Issue of Interest

The Nebraska grape and winegrowing industry is relatively young. Early vineyard plantings focused on hardy cultivars (varieties) that were considered “easy” to grow in our continental climate. Many vineyards consist of small numbers of several different cultivars. Unfortunately many of these cultivars have fruit characteristics that make it difficult to produce quality wine. When the industry started, the novelty of a “Nebraska Wine” was adequate to sell the product, but as the industry matures wine quality will be the driving force in expanding market share. This will require cultivars better suited to the demands of the market place. The time is rapidly approaching when many of these early cultivars will have to be replaced with cultivars that have greater value to the winery and the consumer. Pulling up and replanting an existing vineyard would involve considerable labor and input costs as well as going through three or four years of lost production as the new vines are trained. Grafting onto the mature root systems of existing vines to change cultivars may be more practical with less input cost and a more rapid return to an income producing crop.

Approach to Problem

This study evaluates the suitability of this practice in our Midwest environment using established vines of the cultivars deChaunac and Lacrosse as the rootstock and cleft grafting Pinot Gris and Riesling respectively as the scion cultivars. The study also seeks to quantify the costs involved in making this conversion and supply an educational venue for interested grape growers.

This project is being conducted in the vineyard of SchillingBridge Winery, Pawnee City, in the southeast corner of Nebraska. Row 24 consisting of 62 deChaunac vines, 2 off type vines and 3 blank spaces, was selected to graft to the scion cultivar Pinot Gris. Row 25 consisting of 67 Lacrosse vines was selected to graft to the scion Riesling. Both rows of vines were own rooted, had been planted in 2002, and cropped in 2005, 2006, 2007 and 2008.

Goals/Achievement of Goals

Grafting was done on May 11 and May 12, 2009. Pinot Gris was grafted to deChaunac and Riesling grafted to Lacrosse. At the end of the 2009 growing season, a total of 34

Pinot Gris/deChaunac vines and 40 Riesling/Lacrosse vines had established new growth from the scion buds. On November 30, for winter protection, the graft unions of these vines were covered with soil from within the row to a depth above the first two nodes of the scion. This soil was removed on April 9, 2010. The grafts received additional protection during the winter of 2009-2010 from snow cover through most of the winter. In the spring grow tubes were placed over the grafts to enable application of glyphosate and pre-emergence herbicides for weed control under the trellis. The grow tubes were then removed after this herbicide application. The trunks and cordons of the rootstock cultivars that had been left during the first season were pruned to the same bud density as adjacent rows. Where grafts had not taken and replacement shoots of the rootstock cultivar were present, they were trained to the fruiting wire of the trellis. The scion growth from the 2009 growing season was minimally pruned until survival could be evaluated. New shoots of the scion cultivar are now being trained to the fruiting wire of the trellis as they develop. Suckers that developed below the graft union were removed periodically during the spring rapid growth phase. On June 14, a field day was held in the vineyard to educate and share with growers what we have observed from this project to date.

Results, Conclusions, Lessons Learned

One of the goals of this phase of the study was to determine the rate of graft survival following the first winter. All 40 of the Riesling/Lacrosse grafts and 33 of 34 Pinot Gris grafts survived, and developed new growth above the graft union in the spring. The single graft that failed during the winter became dislodged from the grafting cleft. For the Pinot Gris/deChaunac grafts, 15 had shoot growth from buds above the snow and soil protected portion of the vine and 18 relied on shoot growth from buds below the snow and soil protection. For the Riesling/Lacrosse grafts, 20 had shoot growth from buds above the snow and soil protected portion of the vine and 20 relied on shoot growth from buds below the soil protection. On June 29, 2010 the vines were evaluated for vigor and scored on a scale of 1-5 with 1 low, 3 medium and 5 high. For Pinot Gris/deChaunac grafts, 29 of 33 were scored from medium to high in vigor with four scored as a 2. For Riesling/Lacrosse grafts, 32 of 40 were scored from medium to high in vigor with eight scored as a 1 or 2.

On June 14 an evening field day was held starting at 4:00 PM in cooperation with the UNL Viticulture Program staff. Total participation was 24 people including hosts and UNL staff. Attendance included growers from Nebraska and Iowa as well as two vocational agriculture instructors. Attendees were given printouts explaining the purpose and utility of the project and results through the first year. A vineyard tour of the grafted vines was conducted with a question and answer format. Next was a demonstration of the cleft grafting procedure that was used for this project. The field day was wrapped up with an informal discussion over a barbeque beef lunch.

Progress Achieved According to Outcome Measures

A long term goal of this project is to determine the suitability of hardy hybrid wine grapes (deChaunac and Lacrosse) that may have lower fruit value because of fruit quality issues related to wine quality, to act as rootstock for higher value scion cultivars. The first growing season proved that deChaunac and Lacrosse roots do accept grafts of scion cultivars. This phase of the study demonstrated graft survival through winter with

adequate vigor to develop cordons for future fruit production. The field day helped to raise the level of awareness within the Nebraska grape and wine industry of the potential value of this practice in our pursuit of quality fruit and wine. Future studies will demonstrate the influence of deChaunac and Lacrosse rootstock on the fruit production of the scion cultivars.

Overall this has been a very interesting and educational project through the first two growing seasons. I would like to thank the Nebraska Grape and Winery Board for their support.

Financial Report

Major expenses for this part of the project were labor involved in tending and training the young grafted vines, and costs and labor to host the field day. Following is a breakdown of those expenses. Labor was calculated at \$20.00/hour and mileage at \$0.50/mile.

Grafting project expenses fiscal year 4/1/2010-6/30/2010

Labor		
Graft & grow tube protection	6.5hrs	\$130.00
Data collection	7 hrs	\$140.00
Training vines & sucker removal	25 hrs	\$500.00
Field day preparation	8hrs	\$160.00
Field day help	<u>8 hrs</u>	<u>\$160.00</u>
Total labor cost	54.5hrs	\$1090.00
Materials and supplies		
Grow tube tape		\$7.74
Field day printouts	300 pages @ 0.08/page	\$24.00
Field day meals	24 @ \$12.00	\$288.00
Mileage UNL	<u>154 @ \$0.50</u>	<u>\$77.00</u>
Total material and supplies		\$396.74
Total cost 4/1/2010-6/30/2010		<u>\$1486.74</u>

The total cost incurred from April 1, 2010 through June 30, 2010 was \$1486.74.

The portion of the cost covered by Grape and Winery Board Grant funds was \$723.00 as follows,

Labor	27.75hrs	\$555.00
Field day printouts	300pages @ \$0.08	\$24.00
Field day meal cost	½ of 24 @ \$12.00	<u>\$144.00</u>
Total costs covered by grant funds		<u>\$723.00</u>