Oregon Wine Advisory Board
Research Progress Report

1995 - 1996

Evaluation of Pinot noir Maturity and Fruit Composition During the 1995 Vintage

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During the 1995 harvest season Pinot noir development during ripening was monitored at Woodhall Vineyards (WHV) in Alpine and at three commercial vineyard sites at Croft (CR) Vineyards in Monmouth, Rex Hill Kings Ridge Vineyard (RHKR) in Newberg, and Erath Vineyards (ER) in Dundee. Cluster samples (25) were taken weekly during ripening and analyzed for cluster weights, berry weights, Brix, titratable acidity, malic acid, pH, potassium content, and skin anthocyanin and phenolic content.

September weather was dry and very warm, however, the last six days from September 25-30 were very wet and additional heavy rainfall occurred on October 11 (3.14 and 2.0 inches in Corvallis, respectively). The degrees Brix increased very rapidly at all four sites through the third week of September averaging about 1.5-2.0 g/100g per week followed by 0.75-1.0 9/100g per week during late September and early October (Figure 1). The commercial sites were harvested by early October with degrees Brix ranging from 22-22.4. The titratable acidity decreased rapidly during the heat of early and mid September due to the respiration of malic acid; two cooler sites maintained higher malate levels than two warmer sites, averaging 2.0 and 2.8 g/L at harvest, respectively (Figure 2).

Titratable acidity at harvest ranged from 6.4-8.2 g/L. Juice pH reached a maximum around the beginning of the third week of September during a period of hot weather. With the onset of cooler, wet weather the juice pH then decreased at three of the sites. AT Woodhall Vineyard which was monitored into October after the three commercial sites were harvested, juice pH decreased and increased during periods of wet and dry weather, respectively (Figure 3). We have observed pH fluctuations similar to these in other vintages apparently related to rainfall events. Potassium concentration in the juice appears to decrease during periods of wet weather presumably due to translocation of potassium out of the berries. Potassium is known to be readily translocated within grape vines. A net reduction of potassium in the berries will result in less organic acids being neutralized causing a decrease in pH due to an increase in hydrogen ion concentration.

Cluster weights at harvest ranged from 66.6 to 92.9 g and berry weights from 0.81-1.10 g. At the two warmest sites (WHV and RHKR) berry growth reached a maximum by about September 20 followed by a decrease in berry size up to about September 27. The RHKR fruit was harvested in September 29. AT WHV berry weight increased following the late September rains and continued to increase through mid October. Maximum berry growth at the two cooler sites (CR and ER) was reached about September 27 corresponding to the beginning of the late September rains. Following the rains berry weights at both sites decreased during dry weather in early October (Figure 4).

At two sites anthocyanin accumulation in the skins reached a maximum by mid September but was followed by apparent decreases in anthocyanin content during a period of hot, dry weather preceding the

late September rainfall. At these two sites the anthocyanin content on a per berry basis did not return to the mid September concentrations. At the other two sites maximum anthocyanin concentrations were reached about two weeks later (Figure 5). Total phenolic content in the skins generally decreased during ripening at all four sites. At harvest the phenolic content in the skins ranged from 1.4-1.8 mg/gram fresh weight of berries. Overall, the anthocyanin content per gram of berry was about average while the total phenolic content of the skins was low compared to other recent vintages (Figure 6).

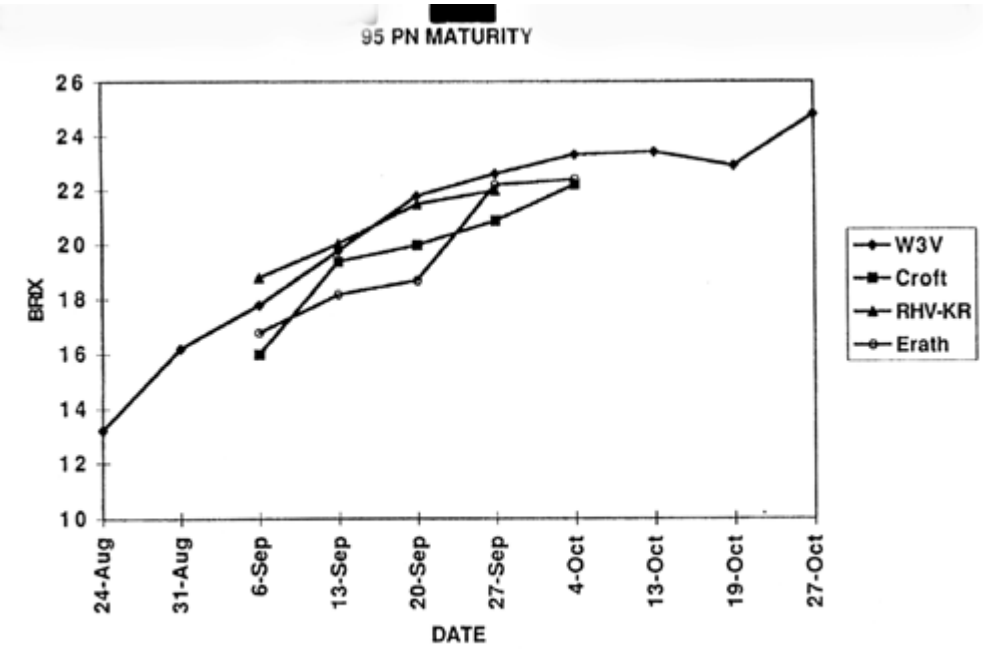

Figure 1

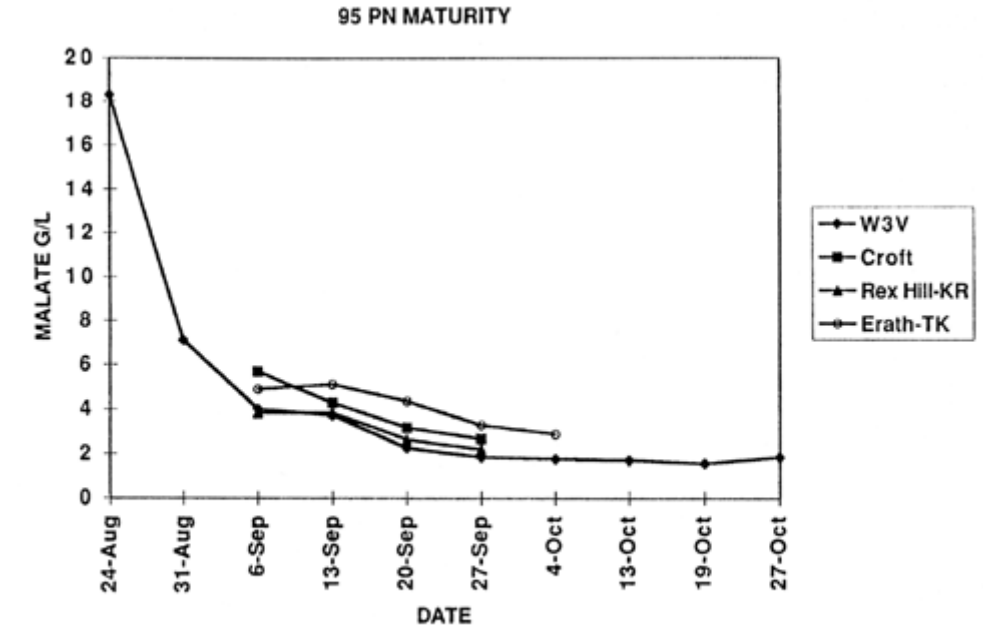

Figure 2

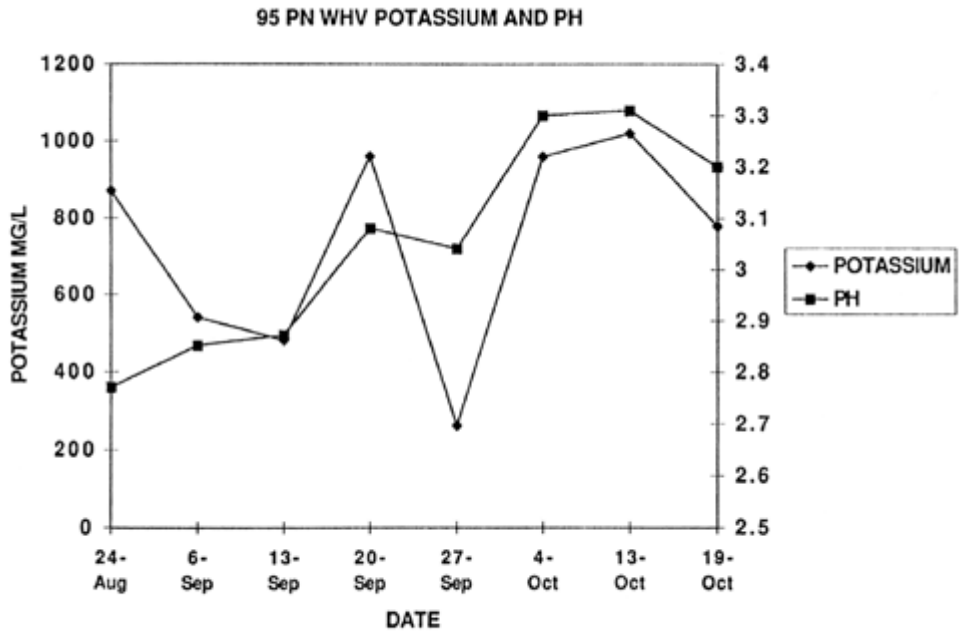

Figure 3

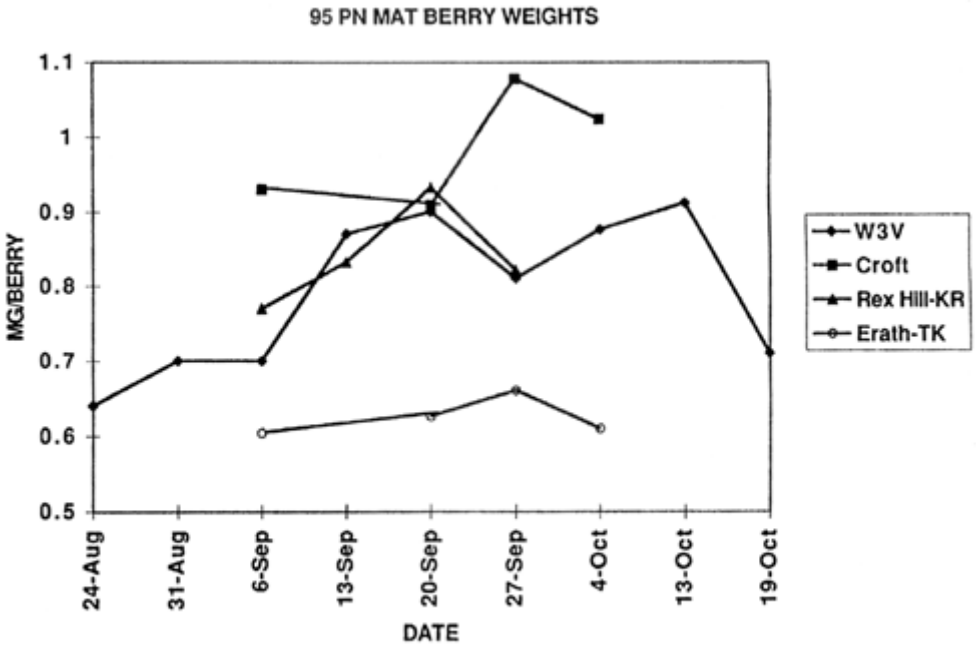

Figure 4

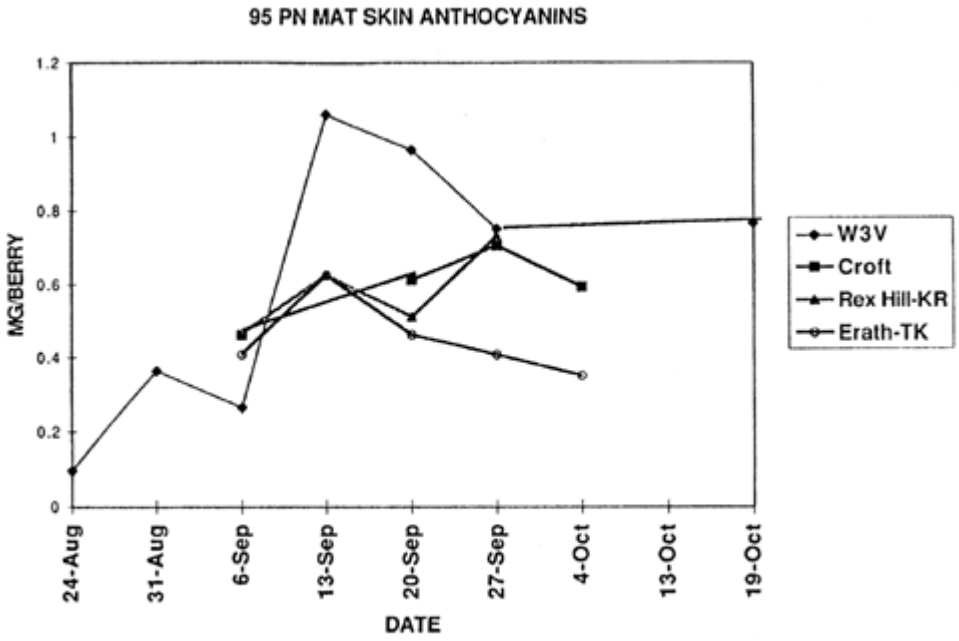

Figure 5

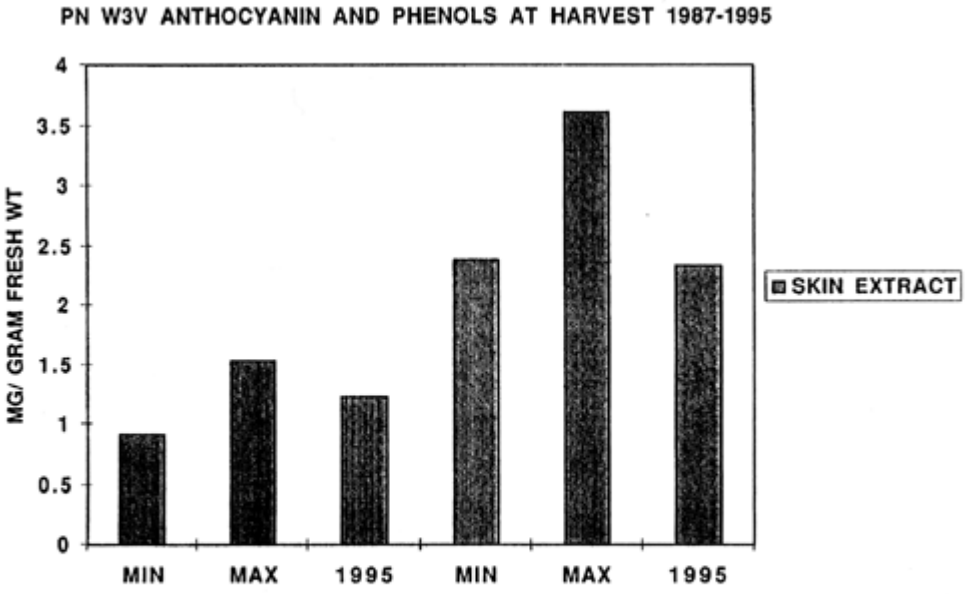

Figure 6