In warmer regions, wine grapes ripen their fruit during the hottest portion of the growing season, producing wines of high pH, low acidity, less intense color, and a less complex flavor. Experiments were conducted in a commercial vineyard of ‘Cabernet Sauvignon’ at Fresno, CA, USA in 2011 and 2012 to determine if vines could be forced to enhance fruit quality. Forcing was conducted by hedging growing shoots to six nodes and removing summer laterals, leaves, and primary clusters between 14 – 70 d after anthesis in late-May, June, and July. Vines grown under conventional practices were used as controls. Forcing in June shifted fruit ripening from the hot (July and August) to the cool (October through early-November) portion of the growing season, a period with more hours at lower, more favorable temperatures. Fruit from the forced crop had smaller berries, a lower pH, higher acidity, and higher contents of anthocyanins, tannins, and total phenolics, compared with non-forced fruit. The yield and vigor of forced vines were comparable to, or slightly lower than, control vines. The best forcing treatment consisted of hedging growing shoots to six nodes and removing summer laterals, leaves, and primary clusters. The experiment demonstrates the potential of forcing to address the detrimental effects of high temperatures on fruit quality in warmer regions of wine grape production.

For growers interested in developing a higher quality production system being able to produce a better quality wine grape in warmer climates is a necessary but not sufficient condition for success. Ultimately the increased costs of late harvest production must be covered by additional compensation from winery’s in the form of higher prices for their grapes or from the price of their wine in the case of vertically integrated operations. In this study we analyze the profitability of conventional wine grape production based on grower cooperators input data on costs and yields and average prices for specific grape varieties available from the CDFA grape crush report. A representative farm model is constructed where profitability is determined from returns above operating costs based on Monte Carlo simulations to develop stochastic yields and prices. The conventional wine grape model farm is modified for the change in cultural practices necessary to achieve late grape ripening. Using observed yields and prices a profitability analysis of the late harvest operation is also conducted. The results of the two models are compared to determine the price/yield combination that will be necessary for the alternative cultural practices to be at least as profitable on a per acre basis as the existing conventional operation.

Results indicate a price premium of greater than or equal to 6% is necessary to achieve equivalent profitability at observed yields. The ability of growers to obtain price premiums from wineries may be difficult given the predominance of bulk wine production in warm climate growing regions, with greater emphasis on quantity at minimum quality standards. Greater potential may exist for vertically integrated operations where higher quality wine may command a higher per unit price.
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