

Trunk Disease Survey in Mendocino and Lake Counties: Preliminary Results

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Issue

Trunk, or wood-canker, diseases, including *Botryosphaeria dieback*, *Esca*, *Eutypa dieback*, and *Phomopsis dieback*, present a serious challenge to winegrape growers. Many vineyards in California are likely infected and yield losses in severely symptomatic vineyards can reach over 90%. The overall economic impact of losses to *Eutypa* alone just in California has been estimated at 14% of gross producer value. Trunk diseases take a long time to develop and often become symptomatic only years after infection has already occurred, at which point management options are limited. While preventative management practices are available, grape growers may be hesitant to use them due to uncertainties about cost-effectiveness and future risk of infection.

Key Findings

Grape growers in Mendocino and Lake Counties (crush districts 1 and 2, respectively) use delayed pruning in order to prevent trunk disease far more than they do double pruning or pruning-wound protectants. For all three practices, the majority of growers begin using the practice in vineyards eight years old or greater. Growers did not demonstrate a clear preference between the three practices in terms of effectiveness of maintaining yield, increasing lifespan, or cost. Growers generally rated all practices positively for the three criteria, with the exception of the cost-effectiveness of double pruning and pruning-wound protectants, which were rated neutrally.

Methodology

We conducted a survey of attendees at an IPM Workshop, organized and hosted by Glenn McGourty, Viticulture and Plant Science Advisor for Mendocino and Lake Counties, at the UC Hopland experimental station on November 15th, 2013. We used Turning Point, an electronic audience response system, to conduct the survey. UCCE Viticulture farm advisors and industry representatives helped design the survey. Up to 70 individuals responded to any given survey question.

Similar surveys are being conducted in other winegrowing regions of California in the winter of 2013-2014. We are also conducting economic cost-benefit studies to better understand the long-term costs and benefits of different management practices in a range of scenarios. Combined, this research will provide us with a better understanding of the long-term efficacy of these management practices and the incentives motivating grower decision-making. We hope that this information will, in turn, provide growers and other managers a better understanding of how best to deal with trunk diseases.

Detailed Results

We asked growers in Mendocino and Lake counties about three practices known to be effective in preventing trunk diseases: delayed pruning, double pruning, and the application of pruning-wound protectants. We first asked growers how often they have used (or advised, for those in an advisory role) each of the practices in the last five years. As seen in Figure 1, delayed pruning is by far the most common practice; over 60% of growers use delayed pruning either often or always. By contrast, close to the majority of growers use double pruning or pruning-wound protectants either never or rarely.

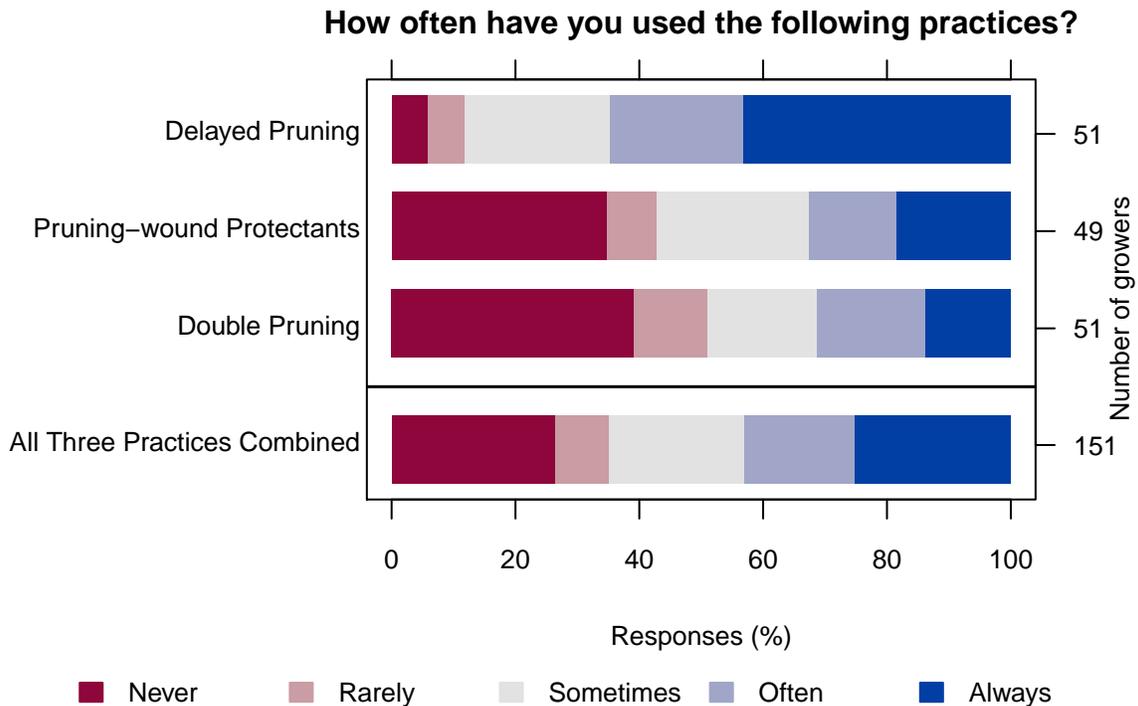


Figure 1 – Percentage of responses to the following question: In the last five years, how often have you used (or advised) delayed pruning, pruning-wound protectants, and double pruning to manage trunk diseases? Answer options ranged from "Never" to "Always" (shown at the bottom of the figure). Total number of responses to each question is shown on the right, labeled as number of growers.

We also asked growers what the typical age of a vineyard was when they first started using each of the practices. Because these practices are most effective when used as preventative measures before infection occurs, the age of the vineyard at first use is an indication as to whether the practices are being used optimally. Symptoms typically become apparent in vineyards eight years or older even when infection occurs much earlier. As seen in Figure 2, for all three practices, over 60% of respondents reported typical first use to be in vineyards eight years old or greater. It's highly likely, therefore, that some growers start to use these preventative practices after infection has already occurred.

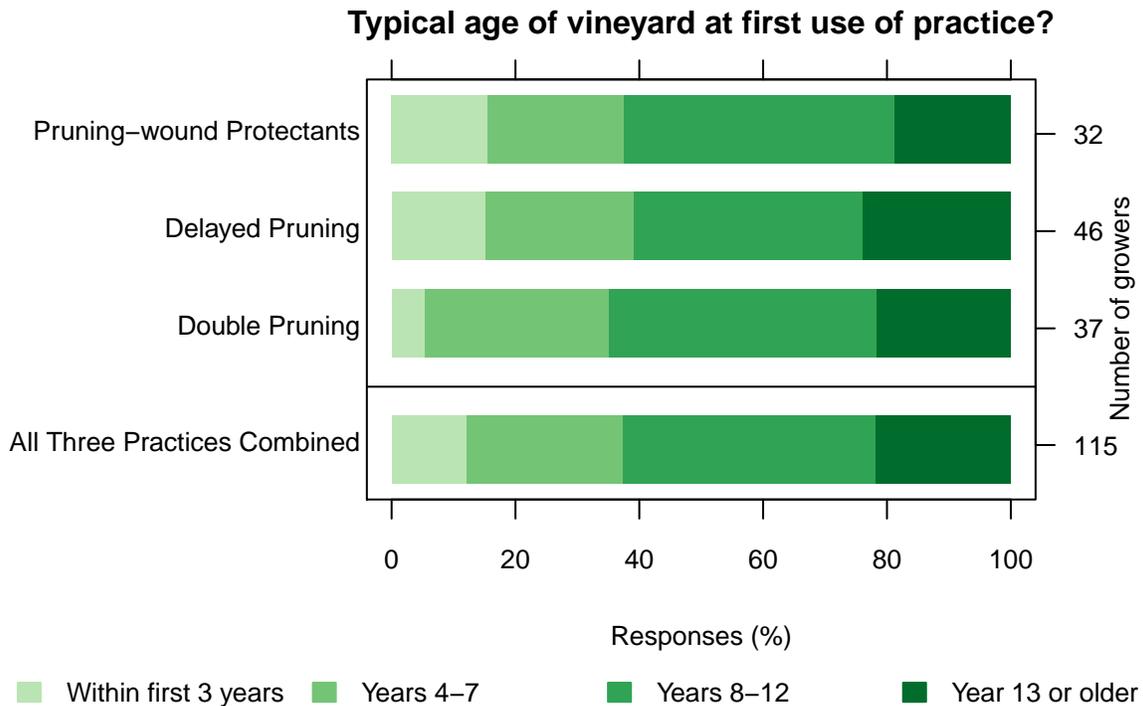


Figure 2 – Percentage of responses to the following question: In the last five years, what was the typical age of the vineyard when you started using (or advising) delayed pruning, pruning-wound protectants, and double pruning to manage trunk diseases? Answer options ranged from "Within first 3 years" to "Year 13 or older" (shown at the bottom of the figure). Total number of responses to each question is shown on the right, labeled as number of growers.

Finally, we asked growers to evaluate the efficacy of each of the practices for three different criteria: how effective the practice was in minimizing yield loss, in increasing lifespan, and in terms of cost-effectiveness. As seen in Figure 3, growers did not show a clear preference for any single practice when considering all three effectiveness criteria together. Growers rated the practices more positively for increasing lifespan and maintaining yield than for cost-effectiveness. For example, over 90% of growers rated double pruning positively for increasing lifespan. Growers rated double pruning and pruning-wound protectants neutrally for cost-effectiveness, the only two criteria that did not receive a positive rating.

How effective is the practice in achieving the following goals?

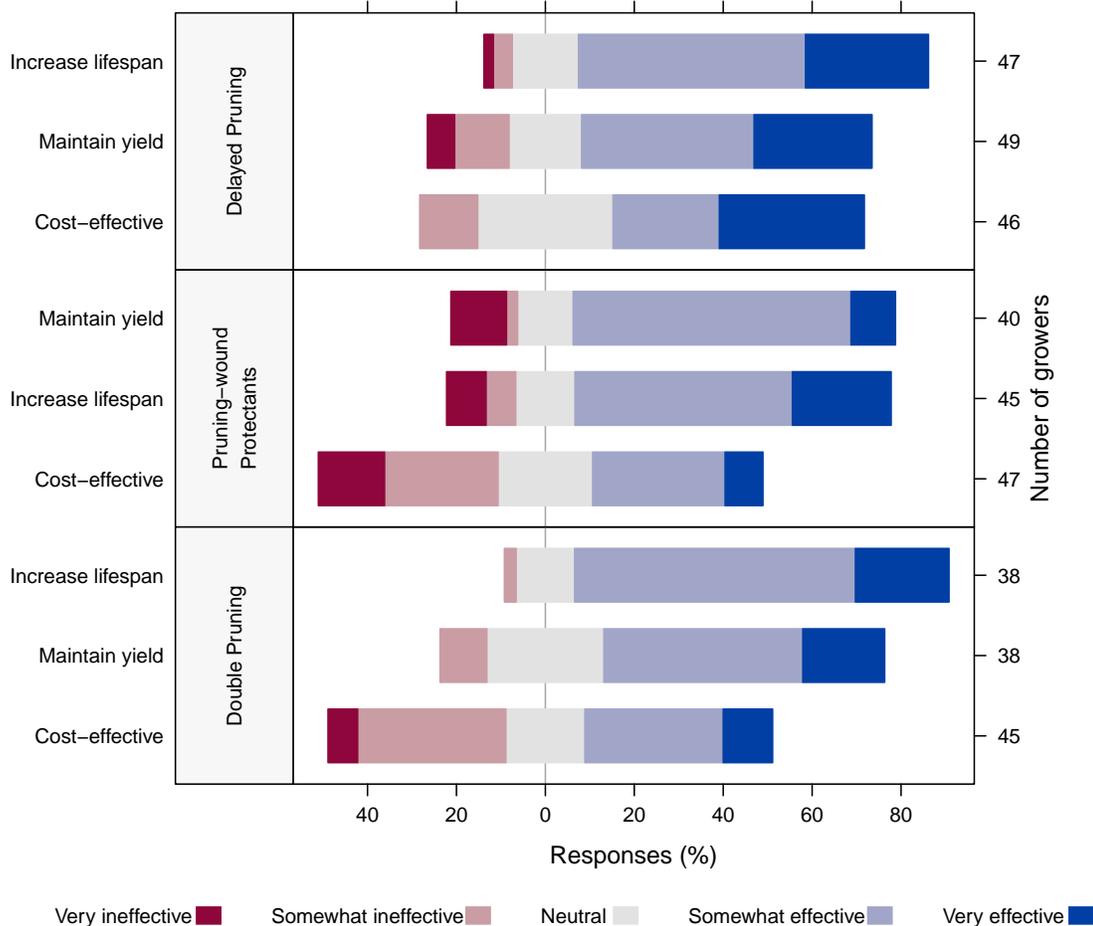


Figure 3 – Percentage of responses to the following question: In the last five years, how effective was each practice in terms of: maintaining yields / increasing lifespan / cost-effectiveness? Answer options are shown at the bottom of the figure. Total number of responses is shown on the right, labeled as number of growers.