

## *Trunk Disease Survey in Lodi: 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 Lodi (San Joaquin County crush district 12) 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 Lodi growers begin using the practice in vineyards between 4 and 12 years old. Growers rated delayed pruning as more effective, in terms of maintaining yield, increasing lifespan, and cost-effectiveness than they did double pruning or pruning-wound protectants. Growers rated all three practices positively for maintaining yield and increasing lifespan but negatively for cost-effectiveness.

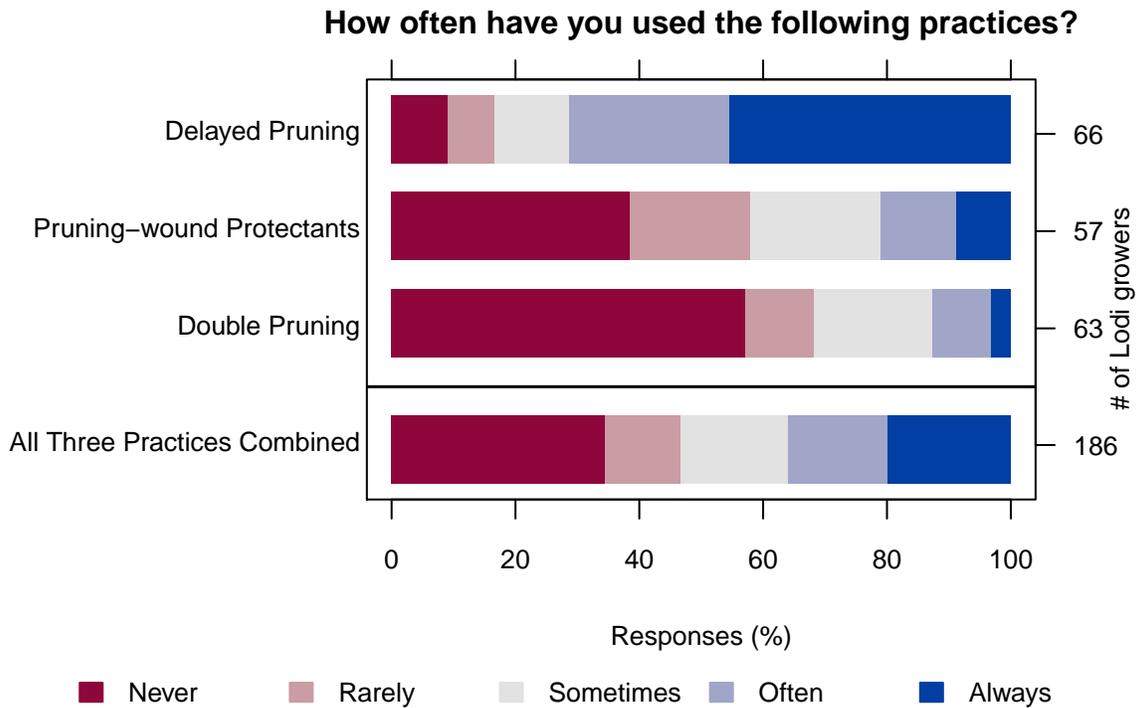
### **Methodology**

We conducted a survey of attendees of the Managing Trunk Disease Symposium, organized and hosted by Matthew Hoffman, Grower Programs Coordinator at the Lodi Winegrape Commission, in Lodi on November 5th, 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 82 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.

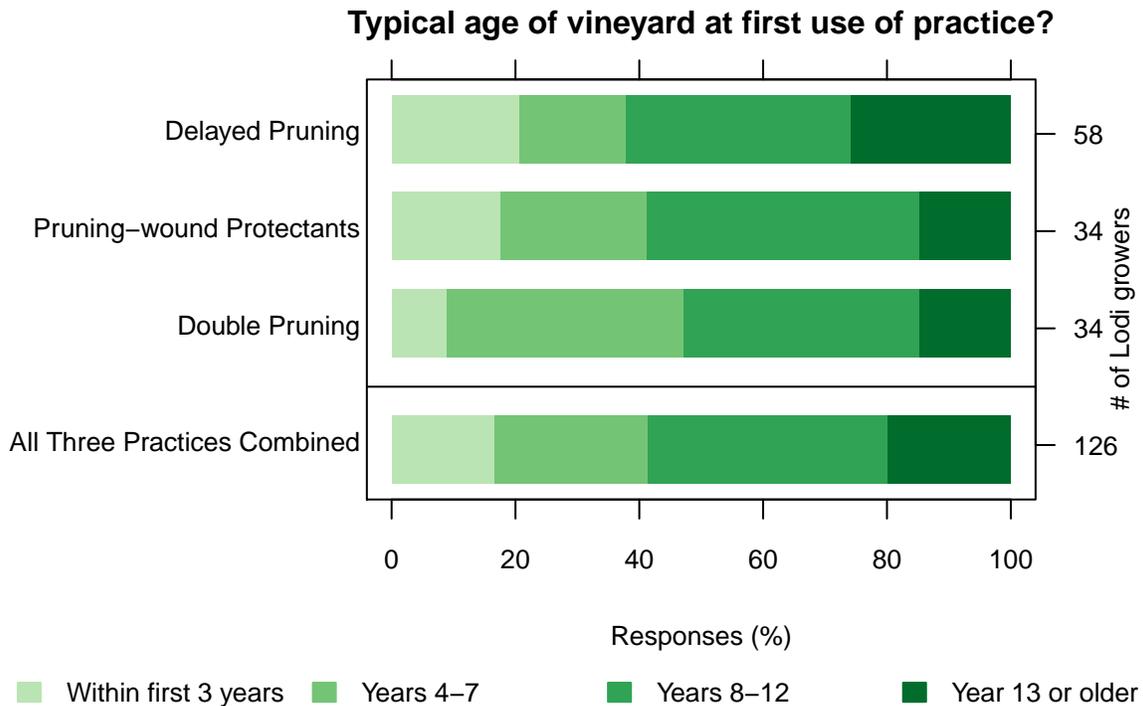
### Detailed Results

We asked Lodi growers 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 70% of growers use delayed pruning either often or always. By contrast, 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 # of Lodi growers.

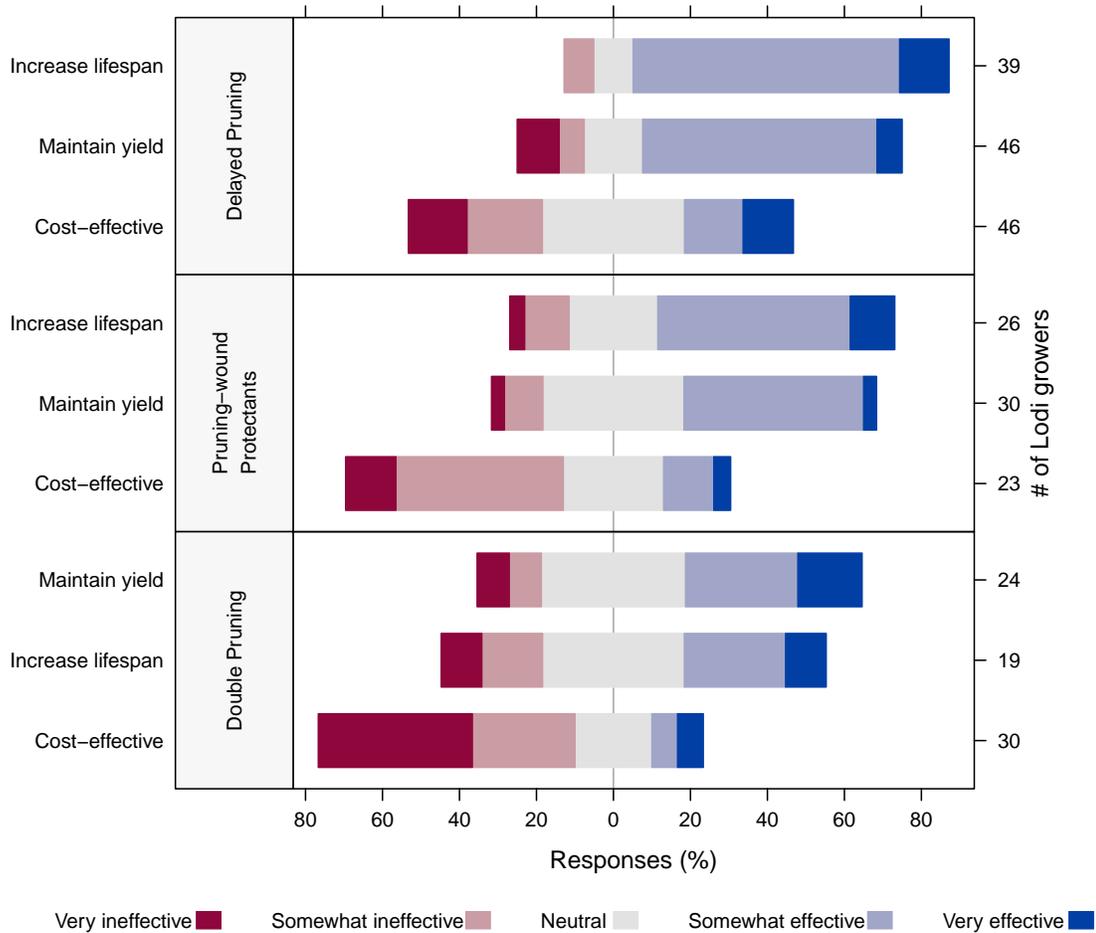
We also asked growers what the typical age of a vineyard was when they first started using each of the practices. Because these practices are most effective when used as preventative measures before infection occurs, the age of the vineyard at first use is an indication as to whether the practices are 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, the majority of respondents reported typical first use to be in vineyards between 4 and 12 years old. 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 # of Lodi 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, the most positively rated practice was delayed pruning, followed by pruning-wound protectant and double pruning. For all three practices, growers tended to rate the practices positively in terms of maintaining yields and increasing lifespan, but negatively in terms of cost-effectiveness. Cost-effectiveness ratings are particularly low in the case of double pruning, which roughly 40% of growers rated as very cost-ineffective. Note that there are fewer responses for double pruning and pruning-wound protectant because fewer respondents reported using these practices, and thus were not able to offer an opinion as to their efficacy.

**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 # of Lodi growers.