

Economics of Roguing Vines

cv. Merlot



Healthy

Infected

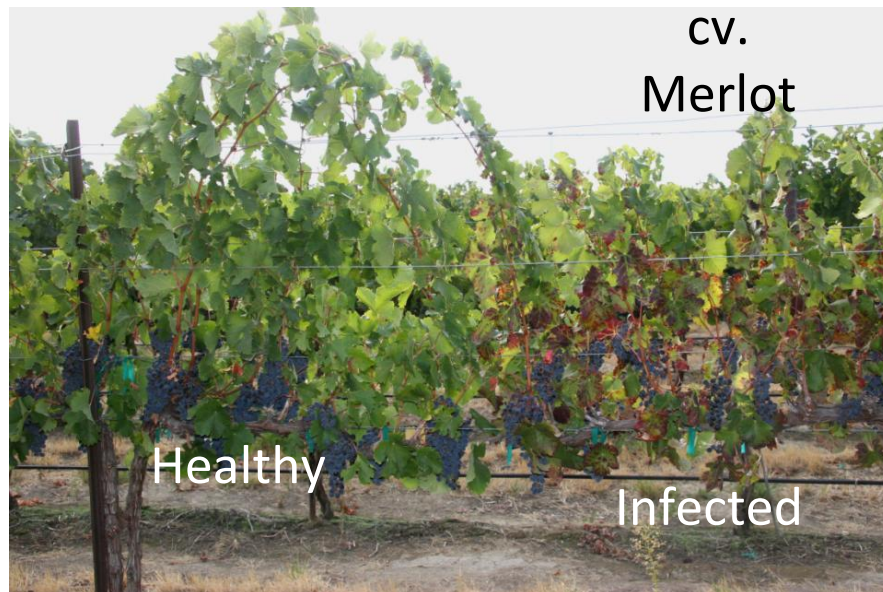
Economic Impacts of Grapevine Leafroll Disease and Financial Benefits of Disease Control

Specialty Crop Block Grant Program

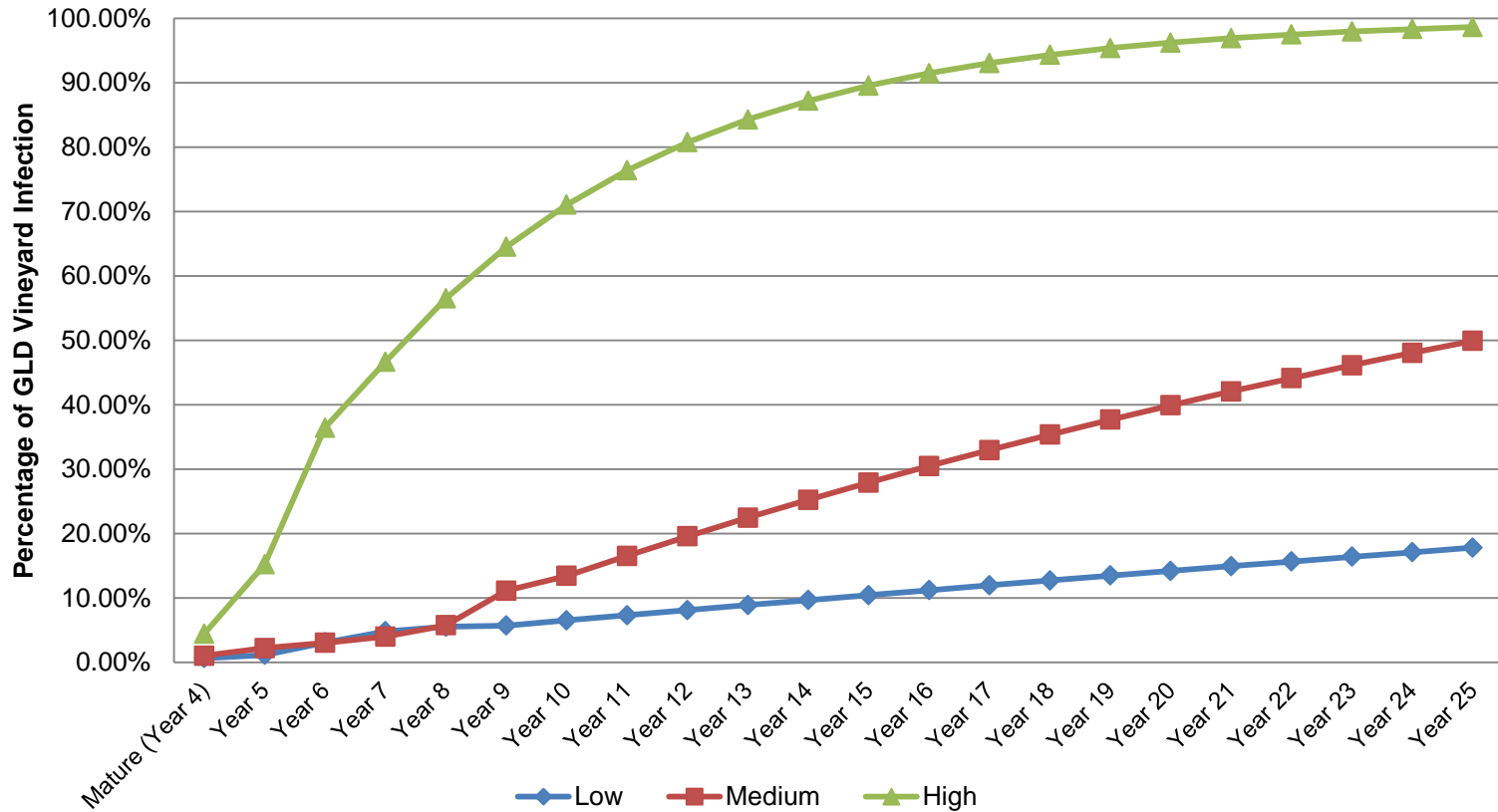
Dr. Naidu Rayapati, PI

Best Management Practice- Rogue

- Cost to rogue vines
- Economic benefit of roguing
 - Non-intervention comparison
- Determining when to replant versus rogue



Actual and Predicted GLD Spread



Mature vineyard GLD virus infection (%) using actual and predicted rate of spread, year 4-25.*

*Predicted rate of spread was calculated using the Spillman function ($Z = M - AR^x$); in logarithmic form shown as $\log(1 - Z) = \log A + X \log R$, where $M = 1$ for a maximum spread rate of 100%

Roguing as a Disease Control Method

- Rogue out (remove) the infected vines
 - Scout vines in the fall and mark those vines that are showing visual signs of GLD
 - Testing those vines in the winter of the following year
 - Removing the infected vines and planting a new virus free vine

Costs to Rogue Vines

- Scouting
- Testing
- Vine removal
 - Cut cordon
 - Pull out trunk
- Replant
 - Labor
 - Nursery stock
 - Grow tubes and labor
- Special watering?
- Training in year 2

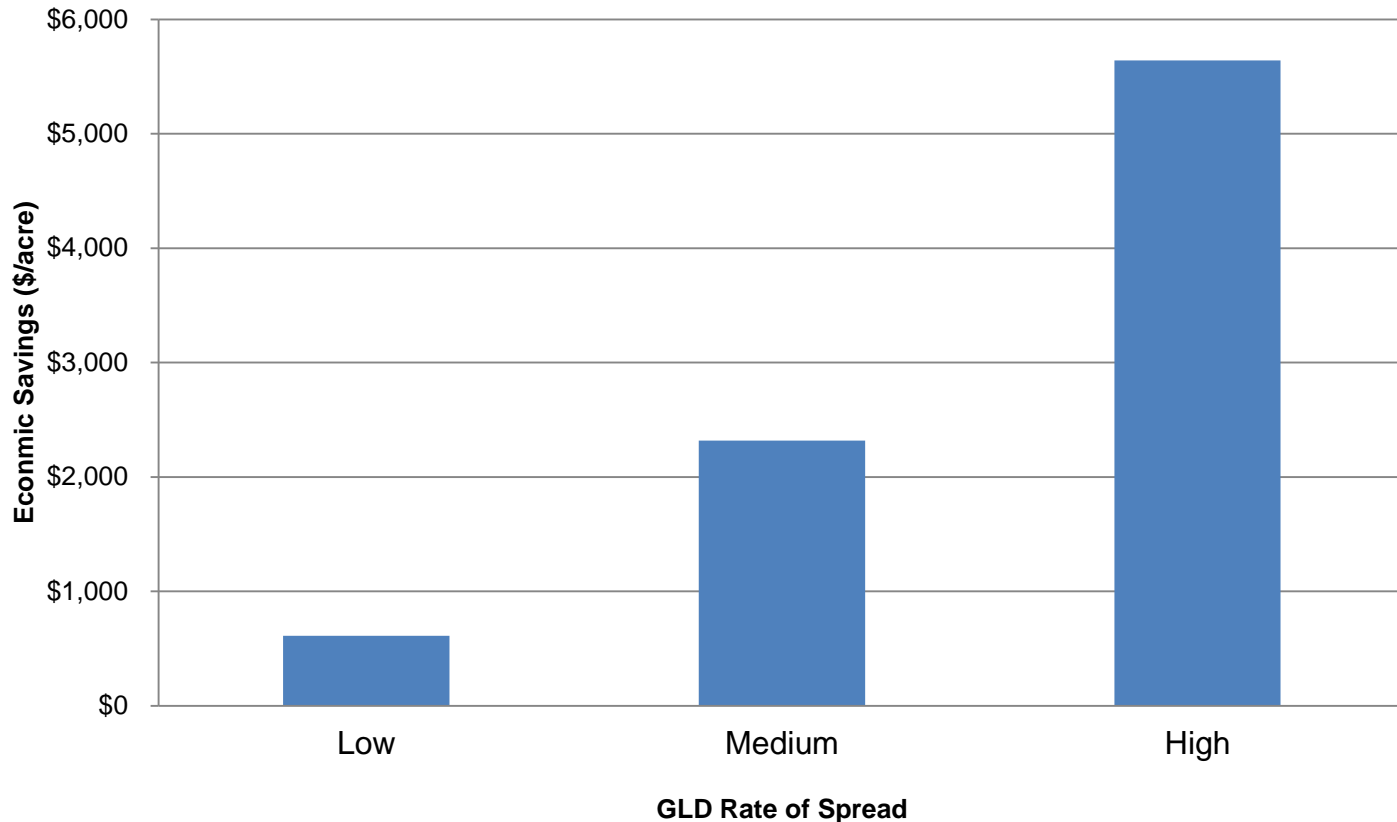
Costs to Rogue Vines

Activity	Cost (\$/vine)
Scouting	\$1.00
Testing	\$3.00 – \$6.00
Vine removal (cut cordon and pull trunk)	\$2.00 – \$4.00
Replant (labor, nursery stock, grow tubes)	\$3.00 – \$4.00
Vine training (year 2)	\$0.75 – \$1.00
Special watering?	<u>\$0.00 – \$1.00</u>
Total Roguing Cost	\$10.00 - \$16.00

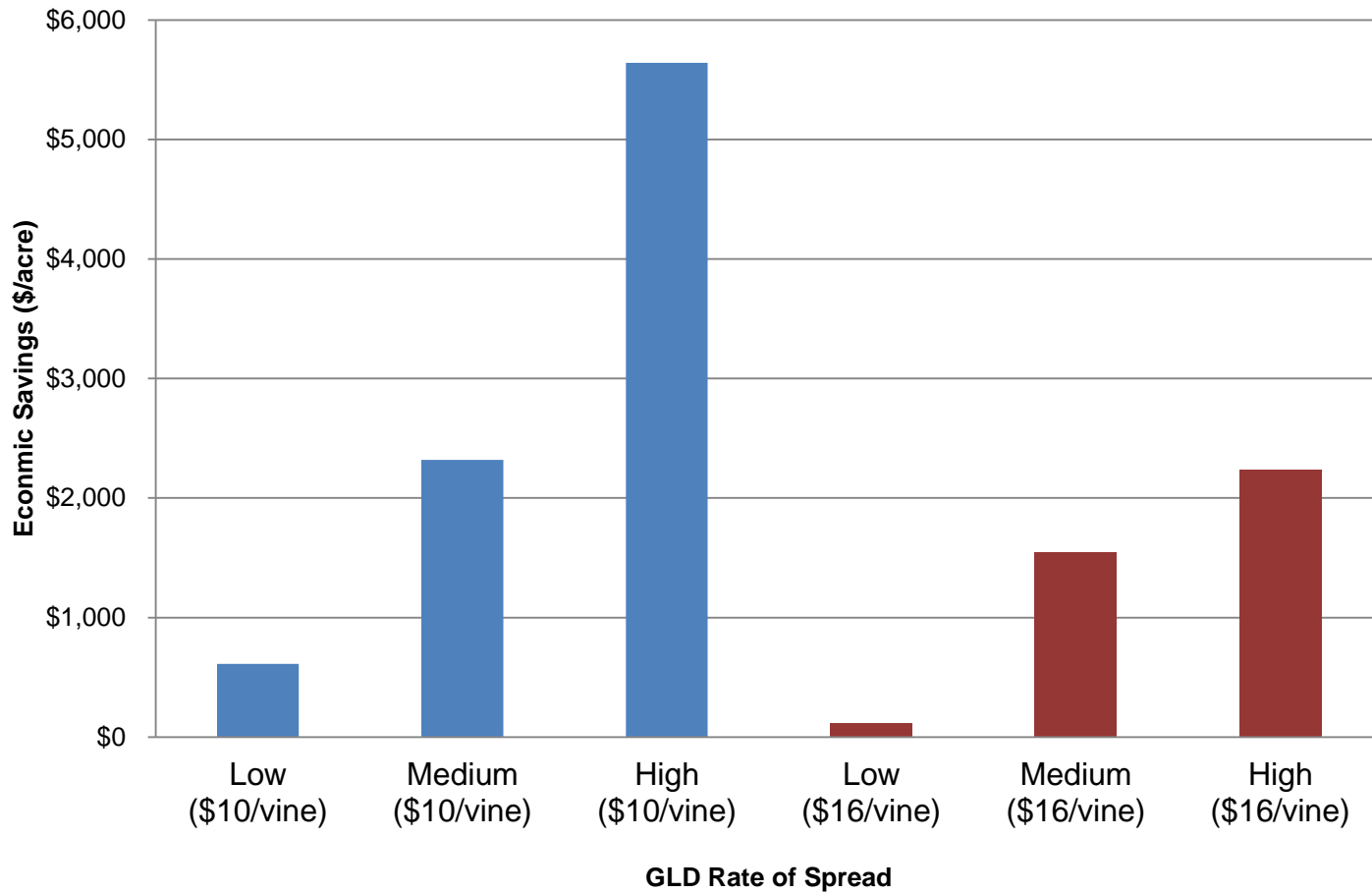
Evaluate Given the Crop Loss

- Include cost to rogue
 - \$10 and \$16
- Decrease earnings by loss in crop
 - Assume 20% yield loss
- Compare to the non-intervention strategy
 - Low, medium and high spread rate
- Explore Brix reduction with yield loss
 - 1.0 Brix penalty (2% price reduction)
- NPV analysis
 - 5.5% interest rate

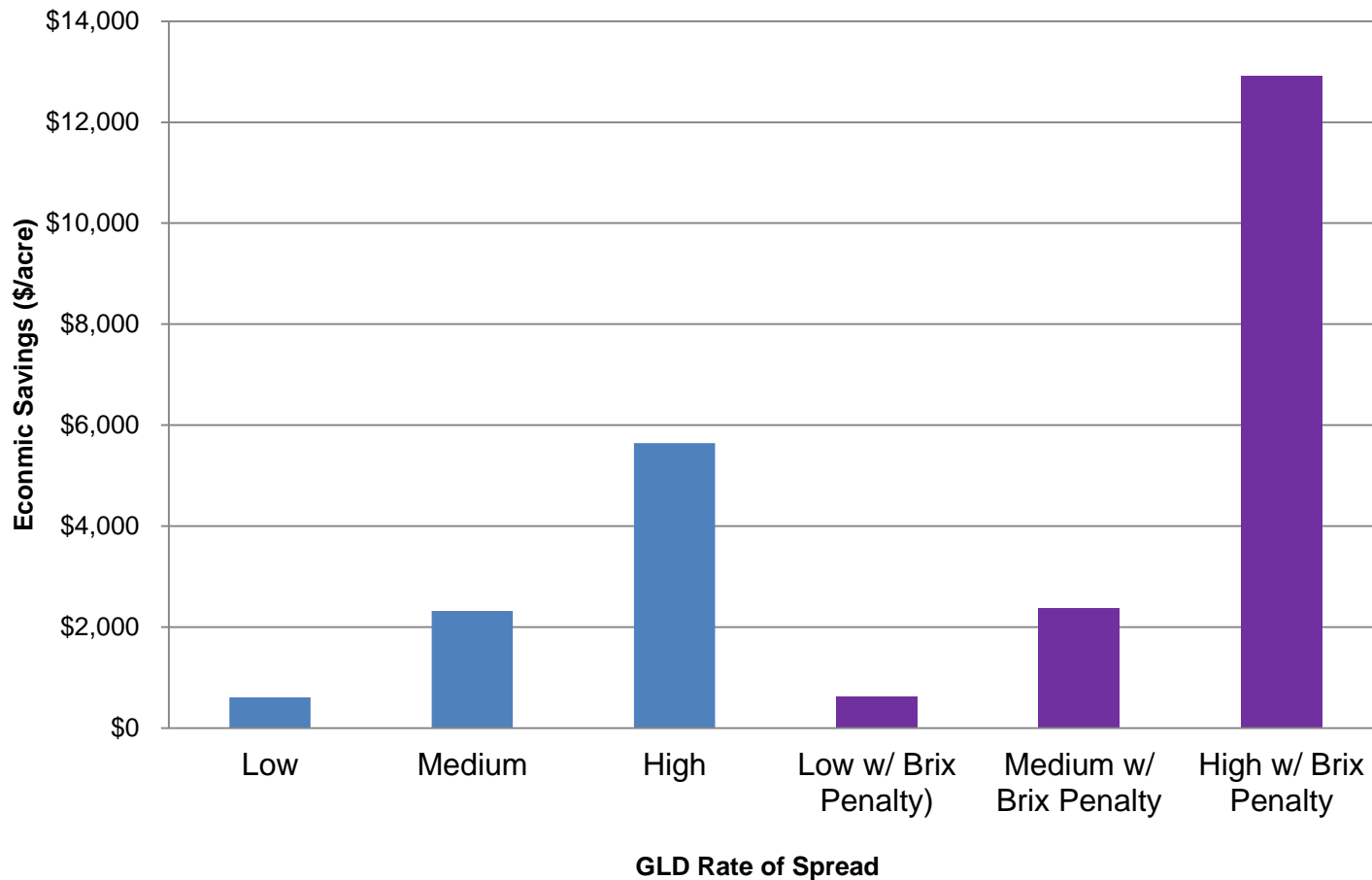
Economic benefit of roguing compared to non-intervention strategy (\$10/vine roguing)



Economic benefit of roguing compared to non-intervention strategy (\$10 & \$16/vine roguing)



Economic benefit of roguing compared to non-intervention strategy (\$10/vine roguing w/Brix Penalty)



Roguing Scenario Benefits

- For a 20% yield reduction
 - Economic benefit for \$10 and \$16/vine roguing cost
 - At \$20/vine not beneficial for Low and High rate
- For 20% yield reduction and 1.0 Brix reduction
 - Roguing at \$10 and \$16/vine provide economic benefit
 - At \$20/vine Rogue cost not beneficial for Low rate only
- For 15% yield reduction
 - \$10 - \$14/vine Roguing cost is economical

Replanting as a Disease Control Method

- Determine threshold of when to replant
- Vineyard replacement would include
 - Removal of the vines
 - Fumigation through the drip system
 - Replanting with certified nursery stock
 - Install of grow tubes
 - Necessary labor and training to bring the vines back to mature production
- Economical to replace vineyard at 40% infection

Practical Applications for my Vineyard

- Certified material is a good first step
 - Good management is also required (insect control, roguing)
- GLD can occur in your vineyard even if you do everything right
 - Neighboring vineyards
- Addressing GLD at an early stage provides the highest economic benefit, through roguing
- Vineyard replacement exercised above 40% infection level
- The higher the value of the fruit, the more important a GLD management plan is

Acknowledgements

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