

ABOUT US

Founded in 1981, Agri-Analysis LLC is a premier plant pathology laboratory focusing on viral, bacterial and fungal diseases of grapevines. We conduct cutting edge research and apply new knowledge and discoveries to help clients answer their practical questions in grape production. Our customers include growers, growers associations, agricultural consultants, universities, research institutes, service laboratories, seed companies, real estate agents, and property owners. We are a CDFA Approved Laboratory under permits No. 2771 and No. 57-11. We are also under permit by the USDA to receive plant materials originated from outside of the U.S. for testing purposes.

OUR MISSION

As wine growers are faced with increasing risks and challenges from important grapevine diseases, Agri-Analysis is your trusted laboratory partner in identifying and mitigating these risks through research, experience, innovation, cooperation and uncompromising integrity and professionalism.



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We Help Protect Your Vineyards



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*You know grapes.
We know grape diseases
We help protect your vineyards.*



Sampling Statistics & Strategies for Grapevine Testing



We Help Protect Your Vineyards

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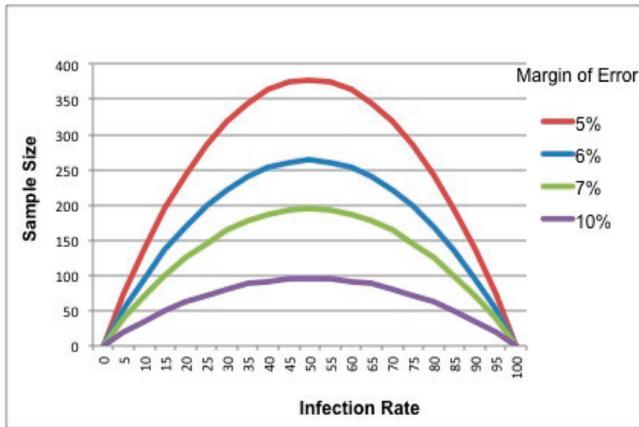
KEY FACTORS AFFECTING SAMPLE SIZE

1. **Statistical Level of Confidence.** The confidence level is the amount of certainty in estimating the true answer based on the testing results of selected samples. The true answer is the percentage you would get if you exhaustively tested every vine. 95% confidence level is commonly accepted in most agriculture applications. Higher confidence level requires a larger sample size.

2. **Margin of Error.** The margin of error is the amount of error in estimating the true answer based on the testing results of selected samples. Lower margin of error requires a larger sample size. Typical margin of error is 5%.

3. **Estimated Infection Rate.** If the sample is skewed highly one way (high positive or negative rate), the population probably is, too. Higher skew level requires a smaller sample size than non-skewed samples (50:50).

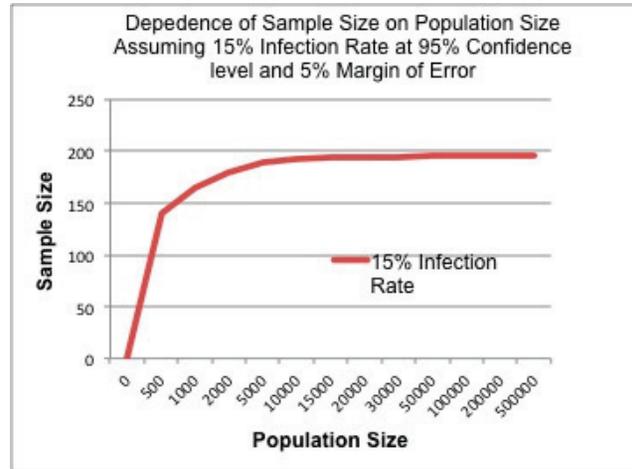
The simulated graph below shows the dependence of sample size on the infection rate for a population size of 20,000 at 95% confidence level and 5% to 10% margin of error.



In this example, assume 200 samples are selected from a total of 20,000 vines (1%). If the true infection rate is 15% or less, the estimated infection rate would have a margin of error of 5% or less at 95% confidence level. If the true infection rate is between 15% to 50%, the estimated infection would have a margin of error of between 5% to 7%.

SAMPLE SIZE AND POPULATION SIZE

Statisticians know statistical theory for why small sample sizes are adequate. The best analogy, although hardly scientific, is the chef and his soup: every chef knows that it only takes a single sip from a well-stirred soup to determine its taste. The simulated graph below shows the dependence of sample size on the population size ranging from 500 to 500,000 at 95% confidence level and 5% margin of error.



The sample size does not change significantly for populations larger than 5,000. This result is very good news for growers who have to screen a large number of vines.

PRACTICAL SAMPLING STRATEGIES

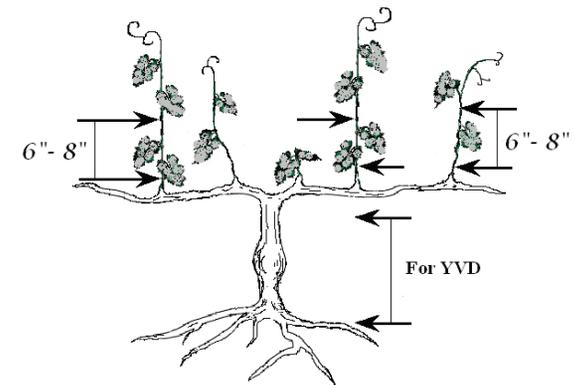
The above discussion was based on the assumption that the infection is homogeneous and random. Practical situations are often much more complex. The sampling strategy is highly dependent on the testing objectives. For example, if the goal is to determine quantitatively the infection rate in a particular vineyard block and/or in new planting materials, samples should be taken randomly by following the above guidelines. If the goal is to conduct a qualitative assessment, several options of sampling strategies are available that include symptom-based sampling, composite sampling, progressive sampling, stratified sampling, investigative sampling, etc. Agri-Analysis has gained valuable experience in advising clients as well as learning from them. Please call us to discuss your specific need.

VINEGUARDSM TESTING SERVICE

Our VINEGUARDSM testing service detects the commonly encountered and economically important viral and bacterial pathogens affecting grapevine production. Clients may choose all or part of the pathogens on this list to test depending on their testing objective.

- Grapevine leafroll virus (GLRaV) types 1 through 9
- Grapevine fanleaf virus (GFLV)
- Grapevine virus B (corky bark virus)
- Grapevine virus A (GVA)
- Grapevine virus D (GVD)
- Pierce's Disease (*Xylella fastidiosa*)
- Grapevine fleck virus (GFkV)
- Rupestris stem-pitting associated virus
- GLRaV-2 Red Globe Strain (GLRaV2-RG)
- Grapevine Red Blotch Associated Virus (GRBaV)

Sample Collection Protocol



We Help Protect Your Vineyards.