



Field Report

Gulf Agri Spray Oil's Effectiveness In Controlling Eryshiphe Necator Fungus On Grapes

In this trial, the efficacy of Gulf Spray Oil in controlling Eryshiphe Necator (powdery mildew) on grapes in Peru was assessed without the addition of a fungicide. Gulf Spray Oil was compared to a well known competing Spray Oil, where both oils when applied independently, have demonstrated notable control over fungal diseases.

The report highlights how well Gulf Spray Oil has performed in comparison to its competitor across different treatment dosages.

The Problem

The Eryshiphe Necator Fungus is a common disease that attacks the vine and affects all green organs of the vine at different times: buds, leaves, shoots, flowers, and clusters. This fungus thrives in conditions of high daytime temperatures and cool nights, and is remarkably adaptable to low-humidity conditions. A significant problem for growers, the Eryshiphe Necator Fungus causes premature leaf loss, reduced yields, and poor fruit quality.

The Eryshiphe Necator Fungus infects the vines in two different ways. The first fungal infection can occur in the mycelia inside the buds and shoots. The fungus develops together with the bud and covers the emerging vegetative shoot with a rapidly spreading white mycelium. Early infections of this sort are observed as individual colonies emerge on the surface of the leaves that grow close to the bark. The second inoculation can occur in Spring, when the cleistothecia of the fungus splits when moistened by rain, releasing millions of ascospores.

These spores germinate and infect the green tissue, forming colonies that produce conidia that infects the vines. The Erysiphe Necator Fungus remains viable from season to season, potentially infecting the next year's crops.

The Test

To assess the efficacy of Gulf Spray Oil, trials were conducted with three different concentration levels. The study used a Randomized Complete Block Design (RCBD) with five treatments and four replicates each. A single foliar application was applied with a turbo sprayer equipped with conical nozzles, calibrated to ensure uniform coverage at a rate of 1,000 litres per hectare (L/ha).

Gulf Spray Oil was tested at three concentrations: 1.0%, 1.5%, and 2.0%. These were compared against a competing Spray oil solution, which served as the control treatment.

Treatments:

- No Application
- Spray Oil Competitor (1.5%)
- Gulf Spray Oil (1.0%)
- Gulf Spray Oil (1.5%)
- Gulf Spray Oil (2.0%)

Monitoring

The percentage of infection was evaluated as the portion of the leaf surface covered by the fungus' Oidiosis. This evaluation was made prior to application, 5 days after application, and 10 days after application. The evaluation was carried out on 5 leaves per plant, taking a total of 5 plants per unit, for 25 leaves for each plot.

Results

Reference Table 1

Phytotoxicity: No phytotoxic effects were observed at any Gulf Spray Oil concentration, indicating that the product is safe for use at the tested doses.

Preliminary Infestation Levels: In the initial assessment, all plants, including the control group (untreated), showed similar levels of Erysiphe Necator infestation, establishing a uniform baseline.

Efficacy at 5 Days: After 5 days, all treated areas demonstrated reduced infestation compared to the untreated control. Gulf Spray Oil at 1.5% and 2.0% concentrations showed significantly better performance than the 1.0% concentration, indicating higher efficacy at these levels.

Efficacy at 10 Days: By day 10, all treated plants exhibited significantly lower infestation levels than the control. The 2.0% concentration delivered the most effective results, outperforming both the 1.5% and 1.0% treatments, indicating that higher concentrations provided sustained control over time.

| TREATMENTS | DOSAGE PERCENTAGE | INFECTION RATE (10 DDA)* | EFFICACY (%) |
|----------------------------|-------------------|--------------------------|--------------|
| No Application | – | 16.09% | 0% |
| Known Spray Oil Competitor | 1.5% | 6.90% | 81.23% |
| Gulf Spray Oil | 1.0% | 8.08% | 73.74% |
| Gulf Spray Oil | 1.5% | 6.37% | 83.87% |
| Gulf Spray Oil | 2.0% | 5.49% | 87.81% |

*ProCitrus. (2017). First efficacy trial of the product ARGENFRUT SUPREME (mineral oil) for the control of Erysiphe necator in grapevine cultivation. Gulf Oil International Ltd.

Conclusion

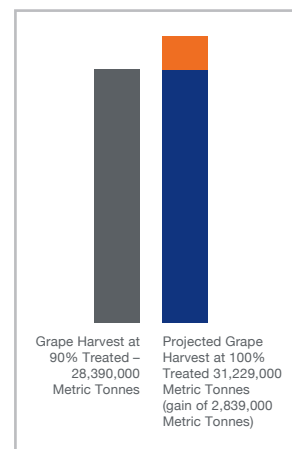
Gulf Spray Oil, particularly at 1.5% and 2.0%, effectively reduced Erysiphe Necator on grapevines, showing sustained efficacy up to 10 days after application.

The Value of Treating with a Fungicide Such as Gulf Spray Oil

While the projections vary, most researchers think that 90% - 95% of grape crops are treated with some form of fungicide. If that percentage of treatment were to be increased to 100%, there would be a projected increase in the harvest of 2,839,000 Metric Tonnes.

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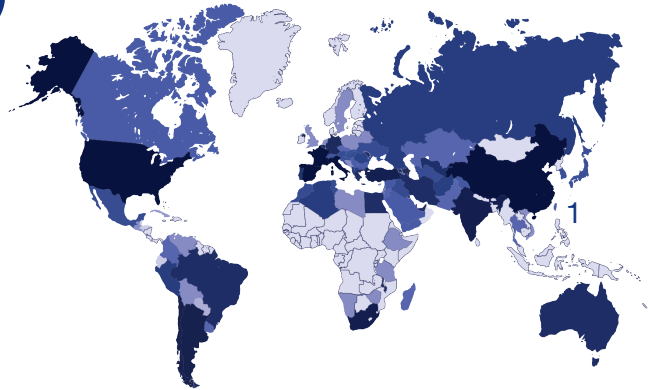
local Gulf representative or visit: www.gulfoilltd.com **CONTACT US**



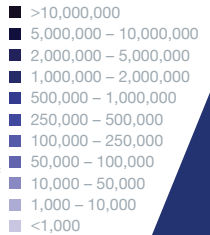
Where Grapes are Cultivated Worldwide



Over 9.5 Million Hectares Worldwide²



Countries by grape production in 2020 (tonnes)

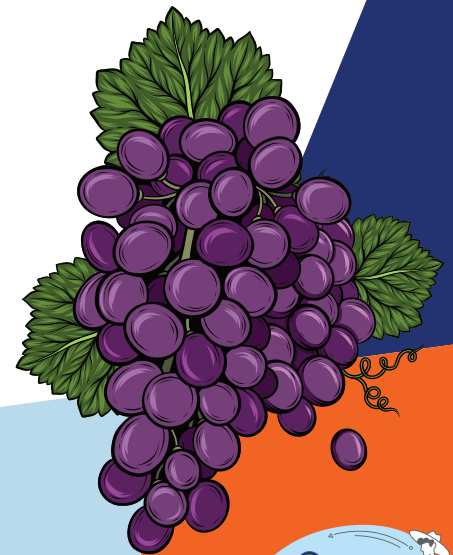


World Grape Production & Growth

28,390,000 Metric Tonnes³

Metric Tonnes³

*Production in million metric tonnes



Benefits of Gulf Agri Spray Oil

As a Treatment for Fungus

Improved YEAR-ROUND PRODUCTIVITY



Uniform & Stable Coverage

Free of Aromatics

Non-Toxic for Wildlife

Less Risk of Phytotoxicity

Fungicide Applied Worldwide

185,250 Metric Tonnes⁴

Metric Tonnes⁴

Sources

1. <https://www.researchgate.net/publication/374480048/figure/fig1/AS:11431281196207527@1696594440421/Grape-production-amounts-of-countries-on-the-world-map.png>
2. <https://www.globenewswire.com/news-release/2023/09/06/2738288/0/en/Global-Grape-Production-Trends-2023-to-2028-Fresh-Consumption-and-Wine-Manufacturing.html>
3. <https://www.statista.com/statistics/237600/world-grape-production-in-2007-by-region/>
4. Gianessi L., Williams A. Fungicides have protected European wine grapes for 150 years. Int. Pestic. Benefits Case Study. 2011;19
https://croplife.org/wp-content/uploads/pdf_files/Fungicides-Have-Protected-European-Wine-Grapes-for-150-Years.pdf

Note: calculate the average of 19.5 Kilograms per hectare applied to vineyards in EU against the total grapes cultivated on 9.5 Million hectares worldwide = 185,250 metric tonnes.