

Fungicides Have Protected European Wine Grapes for 150 Years

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Powdery mildew was first described in North America, but it gained notoriety when it was introduced into European vineyards in 1845 and spread rapidly throughout the continent. By 1851, powdery mildew had reached every grape-growing country of Europe, causing its maximum damage in France in 1854. In that year it reduced the French crop of grapes by 80% [1]. The wine shortage produced by powdery mildew led to a doubling of wine prices in France. Moreover, the quality of the wine from the mildewed grapes was poor. The granting of subsidies for powdery mildew research led to the discovery that sulfur treatments controlled the disease. The use of sulfur became generally widespread in vineyards and by 1858 French wine grape production returned to its 1847 level [2].

It was the import of American plant material that led to the introduction of the downy mildew fungus into Europe. The downy mildew fungus was first noted in 1878, and by 1882 it had spread to all of France [3]. In 1885 a mixture of copper, lime and water was first used to control downy mildew in a vineyard near Bordeaux, France. Until methods were developed to determine treatment dates, French growers suffered enormous losses in numerous "mildew" years, when prolonged periods of rain encouraged development of the parasitic fungus. Such was the case in 1910 and 1915 when the grape harvest in France was reduced by 50% [4].

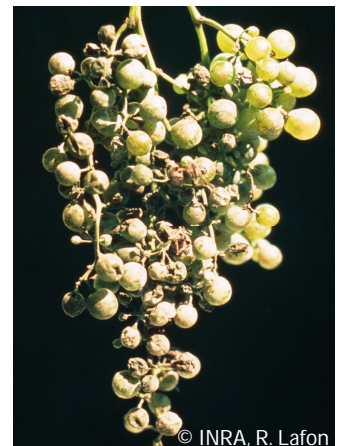
Fungicides have been used in Europe for 150 years to protect wine grapes from powdery and downy mildew. Currently, 100% of Europe's wine grape hectares are sprayed with fungicides to control these two diseases [5]. Fungicides are applied at an average rate of 19.5 kilograms per hectare throughout the E.U. [6]. Twelve to fifteen fungicide applications are typically made each season to protect the grapes. Sulfur and copper are still widely-used in the E.U. and are the fungicides of choice for organic growers [7].

References

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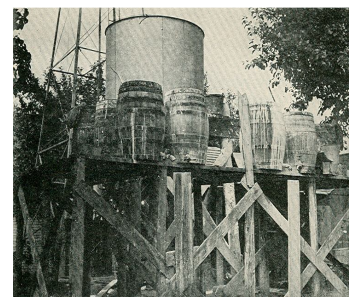
Fungicide sprayer in grapes



Powdery mildew



Downy mildew



Bordeaux mixture