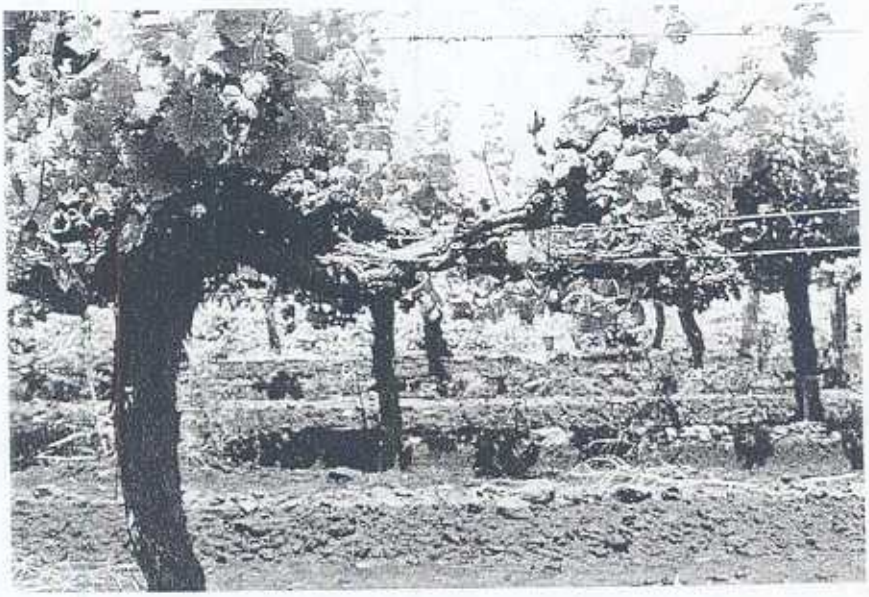
GRAPEVINE PHOMOPSIS CANE AND LEAF SPOT

DAV 92/5





Department of Agriculture, Victoria

Grape & Wine Research & Development Corporation

PHOMOPIS ON WINEGRAPES VIDEO PRODUCTION

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Grape and Wine research and Development Corporation

Project N^{O} DAV 92/5
July 1992 - June 1994

Final Report

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GRAPE AND WINE RESEARCH AND DEVELOPMENT CORPORATION

Project N° DAV 92/5 **Final Report 1992-1994**

Background

Phomopsis cane and leaf spot (*Phomopsis viticola*) of grapevines is one of the major fungal diseases of grapevines. Commonly known as phomopsis, this disease has been recorded on grapevines in Australia since 1911. The disease has been known as "dead-arm" in the past.

Symptoms of the disease are very dependant on climatic conditions and may only appear in certain seasons. Wet weather in spring just after budburst promotes development of the disease. The symptoms are often confined to the basal parts of the shoot. The symptoms take 21-28 days to appear and as shoots develop, the symptoms become obscured.

The spread of winegrape production into cooler, wetter areas of Australia has provided conditions more conducive for the disease. The disease has become entrenched in many vineyards without being recognised. Also, the increased use of spur pruning has provided continual carry-over of infection at the base of shoots. Hedging of vines has been shown to promote the carry-over of phomopsis spores or older wood (Pscheidt and Pearson 1989).

In the early days of vineyard expansion little attention was paid to ensuring cuttings for propagation were free to phomopsis. This has resulted in phomopsis now being fairly widely spread in Australia.

A major limitation to containing the spread and development of the disease is recognition of symptoms of the disease. With development of the disease occurring sporadically, depending on the season, it is not a disease that growers regularly look for. Also many growers do not have a clear idea of what the disease may look like.

Some photographic symptoms have been published in reference books (Flaherty *et al* 1981, Pearson and Goheen 1988) but few growers purchase such books. The disease has been mentioned from time to time in industry periodicals and Agnote type publications. Most of this information is related to grape production in the hot irrigated areas where the disease only shows up occasionally.

More comprehensive photographs have appeared in industry journals in recent years. Creecy and Emmett (1990) and Emmett *et al* (1992) provided some good photographs of the disease. Despite this it was clear some growers were not recognising the disease, and were not acting appropriately to control the disease.

Video productions offer an alternative means of conveying symptoms of the disease and can provide visual impact not possible in still photographs. A video on "Mites in Grapevines" had been produced in 1990 and was very useful in helping growers differentiate between their mite problems.

Although it was believed growers could get a lot out of a video, it was thought necessary that a take home message be made available with the video. Thus a pamphlet with clear photographs of symptoms, along with a summary of the video messages, was to be produced.

Objectives

1. To produce a video detailing the symptoms and control of grapevine phomopsis disease.

2. To produce a pamphlet showing photographs of phomopsis to back up the impact of the video.

3. To promote the video and pamphlet to industry.

General Methodology

The project commenced with a collation of current information and photographs of the disease. Based on this a draft script was prepared by John Whiting. This script was sent to a review panel of leading plant pathologists in each State Department of Agriculture as well as to several practical viticulturalists. The script was revised accommodating as much of the feedback as possible and the revised script sent back out for final ratification.

During the first year of the project symptoms of phomopsis were recorded at up to 5 sites and on 3 occasions. A compilation of footage showing a range of classic and non-classic symptoms was sent to the review panel. Comments on this footage was used to determine what footage was required to be collected in the second season. At the time the video footage was collected, still photographs for the pamphlet were also collected.

Once the script was finalised and the second seasons footage collected the video was edited using local expertise. A draft of the video was sent to some of the review panel as well as the GWRDC for comment. The final master copy of the video was produced and run off for distribution.

The pamphlet text was sent to the review panel for comment. Final layout and presentation was completed in conjunction with a local printer. Funding support for the pamphlet was gained from two chemical companies which assisted with producing a reprint of the pamphlet.

Promotion of the video and pamphlet has been based on making them available prior to the 1994-95 season. Articles in industry magazines were used to create awareness of the video. Copies of the video and pamphlet were sent to State Departments of Agriculture and teaching institutions. In Victoria each regional grapegrower association was sent copies of the pamphlet and were advised of the availability of the video. The pamphlet was mailed out to subscribers of the Australian Grapegrower and Winemaker and the Australian Dried Fruits News (total distribution 7500). The video and pamphlets have also been shown at several grower meetings and more are planned.

Results

The two seasons in which video footage was collected were ideal for observing symptoms of phomopsis. Both spring periods were relatively wet, the 1992-93 season catching some growers out in that sprays were applied later than they should have been. Some vineyard sites showed reasonably bad infections where early spray treatments had not been applied.

There were few technical difficulties in obtaining video footage. Due to the cost of hiring a video camera operator, it was preferable to schedule a number of vineyard visits in one day. However, travel distances of 400-600 km per day meant a lot of down time occurred. Also over these distances weather conditions changed and were not always ideal.

One aspect that became clear was that symptoms of poor growth and bleaching of canes were confusing to the review panel. There was variance among the review panel on some of the footage of symptoms sent to them. Comments on the same symptoms ranged from 'not being typical of phomopsis' to 'being typical symptoms' depending on the reviewer. However, video is perhaps not the best way to closely observe a disease and some difficulties in recognition would be expected.

The non-classical symptoms of phomopsis need to be clarified. There is quite a deal of confusion among grapegrowers and some are actively promoting particular symptoms as phomopsis when there is a strong possibility the problem is not phomopsis. It is pleasing to see the GWRDC continue its support for phomopsis R&D which will hopefully clarify the symptoms (DAN94/1).

Copies of the video and pamphlet were provided to the review panel and co-operating growers and they were encouraged to promote the video within their organisations. In addition, State Departments of Agriculture and leading education institutions were supplied with copies of the video and pamphlet. The GWRDC have also provided copies to major wine company representatives and have made the video available through the Winetitles publishing group.

A letter outlining the availability of the video and copies of the pamphlet have gone to all regional grapegrower associations in Victoria. The video has been shown at several grower meetings generating considerable interest and positive feedback.

A copy of the video is included inside the front cover of the folder. Copies of the video cover and pamphlet are included at the end of the report.

After completing this exercise there are some aspects that should be noted by the GWRDC for any further video productions:

* A script is a primary requirement and should be completed before footage is collected. In this project the script was not finalised until after the first season and it was clear some general fill-in shots and some specific disease symptoms were not recorded quite as the script would have determined. With a script to work to it is much easier to frame shots and pick up other footage during a vineyard visit. It is also useful to collect some general fill-in footage to enhance the visual impact of particular shots.

* A review panel is essential for providing advice on the technical content of the video script and pamphlet. The feedback from the review panel was very constructive and helped clarify doubtful areas. However, some judgements were required by the author where review comments were contradictory.

* Whilst we were lucky in getting seasons conducive to the disease, GWRDC should probably allow more than one season to collect all the appropriate footage in future videos. Scripting, voice over and initial editing should be completed in one season and the collection of extra footage and re-editing could be completed after a second season.

* The GWRDC should not wait for disease problems to manifest before undertaking video productions. I suggest a planned and co-ordinated sequence of high quality videos be prepared for industry addressing the main disease or cultural problems. It appears that making them available to grower associations, extension workers and wine companies can have considerable impact.

* The phomopsis video should also be updated on a regular basis to keep the content and format up to date. At the conclusion of GWRDC project DAN94/1 would be an appropriate time to update this particular video.

Acknowledgments

My thanks are extended to the following people and organisations for their valuable contributions and assistance with the video and pamphlet:

Review Panel - Dr Bob Emmett, Department of Agriculture, Victoria
Dr Tan Nair, Department of Agriculture, NSW
Dr Trevor Wicks, Department of Agriculture, SA
Ms Jill Merrin, Department of Agriculture, NSW
Mr Ken Orr, Department of Agriculture, Victoria
Mr Harry Creecy, Department of Agriculture, NSW

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Brown Bros, Milawa - Mark Walpole
Yellowglen Vineyard - Stuart Davies
Hanging Rock Vineyard - John Ellis
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AgMedia - Video Unit
Sunraysia Horticulture Centre, Irymple - Video Unit

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Warren Medwell
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Pearson, RC and Goheen, AC (Eds) (1988). Compendium of Grape Diseases. APS Press (Am Phytopathological Soc) St Paul, Minnesota, USA pp17-18.

Creecy, H and Emmett, R (1990). Phomopsis of Grapevines and its Control. Australian Grapegrower and Winemaker 316:91 pp93-94.

Emmett, RW; Buchanan, GA and Magarey, PA (1992). Grapevine Diseases and Pest Management. Australian and New Zealand Wine Industry Journal 7(3):149-171.

The fungal disease PHOMOPSIS is present in most of the grape growing areas of Australia. The symptoms of the disease are often confused with those of other disease conditions of vines.

This video, funded by **The Grape and Wine Research and Development Corporation** has been produced to assist growers to recognise the symptoms of PHOMOPSIS, and outlines the various methods of prevention and control available to them.

Written by John Whiting, State Viticulturalist with the Victorian Department of Agriculture, the video shows examples of Phomopsis symptoms on many parts of the vine.

This video has been funded by
The Grape and Wine
Research and Development Corporation.

Produced by:
Sedgwick Video Productions
Ph: (054) 396 338

Identification & Control of Grapevine PHOMOPSIS

Running
Time
16 min

SVP

Identification & Control of Grapevine PHOMOPSIS

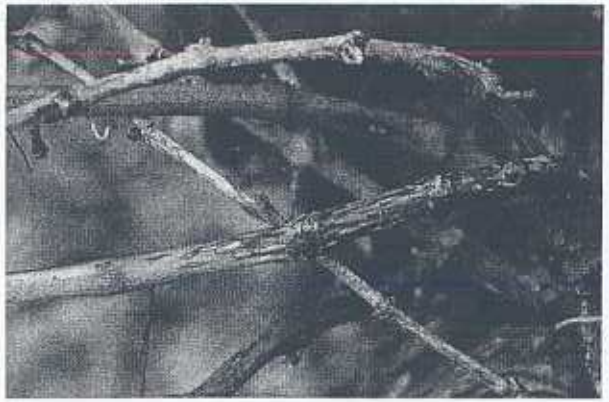


A COMPREHENSIVE GUIDE
TO THE DIAGNOSIS OF
PHOMOPSIS
FOR GRAPE GROWERS

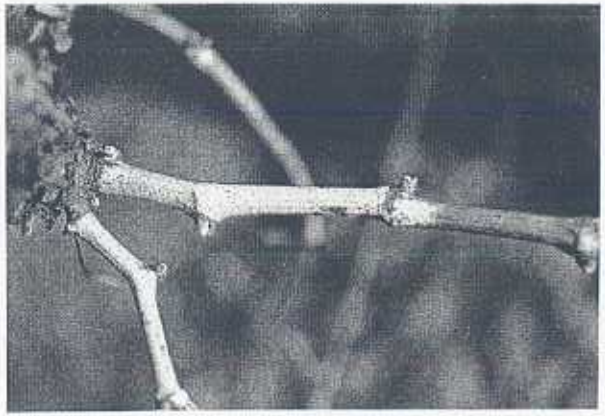
OTHER SYMPTOMS

The black spotting may also occur on other parts of the vine such as bunch stems, tendrils and berries.

During late winter two types of symptoms occur. Firstly, the dark lesions (scars) at the base of the dormant canes are obvious, commonly with areas of bleaching around the scars.



The other common symptom is bleaching of sections of canes without lesions appearing. This bleaching occurs at the base of canes or along segments of canes away from the base, and is often more obvious at the nodes.



CONTROL

First of all, avoid introducing Phomopsis with planting material. Use disease free material or treat dormant cuttings with Chinosol® following strict guidelines for this treatment.

In established vineyards diseased spurs or canes should be removed and burnt. Spur or mechanical pruning is likely to encourage build up of the disease since the fungus mainly survives on the basal parts of shoots.

Protectant spray programs can be used to control the disease. Sprays should begin at the earliest signs of bud burst and be applied every 10-14 days. Where wet weather persists spraying at shorter intervals is necessary.

Chemicals registered for Phomopsis control are dithianon (eg Delan®) and mancozeb (eg Dithane®). These chemicals are not registered for use in all states and growers are advised to check with their local suppliers about chemicals registered in each state.

FURTHER INFORMATION

- A video is available from the Grape and Wine Research and Development Corporation describing further aspects of the disease.

Rohm and Haas Australia Pty Ltd

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GRAPEVINE PHOMOPSIS CANE AND LEAF SPOT





Department of Agriculture, Victoria

Grape & Wine Research & Development Corporation

PHOMOPSIS

Phomopsis cane and leaf spot is a fungal disease of grapevines.

It is commonly known as Phomopsis, but has been called "dead arm" in the past. It is known as excoriosis in Europe. The disease is caused by the fungus *Phomopsis viticola.*

Phomopsis symptoms occur sporadically in Australia and have not been easy to identify. The disease is more common in seasons with wet conditions during bud burst and early growth. The disease is becoming more evident in the cooler, wetter grape growing regions.

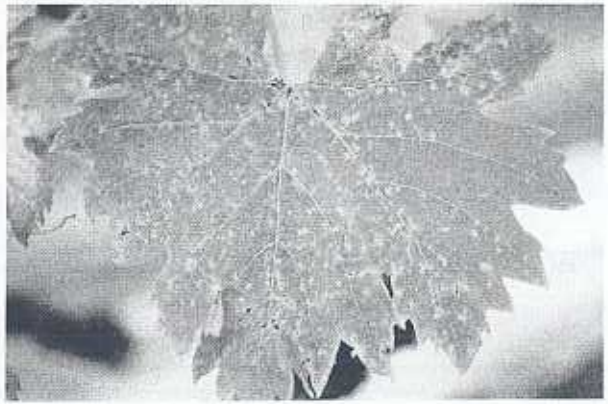
The disease is initially spread in spring when the vines become wet. The overwintering stages of the fungus release spores which are splashed by rain onto newly developing shoots. Spores germinate over a wide temperature range, but only in free water or at very high humidity.

Phomopsis causes leaf distortion and stunting of shoots which reduces vine productivity. In severe cases flower clusters shrivel and die resulting in crop loss.

LEAF SYMPTOMS

Infected leaf blades first show small, dark brown to black spots up to 1 mm in diameter.

These spots are surrounded by a pale green or yellow halo extending 2 to 3 mm beyond each spot.

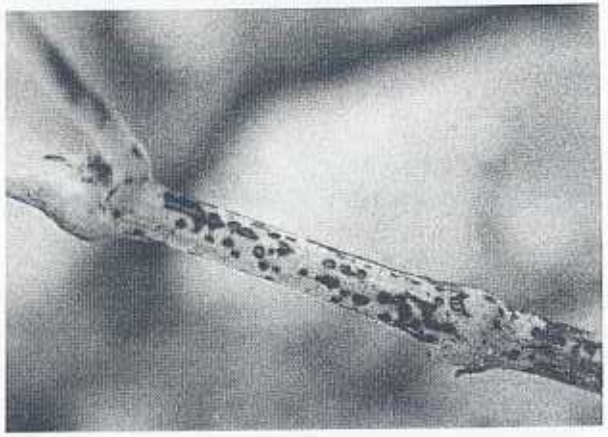




Infected leaves are typically at the base of shoots. Spots may also occur on the petiole (leaf stalk) without the yellow halo.

Where the spots are numerous, the leaves are distorted or stunted and parts of the leaf may turn yellow, die and drop off.

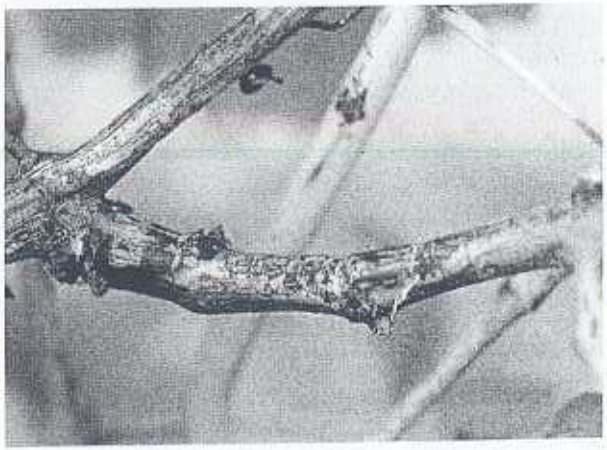
SHOOT SYMPTOMS



On the green shoots small spots with black centres are the early signs of the disease.

Gradually these develop into elongated scars (lesions) that join together to cover much of the surface of the bottom 2 to 3 nodes.

As the shoot expands the dark scarred areas split open and appear scabby.



Longer infected shoots are weakened and may break during strong winds or at pruning.