agriculture,
forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

ASTER YELLOWS PHYTOPLASMA- *CANDIDATUS PHYTOPLASMA ASTERIS*

GOOD AGRICULTURAL PRACTICES AND RISK MANAGEMENT PROCEDURES IN AREAS WHERE GRAPES- *Vitis vinifera*-ARE CULTIVATED:

ADVISORY NOTE FROM THE DEPARTMENT OF AGRICULTURE

Introduction

The Department of Agriculture, Forestry and Fisheries was notified of the occurrence of *Candidatus Phytoplasma asteris* (Aster yellows) in South Africa on grapevine in the Vredendal and Slanghoek areas on the 8th of February 2008. Since then several industry meetings have been conducted and a preliminary action plan has been compiled. An action committee was put together and it was decided that a delimiting survey be conducted to determine to a certain extent the boundaries of the spread of the pest. The sampling and diagnostic protocols were also optimised during this period. The delimiting surveys started in November 2008 and were stopped due the season changes in March 2009. Early indications were that the pest is extending its range, probably through an insect vector; however there are only a few positive plots in the Slanghoek area. The Vredendal area is widely infected with Aster Yellows and eradication of the phytoplasma in this area seems unlikely. It has been found on the following varieties: Chardonnay (very sensitive) and it can also be found on Chenin blanc, Colombar, Pinotage, Cabernet Sauvignon, Cabernet Franc, Shiraz, Merlot, Sauvignon Blanc, Ruby Cabernet, Pinot Noir, Pinot Gris and Riesling.
A follow up survey was done in January/February 2010 to determine the extent of the spread of the disease in the two areas. From the results of the follow up survey it can be concluded that the disease has not spread outside the perimeter of the area that was delimited in the previous year's survey.

It is however incredibly important to ensure that the pest does not spread further. For this action, all responsible industry members, researchers, government officials and producers need to cooperate and assist one another to ensure that the pest does not spread further. It is important to note that the movement of propagation material from an infested area is prohibited in terms of the Agricultural Pest Act, 1983 (Act No. 36 of 1983), control measure R110 of 27 January 1984 as amended.

Other means of preventing the spread may include controlling the pest on site with mechanical means following general good agricultural practices as suggested below.

1. Weed control and intercropping

Aster Yellows phytoplasma has a host range of more than 200 plant species covering a range of several plant families. It has only been found on grapevine material in South Africa and this can be due to host specific strains. In most countries where this pest occurs, insect vectors are the main cause of spread. Several leafhopper species have been identified as having persistent vector properties for phytoplasmas. It is therefore likely that aster yellows inoculums can be building up during the South African winter season on weed species in and around vineyards, as leafhoppers will source other hosts since there are no fresh leaves on the vine itself to feed on.

A full surface weed coverage control program should be implemented where the pest occurs and where it is suspected to occur, throughout the off peak season. Care should be taken not to exceed the maximum herbicide levels for vineyards in order not to harm them. Other crops should not be cultivated in between rows as they may be a source. Mechanical methods for weed control can be used outside and in between the vineyards.

2. Chemical Control

Phytoplasmas can be transmitted in nature only by specific vectors. Some known phytoplasma vectors include leafhoppers, plant hoppers and psyllids. An insect vector, *Mgenia fuscovaria,* is the only vector that is known to transmit the disease in South Africa. However, there is on going research to determine if there are other vectors that can transmit the phytoplasma in the country. When insects are identified as vectors, those insects can be chemically controlled. The use of Chlorpyrifos (3 applications that are 14 days apart during summer) to control leafhoppers has been approved by the Department of Agriculture, Forestry and Fisheries.

3. Vineyard sanitation

Aster yellows is a pest that will cause a gradual increase in infection and spread throughout a vineyard. Symptoms can be seen on new growth which makes it difficult to detect during winter periods. Vineyards should be scouted on a weekly interval to detect symptomous plants. Where vines are showing symptoms, the whole branch (arm) can be removed in order to keep the inoculums low. If the branches (arms) of vines showing symptoms are removed early enough, the plant may be free from aster yellows phytoplasma. Heavily infected plants may have to be removed entirely. Young plants less than 3 years in age should be removed entirely.

Good sanitation principles should be followed when pruning in the Vredendal and Slanghoek areas. All pruning scissors must be sterilised when an infected plant has been pruned, when moving from known infected blocks between rows, and between blocks. Heat treatment of dormant planting material (50°C for 45 minutes) kills phytoplasmas effectively but should only be conducted where the material can be traced and monitored in the following season. Care should be taken when using other machinery while working in infected blocks.

4. Propagation material

Propagation material should not be moved before the material or the mother blocks have been verified to be free from aster yellows in the Slanghoek and Vredendal areas. If yellows symptoms have been seen in any vineyard in South Africa a test must first be conducted before material can be removed. Material should not be moved from infected blocks.

5. Marking of blocks

All grapevine plants and all vineyards with aster yellows present need to be marked in a way that is easily visible to farm workers and official personnel.

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Thank you for your cooperation

Kind Regards

DIRECTOR PLANT HEALTH

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