

Fungicide management program to control mango anthracnose

John Dirou

District Horticulturist
Intensive Industries Development Branch Alstonville

Gordon Stovold

Former Plant Pathologist

copper sulfate \$3.10, azoxystrobin \$14.10 and prochloraz \$17.30.

BACKGROUND

Anthracnose is a fungal disease caused by *Colletotrichum gloeosporioides*. It is the most common disease of mangoes on the north coast of NSW.

In recent years growers have experienced problems controlling this disease and they have suggested that the fungicides used are not providing acceptable levels of control. Products currently registered for pre-harvest use include mancozeb, copper hydroxide and copper sulfate products – these are routinely used from flowering through to harvest. Prochloraz is used when weather conditions favour disease development, and a strobilurin product has recently been registered.

To test the sensitivity of some local isolates of anthracnose to some of the registered fungicides, a laboratory study was conducted. Anthracnose isolates were collected in February 2004 from 11 mango orchards over a range of geographic areas. The isolates were laboratory cultured and stored under refrigeration prior to the fungicide testing.

A survey of spray programs from the sites where the isolates were collected indicated a high usage of fungicides even in a year of below average rainfall. Even though disease pressure was reduced, growers still applied from 9 to 26 fungicide treatments during the growing season. This includes fungicides applied for the control of bacterial black spot.

It is not only the number of fungicides applied that is of concern but the cost of applying each spray. For example, product costs for 100 litres of spray excluding labour and machinery costs are: Mancozeb \$1.65, copper hydroxide \$2.10 to \$3.00,

LABORATORY STUDY

Examination of the isolates collected indicated two causal fungi *Colletotrichum gloeosporioides* and *Colletotrichum gloeosporioides* var. *minor*. The later was found on fruit from four orchards and is a more aggressive strain.

Ten fungicides were tested with rates from 0 to 25 ppm of active ingredient. Fungi spore germination and growth were counted at 24 and 48 hours following the treatments. Measuring these parameters at these times provides a reliable indicator of how well a fungicide is performing against an isolate.

The study showed that all isolates reacted similarly to the products tested. **There was no evidence of any resistance to any fungicide tested.**

The fungicides prochloraz/Octave®, mancozeb/Bryzeb® and azoxystrobin/Amistar® which are all currently registered for control of anthracnose in mango were effective in suppressing the growth of all isolates tested. Other fungicides namely chlorothalonil/Bravo®, thiram/Thiragran® and captan/Captan® were also effective.

From the results it appears that the fungicides currently registered for the control of anthracnose are effective against the isolates tested and the reason for poor disease control in commercial orchards may be related to poor spray coverage, inappropriate timing or the vagaries of the weather. We can only assume it is an application problem rather than any resistance to the fungicides tested.



FUNGICIDE ROTATION

Even though these fungicides are effective, the loss of sensitivity (resistance) is a real risk. Growers can reduce this risk by rotating fungicides in their spray program using the different groups listed below. You can also alternate fungicides between blocks of trees and in some cases varieties. For anthracnose, registered fungicides fall under three groups namely:

Group Y Mancozeb, Copper hydroxide and sulfate

Group C Prochloraz

Group K Azoxystrobin

Furthermore, as all commercial varieties have some susceptibility to anthracnose, site selection and regular tree pruning is important to maximise sunlight infiltration and air movement within the tree. This helps with the natural control of anthracnose and reduces the pressure on the fungicides.

ACKNOWLEDGEMENT

Thanks are extended to Steven Muldoon who provided competent laboratory support for this study.

FURTHER INFORMATION

For further information contact the author.

© State of New South Wales 2005

ISSN 0725-7759
JOB NUMBER 5955

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (August 2005). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of New South Wales Department of Primary Industries or the user's independent adviser.

Recognising that some of the information in this document is provided by third parties, the State of New South Wales, the author and the publisher take no responsibility for the accuracy, currency, reliability and correctness of any information included.

Always read the label

Users of agricultural (or veterinary) chemical products must always read the label and any Permit, before using the product and strictly comply with the directions on the label and the conditions of any Permit. Users are not absolved from compliance with the directions on the label or the conditions of the permit by reason of any statement made or omitted to be made in this publication.