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**Postharvest residue trials in rockmelons,
2000**

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QDPI, QHI



Know-how for Horticulture™

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**HORTICULTURAL
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**Partnership in
horticulture**

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Postharvest Residue Trials in Rockmelons

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Johnny Højmark-Andersen is no longer an employee of QDPI and is currently employed with Reinbott farming.

This project aimed to gather the relevant residue data required to apply for the registration of *Fungaflor™ 500EC* (a.i. imazalil) as a postharvest fungicide for rockmelons. This report reports on the outcomes of the project.

Funding for this project has come from Horticultural Research and Development Corporation (HRDC), Queensland Fruit and Vegetable Growers (QFVG) and Queensland Department of Primary Industries (DPI), Queensland Horticulture Institute (QHI). In kind support has come from Janssen-Cilag Pty. Ltd., G&D Reinbott, J. Rapisarda and C. De Domenico.

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Industry Summary

The Australian rockmelon and honeydew melon industry produces approximately 70,000t of product per annum and has a farm gate value exceeding \$50 million.

Rockmelons are susceptible to a range of fruit rots, which can severely damage the fruit particularly while they are being stored after harvest. If honeydew melons are stored for more than two weeks they can also deteriorate due to fruit rots.

Currently most rockmelon growers treat their fruit with the postharvest fungicide Benlate® which is manufactured by the Du Pont company. Du Pont has made a commercial decision to withdraw Benlate as a registered postharvest chemical for use with melons. Because of this a replacement fungicide will need to be registered for use on melons.

Previous projects have looked at various fungicides to find a suitable replacement. Sufficient efficacy data has been gathered on the product *Fungaflor® 500EC* (a.i. imazalil) and the manufacturer Janssen-Cilag have indicated a willingness to proceed with registration if industry is prepared to support the gathering off residue data necessary for registration.

This project set out to gather data on the amount of residues left on fruit after standard commercial use of *Fungaflor® 500EC* (a.i. imazalil).

Four trials were conducted in 1998 and the samples were analysed for residue limits. The results so far have not been very good, as the residue levels have been higher than expected.

The current residue limit permitted for imazalil is 2 ppm and as the results show this limit has been exceeded in a number of the samples. It is possible that a permit for use can be granted for Australia at a residue level of 5 ppm. However as the international CODEX limit is 2 ppm fruit treated in Australia with *Fungaflor® 500EC* (a.i. imazalil) could not be exported. As this product is needed to treat export fruit a new CODEX limit needs to be set.

There is no scope within this project to gain registration for *Fungaflor® 500EC* (a.i. imazalil) as a postharvest fungicide for melons. However it is recommended that industry look at supporting Janssen-Cilag in gaining registration for this product.

Technical Summary

The Australian rockmelon and honeydew melon industry produces approximately 70,000t of product per annum and has a farm gate value of \$50 million. Rockmelons require a postharvest fungicide treatment for the control of *Alternaria*, *Fusarium*, *Rhizopus* and *penicillium*. Honeydew melons stored for more than 2 weeks may also need treatment. The only postharvest fungicide treatment currently registered for the control of these diseases is Benomyl (Benlate®). The manufacturers of Benlate® (Du Pont) are voluntarily withdrawing the postharvest registration of Benlate. Du Pont have indicated that this is a commercial decision on their part and no further reasons have been given. Sufficient efficacy data has already been gathered on the product *Fungaflor*® 500EC (a.i. imazalil) and the manufacturers Janssen-Cilag have indicated a willingness to proceed with registration if the required residue data is made available.

This project aimed to gather the relevant residue data required for the registration of *Fungaflor*® 500EC (a.i. imazalil) as a postharvest fungicide for rockmelon.

Four trials were conducted in 1998 and the samples were analysed for residue limits. The results so far have not been very good, as the residue levels have been higher than expected.

The current residue limit permitted for imazalil is 2 ppm and as the results show this limit has been exceeded in a number of the samples. It is possible that a permit for use can be granted for Australia at a residue level of 5 ppm. However as the international CODEX limit is 2 ppm fruit treated in Australia with *Fungaflor*® 500EC (a.i. imazalil) could not be exported. As this product is needed to treat export fruit a new CODEX limit needs to be set.

There is no scope within this project to gain registration for *Fungaflor*® 500EC (a.i. imazalil) as a postharvest fungicide for melons. However it is recommended that industry look at supporting Janssen-Cilag in gaining registration for this product.

Introduction

The Australian rockmelon and honeydew melon industry produces approximately 70,000t of product per annum and has a farm gate value of \$50 million. Rockmelons require a postharvest fungicide treatment for the control of *Alternaria*, *Fusarium*, *Rhizopus* and *penicillium*. Honeydew melons stored for more than 2 weeks may also need treatment. The only postharvest fungicide treatment currently registered for the control of these diseases is Benomyl (Benlate®). The manufacturers of Benlate® (Du Pont) are voluntarily withdrawing the postharvest registration of Benlate. Du Pont have indicated that this is a commercial decision on their part and no further reasons have been given.

*Fungaflor*TM is currently registered for use as a postharvest fungicide for rockmelons in many overseas countries including Spain, Israel and the USA. An application for registration of *Fungaflor*® 500EC (a.i. imazalil) for use as a postharvest fungicide on citrus and pome fruit is currently with the National Registration Authority. Efficacy trials using several cultivars of rockmelon have been conducted and completed by A.W. Cook and L.M. Coates. They concluded that *Fungaflor*® 500EC (a.i. imazalil) at 500ppm was capable of giving the desired disease control results.

Previous projects have looked at various fungicides to find a suitable replacement. Sufficient efficacy data has been gathered on the product *Fungaflor*® 500EC (a.i. imazalil) and the manufacturers Janssen-Cilag have indicated a willingness to proceed with registration if industry is prepared to support the gathering off residue data necessary for registration.

This project set out to gather data on the amount of residues left on fruit after standard commercial use of *Fungaflor*® 500EC (a.i. imazalil). Four trials were conducted in 1998 and the samples were analysed for residue limits. The current residue limit permitted for imazalil under the international CODEX limit is 2 ppm. The results of this project show that this limit was exceeded on a number of occasions. It is possible to register the product in Australia at 5ppm limit. However as the international CODEX limit is 2 ppm fruit treated in Australia with *Fungaflor*® 500EC (a.i. imazalil) could not be exported. As this product is needed to treat export fruit a new CODEX limit needs to be set.

Materials and method

The objective is to obtain samples of rockmelons treated under controlled conditions, with heated *Fungaflor*® 500EC (a.i. imazalil) using commercial overhead drench.

The rockmelon samples will be harvested in the Burdekin region under normal conditions and taken to the commercial premises where they will be drenched in the normal commercial manner. A subsample of the drenched melons will be packed in ice and transported to the analytical laboratory in Sydney. The laboratory will analyse the melon samples for the amount of imazalil present. Analysis of the water used and the formulation will also be carried out 4 times.

A full protocol for the conduct of these trials are set out in appendix 1.

Results

The results of the four trials are tabled below.

Trial a conducted at Brandon on the 16/12/96

Lab No	Trial No	Substrate	Sample Code	Imazalil (mg/kg or mg/L)
96/5810-1	A	Rockmelon	RMs-C	<0.01
96/5810-2	A	Rockmelon	RMs-1	1.14
96/5810-3	A	Rockmelon	RMs-2	0.67
96/5810-4	A	Rockmelon	RMs-3	0.79
96/5810-5	A	Water	Water sample	<0.002
96/5810-6	A	Dip Sample	Ds-S	34.1
96/5810-7	A	Dip Sample	Ds-F	14.7

Trial conducted at Clare 18/11/97

Lab No	Trial No	Substrate	Sample Code	Imazalil (mg/kg or mg/L)
97/6141-01	B	Rockmelon	RMs-C	<0.01
97/6141-02	B	Rockmelon	RMs-1	2.2
97/6141-03	B	Rockmelon	RMs-2	1.2
97/6141-04	B	Rockmelon	RMs-3	2.0
97/6141-05	B	Water	Water sample	0.51
97/6141-06	B	Dip Sample	Ds-S	128
97/6141-07	B	Dip Sample	Ds-F	87

Trial Conducted at Gumlu 20/11/97

Lab No	Trial No	Substrate	Sample Code	Imazalil (mg/kg or mg/L)
97/6141-01	C	Rockmelon	RMs-C	<0.01
97/6141-09	C	Rockmelon	RMs-1	1.1
97/6141-10	C	Rockmelon	RMs-2	3.0
97/6141-11	C	Rockmelon	RMs-3	2.6
97/6141-12	C	Water	Water sample	<0.01
97/6141-13	C	Dip Sample	Ds-S	101
97/6141-14	C	Dip Sample	Ds-F	N.S.

Trial conducted at Brandon 20/11/97

Lab No	Trial No	Substrate	Sample Code	Imazalil (mg/kg or mg/L)
97/6141-01	D	Rockmelon	RMs-C	<0.01
97/6141-16	D	Rockmelon	RMs-1	2.1
97/6141-17	D	Rockmelon	RMs-2	4.4
97/6141-18	D	Rockmelon	RMs-3	0.9
97/6141-19	D	Water	Water sample	<0.01
97/6141-20	D	Dip Sample	Ds-S	129
97/6141-21	D	Dip Sample	Ds-F	N.S.

Discussion

The current residue limit permitted for imazalil is 2 ppm and as the results show this limit has been exceeded in a number of the samples. It is possible that a permit for use can be granted for Australia at a residue level of 5 ppm. However as the international CODEX limit is 2 ppm, fruit treated in Australia with *Fungaflor*® 500EC (a.i. imazalil) could not be exported. As this product is needed to treat export fruit a new CODEX limit needs to be set.

Technology Transfer

Once registration of *Fungaflor*® 500EC (a.i. imazalil) has been achieved, industry adoption will occur quite readily **after the Off Label Permit (No.PER 2722) for Benlate**® expires in July 2001. The relevant information will be passed on to the stakeholders through the company holding the licence, the melon association (newsletters and magazines), letters, facsimile, extension officers, and industry representatives.