

IMAZALIL (110)

EXPLANATION

Imazalil was first evaluated in 1977 and has been reviewed several times up to 1989.

The 1988 CCPR agreed to delete the proposed MRL of 5 mg/kg on melons in view of the lack of registered uses. It appears that there are now registered uses in Spain and Israel.

The Meeting received information on use patterns, residue data from supervised trials and analytical methods for melons.

METHODS OF RESIDUE ANALYSIS

Samples were extracted twice with heptane-isoamyl alcohol (95:5) or ethyl acetate under alkaline conditions and analysed by GLC with EC detection (Woestenborghs *et al.*, 1988). The potential metabolite formed by O-dealkylation was not determined but it would be expected to be negligible, because it is known not to be produced extensively in fruits and any significant level of it would appear on the chromatogram (Van Leemput *et al.*, 1986).

The recoveries and limits of determination were >90% and 0.05 mg/kg respectively in all studies.

USE PATTERN

The approved post-harvest use patterns on melons are shown in Table 1.

Table 1. Approved post-harvest use patterns of imazalil on melons.

Country	Form	Application	
		Method	Spray concentration, kg/hl
Israel	TC	wax	0.2
South Africa	EC	spray	0.026-0.1
	EC	dip	0.05
Spain	SL	drench	0.038
	TC ¹	wax	0.2

RESIDUES RESULTING FROM SUPERVISED TRIALS

Supervised trials were carried out in Spain with the results summarized in Table 2. The varieties Tendral, Piel de sapo and Amarillo liso were used in the trials.

Table 2. Residues of imazalil in melons from post-harvest supervised trials in Spain (Refs. 1, 2, 3).

Application, kg ai/hl	Sample	Residue, mg/kg ¹		
0.2 in wax	whole fruit	<u>0.48</u> , <u>0.31</u>	<u>0.54</u> , <u>0.77</u>	<u>0.84</u> , <u>0.60</u>
	pulp	0.07, <0.05	<0.05, <0.05	<0.05, <0.05
0.4 in wax	whole fruit	0.7, 2.1	1.4, 1.4	1.1, 1.2
	pulp	<0.05, <0.05	0.08, <0.05	<0.05, <0.05
0.038 drench	whole fruit	<u>0.5</u> , <u>0.37</u>	<u>0.39</u> , <u>0.55</u>	<u>0.63</u> , <u>0.40</u>
	pulp	<0.05, <0.05	0.06, <0.05	0.1, 0.09
0.075 drench	whole fruit	0.65, 1.3	1.47, 1.26	0.87, 1.04
	pulp	0.08, 0.06	0.15, 0.12	0.08, 0.14

¹ Underlined residues are from treatments according to GAP

Residues in the edible portion of food commodities

The highest mean residue of imazalil in melon pulp in the above trials was 0.14 mg/kg from the 0.075 kg ai/hl drench treatment and was 10% of the mean residue in the whole fruit. The results indicate that peeling would reduce the residue in the whole fruit by about 90%.

NATIONAL MAXIMUM RESIDUE LIMITS

The Meeting was informed of the following national MRLs for melons or in which melons are included.

Country	Commodity	MRL, mg/kg
Belgium	Fruiting vegetables	0.5
Denmark	Other fruit	2
Finland	Other fruit	0.5
France	Cucurbits	2
Israel	Melons	0.5
Spain	Cucurbits	5
Sweden	Fruiting vegetables	0.5

APPRAISAL

The 1988 CCPR agreed to delete the proposed MRL of 5 mg/kg for melons in view of the lack of registered uses. However, the Meeting was informed that there are now registered uses in Israel, South Africa and Spain, and received information on use patterns, residue data from supervised trials in Spain, and analytical methods for melons.

Melons, except watermelon. There are two types of application in the post-harvest use of

imazalil on melons, one with an aqueous solution and the other a wax containing the technical material.

A wax treatment at 0.2 kg ai/hl, which is approved in Israel and Spain, gave a mean residue of 0.59 mg/kg and the range 0.31-0.84 mg/kg.

Aqueous applications consist in a drench at 0.038 kg ai/hl (Spain), a spray up to 0.1 kg ai/hl (South Africa) and a dip at 0.05 kg ai/hl (South Africa), while residue trials were carried out with drenches at 0.038 kg ai/hl and 0.075 kg ai/hl.

The Meeting concluded that the three types of aqueous treatment are essentially equivalent from a residue aspect because in any aqueous treatment once the whole surface of the fruit is covered with the solution the surplus will run off.

The Meeting also concluded that the results of drenching at 0.075 kg ai/hl in the Spanish trials could be extrapolated to the spray treatment at 0.1 kg ai/hl which is GAP in South Africa, since the residues from drench trials with two different dose rates were in proportion to the dose.

The mean residue from a drench trial at 0.075 kg ai/hl was 1.1 mg/kg, with the range 0.65-1.47 mg/kg. The highest residue from a spray treatment at 0.1 kg ai/hl would therefore be expected to be 2 mg/kg ($1.47 \times 0.1/0.075 = 1.96$).

The residues of imazalil in melon pulp in all the trials were from <0.05 to 0.15 mg/kg.

The analytical methods for melons are suitable for regulatory purposes.

The Meeting estimated a maximum residue level of 2 mg/kg for melons, except watermelon.

RECOMMENDATIONS

On the basis of the data on residues resulting from supervised trials the Meeting concluded that the residue level shown below is suitable for use as an MRL.

Definition of the residue: imazalil

Commodity		Recommended MRL, mg/kg		PHI, days
CCN	Name	New	Previous	
VC 0046	Melons, except Watermelon	2 Po	-	-

REFERENCES

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2. Rijksuniversiteit Gent, 1992a, Report: imazalil residues in melons, Project 23/91.
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4. Van leemput L. *et al.*, 1986. Post-harvest Treatment of Apples With Imazalil: Fate of the Fungicide During Fruit Storage and Juice Production. Drug Development Research 8, 333-9.
5. Woestenborghs, R. *et al.*, 1988. A review of methods for the residue analysis of the fungicide imazalil, Med.Fac. Landbouww. Rijksuniv. Gent 53/3b.