

FOLPET (041)

EXPLANATION

Folpet was first evaluated in 1969, and most recently re-evaluated in 1993.

Residue data were received in 1993, but no recommendations could be made for citrus fruits, apples, melons or lettuce because the information on GAP was insufficient or did not match the conditions of the trials.

The 1993 JMPR was informed that data on cucumber trials would become available in the future from Turkey, Israel and Cyprus.

New information on GAP was received from Cyprus, Hungary, Israel and Turkey, together with details of new supervised trials on cucumbers.

METHODS OF RESIDUE ANALYSIS

Analytical methods

Clemson (1994) described an HPLC method for the determination of folpet and phthalimide residues in tomatoes and cucumbers. The sample is extracted with acetone, the filtrate is diluted with aqueous sodium chloride and the residues extracted into dichloromethane. The solvent is evaporated and the residues dissolved in the mobile phase (acetonitrile/water) for HPLC with UV detection at 295 nm.

Good recoveries were achieved from tomatoes and cucumbers fortified with folpet and phthalimide at 0.1 to 1.0 mg/kg.

USE PATTERN

Folpet is a broad-spectrum fungicide. Registered uses in addition to those reported to the 1993 JMPR are shown in Table 1 below.

RESIDUES RESULTING FROM SUPERVISED TRIALS

Residue data on apples, cucumbers and lettuce were made available to the Meeting. The reports on the apple and lettuce trials were only in summary form and could not be evaluated. The results of the cucumber trials are recorded in Table 2.

Analytical recoveries for the cucumber trials were satisfactory. The results have generally been rounded to 2 significant figures, or near the limit of determination to 1 significant figure. The trials were mostly on 4 replicate plots, and the residues of folpet and phthalimide for

each plot are recorded. The GLC method (Schlesinger, 1991) was reviewed by the 1993 JMPR.

In the Israeli trials with four replicates (90 and 600 plants per plot), the plants were sprayed with a motorised back-pack sprayer. The crops were sprayed with knapsack sprayers in the trials in Cyprus and Turkey. A spraygun was used for the trial in Hungary.

Table 1. Additional registered uses of folpet. All foliar applications of WP formulation.

Crop	Country	Application			PHI, days
		Rate, kg ai/ha	Spray conc, kg ai/hl	No.	
Almond	Israel		0.16		14
Apple	Israel		0.16		14
Cucumber	Hungary		0.1-0.13		14
Cucumber	Israel	2.0			14
Cucumber	Turkey		0.18		7
Cucurbits	Cyprus		0.10-0.12		0
Pear	Israel		0.16		14

Table 2. Residues of folpet and phthalimide in cucumbers from foliar applications of folpet in supervised trials in Cyprus, Israel and Turkey. Underlined residues are from treatments according to GAP. All WP formulations.

Country, year (Variety)	Application			PHI, days	Residues, mg/kg		Ref.
	kg ai/ha	kg ai/hl	No.		Folpet	Phthalimide	
Cyprus, 1993 (Delila)	1.2	0.12	5	10	<u>NQ</u> (2)	0.3, 0.4	CY001/93 FP/34/93
				10	<u>NQ</u> (2)	0.4, 0.3	
Cyprus, 1993 (Delila and Celebrity)	1.2	0.12	6	0	<u>0.22, 0.36</u>	0.4, 0.3	CY002/93 FP/34/93
				0	<u>0.12, 0.17</u>	0.3, 0.2	
				3	<u>NQ, 0.11</u>	0.2, 0.4	
				3	<u>ND, 0.05</u>	0.4, 0.54	
				7	<u>NQ</u> (2)	0.4, 0.52	
				7	<u>NQ</u> (2)	0.69, 0.3	
				10	<u>ND</u> (2)	0.4, 0.65	
				10	<u>NQ</u> (2)	0.65, 0.51	
Hungary, 1993	1.3	0.13	2	5	NQ, 0.13	ND (2)	2/94
				5	0.17, NQ	NQ, ND	
				5	0.17, 0.34	NQ, ND	
				5	0.14, 0.14	NQ, ND	
				5	0.27, 0.25	ND (2)	
			3	5	0.44, 0.48	ND (2)	
				2	0.32, 0.33	NQ (2)	
				2	0.27, 0.74	NQ (2)	
				5	0.18, 0.08	NQ, ND	
				5	0.22, 0.19	NQ (2)	

Country, year (Variety)	Application			PHI, days	Residues, mg/kg		Ref.
	kg ai/ha	kg ai/hl	No.		Folpet	Phthalimide	
				10	0.13, 0.08	ND (2)	
				10	0.11, NQ	ND (2)	
				10	0.05, 0.12	ND (2)	
				10	NQ (2)	ND (2)	
				14	<u>NQ</u> , <u>ND</u>	ND (2)	
				14	<u>NQ</u> (2)	ND (2)	
Israel, 1993 (Delila)	1.3	0.42	3	7	ND, NQ	NQ (2)	ISR 001/93 FP/32/93
				7	ND (2)	NQ (2)	
			4	0	0.06, NQ	NQ, 0.2	
				0	NQ (2)	NQ (2)	
				3	NQ (2)	0.2, 0.2	
				3	NQ (2)	NQ (2)	
				7	NQ, ND	NQ, 0.2	
				7	ND, NQ	0.35, 0.2	
				10	0.05, NQ	0.2, 0.2	
				10	ND, NQ	NQ, 0.2	
Israel, 1993 (Delila)	1.3	0.25	4	7	0.05, 0.06	NQ (2)	ISR 002/93
				7	0.06, 0.12	NQ (2)	FP/32/93
Turkey, 1993	1.3		5	0	0.10, 0.28	ND (2)	FP/33/93
				0	0.28, 0.22	ND (2)	
				0	0.07, 0.16	ND (2)	
				0	0.20, 0.23	ND (2)	
				3	0.07, 0.08	ND (2)	
				3	0.10, 0.19	ND (2)	
				7	0.05, 0.10	ND (2)	
				7	0.13, 0.14	ND (2)	

ND Not detected. Limits of detection 0.02 mg/kg for folpet and 0.1 mg/kg for phthalimide

NQ Detected, but below limit of determination. Limits of determination 0.05 mg/kg for folpet and 0.2 mg/kg for phthalimide

(2) Same result from 2 plots

APPRAISAL

Folpet was first evaluated in 1969, and most recently re-evaluated in 1993. The 1993 JMPR was informed that data from cucumber trials would become available in the future from Turkey, Israel and Cyprus. The 1993 Meeting extended the TADI for folpet to 1995.

New information on GAP and data on cucumber trials from Cyprus, Hungary, Israel and Turkey were made available to the Meeting.

The official PHI for cucumbers in Israel is 14 days, but data were available from one trial for samples harvested 10 days after the final application, and from the other trial at 7 days. The highest residues at day 10 were 0.05 mg/kg of folpet and 0.2 mg/kg of phthalimide.

The cucumber trial from Turkey could not be evaluated against Turkish GAP because spray concentration is prescribed in the GAP, and the application in the trial was described in terms of kg ai/ha.

In the Hungarian trial after 14 days (the Hungarian PHI) residues were below the limit

of determination (0.05 mg/kg).

In Cyprus the official PHI is 0 days, when the highest folpet residue recorded was 0.36 mg/kg (range 0.12-0.36 mg/kg). This is consistent with residues on day 0 in the Turkish trial (range 0.07-0.28 mg/kg). The majority of the folpet residues in the Hungarian trial at short intervals after treatment were also in the same range, but folpet residues in cucumbers from one plot harvested 2 days after treatment were 0.74 mg/kg.

Residue data on apples and lettuce were also made available to the Meeting, but were only in summary form and could not be evaluated.

RECOMMENDATIONS

On the basis of the data from supervised trials the Meeting concluded that the residue level shown below is suitable for establishing a maximum residue limit.

Definition of the residue: folpet.

CCN	Commodity	Recommended MRL, mg/kg	PHI on which based, days
VC 0424	Cucumber	0.5	0

FURTHER WORK OR INFORMATION

Desirable (repeated from 1993)

Full details and results of the French trials on apples and lettuce now awaiting final reports, together with full details of the relevant French GAP.

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