IPRODIONE (111)

EXPLANATION

Iprodione, originally evaluated by the JMPR in 1977 and re-evaluated for residues in 1980, is included in the CCPR periodic review programme. Re-evaluation (ALINORM 89/24A, para 298; Appendix V and VI) was originally scheduled for 1992 but postponed because of the work-load and the late submission of some of the data.

Codex Maximum Residue Limits (CXLs) exist for apple, beans (dry), cucumber, black, red and white currants, garlic, grapes, kiwifruit, head lettuce, bulb onion, peach, pear, sweet peppers, plums, raspberries, husked rice, strawberry, tomato and witloof chicory.

The Meeting reviewed information from the manufacturer in response to the 1977 requests (repeated in 1980), as well as information on GAP and residue trials on other commodities. Additional information was submitted by The Netherlands, Spain, New Zealand, Canada and Germany.

IDENTITY

ISO common name: iprodione

Chemical names

(IUPAC):	3-(3,5-dichlorophenyl)-*N*-isopropyl-2,4-dioxoimidazolidine-1-carboxamide
(C.A.):	3-(3,5-dichlorophenyl)-*N*-(1-methylethyl)-2,4-dioxo-1-imidazolidinecarboxamide
CAS No:	36734-19-7
Synonyms:	glycophene (non-official: rejected common name proposal)

Structural formula:

Molecular formula: $C_{13}H_{13}Cl_2N_3O_3$

Molecular weight: 330.17

Physical and chemical properties

Vapour pressure:	<0.133 mPa (20°C)		
Melting point:	136°C		
Octanol/water partition coefficient:	log P_{ow} = 3.1		
Solubility (20°C):	water		0.013 g/l
	ethanol	25 g/l	
	acetone	300 g/l	
	dichloromethane	500 g/l	

USE PATTERN

Extensive information on GAP was given in the 1977 monograph. The Meeting received additional or revised information on current GAP (Table 1).

Formulations

Rovral WP (50% WP); Rovral Aqua Flo (500 g/l SC); Rovral Flo = Kidan = Verisan (255 g/l SC); Rovral 4F (480 g/l SC); Rovral TS (35% iprodione, 17.5% carbendazim WP); Rovral TS Flo = Calidan = Quintal IC (175 g/l iprodione, 87. 5 g/l carbendazim SC); Rovral UFB (350 g/l iprodione, 175 g/l carbendazim FS); Rhapsodie (350 g/l iprodione, 50 g/l imazalil SC); Sumistar (160 g/l iprodione, 24 g/l diniconazole and 80 g/l carbendazim SC); Sirocco (100 g/l iprodione, 150 g/l fenpropimorph).

Table 1. Registered uses of iprodione.

Crop	Country	Application			PHI, days	Remarks
		No.	Rate, kg ai/ha	Spray conc., kg ai/hl		
Alfalfa	Australia		0.13-0.25	0.012-0.025	7	(1)
(1) PHI before grazing						
Almonds	France		0.75	0.075		
	USA	4	0.56	0.03		(1)
(1) Last application up to 5 weeks after petal fall						
Apple	Australia	1		0.05	-	(1)
	Greece	2		0.05	14	
	Italy	1		0.05-0.075	10	(1) (2)
	Norway	1-2		0.15	14	
	Spain	1		0.05		(1)

Crop	Country	Application			PHI, days	Remarks
		No.	Rate, kg ai/ha	Spray conc., kg ai/hl		
	Switzerland	2	1.0	0.05	14	
(1) Post-harvest treatment (2) PHI is time of storage before marketing						
Apricot	Australia	1		0.05	-	(1)
		2-3		0.025-0.037	-	(2)
	France	2-3		0.075	3	
	Greece	2		0.05	14	
	New Zealand	2-3	up to 1.0	0.037	1	
	Spain	2	0.5-0.75	0.05-0.075	14	
	USA	5	0.56-1.12	0.03-0.06	0	
(1) Post-harvest dipping (2) Pre-harvest spraying						
Asparagus	Belgium	1-4	0.75		-	(1)
	Luxembourg	1-4	0.75	0.075	-	(1)
	Netherlands	3-4	0.75		-	(1)
	New Zealand		0.75		-	(1)
	Switzerland	3	0.75			
(1) Application after harvesting to extend the "green period" of the plant, thus increasing the yield in the following year						
Banana	Spain	1		0.03		(1)
(1) Post-harvest treatment						
Barley	France	1-2	0.4			
	Belgium		0.4-0.47		42	
	Germany	1	0.5-0.7/t seed		-	st[1]
	Luxembourg		0.4-0.47		42	
	UK	1-2	0.5	0.125-0.25	-	(1)
(1) Last application up to growth stage Zadoks 59						
Bean, Common	Canada (4)	1	0.5-0.75	0.17-0.25		(5)
	(6)	2	0.75	0.25		
	Denmark	1-2	0.5-0.75		21	(7)
	France	2-4	0.5-0.75		3	
	Greece	1-2		0.075	7	
	Netherlands	1-2	0.5-0.75	0.025-0.037	14 F[2]	(3)
	Norway	2	1.5		14	
	Portugal	4	0.75	0.075	3	
	Sweden	1	0.5	0.07	14	
	Switzerland	2	0.8		-	(8)
	UK	1-2	0.5	0.08-0.25	21	
	USA (1)	2	0.84-1.12	up to 0.3		(2)
(1) Dry snap beans (2) Last application not later than full bloom. Do not allow foraging for 14 days after last application. Do not feed snap bean hay to livestock. Do not feed dry bean hay to livestock until 45 days after last application. Do not feed succulent bean hay to livestock. (3) Dwarf snap beans (4) Dry common beans (5) Apply when 25-75% of blooms have opened (6) Snap beans (7) Field beans (8) Application during flowering						
Beetroot	France	1	2.5 g/kg seed			
	Norway	1-2	1.0		14	
Berries	Australia			0.5	1	(1)
	Denmark	3	0.5-0.75		14	
	Netherlands	2-4	1.13	0.075	14	
	New Zealand	3	up to 1.0	0.05	1	

Crop	Country	Application			PHI, days	Remarks
		No.	Rate, kg ai/ha	Spray conc., kg ai/hl		
	Sweden	2	0.5-0.75	0.06	30	
(1) Post-harvest dipping						
Blackberries	Netherlands	2	1.13	0.075	7	
	New Zealand	3	up to 1.0	0.05	1	
	Switzerland	1-2		0.05	14	
Brassica vegetables, Head cabbages, Flowerhead brassicas	Australia	1		0.075 200 ml/plant	-	(1)
	Denmark	1-3	0.5		14	
	France	1	2.5 g/kg seed		-	st
		2-3	0.5-0.75		15	
	Greece	1-2		0.075	14	
	New Zealand	1	2.5 g/kg seed			st
	Norway	1-2	1.5		14	
	Spain	4	0.75-1.12	0.05-0.075	0-1	F,G[3]
	Sweden	1-2	0.75	0.15	14	
	Switzerland	1	0.2			
	UK	1		0.05	60	drench (2)
				27 l/400 cabbages		stored cabbages
		1	2.5 g/kg seed		-	st
(1) Pre-emergence application (2) Soil drench at planting						
Brassica vegetables (seed crops)	UK	1-3	0.5-0.75	0.125-0.375	21	
Broccoli	Netherlands	1	2.0		-F,G	(1)
		1-2	0.5		14F,G	
	Norway	1-2	1.5		14	
	UK	3	0.5	0.08-0.25	21	
	USA	2	1.12	up to 0.3	0	
(1) Pre-emergence application						
Brussels sprouts	Belgium	1-3	0.5		14	
	Luxembourg	1-3	0.5		14	
	Netherlands	1-2	0.5		14F,G	
	Norway	1-2	1.5		14	
	UK	3	0.5	0.08-0.25	21	
Bulb vegetables	Spain	4	0.75-1.12	0.05-0.075	1F,G	
		2-4	0.4-0.6			
Cabbage, Head	Belgium	1	2.5 g/kg seed			st
	Denmark	1-3	0.5		14	
	France	1	2.5 g/kg seed	-		st
		2-3	0.5-0.75		15	
	Greece	1-2		0.075	14	
	Luxembourg	1	2.5 g/kg seed			
	Netherlands	1-2	0.5		14F,G	st
	Norway	1-2	1.5		14	
	Sweden	1-2	0.75	0.15	14	
	UK	3	0.5	0.08-0.25	21	
Canola	Canada	1	0.5-0.75	up to 1.6		(1)
(1) Application when 20-30% of blooms have opened						
Caneberries	USA	4	0.56-1.12	up to 0.12	0	
Caraway	Belgium	2-3	0.75		28	

Crop	Country	Application			PHI, days	Remarks
		No.	Rate, kg ai/ha	Spray conc., kg ai/hl		
	Luxembourg	2-3	0.75		28	
	Netherlands	1-2	0.5		28	
Carrot	Belgium	3-4	0.75		21	
	Denmark	1-2	0.5		14	
	France	1	2.5 g/kg seed			st
		2-3	0.75			
	Luxembourg	3-4	0.75		21	
	Netherlands	1	0.5 g/kg seed			st
		1	0.03 kg/t roots			(1)
		1-4	0.75		28F	
	Norway	3-4	1.5		14	
	Sweden	2-3	0.5	0.06	14	
	Switzerland	2-3	0.3-0.8	0.05	21	
	USA	4	0.56-1.12	up to 1.2	0	
(1) pre-storage treatment						
Cauliflower	Belgium	2-3	0.125		14	
	France	1	2.5 g/kg seed		-	st
		2-3	0.75		15	
	Luxembourg	2-3	0.125		14	
	Norway	1-2	1.5		14	
	Netherlands	1	2.0		-F,G	(1)
		1-2	0.5		14F,G	
	UK	3	0.5	0.08-0.25	21	
(1) Pre-emergence application						
Celeriac	Netherlands	1-2	0.5		14F	
	Norway	1-2	1.5		14	
Celery	Australia	5	0.5	0.05	1	
Cherries	Australia	1		0.05	-	(1)
		2-3		0.025-0.037	-	(2)
	Canada		0.75-0.88	0.025	1	
	Greece	2	1.0	0.05	14	
	Netherlands	2	1.5	0.075	7	
	New Zealand	2-3	up to 1.0	0.037	1	
	Norway	1-5		0.15	14	
	Spain	2	0.5-0.75	0.05-0.075	14	
	USA	5	0.56-1.12	0.03-0.06	-	
		1		0.24		(1)
(1) Post-harvest treatment (2) Pre-harvest spraying						
Chicory	Norway	1-2	0.75		14	
	Switzerland	2	0.3-0.8			(1)
(1) Last application 14 days after planting						
Chinese cabbage	Belgium	2	2.5		14	
	Luxembourg	2	2.5		14	
	Netherlands	2	0.5-0.75		14F,G	
	Norway	1-2	1.5		14	
	Switzerland	2	0.3-0.8	0.05	21	
Chives	Spain	4	0.75-1.12	0.05-0.075	1F,G	
		2-4	0.4-0.6			
Citrus fruits	Italy	1		0.05-0.075	30	(1) (2)
(1) Post-harvest treatment						

Crop	Country	Application			PHI, days	Remarks
		No.	Rate, kg ai/ha	Spray conc., kg ai/hl		
(2) PHI is time before marketing						
Corn salad	Belgium	2-3	0.75		28	
	France	1	2.5 g/kg seed			st
		3-4	0.75		21	
	Luxembourg	2-3	0.75	0.075	28	
	Netherlands	1	1.0-2.0		-	(1)
(1) Application within 7 days after sowing						
Cress	France	1	2.5 g/kg seed		-	st
Crucifers, oilseed	Finland	1	0.5-0.75		10	
	France	1-2	0.5	0.005	21	
Cucumber	Canada			0.05	2G	
	Denmark	1-3		0.05	3G	
					14F	
	France	2-7	0.75		3	
	Greece	3		0.025	7	
	Netherlands	2-3	0.63-1.25	0.025-0.05	3G	
	Norway	1-6	1.0		4	
	Portugal	3	0.75	0.075	7	
	Sweden	1-3	0.5	0.06	2	
	UK	4		0.05	2	
Cucurbits	Belgium	1-2		0.05	3	
	Greece	3		0.025	7	
	Luxembourg	1-2		0.05	3	
	Spain	3	0.5-0.75	0.05-0.075	7	
Dandelion	France	1	0.05 /m^3 soil			
Dewberries (incl. Boysenberry and Loganberry)	Australia	1	0.5	0.05	1	
Egg plant	Belgium	2-3		0.05	3	
	France	2	0.75-1.0			
	Greece	3		0.05	7	
	Italy	2-3	0.5-0.75	0.05-0.075	21	
	Luxembourg	2-3		0.05	3	
	Netherlands	2-3	0.63-1.25	0.025-0.05	3G	
Endive	Belgium	3	0.75		28	
	France	1		0.06		(2)
		1	0.05 /m^3 soil	0.005		
	Italy	2	0.75	0.075-0.1	21	
	Netherlands	1-2	0.75-2.0		-F,G	(1)
(1) Application within 14 days after planting (2) Plant dipping						
Fennel	Netherlands	1-2	0.75		14	
	Spain	4	0.75-1.12	0.05-0.075	1F,G	
		2-4	0.4-0.6			
Fruiting vegetables, cucurbits	Spain	4	0.75-1.12	0.05-0.075	7F,G	
		2-4	0.4-0.6		28	
Garlic	Canada	1	0.4			seed dip
	France	1	1.5 kg/			
			0.75			
	Greece	1-2		0.075	14	
	USA	1	2.2	up to 1.2	-	(1)
(1) Application in the furrow at planting						

Crop	Country	Application			PHI, days	Remarks
		No.	Rate, kg ai/ha	Spray conc., kg ai/hl		
Gherkin	France	2-3	0.75			
	Netherlands	2	0.63-1.25	0.025-0.05	3G	
		2-3	0.63-1.25	0.025-0.05	3F	
Ginseng	Canada	3	0.55	up to 0.028	30	
	USA	5-7	0.56-1.12	up to 1.2	36	
Grapes	Australia	4	min. 0.5	0.05	7	
	Canada	2	0.75	0.083	-	(3)
	France	1-4	0.75	0.075	15	
	Germany	3	up to 0.75	0.037	28	
	Greece	4	0.5	0.05	28	
	Italy	2-3	0.75	0.075	28	
	Luxembourg			0.037		
	New Zealand	3	up to 1.0	0.037-0.05	1	
	Portugal	4	0.75	0.075	21	
	Spain	3	0.5-0.75	0.05-0.075	14	(1)
		3	0.4-0.6		28	(2)
	Switzerland	2	1.0	0.05	21	
	USA	4	0.56-1.1	up to 0.24	0	
(1) Foliar spray (2) Dust (3) Last application before complete bunch closure						
Hazelnuts	France		0.75	0.075		
Kale	Greece	1-2		0.075	14	(1)
	UK	3	0.5	0.08-0.25	21	
(1) Leaf brassicas						
Kale (seed crop)	UK	1-3	0.5-0.75	0.13-0.38	21	
Kiwifruit	Australia	5	0.5	0.05	7	
	Italy	1-2	0.5-0.75	0.05-0.075	15	
	New Zealand	2-3	up to 0.75	0.037	1	
Kohlrabi	Belgium		2.0		14	
	Luxembourg		2.0		14	
	Norway	1-6	1.0		14	
	Netherlands	1	2.0		14F,G	
Leafy vegetables	Spain	4	0.75-1.1	0.05-0.075	14F,G	(1)
		2-4	0.4-0.6			
(1) Except chives						
Leek	Spain	4	0.75-1.1	0.05-0.075	16,F	
		2-4	0.4-0.6			
Legume vegetables	Spain	4	0.75-1.1	0.05-0.075	5F,G	
Lentil	France	2	0.52			
Lettuce, Head	Australia		0.5	0.05	7	
	Belgium	3	0.75		28	
	Denmark	1-3	0.25-0.5	0.025-0.05	14G	
	France	3-4	0.75-0.8	0.075	21F,G	
	Germany	3	0.5	0.083	14F, 21G	
	Greece	1-2	0.075		14	
	Italy	2	0.75	0.075	21	
	Luxembourg	3	0.75		28	
	Netherlands	1-2	0.75-2.0		-F,G	(3)
	Norway	1-5	0.75		14	
	Portugal		0.75	0.075	15F,21G	

Crop	Country	Application			PHI, days	Remarks
		No.	Rate, kg ai/ha	Spray conc., kg ai/hl		
	Switzerland	2	0.3-0.8	0.05	-	(4)
	UK	7	0.25	0.025	7F,G	(1)
		3	0.25	0.025	28G	(2)
	USA	3	0.84-1.12	up to 0.3	14	
(1) Treated between March and September (2) Treated between October and February (3) Application within 14 days after planting (four for iceberg lettuce) (4) Application within 14 days after planting						
Lettuce, Leaf	Australia	3	0.5	0.05	7	
	Belgium	3	0.75		28	
	Denmark	1-3	0.25-0.5	0.025-0.05	14G	
	France	3-4	0.75	0.075	21	
	Greece	1-2	0.075		14	
	Italy	2	0.75	0.075	21	
	Luxembourg	3	0.75		28	
	Netherlands	1-2	0.75-2.0		-F,G	(1)
	Norway	1-5	0.75		14	
	Switzerland	2	0.3-0.8	0.05	-	(1)
	USA	3	0.84-1.1	up to 0.3	14	
(1) Application within 14 days after planting						
Lima bean	USA	2	0.84-1.1	up to 0.3		(1)
(1) Do not allow foraging for 14 days after last application. Do not feed dry bean hay to livestock until 45 days after last application. Do not feed succulent bean hay to livestock. Last application not later than full bloom.						
Linseed	UK	1	2.5 g/kg seed		-	st
Lupin	Australia	1	1.0-1.3 kg/t seed		-	st
Melons	Denmark	1-2	0.5		3G	
	Greece	1-2		0.075	7	
	Netherlands	2-3	0.63-1.3	0.025-0.05	3G	
Mushrooms	Spain	1	0.5-0.75	0.05-0.075	45	
Mustard, Chinese	USA	4	0.56	up to 0.12	10	
Mustard (seed crop)	UK	1-3	0.5-0.75	0.13-0.38	21	
Nectarine	Australia	1		0.05	-	(1)
		2-3		0.025-0.037	-	(2)
	New Zealand	2-3	up to 1.0	0.038	1	
	USA	5	0.56-1.1	0.03-0.66	0	
		1		0.24		(1)
(1) Post-harvest treatment (2) Pre-harvest spraying						
Oats	Belgium	1	0.4		42	
	Germany	1	0.5-0.7 kg/t seed		-	st
	Luxembourg	1	0.4		42	
Onion, Bulb	Canada	2	0.75	0.15-0.25	15	
			0.38	0.075-0.13	15	
	Denmark	1-3	0.5		14	
	France	1	1.5 kg/t bulbs			
		1	1.5 g/kg seed			st
			0.75			
	Greece	1-2		0.075	14	
	Netherlands	2-4	0.25-0.5		28	
	New Zealand	1	125 g/kg seed		-	
	Sweden	2-3	0.5-0.75	0.25	14	
	Switzerland	1	1-1.25	0.025-0.03	21	

Crop	Country	Application			PHI, days	Remarks
		No.	Rate, kg ai/ha	Spray conc., kg ai/hl		
	UK	6	0.5	0.08-0.16	7	
	USA	5	0.56-0.84	up to 0.18	7	(1)
				up to 0.9	7	(2)
Onions, Salad	UK	4	0.5	0.08-0.16	7	
Parsley	France	1	2.5 g/kg seed		-	st
			0.75			
Passion fruit	Australia		0.5	0.05	7	
Peach	Australia	1		0.05	-	(3)
		2-3		0.025-0.037	-	(4)
	Canada		0.75-0.88	0.025	1	(4)
	France	2-3	1.5	0.075	3-15	(4)
	Greece	2		0.05	14	
	New Zealand	2-3	up to 1.0	0.037	1	(4)
	Spain	2	0.5-0.75	0.05-0.075	14	
	USA	5	0.56-1.1	0.03-0.06	0	(4)
		1		0.24		(3)
(1) Ground application (2) Aerial application (3) Post-harvest treatment (4) Pre-harvest spraying						
Peanut	Australia			0.11	12	
	USA	3	1.1	up to 0.3	10	
Pear	Australia	1		0.05	-	(1)
	Greece	2		0.05	14	
	Italy	1		0.05-0.075	10	(1) (2)
		3-4	1.1	0.075	21	
	Spain	1		0.05	-	(1)
	Switzerland	2	1.0	0.05	14	
(1) Post-harvest treatment (2) PHI is time of storage before marketing						
Peas	Belgium	2	0.7			
	France	2	0.52-0.75		30	
	Denmark	1-2	0.5-0.75		14	
	Germany	1	0.76	0.19	35	(3)
	Luxembourg	2	0.7			
	Netherlands	1-2	0.5-0.75		14	(1)
					21	(2)
	Norway	1-2	1.5		14	
	Sweden	1	0.75	0.25	-	
	UK	1-2	0.5	0.13-0.25	21	
(1) PHI for dry peas (2) PHI for fresh peas (3) Field peas						
Peppers, Sweet	Denmark	1-3	0.5	0.05	3	
	France	2-4	0.75-1.0		3	(1)
	Greece	1-2		0.075	3	
	Netherlands	2-3	0.63-1.3	0.025-0.05	3G	
	Spain	4	0.75-1.1	0.05-0.075	14F,G	
		2-4	0.4-0.6		7	
(1) Green pepper						
Pimento	Portugal	3	0.75	0.075	7	
Plums	Australia	1		0.05	-	(1)
		2-3		0.025-0.037	-	(2)

Crop	Country	Application			PHI, days	Remarks
		No.	Rate, kg ai/ha	Spray conc., kg ai/hl		
	France	2-3		0.075	3	
	New Zealand	2-3	up to 1.0	0.037	1	
	Spain	2	0.5-0.75	0.05-0.075	14	
	USA	5	0.56-1.1	0.03-0.06	0	
		1		0.24		(1)
(1) Post-harvest treatment (2) Pre-harvest spraying						
Potato	Australia		0.25-0.5	0.025-0.05		
	Denmark	1	0.4-1.3		14	
	USA	4	0.56-1.1	up to 1.2	14	
Potato (seed crop)	Australia	1	0.2 kg/t		-	
	Belgium	1	0.2 kg/t		-	
		1		0.75	-	(1)
	Denmark	1		0.75	-	(1)
		1		0.375	-	(2)
	France	1	0.75-0.1 kg/t		-	(2)
		1	0.3-0.4		-	(1)
	Greece	1	0.6-0.8		-	(1)
	Luxembourg	1	0.2 kg/t		-	
		1		0.75	-	(1)
	Netherlands	1	0.1-0.2 kg/t		-	
	UK	1	0.1 kg/t		-	
(1) Dipping at planting (2) Spraying at planting						
Prunes	USA	5	0.56-1.1	0.03-0.06	0	
Radish	Netherlands	1-2	2.0		14F,G	
Radish, Black	Netherlands	1-2	2.0		14F,G	
Rape, oilseed	Belgium	2	0.43			
	Denmark	1-2	0.5		21	
	France	1	0.5-0.75	0.005		
	Germany	1	0.76	0.13-0.15	56	
	Italy	1	0.5	0.1	45	
	Luxembourg	2	0.43			
	Netherlands	1-2	0.5		-	(1)
	Sweden	1	0.5-0.75	0.25	-	
	UK	1-3	0.5-0.75	0.13-0.38	21	
			2.5 g/kg seed		-	
(1) Application at beginning/end of flowering						
Raspberries	Australia	1		0.05	1	
	Norway	3-4	1.5		14	
	Netherlands	2	1.1	0.075	7	
	New Zealand	3	up to 1.0	0.05	1	
	Switzerland	1-2		0.05	14	
	UK		0.75	0.075	7	
Rice	USA	2	0.56	up to 0.6		(1)
(1) Last application not later than 75% heading						
Root and tuber vegetables	Spain	4	0.75-1.1	0.05-0.075	3F,G	
		2-4	0.4-0.6			
Rye	Germany	1	0.5-0.7/t seed		-	
Shallot	Belgium	1	200g/100kg bulbs		-	
		1		0.75	28	

Crop	Country	Application			PHI, days	Remarks
		No.	Rate, kg ai/ha	Spray conc., kg ai/hl		
	France	1	1.5 g/kg seed			st
			0.75			
	Luxembourg	1	2.0 g/kg seed		-	st
		1		0.75	28	
	Netherlands	2-4	0.25-0.5		28	
Soya bean	Australia	2	0.5	0.13-0.25	51	
Squash, Summer (= courgette, zucchini)	France	2-3	0.75			
	Netherlands	2-3	0.63-1.3	0.025-0.05	3G	
Stone fruits	Belgium	2		0.1	14	
	Greece	2	1.0	0.05		
	Italy	1	1.1	0.075	40	
	Luxembourg	2		0.1		
	New Zealand	2-3	up to 1.0	0.037	1	(1)
		1		0.05	1	
	Spain	2	0.5-0.75	0.05-0.075	14	
	Switzerland	2	1.0	0.05	14	
(1) Dip, post-harvest						
Strawberry	Australia		0.5	0.05	1	
	Belgium	4-5	1.0		14	
	Canada		1.0	up to 0.1	1	
	Denmark	1-3	0.5-0.75		14	
	France	3-4	0.75-1.0	0.1	2-3	
	Germany	3	1.0	0.1	10F	
	Greece	4	0.75	0.075	7	
	Italy	3	0.75-1.0	0.075-0.1	21	
	Luxembourg	4-5	1.0		14	
	Netherlands	2	1.12-1.5	0.1	14G	
		2	1.12-1.5	0.1	4F	
	New Zealand	3	up to 1.0	0.05	1	
	Norway	3-4	1.5		14	
	Portugal	2	0.75	0.075	3	
	Spain	4	0.5-0.75	0.05-0.075	3F,G	(1)
		2-3	0.4-0.6		28F,G	(2)
	Sweden	1-3	0.75	0.07	14	
	UK	4	0.75	0.037	1G	
		4	0.75	0.037	1F	
	USA	4	0.84-1.1	up to 0.12	0	
(1) Foliar spray (2) Dust						
Sugar beet	France	1	1.5 kg/t seed			st
	Greece	1	4.0 kg/t seed			st
Sunflower	France	2	0.7		-	(1)
(1) Second treatment at flower bud visible						
Tangelo	New Zealand			0.05	14	
Tomato	Australia	1-6	0.5	0.05	7	
	Belgium			0.05	3	
	Canada			0.05	2G	
	Denmark	1-3	0.5	0.05	3G	
					14F	
	France	2-3	0.75-1.0		3	
	Greece	2-3		0.05-0.075	7	

Crop	Country	Application			PHI, days	Remarks
		No.	Rate, kg ai/ha	Spray conc., kg ai/hl		
	Italy	3-4	0.5-0.75	0.05-0.075	21G	
		1-3			F	
	Luxembourg	1-6		0.05	3	
	Netherlands	2-3	0.63-1.3	0.025-0.5		
	Norway	1-4	1.0		14	
	New Zealand			0.05	3G	
	Portugal	3	0.75	0.075	7	
	Switzerland	2	0.5-0.75	0.05	3	
	UK	6		0.05	1G	
		6		0.05	2F	
Tree nuts	Greece	2		0.05	14	
Turnip, stubble	UK	2	0.5	0.13-0.25	21	
Vegetables	France	1	2.5 g/kg seed	-		st
	Greece	3	0.05-0.075		7	
	Spain	2-4	0.4-0.6		28	
		4	0.75-1.1	0.05-0.075	3-21 F,G	(1)
	Sweden	1-3	0.5-0.75	0.15	14	
(1) For PHIs see individual crops or crop groups						
Wheat	Belgium	1	0.35-0.43		42	
	France	1-2	0.4			
	Germany	1	0.5-0.76	0.12-0.25	35	
		1	0.52-0.70/t seed		-	st
	Luxembourg	1	0.35-0.43		42	
	UK	1-2	0.38-0.5	0.1-0.25		(1)
(1) Last application up to growth stage Zadoks 71						
Witloof chicory (sprouts)	Belgium	1		0.3		(3)
	Luxembourg	1		0.3		(3)
	Netherlands	1	0.065 kg/t tubers			(1)
		1	0.004/m^2			(2)
(1) Tuber pre-storage treatment (2) Tuber treatment at planting (3) Drench before planting						

[1] st = seed treatment
[2] F = Field (outdoor)
[3] G = Glasshouse

RESIDUES RESULTING FROM SUPERVISED TRIALS

The Meeting reviewed supervised trial data for fruits (citrus, pome and stone fruit, berries, grapes, bananas, kiwifruit), vegetables (brassica, bulb, leafy, legume, root and tuber vegetables, stalk and stem vegetables, cucumber, tomato, peppers), cereals, nuts, oilseed, and other seeds.

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47 Residues of iprodione in maize.
48 Residues of iprodione in almonds.
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50 Residues of iprodione in sunflower.
51 Total residues of iprodione and its metabolites in bovine milk.
52 Total residues of iprodione and its nonhydroxylated metabolites in bovine tissues.

Underlined residues in Tables 2-50 are from treatments according to GAP.

Crop residues

Citrus fruits (Table 2). Data were available from spraying trials in Japan, New Zealand and Israel.

In post-harvest trials in Italy fruits were dipped once for 20 seconds in a suspension of Rovral WP50. Residues were about 0.7-1 mg/kg and 0.4-0.6 mg/kg after, respectively, 10-60 days and 120-180 days of storage at -12°C.

Table 2. Residues of iprodione in citrus fruits.
New Zealand : Oranges
Japan and Israel: Mandarins
Italy : Lemons

Country/Year	Application			PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha			
New Zealand	Rovral Flo	2	1.3	0	0.65	152
		3	1.3	1	1.9	152
1989				3	1.8	
				7	1.4	
				14	1.1	
Japan	Rovral WP 50	3	2.5	7	1) 0.32	3
1981				14	0.34	
				30	0.03	
				7	2) 20	
				14	13	
				30	2.6	
					3) 0.04	
	Rovral WP 50	3	2.5	8	1) 0.12	3
				15	0.2	
				31	0.11	
				8	2) 23	
				15	23	
				31	15	

Country/Year	Application			PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha			
					3) 0.14	
Israel	Rovral WP 50	4	2.0	145	<0.05-0.33	61
1990						
1992		6	1.5	172	019, 0.34	258
		6	1.5	144	0.32,0.38	
		8	1.5	109	0.34,0.51	
Italy*	Rovral WP 50	1		10	0.88	11
1985				60	0.72	
				120	0.49	
				180	0.42	
		1		10	1.02	11
				60	0.94	
				120	0.58	
				180	0.46	

1) Pulp 2) Peel 3) Juice
* Post-harvest dip

Pome fruit

Apple. Residues after spraying are summarized in Table 3 and after post-harvest dipping treatment and cool storage in Table 4.

Table 3. Residues of iprodione in apples.

Country/Year	Application			PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha			
Japan	Rovral WP 50	1	5	3	2.9	136
1975				7	2.6	
				10	2.3	
		10	5	10	6.5	136
		10	5	20	5.8	
		10	5	30	3.8	
Japan	Rovral WP 50	1	5	3	2.2	135
1975				7	1.8	
		1	5	10	0.38	135
		10	0.5	10	3.4	135
		10	0.5	20	2	
		10	0.5	30	1.7	
France	Calidan**	2	0.52	2	0.6	63
1986		2	0.57	2	1.2	
				71*	1.2	

* PHI 3 days + 68 days cold storage
** Not registered for this use in France

Apples, post-harvest treatment. Post-harvest dipping trials were carried out in various countries and residues of iprodione were measured by gas chromatography on the day of treatment and after cool storage: see Table 4.

Table 4. Residues of iprodione in apples, post-harvest dip treatment, all single applications.

Country,Year	Application		Storage, days	Residue, mg/kg	Ref.
	Form	kg ai/hl			
France	Rovral WP 50*	0.1	198	2.4	50
1980		0.1	36	0.8	
		0.1	0	1.5	
France	Rovral WP 50*	0.1	0	4.8	112
1979			97	4.5	
			222	3	
				Pulp 1.3	113
				Pulp AC[1] 0.85	
				Peel 17.4	
France	Rovral WP 50*	0.05	181	2.1	144
1979		0.05	222	2.3	
		0.1	181	3.2	
		0.1	222	3.0	
		0.2	181	5.7	
		0.2	222	5.7	
France	Rovral Aqua Flo	0.1	0	0.8	204
1989			28	2.4	

Country,Year	Application		Storage, days	Residue, mg/kg	Ref.
	Form	kg ai/hl			
			153	2.2	
	500 g/l	0.1	0	0.78	
			28	1.7	
			153	1.2	
		0.1	0	0.23	
			32	1.3	
			159	1.0	
		0.1	0	0.84	
			32	0.82	
			159	1.6	
		0.1	0	1.3	
			28	0.74	
			153	1.9	
		0.1	0	1.0	
			32	0.69	
			159	1.1	
Italy	Rovral WP 50	0.05	10-12	2.2	11
1985			60	1.4	
			120	0.67	
			180	0.61	
		0.075	10-12	2.4	
			60	2.0	
			120	1.2	
			180	1.0	

*Not registered for this use
[1]AC: pulp after cooking for 60 min. at 100°C

Pears. Residues from the spray treatment of pears in France and Italy are summarized in Table 5.

Table 5. Residues of iprodione in pears.

Country/Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
Italy	Rovral WP 50	6	1.35	0.075	6	2.0	142
1979							
1980		7	1.35	0.075	21	3.6	146
					28	3.2	
		4	1.35	0.075	21	2.4	
					28	2.3	
1992		6	1.35	0.075	0	2	221
					10	1.1	
					20	0.51	
					30	0.39	
					40	0.33	
France 1983	Rovral WP 50*	1	0.5	0.25	10**	0.25	150

* Not registered for this use in France
**10 days PHI plus 3 months cold storage

Stone fruit.

Apricots. Residues of iprodione in apricots were determined at one location in France during 1980 (Table 6).

Table 6. Residues of iprodione in apricots (France, 1980).

Application			PHI, days	Residue, mg/kg	Ref.
Form	No	kg ai/ha			
Rovral WP 50	1	0.75	10	0.3	114
	2	0.75	10	0.95	

Cherries. Residues of iprodione in cherries treated with various formulations of iprodione are shown in Table 7.

Table 7. Residues of iprodione in cherries.

Country/Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
Canada	Rovral WP 50	6	0.7	0.025	0	4.0	29
1978					1	3.9	
					5	2.5	
					8	2.6	
Canada	Rovral WP 50	7	0.875		1	1.1,1.4	170
1982		8	0.875		1	1.4,6.5	
France	Calidan SC	1	0.146		8	0.11	203
1989		2	0.46		1	0.18	
		1	0.439		13	0.13	
		2	0.439		2	0.26	
France	Kidan SC	1	0.625		8	0.12	202
1989		2	0.625		1	0.30	
		1	0.75		13	0.32	
		2	0.75		2	0.66	

Peaches and nectarines. Residues of iprodione from trials in France, Canada, Australia, Italy, Japan and South Africa on peaches and in Australia and France on nectarines treated with various formulations are shown in Table 8.

Table 8. Residues of iprodione in peaches and nectarines.

Country, Year	Application	PHI, days	Residue, mg/kg	Ref.

	Form	No	kg ai/ha	kg ai/hl			
Australia	Rovral WP 50	5	1.4	0.05	6	5.9*	237
1976		7	1.4	0.05	3	5.4	239
		3	1.4	0.05	4	1.7	239
Canada	Rovral WP 50	5	1.0		0	2.6	124
1974					3	2.0	
					7	2.2	
					14	2.2	
		5	1.0		0	7.6	
					4	9.0	
					7	10	
					14	8.5	
		5	1.0		0	6.2	
					3	4.1	
					7	3.4	
					14	2.9	
		4	1.0		33	1.7	
		5	1.0		0	6.5	
					3	4.6	
					7	4.9	
		4	1.0		40	1.5	
		7	1.0		0	2.3	
					3	2.0	
					7	1.3	
					14	1.3	
		6	1.0		11	1.8	
					12	1.1	
					15	2.0	
					23	0.9	
Canada	Rovral WP 50	6	0.8	0.75	7	0.82, 1.9	20
1977		5	0.8	0.75	7	0.67, 1.2	
		5	0.8	0.75	7	0.3, 0.86	
		5	0.8	0.75	7	0.59, 1.3	
		5	0.8	0.75	7	1.1, 1.5	
Canada	Rovral WP 50	2	0.75		20	0.76	47
1978		3	0.75		1	3.8	
		3	0.75		7	1.4	
		3	0.75		14	0.8	
		3	0.75		22	0.36	
		3	0.75		6	1.3	
		4	0.75		1	2.2	
					8	1.8	
					15	0.72	
					22	0.65	
		3	0.70		0	2.7	
					1	2.9	
					3	2.3	
					5	1.8,2.8	
					7	2.5	
France	Calidan SC	2	0.92		7	1.2	63
1985		3	0.92		4	0.62	
France	Calidan SC	3	0.43		15	0.3	45

Country, Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
1987		3	0.43		3	0.85	
France	Calidan SC	4	0.74		0	1.5	46
1987		3	0.45		0	0.54	
		4	0.54		0	0.8	
		5	0.52		0	1.7	
		4	0.52		0	2.4	
France	Calidan SC	4	0.43		0	0.5	201
1988		4	0.43		0	0.8	
		4	0.78 x 3		0	1.0	
			0.43 x 1				
France	Calidan SC	3	0.43		18	0.31	205
1989		4	0.43		4	0.37	
		4	0.43		1	0.41	
France	Kidan SC	4	1.2		0	1.8	46
1987		3	0.78		0	1.1	
		4	0.93		0	1.2	
		5	0.9		0	0.91	
		4	0.9		0	2.7	
France	Rovral WP 50	2	0.75		16	0.34*	99
1977		2	1		16	0.53*	
		2	0.9		3	0.73*	
		2	0.9		13	1.7	
France	Rovral WP 50	3	0.75		15	0.69	45
1987		3	0.75		3	1.8	
France	Rovral WP 50	4	1.27		0	4.3	46
1987		3	0.78		0	1.3	
		4	0.93		0	0.81	
		5	0.9		0	1.6	
		4	0.9		0	2.8	
Italy 1990	Rovral WP 50	1 1	1.1 1.1		21 14	0.05 0.15	208
Italy	Rovral WP 50	2	1.35		0	3.6	220
1991					10	2.6	
					20	1.1	
					30	0.83	
					40	0.35	
Japan	Rovral WP 50	2	4.0		1	3.7	137
1975					3	2.1	
		3	4.0		1	4.6	
					3	2.9	
		2	3.0		1	6.3	137
					3	4.8	
		3	3.0		1	6.8	
					3	5.8	
South Africa	Rovral WP 50**	1	0.5		3	4.8	21
1978		1	0.5		10	2.6	
		1	0.5		14	5.1	
		2	0.5		3	8.7	

Country, Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
		1	1.0		3	7.5	
		1	1.0		10	7.9	
		1	1.0		14	7.8	
		2	1.0		3	21	

* Nectarines
** Not sold in South Africa

Plums. In Australia plums were harvested 7 days after the last of 4 applications of a 0.05% ai suspension of Rovral WP50 to run-off (2800 l/ha; Woods, 1976). Trials were also carried out in France (two treatments with Rovral WP50, Kidan or Rovral Aqua Flo at the rate of 0.75 kg ai/ha) and South Africa. See Table 9.

Table 9. Residues of iprodione in plums.

Country/Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
Australia 1975	Rovral WP 50	4	1.4		7	2.2	238
France	Rovral WP 50	2	0.75		10	1.5	81
1979		2	0.75		16	0.45	
France	Rovral WP 50	3	0.5		13	4.2	123
1974		3	1.0		13	6.8	
		2	0.5		52	0.19	
		2	1.0		52	0.64	
France 1979	Rovral Aqua Flo* SC 500	2 2	0.75 0.75		10 16	1.3 0.35	81
France	Kidan SC 255	2	0.75		10	1.3	81
1979		2	0.75		16	0.65	
South	Rovral Flo SC 255	2		0.0375	0	1.2	4
Africa					1	1.7	
1982					2	1.2	
					3	1.6	
		2		0.05	0	0.55	4
					1	1.5	
					2	0.51	
					3	1.4	
		2		0.075	0	2.1	4
					1	2.8	
					2	1.4	
					3	3.3	
South	Rovral Flo SC 255	2		0.05	0	0.6	182
Africa					2	0.8	
1985					3	0.7	
		2		0.05	0	1.1	182
					2	1.6	
					3	1.6	

Country/Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
					5	2.3	
		2		0.05	0	1.8	182
					2	1.9	
					3	1.1	
					5	1.5	
		2		0.05	0	1.3	182
					2	1.7	
					3	1.3	
					5	1.6	

* Not yet registered for plums in France

Berries and other small fruits

Currants and gooseberries. Supervised trials with iprodione were carried out on currants in 1981-1984 in The Netherlands and on gooseberries in 1980 in the UK (Table 10).

Table 10. Residues of iprodione in currants and gooseberries.

Country, Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
Netherlands	Rovral	5	0.75	0.075	78	5.4	43
1984*	WP 50	5	0.75	0.075	78	3.21	
		9	0.75	0.075	8	15	
		9	0.75	0.075	8	9.9	
Netherlands	Rovral	2	3.75	0.075	14	20	36
1982*	WP 50						
Netherlands	Rovral	5	0.75	0.075	31	7.1	36
1981*	WP 50	6	0.75	0.075	10	12	
UK 1980**	Rovral WP50	3	0.75	0.035	6	0.34	159

* Currants
** Gooseberries

Blackberries. Iprodione residue trials were carried out 1986 in Oregon (USA) on blackberries with Rovral WP50. The rate of application was 1.1 kg ai/ha. Five applications were made with the first two in the bloom stage and the remainder at bi-weekly intervals thereafter with the last application on the day of harvest. The results are summarized in Table 11.

Table 11. Residues of iprodione in blackberries (USA, 1986).

Application			PHI, days	Residue, mg/kg	Ref.
Form	No	kg ai/ha			
Rovral WP 50	5	1.1	0	5.8	69
	5	1.1	0	11	
	5	1.1	0	15	
	5	1.1	0	22	

Raspberries. Residue data from trials in Canada, France and the UK are given in Table 12.

Table 12. Residues of iprodione in raspberries.

Country, Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
Canada	Rovral WP 50	6	1.0		1	7.9	169
1981					3	5.5	
					7	4.8	
Canada		6	1.0		1	17	169
1981					3	14	
					7	7.1	
Canada	Rovral WP 50	5	1.0		1	4.6,31	178
1982		5	1.0		1	12, 30	
France	Rovral WP 50	3	0.8	0.05	18	1.1	33
1974		3	0.53	0.033	18	0.85	
UK	Rovral WP 50	4	0.75	0.25	6	1.2	12
1977		5	0.75	0.25	8	2.6	
UK	Rovral WP 50	5	1.12	0.05	17	1.6	125
1974		3	1.12	0.05	15	2.0	
		4	1.12	0.05	0	7.9	
					1	6.0	
					3	5.0	
					7	2.8	
					14	2.1	
UK	Rovral Flo*	1	0.75		1	2.7	163
1981		4	0.75		1	13	
		4	0.75		1	8.3	
UK	Rovral Flo*	4	0.75		1	2.7	173
1982		4	0.75		1	9.6	
		4	0.75		3	1.5	
		4	0.75		3	7.7	
		4	0.75		7	0.92	
		4	0.75		7	5.4	

* No registration for this use in the UK

Strawberries. Trials were conducted in many countries to obtain information on residues in strawberries treated with iprodione. The results are summarized in Table 13.

Table 13. Residues of iprodione in strawberries.

Country, Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
USA	Rovral WP 50	1	1.1		0	0.5-6.5 (5)	245
1985/1986		2	1.1		0	1.9-7.9 (5)	
		3	1.1		0	1.9-7.5 (5)	
		4	1.1		0	9.1	

Country, Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
		5	1.1		0	0.4-6.7 (7)	
		6	1.1		0	0.5-9.9 (11)	
		7	1.1		0	0.4-8.5 (11)	
		8	1.1		0	0.5-7.2 (8)	
		9	1.1		0	0.5-5.0 (7)	
		10	1.1		0	0.3-6.6 (7)	
		11	1.1		0	0.4-4.8 (2)	
		12	1.1		0	0.6-6.0 (2)	
		17	1.1		0	0.4-1.9 (5)	
Belgium	Rovral WP 50	5	0.75	0.125	13-16	1.9,4.9	
1974		5	1	0.167	13-16	2.5,6.0	
Netherlands	Rovral WP 50	4	0.75	0.075	18	1.1	8
1974		5	0.75		0	26	
					7	14	
					14	0.67	
1978		3	1.0 G	0.1	12	3.3	
		3	1.0 G	0.1	14	8.1	
1979		4	1.0	0.1	15	5.3	
France	Rovral WP 50	3	0.75	0.075	10	0.2	245
1981		4	0.5	0.075	19	0.07	
1982		3	0.75	0.075	6	0.15	
1977		3	1.5	0.075	17	2.3	
		3	2.0	0.1	17	4.3	
1974		4	0.5	0.033	13	1.2, 2.5	
		4	0.75	0.05	13	1.9, 3.2	
		4	1.0	0.067	13	2.8, 5.6	
		3	0.75	0.375	33	0.53	
		4	0.75		10	1.75	
		4	0.75		20	0.35	
		3	1.0	0.5	33	1.1	
		4	1.0		10	2.2	
		4	1.0		20	0.44	
Germany	Rovral WP 50	3	0.94	0.0375	0	5.3	
1974					4	2.7	
					7	2.3	
					10	1.1	
					14	1.0	
					21	0.38	

Country, Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
		3	1.25	0.05	0	9.1	
					4	3.6	
					7	3.4	
					10	2.0	
					14	1.9	
					21	0.67	
Germany	Rovral WP 50	3	1.0	0.05	0	33	
1978					3	32	
					7	18	
					14	4.7	
		3	1.25	0.05	0	8.4	
					3	5.5	
					5	7.2	
					7	4.5	
					14	2.2	
					21	1.0	
		3	1.25	0.05	0	8.8	
					3	4.3	
					7	2.4	
					10	2.3	
Germany	Rovral WP 50	3	1.0	0.05	12	0.13-0.31 (3)	
1976					16	0.14-0.23 (3)	
					22	0.14-0.17 (3)	
Germany	Rovral WP 50	3	1.25	0.05	0	34	
1977					3	13	
					7	7.5	
					10	4.5	
					14	0.75	
					21	0.68	
					30	0.23	
Germany	Rovral WP 50	3	1.25	0.05	0	9.0	
1978					3	5.7	
					5	5.2	
					7	3.8	
					14	1.4	
					21	0.5	
		3	1.25	0.05	0	4.0	
					3	4.5	

Country, Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
					5	3.3	
					7	2.5	
					14	0.8	
					21	0.4	
Denmark	Rovral WP 50	3	0.37		32	0.21	
1980							
New	Rovral WP 50	2	0.35		1	2.0	
Zealand		2	0.65	0.022	3	4.1	
1979		5	0.75	0.05	4	2.5	
1985		3	0.7	0.05	1	2.9	
		3	0.7	0.05	1	3.9	
Spain	Rovral WP 50		1.5[2]	0.075	0	12	10
1986					3	6.9	
					7	4.9	
					14	2.9	
					21	1.3	
Spain	Rovral WP 50		0.75[3]	0.025	0	2.2	
1987					3	1.6	
					7	1.0	
					14	0.8	
					21	0.4	
Spain	Rovral WP50		0.75[4]		0	3.4	
1988					3	2.0	
					7	1.6	
					14	0.6	
					21	0.6	
UK	Rovral WP 50	3	1.1	0.1	36	1.7	245
1974		4	1.1	0.1	7	4.5	
		4	1.1	0.1	15	4.7	
		2	0.98	0.1	28	0.3	
		3	0.98	0.1	20	0.7	
1976		3	1.0		8	1.6	
		3	1.0		16	0.6	
UK		4	0.75		1	1.9	245
1980		4	0.75		1	2.5	
UK	Rovral Flo	4	0.74	0.035	2	1.5,2.1	
1979		4	0.74	0.035	2	3.1,5.3	

Country, Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
		4	0.75	0.035	1	2.3,4.2	
1980		4	0.75	0.036	1	2.0,3.8	
1981		4	0.75		1	2.1,4.8	
Canada	Rovral WP 50	4	1.1	0.1	0	3.1-3.5 (3)	6
1974					1	2.8-3.0 (3)	
					3	1.8-2.4 (3)	
					7	1.4-1.6 (3)	
					10	0.75-0.95 (3)	
					14	0.85-1.1 (3)	
		3	1.1	0.1	16	0.9	
					18	0.83	
					30	0.23	
1982		6	1.0		1	3.5,6.0	
1983		1	1.0	0.15	0	0.94	
					1	0.97	
					3	0.99	
					7	0.56	
Italy	Rovral Flo	3	1.5	0.1	45	3.1	245
1982		3	1.5	0.1	51	4.6	

G = Glasshouse
[1] Nos. of samples in ranges are in parentheses
[2] Application indoors, no. and time not reported
[3] Application outdoors, March-April 1987, no. not reported
[4] Application indoors, April-May 1988, no. not reported

Grapes. Trials were in France (48), Chile (2), Portugal (10), Spain (7), Italy (14), Germany (6), Morocco (1), Canada (7) and the USA (6). Results are summarized in Table 14.

Table 14. Residues of iprodione in grapes.

Country, Year	Application				PHI, days	Residue, mg/kg (no. of samples in ranges)	Ref.
	Form	No	kg ai/ha	kg ai/hl			
France 1979	Kidan	4	0.75		14	4.4	111
		4	0.75		15	1.6	
		4	0.75		22	2.4	
		4	0.75		27	2.4	
		4	0.75		29	2.8	
France	Kidan	4	0.75	0.5	17	2.0	49
1980		4	0.75	0.3	20	0.9	
		4	0.75	0.63	23	0.4	
		4	0.75	0.75	23	0.9	
		4	0.75	0.38	30	0.3	
		4	0.75	0.5	31	2.0	
		3	0.75	0.5	40	0.7	
France	Kidan	4	0.75		13	4.9	42
1984		4	0.75		23	3.8	
France	Rovral WP 50	4	0.75	0.5	18	5.1	100
1977		4	0.75	0.75	22	4.7	
		4	0.75	0.75	28	4.7	
		4	0.75	0.25	36	3.3	
France	Rovral WP 50	5	0.75	0.75	10	5.4	49
1979		4	0.75	0.38	14	1.5	139
		4	0.75	0.35	27	1.7	
		4	0.75		29	2.1	
		4	0.75	0.69	15	1.9	
		5	0.75	0.38	7	5.7	
		5	0.75	0.75	12	5.4	
		5	0.75	0.75	15	3.6	
France	Rovral WP 50	4	0.5	0.25	25	1.5	139
1975		4	0.5	0.25	27	3.4	
		4	0.75	0.38	25	3.1	
		4	0.75	0.38	27	6.3	
France	Rovral WP 50	4	0.5-1		20	3.1-9.7 (3)	126
1974		4	0.5-1		22	3.2-7.8 (3)	
		4	0.5-1		27	2.2-6.3 (3)	
		4	0.5-1		30	1.9-5.1 (3)	
	Rovral WP 50	4	0.75	0.375	0	8.4	126
					7	6.4	
					15	4.8	
					21	4.2	
	Rovral WP 50	4	0.5	0.05	29	0.45-0.75 (3)	126

Country, Year	Application				PHI, days	Residue, mg/kg (no. of samples in ranges)	Ref.
	Form	No	kg ai/ha	kg ai/hl			
		4	0.75	0.075	29	0.52-1.1 (3)	
		4	1.0	0.1	29	1.0 -1.8 (3)	
		3	0.75	0.38	13	2.7	
France	Rovral WP 80	2	0.75		14	0.64*	207
1989		2	0.75		14	11*	
France	Rovral Aqua Flo	4	0.75		14	1.2	111
1979		4	0.75		15	1.9	
		4	0.75		22	1.8	
		4	0.75		28	1.8	
		4	0.75		28	1.9	
France	Rovral Aqua Flo	4	0.75		8	0.46	219
1991		4	0.75		14	1.2	
Chile	Rovral WP 50	4	0.75	0.063	7	5.4	148
1982		5	0.67	0.063	55	3.0	
Portugal	Rovral WP 50	4	0.6	0.05	35	6.6	245
1974		4	0.6	0.05	28	2.3	
		4	0.9	0.075	28	5.0	
		4	0.9	0.075	35	10	
		4	1.2	0.1	28	8.0	
		4	1.2	0.1	35	10	
Portugal	Rovral WP 50	4	0.25	0.05	23	2.6	89
1975		4	0.25	0.05	30	1.7	
		4	0.5	0.1	23	3.4	
		4	0.5	0.1	30	5.9	
Spain	Rovral WP 50	4	0.5	0.17	11	2.4	127
1974		4	0.5	0.05	47	6.1	
		4	0.75	0.25	15	4.2	
		4	0.75	0.075	47	10.0	
Spain	Rovral WP 50	4	0.5	0.05	38	2.4	88
1975		4	0.75	0.075	38	4.6	
Spain	Rovral WP 50	1	0.9	0.075	0	7.5	10
1986					2	4.7	
					5	3.8	
					7	3.0	
					14	1.1	
					21	0.8	
Italy	Rovral WP 50	4	0.5	0.05	28	3.6	84
1974		4	0.5	0.033	38	0.65	
		4	0.75	0.075	28	8.2	
		4	0.75	0.05	38	1.9	
Italy	Rovral WP 50	4	0.5	0.033	8	3.5	90

Country, Year	Application				PHI, days	Residue, mg/kg (no. of samples in ranges)	Ref.
	Form	No	kg ai/ha	kg ai/hl			
1975		4	0.75	0.05	8	5.5	
		4	0.5	0.033	35	0.8	
		4	0.75	0.05	35	2.0	
Italy	Rovral Flo	4	0.75	0.05	21	12	115
1980					28	6.9	
Italy	Rovral Flo	4	0.5	0.03	21	3.6	120
1981					28	2.9	
		2	0.75	0.05	21	3.9	120
					28	3.7	
Italy	Rovral Flo	4	0.75	0.075	21	6.6	38
1982		4	0.75	0.075	28	5.8	
Italy	Rovral WP 50	3	0.75		0	4.3*	206
1990					9	3.7*	
					20	3.6*	
					30	2.7*	
					40	2.1*	
Germany	Rovral WP 50	5	0.4	0.1	8	2.7	85
1974					31	3.4	
					62	1.4	
					71	0.55	
		4	0.5	0.1	0	3.9	85
					28	2.1	
					42	1.9	
					84	1.3	
		5	0.6	0.125	8	4.9	85
					31	2.9	
					62	2.4	
					71	2.1	
		4	0.75	0.15	0	5.8	85
					28	3.9	
					42	2.8	
					84	2.2	
Germany	Rovral WP 50	5	0.75	0.0375	0	2.1-7.3 (5)	101
1977					7	2.2-6.8 (5)	
					14	2.0-6.7 (5)	
					21	1.5-5.1 (5)	
					28	1.5-5.9 (5)	
Germany	Rovral WP 50	4	0.75		14	0.71-5.2 (6)	91
1975					42	0.37-2.7(6)	
					53	0.42-2.8(6)	
					70	0.6 -1.2(6)	
					75	2.8	

Country, Year	Application				PHI, days	Residue, mg/kg (no. of samples in ranges)	Ref.
	Form	No	kg ai/ha	kg ai/hl			
Morocco 1984	Rovral WP 50	2	0.75		7	1.2	226
Canada	Rovral WP 50	4	0.75		42	2.5	156
1979		1	1.0		0	2.5	
					2	2.4	
					7	1.2	
					15	1.0	
					19	1.1	
Canada	Rovral WP 50	4	0.75		41	1.5	179
1980/81		5	0.75		34	1.7,3.0	
		5	0.75		48	2.3	
		5	0.75		39	1.4	
		5	0.75		45	2.2	
USA	Rovral WP 50	4	1.1		0	0.88,4.7	55
1988		4	1.1		0	2.7, 4.4	
		4	1.1		0	0.9, 4.1	
		4	1.1		0	1.5, 2.1	
		4	1.1		0	2.7, 4.6	
		4	1.1		0	0.12,0.66	

* Table grapes

Tropical and sub-tropical fruit

Bananas. Results of supervised trials from the Philippines (foliar spray) and Spain (post-harvest treatment, one location) are summarized in Table 15.

Table 15. Residues of iprodione in bananas.

Country, Year	Application				Post-treatment period, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
Philippines 1980	Rovral WP 50	41	0.5	0.37	9	Peel: 0.15, 1.5 Pulp: <0.03-0.06	145
1981		9	0.5	1.7	21	Peel: <0.1 Pulp: <0.1	121
1981	Rovral Aqua Flo*	9	0.5	1.7	21	Peel: <0.1 Pulp: <0.1	121
Spain 1991	EC 100 g/l	1[1]		0.05	0	whole fruit: 3.4 Peel: 7 Pulp: <0.1	10
					3	Peel: 6.8 Pulp: <0.1	
	EC 100 g/l	1[1]		0.03	0	whole fruit: 2.5 Peel: 5.1	10

Country, Year	Application				Post-treatment period, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
						Pulp: <0.1	
					3	Peel: 5.1 Pulp: <0.1	
	EC 100 g/l	1[1]		0.025	0	whole fruit: 1.7 Peel: 4 Pulp: <0.1	10

* Not registered for this use in the Philippines
[1] Post-harvest treatment

Kiwifruit. Residues of iprodione have been determined in kiwifruit treated one to eight times with Rovral at various sites in France and New Zealand (Table 16).

Table 16. Residues of iprodione in kiwifruit (pre-harvest treatment).

Country, Year	Application				PHI, days	Residue, mg/kg[1]	Ref.
	Form	No	kg ai/ha	kg ai/hl			
New Zealand	Rovral WP 50	3	0.73	0.038	74	0.1-0.29 (4)	154,
1979/80		5	0.75		0	3.5	
					1	3.9	157,
					4	3.4	231
					8	2.2	18
					15	0.12	
		5	0.75		1	3.7	
					3	4.5	
					14	0.23	
					22	1.8	
		5	0.75		0	3.2	18
					1	2.6	
					4	2.4	
					15	1.7	
					23	0.92	
1981/82	Rovral WP 50	8	0.75		0	4.7	18
					3	3.4	
					7	4.2	

Country, Year	Application				PHI, days	Residue, mg/kg[1]	Ref.
	Form	No	kg ai/ha	kg ai/hl			
	Rovral Flo	8	0.75		0	4.7	18
					3	3.8	
					7	2.5	
	Rovral Flo	8	0.75		0	9.3	18
					3	3.7	
					7	2.9	
1991	Rovral Flo	3	0.75		1	0.28-4.5 (10)	41
1979/80	Rovral WP 50	5	0.75	0.038	1	Pulp: 0.3	213
					3	0.42	
					1	0.16	
					8	0.19	
					1	0.91	
					4	0.14	
France	Kidan*	1	0.75		1 + a[2]	2.3 [1.3][2]	193
1986/87					15 + a	2.4 [1.5]	
		1	0.75		2 + b	2.5 [1.4]	
					12 + b	0.55 [1.1]	
		1	0.75		2 + c	2.1 [1.6]	
					15 + c	1.9 [1.2]	
		2	0.75		1 + a	3.8 [2.0]	
		2	1.5		2 + b	4.7 [2.6]	
		2	0.75		2 + c	2.0 [3.0]	
		2	0.75		3 + d	1.4 [1.5]	
		2	0.75		3 + d	1.0 [1.1]	
					17 + d	0.55 [1.2]	

* Kidan = Rovral Flo
[1] Nos. of samples in ranges are in parentheses
[2] [ ] after storage at 0°C for a = 131 days; b = 175 days; c = 161 days; d = 112 days

Kiwifruit. Treatment by post-harvest dip or spray. In a post-harvest residue trial in Australia (1989), mature fruits were dipped in Rovral WP 50 at 500 and 1000 mg/l for 30 seconds before being packed in commercial kiwifruit trays with polyethylene liners and cool-stored at 20°C. Residue analyses on pulp and whole fruit did not show a consistent decrease with increased withholding period (0 to 14 days). The residue of iprodione at 500 mg/l in the whole fruit was less than 10 mg/kg, but at 1000 mg/l was up to 13 mg/kg. At both rates the residue in the pulp was 1 mg/kg (Anon., 1990).

In New Zealand (1988), post-harvest application of Rovral Flo by means of a "Singulator" spray apparatus at a rate of 1.5 ml/l resulted in a mean iprodione residue level of 1.36 mg/kg on a whole-fruit basis and 0.05 mg/kg in the pulp. Residue levels in the whole fruit were significantly lower, and those in the pulp somewhat lower, than those from post-harvest dipping (Heffernan, 1990).

Bulb vegetables

Fennel. Results of one supervised trial (three replicates) on fennel (bulbs) were reported to the Meeting by The Netherlands (see Table 17).

Table 17. Residues of iprodione in fennel bulbs (Netherlands, 1983).

Application			PHI, days	Residue, mg/kg	Ref.
Form	No	kg ai/ha			
WP 50	3	0.75	16	0.05	8
			24	<0.05	

Garlic. Residues were about 5 mg/kg in garlic harvested approximately nine months after pre-planting treatment with Rovral WP 50. They were almost wholly in the outer sheaths of the bulbs (Table 18).

Table 18. Residues of iprodione in garlic (France, 1975-6).

Application				PHI, days	Residue, mg/kg	Ref.
Form	No	kg ai/t	kg ai/hl			
Rovral WP 50	1	1.5		268	4.6 *	96
	1	1.5		275	≤ 0.1 **	
					15.3 ***	

* Whole bulb ** Cloves *** Sheaths

Onions. Analyses were carried out by GLC to determine residues of iprodione in onions after spray applications of Rovral formulations. Results from several countries are summarized in Table 19.

Table 19. Residues of iprodione in onions.

Country, Year	Application	PHI, days	Residue, mg/kg (no. of samples)	Ref.

	Form	No	kg ai/ha	kg ai/hl			
France 1991	Rovral Aqua Flo	5	0.75		21	<0.02	215
Netherlands	Rovral WP 50	2	0.25	0.17	36	≤0.05	107
1979							
Denmark	Rovral WP 50	1	until run-off	0.05	0	3.0	14
1980					7	0.14	
					14	0.25	
Canada	Rovral WP 50	2	1.0	0.06	13	0.05	17
1978, 1979		3	0.75	0.23	19	0.05	31
		3	0.75	0.23	19	0.07	
1980		5	0.75		15	0.18	160
		5	0.75		15	<0.1	
		5	0.75		19	<0.1	
USA 1985	Rovral WP 50	4	1.1		4	<0.05	74
1989	Rovral 4F	5	0.75		7	<0.05 (3)	53
		5	0.75		7	0.06, 0.11	

Brassica vegetables, head cabbage, flowerhead brassicas, broccoli. In the USA, Rovral WP50 was applied once or twice (at thinning and on the day of harvest) to broccoli. See Table 20.

Table 20. Residues of iprodione in broccoli (USA).

Year	Application				PHI, days	Residue, mg/kg (no of samples)	Ref.
	Form	No	kg ai/ha	kg ai/hl			
1983	Rovral WP 50	1	1.1		49	0.05	70
1984		2	1.1		0	4.1-9.1 (5)	58
		2	1.1		0	14	
		2	1.1		0	14	
		2	1.1		0	22	

Chinese cabbage. Table 21. Residue trials on Chinese cabbage were conducted in the USA in 1984 and 1986. From two to five post-emergence applications were made with Rovral WP50, at rates of 0.5 and 1.1 kg ai/ha/application.

In Denmark, at one site during 1980, Chinese cabbage was sprayed once to run-off with an aqueous suspension of Rovral WP50 containing 0.5 g ai/l. A trial was carried out in Germany (1978) with four treatments at 0.5 kg ai/ha.

Table 21. Residues of iprodione in Chinese cabbage.

Country, Year	Application				PHI, days	Residue, mg/kg (No. of samples)	Ref.
	Form	No	kg ai/ha	kg ai/hl			

Country, Year	Application				PHI, days	Residue, mg/kg (No. of samples)	Ref.
	Form	No	kg ai/ha	kg ai/hl			
Canada	Rovral	3	0.75	0.14	0	9.8	6
1990	WP 50				1	17	
					3	12	
					7	2.5	
					10	3.0	
					15	0.27	
					21	0.16	
Germany	Rovral	4	0.5	0.083	0	0.18-8.4 (6)	106
1978	WP 50*				3	0.23-3.8 (6)	
					5	≤0.1-0.5 (6)	
					7	≤0.1-3.4 (6)	
					14	0.04-2.8 (6)	
					21	≤0.03-4.9 (6)	
Denmark	Rovral	1	until	0.5	0	22	13
1980	WP 50		Run-off		7	1.1	
					14	0.23	
USA	Rovral	4	0.5		0	0.42	75
1984	WP 50**	4	0.5		0	1.83	
		2	1.1		18	0.3	
		4	1.1		0	1.1	
		4	1.1		0	5.7	
1986		5	1.1		0	5.0, 12	67
		5	1.1		0	9.7	
		5	1.1		0	11	
		5	1.1		0	12	

* Not registered for this use ** Registration expected for this use in the USA

Red cabbage. In trials in the UK at one site (1978-1979) a single post-harvest treatment with Rovral WP50 as a 0.1% w/v ai drench was followed by cold storage for 90 days. See Table 22.

Table 22. Residues of iprodione in red cabbage (UK, 1978-9).

Application			PHI, days	Residue, mg/kg	Ref.
Form	No	ai concn.			
Rovral WP 50	1*	0.1% w/v (drench)	90	0.94, 3.1	28

White cabbage. Iprodione residues from Canadian and German spraying trials and UK post-harvest treatments are shown in Table 23.

Table 23. Residues of iprodione in white cabbage.

Country, Year	Application	PHI or storage period, days	Residue, mg/kg	Ref.

	Form	No	kg ai/ha	kg ai/hl			
Canada	Rovral WP 50	3	0.75	0.094	0	0.30	6
1990					2	0.37	
					7	0.03	
					9	0.05	
Germany	Rovral WP 50	2		0.15	0	0.9	147
1979/80					7	1.1	
					10	0.95	
					21	1.3	
					50	1.2	
UK	Rovral WP 50	1*	5% dust		188	0.85	240
1976		1*	50% dust		188	2.0	
		1*	0.1% dip		188	5.0	
1977	Rovral WP 50	1*	10% w/v spray		103	0.47	242
					118	0.24	
		1*	0.1% w/v spray		103	0.1	
					118	0.06	
		1*	0.05% w/v spray		214	0.05	
1977/78	Rovral WP 50	1*	0.05% drench		220	5.9	16
		1*	0.05% dip		217	0.86	

* Post-harvest treatment

Kohlrabi. The results of five supervised trials (two locations) in The Netherlands in 1978 using Rovral WP 50 as a pre-harvest treatment are summarized in Table 24.

Table 24. Residues of iprodione in kohlrabi (Netherlands, 1978).

Application				PHI, days	Residue, mg/kg	Ref.
Form	No	kg ai/ha	kg ai/hl			
Rovral WP 50	1	2.0	0.33	14	0.15	104
	1	2.0	0.4	60	0.1	
	2	0.75	0.075	103	0.05	
	1	1.0	0.1	117	0.1	
	1	2.0	0.2	117	0.1	

Cauliflower. The results of residue trials in France and Canada during 1986 to 1991 are summarized in Table 25.

Table 25. Residues of iprodione in cauliflower.

Country, Year	Application	PHI, days	Residue, mg/kg	Ref.

	Form	No	kg ai/ha	kg ai/hl			
Canada	Rovral WP 50	3	0.75	0.094	1	4.15	6
1991					3	4.55	
					7	1.8	
					10	1.7	
					15	1.0	
1990		3	0.75	0.094	0	2.3	6
					2	1.7	
					7	0.68	
					9	0.56	
France	Kidan*	1	0.75		57	0.02	227
1986		2	1.5		14	0.04	
		2	1.25		55	0.16	
1987		1	0.75		85	<0.05	195
		2	0.75		42	<0.05	
1991	Rovral Aqua Flo	2	0.75		26	0.02	224

* Not registered for this use in France

Fruiting vegetables, cucurbits

Cantaloupes. Residues of iprodione in cantaloupes treated with a 500 g/l suspension concentrate formulation of Rovral Aqua Flo are shown in Table 26.

Table 26. Residues of iprodione in cantaloupes (France, 1991).

Application				PHI, days	Residue, mg/kg	Ref.
Form	No	kg ai/ha	kg ai/hl			
Rovral	3	0.75		10	0.14	216
Aqua	2	0.75		21	<0.02	
Flo	3	0.75		0	0.04	218
				4	<0.02	
				7	0.03	
				13	0.02	

Cucumbers. The results of trials in France, the UK, Denmark, Canada and Japan are shown in Table 27.

Table 27. Residues of iprodione in cucumbers.

Country, Year	Application	PHI, days	Residue, mg/kg	Ref.

	Form	No	kg ai/ha	kg ai/hl			
France	Rovral WP 50	1	0.6	0.75	5	0.15	105
1978							
1991	Kidan	1	0.93		3	1.8	214
					8	1.8	
UK	Rovral WP 50	3	1.1		37	0.02, 0.07	22
1977		4	1.1		2	0.06, 0.23	
		11	1.1		9	<0.02	
		12	1.1		2	0.49	
Denmark	Rovral WP 50	1	until	0.05	0	0.68	19
1980			run-off		4	0.2	
					7	0.27	
1981		1	until	0.075	1	0.50	168
			run-off		2	0.51	
					4	0.44	
					7	0.22	
Canada	Rovral WP 50	3		0.05	1	<0.1	171
1982		9		0.05	1	0.18, 0.28	
		3		0.05	1	0.58	
Japan	Rovral WP 50	1	3.0	0.1	1	1.7	92
1975					3	1.0	
					7	0.36	
		3	3.0	0.1	1	1.6	
					3	0.93	
					7	0.67	
		4	3.0	0.1	1	2.2	
					3	1.5	
					7	1.2	
		1	2.5	0.1	1	1.2	
					3	1.0	
					7	0.25	
		3	2.5	0.1	1	2.0	
					3	1.4	
					7	0.29	
		4	2.5	0.1	1	1.8	
					3	0.98	
					7	1.0	

Peppers. Peppers in California, Florida, New Jersey, North Carolina and Texas were treated 8 times with Rovral 4F (480 g/l SC) at 0.85 or 1.7 kg ai/ha. See Table 28.

Table 28. Residues of iprodione in peppers from ground foliar treatments (USA, 1990).

Application			PHI, days	Residue, mg/kg	Ref.
Form	No	kg ai/ha			

Application			PHI, days	Residue, mg/kg	Ref.
Form	No	kg ai/ha			
Rovral	8	0.85	0	0.55-2.4*	56
4 F	8	1.7	0	0.62-3.9*	
	8	0.85	0	0.49-4.9**	
	8	1.7	0	0.47-4.8**	

* Sweet pepper (7 trials) ** Hot pepper (6 trials)

Tomatoes. Residue trials on tomatoes were conducted in several countries with Rovral WP 50, Rovral Flo or Rovral Aqua Flo. Results are summarized in Table 29.

Table 29. Residues of iprodione in tomatoes.

Country, Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
UK	Rovral WP 50	5*	until run-off	0.05	0	3.1	83
1974					2	3.4	
					5	3.0	
					7	2.5	
					9	2.1	
					14	2.7	
		4*	until run-off	0.05	14	1.7	83
		5*		0.05	14	2.3	
		6*		0.05	14	2.9	
		7*		0.05	14	3.7	
		8*		0.05	14	4.2	
					28	5.8	
		5*	until run-off	0.05	14	2.7	83
		6*		0.05	14	3.8	
		7*		0.05	14	5.0	
		8*		0.05	14	4.2	
					27	2.3	
					41	3.3	
1977	Rovral WP 50	2*	1.1		2	0.24, 1.0	243
		4*	1.1		2	1.4	
		2*	0.5		2	0.1	
		4*	0.5		3	0.23	
		4*	0.5		2	1.4	
		5*	0.5		3	0.28	
France	Rovral WP 50	1*	0.82	0.75	9	0.19	102

Country, Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
1978		4*	0.75	0.15	7	0.85	
France	Rovral Aqua Flo	3	2.2		0	0.1	212
1991					4	<0.05	
					7	<0.05	
					14	<0.05	
		2	0.75		19	<0.05	213
Japan	Rovral	3	3.0	0.1	1	2.1	134
1975	WP 50				3	3.4	
					7	1.8	
					14	3.0	
		4	3.0	0.1	1	4.6	
					3	3.6	
					7	4.1	
					14	2.8	
		5	3.0	0.1	1	4.5	
					3	4.1	
					7	3.9	
					14	3.8	
		1*	2.5	0.1	1	1.3	132
					3	1.4	
					7	1.2	
					14	0.79	
		3*	2.5	0.1	1	5.3	
					3	3.5	
					7	3.0	
					14	2.4	
		4*	2.5	0.1	1	5.6	
					3	5.4	
					7	4.3	
					14	3.5	
Italy	Rovral Flo	3	0.75	0.075	15	0.06	38
1982		3	0.75	0.075	28	0.03	
Denmark	Rovral WP 50*	1*	until run-off	0.05	0	1.3	15
1980					4	0.74	
					7	0.49	
1981		7*	1.35		1	1.9	166
					3	1.7	
					5	0.9	

Country, Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
					7	1.0	
					14	1.0	
Canada	Rovral WP 50	3*		0.05	2	0.15	6
1981/82					7	0.41	
		3*		0.1	2	0.54	
					7	0.47	
		2*	until run-off	0.05	3	<0.1, 0.39	
USA	Rovral WP 50	5	1.1		0	0.22-1.6	68
1986		5	2.2		0	0.46-2.8	
		3	1.1		0	<0.05-0.6	52
		3	1.1		0	2.2	

* Greenhouse

Leafy vegetables

Trials on witloof chicory, lettuce and dandelions are summarized in Tables 30-32.

Table 30. Residues of iprodione in witloof chicory.

Country, Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
Belgium 1975	Rovral WP 50	1	30 ***		48	leaf: 0.41 root: 1.5	153
					59	leaf: 0.09 root: 2.7	
					93	leaf: 0.77 root: 6.2	
					104	leaf: 0.55 root: 2.7	
Belgium 1975	Rovral WP 50	1	60 ***		48	leaf: 0.36 root: 3.1	153
					59	leaf: 0.21 root: 4.4	
					93	leaf: 0.59 root: 10.0	
					104	leaf: 1.0 root: 3.7	
France 1987	Rovral WP 50	2	40 ***		24	leaf: 1.0 root: 3.0	194
		2	40 ***		24	leaf: 0.8 root: 5.1	
1987		3	0.6 *	0.12	21	leaf: <0.05 root: 2.2	196
			0.3 **	0.06			
			40 ***	8.0			
		3	1.25 *	0.25	21	leaf: <0.05 root: 1.9	
			0.3 **	0.06			
			40 ***	8.0			

Country, Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
1992	Rovral Aqua Flo	1	40 ***		20	leaf: 0.03 root: 0.73	225
1992		1	40 ***		21	leaf: 0.08 root: 3.8	
1992		1	40 ***		21	leaf: 0.03 root: 0.89	
		1		0.06 **	28	leaf: 0.03 root: 1.0	
		2	0.06 **		21	leaf: <0.02 root: 2.2	
			40 ***				
Netherlands	Rovral WP 50	1	40 ****		25	leaf: <0.1	140
1977					25	root: 13 not washed	
						2.8 washed	
1977		1	40 ****		62	leaf: <0.1 root: <0.1 not washed & washed	

* Foliar spray ** Dipping
*** Stem base drenching **** Spray after roots arranged for forcing

Table 31. Residues of iprodione in lettuce. All trials with Rovral WP 50.

Country, Year				PHI, days	Residue, mg/kg	Ref.
	No	kg ai/ha	kg ai/hl			
Head lettuce						
UK	2	0.25		7	4.0, 4.3	26
1978/79	2	0.25		7	0.59, 0.94	
	3	0.25		13	1.0, 2.0	27
	4	0.25		7	7.2, 9.1	
	5	0.25		7	3.8	
1977	5	0.25		7	<0.2	241
	5	0.25		14	2.7, 3.3	
	6	0.25		6	7.7	
1974/75	5*	0.5	0.05	37	H 0.4	86
					OL 20	
					WL 13	
	3*	0.56	0.05	19	4.9	34
	3*	0.56	0.05	22	8.8	
	4*	0.56	0.05	0	19, 59	
				1	16, 40	
				7	14, 41	
				14	21	
Japan	2*	3.0	0.1	7	4.6	130
1975				21	0.05	
	3*	3.0	0.1	7	11	
				21	0.1	
	4*	3.0	0.1	7	7.4	
				21	0.11	
	2*	1.5	0.1	7	0.48	133
				21	0.39	
	3*	1.5	0.1	7	1.9	

Country, Year				PHI, days	Residue, mg/kg	Ref.
	No	kg ai/ha	kg ai/hl			
				21	1.2	
	4*	1.5	0.1	7	2.3	
				21	1.7	
Netherlands	1*	7.5 (soil)		54	0.09	8
	1*	7.5 (soil)		67	0.08	
1975	2	0.75		10	9.2	
				17	3.3	
				24	0.05	
				32	<0.05	
	2	0.75		21	8.2	93
				28	4.9	
				35	1.8	
				42	0.65	
France	4*	0.75	0.075	30	0.6	86
1977/78	4	0.75	0.075	36	0.06	
	4	0.9	0.075	13	4.3	250
	3*	0.75	0.075	23	4.7	
	4	0.75	0.094	26	0.07	
	3	0.75	0.15	26	≤0.1	
	3*	0.75	0.075	52	0.67	
1976	3*	0.75	0.075	39	6.7	95
1975	7	0.5	0.05	45	0.16	87
	7	0.75	0.075	45	0.29	
1974/75	4	0.75	0.05	53	WL 0.75	251
					OL 2.5	
					H 0.08	
1974	6	0.5	0.05	31	0.03	35
	6	0.75	0.075	31	0.03	
	6	1.0	0.1	31	0.03	
Germany	3*	0.3	0.05	0	28	98
1977				7	8.0	
				14	2.4	
				21	1.4	
				28	0.8	
	3*	0.5	0.05	0	48	98
				7	18	
				14	8.6	
				21	3.7	
				28	1.6	
1978	1*	1.5	0.25	0	96	103
				14	15	
				21	6.8	
				28	3.6	
				35	2.0	
				42	0.3	
	3*	0.5	0.083	0	32	103
				7	22	
				14	21	
				21	6.9	
				28	3.2	
1976	2*	0.5	0.05	32	0.17	97

Country, Year				PHI, days	Residue, mg/kg	Ref.
	No	kg ai/ha	kg ai/hl			
1977	3*	0.3	0.05	0	28, 32	97
				7	8.0, 8.7	
				14	1.9, 2.4	
				21	0.47, 1.4	
				28	0.08, 0.78	
1977	3*	0.5	0.083	0	38, 48	97
				7	5.9, 18	
				14	2.3, 8.6	
				21	0.75, 3.7	
				28	0.55, 1.6	
1976	3*	0.75	0.15	0	22, 46	97
				5	14, 6.3	
				7	4.8, 11	
				10	2.2, 8.0	
				14	3.6, 7.2	
1976	3	0.75	0.13	0	16	97
				7	1.8	
				14	0.6	
				21	≤0.05	
1980	1*	1.0	0.17	0	88	117
				7	60	
				14	43	
				21	36	
				28	4.5	
1976	3	0.75	0.13	0	16	97
				7	1.8	
				14	0.6	
				21	≤0.05	
				28	≤0.05	
1976	3	0.75	0.15	0	13, 18	97
				5	4.3, 5.5	
				7	3.0, 4.2	
				10	2.3, 3.0	
1977	3	0.5	0.083	0	6.9	97
				7	0.66	
				14	0.25	
				21	<0.03	
1979	1*	1.0	0.17	0	141	109
				14	11	
				28	0.55	
				35	0.3	
				42	0.05	
1979	1*	1.0	0.25	18	1.8	109
				25	4.1	
				32	3.7	
				39	2.4	
				46	2.1	
1978	1*	1.5	0.25	0	79	103
				14	8.4	
				21	3.2	

Country, Year				PHI, days	Residue, mg/kg	Ref.
	No	kg ai/ha	kg ai/hl			
				28	0.9	
1978	1*	1.5	0.25	0	122	103
				14	25	
				21	6.4	
				28	≤0.1	
1979	1	1.0	0.17	0	70	109
				14	30	
				21	23	
				28	3.2	
Germany	1*	1.0	0.17	7	32	7
1980		autumn -		14	15	
		winter		21	<0.1	
				28	3	
				63	<0.1	
	1*	1.0	0.17	7	81	
		autumn -		14	60	
		winter		21	23	
				29	17	
				48	6	
	1*	1.0	0.17	7	0.8	
		autumn		14	0.2	
				21	<0.1	
				28	<0.1	
	1*	1.0	0.17	14	1.5	
		autumn		21	<0.1	
				28	0.1	
				48	<0.1	
	1*	1.0	0.17	14	41	
		spring		21	8	
				28	1.2	
	1*	1.0	0.17	14	2.1	
		summer		22	<0.1	
				28	<0.1	
				35	<0.1	
	1*	1.0	0.25	14	2.5	
		autumn		21	0.5	
				28	0.1	
				35	<0.1	
Spain		1.5[1]	0.075	0	51 (3)	10
1986				3	42 (3)	
				7	35 (3)	
				14	25 (3)	
				21	10 (3)	
Spain	1	0.75		0	5.4 (3)	
1989				7	0.5 (3)	
				22	0.1 (3)	
Leaf lettuce						
Canada	3	0.75	0.136	0	14	6
1987				1	5.8	
				3	4.1	
				7	0.86	

Country, Year				PHI, days	Residue, mg/kg	Ref.
	No	kg ai/ha	kg ai/hl			
				10	0.39	
				14	0.19	
				21	0.13	
Canada 1982	3	0.75	0.136	0	31	
Cos lettuce				1	11	
				3	9.4	
				7	4.7	
				10	2.2	
				14	1.0	
Canada 1982	3	0.75	0.136	0	42	
Leaf Lettuce				1	16	
				3	17	
				7	4.2	
				10	1.7	
				14	1.2	
Canada	3	0.75	0.136	0	25	
1982				1	12	
				3	5.9	
				7	4.6	
				10	2.8	
				14	1.5	
Spain		7.0[1]	0.25	0	7.4 (3)	10
1987				3	4.9 (3)	
				7	3.8 (3)	
				14	1.9 (3)	
				21	1.7 (3)	
				28	0.9 (3)	
Spain	1	0.7	0.035	0	5.0 (3)	
1988				3	3.4 (3)	
				7	0.6 (3)	
				14	0.5 (3)	
				21	0.1 (3)	
Denmark	1	run-off	0.05	0	19	13
1980				7	1.7	
				14	0.44	
1981	1*	0.25		1	4.8	167
				3	4.3	
				5	4.9	
				7	3.6	
				14	1.1	
USA	3	1.1		5	11	77
1985/86	3	1.1		10	7.9	
Bibb Lettuce	3	1.1		10	1.1	
	3	1.1		14	4.7	
	3	1.1		14	14	
	3	1.1		14	9.0	
	3	1.1		14	4.9	
USA	3	1.1		10	3.8	77
1984/	3	1.1		10	1.7	
85/86	3	1.1		14	20	
Romaine Lettuce	3	1.1		14	0.18	

Country, Year				PHI, days	Residue, mg/kg	Ref.
	No	kg ai/ha	kg ai/hl			
	3	1.1		14	7.4	
	3	1.1		14	0.07	
	3	1.1		14	5.4	
	3	1.1		14	5.3	
	3	1.1		14	1.8	
USA	3	1.1		10	1.4	77
1985/86	3	1.1		13	17	
Escarole Lettuce	3	1.1		14	0.16	
	3	1.1		14	22	
	3	1.1		14	0.17	
	3	1.1		14	17	
	3	1.1		14	16	
	3	1.1		14	2.6	
	3	1.1		14	0.32	

* Greenhouse lettuce; H Hearts; OL Outer leaves; WL Whole lettuce
[1] Application outdoor March-April, no. not reported
(3) Mean of 3 replicates

Table 32. Residues of iprodione in dandelions (France, 1991).

Application			PHI, days	Residue, mg/kg	Ref.
Form	No	kg ai/ha			
Rovral	1	5	15	2.1	209

Legume vegetables

Beans. Data on residues in succulent and dried beans are summarized in Table 33.

Table 33. Residues of iprodione in beans.

Country, Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
Succulent beans							
Canada	Rovral WP 50	1	0.75		27	SB <0.1	177
1982		2	0.75		14	SB 0.15	
		2	0.75		15	SB 0.21	
		2	0.75		15	SB 0.33	
Netherlands	Rovral WP 50	2	1.1	0.075	2	1.5	108
1979					6	1.5	
					9	0.6	
		2	1.1	0.075	8	0.85	108
					12	0.85	
					15	0.8	

Country, Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
France	Rovral WP 50	2	0.75	0.075	6	FB 0.71	141
1978		2	0.75	0.075	11	FB 0.49	
1978	Rovral WP 50	1	0.75	0.075	7	FB 0.1	143
		1	0.75	0.075	12	FB 0.3	
		2	0.75	0.075	11	FB 0.6	
1988		1	0.75		8	FBP <0.25	199
						W <0.1	
1979	Kidan*	1	0.75	0.075	7	FB 0.25	143
		1	0.75	0.075	12	FB 0.25	
		2	0.75	0.075	11	FB 0.6	
1981		3	0.75	0.075	6	FB 0.25	252
1982	Kidan*	3	0.75	0.075	4	FB 0.83	39
		2	0.75	0.15	17	FB 0.13	
		1	0.75	0.15	18	FB 0.22	
		2	0.75	0.15	14	FB 0.31	
1983	Kidan*	2	0.75	0.075	8	FB 0.74	149
1979	Kidan*	1	0.75	0.075	12	FB 0.25	143
1991	Rovral Aqua Flo	4	0.75		5	FB 0.49	217
		2	0.75		4	FB 0.28	
Germany	Rovral WP 50*	2	0.5	0.083	0	FB 1.8	103
1978					7	FB 0.6	
					14	FB 0.6	
		2	0.75	0.125	0	FB 1.9	
					7	FB 0.9	
					14	FB 0.6	
Germany	Rovral WP 50*	2	0.5	0.083	0	FB 2.3	253
1979					7	FB 0.2	
					14	FB 0.1	
					21	FB 0.05	
		2	0.5	0.125	0	FB 1.8	
					14	FB 0.4	
					21	FB 0.1	
Belgium	Quintal IC*	2	0.7		20	0.05	254
Spain	Rovral WP 50	1	1.125		0	FB 1.4	10
1990					3	1.1, 1.7, 1.3, 1.4	
					7	FB 1.4[1]	
					10	FB 0.5[1]	
					14	FB 0.4[1]	
Portugal	Rovral WP 50	6		0.075	6	1.1	
1983 (G)		1		0.075	1	2.7	
					4	1.9	
					7	1.0	
		1		0.075	4	2.9	
		1		0.075	3	2.4	
		1		0.075	2	3.9	

Country, Year	Application				PHI, days	Residue, mg/kg	Ref.
	Form	No	kg ai/ha	kg ai/hl			
USA	Rovral WP 50	2	1.1		21	LB 0.08	57
1983						BF 0.89	
		2	1.1		3	SB 0.84	57
						BF 11	
		2	1.1**		9	SB 0.1	
						BF 1.4	
		2	1.1		9	SB 0.32	
						BF 13	
		2	1.1**		10	SB 0.07	
						BF 2.9	
		2	1.1		15	SB 0.33	
						BF 11	
		2	1.1**		15	SB 0.06	
						BF 2.9	
		2	1.1		18	SB 0.11	
						BF 11	
1984		2	1.1**		17	SB <0.05	71
1985		2	1.1		24	SB 0.58	78
						BF 75	
		2	1.1		14	SB 0.82	
						BF 66	
		2	1.1		14	SB 0.7	
						BF 48	
1985		2	1.1		14	LB 1.3	78
						BF 27	
		2	1.1		14	LB 1.2	
						BF 28	
1992		2	1.1**		15	SB <0.05	256
Dried beans							
Canada	Rovral WP 50	1	0.85		60	WB <0.02	23
1977					76	WB <0.02	
		1	1.1		60	WB 0.06	
					76	WB <0.02	
1979		1	0.5		39	WB ≤0.1	32
					41	WB ≤0.1	
1982		2	0.75		50	WB <0.1	175
					53	WB <0.1	
		2	0.75		50	KB <0.1	176
					68	KB <0.1	
Japan	Rovral WP 50	1	1.0	0.1	14	KB <0.05	138
1975					28	KB <0.05	
		3	1.0	0.1	21	KB <0.05	131
					28	KB <0.05	
UK 1983	Rovral Flo	2	0.5		28	<0.1	186
1984		2	0.5		66	<0.1	188
		2	0.5		66	<0.1	