

DIAZINON (022)

EXPLANATION

Diazinon was first evaluated in 1967 and has been reviewed several times up to 1979. It was re-evaluated in the CCPR periodic review programme by the 1993 JMPR, when comprehensive information on residues and use patterns was reviewed.

The JMPR was informed only after the start of the 1993 review that data on residues in hops were available. Since hops are becoming an important commodity in international trade the establishment of a Codex MRL for diazinon in hops is desirable.

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

METHODS OF RESIDUE ANALYSIS

Hops were analyzed by a method which involved extraction with a mixture of acetone and water, clean-up by partitioning with hexane-acetonitrile and GLC. Detection was with an FPD or NPD.

The two metabolites hydroxydiazinon (*O,O*-diethyl *O*-2-(2-hydroxyisopropyl)-6-methylpyrimidin-4-yl phosphorothioate) and diazoxon (*O,O*-diethyl *O*-2-isopropyl-6-methylpyrimidin-4-yl phosphate) were determined together with diazinon (Hubbard *et al.*, 1990).

The average recoveries were 94%, 120% and 113% for diazinon, diazoxon and hydroxydiazinon respectively, and the limits of determination were 0.05 mg/kg for both the parent compound and its metabolites.

USE PATTERN

The registered use patterns on hops are summarized in Table 1.

Table 1. Approved use patterns of diazinon on hops.

Country	Form.	Application				PHI, days
		Type	Rate, kg ai/ha	Spray concentration, kg ai/hl	Number	
AUSTRALIA	EC	foliar		0.052		-
CANADA	WP, EC	foliar	1.1		-	14
CANADA	WP, EC	applied with planting water	0.25-0.42		1	14
USA	WP	foliar	1.1		according to infestation	14

RESIDUES RESULTING FROM SUPERVISED TRIALS

Supervised trials were carried out in the USA, at approved and double rates at 14-day intervals. The results are summarized in Table 2, where the residues are means of duplicate analyses, except those from the high rate (2.2 kg ai/ha).

In all cases the residues of hydroxydiazinon and diazoxon were below the limit of determination.

Table 2. Residues from supervised trials with diazinon on hops (USA, 1989).

Application		Crop	Residue, mg/kg, after PHI, days ¹			Report
No.	kg ai/ha		13-14	20-21	22-28	
4	1.1	green	0.16	0.08	<0.05	OW-IR-129-88
		dry	<u>0.25</u>	0.18	<0.05/0.09	
4	2.2	green	1.5	0.28	0.1	OW-IR-129-88
		dry	1.5	0.62	0.23	
4	1.1	green	0.15	0.15	<0.05	OW-IR-130-88
		dry	<u>0.43</u>	0.15	<0.05/0.09	
4	2.2	green	0.21	0.08	0.08	OW-IR-1305-88
		dry	0.42	0.60	0.29	
4	1.1	green	0.06	<0.05	<0.05	OW-IR-625-88
		dry	<u>0.11</u>	<0.05	<0.05	
4	1.1	green	<0.05	<0.05	<0.05	OW-IR-626-88
		dry	<u>0.24</u>	<0.05	<0.05	
4	1.1	green	0.07	<0.05	<0.05	OW-IR-127-88
		dry	<u>0.11</u>	<0.05	<0.05	

¹ Underlined residues are from treatments according to GAP

NATIONAL MAXIMUM RESIDUE LIMITS

The following national MRLS were reported to the Meeting.

Country	Commodity	MRL, mg/kg
Canada	Hops	0.25
USA	Hops	0.75

APPRAISAL

Diazinon was re-evaluated under the CCPR periodic review programme by the 1993 JMPR. The present Meeting received information on use patterns, residue data from supervised trials and analytical methods for hops.

Hops, dry. Residue data were available from five trials in the USA carried out according to GAP (1.1 kg ai/ha, 14-day PHI). Residues ranged from 0.11 to 0.43 mg/kg. The recovery and limit of

determination of the analytical method used in the trials were 94% and 0.05 mg/kg.

The analytical methods for hops are suitable for regulatory purposes.

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: diazinon (fat-soluble)

Commodity		Recommended MRL (mg/kg)		PHI, days
CCN	Name	New	Previous	
DH 1100	Hops, dry	0.5	-	14

REFERENCES

1. CIBA-GEIGY Residue Chemistry Residue Test Report OW-IR-129-88.
2. CIBA-GEIGY Residue Chemistry Residue Test Report OW-IR-130-88.
3. CIBA-GEIGY Residue Chemistry Residue Test Report OW-IR-625-88.
4. CIBA-GEIGY Residue Chemistry Residue Test Report OW-IR-626-88.
5. CIBA-GEIGY Residue Chemistry Residue Test Report OW-IR-627-88.
6. Determination of diazinon, Diazoxon and CG-14128 Residues in Crops, Crop Fractions and Animal tissues using Gas Chromatography.