

## DIMETHOATE (027)

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### EXPLANATION

Dimethoate was evaluated by the JMPR several times from 1965 to 1994 and under the CCPR Periodic Review Programme in 1998. The compound was re-evaluated in 2003 for residues and toxicology. The 2003 Meeting recommended a number of MRLs and established an acute reference dose (ARfD) of 0.02 mg/kg bw.

The 38<sup>th</sup> session of the CCPR in 2006 decided to advance the MRL of dimethoate in barley of 2 mg/kg to step 8 (FAO/WHO, 2006), which was adapted by 29<sup>th</sup> Session of CAC as Codex Standard. Apart from that, the Committee was informed that new residue information for barley would be submitted to the JMPR (SCC 2006a and b).

### USE PATTERN

Information on modified registered use for cereals was reported to the Meeting and is shown in Table 1.

Table 1. Registered uses for dimethoate.

Crop G/F	Country	Form. ai g/L	Application				PHI days
			Method	Rate kg ai/ha	Spray conc. kg ai/hL	No.	
Cereals F	Finland	EC, 400	spraying, from leaf development (sprouting) to the end of tillering, before stem elongation (up to BBCH 30)	0.16-0.32	0.08 – 0.16	1	application up to BBCH 30

F = outdoor or field

### RESIDUES RESULTING FROM SUPERVISED TRIALS ON CROPS

The Meeting received new information on supervised field trials on barley. Residue data are reported for barley grains, straw and plant parts in Tables 2 - 4.

Where residues were not detected, data are recorded in the Tables as below the LOQ. Residue data, application rates and spray concentrations have generally been rounded to two significant figures or, for residues near the LOQ, to one significant figure. Although trials included control plots, no control data are recorded except where residues in control samples exceeded the LOQ. Residues are recorded unadjusted for procedural recoveries. Double-underlined residues are from treatments according to GAP.

Table 2. Dimethoate and omethoate residues in winter barley grains from supervised trials in Europe. Foliar spray treatment. Growth stage at last treatment BBCH 59 (Pollmann, 2006a and b).

Location, year, variety, report No	Application					Commodity analysed	PHI (days)	Residues (mg/kg)	
	Form	kg ai/ha	Water L/ha	kg ai/hL	No.			Dimethoate	Omethoate
Bucknell, Oxfordshire, UK, 2005, Pearl, GB05W003R	EC	0.35	307	0.11	1	grain	58	<u>&lt;0.001</u>	<u>&lt;0.001</u>
Stratton Audley, Oxfordshire, UK, 2004, Regina, GB04W003R	EC	0.32	283	0.11	1	grain	49	<u>0.002</u>	<u>&lt;0.001</u>

Location, year, variety, report No	Application					Commodity analysed	PHI (days)	Residues (mg/kg)	
	Form	kg ai/ha	Water L/ha	kg ai/hL	No.			Dimethoate	Omethoate
Marest Damcourt, Picardie, France, 2005, Esterelle, F05W003R	EC	0.34	296	0.11	1	grain	56	<u>&lt;0.001</u>	<u>&lt;0.001</u>
Gertwiller, Alsace, France, 2004, Platine, F04W051R	EC	0.38	218	0.17	1	grain	59	<u>&lt;0.001</u>	<u>&lt;0.001</u>
Padborg, Sonderjylland Denmark, 2005, Vanessa, D05W003R	EC	0.34	293	0.12	1	grain	53	<u>&lt;0.001</u>	<u>&lt;0.001</u>
Padborg, Frosley, Bov, Denmark, 2004, Carola, D04W003R	EC	0.35	305	0.11	1	grain	68	<u>&lt;0.001</u>	<u>&lt;0.001</u>
Helmste, Niedersachsen, Germany, 2004, Passion, G04W067R	EC	0.36	312	0.11	1	grain	63	<u>&lt;0.001</u>	<u>&lt;0.001</u>

Table 3. Dimethoate and omethoate residues in winter barley straw from supervised trials in Europe. Foliar spray treatment. Growth stage at last treatment BBCH 59 (Pollmann, 2006a and b).

Location, year, variety, report No	Application					Commodity analysed	PHI (days)	Residues (mg/kg)	
	Form	kg ai/ha	Water L/ha	kg ai/hL	No.			Dimethoate	Omethoate
Bucknell, Oxfordshire, UK, 2005, Pearl, GB05W003R	EC	0.35	307	0.11	1	straw	58	<u>&lt;0.01</u>	<u>&lt;0.01</u>
Stratton Audley, Oxfordshire, UK, 2004, Regina, GB04W003R	EC	0.32	283	0.11	1	straw	49	<u>0.02</u>	<u>&lt;0.01</u>
Marest Damcourt, Picardie, France, 2005, Esterelle, F05W003R	EC	0.34	296	0.11	1	straw	56	<u>&lt;0.01</u>	<u>&lt;0.01</u>
Gertwiller, Alsace, France, 2004, Platine, F04W051R	EC	0.38	218	0.17	1	straw	59	<u>&lt;0.01</u>	<u>&lt;0.01</u>
Padborg, Sonderjylland Denmark, 2005, Vanessa, D05W003R	EC	0.34	293	0.12	1	straw	53	<u>&lt;0.01</u>	<u>&lt;0.01</u>
Padborg, Frosley, Bov, Denmark, 2004, Carola, D04W003R	EC	0.35	305	0.11	1	straw	68	<u>&lt;0.01</u>	<u>&lt;0.01</u>
Helmste, Niedersachsen, Germany, 2004, Passion, G04W067R	EC	0.36	312	0.11	1	straw	63	<u>&lt;0.01</u>	<u>&lt;0.01</u>

Table 4. Dimethoate and omethoate residues in winter barley plants from supervised trials in Europe. Foliar spray treatment. Growth stage at last treatment BBCH 59 (Pollmann, 2006a and b).

Location, year, variety, report No	Application					Commodity analysed	PHI (days)	Residues (mg/kg)	
	Form	kg ai/ha	Water l/ha	kg ai/hl	No.			Dimethoate	Omethoate
Stratton Audley, Oxfordshire, UK, 2004, Regina, GB04W003R	EC	0.32	283	0.11	1	plant	0	7.0	0.02
						plant	13	0.85	0.2
						plant	21	0.45	0.13
						ears	28	<0.01	<0.01
						rest of plant	28	0.06	0.02
						ears	35	<0.01	<0.01
rest of plant	35	0.03	0.01						
Gertwiller, Alsace, France, 2004, Platine, F04W051R	EC	0.38	218	0.17	1	plant	0	7.2	0.02
						plant	14	0.05	0.03
						plant	20	<0.01	<0.01
						ears	28	<0.01	<0.01
						rest of plant	28	<0.01	<0.01
						ears	35	<0.01	<0.01
rest of plant	35	<0.01	<0.01						
Padborg, Frosley, Bov, Denmark, 2004, Carola, D04W003R	EC	0.35	305	0.11	1	plant	0	6.8	0.06
						plant	13	0.49	0.25
						plant	21	0.29	0.19
						ears	27	<0.01	0.02
						rest of plant	27	0.31	0.16
						ears	34	<0.01	<0.01
rest of plant	34	0.10	0.04						
Helmste, Niedersachsen, Germany, 2004, Passion, G04W067R	EC	0.36	312	0.11	1	plant	0	7.3	0.02
						plant	13	0.49	0.21
						plant	20	0.26	0.12
						ears	28	<0.01	<0.01
						rest of plant	28	0.02	0.02
						ears	34	<0.01	<0.01
rest of plant	34	<0.01	<0.01						

## APPRAISAL

Dimethoate was evaluated by the JMPR on several occasions between 1965 and 1994 and under the CCPR Periodic Review Programme in 1998. The compound was re-evaluated in 2003 for residues and toxicology. The 2003 Meeting recommended a number of MRLs and established an acute reference dose (ARfD) of 0.02 mg/kg bw.

The 38th session of the CCPR in 2006 decided to advance the MRL of dimethoate in barley of 2 mg/kg to step 8, which was adopted by the 29<sup>th</sup> session CAC as a Codex standard. Apart from that, the Committee was informed that new residue information for barley would be submitted to the JMPR.

### *Results of supervised residue trials*

#### *Barley*

Field trials conducted in northern Europe and involving one foliar application of dimethoate were made available to the Meeting.

GAP in Finland on cereals is for one application per season with a maximum rate of 0.32 kg ai/ha to be applied from leaf development to the end of tillering, before stem elongation. In seven trials on barley from northern Europe (two from the UK, two from France, two from Denmark and one from Germany) matching Finnish GAP residue levels of dimethoate were < 0.001 mg/kg in six trials and 0.002 mg/kg in one trial in grains. The omethoate residues in grains were < 0.001 (7) mg/kg.

The Meeting agreed that the MRL for barley recommended at the 1998 Meeting and advanced to step 8 by the 2006 CCPR was sufficient to accommodate the new residue data and the Finnish GAP, and that no further evaluation was required.

*Barley straw and fodder, dry*

Residues in barley straw and fodder, dry were evaluated by JMPR 1998. An MRL was not recommended but STMRs were estimated for dimethoate and omethoate separately. New field trials conducted in northern Europe and involving one foliar application of dimethoate were made available to the present Meeting.

GAP in Finland on cereals is for one application per season with a maximum rate of 0.32 kg ai/ha to be applied from leaf development to the end of tillering, before stem elongation. In 7 trials on barley from northern Europe (two from the UK, two from France, two from Denmark and one from Germany) matching Finnish GAP, residue levels found were < 0.01 (6) and 0.02 mg/kg for dimethoate and < 0.01 (7) mg/kg for omethoate in straw.

The Meeting agreed that the STMRs of 0.495 mg/kg for dimethoate and 0.03 mg/kg for omethoate estimated by the 1998 JMPR for barley straw were sufficient to accommodate the new residue data and the Finnish GAP, and that no further evaluation was required.

**Further work**

The Meeting noticed that the estimation of STMRs and HRs was not correct for some of the commodities calculated by the 2003 JMPR. The Meeting agreed to do a corrigendum based on the supervised residue trials data submitted to the 2003 JMPR. This should include consideration of new information on GAP and residue data.

**REFERENCES****Author, Date, Title, Institute, Report Reference, Document No.**

FAO/WHO 2006. ALINORM 06/29/24. Joint FAO/WHO Food Standard Programme, Codex Alimentarius Commission, 29<sup>th</sup> Session, Geneva Switzerland, 3 – 7 July 2006. Report of the 38<sup>th</sup> Session of the Codex Committee on Pesticide Residues, Fortaleza, Brazil, 3 – 8 April 2006. para 57 and 58.

Pollmann, B. 2006 a. Residue Behaviour of Winter Barley after Application of Dimethoate 400 g/l EC – 4 Sites in Northern Europe 2004. Final Report amended on 15 Feb 2006, DTFDoc. No. 534-4305, 20044016/E1-FPWB. Trial codes of the testing facility: F04W051R, G04W067R, D04W003R, GB04W003R. Unpublished.

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**CROSS-REFERENCES**

<b>Author</b>	<b>Document Code</b>	<b>Year</b>
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Pollmann, B	D05W003R	2006b.
Pollmann, B	F04W051R	2006a.
Pollmann, B	F05W003R	2006b.
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Pollmann, B	GB04W003R	2006a.
Pollmann, B	GB05W003R	2006b.