

CHLORPYRIFOS-METHYL (090)

EXPLANATION

The 1994 CCPR was informed that only one response had been obtained, from the USA, to a Circular Letter (CL 1993/11-PR) inviting governments to inform the JMPR of their current GAP for all cereals. Several delegations indicated that the MRLs for barley and oats were too high. The USA delegation stated that the post-harvest use on rice was not accommodated. The delegations were requested to send information on GAP for all cereals, including rice, to the JMPR by the end of May 1994 for evaluation.

The comments previously provided by the USA do not appear to have been considered by the 1993 JMPR. The present MRL for rice does not accommodate post-harvest applications. The maximum residue levels for barley, oats and rice were reassessed using data from the 1991 JMPR review and data provided by Australia and the USA.

USE PATTERN

Information was provided on approved (registered) post-harvest uses of chlorpyrifos-methyl from Australia, France and the USA. It is shown together with that from the 1991 JMPR evaluation in Table 1.

Table 1. Post-harvest uses of chlorpyrifos-methyl according to GAP.

Commodity	Country	Rate - mg/kg (g/tonne)
Cereals	Australia	10 (>3 months storage)
		5 (<3 months storage)
Cereals	France	2.5
Cereals	Italy	3
Cereals	UK	5
Cereals (Barley, oats, rice, wheat)	USA	6

No new data on supervised residue trials or information on GAP (as requested by the 1994 CCPR) were provided for this evaluation. The data shown below (Table 2) are examples extracted from the 1991 JMPR monograph: they support a 10 mg/kg MRL for all the cereal grains listed in the Table.

Table 2. Chlorpyrifos-methyl residues in cereals and processed fractions of wheat and rice from grain treated according to GAP.

Country, crop	Fraction	Residue mg/kg
USA	Rice	
	Grain	6.2, 4.4
	Bran	11, 2.0
	Hulls	20, 16
	Brown rice	1.9, 0.89
	Milled rice	0.26, 0.62 (white rice)
Australia	Wheat	
	Grain	5.7
	Bran	23.0
	Germ	23.8
	Flour	2.4
USA	Oats	
	Grain	5.2
	Barley	
	Grain	5.4

The USA has reported (Ives, 1993; see also JMPR evaluation, 1991) that residues in rice treated post-harvest according to GAP for storage use were ≤ 6.3 mg/kg at ≥ 4 days after treatment at 6 g ai/tonne. This rate is the level recommended in the USA for the post-harvest treatment of cereals generally. A report from Australia (Hooper, 1991) indicated that lower rates of chlorpyrifos-methyl (e.g. 5 mg/kg) were not effective for long-term storage protection under Australian conditions, and that sublethal doses promoted resistance which threatened efficacy.

In summary, the Australian report concluded that, for these reasons and owing to the difficulties of obtaining representative samples for analysis, any lowering of the MRL below 10 mg/kg would seriously jeopardize the effective use of this insecticide.

APPRAISAL

The 1994 CCPR was informed that only one response had been obtained, from the USA, to a CCPR Circular Letter (CL 1993/11-PR) inviting governments to inform the JMPR of their current GAP for all cereals. Several delegations indicated that the MRLs for cereals were too high. The delegation of the USA stated that the post-harvest use on rice was not accommodated. The delegations were requested to send information on GAP for cereals to the JMPR by the end of May, 1994, for evaluation.

The comments previously provided by the USA do not appear to have been considered by the 1993 JMPR. The present MRL for rice does not include post-harvest applications. The proposed MRLs for barley, oats and rice were reassessed using data from the 1991 JMPR review and data provided by Australia and the USA.

The USA has reported that US residue data (obtained from samples treated according to GAP) for the post-harvest storage use of chlorpyrifos-methyl on rice showed residues of ≤ 6.3 mg/kg at ≥ 4 days after treatment at a rate of 6 g ai/tonne. This rate is also the US level recommended for the post-

harvest treatment of cereals. A report from Australia indicated that lower rates of chlorpyrifos-methyl (e.g. 5 mg/kg) were not effective for long-term storage protection under Australian conditions. In addition it stated that sublethal doses promoted resistance, threatening efficacy.

In summary the Australian report concluded that, owing to difficulties in obtaining samples for analysis, any lowering of the MRL below 10 mg/kg would seriously jeopardize the effective use of this insecticide.

A review of all the residue data from the 1991 JMPR indicates that residues of chlorpyrifos-methyl in stored barley, oats and rice do not exceed 7 mg/kg. The current MRL of 10 mg/kg for barley and oats is supported by the data provided, which also support an MRL of 10 mg/kg for the post-harvest use of chlorpyrifos-methyl on rice.

RECOMMENDATIONS

On the basis of residue data from supervised trials, the Meeting concluded that the present MRLs of 10 mg/kg for residues of chlorpyrifos-methyl in barley, oats and wheat are supported and that the MRL of 0.1 mg/kg for rice should be increased to 10 mg/kg as shown below to cover residues of chlorpyrifos-methyl resulting from post-harvest uses.

Definition of the residue: chlorpyrifos-methyl.

CCN	Commodity	Recommended MRL, mg/kg	
		New	Previous
GC 0649	Rice	10 Po	0.1

REFERENCES

Hooper, G.N. 1991. Commonwealth Department of Primary Industries and Energy, Australia, July 5.

JMPR Report, 113/1, pages 221-234, 1991.

Ives, F. 1993. USA EPA, May 14.

JMPR. 1991. Residue Evaluations 113/1, pages 221-234.