METHIDATHION (051)

EXPLANATION

Methidathion was reviewed by the JMPR in 1972, 1975, 1979 and 1992. The 1992 review was a re-evaluation in the CCPR periodic review programme, which resulted in recommendations for new and revised MRLs, and in some cases for their withdrawal.

The recommendations were discussed at the 1994 Session of the Codex Committee on Pesticide Residues. Some governments requested reconsideration of some recommendations and were invited to provide information or comments in support of their positions. Comments were received from France on the proposals for cotton seed and cotton seed oil, cucumber, apricot, nectarine and apple (Potier, 1994). Comments and information on GAP were received from Chile (Gonzalez, 1994), information on GAP and comments on recommendations for stone fruit from Spain (Yague, 1994) and information on GAP for cotton seed from the USA.

USE PATTERN

New and/or updated information on GAP received by the Meeting is summarized in Table 1.

Table 1. Nationally approved or registered uses of methidathion.

Crop/country	Application			PHI (days)	Comments
	Form.	Rate, kg ai/ha (g ai/hl)	No.		
Apple France	---	(40)	2*	28*	* previously 4-8 applicns. and 15 day PHI
Cotton USA	EC (Assumed from "2E" label)	0.56 1.1	8* 4*	14 14	After bolls open. Before bolls open * Max. 4.5 kg ai/ha/season Other rate restrictions apply on a geographical basis for some pests.
Peaches/nectarines Chile[1]	WP	0.7-0.8 (28)*	>1	28**	* 70 g/hl of 40% product ** Chilean PHI. For export markets 20-35 days may be used.
Apricots, nectarines and peaches France	--	0.4-0.6 (40)	4*	14-15*	* Peach GAP 4 appl. at 29-40 g ai/hl, 15-day PHI from 1992 monograph. Apricot and nectarine GAP 40 g/hl, 0.4-0.6 kg ai/ha, 14-day PHI in 1994 submission.
Stone fruit Spain	EC or WP	(40-60)	3	**	* peaches, nectarines, apricots, cherries, plums ** Dormant use only (winter, no vegetation)

[1] May 2 1994 Chilean letter cites the use on nectarines and peaches as 40 g ai/100 l (700-800 g ai/ha).
June 15 1994 Chilean letter cites the use as 70 g/100 l of a 40% commercial product, supported by a label with a

recommendation of 70 g 40WP/100 l water.

RESIDUES RESULTING FROM SUPERVISED TRIALS

No new supervised trials data were received. The Meeting considered new information on GAP and/or comments on MRLs for apple, cotton seed, cucumber, nectarine and peach in the context of residue data summarized in the 1992 JMPR monograph.

Apple. No comments are recorded in the report of the 1994 CCPR on the maximum residue level estimated by the 1992 JMPR which confirmed the current 0.5 mg/kg CXL. The estimate was based on residue data and information on GAP from many countries and on a 14-day PHI, although GAP PHIs vary from 14 to 42 days. Maximum residues reflecting reported GAP rates and various GAP PHIs were 0.15 mg/kg after 14 days, 0.18 mg/kg after 21-27 days, and 0.12 mg/kg after 28 to >35 days. The Meeting was informed by the French government that French GAP had been changed from 4 to 8 applications at 20 to 38 g ai/hl with a 15-day PHI to 2 applications at 40 g ai/hl with a 28-day PHI (Table 1). The submission reported Portuguese GAP to be the same and suggested that a 0.2 mg/kg limit could be supported.

Cotton seed. An MRL of 1 mg/kg was recommended by the 1992 JMPR, based on trials in the USA and US GAP. The 1994 CCPR was informed that the US GAP quoted in the 1992 monograph was not correct in detail, and The Netherlands government requested clarification of the 2 mg/kg proposal for crude oil. The Meeting received requested details of US GAP and French comments which supported a 0.5 mg/kg limit for cotton seed, expressing the view that the residue of 0.68 mg/kg reported in 1992 was an outlier, and questioned the 2 mg/kg limit for crude oil.

Current US GAP (Table 1) permits multiple applications up to 1.12 kg ai/ha before bolls open and up to 0.56 mg/kg after the bolls are open, the total not to exceed 4.5 kg ai/ha/season with a 14-day PHI. The seasonal maximum appears not to have been available to the 1992 JMPR. Table 2 shows the residues after 14 days considered by the 1992 JMPR to be from treatments according to GAP, the total rates applied per season and the ratio of these to the approved seasonal rate.

Table 2. Residues of methidathion in cotton seed (USA). Data from 1992 JMPR monograph.

Application				Residue, mg/kg
No.	Rate, kg ai/ha	Total applied in season, kg ai/ha	Ratio of total applied to approved 4.5 kg ai/ha seasonal rate	
3	0.56	1.7	0.4	<0.05
3	1.12	3.4	0.8	<0.05
5	3 x 1.12 + 2 x 0.56	4.5	1	<0.05
5	1.12	5.6	1.2	0.06 (0.05)*
3	0.56	1.7	0.4	0.13
3	1.12	3.4	0.8	0.27
5	1.12	5.6	1.2	0.19 (0.16)*
5	3 x 1.12 + 2 x 0.56	4.5	1	<0.05
5	1.12	5.6	1.2	<0.05
3	0.56	1.7	0.4	<0.05
3	1.12	3.4	0.8	<0.05
6	1.12	6.7	1.5	<0.05
6	1.12	6.7	1.5	0.34 (0.23)*
7	1.12	7.8	1.7	<0.05
6	1.12	6.7	1.5	0.68 (0.45)*
5	3 x 1.12 + 2 x 0.56	4.5	1	<0.05

* Residues in parentheses are actual values multiplied by the ratio of the approved 4.5 kg ai/ha seasonal rate to the total rate actually applied.

Cucumber. At the 1994 CCPR the delegations of France and Germany questioned the MRL recommended by the 1992 JMPR of 0.05 mg/kg, expressing the view that data from outdoor trials had been mistakenly thought to be from indoor use. The Meeting was asked by France whether the trials were greenhouse or not, but no information was received to clarify the issue.

Apricots, nectarines and peaches. As part of its periodic review the 1992 JMPR recommended withdrawal of the 0.2 mg/kg CXLs for apricots and nectarines, but retention of the CXL at the same level for peaches. Only data on peaches were available, from the United States, Israel, Switzerland, Germany and Brazil. Information on GAP was available for Austria, Chile, France, Hungary, Japan, Jordan, Mexico, Peru and Portugal, but not for any of the countries for which residue data were provided. Most of the data were from US trials based on early season uses (no residues = <0.05 mg/kg). The maximum residues from later season foliar applications at GAP rates up to 0.8 kg ai/ha were 0.28 mg/kg after 28 days and 0.7 mg/kg after 14-16 days.

The Spanish delegation to the 1994 CCPR requested retention of the CXLs for apricots and nectarines since the uses on apricots, nectarines and peaches are similar. The Committee decided to retain the apricot and nectarine limits for one year pending the submission of data from Spain and Chile to support them. The Meeting received information on French, Spanish and Chilean GAP (Table 1) and

comments from Chile expressing the view that the limit for nectarines should not be withdrawn since the pests and uses are the same for peaches and nectarines. The Spanish use is at a dormant stage and is not relevant to the current CXL which is based on foliar uses.

APPRAISAL

Although the JMPR was not requested to re-examine the 1992 confirmation of the 0.5 mg/kg CXL for apples, based on a 14-day PHI, a country reported its revised GAP (a longer PHI and fewer applications) and proposed that the data reviewed by the 1992 JMPR would support a lower limit of 0.2 mg/kg. While the commenting country's revised GAP would not be sufficient to revise the CXL because other countries' GAP permits a 14-day PHI, the residues reported to the 1992 Meeting which were according to GAP with various PHIs did not exceed 0.18 mg/kg after 14 days. However, since residues approached 0.5 mg/kg in trials previously reviewed by the JMPR which were in accordance with GAP the Meeting recommended that the CXL should be retained.

The Meeting re-examined the estimate by the 1992 JMPR in its periodic review of 1 mg/kg for cotton seed on the basis of new information on current GAP and written comments from one country, based on a statistical analysis of the data, supporting 0.5 mg/kg. On the basis of the new information on GAP the Meeting concluded that four of the studies examined by the 1992 JMPR were based on treatments with 1.5 to 1.7 times the maximum approved seasonal application. These studies included the highest values of 0.34 and 0.68 mg/kg, leaving a maximum value of 0.27 mg/kg for the remaining results. If adjusted to the GAP rate residues would still be up to approximately 0.5 mg/kg.

The Meeting agreed that on a purely statistical basis a case might be made for a lower limit. However, because of the relatively limited number of results and the lack of a clear reason not to believe the results valid, the Meeting confirmed the 1992 estimate.

The Meeting also considered a country comment questioning the proposal of 2 mg/kg for crude oil, twice the level proposed for the seed, and noted that the 1992 JMPR had reviewed data from two cotton seed processing studies. Residues of 0.02 and 0.04 mg/kg in the seed had resulted respectively in 0.06 and 0.07 mg/kg in the crude oil, an average concentration factor of 2.4. The 2 mg/kg estimated by the 1992 JMPR is therefore consistent with the application of this concentration factor to the proposed MRL of 1 mg/kg. While the Meeting agreed that better processing studies with cotton seed containing residues higher than 0.04 mg/kg would be desirable, the estimate was based on the available data. The Meeting confirmed the 1992 recommendation of 2 mg/kg as an MRL for cotton seed oil, crude.

The Meeting was asked whether the residues supporting the 1992 estimate of 0.05 mg/kg for cucumbers were from glasshouse or outdoor uses. The 1992 JMPR monograph listed glasshouse uses, but the trials data did not indicate whether the trials were outdoor or glasshouse. In the absence of additional information, the Meeting was unable to recommend changing the current proposal.

The Meeting reviewed information on GAP from Spain, France and Chile for nectarines and peaches and written comments from Chile concerning the 1992 periodic review recommendation to withdraw the 0.2 mg/kg CXLs for apricots and nectarines while retaining the CXL at the same level for peaches. The comments noted that pests and uses are very similar for nectarines and peaches.

The Meeting agreed that the information on GAP indicated that the uses on the two fruits were similar, and noted that it was usually willing to combine data on nectarines and peaches when GAP is the

same for both, and almost always when there is a good data base for one but not for the other. Although none of the results reviewed by the 1992 JMPR were from trials which closely matched GAP, the Meeting agreed that a credible case could be made for interpreting German peach trials reviewed by the 1992 JMPR in the context of French GAP application rates.

With maximum residues up to 0.7 mg/kg after 14 days and 0.3 mg/kg after 21-24 or 28 days, the Meeting concluded that the current 0.2 mg/kg CXL could reasonably be supported only at PHIs of 28 days or more, although the reported PHI according to French GAP is 14 days. While the PHI in Chile is 28 days, no data were available from that country (or neighbouring countries with similar GAP). The data suggest that 0.2 mg/kg could be a little low even at 28 days.

The Meeting recommended that the CXL of 0.2 mg/kg for nectarines should be retained for the time being (as previously recommended for peaches), but on the basis of a PHI of 28 instead of 14 days. It confirmed the 1992 recommendation to withdraw the CXL of 0.2 mg/kg for apricots.

RECOMMENDATIONS

After reviewing the available information, the Meeting recommended the MRL shown below.

Definition of the residue: methidathion

Commodity		Recommended MRL (mg/kg)		PHI on which based, days
CCN	Commodity	New	Previous	
FS 0245	Nectarines	0.2[1]	0.2	28

[1] Effectively revokes the 1992 JMPR recommendation to withdraw the CXL

REFERENCES

Gonzalez, R.H., 1994. Letter concerning MRLs for nectarines and peaches and methidathion label. Universidad de Chile, Facultad de Ciencias Agrarias Y Forestales, Deprtamento de Sanidad Vegetal, Chile, June 1, 1994.

Potier, C., 1994. Letter giving information on French GAP and comments on limits for cotton seed, cucumbers, apricots, nectarines and apple. Direction Generale de la Concurrence, de la Consommation et de la Repression des Fraudes, France, May 26, 1994.

Yague, A. 1994. Letter comments and label concerning Spanish stone fruit GAP to Mr. Ives. Ministerio de agricultura, Pesca y Alimentación, Secretaria General de producciónes y Mercados Agrarios, Dirección General de Sanidad de la Producción Agraria, Subdirección Gereral de Sanidad Vegetal, Spain, June 6, 1994.