5.32 TRIADIMENOL (168)

RESIDUE AND ANALYTICAL ASPECTS

Triadimenol is a systemic fungicide formed as the primary metabolite of triadimefon but also used as an active substance on its own. Its main mode of action is an inhibition of the ergosterol biosyntheses in fungi. Triadimenol was evaluated by JMPR several times since 1978 and the last time in 2004 for toxicology, when an ADI of 0–0.03 mg/kg bw and an ARfD of 0.08 mg/kg bw was established and in 2007 and 2009 for residues.

Definition of the residue in plant and animal commodities (for the estimation of dietary intake and for compliance with MRLs): sum of triadimefon and triadimenol

In 2007 the Meeting evaluated use patterns of triadimefon and triadimenol in grapes; however, a short-term dietary intake concern was identified without opportunity for an alternative GAP. In 2009 the 2007 evaluation on the use on grapes was repeated by the JMPR, but again no alternative GAP could be identified.

The current Meeting received new information on use patterns for triadimenol in grapes supported by new supervised residue trials on grapes from Europe.

Methods of analysis

The 2007 Meeting evaluated several methods of analyses for triadimenol in different plant and animal matrices with a LOQ of 0.05 mg/kg (GC-FID or GC-MS), based on the multi-residue method DFG-S19.

To the 2014 Meeting two new analytical methods were provided measuring triadimenol, with a LOQ of 0.01 mg/kg. Both methods involve measurement by HPLC-MS/MS for triadimenol. One of these methods measures also triadimenol including sugar conjugates and triadimenol-hydroxy including sugar conjugates in plant matrices with a LOQ of 0.01 mg/kg. For the determination of conjugates enzymatic treatment may be included in the extraction procedure.

Stability of pesticide residues in stored analytical samples

In 2007 the Meeting concluded that triadimenol is stable in stored samples of plant and animal origin for at least 24 months.

Results of supervised residue trial on crops

Grapes

For grapes, two new GAPs from France and Spain have been submitted to the Meeting.

In France, triadimenol is registered for grapes involving three applications of 0.019 kg ai/ha each with a PHI of 21 days. Supervised field trials from Europe matching the GAP were already reported in 2007 (two trials) and amended by new trial data submitted to the current Meeting (six trials).

Residues of triadimenol in grapes matching the French GAP were: < 0.01, 0.01, < 0.02(2), 0.03, 0.04, 0.08 and 0.13 mg/kg.

In Spain triadimenol is registered for grapes involving four applications of 0.063 kg ai/ha each with a PHI of 15 days for table grapes and 21 days for wine grapes. Supervised field trials from Southern Europe and Turkey matching the GAP were already reported in 2007.

Residues of triadimenol in table grapes matching the GAP were: < 0.02, < 0.02, 0.02, 0.04(3), 0.05, 0.06, 0.07, 0.08, 0.1, 0.11 mg/kg.

Residues of triadimenol in wine grapes matching the GAP were: < 0.02(4), 0.02, 0.02, 0.03, 0.04(3), 0.1 mg/kg.

Based on the French GAP, the Meeting estimated a maximum residue level of 0.3 mg/kg and HR and STMR values of 0.13 mg/kg and 0.025 mg/kg for grapes, respectively

Fate of residues during processing

The 2007 Meeting estimated processing factors for triadimenol in grapes of 0.45 for juice, 0.42 for wine, 3.1 for raisins, 3 for wet pomace and 5.7 for dry pomace. No additional data were submitted to the current Meeting.

Based on these factors and the newly estimated STMR value of 0.025 mg/kg the Meeting estimated STMR-P values for juice of 0.011 mg/kg, for dried grapes (= raisins) of 0.078 mg/kg, for wet grape pomace of 0.075 mg/kg and for dry grape pomace of 0.14 mg/kg.

Based on the newly estimated STMR value of 0.025 mg/kg for wine grapes, the Meeting estimated STMR-P value of 0.01 mg/kg for wine.

For dried grapes the Meeting estimated a HR-P of 0.4 mg/kg and a maximum residue level of 1 mg/kg to replace its previous recommendation of 10 mg/kg.

Residues in animal commodities

In the 2007 evaluation for triadimenol grape pomace (wet) was already taken into account for the livestock animal dietary burden calculation based on a residue level of 0.5 mg/kg, which is higher than the estimated residue level of 0.075 mg/kg resulting from the current GAPs.

Therefore, the Meeting concluded that the contribution of triadimenol residues in grapes after treatment according to the evaluated GAPs does not influence the overall dietary burden of livestock animals, making a re-assessment of the residue situation in animal commodities unnecessary. The Meeting confirms its previous recommendations for triadimenol in animal commodities.

RECOMMENDATIONS

Definition of the residue in plant and animal commodities (for the estimation of dietary intake and for compliance with MRLs): sum of triadimefon and triadimenol

On the basis of the additional data from supervised trials on grapes the Meeting recommends the following maximum residue levels for triadimenol.

DIETARY RISK ASSESSMENT

Long-term intake

The International Estimated Daily Intakes (IEDI) of triadimefon and triadimenol was calculated from previously estimated STMRs in 2007 and the new STMRs in 2014 for raw and processed commodities in combination with consumption data for corresponding food commodities. The results are shown in Annex 3.

The IEDI of the 17 GEMS/Food cluster diets, based on the estimated STMRs represented 1–3% of the maximum ADI (0.03 mg/kg bw).

The Meeting concluded that the long-term intake of residues of triadimefon and triadimenol from the uses considered by the Meeting is unlikely to represent a public health concern.

Short-term intake

The International Estimated Short-Term Intake (IESTI) of triadimenol calculated on the basis of the estimations made by the 2014 JMPR represented for children 0–10% and for the general population 0–5% of the ARfD (0.08 mg/kg bw). The Meeting concluded that the short-term intake of triadimenol from the uses considered by the 2014 JMPR is unlikely to represent a public health concern.