

5.18 PROFENOFOS (171)

RESIDUE AND ANALYTICAL ASPECTS

Profenofos, an organophosphorus insecticide, was first evaluated in 1990 as a new compound. It was re-evaluated in the 2007 JMPR for toxicology and in the 2008 JMPR for residue. The 2007 JMPR evaluated profenofos for toxicology under the Periodic Review Programme and recommended the current ADI of 0–0.03 mg/kg bw and ARfD of 1 mg/kg bw. The 2008 JMPR evaluated profenofos for residue under the Periodic Review Programme and concluded that the definition of residue for compliance with MRLs and for estimation of dietary intake was profenofos. It recommended the withdrawal of previously recommended maximum residue levels for peppers, chili and peppers, chili (dried) due to insufficient data provided to the Meeting. The current Meeting received information on GAP from Thailand and residue trial data on chili peppers from Singapore and Thailand.

Results of supervised trials on crops

Chili peppers

Profenofos is registered for use on chili peppers in Thailand at a foliar application of 0.10 kg ai/hL with a PHI of 21 days. Residues in chili peppers from Singapore's trials matching GAP of Thailand were 0.56 and 0.70 mg/kg. Residues in chili peppers from Thai trials, matching the GAP of Thailand, were: (n = 6): 0.44, 0.56, 0.86, 1.12, 1.17 and 1.42 mg/kg. The residues evaluated according to the Thai GAP in ranked order, were: 0.44, 0.56, 0.56, 0.70, 0.86, 1.12, 1.17 and 1.42 mg/kg.

Based on the trials for chili peppers in Singapore and Thailand, the Meeting estimated a maximum residue level, an STMR value and an HR value for profenofos in chili peppers of 3, 0.78 and 1.42 mg/kg respectively.

The OECD calculator estimated a maximum residue level of 3 mg/kg, which coincides with the recommendation of the current Meeting.

On the basis of the STMR and HR for chili peppers and the default dehydration factor of 7, the Meeting estimated an STMR value and an HR value for dried chili peppers of 5.46 and 9.94 mg/kg respectively. Based on the maximum residue level of chili peppers, the Meeting recommended a maximum residue level of 20 mg/kg for chili peppers (dry).

DIETARY RISK ASSESSMENT

Long-term intake

The International Estimated Dietary Intakes (IEDIs) of profenofos were calculated for the 13 GEMS/Food cluster diets using STMRs/STMR-Ps estimated by the current Meeting (Annex 3). The ADI is 0–0.03 mg/kg bw and the calculated IEDIs were 2–10% of the maximum ADI (0.3 mg/kg bw). The Meeting concluded that the long-term intake of residues of profenofos resulting from the uses considered by current JMPR is unlikely to present a public health concern.

Short-term intake

The International Estimated Short-Term Intakes (IESTI) of profenofos were calculated for food commodities and their processed commodities using HRs/HR-Ps or STMRs/STMR-Ps estimated by the current Meeting (Annex 4). The ARfD is 1 mg/kg and the calculated IESTI was 0% of the ARfD.

The Meeting concluded that the short-term intake of residues of profenofos, when used in ways that have been considered by the JMPR, is unlikely to present a public health concern.