

5.20 IMAZAMOX (276)

RESIDUE AND ANALYTICAL ASPECTS

Imazamox is an imidazolinone herbicide used for the control of a wide spectrum of grassy and broadleaf weeds. It was first evaluated by the 2014 JMPR for toxicology and for residues. The 2014 JMPR established an ADI of 0–3 mg/kg bw, and an ARfD of 3 mg/kg bw. The residue definition is imazamox for plant and animal commodities for compliance with MRLs, and the sum of imazamox and CL 263284 for plant and animal commodities for the estimation of dietary intake.

Imazamox was included on the priority list by the CCPR at the 48th Session in 2016 for evaluation for additional MRLs by this Meeting. The current Meeting received information on use patterns and supervised residue trials to support estimation of a maximum residue level for barley.

Method of analysis

The analytical method (Method M3098) for the determination of imazamox and CL 263284 was evaluated by the 2014 JMPR. The method is suitable for the residue analysis of imazamox and CL 263284 in barley grain, forage and straw.

Stability of residues in stored analytical samples

Freezer storage stability studies on wheat (grain, straw, forage and hay) samples were evaluated by the 2014 JMPR. Storage stability results indicated that imazamox and CL 263284 residues were stable at ≤ -10 °C for at least 4 years in wheat (grain, straw, forage and hay). The periods of storage stability studies cover the sample storage intervals of residue trials.

Results of supervised residue trials on crops

The Meeting received supervised trial data for the foliar application of imazamox on barley (imidazolinone-tolerant) from Australia.

Barley

The supervised trials were conducted on imidazolinone-tolerant barley in Australia.

The GAP on imidazolinone-tolerant barley of Australia is a foliar application at a maximum rate of 0.025 kg ai/ha from the 5 leaf stage to the 1st node stage.

Imazamox residues in barley grains from independent trials in Australia matching GAP were (n=6): < 0.01 (2) and < 0.02 (4) mg/kg.

Total residues (imazamox + CL 263284) in barley grains from independent trials in Australia matching GAP were (n=4): < 0.04 (3) and 0.043 mg/kg.

Based on the residues in barley grain from trials in Australia, the Meeting estimated a maximum residue level and an STMR value for imazamox in barley of 0.02 and 0.04 mg/kg respectively.

Animal feedstuffs

Barley forage and straw

Data were available from supervised trials on imidazolinone-tolerant barley in Australia.

The GAP on imidazolinone-tolerant barley in Australia is a foliar application at a maximum rate of 0.025 kg ai/ha from the 5 leaf stage to the 1st node stage and not to graze or cut for forage and fodder for 4 weeks after application.

Imazamox residues in barley forage (as received) from independent trials in Australia matching GAP were (n=6): 0.04 (2), < 0.05 (3) and 0.073 mg/kg.

Based on the residues for barley forage, the Meeting estimated a median residue value and a highest residue value for imazamox in barley forage of 0.05 and 0.073 mg/kg, respectively on an “as received” basis.

Imazamox residues in barley straw (dry weight basis) from independent trials in Australia matching GAP were (n=6): < 0.01 (2) and < 0.05 (4) mg/kg.

Based on the residues in barley straw, the Meeting estimated a maximum residue level of 0.05 mg/kg, a median residue value of 0.05 mg/kg and a highest residue value of 0.05 mg/kg for imazamox in barley straw on a dry weight basis.

Residue in animal commodities

The 2017 JMPR evaluated residues of imazamox in barley, which is listed in the OECD feeding table. The Meeting noted that the estimation did not result in a significant change of the dietary burdens of farm animals (2.4 to 2.4 ppm for cattle and 0.51 to 0.51 ppm for poultry). The previous recommendations of maximum residue level for animal commodities were maintained.

RECOMMENDATIONS

On the basis of the data from supervised trials, the Meeting concluded that the residue levels listed in Annex 1 are suitable for estimating maximum residue limits and for IEDI and IESTI assessment.

Definition of the residue for plant and animal commodities for compliance with the MRL:

Imazamox.

Definition of the residue for plant and animal commodities for estimation of dietary intake:

Sum of imazamox and 5-(hydroxymethyl)-2-(4-isopropyl-4-methyl-5-oxo-2-imazazolin-2-yl) nicotinic acid (CL 263284), expressed as imazamox.

The residue is not fat soluble

DIETARY RISK ASSESSMENT

Long-term dietary exposure

The International Estimated Daily Intakes (IEDIs) of imazamox were calculated for the 17 GEMS/Food cluster diets using STMRs/STMR-Ps estimated by the 2014 JMPR and the current Meeting (Annex 3). The ADI is 0–3 mg/kg bw and the calculated IEDIs were 0% of the maximum ADI (3 mg/kg bw). The Meeting concluded that the long-term dietary exposure to residues of imazamox, resulting from uses considered by the JMPR, is unlikely to present a public health concern.

Short-term dietary exposure

The International Estimated Short-Term Intakes (IESTI) for imazamox 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 3 mg/kg bw and the calculated IESTIs were a maximum of 0% of the ARfD. The Meeting concluded that the short-term dietary exposure to residues of imazamox, when used in ways that have been considered by the current JMPR, is unlikely to present a public health concern.