This is provisional English translation of an excerpt from the original full report.

Risk Assessment Report

Imazapyr (2nd edition)

(Pesticides)

Food Safety Commission of Japan (FSCJ)

January 2020

ABSTRACT

FSCJconducted the risk assessment of an imidazolinone herbicide, imazapyr (CAS No. 81334-34-1), based on the data from various studies. The results of acute neurotoxicity study in rats and of genotoxicity study were newly available at the present evaluation.

The data used in the assessment include fate in animals (rats, goats and chicken), fate in plants (soybean and maze), residues in crops, subacute toxicity (rats and dogs), chronic toxicity (dogs), combined chronic toxicity/carcinogenicity (rats), carcinogenicity (mice), two-generation reproductive activity (rats), developmental toxicity (rats and rabbits), acute neurotoxicity and genotoxicity.

Major adverse effects of imazapyr observed are salivation and increased organ weight of the kidney in rats. Imazapyr showed no neurotoxicity, carcinogenicity, effects on reproduction activity, teratogenicity and genotoxicity.

From the above results, imazapyr (parent compound only) was identified as the relevant substance for the residue definition for dietary risk assessment in agricultural products and livestock products.

The lowest value of the no-observed-adverse-effect level (NOAEL) in all tests was 280 mg/kg bw/day in one-year chronic toxicity study in dogs. FSCJ specified an acceptable daily intake (ADI) of 2.8 mg/kg bw/day by applying a safety factor of 100 to the NOAEL. This ADI was the same as the previous evaluation.
Since the absence of any toxicological effects that would be likely to be elicited by a single dose of imazapyr was observed, FSCJ considered it was unnecessary to specify the ARfD.

Table 1. *Levels relevant to toxicological evaluation of imazapyr*

Species	Study	Dose (mg/kg bw/day)	NOAEL (mg/kg bw/day)	LOAEL (mg/kg bw/day)	Critical endpoints[1)]
Rat	90-day subacute toxicity study (the 1st study)	0, 1 000, 5 000, 10 000 ppm M: 0, 81.1, 399, 816 F: 0, 96.2, 478, 940	M: 816 F: 940	M: - F: -	M/F: No toxicity was observed.
	90-day subacute toxicity study (the 2nd study)	0, 15 000, 20 000 ppm M: 0, 1 250, 1 700 F: 0, 1 420, 1 780	M: 1 700 F: 1 420	M: - F: 1 780	M: No toxicity was observed F: Increased organ weight of the kidney
	Combined two-year chronic toxicity/carcinogenicity study	0, 1 000, 5 000, 10 000 ppm M: 0, 49.9, 253, 503 F: 0, 64.2, 318, 639	M: 503 F: 639	M: - F: -	M/F: No toxicity was observed (No carcinogenicity)
	Two-generation reproductive activity study	0, 1 000, 5 000, 10 000 ppm PM: 0, 74.2, 381, 738 PF: 0, 94.3, 471, 933 F_1M: 0, 83.8, 418, 850 F_1F: 0, 102, 515, 1 030	Parent and offspring: PM: 738 PF: 933 F_1M: 850 F_1F: 1 030	Parent and offspring PM: - PF: - F_1M: - F_1F: -	Parent and offspring: No toxicity was observed (No effect on reproductive activity)
	Developmental toxicity study	0, 100, 300, 1 000	Dams: 300 Fetuses: 1 000	Dams: 1 000 Fetuses: -	Dams: Salivation Fetuses: No toxicity was observed. (No teratogenicity)
Mouse	18-month carcinogenicity study	0, 1 000, 5 000, 10 000 ppm M: 0, 158, 799, 1 560 F: 0, 192, 975, 2 000	M: 1 560 F: 2 000	M: - F: -	M/F: No toxicity was observed (No carcinogenicity)
Rabbit	Developmental toxicity study	0, 25, 100, 400	Dams: 400 Fetuses: 400	Dams: - Fetuses: -	Dams and Fetuses: No toxicity (No teratogenicity)

Species	Study	Dose (mg/kg bw/day)	NOAEL (mg/kg bw/day)	LOAEL (mg/kg bw/day)	Critical endpoints[1)]
Dog	91-day subacute toxicity study	0, 1 000, 5 000, 10 000 ppm M: 0, 28.2, 144, 288 F: 0, 30.0, 147, 326	M: 288 F: 326	M: - F: -	M/F: No toxicity was observed
	One-year chronic toxicity study	0, 1 000, 5 000, 10 000 ppm M: 0, 30.2, 141, 280 F: 0, 29.9, 138, 292	M: 280 F: 292	M: - F: -	M/F: No toxicity was observed
ADI			NOAEL: 280 SF: 100 ADI: 2.8		
The critical study for setting ADI			Chronic toxicity study in dogs		

ADI, Acceptable daily intake; NOAEL, No-observed-adverse-effect level; SF, Safety factor;
-, NOAEL or LOAEL could not be specified
[1)], The adverse effect observed at LOAEL