CODEX ALIMENTARIUS COMMISSION

Food and Agriculture Organization of the United Nations

World Health Organization

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JOINT FAO/WHO FOOD STANDARDS PROGRAMME
CODEX COMMITTEE ON PESTICIDE RESIDUES

56th Session

Santiago, Chile
8-13 September 2025

Comments submitted by Republic of Korea

Agenda Item 5(a) and 6.1 **Section 2 of the 2024 JMPR Report and CX/PR 25/56/5**

Report on items of general consideration arising from the 2024 JMPR meeting

MRLs for pesticides in food and feed (at Steps 7 and 4)

MRL Recommendations of the Joint FAO/WHO Meeting on Pesticide Residues (JMPR)

The Republic of Korea (ROK) would like to appreciate JMPR and its excellent work in evaluating and establishing Codex MRLs.

The ROK welcomes the MRL recommendations for ethofenprox (184), flubendiamide (242), and tebufenozide (196) on rice(rice; husked rice; polished rice), which the ROK had nominated for evaluation priority at CCPR54(2023).

However, with regard to buprofezin (173), which had been requested by the ROK for evaluation and is referenced in Section 5.5 of the JMPR final report (2024), we noted with concern that rice(rice; husked rice; polished rice) MRL was not included in the MRL recommendations as the JMPR could not conclude on the suitability of the current residue definition, pending desired information on buprofezin sulfoxide.

In light of the importance of this substance, the ROK requests that buprofezin be duly considered and included in the MRL recommendations. To facilitate this process, the ROK is pleased to provide below the results of its assessment together with the supporting data for consideration by the JMPR and the Committee.

ROK consider that the MRL for buprofezin should be established based only on the parent compound. The inclusion of buprofezin sulfoxide in the residue definition for rice is not considered scientifically justified, as its occurrence in harvested rice is highly improbable under actual cultivation practices.

According to the 2008 (and 2024) JMPR reports, buprofezin sulfoxide (BF-10) is a photodegradation product that forms only under aqueous photolysis conditions. It is not detected during hydrolysis or in the metabolism of most crops. The 2008 JMPR report specifically noted that buprofezin sulfoxide was found in water as a photodegradation metabolite at extremely low levels, less than 1% of the initial concentration. Appendix 1

Similarly the 2019 evaluation by Japan's Food Safety Commission reported that in a soil cultivation study on the rice using 14C-buprofezin, several metabolites—including 4-hydroxybuprofezin (BF-2), buprofezin sulfoxide (BF-10), biuret (BF-11), and isopropylphenylurea (BF-12)— were detected in plant tissues at levels below 5% of the total radioactive residue (TRR). Due to residue levels in brown rice at harvest were negligible, no further metabolite analysis was conducted. Appendix 2

In general, buprofezin is typically applied up to three times in rice fields, no later than 7 days before harvest, to control pests like the brown planthopper, rice leaf folder, and rice stem borer. These applications occur during the rice's late growth stage, when the fully developed canopy makes it unlikely for sunlight to reach the paddy water. This significantly reduces the probability of buprofezin undergoing photolysis.

Taking into account the JMPR and Japanese evaluations, together with Korean rice cultivation practices, buprofezin sulfoxide is not expected to be present in harvested rice at measurable levels. The definition of residue for buprofezin should reasonably be based on the parent compound, buprofezin itself.

In this regard, the ROK respectfully requests that buprofezin be duly considered and included in the MRL recommendation, and considers that the MRL for buprofezin on rice could be established in line with the evaluator's appraisal as follows:

Table x Residue levels suitable for establishing maximum residue limits and for IEDI and IESTI assessments

CCN	Commodity	Recommended maximum residue level (mg/kg)		STMR or STMR-P mg/kg	HR or HR-P mg/kg
		New	Previous		
GC 0649	Rice	8	-	2.7	-
CM 0649	Rice, husked	0.5		0.115	
CM 1205	Rice, polished	0.07		0.02	
AS 3570	Rice, hulls			15	-

Appendix 1 Results of the aqueous photodegradation test for buprofezin as presented in the 2008 JMPR Reports.

Table 13 Hydrolysis profile at pH 4, 7 and 9 after 6 days of irradiation

	pH 4	pH4 (dark control)	pH 7	pH7 (dark control)	pH 9	pH9 (dark control)
	%TAR	%TAR	%TAR	%TAR	%TAR	%TAR
BF1	90.0	93.8	92.0	97.2	91.4	96.8
BF9				0.1		
BF10					0.3	
BF11 + unknown 1	2.7	1.4	1.6	0.3	1.5	0.4
BF12	0.7	0.6	0.3		0.8	0.5
BF16			0.2			
BF19					0.2	
BF21			0.9		0.5	
unknown 2	0.5	0.3	0.5	0.4	0.1	
others	0.6	0.1	0.9	0.4	0.3	0.5
origin	3.7	2.1	0.3		0.3	0.1
aqueous phase	1.0	0.2	1.0	0.5	0.6	
Total	99.2	98.6	97.5	99.0	96.0	98.2

BF1 = buprofezin, BF9 = reverse Schiff base, BF10 = buprofezin sulfoxide, BF11 = biuret, BF12 = isopropylphenylurea, BF16 = phenyl urea, BF19 = des-isopropyl buprofezin, BF21 = formanilide

Table 14 Photolysis in water after 30 days of irradiation

		Sunlight exposure		Dark control	
	0 day	10 days	30 days	10 days	30 days
	%TAR	%TAR	%TAR	%TAR	%TAR
BF1	93.1	77.9	55.0	91.2	92.6
BF2	0.1	0.5	0.7	0.3	0.4
BF9	-	1.1	0.9	-	-
BF10	0.5	-	0.8	0.8	0.7
BF11	2.2	1.2	1.3	2.5	2.4
BF12	-	0.5	0.9	0.5	1.0
BF16	-	0.4	0.5	-	-
BF19	-	0.5	0.7	-	-
BF21	3.5	5.9	9.7	3.8	4.2
BF25	-	0.5	0.8	-	-
others a	-	10.2	15.5	3.9	5.5
Total	100.1	103.9	94.9	103.5	107.1

[a] Sum of unspecified and unextractable degradates

BF1 = buprofezin, BF2 = 4-hydroxy-buprofezin, BF 9 = reverse Schiff base, BF10 = buprofezin sulfoxide, BF11 = biuret,

BF12 = isopropylphenylurea , BF16 = phenyl urea, BF19 = des-isopropyl buprofezin, BF21 = formanilide, BF25 = thiobiuret

Appendix 2 Report of the Japanese Food Safety Commission's evaluation of Buprofezin

Plant Metabolism Study

Rice Plant

A plant metabolism study was conducted on rice plants (cultivar: Kinmaze) at the 6- to 8-leaf stage using both hydroponic and soil cultivation. For the hydroponic study, 14C-buprofezin was added to the solution at a concentration of 1.13 mg/L. Rice plants were sampled at intervals from 16 hours to 92 days after treatment. For the soil cultivation study, 14C-buprofezin was added to the paddy water at a rate of 400 g ai/ha, and rice plants were sampled from 16 hours to 119 days after treatment (at harvest). Autoradiography analysis was performed for both cultivation methods.

The distribution of residual radioactivity in various parts of the rice plant during the early growth stage is shown in Table 11, and the distribution for the soil cultivation is shown in Table 12.

Radioactivity from the hydroponic solution and soil was rapidly absorbed. After 16 hours of treatment, it was primarily distributed in the lower leaf sheath and subsequently moved to the leaf blades over time. This finding was consistent with the results of the autoradiography. As the plant grew, radioactivity distributed throughout the stems and leaves, and after 92 days in the hydroponic study, it was also observed in the panicles. A similar trend was observed in the soil cultivation study, where 0.13% TRR (0.02 mg/kg) was detected in the hulled rice 119 days after treatment.

In both hydroponic and soil cultivation, non-polar metabolites recovered in the ethyl acetate fraction decreased over time, while the non-extractable fraction increased. The methanol fraction, which is thought to contain mainly polar metabolites, remained at a relatively constant proportion throughout the study. Since the majority of the radioactivity in the panicles at harvest in the soil cultivation study was present in the non-extractable fraction, the residues of unchanged buprofezin and non-polar metabolites were considered to be minimal.

The residue of unchanged buprofezin in the leaf blades and sheaths of the soil-cultivated plants was 16.4% TRR after 7 days, but it decreased to 0.8% TRR after 119 days. Metabolites BF-2(4-hydroxybuprofezin), BF-10(Buprofezin sulfoxide), BF-11(1-tert-butyl-3-isopropyl-5-phenylbiuret), and BF-12(Isopropylphenylurea) were identified, but their formation was less than 5% TRR. No metabolite analysis was performed on the hulled rice from the soil cultivation study due to the low amount of residual radioactivity at harvest.

The above document is a translated excerpt from the original document, the Report of the Japanese Food Safety Commission's evaluation of Buprofezin.

Please refer to pages 23~24 of the original document at the following URL: (https://www.fsc.go.jp/fsciis/attachedFile/download?retrievalId=kya20190319052&fileId=210)

Agenda Item 7 **CX/PR 25/56/8**

Guidelines for monitoring the stability and purity of reference materials and related stock solutions of pesticides during prolonged storage (at Step 7)

The Republic of Korea wishes to express its appreciation to the EWG chair (India) and the co-chairs (Canada, Iran, and Singapore) for their dedicated efforts in drafting the proposed Guidelines.

The ROK supports the guidelines regarding the use of prolonged reference materials and standard solutions for pesticide residue analysis.

We note that certain reference materials (RMs) are highly stable, showing no significant change in purity even after their expiry date. However, we reiterate that for use in pesticide residue analysis, RMs should be manufactured in accordance with ISO 17034 and their traceability confirmed. We also note that the SANTE guideline (2024) allows a deviation of up to 10% in the measurement results between two reference standards, which we consider to be a pragmatic approach.

The stability of reference materials (RMs) can be influenced by factors such as the solvent, storage conditions(temperature, humidity, light exposure, and container type), etc. Nevertheless, RMs used for pesticide residue analysis are often stable, with no significant change in purity even after expiry.

Given that such prolonged RMs are manufactured in accordance with ISO 17034 with confirmed traceability, and considering that the SANTE Guideline (2024) allows for a deviation of up to 10% in measurement results, the Republic of Korea believe that these materials can continue to be used for pesticide residue analysis.

Agenda Item 9 **CX/PR 25/56/11**

Establishment of Codex schedules and priority lists of pesticides for evaluation/re-evaluation by JMPR

ROK would like to express its gratitude for the work performed by the EWG on priority lists chaired by Australia, and also supports the proposed schedules and priority lists of pesticides, shared through Codex forum.

We have confirmed with the JMPR Secretariate that the evaluation of Dinotefuran has been postponed until the year 2026. We expressed our desire to submit data for *Japanese persimmon* and received approval for this submission.

We kindly request that the evaluation schedule be updated accordingly to facilitate our timely response to the *Call for Data* at the end of the year 2025.