

PENDIMETHALIN (292)

First draft prepared by Ms G Y Zhu, Ministry of Agriculture and Rural Affairs, Beijing, Republic of China

EXPLANATION

Pendimethalin is a selective herbicide used to control most annual grasses and certain broad leaf weeds in various crops, such as fruits and vegetables, cereals, pulses and oilseeds, root crops and ornamentals. The compound has an ADI of 0–0.1 mg/kg bw, and an ARfD of 1 mg/kg bw. The residue definition for plant and animal commodities for compliance with the MRL and dietary risk assessment is pendimethalin. The residue is fat soluble.

Pendimethalin was first evaluated for toxicology and residues by the 2016 JMPR. It was scheduled at the Fiftieth Session of the CCPR for the evaluation of additional uses by the 2019 Extra JMPR. The current Meeting received information on GAP and supervised residue trials and storage stability study for berries and herbs.

RESIDUE ANALYSIS

Analytical methods

In 2016, the Meeting received a number of analytical methods (LC-MS/MS, GC-MS and GC-NPD) for determination of pendimethalin and M455H025 in plant and animal matrices. They were considered suitable for measuring pendimethalin and M455H025 with a LOQ of 0.01 mg/kg in all plant matrices.

The current Meeting received data on the validation of Method D0203 (LC-MS/MS) for pendimethalin in cane berries and blueberry. The pendimethalin analytical validation recoveries are shown below.

Table 1 Pendimethalin analytical validation recovery rate in supervised trials

Matrix	Method	Analyte	Fortification level (mg/kg)	n	Recovery (%) (Average)	RSD (%)
Cane berry	D0203	Pendimethalin	0.05	3	79, 80, 81 (80)	1.3
			0.5	3	88, 91, 92 (90)	2.3
Blueberry	D0203	Pendimethalin	0.05	3	80, 82, 83 (82)	1.9
			0.5	3	87, 89, 90 (89)	1.7

USE PATTERNS

The Meeting received information on authorised uses on small berries and herbs in Ireland, the United Kingdom and the USA.

The use patterns in these countries on these crops is summarized in the following table.

Table 2 Registered uses of pendimethalin on berries and mint

Crop	Country	Form	Max application		Water L/ha	RTI(days)	PHI (day)	Note
			no	kg ai/ha				
Cane berries ^a								
Cane berries	USA	38.7% CS (360g/L)	3	6.7 (per application) 6.7 (per year)	28–374	30	30	Soil appl., Ground boom sprayer, Fixed wing, Chemigation Irrigation system

Crop	Country	Form	Max application		Water L/ha	RTI(days)	PHI (day)	Note
			no	kg ai/ha				
Bush berries ^b								
Bush berries	USA	38.7%CS	3	6.7 (per application), 6.7 (per year)		30	30	Soil appl., Ground boom sprayer, Fixed wing, Chemigation Irrigation system
Low growing berries ^c								
Low growing berries	USA	38.7%CS		3.2 (per application) 3.2 (per year)		n.a.	35	Soil appl., Ground boom sprayer, Fixed wing, Chemigation Irrigation system
Strawberry								
Strawberry	IRL	445g ae/L CS	1	1.3	100-200		-	Soil application Fixed by approved use / latest time of application: after flower initiation but before flower truss emergence
Strawberry	GBR	445g ae/L CS	1	1.3	100-200		-	Soil application Fixed by approved use / latest time of application: after flower initiation but before flower truss emergence
Strawberry	USA	38.7%SC	2	3.2 (per application) 3.2 (per year)		n.a.	35	Soil appl., Ground boom sprayer, Fixed wing, Chemigation Irrigation system
Mint								
Mint	USA	38.7%SC	1	2.24 (per application) 2.24 (per year)			90	Soil appl., Ground boom sprayer, Fixed wing

^a According to US crop grouping, Caneberry subgroup includes blackberry; loganberry; raspberry, black and red; wild raspberry; cultivars, varieties, and/or hybrids of these.

^b According to US crop grouping, Bushberry subgroup includes Aronia berry; blueberry, highbush; blueberry, lowbush; buffalo currant; Chilean guava; cranberry, highbush; currant, black; currant, red; elderberry; European barberry; gooseberry; honeysuckle, edible; huckleberry; jostaberry; Juneberry (Saskatoon berry); lingonberry; native currant; salal; sea buckthorn; cultivars, varieties, and/or hybrids of these

^c According to US crop grouping, Low growing berries (subgroup, includes bearberry; bilberry; blueberry, lowbush; cloudberry; cranberry; lingonberry; muntries; partridgeberry; strawberry; cultivars, varieties, and/or hybrids of these.

RESULTS OF SUPERVISED RESIDUE TRIALS ON CROPS

The Meeting received information on supervised field trials involving soil treatments of pendimethalin on blackberry, raspberry, blueberry, strawberry and mint.

Group	Crop	Countries	Table no	
004A	Subgroup of cane berries	Blackberry, raspberry	USA	3
004B	Subgroup of bush berries	Blueberry	USA	4
004E	Subgroup of low growing berries	Strawberry	Greece, Italy, Spain, UK, USA	5
027	Group of herbs	Mint	USA	6

Cane berries, Subgroup

The Meeting received seven cane berry trials on blackberry (4) and raspberry (3). Pendimethalin (360 g/L CS) was applied once to the soil at 6.46–6.95 kg ai/ha in broadcast spray volumes of 243–337 L/ha. Control and treated samples were harvested 28–35 days after the treatment.

The residues of pendimethalin were determined with method D0203 (LC-MS/MS). The LOQ was 0.05 mg/kg. Average concurrent recovery rates at fortification levels of 0.05 mg/kg were 73–89%. The RSD value was 7.4%.

Table 3 Residues in cane berries from supervised trials in the USA in 2011 involving one soil application of pendimethalin (SC formulation)

Location (Variety)	Application			Growth Stage	DALA	Residues (mg/kg)		Reference & Comments
	N	kg ai/ha	water (L/ha)			Pendimethalin	mean	
CA132 Parlier, CA Blackberry (Ouachita)	1	6.5	271.3	Blooming/fruiting	28	<0.05 <0.05	<0.05	IR-4 PR No. 09840
MI48 Holt, MI Blackberry (Illini)	1	6.5	271.3	Fruiting	30	<0.05 <0.05	<0.05	IR-4 PR No. 09840
NC34 Jackson Springs, NC Blackberry (Kiowa)	1	6.7	243.2	Late flowering/green fruit	29	<0.05 <0.05	<0.05	IR-4 PR No. 09840
OR30 Aurora, OR Blackberry (Marion)	1	6.5	280.6	Fruiting/flowering	34	<0.05 <0.05	<0.05	IR-4 PR No. 09840
NY29 Ithaca, NY Raspberry (Royalty)	1	6.9	280.6	Fruiting	28	<0.05 <0.05	<0.05	IR-4 PR No. 09840
OR28 Aurora, OR Raspberry (Willamette)	1	6.9	336.7	Fruiting/flowering	30	<0.05 <0.05	<0.05	IR-4 PR No. 09840
OR29 Aurora, OR Raspberry (Willamette)	1	6.5	243.2	Fruiting	35	<0.05 <0.05	<0.05	IR-4 PR No. 09840

Blueberries

The results from seven supervised trials on blueberries in the USA were provided to the Meeting.

In the blueberry trials, one foliar application of 6.67–7.07 kg ai/ha pendimethalin (360g/L SC) was applied as a broadcast spray to the soil.

The residues of pendimethalin were determined with method D0203 (LC-MS/MS). The LOQ was 0.05 mg/kg. Average concurrent recovery rates at fortification levels of 0.05 mg/kg were 80–83%. The RSD value was 1.7%.

Table 4 Residues in blueberry from 7 supervised trials in the USA in 2011 involving one soil application of pendimethalin

Location (Variety)	Application			DAT	Residues (mg/kg)		Reference & Comments
	N	kg ai/ha	water (L/ha)		pendimethalin	mean	
GA*17 Alapaha, GA (TH667)	1	6.9	318	31	<0.05 <0.05	<0.05	Report: IR-4 PR No. 10181
MI49 Fennville, MI (Jersey)	1	6.9	187	28	<0.05 <0.05	<0.05	Report: IR-4 PR No. 10181

Location (Variety)	Application			DAT	Residues (mg/kg)		Reference & Comments
	N	kg ai/ha	water (L/ha)		pendimethalin	mean	
MI50 Holt, MI (Jersey)	1	6.8	280	28	<0.05 <0.05	<0.05	Report: IR-4 PR No. 10181
NC35 Castle Hayne, NC (Croatan)	1	6.7	205	30	<0.05 <0.05	<0.05	Report: IR-4 PR No. 10181
NJ16 Cream Ridge, NJ (Duke)	1	6.8	271	29	<0.05 <0.05	<0.05	Report: IR-4 PR No. 10181
OR31 Aurora, OR (Bluecrop)	1	7.1	289	35	<0.05 <0.05	<0.05	Report: IR-4 PR No. 10181
OR41 Aurora, OR (Bluecrop)	1	7.0	290	28	<0.05 <0.05	<0.05	Report: IR-4 PR No. 10181

Strawberry

The results from 22 supervised trials on strawberries in Europe and the USA were provided to the Meeting.

In twelve strawberry trials from the USA, two applications of pendimethalin (38% EC) were applied, involving 1 application pre-transplanting, and 1 further application at 24 to 34 days prior to harvest.

In ten strawberry trials in Europe, one application of pendimethalin (445 g/L CS) was applied either before planting of strawberries or shortly before/after vegetative re-growth of strawberries.

The residues of pendimethalin were determined with method SOP 2M1930.01 (GC-NPD) in the USA. The LOQ was 0.05 mg/kg in strawberries. Average concurrent recovery rates at fortification levels of 0.05, 0.5 mg/kg were 80–83%. The RSD values were 1.2–6.5%. Another method L0163/01 (LC-MS/MS) was used in Europe to determine the residue of pendimethalin in strawberries. The LOQ was 0.01 mg/kg. Average concurrent recovery rates at fortification levels of 0.01, 0.1 and 1 mg/kg were 73–91%. The RSD values were 0.9–1.9%.

Table 5 Residues in strawberry from 22 supervised trials in Europe and the USA involving one or two soil applications of pendimethalin

Country, year Location (Variety)	Application			Growth Stage	DAT	Residues (mg/kg)		Reference & Comments
	N	kg ai/ha	water (L/ha)			pendimethalin	mean	
USA,1996 NY11 Freeville, NY (Honeoye)	2	2×1.68 RTI:375days	320.71 15 320.09 24	blooming	24	<0.05 <0.05	<0.05	Study code:02739, DOC:2005 7002525
USA,1996 WI10 Arlington, WI (Midway)	2	2×1.68 RTI:385days	187 227	Pre-bloom	29	<0.05 <0.05	<0.05	Study code:02739, DOC:2005 7002525
USA,1995 WA*37 Prosser, WA (Sumas)	1	1.68	120	Late bud stage	34	<0.05 <0.05	<0.05	Study code:02739, DOC:2005 7002525

Country, year Location (Variety)	Application			Growth Stage	DAT	Residues (mg/kg)		Reference & Comments
	N	kg ai/ha	water (L/ha)			pendimethalin	mean	
USA,1995 WA40 Mt. Vernon, WA (Totern)	1	1.68	536	Start of bloom	31	<0.05 <0.05	<0.05	Study code:02739, DOC:2005 7002525
USA,2005 L07719.05-JN17 Bridgeon, NJ (Avaion)	2	2×1.84 and 1.69=3.53 RTI:43days	238 239	Dormant and Blooming	27	<0.05	<0.05	Study code:851924 DOC:2018/700489 4
USA,2005 CA*84 Watsonville, CA (Camarosa)	2	2×1.74 and 1.70=3.42 RTI:209days	234 267	Not provided and Mature plant	29	<0.05	<0.05	Study code:851924 DOC:2018/700489 4
USA,2005 CA*85 Salinas, CA (Diamante)	2	2×1.72 and 1.68=3.37 RTI:191days	100 408	Not provided and Mature plant	26	<0.05	<0.05	Study code:851924 DOC:2018/700489 4
USA,2005 CA86 Irvine, CA (Camarosa)	2	2×1.72 and 1.72=3.43 RTI:129days	238 286	Not provided and Fruiting	28	<0.05	<0.05	Study code:851924 DOC:2018/700489 4
USA,2005 FL32 Wimauma (Festival)	2	2×1.72 and 1.70=3.42 RTI:60days	288 239	Not provided and Mature plant	30	<0.05	<0.05	Study code:851924 DOC:2018/700489 4
USA,2005 MI18 Holt, MI (Darselect)	2	2×1.78 and 1.81=3.59 RTI:41days	198 201	Not provided and Blooming	29	<0.05	<0.05	Study code:851924 DOC:2018/700489 4
USA,2005 NC15 Clinton , NC (Chandler)	2	2×1.67 and 1.68=3.35 RTI:181days	207 258	Not provided and Blooming	28	<0.05	<0.05	Study code:851924 DOC:2018/700489 4
USA,2005 OR13 Aurora, OR (Totem)	2	2×1.74 and 1.70=3.42	281 580	Not provided and Mature plant	29	<0.05	<0.05	Study code:851924 DOC:2018/700489 4
Germany,2016-2017 L160440 Ingelheim (Clery)	1	1.0	300	00(plot 2) 00(plot 3)	83 83	<0.01 <0.01	<0.01	Study code:766507, DOC:2017/119265 1
Germany,2016-2017 L160441 Offenbach/ Queich (Malwina)	1	1.0	300	00(plot 2) 00(plot 3)	105 105	<0.01 <0.01	<0.01	Study code:766507, DOC:2017/119265 1
Netherlands,2016-2017 L160442 5584AR Stevensbeek (Allegro)	1	1.0	300	10-11(plot 2) 10-11(plot 3)	81 81	<0.01 <0.01	<0.01	Study code:766507, DOC:2017/119265 1
U.K,2016-2017 L160443 GL54PB Winchcombe (Elsanta)	1	1.0	300	00-10(plot 2) 00-10(plot 3)	116 116	<0.01 <0.01	<0.01	Study code:766507, DOC:2017/119265 1
Spain,2016-2017 L160444 46800 Xativa (Camarosa)	1	1.0	300	00-10	198	<0.01	<0.01	Study code:766507, DOC:2017/119265 1
Italy,2016-2017 L160445 Albosaggia (Elsanta)	1	1.0	300	12-13	49	<0.01	<0.01	Study code:766507, DOC:2017/119265 1

Country, year Location (Variety)	Application			Growth Stage	DAT	Residues (mg/kg)		Reference & Comments
	N	kg ai/ha	water (L/ha)			pendimethalin	mean	
Italy,2012-2013 L120127 Berbenno Di Valtellina (Selva)	1	1.6	200	00	58	0.016	0.016	Study code:766507, DOC:2017/119265 1
Greece,2012-2013 L120128 Svoronos (Kamarosa)	1	1.6	200	00	115	<0.01	<0.01	Study code:766507, DOC:2017/119265 1
Italy,2012-2013 L120129 Albosaggia (Monterrey)	1	1.6	200	Not reported	63	0.011	0.011	Study code:766507, DOC:2017/119265 1
Spain,2012-2013 L120130 Quatretonda (Camarosa)	1	1.6	200	Not reported	228	<0.01	<0.01	Study code:766507, DOC:2017/119265 1

Herbs

The results from five trials on mints (peppermint and spearmint) and the processing to mint oil on pendimethalin residues were provided to the Meeting.

Mints

In the mint trials, a single soil application of 2.15–10.35 kg ai/ha pendimethalin (330g/L EC) was applied.

The residues of pendimethalin were determined with method SOP 2M1930.01 (GC-NPD). The LOQ was 0.1 mg/kg in mint, average concurrent recovery rates at fortification levels of 0.1, 1, 10 mg/kg were 67–142%. The RSD values were 0.7–19%.

Table 6 Residues in mints from supervised trials in the USA in 1997 following 1 soil application of pendimethalin (EC formulation)

Location (Variety)	Application			Growth Stage	Matrix	DAT	Residues (mg/kg)		Reference & Comments
	no	kg ai/ha	water (L/ha)				pendimethalin	Mean	
WI17, Portage, WI (Spearmint)	1	2.15	186	Dormant	Foliage Foliage	84	<0.1 <0.1	<0.1	Study code:A3888 DOC:2001/7002774
WI18 Portage, WI (Murray peppermint)	1	2.2	190	Dormant	Foliage Foliage	91	<0.1 <0.1	<0.1	Study code:A3888 DOC:2001/7002774
		10.1	193	Dormant	Foliage Foliage	91	0.219 0.103	0.161	Study code:A3888 DOC:2001/7002774
WA*49 Mabton, WA (Black Mitchum Peppermint)	1	2.21	291	Dormant	Foliage Foliage	90	<0.1 <0.1	<0.1	Study code:A3888 DOC:2001/7002774
WA*50 Mabton, WA (Black Mitchum Peppermint)	1	2.21	291	Dormant	Foliage Foliage	90	<0.1 <0.1	<0.1	Study code:A3888 DOC:2001/7002774
WA*51 Mabton, WA (Black Mitchum Peppermint)	1	2.13	282	Dormant	Foliage Foliage	90	<0.1 <0.1	<0.1	Study code:A3888 DOC:2001/7002774
		10.35	295	Dormant	Foliage Foliage	90	<0.1 <0.1	<0.1	Study code:A3888 DOC:2001/7002774

FATE OF RESIDUES DURING PROCESSING

Six processing studies completed in the USA in 1994 and 1997 were available for mints (peppermint and spearmint).

Table 7 The estimated processing factors with the respective recommendations of pendimethalin are shown in the following table

Field Trial, Year Location Various	Applications			PHI	Residue in mint (mg/kg)	Residue in mint oil (mg/kg)	Transfer factor	Reference
	No	kg ai/ha	Method					
5523.94, 1994 WA*04 Spearmint	1	2.24	Soil broadcast	124	<u>0.054</u>	<0.05	/	IR4-study5523
5523.94, 1994 WA*04 Spearmint	1	11.20	Soil broadcast	124	<0.05	1.21	/	IR4-study5523
5523.94, 1994 OR07 Black Mitchum	1	2.24	Soil broadcast	145	<u><0.05</u>	0.05 (maximum of 0.06 mg/kg in control sample)	/	IR4-study5523
5523.94, 1994 OR07 Black Mitchum	1	11.20	Soil broadcast	145	0.076	1.88	24.7	IR4-study5523
WI18, 1997 Portage, WI (Murray peppermint)	1	2.2	Soil broadcast	91	<0.1	0.61	/	Study code:A3888 DOC:2001/7002774
	1	10.1			0.219	7.84	35.8	
WA*51, 1997 Mabton, WA (Black Mitchum Peppermint)	1	2.13	Soil broadcast	90	<0.1	0.51	/	Study code:A3888 DOC:2001/7002774
	1	10.35			<0.1	3.84	/	

APPRAISAL**Methods of analysis**

Pendimethalin is a meristematic inhibitor herbicide that interferes with plant cellular division or mitosis. Pendimethalin was first evaluated for toxicology and residues by the JMPR in 2016. The compound has an ADI of 0–0.1 mg/kg bw and an ARfD of 1 mg/kg bw. The residue definition for both plant and animal commodities for compliance with the MRL and dietary risk assessment is pendimethalin. The residue is fat soluble.

It was scheduled at the Fiftieth Session of the CCPR for the evaluation of additional uses by the 2019 Extra JMPR. The current Meeting received information on storage stability, use patterns and supervised residue trials for berries and herbs.

Storage stability of residues

The 2016 JMPR confirmed that pendimethalin residues in high water, high starch and high acid content matrices were stable for at least 24 months. In soya bean and almond nutmeat, pendimethalin was stable for up to 18 and 12 months, respectively. The frozen storage periods of samples in the trials submitted to the current Meeting were less than 18 and 24 months after sampling for berries and herbs, respectively.

Results of supervised residue trials on crops

The Meeting received supervised residue trial data for soil applications of pendimethalin on cane berries, blue berries, strawberries and mint.

Cane berries, subgroup of

The critical GAP for pendimethalin on cane berries in the USA is one soil application at a rate of 6.7 kg ai/ha and a PHI of 30 days.

Six supervised field trials were conducted on cane berries in the USA matching the critical GAP for soil application.

Residues of pendimethalin in blackberry were (n=4): < 0.05 (4) mg/kg.

Residues of pendimethalin in raspberry were (n=2): < 0.05 (2) mg/kg.

Noting that the US GAP covers the cane berries subgroup, the Meeting decided to estimate a maximum residue level of 0.05(*) mg/kg, STMR of 0.05 mg/kg and HR of 0.05 mg/kg for the cane berries subgroup.

Bush berries, subgroup of

The critical GAP for pendimethalin on bush berry in the USA is one soil application at a rate of 6.7 kg ai/ha and a PHI of 30 days.

Seven trials on blueberries were conducted in the USA matching the GAP.

In blueberries, residues of pendimethalin in these trials were (n=7): < 0.05 (7) mg/kg.

The Meeting noted that the US GAP is for bush berries, and decided to estimate a maximum residue level of 0.05(*) mg/kg, STMR of 0.05 mg/kg and HR of 0.05 mg/kg for the bush berries subgroup.

Strawberry

The critical GAP in Ireland and UK is one soil application at 1.3 kg ai/ha after flower initiation but before flower truss emergence. In six European trials at 1 kg ai/ha, residues of pendimethalin were <0.01 (6) mg/kg. In four other trials, with higher application rates of 1.6 kg ai/ha, residues were found from <0.01 to 0.016 mg/kg.

The critical GAP for pendimethalin in low growing berries including strawberry in the USA is 1 soil application at 3.2 kg ai/ha and a PHI of 35 days. In eight trials approximating the US GAP conducted in the USA, residues of pendimethalin were < 0.05 (8) mg/kg.

The Meeting decided to estimate a maximum residue level of 0.05(*) mg/kg, an STMR of 0.05 mg/kg, and an HR of 0.05 mg/kg for strawberry on basis of the trial data from the USA.

Mint

The critical GAP for pendimethalin on mint in the USA is 1 soil application of 2.24 kg ai/ha and a PHI of 90 days.

In four independent trials conducted in the USA on mint approximating the US GAP, residues of pendimethalin were (n=4): <0.05, 0.054, <0.1 and <0.1 mg/kg.

The Meeting decided to estimate a maximum residue level of 0.2 mg/kg, STMR of 0.077 mg/kg and HR of 0.1 mg/kg for mint.

Fate of residues during processing

Four studies were submitted on processing of mint to mint oil. In two trials with finite residue in mint leaves, residues in mint leaves were 0.076 and 0.219 mg/kg, and the residues in mint oil were 1.88 and 7.84 mg/kg. Processing factors were calculated to be 24.7 and 35.8. The best estimation of processing factor was 30.

The Meeting estimated a maximum residue level of 6 mg/kg and an STMR-P of 2.3 mg/kg for mint oil.

Residues in animal commodities

None of the commodities or their by-products for which supervised trial data were submitted to the current Meeting are fed to animals. The Meeting confirmed its previous recommendations for animal commodities.

RECOMMENDATIONS

On the basis of the data from supervised trials the Meeting concluded that the residue levels listed below are suitable for establishing maximum residue limits and for IEDI and IESTI assessment.

Definition of the residue for compliance with the MRL and dietary risk assessment for plant and animal commodities: *pendimethalin*.

The residue is fat soluble.

CCN	Commodity Name	Recommended Maximum residue level (mg/kg)		STMR or STMR-P (mg/kg)	HR (mg/kg)
		New	Previous		
FB 2005	Cane berries, subgroup of	0.05*	-	0.05	0.05
FB 2006	Bush berries, subgroup of	0.05*	-	0.05	0.05
FB 0275	Strawberries	0.05*	-	0.05	0.05
HH 0738	Mints	0.2	-	0.077	0.1
OR 0738	Peppermint Oil, edible	6	-	2.3	

DIETARY RISK ASSESSMENT***Long-term dietary exposure***

The ADI for pendimethalin is 0–0.1 mg/kg bw. The International Estimated Daily Intakes (IEDIs) for pendimethalin were estimated for the 17 GEMS/Food Consumption Cluster Diets using the STMR or STMR-P values estimated by the JMPR. The results are shown in Annex 3 of the 2019 Extra JMPR Report.

The IEDIs were 0% of the maximum ADI. The Meeting concluded that long-term dietary exposure to residues of pendimethalin from uses considered by the JMPR is unlikely to present a public health concern.

Acute dietary exposure

The ARfD for pendimethalin is 1 mg/kg bw. The International Estimate of Short Term Intakes (IESTIs) for pendimethalin were calculated for the food commodities and their processed commodities for which HRs/HR-Ps or STMRs/STMR-Ps were estimated by the present Meeting and for which consumption data were available. The results are shown in Annex 4 of the 2019 Extra JMPR Report.

The IESTIs were 0% of the ARfD for children and the general population. The Meeting concluded that acute dietary exposure to residues of pendimethalin from uses considered by the present Meeting is unlikely to present a public health concern.

Dietary risk of metabolites previously evaluated by the Meeting against their threshold of toxicological concern

The 2016 JMPR concluded that the dietary exposure to the metabolites M455H025, M455H029 and M455H030 are below the threshold of toxicological concern (TTC) of 1.5 µg/kg bw per day for a Cramer Class III compound.

Based on the uses evaluated by the current Meeting, the estimated dietary exposure to M455H025 increased from 1.30 to 1.32 µg/kg bw per day while the estimated dietary exposures to M455H029 (found in animal commodities) and M455H030 (found in rotated root crops only) remained unchanged.

The Meeting confirmed its previous conclusion that dietary exposure to the metabolites M455H025, M455H029 and M455H030 are unlikely to present a public health concern.

REFERENCES

Doc-ID No	Author	Year	Title
2014/7002322.	William P. Barney	2014	Pendimethalin: Magnitude of the residue on caneberry, IR-4 Project, Rutgers, The State University of New Jersey, 500 College Road East, Suite 201W. Unpublished
2014/7002326	William P. Barney	2014	Pendimethalin: Magnitude of the residue on blueberry, IR-4 Project, Rutgers, The State University of New Jersey, 500 College Road East, Suite 201W. Unpublished
2005/7002525	Hong Chen, Ph.D	2005	Volume 2 of 2 Pendimethalin: Magnitude of the reissue on strawberry, IR-4 Project. Center for Minor Crop Pest Management Technology Centre of New Jersey. Rutgers, the State University of New Jersey, 681 US Highway 1 South North Brunswick, NJ, 08902-3390. Unpublished
2017/1192651	Enrique Ale	2017	Study on the residue behaviour of Pendimethalin (BAS 455 H) after application of either BAS 455 48H or BAS 455 75 H to strawberries in Northern and Southern Europe in 2016. Unpublished
392451	M Schäufele	2013	Residue study (at harvest) with BAS 455 48 H applied to strawberries in Spain, Italy and Greece in 2012 and 2013. Unpublished
Doc. No. 2018/7004894	Cheryl B. Cleveland	2018	Report summary for Pendimethalin magnitude of the residue on strawberry conducted by the US IR-4 Project. Unpublished
815209	Harald Weber Christian Gollner	2018	Storage Stability of Pendimethalin and its Metabolite M455H025 in Dried Peas, Carrots, Potatoes and Wheat Forage under Deep Frozen Conditions. Unpublished
1997/7004981	Rose A. Sweeney Daneil L. Lunkel	1997	Volume 2 of 2 IR-4 Minor use submission in support of a tolerance for pendimethalin in or on mint. Unpublished
2001/7002774	Frederick P. Salzman, Ph.D	2001	Volume 2 of 2 Pendimethalin: Magnitude of the residue on mint. Unpublished