FINAL REGISTRATION REPORT

Part B

Section 7

Metabolism and Residues

Detailed summary of the risk assessment

Product code: Diflufenikan 500 SC

Product name(s): -

Chemical active substance:

diflufenican, 500 g/L

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

(authorization)

Applicant: Pestila Sp. z o.o. / ProAgri International Sp. z o.o.

Submission date: January 2023

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Version history

When	What
September 2023	ZRMS assessment of dRR
January 2024	Updated version after commenting period
June 2024	correction

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7 Metabolism and residue data (KCA section 6)

7.1 Summary and zRMS Conclusion

Stability of Residues

Freezer storage stability study indicated that residues of diflufenican are stable for up to 24 months in wheat forage, wheat grain and wheat straw. These data are sufficient to cover the trials on cereals supporting the intended GAP for Diflufenikan 500 SC.

Metabolism in plants and animals

Presented data are acceptable. No additional studies are required.

Plant and animal residue definitions for monitoring and risk assessment Diflufenican (EFSA, 2013; Regulation (EU) 2017/623).

Magnitude of residues in plants

Proposed GAP:

Winter wheat, Winter barley, Winter triticale, Winter Rye: 1 application; BBCH ~~00~~10-29, 100 - 150 g sa/ha

No new data are submitted in the framework of this application. Applicant refers to the unprotected EU data.

cGAP from DAR, 2006: ~~1 x 0.12 kg as/ha, before GS14 (4 leaves unfolded), PHI n.r., outdoor~~

1 x 0.19 kg as/ha, BBCH: 25-33, PHI n.r.

1 x 0.15 kg as/ha, BBCH: 29-31, PHI n.r.

E/RA: 21 x <0.01, 5x <0.02 mg/kg

Sufficient data are available to support the proposed use. The residues arising from the proposed uses will not exceed the MRLs established for wheat and barley (Reg. (EU) 2017/623)

According to the SANTE/2019/12752 Rev01 extrapolation from barley and wheat to rye and triticale is possible before forming of the edible part.

The residues arising from the proposed uses will not exceed the MRLs established for triticale rye (Reg. (EU) 2017/623)

Livestock feeding studies

The new mode of calculation modify the theoretical maximum daily intake for animals, but regarding available feeding data, there is no risk for animal MRL to be exceeded.

Magnitude of residues in processed commodities

No new data submitted in the framework of this application. As residues of diflufenican exceeding 0.1 mg/kg are not expected in the treated crops and since the chronic exposure does not exceed 10% of the ADI, there is no need to investigate the effect of industrial and/or household processing.

Rotational study

Considering available data, no study dealing with magnitude of residues in succeeding crops is needed. Risk mitigation measures in case of earlier liquidation of the plantation can be applied at national level.

According to the EFSA, waiting period of 150 days before planting root crops seems the most appropriate.

Other / special studies

Cereals have not melliferous capacity. No further data is required.

Estimation of exposure through diet and other means

The proposed uses of diflufenican in the formulation Diflufenikan 500 SC does not represent unacceptable chronic risks for the consumer.

7.1.1 Critical GAP(s) and overall conclusion

Selection of critical uses and justification

The critical GAPs with respect to consumer intake and risk assessment for the preparation Diflufenikan 500 SC are presented in Table 7.1-1. A list of all intended uses within the zone is given in Part B, Section 0.

Justification for the selection of the critical GAP is not relevant.

Overall conclusion

The data available are considered sufficient for risk assessment. An exceedance of the current MRLs of 0.02 mg/kg for diflufenican in wheat and barley as laid down in Reg. (EU) 396/2005 (last amendment - Reg. (EU) 2017/623) is not expected.
The chronic and the short-term intakes of diflufenican residues are unlikely to present a public health concern.
As far as consumer health protection is concerned, zRMS agrees with the authorization of the intended use.

~~According to available data, no specific mitigation measures should apply~~

According to the EFSA, waiting period of 150 days before planting root crops seems the most appropriate.

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Data gaps

None.

Table 7.1-1: Acceptability of critical GAPs (and respective fall-back GAPs, if applicable)

1	2	3	4	5	6	7		8				9			10	11
GAP number (see part B.0)*	**Crop and/ or situation ****	**Zone**	**Product code**	**F, Fn, Fpn G, Gn, Gpn or I*****	**Pests or Group of pests controlled**	**Formulation**		**Application**				**Application rate per treatment**			**PHI (days)**	**Conclusion**
						Type	**Conc. of as**	**method kind**	**growth stage & season**	**number min max**	**interval between applications (min)**	**g as/hL min max**	**water L/ha min max**	**g as/ha min max**		
1	Winter wheat, Winter barley Winter triticale Winter rye	PL	Diflufenikan 500 SC	F	weeds (for details please refer to dRR Part B0 and B3)	SC	500 g/l	broadcast spraying	BBCH ~~00~~10-29	1	n.a.	25 - 150 g sa/hL	100 - 400	100 - 150 g sa/ha	NR	A

* Use number(s) in accordance with the list of all intended GAPs in Part B, Section 0 should be given in column 1

** Use also code numbers according to Annex I of Regulation (EU) No 396/2005

*** F: professional field use, Fn: non-professional field use, Fpn: professional and non-professional field use, G: professional greenhouse use, Gn: non-professional greenhouse use, Gpn: professional and non-professional greenhouse use, I: indoor application

Explanation for Column 11 “Conclusion”

A	Exposure acceptable without risk mitigation measures, safe use
R	Further refinement and/or risk mitigation measures required
N	Exposure not acceptable, no safe use

7.1.2 Summary of the evaluation

The preparation Diflufenikan 500 SC is composed of diflufenican.

Table 7.1-2: Toxicological reference values for the dietary risk assessment of diflufenican

Reference value	Source	Year	Value	Study relied upon	Safety factor
diflufenican					
ADI	EFSA Scientific Report (2007) 122, 1-84	2007	0.2 mg/kg bw/d	2-year rat study (supported by 13 week rat)	100
ARfD	EFSA Scientific Report (2007) 122, 1-84	2007	Not necessary-not allocated	-	-

7.1.2.1 Summary for diflufenican

Table 7.1-3: Summary for diflufenican

Use-No.*	Crop	Plant metabolism covered?	Sufficient residue trials?	PHI sufficiently supported?	Sample storage covered by stability data?	MRL compliance	Chronic risk for consumers identified?	Acute risk for consumers identified?
1	Winter wheat, Winter barley Winter triticale Winter rye	Yes	Yes (26)	N/A**	Yes	Yes	No	N/A***

* Use number(s) in accordance with the list of all intended GAPs in Part B, Section 0 should be given in column 1
** N/A - not applicable as the PHI is covered by the vegetation period of the crop
*** N/A - not applicable as no ARfD was necessary

As residues of diflufenican do not exceed the trigger values defined in Reg (EU) No 283/2013, there is no need to investigate the effect of industrial and/or household processing.

Residues in succeeding crops have been sufficiently investigated taking into account the specific circumstances of the cGAP uses being considered here. It is very unlikely that residues will be present in succeeding crops.

The new mode of calculation modify the theoretical maximum daily intake for animals, but regarding available feeding data, there is no risk for animal MRL to be exceeded.

7.1.2.2 Summary for Diflufenikan 500 SC

Table 7.1-4: Information on Diflufenikan 500 SC (KCA 6.8)

Crop	PHI for Diflufenikan 500 SC proposed by applicant	PHI sufficiently supported for diflufenican	PHI for Diflufenikan 500 SC proposed by zRMS	zRMS Comments (if different PHI proposed)
Winter wheat Winter barley Winter triticale Winter rye	Not specified, normal growth period*	NR		

NR: not relevant
* PHI is defined by the application stage at last treatment (time elapsing between last treatment and harvest of the crop).

Table 7.1-5: Waiting periods before planting succeeding crops

Waiting period before planting succeeding crops		Overall waiting period proposed by zRMS for Diflufenikan 500 SC
Crop group	**Led by diflufenican**	
All except root crops	NR	
Root crops	150 days	

NR: not relevant

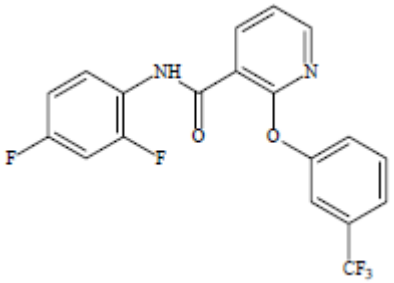
According to EFSA Journal 2013; 11(6):3281:
Occurrence of diflufenican residues has been investigated in rotational crops sown/planted 12 weeks after an application of 0.36 kg a.s./ha on a bare soil. The presence of metabolite AE B107137 at levels above 0.01 mg/kg in root crops cannot be excluded. Therefore, further investigation on the levels of diflufenican and its metabolite AE B107137 in succeeding crops (particularly in root crops) is required. Meanwhile, appropriate risk mitigation measures might be taken at national level in order to avoid the occurrence of diflufenican residues in rotational crops. Based on the metabolism study, a waiting period of 150 days before planting root crops seems the most appropriate.

Assessment

7.2 Diflufenican

General data on diflufenican are summarized in the table below (last updated 08/12/2022)

Table 7.2-1: General information on diflufenican

Active substance (ISO Common Name)	Diflufenican
IUPAC	2′,4′-difluoro-2-(α,α,α-trifluoro-mtolyloxy) nicotinanilide
Chemical structure	
Molecular formula	$C_{19}H_{11}F_5N_2O_2$
Molar mass	394 g/mol
Chemical group	carboxamide
Mode of action (if available)	Inhibitor of phytoene dehydrogenase
Systemic	Yes
Company (ies)	Bayer Crop Science
Rapporteur Member State (RMS)	Czech Republic (the original RMS was United Kingdom)
Approval status	Approved Date of approval: 01/01/2009 Consolidated text: Commission Implementing Regulation (EU) No 540/2011 of 25 May 2011 implementing Regulation (EC) No 1107/2009 of the European Parliament and of the Council as regards the list of approved active substances https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02011R0540-20221101 Commission Implementing Regulation (EU) 2019/1589 of 26 September 2019 amending Implementing Regulation (EU) No 540/2011 as regards the extension of the approval periods of the active substances amidosulfuron, beta-cyfluthrin, bifenox, chlorotoluron, clofentezine, clomazone, cypermethrin, daminozide, deltamethrin, dicamba, difenoconazole, diflubenzuron, diflufenican, fenoxaprop-P, fenpropidin, fludioxonil, flufenacet, fosthiazate, indoxacarb, lenacil, MCPA, MCPB, nicosulfuron, picloram, prosulfocarb, pyriproxyfen, thiophanate-methyl, triflusulfuron and tritosulfuron https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1569849607755&uri=CELEX:32019R1589 Commission Implementing Regulation (EU) 2021/1449 of 3 September 2021 amending Implementing Regulation (EU) No 540/2011 as regards the extension of the approval periods of the active substances 2-phenylphenol (including its salts such as the sodium salt), 8-hydroxyquinoline, amidosulfuron, bifenox, chlormequat, chlorotoluron,

	clofentezine, clomazone, cypermethrin, daminozide, deltamethrin, dicamba, difenoconazole, diflufenican, dimethachlor, etofenprox, fenoxaprop-P, fenpropidin, fludioxonil, flufenacet, fosthiazate, indoxacarb, lenacil, MCPA, MCPB, nicosulfuron, paraffin oils, paraffin oil, penconazole, picloram, propaquizafop, prosulfocarb, quizalofop-P-ethyl, quizalofop-P-tefuryl, sulphur, tetraconazole, tri-allate, triflusulfuron and tritosulfuron https://eur-lex.europa.eu/eli/reg_impl/2021/1449/oj Commission Implementing Regulation (EU) 2022/1480 of 7 September 2022 amending Implementing Regulation (EU) No 540/2011 as regards the extension of the approval periods of the active substances 2-phenylphenol (including its salts such as the sodium salt), 8-hydroxyquinoline, amidosulfuron, bensulfuron, bifenox, chlormequat, chlorotoluron, clofentezine, clomazone, daminozide, deltamethrin, dicamba, difenoconazole, diflufenican, dimethachlor, esfenvalerate, etofenprox, fenoxaprop-P, fenpropidin, fenpyrazamine, fludioxonil, flufenacet, flumetralin, fosthiazate, lenacil, MCPA, MCPB, nicosulfuron, paraffin oils, paraffin oil, penconazole, picloram, prohexadione, propaquizafop, prosulfocarb, quizalofop-P-ethyl, quizalofop-P-tefuryl, sodium 5-nitroguaiacolate, sodium o-nitrophenolate, sodium p-nitrophenolate, sulphur, tebufenpyrad, tetraconazole, tri-allate, triflusulfuron and tritosulfuron https://eur-lex.europa.eu/eli/reg_impl/2022/1480/oj
Restriction	Commission Implementing Regulation (EU) No 540/2011 of 25 May 2011 (consolidated version): Only uses as herbicide may be authorised.
Review Report	SANCO/3782/08 – rev. 1 14 March 2008
Current MRL regulation	Regulation (EU) 2017/623
Peer review of MRLs according to Article 12 of Reg No 396/2005 EC performed	Yes.
EFSA Journal: Conclusion on the peer review	Yes. EFSA Scientific Report (2007) 122, 1-84
EFSA Journal: conclusion on article 12	Yes. EFSA Journal 2013;11(6):3281
Current MRL applications on intended uses	NR

7.2.1 Stability of Residues (KCA 6.1)

7.2.1.1 Stability of residues during storage of samples

Available data

No new data submitted in the framework of this application.

Table 7.2-2: Summary of stability data achieved at ≤ - 18°C (unless stated otherwise)

Matrix	Characteristics of the matrix	Acceptable Maximum Storage duration	Reference
Data relied on in EU			
Plant products			

Matrix	Characteristics of the matrix	Acceptable Maximum Storage duration	Reference
Wheat (forage, grain and straw)	High starch content	24 months	EFSA, 2007 DAR, 2006
Animal products			
-	-	-	-

Summary of stability of residues during storage

In the framework of the peer review, storage stability of diflufenican was demonstrated for a period of 24 months at -18°C in dry commodities (wheat grain) and straw. Data were evaluated and published in DAR, 2006.

Conclusion on stability of residues during storage

Freezer storage stability study indicated that residues of diflufenican are stable for up to 24 months in wheat forage, wheat grain and wheat straw. These data are sufficient to cover the trials on cereals supporting the intended GAP for Diflufenikan 500 SC.

7.2.1.2 Stability of residues in sample extracts (KCA 6.1)

Not relevant.

7.2.2 Nature of residues in plants, livestock and processed commodities

7.2.2.1 Nature of residue in primary crops (KCA 6.2.1)

Available data

No new data submitted in the framework of this application.

The metabolism of diflufenican was investigated in wheat. Data were evaluated and published in DAR, 2006. Pyridine, difluorophenyl and trifluoromethylphenyl ring labelled [^{14}C] diflufenican was applied as either as a soil application (preemergence) or a post-emergence foliar application for cereals (at growth stage BBCH 13/14) with an application rate of 187.5 to 400 g as/ha.

Table 7.2-3: Summary of plant metabolism studies

Crop Group	Crop	Label position	Application and sampling details					Reference
			Method, F or G (a)	Rate (kg a.s./ha)	No	Sampling (DAT)	Remarks	
EU data								
Cereals	Wheat	Pyridyl, aniline and phenyl ring	Soil (pre-emergence) and foliar (BBCH 13-14) spraying, F	0.19 or 0.40 or 0.94	1	Forage: at BBCH 41-65 Grain, straw: at BBCH 92 (maturity)	-	EFSA, 2007 DAR, 2006

* exaggerated dose for post emergence
** exaggerated dose for pre-emergence

Summary of plant metabolism studies reported in the EU

EFSA Scientific report (2007) 122, 1-84: conclusion on the peer review of diflufenican:
The metabolism of diflufenican was investigated in wheat. Pyridine, difluorophenyl and trifluoromethylphenyl ring labelled [^{14}C] diflufenican was applied as either a pre-emergence application or a post-emergence foliar application at a rate that corresponds approximately to the notified representative GAP (1x 0.19 kg as/ha at BBCH 13-14).
At harvest the total radioactive residues (TRR; expressed as diflufenican equivalents) in grain and straw were less than 0.01 mg/kg, with the exception of straw from the pre-and post-emergence pyridine study and the post emergence trifluoromethylphenyl study (0.01 mg/kg).
On characterisation of the extractable radioactivity one major component was identified in the straw at harvest as diflufenican, which accounted for 2-16% of the total radioactivity in the straw for the pre and post-emergence treatments (diflufenican was also identified in the grains but the amount present was not quantified). Extensive identification was difficult due to the low TRR levels in the wheat grains. In the straw, one other metabolite was identified, plus several unknowns which individually did not represent more than 10% (<0.01 mg/kg) of the total radioactivity, with the exception of one unknown polar metabolite, which accounted for up to 70% (<0.01 mg/kg) of the total radioactivity in the straw. The remaining unextractable radioactivity in the straw accounted for less than 0.01 mg/kg.

Conclusion on metabolism in primary crops

EFSA Scientific report (2007) 122, 1-84: conclusion on the peer review of diflufenican:
Based on the plant metabolism data submitted for wheat, residues in cereals should be defined as diflufenican for risk assessment and monitoring purposes. The meeting highlighted that, if in the future a later time of application is required and residue levels may trigger further identification and quantification of residues, additional plant metabolism data (appropriate to the proposed latest time of application) may be required, in order to refine the residues definition.

7.2.2.2 Nature of residue in rotational crops (KCA 6.6.1)

Available data

No new data submitted in the framework of this application.

Table 7.2-4: Summary of metabolism studies in rotational crops

Crop group	Crop	Label position	Application and sampling details					Reference
			Method, F or G *	Rate (kg a.s./ha)	Sowing intervals (DAT)	Harvest Intervals (DAT)	Remarks	
EU data								
Leafy vegetables	cabbage	Pyridyl, amiline and phenyl ring	Soil, F	0.36	12 weeks	At maturity	-	EFSA, 2007 DAR, 2006
Root and tuber vegetables	Sugar beet	Pyridyl, amiline and phenyl ring	Soil, F	0.36	12 weeks	At maturity	-	
Cereals	wheat	Pyridyl, amiline and phenyl ring	Soil, F	0.36	12 weeks	At maturity	-	

* Outdoor/field application (F) or glasshouse/protected/indoor application (G)

Summary of plant metabolism studies reported in the EU

EFSA Scientific report (2007) 122, 1-84: conclusion on the peer review of diflufenican:
The metabolism and distribution of diflufenican in rotational crops was investigated in wheat, cabbage and sugar beet. The crops were grown in soil treated (bare ground application) with pyridine, difluorophenyl and trifluoromethylphenyl ring labelled [^{14}C] diflufenican at a rate of ca 3 N. At harvest TRR in the crops were less than 0.06 mg/kg, with the exception of straw (0.08 – 0.17 mg/kg).
On characterisation of the extractable radioactivity three components were identified in the crops at harvest as diflufenican and its metabolites AE 0542291 and AE B107137, free and conjugated. These three components accounted for up to 47% of the TRR in cabbage, for up to 69% of the TRR in sugar beet tops and for up to 88% of the TRR in sugar beet root at harvest. Other residues (of unknown or unextractable nature) were present each with less than 0.01 mg/kg.
For wheat grain the three components reported above accounted for up to 6% of the TRR in the crop at harvest and for wheat straw for up to 13% of the TRR, with the majority of the radioactivity (up to 87% [0.03 mg/kg] in grain and up to 60% [0.08 mg/kg] in straw) being associated with polar material resulting from the fragmentation of the compound in the plant or in the soil prior to uptake. One other unknown metabolite was present at a level of less than 0.01 mg/kg. The remaining unextractable radioactivity in grain accounted for 0.01 mg/kg and in straw for less than 0.07 mg/kg and was probably associated with the fragmentation of the compound and the natural incorporation of these fragments into the plant tissue.
The metabolite AE B107137 was also identified in the rat metabolism studies and is eventually not expected to be more toxic than diflufenican (refer to chapter 2.8). The metabolite AE 0542291 was not found in the rat, but was not considered to be of concern at the levels (<0.01 mg/kg) present in the study.
The highest residue for metabolite AE B107137 found in this study was 0.04 mg/kg in sugar beets after 120 days. Considering the study was at 3N rate, residues >0.01mg/kg may occur in roots. The notifier proposed a waiting period of 150 days before planting root crops. The meeting rejected the proposal. However, the experts concluded that for this particular notified use and according to the intended GAP it is not expected to get residue levels, including metabolite AE B107137, exceeding 0.01 mg/kg considering that the study was overdosed and performed on bare soil. Rotational crop residue trails are currently not necessary. It is however noted that if uses with higher application rates and/or a later time of application are requested in the future, Member States should pay attention to the residues in rotational crops including crops that may be fed to livestock.

Summary of new plant metabolism studies

Not relevant.

Conclusion on metabolism in rotational crops

EFSA Scientific report (2007) 122, 1-84: conclusion on the peer review of diflufenican:
Rotational crop residue trails are currently not necessary. It is however noted that if uses with higher application rates and/or a later time of application are requested in the future, Member States should pay attention to the residues in rotational crops including crops that may be fed to livestock.

7.2.2.3 Nature of residues in processed commodities (KCA 6.5.1)

Available data

No new data submitted in the framework of this application.

EFSA Scientific report (2007) 122, 1-84: conclusion on the peer review of diflufenican:
No data were submitted or required as residues in cereal grain were less than 0.01 mg/kg.

Conclusion on nature of residues in processed commodities

As residues of diflufenican do not exceed the trigger values defined in Regulation (EU) No 283/2013,

there is no need to investigate the effect of industrial and/or household processing.

7.2.2.4 Conclusion on the nature of residues in commodities of plant origin (KCA 6.7.1)

Table 7.2-5: Summary of the nature of residues in commodities of plant origin

Endpoints	
Plant groups covered	Cereals (Wheat)
Rotational crops covered	Leafy crops (cabbage) Root and tuber vegetables (sugar beet, carrot, potato) Cereals (wheat)
Metabolism in rotational crops similar to metabolism in primary crops?	Yes (EFSA, 2007)
Processed commodities	No data submitted as residues in cereal grain are less than 0.01 mg/kg
Residue pattern in processed commodities similar to pattern in raw commodities?	No data submitted as residues in cereal grain are less than 0.01 mg/kg
Plant residue definition for monitoring	Diflufenican (EFSA, 2013; Regulation (EU) 2017/623).
Plant residue definition for risk assessment	Diflufenican (EFSA, 2007).
Conversion factor from enforcement to RA	None (EFSA, 2007).

7.2.2.5 Nature of residues in livestock (KCA 6.2.2-6.2.5)

Available data

No new data submitted in the framework of this application.

Table 7.2-6: Summary of animal metabolism studies

Group	**Species**	**Label position**	**No of animal**	**Application details**		**Sample details**		**Reference**
				Rate (mg/kg bw/d)	**Duration (days)**	**Commodity**	**Time of sampling**	
EU data								
Lactating ruminants	Cow	Pyridyl ring	1[(a)]	0.2 or 2	7	Milk	twice daily	EFSA, 2007 DAR, 2006
						Urine and faeces	once daily	
						Tissues	after sacrifice	
	Cow	Aniline ring	1[(a)]	0.035 or 0.717	7	Milk	twice daily	
						Urine and faeces	once daily	
						Tissues	after sacrifice	
Laying	Hens	Aniline ring	5[(b)]	0.17 or	14	Eggs	twice daily	

poultry				1.92[(c)]		Excreta	once daily	
						Tissues	after sacrifice	

Summary of animal metabolism studies reported in the EU

EFSA Scientific report (2007) 122, 1-84: conclusion on the peer review of diflufenican:
The metabolism and distribution in animals were investigated in lactating cows and chickens upon administration of difluorophenyl and pyridine ring labelled [^{14}C] diflufenican for seven consecutive days. As for the representative use no exposure of poultry is expected. However, the study was evaluated in the DAR, 2006 for future reference.
The doses used in the submitted ruminant study are exaggerated (up to 500 N) when compared to the estimated maximum exposure (based on the highest residues in cereal grain and straw) for beef and dairy cattle from the representative use. The majority of the administered radioactivity was excreted (70-86%), with less than 0.1% recovered in the milk and less than 0.2% in the tissues. On characterisation of the extractable radioactivity one major component was identified in the milk as diflufenican, representing 48-52% of the TRR in the milk. Two other metabolites were identified, plus several unknowns, which individually were present at levels of less than 0.01 mg/kg. The remaining unextractable radioactivity, accounted for 22-26% (<0.01 mg/kg) of the TRR in the milk. On characterisation of the extractable radioactivity in the tissues one major component was identified in the fat as diflufenican, representing 82-91% of the TRR in the fat. For liver, several metabolites were tentatively identified as diflufenican, hydroxylated diflufenican and hydroxylated anilines/defluorinated hydroxylated anilines, however none were present at a quantifiable level, with the exception of AE B107137 (0.02 mg/kg). The remaining unextractable radioactivity, accounted for up to 0.26 mg/kg of the TRR in the liver. For kidney, several metabolites were tentatively identified as hydroxylated anilines/ defluorinated hydroxylated anilines. The remaining unextractable radioactivity accounted for 38% (0.01 mg/kg) of the TRR in the kidney.

Summary of new animal metabolism studies

Not relevant.

Conclusion on metabolism in livestock

EFSA Scientific report (2007) 122, 1-84: conclusion on the peer review of diflufenican:
Based on the metabolism data submitted residues in products of ruminant origin should be defined as diflufenican for risk assessment and monitoring purposes.
When extrapolating the diflufenican residue levels found in the metabolism study to the levels actually expected upon livestock exposure to cereals (straw and grains) treated according to the notified GAP no residues of diflufenican above the limit of quantification (LOQ) are likely to occur in edible animal matrices. Therefore, at the moment no feeding studies and no MRLs for animal products are considered necessary.
However, the experts noted the following: Livestock feeding studies might be required, if in the future uses with more critical application rates or timings or with other feed items including cereal forage are requested. Particular consideration should also be given to residue levels in rotational crops.

7.2.2.6 Conclusion on the nature of residues in commodities of animal origin (KCA 6.7.1)

Table 7.2-7: Summary on the nature of residues in commodities of animal origin

Endpoints	
Animals covered	Lactating cows
	Laying hens

Time needed to reach a plateau concentration	3 days in milk (EFSA, 2007)
	8 days in eggs (EFSA, 2007)
Animal residue definition for monitoring	Diflufenican (EFSA, 2013; Regulation (EU) 2017/623)
Animal residue definition for risk assessment	Diflufenican (EFSA, 2007)
Conversion factor	None (EFSA, 2007)
Metabolism in rat and ruminant similar	Yes
Fat soluble residue	Yes

7.2.3 Magnitude of residues in plants (KCA 6.3)

7.2.3.1 Summary of European data and new data supporting the intended uses

No new data are submitted in the framework of this application.

Table 7.2-8: Summary of EU reported and new data supporting the intended uses of Diflufenikan 500 SC and conformity to existing MRL

Commodity	Source	Residue zone (N-EU, S-EU, EU, outside EU)	Evaluation GAP Residue levels (mg/kg) E = according to enforcement residue definition RA = according to risk assessment residue definition	STMR (mg/kg)	HR (mg/kg)	Unrounded OECD calculator MRL (mg/kg)	Current EU MRL (mg/kg) *	MRL compliance
Cereals grain (wheat, barley, rye) extrapolated from barley, wheat and rye	DAR, 2006	N-EU	cGAP from DAR, 2006: ~~1 x 0.12 kg as/ha, brfore GS14 (4 leaves unfolded), PHI n.r., outdoor~~ 1 x 0.19 kg as/ha, BBCH: 25-33, PHI n.r. 1 x 0.15 kg as/ha, BBCH: 29-31, PHI n.r. E/RA: 21 x <0.01, 5x <0.02	N/A				
	New trials	-	-					
	Overall supporting data for cGAP	N-EU	E/RA: 21 x <0.01, 5x <0.02	E/RA: 0.01	E/RA: 0.02	-	0.02	Yes
Cereals straw	DAR, 2006	N-EU	cGAP from DAR, 2006: ~~1 x 0.12 kg as/ha, brfore GS14 (4 leaves unfolded), PHI n.r., outdoor~~r 1 x 0.19 kg as/ha, BBCH: 25-33, PHI n.r. 1 x 0.15 kg as/ha, BBCH: 29-31, PHI n.r. E/RA: 0.03, 3x< 0.04, 6x<0.05, 0.07, 0.09, 0.13, 0.14, 0.15, 0.17, 0.20, 0.21, 0.22, 0.23, 0.29, 0.68, 0.91, 1.1, 1.3, 2.5	N/A				
	New trials	-	-					
	Overall	N-EU	E/RA: 0.03, 4x<0.05, 0.07, 0.09, 0.15, 0.29, 0.68, 0.91, 0.13, 0.14,	E/RA: 0.135	E/RA: 2.5	-	NA	NA

	supporting data for cGAP		0.17, 0.20, 0.21, 0.22, 0.23, 1.1, 1.3, 2.5					

* Source of EU MRL: Regulation (EU) 2017/623

Table 7.2-8 Residue trials in N-EU used for support of cereals registration (Draft Assessment Report for diflufenican (DAR, United Kingdom, 2006))

No.	Crop	Country, year	Application rate (kg a.s./ha)	Growth stage at last treatment	Portion analysed	Residues (mg/kg)	Reference
1	Barley	Germany, 1984/5	1x 0.19	GS 25	Green plant Green plant Green plant Straw Grain	14 <0.02 <0.02 <u><0.04</u> <u><0.02</u>	Maycey,1988h caddy://BCSFR067-001/P/14461/1156/1327 **DAR UK, 2006**
2	Barley	Germany, 1984/5	1x 0.19	GS 25	Green plant Green plant Green plant Straw Grain	17 0.05 <0.02 <u><0.04</u> <u><0.02</u>	Maycey,1988h caddy://BCSFR067-001/P/14461/1156/1327 caddy://BCSFR067-001/P/14461/1156/1327 **DAR UK, 2006**
3	Barley	Germany, 1984/5	1x 0.19	GS 25	Green plant Green plant Green plant Straw Grain	9.6 <0.02 <0.02 <u><0.04</u> <u><0.02</u>	Maycey,1988h caddy://BCSFR067-001/P/14461/1156/1327 **DAR UK, 2006**
4	Barley	Germany, 1984/5	1x 0.19	GS 25	Green plant Green plant Green plant Straw Grain	7.0 0.04 <0.02 <u><0.05</u> <u><0.02</u>	Maycey,1988h caddy://BCSFR067-001/P/14461/1156/1327 **DAR UK, 2006**
5	Barley	Germany, 1984/5	1x 0.19	GS 25	Green plant Green plant Green plant Straw Grain	9.0 <0.02 <0.02 <u><0.05</u> <u><0.02</u>	Maycey,1988h caddy://BCSFR067-001/P/14461/1156/1327 **DAR UK, 2006**
6	Barley	Germany, 2001	1x 0.19	GS 32	Shoot Straw Grain	5.3 <u>0.21</u> <u><0.02</u>	Glockner, 2002b caddy://BCSFR067-001/P/14873/942/1692 caddy://BCSFR067-001/P/14873/942/1692 **DAR UK, 2006**
7	Barley	Germany, 2001	1x 0.19	GS 32	Shoot Straw Grain	4.7 <u>0.13</u> <u><0.01</u>	Glockner, 2002b caddy://BCSFR067-001/P/14873/942/1692 **DAR UK, 2006**
8	Barley	UK, 2001	1x 0.19	GS 32	Shoot Straw Grain	6.1 <u>2.5</u> <u><0.01</u>	Glockner, 2002b caddy://BCSFR067-001/P/14873/942/1692 **DAR UK, 2006**
9	Barley	N-France, 2001	1x 0.19	GS 33	Shoot Straw Grain	4.0 <u>0.2</u> <u><0.01</u>	Glockner, 2002b caddy://BCSFR067-001/P/14873/942/1692 **DAR UK, 2006**
10	Barley	N-France, 2001	1x 0.19	GS 32	Shoot Straw Grain	3.9 <u>0.22</u> <u><0.01</u>	Glockner, 2002b caddy://BCSFR067-001/P/14873/942/1692 **DAR UK, 2006**

11	Wheat	Denmark, 1995	1x 0.15	GS 30	Whole plant Whole plant Whole plant Whole plant Plant Ear Straw Grain	3.8 1.1 1.1 0.09 <0.02 <0.01 <u>0.14</u> <u><0.01</u>	Holmgaard, 1998g caddy://BCSFR067-001/P/14509/974/1071 **DAR UK, 2006**
12	Wheat	Denmark, 1995	1x 0.15	GS 30	Whole plant Whole plant Whole plant Whole plant Plant Ear Straw Grain	3.7 1.6 0.68 0.27 0.12 <0.01 <u>0.17</u> <u><0.01</u>	Holmgaard, 1998g caddy://BCSFR067-001/ **DAR UK, 2006**
13	Wheat	Germany, 2001	1x 0.19	GS 32	Shoot Shoot Straw Grain	7.8 0.44 <u>0.23</u> <u><0.01</u>	Glockner, 2002a caddy://BCSFR067-001/P/14787/986/1381 **DAR UK, 2006**
14	Wheat	Germany, 2001	1x 0.19	GS 32	Shoot Shoot Straw Grain	5.5 0.73 <u>0.07</u> <u><0.01</u>	Glockner, 2002a caddy://BCSFR067-001/P/14787/986/1381 **DAR UK, 2006**
15	Wheat	UK, 2001	1x 0.19	GS 32	Shoot Shoot Straw Grain	5.3 0.44 <u>0.91</u> <u><0.01</u>	Glockner, 2002a caddy://BCSFR067-001/P/14787/986/1381 **DAR UK, 2006**
16	Wheat	N-France, 2001	1x 0.19	GS 32	Shoot Shoot Straw Grain	7.9 0.30 <u>0.68</u> <u><0.01</u>	Glockner, 2002a caddy://BCSFR067-001/P/14787/986/1381 **DAR UK, 2006**
17	Wheat	N-France, 2001	1x 0.19	GS 32	Shoot Shoot Straw Grain	3.9 0.31 <u>0.15</u> <u><0.01</u>	Glockner, 2002a caddy://BCSFR067-001/P/14787/986/1381 **DAR UK, 2006**
18	Wheat	Germany, 2002	1x 0.19	GS 32	Shoot Straw Grain	5.4 1.3 <u><0.01</u>	Klein, 2003d caddy://BCSFR067-001/P/14959/980/1661 **DAR UK, 2006**
19	Wheat	Germany, 2002	1x 0.19	GS 32	Shoot Straw Grain	7.6 0.09 <u><0.01</u>	Klein, 2003d caddy://BCSFR067-001/P/14959/980/1661 **DAR UK, 2006**
20	Wheat	N-France, 2002	1x 0.19	GS 32	Shoot Straw Grain	3.4 <u>1.1</u> <u><0.01</u>	Klein, 2003d caddy://BCSFR067-001/P/14959/980/1661 **DAR UK, 2006**
21	Wheat	N-France, 2002	1x 0.19	GS 32	Shoot Straw Grain	5.2 <u><0.05</u> <u><0.01</u>	Klein, 2003d caddy://BCSFR067-001/P/14959/980/1661 **DAR UK, 2006**
22	Wheat	Germany, 2002	1x 0.15	GS 29	Shoot Shoot Straw Grain	4.4 <0.05 <0.05 <u><0.01</u>	Klein, 2003h caddy://BCSFR067-001/P/15035/1077/1814 **DAR UK, 2006**

23	Wheat	N-France, 2002	1x 0.15	GS 29	Shoot Shoot Straw Grain	4.3 <0.05 <0.05 <u><0.01</u>	Klein, 2003h caddy://BCSFR067-001/P/15035/1077/1814 **DAR UK, 2006**
24	Wheat	N-France, 2002	1x 0.15	GS 29	Shoot Shoot Straw Grain	4.0 <0.05 <0.05 <u><0.01</u>	Klein, 2003h caddy://BCSFR067-001/P/15035/1077/1814 **DAR UK, 2006**
25	Rye	Denmark, 1995	1x 0.15	GS 31/2	Whole plant Whole plant Whole plant Whole plant Plant Ear Straw Grain	2.5 0.79 0.68 0.20 0.39 0.01 <u>0.29</u> <u><0.01</u>	Holmgaard, 1998f caddy://BCSFR067-001/P/14652/1290/1388 **DAR UK, 2006**
26	Rye	Denmark, 1995	1x 0.15	GS 31	Whole plant Whole plant Whole plant Whole plant Plant Ear Straw Grain	3.8 1.4 0.88 0.11 0.19 <0.01 <u>0.03</u> <u><0.01</u>	Holmgaard, 1998f caddy://BCSFR067-001/P/14652/1290/1388 **DAR UK, 2006**

7.2.3.2 Conclusion on the magnitude of residues in plants

<u>Cereals</u>
A total of 26 trials on cereals in N-EU zone (10 trials on barley, 14 trials on wheat and 2 trials on rye) are available. All trials were performed according to the critical EU GAP from DAR (United Kingdom, 2006).

The residue data are valid with regard to storage stability and are sufficient to support the proposed use.
According to SANTE/2019/12752 - 23 November 2020 the residue trials on barley and rye may be extrapolate to wheat and residue trials on wheat and rye may be extrapolate to barley, before forming of the edible part. Application to cereal is intended at early growth stages (up to BBCH 29), therefore extrapolation is possible.

The residues arising from the proposed uses will not exceed the MRLs established for wheat and barley (0.02 mg/kg).

The uses are considered acceptable.

7.2.4 Magnitude of residues in livestock

7.2.4.1 Dietary burden calculation

Active substance diflufenican is authorised in EU for use on crops that might be fed to livestock, so dietary burden calculation was performed in EFSA reasoned opinion on the review of the existing maximum residue levels for diflufenican according to Article 12 of Regulation (EC) No 396/2005 (EFSA Journal 2013; 11(6):3281). According to Article 12 of Regulation (EC) No 396/2005, EFSA has reviewed the maximum residue levels (MRLs) currently established at European level for the pesticide active substance diflufenican. The median and maximum dietary burdens were calculated for different groups of livestock using the agreed European methodology (EC, 1996). The input values for all relevant commodities have been selected according to the recommendations of JMPR (FAO, 2009). For cereal bran, a default processing factor of 8 has been included in the calculation in order to consider the potential concentration of

residues in this commodity. For apple and citrus pomaces, no default processing factor was applied because diflufenican is applied early in the growing season and residues are expected to be below the LOQ. Concentration of residues in these commodities is therefore not expected. It is highlighted that the contribution of grass could not be assessed in the absence of residue data supporting this use. This is not expected to have an impact on the result of the dietary burden calculation for poultry, which is not exposed to grass. However, the dietary burden calculation might need to be reconsidered for ruminants and pigs in the view of potential additional data on grass.

Dietary burden calculation for purpose of maintain authorisation of Diflufenikan 500 SC was performed by Excel spreadsheet Animal model 2017 and was focused only on intended uses of Diflufenikan 500 SC. Input values (STMR and HR) used for dietary calculation are provided below in Table 7.2-8. Results of dietary burden calculation for Diflufenikan 500 SC are included in Table 7.2-9.

Table 7.2-9: Input values for the dietary burden calculation

Feed Commodity	Median dietary burden		Maximum dietary burden	
	Input value (mg/kg)	Comment	Input value (mg/kg)	Comment
Risk assessment residue definition: diflufenican				
Cereals, straw	0.1365	STMR	2.5	HR
Cereals, grain	0.01	STMR	0.01	STMR
Brewers's grain, dried	0.01 x 3.3	STMR x PF*	0.01 x 3.3	STMR x PF*
Distiller's grain, dried	0.01 x 3.3	STMR x PF*	0.01 x 3.3	STMR x PF*
Wheat gluten, meal	0.01 x 1.8	STMR x PF*	0.01 x 1.8	STMR x PF*
Wheat, milled by-pdts	0.01 x 7	STMR x PF*	0.01 x 7	STMR x PF*

Table 7.2-10: Results of the dietary burden calculation

Animal species	Median dietary burden	Maximum dietary burden	Median dietary burden	Maximum dietary burden	Most critical diet	Highest contributing commodity	Trigger 0.004 mg/kg bw/d exceeded (Y/N)
	mg/kg bw/d		mg/kg DM				
Cattle (all diets)	0.003	0.034	0.07	0.87	Dairy cattle	Barley, straw	Y
Cattle (dairy only)	0.003	0.034	0.07	0.87	Dairy cattle	Barley, straw	Y
Sheep (all diets)	0.005	0.073	0.12	1.72	Lamb	Barley, straw	Y
Sheep (ewe only)	0.004	0.057	0.12	1.72	Ram/Ewe	Barley, straw	Y
Swine (all diets)	0.001	0.001	0.05	0.05	Swine (finishing)	Wheat, milled by pdts	N
Poultry (all diets)	0.003	0.021	0.04	0.31	Poultry layer	Wheat, straw	Y
Poultry (layer only)	0.003	0.021	0.04	0.31	Poultry layer	Wheat, straw	Y

The calculated dietary burdens were found to be above the trigger value of 0.004 mg/kg bw (0.1 mg/kg dry matter (DM) for all types of livestock diets except swine (all diets). Further investigation on the nature of residues is therefore required in these groups of livestock.

7.2.4.2 Livestock feeding studies (KCA 6.4.1-6.4.3)

No new data were submitted in the framework of this application.

EFSA Scientific report (2007) 122, 1-84: conclusion on the peer review of diflufenican:
Based on the residue trial data livestock exposure is possible through straw used in animal diet, in particular in ruminant diet. No exposure of poultry is expected. However, the metabolism and distribution in animals was investigated in lactating cows and chickens. As for the assessed representative use it was concluded that no residues of diflufenican above the limit of quantification (LOQ) are likely to occur in edible animal matrices and thus no feeding studies and no MRLs for animal products are considered necessary.

According to EFSA Journal 2013; 11(6):3281: Reasoned opinion on the review of the existing maximum residue levels (MRLs) for diflufenican according to Article 12 of Regulation (EC) No 396/2005:
According to the metabolism studies, it is concluded that, after exposure to the maximum dietary burden (about 0.4-8 times lower than the dose level of the metabolism studies;), residue levels in ruminant commodities are expected to remain below the enforcement LOQ (0.01 mg/kg in milk and 0.02 mg/kg in tissues). Hence, no livestock feeding study is needed; MRLs and risk assessment values for the relevant commodities in ruminants can be established at the LOQ level. Considering that a confirmatory method for the reported analytical method for enforcement is still required, these MRLs are proposed on a tentative basis only.

Conclusion on metabolism in livestock

The new mode of calculation modify the theoretical maximum daily intake for animals, but regarding available feeding data, there is no risk for animal MRL to be exceeded.

7.2.5 Magnitude of residues in processed commodities (Industrial Processing and/or Household Preparation) (KCA 6.5.2-6.5.3)

7.2.5.1 Available data for all crops under consideration

No new data submitted in the framework of this application. As residues of diflufenican exceeding 0.1 mg/kg are not expected in the treated crops and since the chronic exposure does not exceed 10% of the ADI, there is no need to investigate the effect of industrial and/or household processing.

7.2.5.2 Conclusion on processing studies

Please refer to point 7.2.5.1.

7.2.6 Magnitude of residues in representative succeeding crops

The crops under consideration can be grown in rotation.

7.2.6.1 Field rotational crop studies (KCA 6.6.2)

Available data

No new data submitted in the framework of this application.

Conclusion on rotational crops studies

EFSA Scientific report (2007) 122, 1-84: conclusion on the peer review of diflufenican:
Rotational crop metabolism study indicates that a cold rotational crop study is not required. If uses with higher application rates and/or a later time of application are requested in the future, Member States should pay attention to the residues in rotational crops including crops that may be fed to livestock.

7.2.7 Other / special studies (KCA6.10, 6.10.1)

The available data for the active substance sufficiently address aspects of the residue situation that might arise from the use of Diflufenikan 500 SC. Therefore, other special studies are not needed.

All residue values for intended uses achieved from supervised residue trials (performed in DAR for diflufenican (UK, 2006) in cereals grain are below 0.02 mg/kg. Product Diflufenikan 500 SC is intended to apply on crops which has not melliferous capacity (according to SANTE/11956/2016 rev. 9, 14 September 2018). Additionally, the product is applied early in the growing season when bee foraging activity is low. The treated crop is not foraged by bees, flowering weeds are unlikely to be in bloom at the time of application and are unlikely to mature following the application of an herbicide. The potential exposure to foraging bees is very low consequently the potential for residue detection in pollen and bee products, specifically honey, is very unlikely.

7.2.8 Estimation of exposure through diet and other means (KCA 6.9)

Toxicological reference values relevant for dietary risk assessment are reported in the summary of the evaluation (see 7.1.2).
As ARfD was not deemed necessary, acute risk assessment is not relevant.

7.2.8.1 Input values for the consumer risk assessment

Table 7.2-11: Input values for the consumer risk assessment

Commodity	Chronic risk assessment		Acute risk assessment	
	Input value (mg/kg)	Comment	Input value (mg/kg)	Comment
Risk assessment residue definition: diflufenican				
Intended/relevant uses				
Wheat	0.02	existing EU MRL*	Not relevant. ARfD was not deemed necessary.	
Barley	0.02	existing EU MRL*		
Further uses				
Other commodities of plant and animal origin	variable	existing EU MRL*	Not relevant.	

* Source of EU MRL: Regulation (EU) 2017/623

7.2.8.2 Conclusion on consumer risk assessment

Extensive calculation sheets are presented in Appendix 3.

Table 7.2-12: Consumer risk assessment

ADI	0.2 mg/kg bw/d
TMDI (% ADI) according to EFSA PRIMo rev. 3.1	0.7% (based on NL toddler diet)
IEDI (% ADI) according to EFSA PRIMo rev. 3.1	Not relevant. TMDI < 100%.
ARfD	ARfD was not deemed necessary.
IESTI (% ARfD) according to EFSA PRIMo rev. 3.1	Not relevant. ARfD was not deemed necessary.
NTMDI (% ADI)	Not relevant.
NEDI (% ADI)	Not relevant.
NESTI (% ARfD)	Not relevant.

Chronic exposure calculations were performed using revision 3.1 of the EFSA Pesticide Residues Intake Model (PRIMo rev. 3.1; calculation version 06/01/2021) provided on the internet homepage of EFSA (https://www.efsa.europa.eu/). This exposure assessment model contains the relevant European food consumption data for different subgroups of the EU population. The model was developed to calculate simultaneously the short-term (acute) and long-term (chronic) dietary exposure to pesticide residue in food according to internationally agreed methodologies. The exposure is compared to the toxicological reference values (i.e., the ADI and the ARfD).
The potential chronic dietary exposure was compared to the ADI of 0.2 mg/kg bw/d for diflufenican and TMDI values were achieved. Input values for all commodities were derived from existing EU MRL (Reg. (EU) 2017/623), representing a worst-case scenario. The highest chronic exposure was calculated for NL toddler diet, representing 0.7% of the ADI. For this diet the highest contributors were milk: cattle (0.3% of ADI), apples (0.1% of ADI) and wheat (0.0% of ADI). Since TMDI values are below 100%, there is no need to perform higher tier/refined chronic exposure calculation.

As ARfD for diflufenican was not deemed necessary, acute risk assessment is not relevant.

The proposed uses of diflufenican in the formulation Diflufenikan 500 SC does not represent unacceptable chronic risks for the consumer.

7.3 Combined exposure and risk assessment

Not relevant. The product contains only one active substance.

7.4 References

United Kingdom, 2005. Draft assessment report on the active substance diflufenican prepared by the rapporteur Member State United Kingdom in the framework of Council Directive 91/414/EEC, July 2005.

United Kingdom, 2007. Final addendum to the draft assessment report on the active substance diflufenican prepared by the rapporteur Member State United Kingdom in the framework of Council Directive 91/414/EEC, compiled by EFSA, August 2007.

EFSA (European Food Safety Authority), 2007b. Conclusion on the peer review of the pesticide risk assessment of the active substance diflufenican. EFSA Scientific Report (2007) 122, 1-84.

EFSA (European Food Safety Authority), 2013. Reasoned opinion on the review of the existing maximum residue levels (MRLs) for diflufenican according to Article 12 of Regulation (EC) No 396/2005.

SANCO/3782/08 – rev. 1, 14 March 2008 *EU Limited* COMMISSION WORKING DOCUMENT - DOES NOT NECESSARILY REPRESENT THE VIEWS OF THE COMMISSION SERVICES Review report for the active substance diflufenican Finalised in the Standing Committee on the Food Chain and Animal Health at its meeting on 14 March 2008 in view of the inclusion of diflufenican in Annex I of Directive 91/414/EEC.

Commission Regulation (EU) 2017/623 of 30 March 2017 amending Annexes II and III to Regulation (EC) No 396/2005 of the European Parliament and of the Council as regards maximum residue levels for acequinocyl, amitraz, coumaphos, diflufenican, flumequine, metribuzin, permethrin, pyraclostrobin and streptomycin in or on certain products.

Appendix 1 Lists of data considered in support of the evaluation

Tables considered not relevant can be deleted as appropriate.

MS to blacken authors of vertebrate studies in the version made available to third parties/public.

List of data submitted by the applicant and relied on

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
-	-	-	-	-	-

List of data submitted or referred to by the applicant and relied on, but already evaluated at EU peer review

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCA 6.3/01	Maycey P.A., Outram J.R. DAR 2006	1988h	Herbicides: Diflufenican: Residue studies on cereals, West Germany, 1984/85 Generated by: Rhone-Poulenc Agriculture, UK; Rhone-Poulenc Agriculture, UK; Document No: C022247 GLP / GEP Yes unpublished	N	BCS
KCA 6.3/02	Gloeckner M. DAR 2006	2002b	Residues at harvest in barley European Union (northern zone 2001) isoproturon+ diflufenican water miscible suspension concentrate (SC) 500 g/L + 62.5 g/L Code: AE F016410 42 SC51 A301 Generated by: BCS GmbH, DEU; Residues and Human Exposure, Frankfurt	N	BCS

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
			BCS S.A., FRANCE; Regulatory Affairs Europe, Lyon Document No: C025428 GLP / GEP Yes unpublished		
KCA 6.3/03	Holmgaard M. DAR 2006	1998g	Determination of the residues of flurtamone and diflufenican in winter wheat after a spring application of Bacara - Season 1995, Denmark Generated by: Rhone-Poulenc; Agrolab A/S, Middelfart, Denmark; Grappa, Avignon, France; Rhone-Poulenc Secteur Agro, Lyon, France; Document No: R008241 GLP / GEP Yes unpublished	N	BCS
KCA 6.3/04	Gloeckner M. DAR 2006	2002a	Decline of residues in wheat European Union (northern zone) 2001 Isoproturon + Diflufenican water miscible suspension concentrate (SC), 500 g/L + 62.5 g/L Code: AE F016410 42 SC51 A301 (EXP04072E) Generated by: BCS GmbH, DEU; Residues & Human Exposure, Frankfurt BCS S.A., FRANCE; Centre de la Recherche de la Dargoire, Lyon Document No: C025399 GLP / GEP Yes unpublished	N	BCS
KCA 6.3/05	Klein E.H.-J. DAR 2006	2003d	Residues at harvest in wheat European Union (Northern zone) 2002 Isoproturon + diflufenican, AE F016410 + AE F088657 water miscible suspension concentrate (SC) 45.05% w/w + 5.63% w/w (= 500 g/L + 62.5 g/L) Code: AE F016410 42 SC51 A302 Generated by: BCS GmbH, DEU; Residues and Human Exposure, Frankfurt BCS S.A., FRA; Regulatory Affairs Europe, Lyon Document No: C029587 GLP / GEP Yes unpublished	N	BCS

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCA 6.3/06	Klein E.H.-J. DAR 2006	2003h	Decline of residues in wheat European Union (Northern and Southern zone) 2002 Iodosulfuron-methyl-sodium + mesosulfuron-methyl (as sodium salt) + diflufenican + mefenpyr-diethyl water dispersible granule (WG) 0.9 + 2.81 + 45 + 8.1 % w/w Code: AE F1150 Generated by: BCS GmbH, DEU; Residues and Human Exposure, Frankfurt BCS S.A., FRANCE; Regulatory Affairs Europe, Lyon Document No: C031018 GLP / GEP Yes unpublished	N	BCS
KCA 6.3/07	Holmgaard M. DAR 2006	1998f	Flurtamone and diflufenican Formulation EXP30930A Trials / Denmark / 1995 Residue in winter rye Generated by: Rhone-Poulenc; Agrolab A/S, Middelfart, Denmark; GRAPPA, Avignon, France; Rhone-Poulenc Secteur Agro, Lyon, France; Document No: R008257 GLP / GEP Yes unpublished	N	BCS

The following tables are to be completed by MS.

List of data submitted by the applicant and not relied on

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
-	-	-	-	-	-

List of data relied on and not submitted by the applicant but necessary for evaluation

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
-	-	-	-	-	-

Appendix 2 Detailed evaluation of the additional studies relied upon

A 2.1 Diflufenican

A 2.1.1 Stability of residues

A 2.1.1.1 Stability of residues during storage of samples

A 2.1.1.1.1 Storage stability of residues in plant products

Not relevant. No new studies are submitted with this application.

A 2.1.1.1.2 Storage stability of residues in animal products

Not relevant. No new studies are submitted with this application.

A 2.1.2 Nature of residues in plants, livestock and processed commodities

A 2.1.2.1 Nature of residue in plants

A 2.1.2.1.1 Nature of residue in primary crops

Not relevant. No new studies are submitted with this application.

A 2.1.2.1.2 Nature of residue in rotational crops

Not relevant. No new studies are submitted with this application.

A 2.1.2.1.3 Nature of residues in processed commodities

Not relevant. No new studies are submitted with this application.

A 2.1.2.2 Nature of residues in livestock

Not relevant. No new studies are submitted with this application.

A 2.1.3 Magnitude of residues in plants

Not relevant. No new studies are submitted with this application.

A 2.1.4 Magnitude of residues in livestock

A 2.1.4.1 Livestock feeding studies

Not relevant. No new studies are submitted with this application.

A 2.1.5 Magnitude of residues in processed commodities (Industrial Processing and/or Household Preparation)

A 2.1.5.1 Distribution of the residue in peel/pulp

Not relevant. No new studies are submitted with this application.

A 2.1.5.2 Processing studies on a core set of representative processes

Not relevant. No new studies are submitted with this application.

A 2.1.6 Magnitude of residues in representative succeeding crops

Not relevant. No new studies are submitted with this application.

A 2.1.7 Other/Special Studies

Not relevant. No other/special studies are submitted with this application.

Appendix 3 Pesticide Residue Intake Model (PRIMo rev.3.1)

A 3.1 TMDI calculations

European Food Safety Authority

EFSA PRIMo revision 3.1; 2021/01/06

diflufenican (F)

LOQs (mg/kg) range from:	0,01	to:	0,05
Toxicological reference values			
ADI (mg/kg bw/day):	0,2	ARfD (mg/kg bw):	not necessary
Source of ADI:	RR	Source of ARfD:	
Year of evaluation:	2008	Year of evaluation:	

Input values

Details - chronic risk assessment | Supplementary results - chronic risk assessment

Details - acute risk assessment/children | Details - acute risk assessment/adults

Comments:

Normal mode

Chronic risk assessment: JMPR methodology (IEDI/TMDI)

No of diets exceeding the ADI : ---

TMDI/NEDI/IEDI calculation (based on average food consumption)

Calculated exposure (% of ADI)	MS Diet	Expsoure (µg/kg bw per day)	Highest contributor to MS diet (in % of ADI)	Commodity / group of commodities	2nd contributor to MS diet (in % of ADI)	Commodity / group of commodities	3rd contributor to MS diet (in % of ADI)	Commodity / group of commodities	Exposure resulting from MRLs set at the LOQ (in % of ADI)	Exposure resulting from commodities not under assessment (in % of ADI)
0,7%	NL toddler	1,35	0,3%	Milk: Cattle	0,1%	Apples	0,0%	Wheat	0,6%	
0,5%	GEMS/Food G08	0,95	0,2%	Olives for oil production	0,0%	Wheat	0,0%	Milk: Cattle	0,2%	
0,5%	ES child	0,90	0,2%	Olives for oil production	0,1%	Milk: Cattle	0,0%	Wheat	0,2%	
0,4%	NL child	0,77	0,1%	Milk: Cattle	0,0%	Sugar beet roots	0,0%	Wheat	0,3%	
0,4%	DE child	0,74	0,1%	Milk: Cattle	0,1%	Apples	0,0%	Wheat	0,3%	
0,4%	FR child 3 15 yr	0,72	0,1%	Milk: Cattle	0,0%	Wheat	0,0%	Olives for oil production	0,3%	
0,3%	GEMS/Food G06	0,68	0,1%	Olives for oil production	0,1%	Wheat	0,0%	Tomatoes	0,2%	
0,3%	GEMS/Food G10	0,67	0,1%	Olives for oil production	0,0%	Wheat	0,0%	Milk: Cattle	0,2%	
0,3%	UK infant	0,67	0,2%	Milk: Cattle	0,0%	Wheat	0,0%	Potatoes	0,3%	
0,3%	FR toddler 2 3 yr	0,65	0,1%	Milk: Cattle	0,0%	Wheat	0,0%	Apples	0,3%	
0,3%	GEMS/Food G07	0,65	0,1%	Olives for oil production	0,0%	Wheat	0,0%	Milk: Cattle	0,2%	
0,3%	GEMS/Food G11	0,63	0,1%	Olives for oil production	0,0%	Milk: Cattle	0,0%	Wheat	0,2%	
0,3%	GEMS/Food G15	0,58	0,1%	Olives for oil production	0,0%	Wheat	0,0%	Milk: Cattle	0,2%	
0,3%	DK child	0,56	0,1%	Milk: Cattle	0,1%	Rye	0,0%	Wheat	0,2%	
0,3%	UK toddler	0,52	0,1%	Milk: Cattle	0,0%	Wheat	0,0%	Potatoes	0,2%	
0,3%	ES adult	0,51	0,1%	Olives for oil production	0,0%	Milk: Cattle	0,0%	Wheat	0,1%	
0,2%	DE women 14-50 yr	0,47	0,1%	Milk: Cattle	0,0%	Olives for oil production	0,0%	Sugar beet roots	0,2%	
0,2%	DE general	0,47	0,1%	Milk: Cattle	0,0%	Olives for oil production	0,0%	Sugar beet roots	0,2%	
0,2%	SE general	0,46	0,1%	Milk: Cattle	0,0%	Bovine: Muscle/meat	0,0%	Wheat	0,2%	
0,2%	RO general	0,46	0,1%	Milk: Cattle	0,1%	Wheat	0,0%	Potatoes	0,2%	
0,2%	PT general	0,40	0,1%	Olives for oil production	0,0%	Wheat	0,0%	Potatoes	0,1%	
0,2%	IE adult	0,38	0,0%	Wheat	0,0%	Milk: Cattle	0,0%	Sweet potatoes	0,2%	
0,2%	FI adult	0,36	0,1%	Coffee beans	0,0%	Rye	0,0%	Potatoes	0,2%	
0,2%	NL general	0,36	0,0%	Milk: Cattle	0,0%	Wheat	0,0%	Sugar beet roots	0,2%	
0,2%	FR infant	0,32	0,1%	Milk: Cattle	0,0%	Potatoes	0,0%	Apples	0,1%	
0,2%	FR adult	0,31	0,0%	Milk: Cattle	0,0%	Wheat	0,0%	Olives for oil production	0,1%	
0,1%	IT toddler	0,23	0,1%	Wheat	0,0%	Other cereals	0,0%	Tomatoes	0,0%	
0,1%	FI 3 yr	0,21	0,0%	Potatoes	0,0%	Wheat	0,0%	Bananas	0,1%	
0,1%	LT adult	0,21	0,0%	Milk: Cattle	0,0%	Potatoes	0,0%	Rye	0,1%	
0,1%	DK adult	0,20	0,0%	Milk: Cattle	0,0%	Wheat	0,0%	Swine: Muscle/meat	0,1%	
0,1%	UK vegetarian	0,17	0,0%	Wheat	0,0%	Milk: Cattle	0,0%	Potatoes	0,1%	
0,1%	UK adult	0,17	0,0%	Wheat	0,0%	Milk: Cattle	0,0%	Potatoes	0,1%	
0,1%	FI 6 yr	0,17	0,0%	Potatoes	0,0%	Wheat	0,0%	Rye	0,1%	
0,1%	IT adult	0,16	0,0%	Wheat	0,0%	Tomatoes	0,0%	Apples	0,0%	
0,0%	IE child	0,10	0,0%	Milk: Cattle	0,0%	Wheat	0,0%	Potatoes	0,0%	
0,0%	PL general	0,10	0,0%	Potatoes	0,0%	Apples	0,0%	Tomatoes	0,0%	

Conclusion:
The estimated long-term dietary intake (TMDI/NEDI/IEDI) was below the ADI.
The long-term intake of residues of diflufenican (F) is unlikely to present a public health concern.
DISCLAIMER: Dietary data from the UK were included in PRIMO when the UK was a member of the European Union.

A 3.2 IEDI calculations

Not required. TMDI below 100%

A 3.3 IESTI calculations - Raw commodities

Not required as ARfD not necessary.

A 3.4 IESTI calculations - Processed commodities

Not required as ARfD not necessary.

Appendix 4 Additional information provided by the applicant

Not relevant.