REGISTRATION REPORT

Part B

Section 7

Metabolism and Residues

Detailed summary of the risk assessment

Product name: PYRIX 20 SL

Chemical active substance:

PYRIPROXYFEN, 20 g/L

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

(authorization)

Applicant: AGROFARM SP. Z O.O.

Submission date: November 2025, updated June 2026

MS Finalisation date: June 2026 (initial Core Assessment)

September 2026 (final Core Assessment)

Version history

When	What
November 2025	Initial dRR – Agrofarm Sp. z o.o.
June 2026	Applicant's updates points in B7 Updates Tabel 7.1-1; Tabel 7.2-3, Tabel 7.2-6 Appendix 3 Pesticide Residue Intake Model (PRIMo)
June 2026	Initial zRMS assessment The report in the dRR format has been prepared by the Applicant, therefore all comments, additional evaluations and conclusions of the zRMS are presented in grey commenting boxes. Minor changes are introduced directly in the text and highlighted in grey. Not agreed or not relevant information are ~~struck through~~ and shaded for transparency. Following the evaluation and before sending the document for commenting, all coloured highlighting was removed, from the parts updated by the Applicant, for better legibility.
September 2026	Final report (Core Assessment updated following the commenting period). No additional information or assessments after the commenting period.

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7 Metabolism and residue data (KCA section 6)

7.1 Summary and zRMS Conclusion

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 PYRIX 20 SL are presented in Table 7.1-1. They have been selected from the individual GAPs in the Central Zone for mushrooms. A list of all intended uses within the Central Zone is given in Part B, Section 0.

Overall conclusion
The data available are considered sufficient for risk assessment. An exceedance of the current MRL of 0.01* mg/kg for pyriproxyfen as laid down in Reg. (EU) 396/2005 is not expected.
The chronic and the short-term intakes of pyriproxyfen residues are unlikely to present a public health concern.
As far as consumer health protection is concerned, zRMS-PL agrees with the authorization of the intended use(s).

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

Data gaps
Noticed data gaps are:

- Studies on the storage stability of pyriproxyfen in mushrooms under frozen conditions are required and should be provided as a post-registration requirement.

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 applic ations (min)**	**kg as/hL min max**	**water L/ha min max**	**kg as/ha min max**		
GAP rev. 1, date: 2025-07-10	*Mushrooms (fungi) Agaricus bisporus* Code number: 0280010	PL (or central zone)	-	I-indoor application - closed buildings (only professional use)	-sciarid fly (*Sciaridae*) -phorid fly (*Phoridae*) Developmental stage: Adult insect	SL Soluble (liquid) concentrate	Pyriproxyfen 20 g/l	Spray / manual sprayer **a)**	BBCH: overgrowth of cover by mushroom mycelium Spraying two days after applying a torf cover	a) per use 1 b) per crop/ season 1/1 (3-4 throws = fruit harvest)	n.a.	0.03 kg/hL (30g /hL)	10000 L/ha (1L / m2)	a) min. rate per appl. 3 kg/ha or 3000 g/ha (0.3 g.s.a./m^2) b)max. rate per appl. 3 kg/ha or 3000 g/ha (0.3 g.s.a./m^2)	-	R Please see **** below

* 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
**** Studies on the storage stability of pyriproxyfen in mushrooms under frozen conditions are required and should be submitted within the framework of the present application (data gap).

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

Explonation:
a) Method application : This product is intended for professional use. Mushroom farms in Poland have a mechanical (without human presence) application / spray/ system.

7.1.2 Summary of the evaluation

The preparation PYRIX 20 SL is composed of pyriproxyfen.

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

Reference value	Source	Year	Value	Study relied upon	Safety factor
pyriproxyfen - Parent compound					
ADI	EFSA Journal 2019;17(6):5732	2019	0.05 mg/kg bw/d	Mouse, 18-month	300
ARfD	EFSA Journal 2019;17(6):5732	2019	1 mg/kg bw	Developmental rabbit	100

7.1.2.1 Summary for pyriproxyfen

Table 7.1-3: Summary for pyriproxyfen

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	Mushrooms	Yes	Yes (3 trials, <0.0025 mg/kg)	Yes	No	Yes	No	No

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

As residues of pyriproxyfen 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.

Uses under consideration are not relevant in terms of animal feed.

Crops under evaluation (mushrooms) are not expected to be grown in rotation. Further investigation of residues in rotational crops is therefore not required although data on metabolism of pyriproxyfen in rotational crops are available.

The proposed use of pyriproxyfen in the formulation Pyrix 20 SL do not represent unacceptable acute and chronic risks for the consumer.

7.1.2.2 Summary for Pyrix 20 SL

Table 7.1-4: Information on Pyrix 20 SL (KCA 6.8)

Crop	PHI for PYRIX 20 SL proposed by applicant	PHI/ Withholding period* sufficiently supported for			PHI for PYRIX 20 SL proposed by zRMS	zRMS Comments (if different PHI proposed)
		pyriproxyfen	Active substance 2	Active substance 3		
Mushrooms	no need	Yes	NR	NR	no need	-

NR: not relevant
* Purpose of withholding period to be specified
** F: 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 Pyrix 20 SL
Crop group	**Led by pyriproxyfen**	
All	NR	NR

NR: not relevant

Assessment

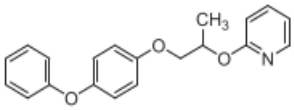
zRMS comments:
The Applicant has not provided a Letter of Access to the data related to the pyriproxyfen as published in Peer review of the pesticide risk assessment of the active substance pyriproxyfen - EFSA Journal 2019;17(7):5732 and in Review of the existing maximum residue levels for pyriproxyfen according to Article 12 of Regulation (EC) No 396/2005 - EFSA Journal 2022;20(11):7617.
Accordingly, the Applicant is not entitled to refer to, rely upon, or otherwise make use of these data within the framework of the present application.

The Applicant may only rely on its own data or on data that are not protected.

7.2 Active substance PYRIPROXYFEN

General data on pyriproxyfen are summarized in the table below.

Table 7.2-1: General information on PYRIPROXYFEN

Active substance (ISO Common Name)	Pyriproxyfen (BSI, E-ISO)
IUPAC	4-phenoxyphenyl (RS)-2-(2-pyridyloxy)propyl ether
Chemical name (CA)	2-[1-methyl-2-(4-phenoxyphenoxy)ethoxy]pyridine
Chemical structure	
Molecular formula	$C_{20}H_{19}NO_3$
Molar mass	321.37 g/mol
Chemical group	classified as an aromatic ether and a pyridine-based pesticide
Mode of action (if available)	Pyriproxyfen is a juvenile hormone analog (IRAC group 7C) and an Insect growth regulator (IGR) Juvenile hormone receptor modulators. It prevents larvae from developing into adulthood and thus rendering them unable to reproduce.
Systemic	Acting as a "local systemic". As a synthetic juvenile hormone mimic, it disrupts the insect's development by affecting its endocrine system.
Company (ies)	Sumitomo Chemical Agro Europe S.A.
Rapporteur Member State (RMS)	ES/BE (first approval) RMS responsible for the last approval: NL Co-RMS responsible for the last approval: ES
Approval status	Approved Date of approval 01/01/2009 Original inclusion Directive 2008/69/EC RMS responsible for the last approval: NL Co-RMS responsible for the last approval: ES Renewing the approval : Regulation (EU) 2020/968
Restriction	see Renewing the Approval Regulation (EU) 2020/968 Reg. (EU) 2020/968
Review Report	Approval: Pyriproxyfen ,SANCO/836/08 – final,11 May 2010 Renewing the approval: Pyriproxyfen -SANTE/11426/2019 , Rev 2
Current MRL regulation	Annex II Reg. (EU) 2023/1753

Peer review of MRLs according to Article 12 of Reg No 396/2005 EC performed	Yes -see list of reference ** EFSA Journal 2022;20(11):7617
EFSA Journal : Conclusion on the peer review	YES** -EFSA Scientific Report (2009) 336, 1-99 - EFSA Journal 2014;12(8):3813 **superseded by a newer version :** *Peer review of the pesticide risk assessment of the active substance pyriproxyfen-17 May 2019 [EFSA Journal 2019;17(7):5732]*
Current MRL applications on intended uses	COMMISSION REGULATION (EU) 2023/1753 of 11 September 2023 Pyriproxyfen (F) Reg. (EU) 2023/1753 applicable Annex II Code — Products to which MRLs apply — Annex II 0280000 Fungi, mosses and lichens 0.01* 0280010 Cultivated fungi 0.01* 0280020 Wild fungi 0.01* (*) Indicates lower limit of analytical determination

** If yes: EFSA, YYYY - see list of references

7.2.1 Stability of Residues (KCA 6.1)

7.2.1.1 Stability of residues during storage of samples

No new data submitted in the framework of this application.

Explonations
Pyriproxyfen residue in Mushrooms (FIRLD) LLP25-2 study:
After residues field trials retain specimens (mushrooms, Agaricus) were frozen as soon as possible and within 12 hours maximum after the end of collection. Each retain specimen was placed in a freezer warehouse on appropriate treated/untreated rack. Retain specimens were stored deep-freezed until shipping to the analytical laboratory. Retain specimens storage started on 17.03.2025 and ended on 30.07.2025.

Deep-freezing minimizes chemical, biological, and physical degradation. Pyriproxyfen generally exhibits excellent stability under frozen conditions, but its behavior heavily depends on the sample matrix.
Our justification that pyriproxyfen is stable under deep-freeze conditions is based on the review of pyriproxyfen substances at world and EU level.

Source: ***Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment (JMPR): Pyriproxyfen (200); Food and Agriculture Organization of the United Nations and World Health Organization: Rome, 1999; pp 673-727***

Pyriproxyfen is chemically stable molecule and is resistant to hydrolysis over a wide range of pH and at elevated temperatures
Its resistance to chemical hydrolysis in water is explained by strong ether and hydrocarbon bonds in its molecular structure.
According to the research done by Takahashi, N., Mikami, N., Matsuda, T., and Yamada, cited by the FAO document (attached: "FAO Pyriproxyfen 200 -p.673-727 55 pages.pdf") hydrolysis of pyriproxyfen performed under extremely critical conditions of acidity and temperature did not show a reduction in its levels in the samples used for hydrolysis test.

Quote:
pyriproxyfen was stable in aqueous buffers in the dark at pH 4.0, 7.0 and 9.0 at 50°C and at pH 5.0, 7.0 and 9.0 at 25°C. Takahashi *et al.* (1989a,b) dissolved [*phenyl*-14C]pyriproxyfen and [*pyridyl*-14C]pyriproxyfen in sterile aqueous buffer solutions with 1% acetonitrile as co-solvent at 0.1 mg/l and analysed the solutions at intervals during 7 days at 50°C and 30 days at 25°C. No decrease of pyriproxyfen could be detected after 7 days at 50°C. Calculated half-lives were more than 200 days."

Source: ***Pesticide residues in food: Report 2025 – Joint FAO/WHO Meeting on Pesticide Residues. Rome 2026.; 5.33 Pyriproxyfen (200) (R) Residue and analytical aspects***

Stability of residues in stored analytical samples The data submitted to the meeting demonstrates that pyriproxyfen is stable under frozen conditions for at least one year in orange fruit, apple fruit, common bean, soya bean seed, and wheat grain. Previous meetings had concluded that residues of pyriproxyfen was stable for at least three months for peppers, 19 months for papayas, six months for mangos, 16 months for pineapples, 12 months for tomato, 12 months for cotton seed, and 8 months for cotton gin trash. Samples from supervised residue trials and processing studies evaluated by the meeting were stored frozen for less than 5 months between sample collection and analysis; therefore, residues are considered stable during storage for those samples.

*Source:****Peer review of the pesticide risk assessment of the active substance pyriproxyfen; EFSA Journal 2019;17(7):5732***

The assessment in the residue section is based on the following documents: OECD (2009, 2011),European Commission (2011), JMPR (2004, 2007).
Pyriproxyfen was shown to be stable under frozen conditions for up to 12 months in tomatoes (high water content matrices), 4 months in oranges (high acid content matrices) and 13 months in cotton seed (high oil content matrices). It is noted that according to the current guidelines storage stability data on a commodity representative of the pome fruit crop group are also required in order to support the representative use on apples and pears and covering the maximum storage time interval of the residue samples from the submitted trials on apples (data gap).

Source: ***DAR public version- VOLUME 3 – Annex B (AS) - Pyriproxyfen - B.7 Residue, November 2018***

STUDY 1

Previous evaluation:	*In DAR (2005)*

Characteristics

Reference	:	Goller G., 1998	Crop	:	tomatoes
Type of study	:	storage stability	GLP	:	yes
Year of execution	:	1996-1997	Guideline	:	Lundehn, in line with OECD 506
Test substance	:	pyriproxyfen; batch 941223G; purity 100%	Acceptability	:	acceptable

Study design

Untreated frozen specimens (20 g) of tomato were homogenised and fortified with pyriproxyfen at 0.1 mg/kg. Fortified samples and controls were stored at ca. -18°C for 12 months. Residues were analyzed according to the validated method (0.01-1.0 mg/kg) NNA-90-0016 (ADME Bioanalyses report FIT/PYR/96081). Samples were extracted with acetone. After extraction, solvent partitioning (dichloromethane) and clean-up over Florisil, the extract was analysed by GC-TID. Freshly fortified samples (0.1 mg/kg) were included at each storage interval.

Results

Concentrations and (average) recoveries of stored fortified samples are shown in Table 7.1.1-1. Pyriproxyfen recoveries in the stored fortified samples ranged from 74-104%. The range of recoveries of the stored samples was not different from the recoveries of the freshly fortified samples (with the exception of the 6 months sample). The results demonstrate that pyriproxyfen residues in tomato were stable during storage at -18°C for a period of 12 months.

Table 7.1.1-1 Recovery of pyriproxyfen in fortified samples (0.1 mg/kg) of tomatoes after storage at -18°C.

Months of storage	Concentration in stored samples (A) (mg/kg)		Average recovery stored samples (B) (%)	Recovery freshly fortified specimens (%)
0	0.105	0.102	104	93
1	0.089	0.097	93	92
3	0.096	0.101	99	104
6	0.073	0.075	74	84
12	0.096	0.098	97	86

(A) Not corrected for recovery of freshly fortified samples
(B) Relative to nominal (0.1 mg/kg)

Conclusions

Pyriproxyfen residues in tomato were stable during storage at -18°C for a period of 12 months.

Mushrooms are perfect examples of high-water content matrices. They consist of approximately 90% to 92% water. Because of this extremely high water content, mushrooms are highly perishable and are often classified alongside watery produce like fruits and certain vegetables (e.g., cucumbers or tomatoes). We believe that mushrooms can be compared to tomatoes and that the results and conclusions for tomatoes can also be considered applicable to mushrooms.

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			
Tomato	High water content	12 months	EFSA,2005, 2019 DAR=RMS, year 2005
Oranges	High acid content matrices content	4 months	EFSA, year 2009,2019
Cotton seed	High oil content	13 months	EFSA, year 2009,2019
Animal Products			
-	-	-	-
-	-	-	-
New data			

Matrix	Characteristics of the matrix	Acceptable Maximum Storage duration	Reference
Plant products			
No new data submitted			
Animal Products			
No new data submitted			

Source: ***Review of the existing maximum residue levels for pyriproxyfen according to Article 12 of Regulation (EC) No 396/2005.[EFSA Journal 2022;20(11):7617]***

Plant products (available studies)	Category	Commodity	T (°C)	Stability period		Compounds covered	Comment/Source
				Value	Unit		
	High water content	Tomato	–18	12	Months	pyriproxyfen	EFSA (2019b)
			–18	6	Months	pyriproxyfen	Netherlands (2022)
		Apple	–18	30	Months	pyriproxyfen	Netherlands (2022)
		Apricot	–18	30	Months	pyriproxyfen	Netherlands (2022)
	High oil content	Cottonseeds	–20	13	Months	pyriproxyfen	EFSA (2019b)
			–20	12.5	Months	PYPAC	
	High protein content	White beans (dry)	–18	9	Months	pyriproxyfen	Netherlands (2022)
	High starch content	Potato	–18	9	Months	pyriproxyfen	Netherlands (2022)
	High acid content	Orange	–20	4	Months	pyriproxyfen	EFSA (2019b)
			–18	30	Months	pyriproxyfen	Netherlands (2022)
		Mandarins	–18	30	Months	pyriproxyfen	Netherlands (2022)
		Grapes	–18	30	Months	pyriproxyfen	Netherlands (2022)
		Citrus	–18	9	Months	pyriproxyfen	Netherlands (2022)
	Processed products	Cotton crude oil	–20	1	Months	pyriproxyfen	EFSA (2019b)
			–20	1	Months	PYPAC	
		Cotton gin trash	–20	7.5	Months	pyriproxyfen	EFSA (2019b)
			–20	6.5	Months	DPH-PYR	
		Tomato juice	–18	6	Months	pyriproxyfen	Netherlands (2022)
		Tomato canned	–18	6	Months	pyriproxyfen	Netherlands (2022)
		Tomato ketchup	–18	6	Months	pyriproxyfen	Netherlands (2022)
		Tomato wet pomace	–18	6	Months	pyriproxyfen	Netherlands (2022)
	Others	honey	–18	< 2	Months	pyriproxyfen	Netherlands (2022)

zRMS comments:
According to the OECD 506 mushrooms (fungi) belongs to high water content commodities.
Based on the available data, it can be concluded that the period between sample collection and analysis was approximately four months. The storage stability of residues of mushrooms samples are required.

No new data submitted in the framework of this application.

According to the OECD 506:
If uses are sought in just one of the five commodity categories, then residue freezer storage stability data beyond one representative commodity in that category will be needed (with the exception of the high protein category, which has only one commodity type with respect to this guideline). A study on commodities in the corresponding category is conducted in accordance with the following:

High water content category:
If the stability of test substance in three diverse commodities in this category is confirmed, further examination with other crops that belong to this category is unnecessary.

The storage stability of pyriproxyfen has been investigated in tomato and was reported in the DAR (NL, 2005) and in EFSA 2009. Residues of pyriproxyfen were found to be stable at ca. ≤ -18°C for up to 12 months in tomato (high water content matrices).

Studies on the storage stability of pyriproxyfen in mushrooms under frozen conditions are required and should be submitted within the framework of the present application (data gap).

Additional data are required.

7.2.1.2 Stability of residues in sample extracts (KCA 6.1)

Not required.
Sample extraction and analysis took place on the same day.

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)

No new data submitted in the framework of this application.

Radio-labelled metabolism studies for pyriproxyfen in mushrooms are not formally documented. Regulatory bodies like the European Food Safety Authority (EFSA) and the JMPR classify pesticides metabolism primarily based on major primary crops (e.g., fruits, pulses, and leafy crops).

Scientific publications regarding pyriproxyfen's behavior in cultivated mushrooms indicate that substance disappears more quickly when sprayed onto the casing and directly onto the mushrooms. In the published studies, pyriproxyfen was used at a concentration of 10% EC, Agrofarm study was conducted for pryriproxyfen 2% SL . There are two methods for applying pyriproxyfen to mushrooms: mixing it with compost and spraying onto the casing or directly onto the mushrooms. All publications indicate that pyriproxyfen residues disappear more quickly when sprayed onto the casing or directly onto the mushrooms and are below 0.01 mg/kg. The value of 0.01 mg/kg is currently the established MRL for cultivated mushrooms in the EU.

Based on publications and studies already conducted on the metabolism of pyriproxyfen in fruit plants, especially tomatoes, which, like mushrooms, are perfect examples of high-water content matrices, we concluded that the metabolism of pyriproxyfen in mushrooms would be similar, so pyriproxyfen is the major component present in the mushroom and all other identified in available data from the EU-level metabolites like 4'-OH-PYR and PYPA are present as very minor compounds that are not significant.

Available data from the EU-level review of pyriproxyfen from EFSA publications conclusion, opinion= EFSA and from unprotected studies cited in DAR=RMS documents

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								
Fruits and fruiting vegetable	Tomato	U-phenoxyphenyl-^{14}C And U-pyridyl-^{14}C	Foliar treatment	a) application: 148 g as/ha (NEU) 593 g as/ha (SEU) b) total rate: 445 g as/ha(NEU) 1779 g as/ha (SEU)	3 Interval: 13 and 14 days BBCH growth stage not reported	7 days after the last treatment	The major component of the residue was pyriproxyfen (50-68% of TRR / 0.13-0.24 mg eq/kg). Other identified radioactive components were: 4'-OH-PYR (free), 4'-OH-POPA (conjugated), 4'-OH-POP (conjugated), PYPA and PYPAC (conjugated and free), DPH-PYR (conjugated and free) and 2-OH-PY (conjugated). None of the identified metabolites exceeded 10% of TRR and 0.05 mg eq/kg in tomato (maximum 6.8% / 0.020 mg eq/kg). Only when summed, free PYPA and conjugated PYPA exceeded 10% of TRR (11% of TRR / 0.029 mg eq/kg). However, as the PHI (7 days) exceeded the cGAP (3 days) free and conjugated PYPA were expected not to be relevant when PHI is according to cGAP.	DAR= RMS, year 2005
Fruits and		U-phenoxy-	Foliar	a) application:	3,	45 days	The major component of the	DAR=

fruiting vegetable	Apple	phenyl-^{14}C And U-pyridyl-14C	treatment	148 g as/ha b) total rate: 445 g as/ha	1st after petal fall (BBCH 67)	after the last treatment	residues was pyriproxyfen (52-54% of TRR / 0.097-0.10 mg eq/kg). One metabolite, 4'-OH-PYR, exceeded 10% of TRR (11% / 0.021 mg eq/kg. Other identified metabolites were DPH-PYR (conjugated and free), 5"-OH-PYR (conjugated), 4'-OH-POPA (conjugated), 4'-OH-POP (conjugated), POP (conjugated and free), POPA (conjugated and free), PYPA (conjugated and free) and PYPAC (free). Those metabolites were all <10% of TRR and <0.05 mg eq/kg, also after summation over all fractions. Unidentified metabolites amounted to maximum 6.6% of TRR (0.013 mg eq/kg). In total, the identified metabolites represented 77% of TRR.	RMS, year 2005
Fruits and fruiting vegetable	Cucumber	U-phenoxy-phenyl-^{14}C And U-pyridyl-14C	foliar treatment	a) [PY-^{14}C] and [PH-^{14}C] pyriproxyfen 196.7 and 204.7 µg per leaf b) [PY-^{14}C] and [PH-^{14}C] pyriproxyfen 29.7 and 31.0 µg per two fruits	1, Leaves: 400 cm^2 Fruits: 30 cm^2	Leaves: 0, 1, 3, 7, 14 and 21days Fruit: 0, 3 and 7 days	Study is considered only useful to draw conclusions about the translocation of pyriproxyfen and its metabolites in the cucumber plant. After topical leaf treatment, the majority of radioactive residues is found in the leaves and only to a minor extent in non-treated shoots and fruits. The translocation of pyriproxyfen is thus low when the leaf is topically treated with pyriproxyfen. The radioactive residues found in the leaves were mainly identified as pyriproxyfen (parent) and its hydroxymetabolite 4'-OH-PYR, whereby the relative proportions of parent and 4'-OH-PYR changed with time. After topical treatment of the fruits, the majority of the recovered radioactivity in mature cucumber was also the result of metabolism of the parent species involving cleavage of the ether linkages and/or hydroxylation. Again the relative proportions of parent and 4'-OH-PYR changed with time and 4'-OH-PYR was the major component of the recovered radioactivity in fruit at day 7 followed by the parent compound. In both leaves and fruit, most degradation products were present in both free and conjugated forms and are thought to be predominantly glycoside conjugates. In conclusion, the translocation of pyriproxyfen and its metabolites in the cucumber plant is low. The major components in	EFSA Journal 2013;11 (12):3489)

							cucumber leaves and cucumber fruits are pyriproxyfen (parent) and 4'-OH-PYR.	
Fruits and fruiting vegetable	Oranges	U-phenoxy-phenyl-^{14}C And U-pyridyl-^{14}C	Foliar treatment	225 g a.s./ha	1	28 days	Pyriproxyfen was the major component present in the peel of orange fruits (~38-39% TRR).	EFSA Journal 2013;11 (12):3489)
Leafy vegetables	-	-	-	-	-	-	-	-
Root and tuber vegetables	-	-	-	-	-	-	-	-
Pulses and oilseeds	Cotton	U-phenoxy-phenyl-^{14}C And U-pyridyl-^{14}C	F	a) application: 148 g as/ha b) total rate: 297 g as/ha	2, BBCH not reported Interval : 15days	28 days	Pyriproxyfen represented 0.56-3.9% of TRR (<0.01 mg eq/kg) in cotton seed and 34-42% of TRR (0.76-1.5 mg eq/kg in gin trash. The metabolites identified in cotton seed were all <10% of TRR and <0.05 mg eq/kg. 4'-OH-PYR, PYPAC (free and conjugated with aspartic acid) and PYPA (free and/or conjugated) were identified. Only when summed, free PYPAC and conjugated PYPAC exceeded 10% of TRR (13% of TRR / 0.020 mg eq/kg). However, as the application rate exceeded the cGAP (4N), free and conjugated PYPAC were expected not to be relevant when pyriproxyfen is applied according to cGAP. Some radioactivity was shown to be incorporated into fatty acids (0.010-0.025 mg eq/kg). All metabolites identified in gin trash were <10% of TRR but some exceeded 0.05 mg eq/kg: 4'-OH-PYR, DPH-PYR, conjugated 3" or 6"-OH-pyriproxyfen, conjugated DPH-PYR, conjugated PYPA and free and conjugated PYPAC. Minor metabolites were conjugated POPA, 4'-OH-POPA and POP. In total, 34-37% and 59-63% of TRR was identified in cotton seed/gin trash, respectively.	DAR= RMS, year 2005
Cereals	-	-	-	-	-	-	-	-
New data – NO DATA AVAILABLE								
Fruits and fruiting vegetable	-							
Leafy vegetables	-							
Root and tuber vegetables	-							
Pulses and oilseeds	-							

Cereals	-							

Conclusion

***Source:* CONCLUSION ON PESTICIDE PEER REVIEW.Peer review of the pesticide risk assessment of the active substance pyriproxyfen [EFSA Scientific Report (2009) 336, 1-99]**

Metabolism of pyriproxyfen was studied in the categories fruit and oilseed crops. The studies indicated that pyriproxyfen was more extensively metabolised in cotton than in tomato. Total residues were low in cotton seed and no major compound could be identified. In tomato, however, the major residue was found to be pyriproxyfen, with some minor metabolites detected. Processing data indicated that pyriproxyfen residues did not decay to form any significant degradation product.
The residue definition for monitoring and risk assessment for the representative uses was proposed as pyriproxyfen alone.

Source: ***Peer review of the pesticide risk assessment of the active substance pyriproxyfen [EFSA Journal 2019;17(7):5732]***

The metabolism of pyriproxyfen in primary crops was investigated upon foliar application on fruit (apples, tomatoes, cucumbers, oranges) and on pulses/oilseeds (cotton) crop groups using phenoxyphenyl-14C label and pyridyl-14C label of pyriproxyfen, respectively. Pyriproxyfen was predominant in apples, tomatoes and oranges (45–68% total radioactive residue (TRR)) and the metabolites 4'-OH-PYR free in apples at 11% TRR (0.021 mg eq/kg) and PYPA (free and conjugated) in tomatoes at 11% TRR (0.03 mg eq/kg) were also recovered. All other identifi ed metabolites were present as very minor compounds (< 10% TRR or < 0.01 mg eq/kg). The metabolism study on cucumbers with direct application to the surface of the leaves and fruits can be considered as supportive data and showed a similar metabolic pattern, besides the parent compound (up to 38% TRR), 4'-OH-PYR (free and conjugated) and POPA compounds accounted for maximum 17% TRR and 11.5% TRR, respectively, in cucumber fruit. In cotton seed and gin trash, pyriproxyfen was found at ca. 4% of TRR and up to 43% TRR, respectively, and a signifi cant part of the radioactive residues was shown to be incorporated into natural plant constituents in cotton seed (71–81% TRR) and in cotton gin trash (12–17% TRR). All other components of the residue were below 10% TRR. All the metabolites identified at a level > 10% TRR were concluded to be not genotoxic. Since the parent pyriproxyfen was the major compound of the total residues in all crops, the residue defi nition for monitoring and risk assessment is proposed as pyriproxyfen only for fruit and pulses/ oilseeds crops following foliar treatment.

Source: ***Review of the existing maximum residue levels for pyriproxyfen according to Article 12 of Regulation (EC) No 396/2005.[EFSA Journal 2022;20(11):7617]***

The metabolism of pyriproxyfen was investigated after foliar treatment in fruits and pulses/oilseeds (Netherlands, 2017) and assessed in the framework of the peer review for the renewal (EFSA, 2019b).
In all studies, pyriproxyfen was radiolabelled in the phenoxyphenyl and the pyridyl ring of the molecule.

After three foliar applications of 148 g a.s./ha on apple, the major component identifi ed was the parent pyriproxyfen, representing 54% of the total radioactive residues (TRR) (0.1 mg eq./kg) for the pyridyl label and 52% of TRR (0.1 mg eq./lg) for the phenoxyphenyl label, while metabolite 4'-OH-PYR was present at 9–11% TRR (0.017–0.022 mg eq./kg) (EFSA, 2019b). In tomato, following the same application rate, parent represented 50–68% of the TRR (0.17–0.18 mg eq./kg), while metabolite PYPA was present at 11% of the TRR (0.04 mg eq./kg) with pyridyl label, not being quantifi ed with phenoxyphenyl label. An overdosed metabolism study was also evaluated for tomato which did not lead to further characterisation of the residues (Netherlands, 2017; EFSA, 2019b).

After one foliar application of 225 g a.s./ha on oranges, the major component identified in the fruit was parent pyriproxyfen representing 45–48% TRR (0.04–0.1 mg eq./kg). In leaves, parent and metabolite 40-OH-PYR represented the main components, amounting for 22–28% TRR (2 mg eq./kg) and 10–11% TRR (0.8–0.9 mg eq./kg), respectively (Netherlands, 2017; EFSA, 2019b).

A study in cucumber following topical treatment was available and used as a supportive information. When pyriproxyfen was applied directly to cucumber leaves, very little pyriproxyfen was

observed to penetrate the leaf cuticle and translocate into the fruit. Residues in fruit after foliar application were all < 0.01 mg/kg equivalents. When applied directly onto cucumber fruit, more pyriproxyfen penetrated the fruit surface and data showed a similar metabolic pattern, with parent, 40-OH-PYR (free and conjugated) and POPA constituting the main part of the residue.

After two foliar applications of 148 g a.s./ha on cottonseeds, the major component identified was metabolite PYPAC, representing 13% TRR (0.02 mg eq./kg) with the phenoxyphenyl label, while parent pyriproxyfen was present at levels less than 4% TRR, in the seeds. Residue levels of pyriproxyfen in the gin trash were 34–42% TRR (0.8–1.5 mg eq./kg) (Netherlands, 2017; EFSA, 2019b).
The peer review for the renewal concluded that metabolism in fruits and pulses/oilseeds was sufficiently elucidated and the same conclusion is applicable here.

zRMS comments:
No new data submitted in the framework of this application.

In my opinion, mushrooms can be classified as fruits group according to OECD 501, therefore the metabolism study on fruits and fruiting vegetables is considered acceptable for cultivated fungi.

The metabolism of pyriproxyfen in primary crops was investigated upon foliar application on fruit and on pulses/oilseeds crop groups using phenoxyphenyl-^{14}C label and pyridyl-^{14}C label of pyriproxyfen, respectively (EFSA, 2009).
It should be noted that metabolism study was conducted in the fruit crop group (tomatoes) at max. application rate of 3 x 593 g a.s./ha.
However, the proposed GAP involves a significantly higher application rate (1 x 3000 g/ha), which is not covered by the metabolism studies conducted in fruits (OECD 501). Nevertheless, in my opinion, it is considered unlikely that the conduct of an additional metabolism study at a higher application rate would lead to the identification of further metabolites that would be relevant for inclusion in the residue definition.

Based on the metabolism study on tomatoes and cotton, the peer review proposed to set the residue definition for monitoring and risk assessment in the fruit and oilseed crop category as pyriproxyfen alone (EFSA, 2009).
For mushrooms under consideration, the metabolism of pyriproxyfen is addressed and the residue definitions derived by the peer review are applicable.
Additional data are not required.

7.2.2.2 Nature of residue in rotational crops (KCA 6.6.1)

No new data submitted by Applicant in the framework of this application.
The specific nature of mushroom cultivation excludes rotational crops.

zRMS comments:
EFSA (EFSA, 2019) concluded that *Having regard to the low to moderate persistence of pyriproxyfen in soil (laboratory DT90: 11–135 days), rotational crops metabolism studies are triggered. In a confined rotational crop metabolism study (0.9N), radish, lettuce and wheat were planted at 30-day plant-back intervals (PBIs).*
The total radioactive residues were < 0.01 mg eq/kg in lettuce and radish root, 0.011 mg eq/kg in radish leaves and wheat forage and accounted for up to 0.081 mg eq/kg in wheat grain, 0.059 mg eq/kg in wheat straw and 0.082 mg eq/kg in wheat chaff. In wheat grain, the major part of the radioactive residues was found to be incorporated into natural plant constituents (up to 88% TRR) while in wheat straw, the extracted radioactive residues were constituted of unidentified compounds, each below 10% TRR (< 0.01 mg/kg). Parent pyriproxyfen and/or its related metabolites were never detected in wheat grain and straw. It is noted that the metabolites 4'-OH-PYR and PYPAC have very low to moderate persistence (max. laboratory DT90 of 148 and 179 days, respectively) and might be taken up by the following crops. However, the available field soil dissipation studies showed that the highest concentration of 4'-OH-PYR (0.03 mg eq/kg) occurred in soil up to 3 days after the last treatment and residues of PYPAC were never detected in any of the soil dissipation studies (< 0.01 mg eq/kg) (see Section 4). Since single residue fraction did not exceed 0.01 mg eq/kg in the rotational crops planted at 30-day PBI, it is not expected that residues > 0.01 mg eq/kg for 4'-OH-PYR and PYPAC would be observed in rotational crops planted at longer PBIs. Further studies addressing the fate of 4'-OH-PYR and PYPAC ***residues in rotational crops are therefore not needed and a residue definition is not deemed necessary for the rotational crops***.

7.2.2.3 Nature of residues in processed commodities (KCA 6.5.1)

No new data submitted by Agrofarm in the framework of this application.
No pyriproxyfen residues in mushrooms after using Pyrix 20SL in accordance with the GAP, no metabolites residues are assumed.

Based on published data, it is assumed that Pyriproxyfen can be considered as hydrolytically stable under conditions representative of pasteurisation, baking/brewing/boiling and sterilisation. Residue trials were submitted to derive processing factors for processed commodities of tomatoes, cotton and citrus fruits.

Based on studies already conducted on the metabolism and residues of pyriproxyfen in fruit plants, especially tomatoes, which, like mushrooms, are perfect examples of high-water content matrices, we concluded that the nature of residue of pyriproxyfen in processed commodities would be similar, so pyriproxyfen is the major component present in the mushroom and all other identified in available data from the EU-level metabolites like 4'-OH-PYR and PYPA are present as very minor compounds that are not significant.

Available data from the EU-level review of pyriproxyfen from EFSA publications conclusion, opin-ion= EFSA and from unprotected studies cited in DAR=RMS documents:

Table 7.2-4: Nature of the residues in processed commodities

Conditions (Duration, Temperature, pH)		Identified compound(s) (%)	Reference
EU data			
Pasteurisation (20 minutes, 90°C, pH 4)		Pyriproxyfen (93.9 %)	DAR=RMS, year 2005 EFSA, 2019b
Baking, boiling, brewing (60 minutes, 100°C, pH 5)		Pyriproxyfen (93.6 %)	DAR=RMS, year 2005 EFSA, 2019b)
Sterilisation (20 minutes, 120°C, pH 6)		Pyriproxyfen (93.2 %)	DAR=RMS, year 2005 EFSA, 2019b)
Other conditions	**Identified compound(s) (%)**		
Winemaking …	-		-
New data - NO NEW DATA SUBMITTED			
Pasteurisation (20 minutes, 90°C, pH 4)		-	-
Baking, boiling, brewing (60 minutes, 100°C, pH 5)		-	-
Sterilisation (20 minutes, 120°C, pH 6)		-	-
Other conditions	**Identified compound(s) (%)**		
Winemaking …	-		-

Source: ***Peer review of the pesticide risk assessment of the active substance pyriproxyfen; EFSA Journal 2019;17(7):5732***

The behaviour of [U-phenoxyphenyl-14C] pyriproxyfen was studied under conditions simulating pasteurisation, baking/brewing/boiling and sterilisation.
Total recoveries (solution + rinsate) at the end of incubation were 93.4-94.4% AR (Table B.7.5.1-1).
Only pyriproxyfen (93.2-93.9% AR) was detected in the combined rinsate and buffer solutions.

Conclusions
Pyriproxyfen was stable under conditions simulating pasteurisation, baking/brewing/boiling and sterilisation. No degradation products were identified (<0.4% of applied radioactivity).

zRMS comments:
In a hydrolysis study with conditions simulating pasteurisation, baking/brewing/boiling and sterilisation pyriproxyfen was found to be stable as no significant degradation products were identified. Consequently for processed commodities the same residue definition as for raw agricultural commodities is applicable (EFSA, 2009; EFSA, 2019).
No additional data are required.

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	Fruits (tomato, apple), pulses and oil seeds (cotton), [DAR=RMS 2005] Mashrooms (Fungi group) not covered. Mushrooms and tomatoes matrix similarity
Rotational crops covered	Leafy vegetables (lettuce), root/tuber vegetables (radish), cereals (wheat) – application to bare soil The specific nature of mushroom cultivation excludes rotational crops. There is no need for evaluation
Metabolism in rotational crops similar to metabolism in primary crops?	Yes The specific nature of mushroom cultivation excludes rotational crops. There is no need for evaluation
Processed commodities	[U-phenoxyphenyl-14C] pyriproxyfen was studied under conditions simulating pasteurisation, bak-ing/brewing/boiling and sterilisation. Only pyriproxyfen was detected. Pyriproxyfen was stable under conditions simulating pasteurisation, baking/brewing/boiling and sterilisation.
Residue pattern in processed commodities similar to pattern in raw commodities?	Yes ~~Pyriproxyfen was stable under conditions simulating pasteurisation, baking/brewing/boiling and sterilisation.~~
Plant residue definition for monitoring	~~Pyriproxyfen~~ ~~mushroom cap~~ ~~BBCH- after harvest~~ ~~Indoor application (closed building)~~ ~~EU level:~~ Residue definition- Pyriproxyfen (Regulation (EU) 2023/1753) Pyriproxyfen (applicable to fruit and pulses/oilseeds crops – Foliar treatment) (EFSA, 2019)
Plant residue definition for risk assessment	~~Pyriproxyfen .~~ ~~mushroom cap~~ ~~BBCH- after harvest~~ ~~Indoor application (closed building)~~ Pyriproxyfen (applicable to fruit and pulses/oilseeds crops – Foliar treatment) (EFSA, 2019) Pyriproxyfen (applicable to fruits, pulses/oilseeds. Root and tuber – foliar treatment) Data gap for leafy crops and teas (EFSA, 2022)
Conversion factor from enforcement to RA	1 based on the parent compound, pyriproxyfen

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

No new metabolism studies and data submitted by Agrofarm in the framework of this application.

Residues in Livestock studies are conducted in order to quantify levels of residues in meat, milk, eggs and edible meat by-products, such as fat, liver, kidney of ruminants, following the use of a pesticide product. The situations to which such studies apply include application of a pesticide to raw agricultural commodities, and the feeding or grazing of such commodities and their by-products by livestock; pesticides that may be directly applied to livestock; and pesticides that are used in livestock premises.

In accordance with GAP, Pyrix 20 SL is intended to protect mushrooms against sciarid and phorid fly. Product is not applied directly to livestock, is not applied in livestock premises. Mushrooms are not and should not be used as food for farm animals (e.g., cattle, pigs, poultry). These animals cannot digest mushrooms, and feeding them can lead to serious digestive problems or poisoning. The potential for exposure of pyriproxyfen residues to livestock is zero. Therefore, there are no requirements for providing data on metabolism in livestock, also including farmed fish species.

In generally for pyriproxyfen and metabolites are available data from EU-level substance review.

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	goats (Capra hircus)	U-phenoxy-phenyl-^{14}C And U-pyridyl-^{14}C	2	10 mg/kg diet as received (0.38 mg/kg body weight/day)	5	Milk, urine, faeces, blood, kidneys, liver, loin muscle, rear leg muscle, omental fat, perirenal fat, heart	Once by day	DAR=RMS, year 2005/2018; EFSA, year
Laying poultry	Hens	U-phenoxy-phenyl-^{14}C And U-pyridyl-^{14}C	10	10 mg/kg diet (0.78 mg/kg body weight/day)	8 days	Eggs,excera, cage wash, breast and thigh muscle, liver, kidney, heart, abdominal fat, skin with fat, gizard, reproductive organs	Once a day	DAR=RMS, year 2005/2018;
New data- NO								
Lactating ruminants	-	-	-	-	-	-	-	-
						-	-	
						-	-	
Laying poultry	-		-	-	-	-	-	-
						-	-	

Conclusion on metabolism in livestock for intended uses:
Since mushrooms are not normally fed to livestock, the nature and magnitude of pyriproxyfen residues in

livestock was not assessed in the framework of this application.

Summary of plant metabolism studies reported in the EU[EFSA Journal 2013;11(12):3489]::
The metabolism of pyriproxyfen (racemic mixture) in fruits (tomatoes, apples) and pulses and oilseeds (cotton) was evaluated by the RMS (The Netherlands, 2005) and reviewed by EFSA (EFSA, 2009) in the framework of the peer review under Directive 91/414/EEC. In the framework of the current application the applicant submitted metabolism studies on cucumber and orange (The Netherlands, 2013).
The overview of the metabolism study designs is presented in the table below.

Table: Summary of available metabolism studies in plants

Group	Crop	Label position	Application details				
			Method, F or G[(a)]	Rate (kg a.s./ha)	No/ Interval	Sampling	Remarks
Fruits and fruiting vegetable	Apples	[U-phenoxy-phenyl-^{14}C] and [pyridyl-^{14}C] pyriproxyfen	Spray/F	0.148	3/126, 59 and 45 day PHI	45 DALA	
	Tomatoes		Spray/F	0.148 and 0.593	3/34, 21 and 7 d PHI (with 13-14 day interval)	7 DALA (mature tomatoes)	
	Cucumber	[U-phenoxy-phenyl-^{14}C] and [pyridyl-^{14}C] pyriproxyfen	Topical spray /G	196.7µg and 204.7 µg leaf per plant and 29.7 µg and 31 µg fruit per plant	1	0, 1, 3, 7, 14 and 21 DAT for leaves and 0, 3, 7 DAT for fruits	Study (1990) reported in the evaluation report (The Netherlands, 2013) GLP not stated. Study for supportive information.
	Oranges		Spray/F	0.225	1/28 day PHI	28 DAT (mature fruits and leaves)	Study (2004) reported in the evaluation report (The Netherlands, 2013)
Pulses and oilseeds	Cotton	[U-phenoxy-phenyl-^{14}C] and [pyridyl-^{14}C] pyriproxyfen	Spray/F	0.148	2/43 and 28 day PHI	28 DALA (mature cotton bolls)	

(a): Outdoor/field application (F) or glasshouse/protected crops/indoor application (G)

EFSA concludes that for the fruit crops under consideration, the metabolism of pyriproxyfen is addressed and the residue definitions derived by the peer review are applicable. The current residue definition set in Regulation (EC) No 396/2005 is identical to the residue definition for enforcement derived by the peer review.

zRMS comments:
The intended GAPs for Pyrix 20 SL are not fed to livestock.
No additional animal metabolism study has been submitted for this product.
According to Peer review of the pesticide risk assessment of the active substance pyriproxyfen (EFSA 2019), a default residue definition for monitoring and risk assessment is set as pyriproxyfen for animal matrices. MRLs are not required for products of animal origin. Since the representative uses are not feed items for fish, metabolism and feeding studies are not required.

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

Summary on the nature of pyriproxyfen residues generally in commodities of animal origin base on EFSA Journal 2019;17(7):5732- see below.

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

	Endpoints
Animals covered	hens
	goats
Time needed to reach a plateau concentration	A plateau was reached after approximately 6 days in eggs (hens)
	A plateau was reached after approximately 4 days in milk (goats)
Animal residue definition for monitoring	~~Not relevant for notified uses. (No significant intake; no accumulation of residues in edible animal products expected).~~ Pyriproxyfen (Regulation (EU) 2023/1753)
Animal residue definition for risk assessment	~~Not relevant for notified uses. (No significant intake; no accumulation of residues in edible animal products expected).~~ Pyriproxyfen
Conversion factor	Not applicable
Metabolism in rat and ruminant similar	Yes
Fat soluble residue	No

* A more recent proposal by EFSA may be provided as additional information (EFSA RO XXXX)
** If no EFSA proposal is available, a proposal should be made by the applicant/zRMS.
*** If metabolism in rat and ruminant are not similar

Conclusion on metabolism in livestock for intended uses:
Since mushrooms are not normally fed to livestock, the nature and magnitude of pyriproxyfen residues in livestock and on pigs and fish was not assessed in the framework of this application.

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

New studies on the magnitude of residue have been submitted by Agrofarm in the framework of this application. These studies are summarized in the Table below. The detailed assessment of these studies is presented in Appendix 2.

Table 7.2-8: Summary of EU reported and new data supporting the intended uses of PYRIX 20 SL 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
Cultivated Fungi (*Agaricus biorsporus*) Champignions	New trials	climate zone:North-west/authorization zone: Central EU	GAP: 1x 0,3 g.s.a/m2 (3 kg/ha or 3000g/ha); Max. no.application: a) per use -1 b) per crop/ season – 1 for 1 cycle (3-4 throws= fruit harvest) BBCH: over-growth of cover by mushroom mycelium.Spraying two days after applying a torf cover PHI-no need; indoor (closed building) E: 3 x < LOD =0.0025 mg/kg (limit of detection) RA: 3 x < LOD =0.0025 mg/kg (limit of detection)	N/A				
	Overall supporting data for cGAP	climate zone:North-west/authorization zone: Central EU	E: 3 x < LOD =0.0025 mg/kg (limit of detection) RA: 3 x < LOD =0.0025 mg/kg (limit of detection)	N/A < LOD =0.0025 mg/kg (limit of detection)	N/A < LOD =0.0025 mg/kg (limit of detection)	No need	0.01 mg/kg *Reg. (EU) 2023/1753	Yes below

* Source of EU MRL: Reg.(EU) 2023/1753

Code	Products to which MRLs apply	Pyriproxyfen (F) Reg. (EU) 2023/1753 applicable Annex II
0280000	Fungi, mosses and lichens	0.01*
0280010	Cultivated fungi	0.01*
0280020	Wild fungi	0.01*

7.2.3.2 Conclusion on the magnitude of residues in plants

According to the available data, the intended uses on cultivated mushrooms (*Agaricus biosporus*) are considered acceptable, for indoor uses.

zRMS comments:
Residue Definitions (EFSA 2009, 2019; Reg EU 2023/1753):
Monitoring (Mo): Pyriproxyfen
Risk Assessment (RA): Pyriproxyfen

Mushrooms
Mushrooms are the minor crop in northern Europe (SANTE/2019/12752). A minimum of four trials are required.

New residue study was submitted in the framework of this application.

Sufficient trials on mushrooms (3 trials) conducted according to the residue definition for monitoring and risk assessment with the following GAP: 1 x 3000 g a.s. /ha, BBCH: over-growth of cover by mushroom mycelium, spraying two days after applying a torf cover, indoor.

In the treated mushrooms residue levels of pyriproxyfen at harvest were never above the LOD (<0.0025 mg/kg).

In accordance with SANTE/2019/12752, three trials are considered sufficient for minor crops in a <LOQ situation; therefore, the available data set is deemed adequate to support the proposed use on mushrooms (cultivated fungi).

Available results show that the in force MRL of pyriproxyfen on fungi/mushrooms of 0.01* mg/kg (Reg EU 2023/1753) will not be exceeded.
The trials are supported by validated analytical method.
The study on the magnitude of residues is valid with regard to storage stability on tomatoes, but additional storage data for mushrooms are needed.

The proposed use on mushrooms is considered acceptable.

7.2.4 Magnitude of residues in livestock

Mushrooms are not food for livestock animals.
No need to carry out tests and residue assessments in Livestock.

7.2.4.1 Dietary burden calculation

7.2.4.2 Livestock feeding studies (KCA 6.4.1-6.4.3)

Animals are not exposed to residues via feed. There is no need to carry out dietary burden calculation.

zRMS comments:
Since mushrooms are not a livestock feed item, the calculation of dietary burden is not required.

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 were submitted in the framework of this application.

No pyriproxyfen residues in mushrooms after using Pyrix 20SL in accordance with the GAP, no metabolites residues are assumed.

Based on studies already conducted on the metabolism and residues of pyriproxyfen in fruit plants, especially tomatoes, which, like mushrooms, are perfect examples of high-water content matrices, we concluded that the nature of residue of pyriproxyfen in processed commodities would be similar, so pyriproxyfen is the major component present in the mushroom and all other identified in available data from the EU-level metabolites like 4'-OH-PYR and PYPA are present as very minor compounds that are not significant.

There is public, open study explored the food processing of edible mushroom:

1.Title: ***Residue behaviour of six pesticides in button crimini during home canning.***
Author(s):Pengqiang Du, Xingang Liu, Xiaojun Gu, Fengshou Dong, Jun Xu, Zhiqiang Kong, Yuanbo Li & Yongquan Zheng (2014)
Food Additives & Contaminants: PartA, 31:6, 1081-1088, DOI: 10.1080/19440049.2014.910314

Crimini/Cremini mushrooms are variety of *Agaricus bisporus*.
Existing studies have focused on pesticide residues in food crops, such as vegetables and fruits, during home or commercial preparation. Few studies have explored the food processing of edible mushroom.
Therefore, to obtain insights into the effect of food processing on pesticides in food products, variations in pesticide residues during the processing of crimini have been assessed in this work. The effects of related food processing techniques, such as washing, boiling, cooling, adding solution and sterilisation, to obtain fi nal products have also been evaluated based on the residue content of raw crimini.
The present work was designed to study the persistence of six of the aforementioned pesticides in crimini and its products. Also, it aimed to provide some insights into the infl uence of different processing techniques on the removal of pesticide residues from fi eld-treated crimini under good agricultural practice.

Materials and methods
Materials
Analytical-grade pyriproxyfen (purity, 96.5%), pyriproxyfen 10% suspension concentrate (SC)
Standard stock solutions of pyriproxyfen were prepared in different organic solvents (Table 1).

Table 1. Standard stock solutions of imidacloprid, diflubenzuron, abamectin, pyriproxyfen, β-cypermethrin and chlorothalonil prepared in different organic solvents.

Insecticides	Organic solvent	Pure	Concentration (mg l^{-1})
Imidacloprid	Acetonitrile	Chromatography grade	100
Diflubenzuron	Acetonitrile	Chromatography grade	100
Abamectin	Acetonitrile	Chromatography grade	100
Pyriproxyfen	Methanol	Chromatography grade	100
β-Cypermethrin	Ethyl acetate	Analytical grade	100
Chlorothalonil	Acetone	Analytical grade	100

Field trials
The fi eld trials were conducted in a commercial crimini greenhouse with an intelligent temperature control system. The greenhouse was fi rst assessed and found to be free of the six pesticides prior to the experiment.
The treatment was replicated three times, and the area of each trial plot measured 27 m2. To ensure suffi cient pesticide primary deposit for the following processing studies, pyriproxyfen 10% SC was applied on crimini at dosages that were five times higher than the commercial recommendation of 2505 g a.i./ha cited in the OECD (2007) guideline.
The pesticides were sprayed with an LP-605 (Agrolex,Singapore) manual sprayer on 28 July 2013.
Subsequently, 4 kg crimini samples were sampled in 2 h after spraying of the pesticides. All samples were placed in

polyethylene bags and transported to the laboratory on the same day. The crimini samples were then processed imme- diately, and all subsamples were kept deep-frozen (–20°C) until analysis.

Sample preparations

The production procedure of crimini generally includes five steps: washing, boiling, cooling, adding of solution and sterilisation, as shown in Figure 1.

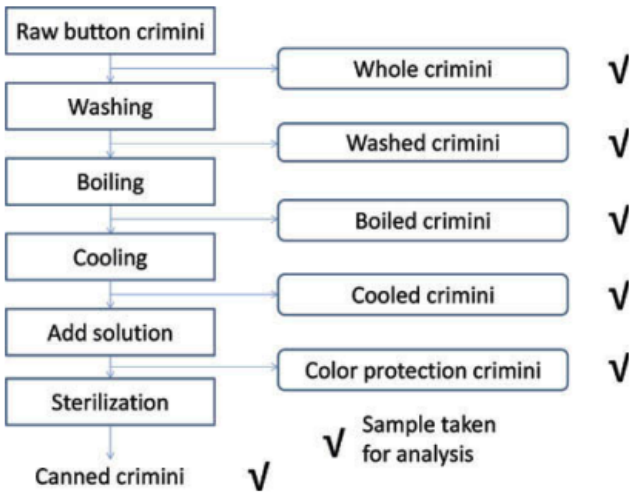


Figure 1. Scheme for traditional canned button crimini proces- sing used in this study and sampling points.

In current study, the samples in different processing steps were collected to determine the variation of pesticide residues during the processing procedure. The particular processing procedure is as follows:

● Harvest: a bulk sample of rough crimini (4 kg) was collected from the fi eld, with 0.5 kg reserved for analysis as raw samples for fi eld-incurred residues.
● Washing: the raw criminis were washed with tap water for 10 min.
● Boiling: the washed criminis were boiled in boiling water for 8 min at a water-to-crimini ratio of 3:2. The temperature was maintained at 100°C.
● Cooling: after boiling, the criminis were removed and cooled by tap water.
● Adding of solution and colour protection: a solution containing 2.5% NaCl and 0.2% citric acid was added to the cooled criminis, and the weight of the solution was higher than the weight of the crimini by one-third.
● Sterilisation: the canned criminis were subjected to sterilisation at 121°C for about 30 min.

Method validation

According to a conventional validation procedure, the following parameters were validated to evaluate the performance of the developed method: linear range, matrix effect, LOD and LOQ, accuracy, precision and stability.
The signal suppression/enhancement (SSE) by matrix effects was determined. The slope ratios of all pesticides in all matrices are shown in Table 2.

Table 2. Comparison of matrix-matched calibration and solvent calibration.

Compound	Calibration (matrix)	Regression equation	r^2	Slope of matrix/ slope of solvent	LOD (μg kg^{-1})	LOQ (μg kg^{-1})
Imidacloprid	Solvent	$y = 39840x + 1839.4$	0.9994			
	Crimini	$y = 39140x + 1376.1$	0.9997	0.982	0.200	0.666
	Poached crimini	$y = 44569x + 738.2$	0.9995	1.12	0.187	0.625
	Soup	$y = 43802x + 840.19$	0.9998	1.10	0.158	0.526
Diflubenzuron	Solvent	$y = 36920x + 2577.2$	0.9960			
	Crimini	$y = 49083x + 1065.4$	0.9994	1.33	0.176	0.588
	Poached crimini	$y = 48633x + 3236.4$	0.9993	1.32	0.150	0.500
	Soup	$y = 85988x + 4292$	0.9990	2.33	0.167	0.556
Abamectin	Solvent	$y = 46582x + 415.92$	0.9970			
	Crimini	$y = 3551.2x + 344.96$	0.9954	0.0762	0.231	0.769
	Poached crimini	$y = 18723x + 2582.6$	0.9923	0.402	0.250	0.833
	Soup	$y = 37626x + 3481.1$	0.9960	0.808	0.231	0.769
Pyriproxyfen	Solvent	$y = 506325x + 22285$	0.9987			
	Crimini	$y = 1228313x + 51092$	0.9982	2.43	0.333	1.00
	Poached crimini	$y = 1108425x + 38659$	0.9993	2.19	0.273	0.909
	Soup	$y = 1083854x + 37138$	0.9993	2.14	0.186	0.625
Beta-cypermethrin	Solvent	$y = 14563x - 661.64$	0.9991			
	Crimini	$y = 39140x + 1376.1$	0.9990	2.69	1.43	4.76
	Poached crimini	$y = 13213x - 568.56$	0.9992	0.907	1.30	4.35
	Soup	$y = 14976x - 939.68$	0.9983	1.03	1.50	5.00
Chlorothalonil	Solvent	$y = 19957x - 1563.5$	0.9978			
	Crimini	$y = 16607x - 1042.7$	0.9985	0.832	1.00	3.33
	Poached crimini	$y = 17200x - 1102$	0.9984	0.862	1.11	3.70
	Soup	$y = 19278x - 1634.7$	0.9970	0.966	1.15	3.85

Results and discussion

Recoveries

The recoveries of all compounds at various concentrations are shown in Table 3; their recoveries were from 76.9% to 105.8%, which is within the range expected in residue analysis. The reproducibility of the recovery results indcated by RSDs, and confi rmed the reliability of method for the pesticide analysis in this study.

Table 3. Recoveries and RSDs of imidacloprid, diflubenzuron, abamectin, pyriproxyfen, *β*-cypermethrin and chlorothalonil in samples at different fortification levels ($n = 5$).

		Crimini		Poached crimini		Soup	
Insecticides	Fortification (μg kg^{-1})	Mean recoveries (%)	RSD (%)	Mean recoveries (%)	RSD (%)	Mean recoveries (%)	RSD (%)
Imidacloprid	1	78.5	7.9	79.8	1.5	104.4	6.2
	500	84.3	5.6	77.6	3.2	88.3	4.5
	10 000	90.5	8.3	89.0	2.6	79.3	3.4
Diflubenzuron	1	101.4	7.2	85.2	7.3	83.2	4.7
	500	86.3	5.4	82.3	2.6	79.6	3.5
	5000	92.1	3.4	79.2	9.8	87.3	4.5
Abamectin	1	83.9	3.4	78.9	4.2	93.4	10.2
	500	80.8	2.3	92.1	3.4	78.2	1.4
	5000	90.1	6.7	82.1	2.5	80.2	2.4
Pyriproxyfen	1	81.4	1.5	90.2	6.5	79.3	3.6
	500	89.5	4.2	82.5	3.5	90.4	2.5
	5000	101.4	2.3	79.2	2.3	77.8	1.9
β-Cypermethrin	10	76.9	6.9	82.7	3.6	79.9	8.5
	500	104.7	8.7	98.6	5.7	87.5	6.7
	5000	90.7	11.2	92.4	2.4	85.4	3.9
Chlorothalonil	10	78.6	6.5	78.5	7.6	83.5	4.7
	500	94.5	8.5	105.8	4.3	105.2	6.4
	5000	83.2	7.6	84.5	3.5	99.4	7.3

The LODs for these pesticides were considered to be the concentrations that produced an S/N ratio of 3, and the LOD was estimated from the chromatogram corresponding to the lowest point used in the matrix-matched calibration.
In this work, the LOD was estimated at 1 µg kg−1 (0,001 mg/kg) for pyriproxyfen.

Effects of processing
To investigate the effect of the crimini canning steps on the content of pesticide residues in crimini, a crimini canning process was carried out. The variations in the residue of the six pesticides during the canning process are shown in Table 4.

Table 4. Amount of imidacloprid, diflubenzuron, abamectin, pyriproxyfen, β-cypermethrin and chlorothalonil residues (mg kg^{-1}) recovered from crimini samples after various processes (n = 3).

	Imidacloprid	Diflubenzuron	Abamectin	Pyriproxyfen	β-Cypermethrin	Chlorothalonil
Sample	(mean ± SD)					
Raw crimini	6.81^{a} ± 0.084	0.60^{a} ± 0.028	0.25^{a} ± 0.021	0.059^{a} ± 0.0039	0.18^{a} ± 0.020	0.99^{a} ± 0.040
Washed crimini	6.55^{a} ± 0.11	0.24^{b} ± 0.063	0.09^{b} ± 0.022	0.036^{c} ± 0.0054	0.08^{bc} ± 0.00023	0.20^{b} ± 0.036
Boiled crimini	5.44^{b} ± 0.26	0.23^{bc} ± 0.022	0.019^{c} ± 0.0025	0.051^{ab} ± 0.0041	0.09^{b} ± 0.0097	–
After cooling	4.10^{c} ± 0.31	0.17^{cd} ± 0.081	0.020^{c} ± 0.0093	0.045^{bc} ± 0.0033	0.08^{bc} ± 0.0094	–
Add solution	4.12^{c} ± 0.46	0.17^{cd} ± 0.059	0.023^{c} ± 0.0058	0.051^{ab} ± 0.011	0.06^{cd} ± 0.012	–
Sterilisation canned crimini	2.74^{d} ± 0.17	0.13^{d} ± 0.014	0.010^{c} ± 0.0083	0.050^{ab} ± 0.0022	0.05^{d} ± 0.0057	–
soup	1.89^{e} ± 0.12	0.00098^{e} ± 0.00065	–	–	0.01^{e} ± 0.0031	–

Note: Values with different letters are significantly different ($p < 0.05$).

Washing is the most studied step in the canning process as it is the most common technique in agricultural products (Kaushik et al. 2009). For pyriproxyfen, residue levels were 61.0% after washing, and this finding is similar to that of Paya et al. (2007).
After washing, the criminis were transferred to a pot of boiling water and boiled for 8 min. During boiling, the weight of criminis decreased by 40%. Taking this fact into account, a little increase of pyriproxyfen residues during boiling preparation was expected. Residues of pyriproxyfen were a little higher than the concentration before boiling. After the criminis were cooled pyriproxyfen residue levels barely changed.
Before sterilisation, a 100 g sample was tested to determine whether the solution containing NaCl and citric acid had any impact on these six pesticides. Residues of pyriproxyfen was a little higher than the crimini before the solution was added.To be edible, crimini requires sterilisation and bottling,which should be done at 121°C for about 30 min. It can be seen from Table 4 that the mean residues of pyriproxyfen in the crimini samples after sterilisation were 84.7%.After sterilisation, the residues of pyriproxyfen were not detected in the canned crimini solution.

Processing factors
The Joint FAO/WHO Meeting on Pesticide Residues (JMPR) evaluates food processing data on residue behaviour as signifi cant amounts of residues can be found in plant or plants products that are processed into food.
Based on the effect of food processing on pesticide residue levels and the disposition of the residues in various processed products, processing factors (PFs) are calculated and considered by the JMPR (FAO/WHO 2006) as follows:

$$\mathrm{PF} = \frac{\text{residues in processed product (mg kg}^{-1})}{\text{residues in raw agricultural commodity (mg kg}^{-1})}$$

The PF values of < 1 (= reduction factor) indicate a reduction of the residue in the processed commodity, whereas the values of > 1 (= concentration factor) indicate a concentration effect of the processing procedures (Timme & Walz-Tylla 2004). Table 5 shows the calculated PFs for the six pesticides after processing.

Table 5. Accumulated effects of PFs (%) for different processing types.

	PFs					
Processing type	Imidacloprid	Diflubenzuron	Abamectin	Pyriproxyfen	β-Cypermethrin	Chlorothalonil
Washing	0.96	0.41	0.36	0.61	0.44	0.20
Boiling	0.80	0.35	0.08	0.86	0.51	–
Cooling	0.60	0.28	0.06	0.76	0.44	–
Add solution	0.60	0.28	0.09	0.86	0.36	–
Sterilisation	0.40	0.22	0.04	0.85	0.28	–

The results suggest that PF for pyriproxyfen was less than 1, thus indicating that the amounts of pyriproxyfen in the final products was low.
Processing factors based on EU documents :

Source:

-Peer review of the pesticide risk assessment of the active substance pyriproxyfen; EFSA Journal 2019;17(7):5732

-Review of the existing maximum residue levels for pyriproxyfen according to Article 12 of Regulation (EC) No 396/2005.[EFSA Journal 2022;20(11):7617]

Processed commodity	Number of valid studies[a]	Processing Factor (PF)		Comment/Source
		Individual values	Median PF	
Citrus, peeled	18	< 0.01; 2 × < 0.02; 2 × < 0.03; 4 × < 0.04; 2 × < 0.05; 2 × < 0.06; < 0.07; 2 × < 0.08; < 0.1; 0.1	< 0.05	EFSA (2019b)
Citrus, juice	2	< 0.02; 0.16	0.16	EFSA (2019b)
Citrus, wet pomace	2	1.27; 1.85	1.56	EFSA (2019b)
Citrus, dry pomace	2	3.75; 4.0	3.88	EFSA (2019b)
Oranges, marmalade	2	0.13; 0.18	0.16	EFSA (2019b)
Citrus, press cake	2	7.29; 10.0	8.65	EFSA (2019b)
Citrus, essential oil	2	110; 176	143	EFSA (2019b)
Table grapes, dried (raisins)	2	0.29; 0.49	0.39	Netherlands (2022)
Wine grapes, juice	7	< 0.03; < 0.12; 2 × < 0.18; < 0.36; < 0.67; < 0.91	< 0.18	Netherlands (2022)
Wine grapes, dry pomace	7	2 × 10; 11; 12; 14; 32; 36	12	Netherlands (2022)
Wine grapes, wet pomace	3	2 × 2.9; 3.1	2.9	Netherlands (2022)
Wine grapes, wine	3	< 0.12; < 0.36; < 0.91	< 0.36	Netherlands (2022)
Tomatoes, canned	3	< 0.12; < 0.17; < 0.20	< 0.17	EFSA (2019b); Netherlands (2022)
Tomatoes, puree	3	0.31; 0.67; 1.8	0.67	EFSA (2019b); Netherlands (2022)
Tomato, ketchup	1	0.67	0.67	Tentative[b] (EFSA, 2019b)
Tomato, juice	3	< 0.12; < 0.17; < 0.20	< 0.17	EFSA (2019b), Netherlands (2022)
Cottonseeds, crude oil	1	0.2	0.2	Tentative[b] (EFSA, 2019b)
Cottonseeds, refined oil	1	0.2	0.2	Tentative[b] (EFSA, 2019b)
Cottonseeds, hulls	1	< 0.2	< 0.2	Tentative[b] (EFSA, 2019b)
Cottonseeds, extracted meal	1	< 0.2	< 0.2	Tentative[b] (EFSA, 2019b)

PF: Processing factor (=Residue level in processed commodity expressed according to RD-Mo/Residue level in raw commodity expressed according to RD-Mo).
(a): Studies with residues in the RAC at or close to the LOQ were disregarded (unless concentration may occur).
(b): A tentative PF is derived based on a limited data set.

7.2.5.2 Conclusion on processing studies

Mushrooms, in our case *Agaricus* can be frozen. It's best to do this after cleaning (washing) and heat-treating them (e.g., by placing them in boiling water for a minute). This preserves their flavour and prevents them from darkening.
Storage time: Frozen mushrooms are best used within about 6 months.

Pyriproxyfen residues in mushrooms (*Agaricus*) are below the limit of detection (LOD) 0,0025 mg/kg. The approved EU MRL for pyriproxyfen in mushroom is 0.01 mg/kg.

Based on studies of nature of pyriproxyfen residues in processed commodities presented at DAR=RMS, year 2005 where the behaviour of [U-phenoxyphenyl-14C] pyriproxyfen was studied under conditions simulating pasteurisation, baking/brewing/boiling and sterilisation the conclusion are :

- **Pyriproxyfen was stable under conditions simulating pasteurisation, baking/brewing/boiling and sterilisation. No degradation products were identified (<0.4% of applied radioactivity).**

Processing factors (based on pyriproxyfen residues in mushrooms after use PYRIX 20 SL)

Pyriproxyfen residues in mushrooms (Agaricus) are below the limit of detection (LOD) 0.0025 mg/kg. Assuming stability under conditions simulating pasteurisation, baking/brewing/boiling and sterilisation or even a decrease in the residual level, pyriproxyfen residue levels will still be below the detection limit. The approved EU MRL for pyriproxyfen in mushroom is 0.01 mg/kg.

zRMS comments:
No new data were submitted in the framework of this application.
As residues of pyriproxyfen exceeding 0.1 mg/kg are not expected in mushrooms, there is no need to investigate the magnitude of pyriproxyfen residues in processed commodities.

7.2.6 Magnitude of residues in representative succeeding crops

No new studies of magnitude of residue in succeeding crops submitted by Agrofarm in the framework of this application.
Spent mushroom substrate classified under code 02 01 99 (other waste not specified) is agricultural waste and is governed by the Polish Waste Act of 14 December 2012 regulations. However, the Regulations allow the use of the spent mushroom substrate for growing plants.
Based on the physicochemical properties of pyripoxyfen, the timing of application of Pyrix 20SL (the probability of pyriproxyfen residues in the substrate is negligible) and the behavior of pyripoxyfen in soil and groundwater, handling mushroom substrate as waste is safe and does not pose a threat to the environment and humans.

At this point Agrofarm refers to unprotected data from the review of pyripropxyfen at EU level.

Source: ***Peer review of the pesticide risk assessment of the active substance pyriproxyfen; EFSA Journal 2019;17(7):5732***

Overall summary

Residues in rotational and succeeding crops expected based on confined rotational crop study?	no	The total radioactive residues were < 0.01 mg eq/kg in lettuce and radish root, 0.011 mg eq/kg in radish leaves and wheat forage and accounted for up to 0.081 mg eq/kg in wheat grain, 0.059 mg eq/kg in wheat straw and 0.082 mg eq/kg in wheat chaff. In wheat grain, the major part of the radioactive residues was found to be incorporated into natural plant constituents (up to 88% TRR) whilst in wheat straw, the extracted radioactive residues were constituted of unidentified compounds, each below 10% TRR (< 0.01 mg/kg). Parent pyriproxyfen and/or its related metabolites were never detected in wheat grain and straw. Further studies addressing the fate of respectively 4'-OH-PYR and PYPAC residues in rotational crops are also not required.
Residues in rotational and succeeding crops expected based on field rotational crop study?	no	There were no studies investigating the magnitude of residues in rotational crops available for this review. Nevertheless, considering the maximum application rate of GAPs under assessment (2 × 230 g a.s./ha) and foliar interception, the amount of active substance effectively reaching the soil is considered to be covered by the rate of the available confined rotational crop study. Residue levels of pyriproxyfen in the edible part of crops that can be rotated are not expected to exceed 0.01 mg/kg, provided that active substance is applied in compliance with the GAPs reported in Appendix A.

Statement:
Residues are not expected to occur in succeeding crops at levels exceeding the applicable MRLs for these crops.

7.2.6.1 Field rotational crop studies (KCA 6.6.2)

Field trials for residues in rotational crops are not required based on the available metabolism data and because no significant residues are expected to remain in the soil at the time of sowing or planting possible succeeding crops.

zRMS comments:
Crops under evaluation (mushrooms) are not expected to be grown in rotation.

Considering available data on metabolism in rotational crop evaluated during the active substance renewal in lettuce, radish and wheat and because no significant residues are expected to remain in the soil at the time of sowing or planting possible succeeding crops, no study dealing with magnitude of residues in succeeding crops is needed.
Field trials for residues in rotational crops are not required.

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

No other special studies are not needed.

zRMS comments:
According to SANTE/11956/2016 rev. 9, mushrooms are not considered as melliferous crops. The effects on the residue level in pollen and bee products are not required.

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

Acceptable Daily Intake (ADI)
0.05 mg/kg bw/day [European Commission, 2020a)

Acute Reference Dose (ARfD)
1 mg/kf bw [European Commission, 2020a]

PF (processing factor) -mushrooms (*Agaricus*)
< 1 ; for calculation purposes -1

CF (conversion factor)
1.0 [No conversion required. MRL pyriproxyfen in mushrooms <LOD (0.0025 mg/kg]

7.2.8.1 Input values for the consumer risk assessment

Table 7.2-9: 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 : pyriproxyfen~~				
~~Cultivated fungi *Agaricus*~~	~~<LOD (0.0025) 0.0025~~	~~Median residue (Agrofarm, 2025)~~	~~<LOD (0.0025)~~	~~Highest residue (Agrofarm, 2025)~~
	~~0.0025~~	~~Median x CF (Agrofarm, 2025)~~	~~0.0025~~	~~Highest x CF (Agrofarm, 2025)~~
	~~0.0025~~	~~Median x PF x CF (Agrofarm, 2025)~~	~~0.0025~~	~~Highest x PF x CF (Agrofarm, 2025)~~
	~~0.01~~	~~EU MRL x CF (Reg. (EU)2023/1753)~~	~~0.01~~	~~EU MRL x CF (Reg. (EU) 2023/1753)~~

Commodity	**Chronic risk assessment**		**Acute risk assessment**	
	Input value (mg/kg)	**Comment**	**Input value (mg/kg)**	**Comment**
Risk assessment residue definition: pyriproxyfen				
Mushrooms	0.01	EU MRL (Reg. (EU) 2023/1753)	0.01	EU MRL (Reg. (EU) 2023/1753)
All other commodities	EU MRL (Reg. (EU) 2023/1753)		Not required	

7.2.8.2 Conclusion on consumer risk assessment

Basedon EFSA PRIMo ver.3.1 calculation for pyriproxyfen used in mushrooms (*Agaricus*):
The estimated long-term dietary intake (TMDI/NEDI/IEDI) was below the ADI.
The long-term intake of residues of PYRIPROXYFEN is unlikely to present a public health concern.
No exceedance of the toxicological reference value was identified for any unprocessed commodity.
A short term intake of residues of PYRIPROXYFEN is unlikely to present a public health risk.
For processed commodities, no exceedance of the ARfD/ADI was identified.

zRMS comments:
Additional calculations of the TDMI and IESTI were conducted by evaluator.
TMDI calculation was performed using the in-force MRLs (Regulation (EU) 2023/1753) for all crops and animal commodities. An acute consumer risk assessment was performed only for the crop under consideration, based on the in-force MRL.

Table 7.2-10: Consumer risk assessment

TMDI (% ADI) according to EFSA PRIMo 3.1	17 % (based on NL toddler)
IEDI (% ADI) according to EFSA PRIMo	Not required
IESTI (% ARfD) according to EFSA PRIMo 3.1*	Mushrooms: 0 %
NTMDI (% ADI) **	Not required
NEDI (% ADI)**	Not required
NESTI (% ARfD) **	Not required

* include raw and processed commodities if both values are required for PRIMo

** if national model is available

The calculation of the TMDI using EFSA model (version 3.1) and MRLs values according to the Regulation (EU) 2023/1753 led to a utilisation of the ADI of 17 % with the NL toddler being the population group with the highest value. The intended use will not result in a consumer chronic exposure exceeding the ADI for pyriproxyfen.

European Food Safety Authority
EFSA PRIMo revision 3.1; 2019/03/19

Pyriproxyfen

LOQs (mg/kg) range from: 0.01 to: 0.01

Toxicological reference values

ADI (mg/kg bw/day):	0.05	ARfD (mg/kg bw):	1
Source of ADI:	EFSA	Source of ARfD:	EFSA
Year of evaluation:	2020	Year of evaluation:	2020

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: ...

	Calculated exposure (% of ADI)	MS Diet	Exposure (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)
TMDI/NEDI/IEDI calculation (based on average food consumption)	17%	NL toddler	8.59	8%	Bananas	3%	Oranges	1%	Tomatoes		
	15%	DE child	7.51	6%	Oranges	2%	Bananas	1%	Tomatoes	0.0%	
	12%	GEMS/Food G06	5.93	5%	Tomatoes	2%	Tea (dried leaves of Camellia sinensis)	1%	Oranges	0.0%	
	11%	IE adult	5.38	4%	Tea (dried leaves of Camellia sinensis)	1%	Oranges	1%	Bananas		
	10%	NL child	4.83	3%	Bananas	2%	Oranges	0.9%	Mandarins	0.0%	
	10%	FR child 3 15 yr	4.80	5%	Oranges	1%	Tomatoes	1.0%	Bananas	0.0%	
	8%	UK infant	3.91	2%	Bananas	2%	Oranges	2%	Tea (dried leaves of Camellia sinensis		
	8%	GEMS/Food G07	3.80	2%	Oranges	2%	Tomatoes	1%	Tea (dried leaves of Camellia sinensis	0.0%	
	8%	UK toddler	3.76	3%	Oranges	2%	Bananas	0.8%	Tomatoes		
	8%	ES child	3.76	3%	Oranges	1%	Bananas	1%	Tomatoes	0.0%	
	7%	DE women 14-50 yr	3.68	3%	Oranges	1%	Tomatoes	0.9%	Tea (dried leaves of Camellia sinensis	0.0%	
	7%	GEMS/Food G10	3.57	2%	Tomatoes	2%	Oranges	0.9%	Tea (dried leaves of Camellia sinensis	0.0%	
	7%	SE general	3.46	3%	Bananas	1%	Tomatoes	1%	Oranges		
	7%	FR adult	3.45	4%	Tea (dried leaves of Camellia sinensis)	0.8%	Oranges	0.6%	Tomatoes	0.0%	
	7%	GEMS/Food G11	3.36	1%	Tomatoes	1%	Tea (dried leaves of Camellia sinensis)	1%	Oranges	0.0%	
	7%	DE general	3.28	2%	Oranges	0.9%	Tomatoes	0.9%	Tea (dried leaves of Camellia sinensis	0.0%	
	6%	GEMS/Food G08	3.15	2%	Tomatoes	0.9%	Tea (dried leaves of Camellia sinensis)	0.6%	Oranges	0.0%	
	6%	GEMS/Food G15	3.13	2%	Tomatoes	0.9%	Oranges	0.7%	Sweet peppers/bell peppers	0.0%	
	6%	FR toddler 2 3 yr	3.12	2%	Oranges	1%	Mandarins	0.8%	Bananas		
	6%	RO general	2.94	3%	Tomatoes	0.5%	Sweet peppers/bell peppers	0.4%	Cherries (sweet)		
	5%	IT toddler	2.54	2%	Tomatoes	0.8%	Bananas	0.7%	Oranges	0.0%	
	5%	UK vegetarian	2.45	1%	Tea (dried leaves of Camellia sinensis)	1%	Oranges	0.9%	Tomatoes	0.0%	
	5%	NL general	2.39	1%	Oranges	1%	Tea (dried leaves of Camellia sinensis)	0.6%	Tomatoes		
	5%	ES adult	2.38	2%	Oranges	1%	Tomatoes	0.5%	Bananas	0.0%	
	4%	DK child	2.18	2%	Bananas	0.7%	Tomatoes	0.3%	Sweet peppers/bell peppers		
	4%	FI 3 yr	2.13	2%	Bananas	0.8%	Tomatoes	0.5%	Mandarins		
	4%	UK adult	2.06	2%	Tea (dried leaves of Camellia sinensis)	0.8%	Oranges	0.6%	Tomatoes		
	4%	PT general	1.99	1%	Tomatoes	0.9%	Oranges	0.5%	Bananas		
	4%	IT adult	1.96	2%	Tomatoes	0.5%	Oranges	0.4%	Peaches	0.0%	
	3%	FI 6 yr	1.52	1%	Bananas	0.6%	Tomatoes	0.5%	Mandarins		
	3%	FI adult	1.42	0.8%	Tomatoes	0.6%	Oranges	0.6%	Coffee beans		
	3%	DK adult	1.34	0.7%	Tomatoes	0.6%	Bananas	0.3%	Tea (dried leaves of Camellia sinensis		
	3%	PL general	1.28	1%	Tomatoes	0.3%	Cherries (sweet)	0.3%	Bananas		
	2%	FR infant	0.93	0.3%	Oranges	0.3%	Milk: Cattle	0.3%	Bananas	0.0%	
	2%	LT adult	0.86	0.9%	Tomatoes	0.2%	Apples	0.1%	Oranges		
	0.8%	IE child	0.39	0.3%	Bananas	0.1%	Oranges	0.1%	Tomatoes		

Conclusion:
The estimated long-term dietary intake (TMDI/NEDI/IEDI) was below the ADI.
The long-term intake of residues of Pyriproxyfen is unlikely to present a public health concern.

An acute consumer risk assessment was performed only for the crop under consideration, based on the MRL of mushrooms. The IESTI is at 0 % of the ARfD for the consumption of mushrooms by children and by adults.

Acute risk assessment /children	Acute risk assessment / adults / general population	Acute risk assessment /children	Acute risk assessment / adults / general population
Details - acute risk assessment /children	Details - acute risk assessment/adults	Hide IESTI new calculations	Show IESTI new calculations

The acute risk assessment is based on the ARfD. DISCLAIMER: Dietary data from the UK were included in PRIMO when the UK was a member of the European Un

The calculation is based on the large portion of the most critical consumer group.

IESTI new calculations:
The calculation is performed with the MRL and the peeling/processing factor (PF), taking into account the residue in the edible portion and/or the conversion factor for the residue definition (CF). For case 2a, 2b and 3 calculations a variability factor of 3 is used. Since this methodology is not based on internationally agreed principles, the results are considered as indicative only.
Since this methodology is not based on internationally agreed principles, the results are considered as indicative only.

Show results for all crops

Unprocessed commodities

Results for children	Results for adults	IESTI new Results for children	IESTI new Results for adults
No. of commodities for which ARfD/ADI is exceeded (IESTI): ---	No. of commodities for which ARfD/ADI is exceeded (IESTI): ---	No. of commodities for which ARfD/ADI is exceeded (IESTI new): ---	No. of commodities for which ARfD/ADI is exceeded (IESTI new): ---

IESTI

Highest % of ARfD/ADI	Commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
0,00%	Cultivated fungi	0,01 / 0	0,04

IESTI

Highest % of ARfD/ADI	Commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
0,00%	Cultivated fungi	0,01 / 0	0,01

IESTI new

Highest % of ARfD/ADI	Commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
0,03%	Cultivated fungi	0,01 / 0,01	0,25

IESTI new

Highest % of ARfD/ADI	Commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
0,01%	Cultivated fungi	0,01 / 0,01	0,08

Expand/collapse list

Total number of commodities exceeding the ARfD/ADI in children and adult diets (IESTI calculation)		Total number of commodities found exceeding the ARfD/ADI in children and adult diets (IESTI new calculation)	

Processed commodities

Results for children	Results for adults	Results for children	Results for adults
No of processed commodities for which ARfD/ADI is exceeded (IESTI): ---	No of processed commodities for which ARfD/ADI is exceeded (IESTI): ---	No of processed commodities for which ARfD/ADI is exceeded (IESTI new): ---	No of processed commodities for which ARfD/ADI is exceeded (IESTI new): ---

IESTI

Highest % of ARfD/ADI	Processed commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
0,0%	Cultivated fungi / fried	0,01 / 0	0,01
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!

IESTI

Highest % of ARfD/ADI	Processed commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!

IESTI new

Highest % of ARfD/ADI	Processed commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
0,01%	Cultivated fungi / fried	0,01 / 0,01	0,05
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!

IESTI new

Highest % of ARfD/ADI	Processed commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!

Expand/collapse list

Conclusion:
No exceedance of the toxicological reference value was identified for any unprocessed commodity.
A short term intake of residues of PYRIPROXYFEN is unlikely to present a public health risk.
For processed commodities, no exceedance of the ARfD/ADI was identified.

The chronic and the short-term intakes of pyriproxyfen residues are unlikely to present a public health concern. The intended use of Pyrix 20 SL is accepted.

7.3 Active substance 2

Not applicable.

7.4 Combined exposure and risk assessment

Not relevant. The product contains only one active substance.

7.4.1 Acute consumer risk assessment from combined exposure

Not relevant. The product contains only one active substance.

7.4.2 Chronic consumer risk assessment from combined exposure

Not relevant. The product contains only one active substance.

7.5 References

References to European documents specific to residue section :

2009	CONCLUSION ON PESTICIDE PEER REVIEW Peer review of the pesticide risk assessment of the active substance pyriproxyfen EFSA Scientific Report (2009) 336, 1-99
2014	Conclusion on the peer review of the pesticide risk assessment of confirmatory data submitted for the active substance pyriproxyfen EFSA Scientific Report (2009) 336, 1-99
2019	Peer review of the pesticide risk assessment of the active substance pyriproxyfen EFSA Journal 2019;17(7):5732
2022	Review of the existing maximum residue levels for pyriproxyfen according to Article 12 of Regulation (EC) No 396/2005 EFSA Journal 2022;20(11):7617
2010	Review report for the active substance pyriproxyfen. SANCO/836/08 – final1 ,11 May 201
2019	Final Renewal report for the active substance Pyriproxyfen SANTE/11426/2019 ,Rev 2
2023	COMMISSION REGULATION (EU) 2023/1753 of 11 September 2023 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 pyriproxyfen in or on certain products. Official Journal of the European Union L224/1 12.9.2023

Appendix 1 Lists of data considered in support of the evaluation

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
7.2.3 (KCA 6.3)	Baranowski K., Gorczyca D. PhD, Stepien B., Witaszak N.	2025	FIELD PART: Magnitude of the residue of pyriproxyfen (CAS 95737-68-1) in Mushrooms Agaricus bisporus (Raw Agricultural Commodity - RAC) grown in closed buildings conditions after one application of a formulated product of PYRIX 20 SL - one harvest and two decline curve trials in Northern Europe. Poland – 2025 Study number: LLP25-2 Harvest trial number: LLP25-2-01 Decline trial number: LLP25-2-02 Decline trial number: LLP25-2-03 Test Site : LymeLab Pharma sp. z o. o. sp. k. ;Cebulki 19 ; 13-124 Kozłowo, POLAND; Test Facility : LymeLab Pharma sp. z o. o. sp. k. ;Trylogii 2/16 ; 01-982 Warsaw, POLAND GAP-YES Unbuplished	N	Agrofarm Sp. z o.o.
7.2.3 (KCA 6.3)	Kicinska J. Dr, Miszczak A. Dr	2025	ANALITYCAL PART: Determination of the residue of pyriproxyfen in mushrooms after application of “PYRIX 20 SL” in northen Europe-Poland 2025. Study code: 25/FSL/07 Year: 2025 Test Facility: Food Safety Laboratory.The National Institute of Horticultural Research; 13B Pomologiczna Street; 96-100 Skierniewice Poland GLP- YES Unpublished	N	Agrofarm Sp. z o.o.
7.2.3 (KCA 6.3)	Kicinska J. Dr, Miszczak A. Dr	2025	ANALITYCAL PART: Determination of the residue of pyriproxyfen in mushrooms after application of “PYRIX 20 SL” in northen Europe-Poland 2025. Study code: 25/FSL/16 Year: 2025 Test Facility: Food Safety Laboratory.The National Institute of Horticultural Research; 13B Pomologiczna Street; 96-100 Skierniewice Poland GLP- YES Unpublished	N	Agrofarm Sp. z o.o.

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
7.2	EFSA	2009	CONCLUSION ON PESTICIDE PEER REVIEW Peer review of the pesticide risk assessment of the active substance pyriproxyfen EFSA Scientific Report (2009) 336, 1-99 Published	-	EFSA public
7.2	EFSA	2014	Conclusion on the peer review of the pesticide risk assessment of confirmatory data submitted for the active substance pyriproxyfen EFSA Scientific Report (2009) 336, 1-99 Published	-	EFSA public
7.2	EFSA	2019	Peer review of the pesticide risk assessment of the active substance pyriproxyfen EFSA Journal 2019;17(7):5732 Publisheg	-	EFSA public
7.2	EFSA	2022	Review of the existing maximum residue levels for pyriproxyfen according to Article 12 of Regulation (EC) No 396/2005 EFSA Journal 2022;20(11):7617 Published	-	EFSA public
7.2	DG SANCO	2010	Review report for the active substance pyriproxyfen. SANCO/836/08 – final1 ,11 May 2010 Published	-	DG SANCO public
7.2	DG SANCO	2019	Final Renewal report for the active substance Pyriproxyfen SANTE/11426/2019 ,Rev 2 Published	-	DG SANCO public
7.2	European Union	2023	COMMISSION REGULATION (EU) 2023/1753 of 11 September 2023 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 pyriproxyfen in or on certain products. Official Journal of the European Union L224/1 12.9.2023	-	Official Journal of the EU
7.2.1.1	-	1999/2017/2021	Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment (JMPR): Pyriproxyfen (200); Food and Agriculture Organization of the United Nations and World Health Organization: Rome, 1999; pp 673-727. Published	No	FAO public access
7.2.1.1	-	Rome, 2026	Pesticide residues in food: Report 2025 – Joint FAO/WHO Meeting on Pesticide Residues. Rome 2026. 5.33 Pyriproxyfen (200) (R) Residue and analytical aspects Published	No	FAO/WHO Public access

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**
7.2.1.1	-	2019	Peer review of the pesticide risk assessment of the active substance pyriproxyfen; EFSA Journal 2019;17(7):5732 Published	No	EFSA Public access
7.2.1.1	RMS Netherland	2018	DAR public version- VOLUME 3 – Annex B (AS) - Pyriproxyfen - B.7 Residue, November 2018 Published	No	EU Commission Public access
7.2.1.1	EFSA	2022	Review of the existing maximum residue levels for pyriproxyfen according to Article 12 of Regulation (EC) No 396/2005.[EFSA Journal 2022;20(11):7617] Published	No	EFSA Public access
7.2.2.1	EFSA	2009	CONCLUSION ON PESTICIDE PEER REVIEW. Peer review of the pesticide risk assessment of the active substance pyriproxyfen [EFSA Scientific Report (2009) 336, 1-99]	No	EFSA Public access
7.2.2.1	EFSA	2019	Peer review of the pesticide risk assessment of the active substance pyriproxyfen [EFSA Journal 2019;17(7):5732] Published	No	EFSA Public access
7.2.2.1	EFSA	2022	Review of the existing maximum residue levels for pyriproxyfen according to Article 12 of Regulation (EC) No 396/2005.[EFSA Journal 2022;20(11):7617] Published	No	EFSA Public access
7.2.2.3	EFSA	2019	Peer review of the pesticide risk assessment of the active substance pyriproxyfen [EFSA Journal 2019;17(7):5732] Published	No	EFSA Public access
7.2.2.5	EFSA	2019	Peer review of the pesticide risk assessment of the active substance pyriproxyfen [EFSA Journal 2019;17(7):5732] Published		EFSA Public access
7.2.2.5	RMS Netherland	2017	DAR public version- VOLUME 3 – Annex B (AS) - Pyriproxyfen - B.7 Residue, November 2017 Published	-	DAR=RMS public version
7.2.5.1	Pengqiang Du, Xingang Liu, Xiaojun Gu, Fengshou Dong, Jun Xu, Zhiqiang Kong, Yuanbo Li & Yongquan Zheng	2014	Residue behaviour of six pesticides in button crimini during home canning. Author(s):Pengqiang Du, Xingang Liu, Xiaojun Gu, Fengshou Dong, Jun Xu, Zhiqiang Kong, Yuanbo Li & Yongquan Zheng (2014) Food Additives & Contaminants: PartA, 31:6, 1081-1088, DOI: 10.1080/19440049.2014.910314 Published	No	Public access
7.2.6. 7.2.6.1	EFSA	2019	Peer review of the pesticide risk assessment of the active substance pyriproxyfen [EFSA Journal 2019;17(7):5732] Published	-	EFSA Public access
A.2.1.6	EFSA	2019	Peer review of the pesticide risk assessment of the active substance pyriproxyfen [EFSA Journal 2019;17(7):5732]	-	EFSA

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
			Published		Public access
A 2.1.6	RMS Netherland	2017	DAR public version- VOLUME 3 – Annex B (AS) - Pyriproxyfen - B.7 Residue, November 2017 Published	-	Public access

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 Active substance pyriproxyfen

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

No new data submitted in the framework of this application.
Not required.
The storage time for mushrooms (from harvest) for consumption is 3-4 days max at ambient temperature. Fres raw champignions (Agaricus Biosporus) should not be frozen for consumption.
Samples were frozen and analyzed within 24 hours of sampling, so storage stability data are not re-quired.
Storage stability studies for residues in animal products are not required because livestock are not treated or exposed to the pesticide.

A 2.1.1.1.2 Storage stability of residues in animal products

No new data submitted in the framework of this application.
Not applicable.
Mushrooms are not food for livestock animals.

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

No new data submitted in the framework of this application.

A 2.1.2.1 Nature of residue in plants

A 2.1.2.1.1 Nature of residue in primary crops

Pyriproxyfen residue tests were carried out by validated method. The validated limit of quantification (LOQ) was established at 0.01 mg/kg for analyte, interfering signals in control specimen were negligible, and thus the limit of detection (LOD) is 0.0025 mg/kg for Pyriproxyfen in mushrooms as was presented in the Final Report No. 25/FSL/07 and in Report No. 25/FSL/16.

The levels of residues of Pyriproxyfen in Mushrooms samples were calculated using linear calibration plots. The obtained results described in the report are fully reliable and reflect the raw data.

In all samples tested, the pyriproxyfen residue level was below the limit of detection (LOD) 0.0025 mg/kg. It was concluded that there was no need to conduct further residue studies for metabolites.

A 2.1.2.1.2 Nature of residue in rotational crops

Not applicable
The crop under consideration - mushrooms - are not grown in crop rotation, there is no need to carry out research on the amount of residues in succeeding crops.

A 2.1.2.1.3 Nature of residues in processed commodities

Not required.
Raw mushrooms should not be frozen for later consumption. The maximum storage time for mushrooms (from harvest) for consumption is 3 days.

Pyriproxyfen residues in mushrooms are below the limit of detection (LOD) 0.0025 mg/kg. The approved EU MRL for pyriproxyfen in mushroom is 0.01 mg/kg. No need to analyze residues in processed mushrooms (boiling, dry, pasteurisation or canned). When PYRIX 20 SL used according to the label, there is no risk to the consumer.

A 2.1.2.2 Nature of residues in livestock

Not applicable.
Mushrooms are not food for livestock animals.

A 2.1.3 Magnitude of residues in plants

A 2.1.3.1 Mushroom (*Agaricus biosporus*)

Table A 1: Comparison of intended and critical EU GAPs

Type of GAP	Number of applications	Application rate per treatment (precise unit)	Interval between application	Growth stage at application	PHI (days)
cGAP EU (DAR, RMS, year)	n/a	n/a	n/a	n/a	n/a
cGAP EU (Art. 12, EFSA, year)	n/a	n/a	n/a	n/a	n/a
Intended Pyrix 20 SL GAP * *GAP rev. 1, date: 2025-07-10	a) per use:1 b) per crop/ season : 1/1 cycle (3-4 throws = fruit harvest)	max 0.3 g.s.a/m^2 (3 kg/ha or 3000 g/ha) for 1 cycle (3-4 fruit harvest)	Not applicable	BBCH: over-growth of cover by mushroom mycelium Spraying two days after apply-ing a torf cover	No need

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

A 2.1.3.1.1 Study 1

Comments of zRMS:	Three trials (2 decline and 1 harvest) located in Poland were conducted on mushroom (RAC) following one application of Pyrix 200 SL (3000 g as/ha) to determine of the residues of pyriproxyfen in mushrooms grow room conditions. The analytical method was successfully validated for determination of all analytes in pyriproxyfen in mushrooms with an LOQ of 0.01 mg/kg according to guidance document SANTE/2020/12830, rev. 2. Max. study storage interval between sampling and extraction was about 4 months. The study on the magnitude of residues is valid with regard to storage stability on tomatoes, but additional storage data for mushrooms are needed. <u>Residue results:</u> No residue of pyriproxyfen in mushrooms was measured in the untreated specimens above the LOD. In the treated mushrooms residue levels of pyriproxyfen at harvest were never above the LOD. The study is acceptable. These trials can be used to support the intended use on mushrooms.

<u>FIELD PART</u>

Reference: 7.2.3

Report Magnitude of the residue of pyriproxyfen (CAS 95737-68-1) in Mushrooms Agaricus bisporus (Raw Agricultural Commodity - RAC) grown in closed buildings conditions after one application of a formulated product of PYRIX 20 SL - one harvest and two decline curve trials in Northern Europe.
Damian Gorczyca, PhD; B.Stepien; K.Baranowski; N.Witaszak
Poland – 2025
Study number: LLP25-2
Harvest trial number: LLP25-2-01
Decline trial number: LLP25-2-02
Decline trial number: LLP25-2-03

Guideline(s): YES

- The OECD Principles of Good Laboratory Practice (as Revised in 1997), OECD Series on Principles of GLP and Compliance Monitoring Number 1, ENV/MC/CHEM(98)17
- The Application of GLP Principles to Field Studies, OECD Series on Principles of GLP and Compliance Monitoring Number 6 (Revised 1999), ENV/JM/MONO(99)22
- Commission Working Document 7029/VI/95 Rev. 5, General Recommendations for the Design, Preparation and Realization of Residue Trials, July 22, 1997
- Regulation (EC) No 1107/2009 of the European Parliament and the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing
- Council Directives 79/117/EWG and 91/414/EWG
- Regulation of the Minister of Health of 3 August 2021 on Good Laboratory Practice and the performance of tests in accordance with the principles of Good Laboratory Practice (i.e. Journal of Laws 2021 item 1422)
- Act of February 25, 2011 on chemical substances and their mixtures (i.e. Journal of Laws of 2019, item 1225)
- Test Guideline No. 509. Crop field trail (Adopted 12 June 2021)

Deviations: YES

(Description of deviation):

Application A1 in the trial number LLP25-2-03 was conducted on 27/03/2025 in grow room No. 13. The trail must be terminated due to the occurrence of Green mold in grow room No. 13 and all mushrooms were intended for disposal.

(Justification):

Green mold caused limited growth of mushrooms. It is not possible to collect the amount of sample required by Study plan.

(Description of corrective actions taken):

The Study`s Sponsor was informed on 11/04/2025 via e-mail.
The decision to repeat the trial LLP25-2-03 was made. New plots will be marked in in grow room No. 10. The retain sample of test item LLP25-2-02-A1-R will be used. Application A1 in the trial number LLP25-2-03 will be conducted on 13/04/2025.

GLP: YES

GLP Guidance

- OECD Environmental Health and Safety Publications, Series on Principles of Good Laboratory Practice and Compliance Monitoring;
- OECD Principles of GLP and Compliance Monitoring Number 6 "The application of the GLP Principles to Field Studies";
- Test Guideline No. 509. Crop field trail (Adopted 12 June 2021).

Acceptability YES

ANALYTICAL PART-1

Reference:	7.2.3
Report	Determination of the residue of pyriproxyfen in mushrooms after application of "PYRIX 20 SL" in northen Europe. Kicinska J. Dr , Miszczcak A. Dr; Poland -2025 Study code: 25/FSL/07
Guideline(s):	YES SANTE/2020/12830, Rev.2
Deviations:	NO
GLP:	YES
Acceptability:	YES

ANALYTICAL PART-2

Reference:	7.2.3
Report	Determination of the residue of pyriproxyfen in mushrooms after application of "PYRIX 20 SL" in northen Europe. Kicinska J. Dr , Miszczcak A. Dr; Poland -2025 Study code: 25/FSL/016
Guideline(s):	YES SANTE/2020/12830, Rev.2 OECD(2007) Series of Testing and Assessment No.72 and Series on Pesticides No.39 ENV/JM/MOMO (2007)17
Deviations:	NO
GLP:	YES
Acceptability:	YES

Table A 2: Summary of the study 1 trials

Trial No./ Location/ EU zone/ Year	Commodity/ Variety	No. of repetitions /series	Date of 1.Sowing or planting 2.Flowering 3. Harvest	Application rate per treatment			Dates of treatment or no. of treatments and last date	Growth stage at last treatment or date	Portion Analyze				Residues (mg/kg)		PHI (days)	Details on trial
				g a.s./ ha	Water (l/ha)	g a.s. /hl			Sampling date =reception date	Sample code from field (anal. sample code)	Sample size [kg]	Date of sample Extraction / Date of Analysis	Analyte 1 PYRIPROXYFEN	Analyte 2		
	(a)		(b)				(c)								(d)	(e)
Trial 1 LLP25-2-01	Mushrooms, Agaricus bisporus, AGARBI Cultivar (Variety) : SYLVAN 737	No.1	1) 25.02.2025 2) Flowering 7-10 days after applying a torf cover 2-4.03.2025 3) 17.03.2025,	0,3 g.s.a./m 2 (3 kg/ha Or 3000 g/ha)	(10000 L/ha) 1 L/m	30 g s.a./hl	1 treatment Appl. date: 27.02.2025	BBCH: over-growth of cover by mushroom mycelium Spraying two days after applying a torf cover	17.03.2025	LLP25-2-01-1S (25/FSL/07/1aA) (25/FSL/07/1aB) (25/FSL/07/1aC) LLP25-2-01-1R LLP25-2-01-2S (25/FSL/07/2aA) (25/FSL/07/2aB) (25/FSL/07/2aC) LLP25-2-01-2R	1.224 1.202 1.222 1.208	17.03.2025/31.03.2025 17.03.2025/31.03.2025	< LOD < LOD < LOD < LOD < LOD < LOD LOD= 0,0025 mg/kg (limit of detection)	-	No need	
		No.2	1) 25.02.2025 2) Flowering 7-10 days after applying a torf cover 2-4.03.2025 3) 23.03.2025						23.03.2025	LLP25-2-01-3S (25/FSL/07/3aA) (25/FSL/07/3aB) (25/FSL/07/3aC) LLP25-2-01-3R LLP25-2-01-4S (25/FSL/07/4aA) (25/FSL/07/4aB) (25/FSL/07/4aC) LLP25-2-01-4R	1.256 1.240 1.298 1.280	23.03.2025/31.03.2025 23.03.2025/31.03.2025	< LOD < LOD < LOD < LOD < LOD < LOD LOD= 0,0025 mg/kg (limit of detection		No need	

Trial No./ Location/ EU zone/ Year	Commodity/ Variety	No. of repetitions /series	Date of 1.Sowing or planting 2.Flowering 3. Harvest	Application rate per treatment			Dates of treatment or no. of treatments and last date	Growth stage at last treatment or date	Portion Analyze				Residues (mg/kg)		PHI (days)	Details on trial
				g a.s./ ha	Water (l/ha)	g a.s. /hl			Sampling date =reception date	Sample code from field (anal. sample code)	Sample size [kg]	Date of sample Extraction / Date of Analysis	Analyte 1 PYRIPROXYFEN	Analyte 2		
	(a)		(b)				(c)								(d)	(e)
Trial 2 LLP25-2-02	Mushrooms, Agaricus bisporus, AGARBI Cultivar (Variety): SPYRA F1 RACING	No.1	1) 21.03.2025 2) Flowering 7-10 days after applying a torf cover 28-31.03.2025 3)09.04.2025,	0,3 g.s.a./m 2 (3 kg/ha Or 3000 g/ha)	(10000 L/ha) 1 L/m	30g s.a./hl	1 treatment Appl. date: 23.03.2025	BBCH: over-growth of cover by mushroom mycelium Spraying two days after applying a torf cover	07.04.2025 2 days before harvest	LLP25-2-02-1S (25/FSL/16/1) LLP25-2-02-1R LLP25-2-02-2S (25/FSL/16/2) LLP25-2-02-2R	0,896 0.952 0.810 0,748	08.07.2025/08.07.2025 08.07.2025/09.07.2025	< LOD < LOD LOD= 0,0025 mg/kg (limit of detection)	-	No need	
									08.04.2025 1 day before harvest	LLP25-2-02-3S (25/FSL/16/3) LLP25-2-02-3R LLP25-2-02-4S (25/FSL/16/4) LLP25-2-02-4R	0.796 0.750 0.802 0.736	08.07.2025/08.07.2025 08.07.2025/09.07.2025	< LOD < LOD LOD= 0,0025 mg/kg (limit of detection)		No need	
		No.2	1) 21.03.2025 2) Flowering 7-10 days after applying a torf cover 28-31.03.2025 3)13.04.2025						09.04.2025	LLP25-2-02-5S (25/FSL/16/5) LLP25-2-02-5R LLP25-2-02-6S (25/FSL/16/6) LLP25-2-02-6R	1.278 1.244 1.358 1.296	08.07.2025/08.07.2025 08.07.2025/09.07.2025	< LOD < LOD LOD= 0,0025 mg/kg (limit of detection)		No need	
									13.04.2025	LLP25-2-02-7S (25/FSL/16/7) LLP25-2-02-7R LLP25-2-02-8S (25/FSL/16/8) LLP25-2-02-8R	1.464 1.400 1.386 1.294	08.07.2025/08.07.2025 08.07.2025/09.07.2025	< LOD < LOD LOD= 0,0025 mg/kg (limit of detection)		No need	

Trial No./ Location/ EU zone/ Year	Commodity/ Variety	No. of repetitions /series	Date of 1.Sowing or planting 2.Flowering 3. Harvest	Application rate per treatment			Dates of treatment or no. of treatments and last date	Growth stage at last treatment or date	Portion Analyze				Residues (mg/kg)		PHI (days)	Details on trial
				g a.s./ ha	Water (l/ha)	g a.s. /hl			Sampling date =reception date	Sample code from field (anal. sample code)	Sample size [kg]	Date of sample Extraction / Date of Analysis	Analyte 1 PYRIPROXYFEN	Analyte 2		
	(a)		(b)				(c)								(d)	(e)
Trial 3 LLP25-2-03	Mushrooms, Agaricus bisporus, AGARBI Cultivar (Variety): EURO MYCEL 25	No.1	1) 11.04.2025 2) Flowering 7-10 days after applying a torf cover 18-21.04.2025 3) 30.04.2025,	0,3 g.s.a./m 2 (3 kg/ha Or 3000 g/ha)	(10000 L/ha) 1 L/m	30 g s.a./hl	1 treatment Appl. date: 13.04.2025	BBCH: over-growth of cover by mushroom mycelium Spraying two days after applying a torf cover	28.04.2025 2 days before harvest	LLP25-2-03-1S (25/FSL/16/9) LLP25-2-03-1R LLP25-2-03-2S (25/FSL/16/10) LLP25-2-03-2R	1.304 1.274 0.826 0.732	08.07.2025/08.07.2025 08.07.2025/09.07.2025	< LOD < LOD LOD= 0,0025 mg/kg (limit of detection)	-	No need	
									29.04.2025 1 day before harvest	LLP25-2-03-3S (25/FSL/16/11) LLP25-2-03-3R LLP25-2-03-4S (25/FSL/16/12) LLP25-2-03-4R	0.926 0.898 0.776 0.670	08.07.2025/08.07.2025 08.07.2025/09.07.2025	< LOD < LOD LOD= 0,0025 mg/kg (limit of detection)		No need	
									30.04.2025	LLP25-2-03-5S (25/FSL/16/13) LLP25-2-03-5R LLP25-2-03-6S (25/FSL/16/14) LLP25-2-03-6R	1.048 1.042 1.184 1.162	08.07.2025/08.07.2025 08.07.2025/09.07.2025	< LOD < LOD LOD= 0,0025 mg/kg (limit of detection)		No need	
		No.2	1)11.04.2025 2) Flowering 7-10 days after applying a torf cover 18-21.04.2025 3)05.05.2025						05.05.2025	LLP25-2-03-7S (25/FSL/16/15) LLP25-2-03-7R LLP25-2-03-8S (25/FSL/16/16) LLP25-2-03-8R	1.152 1.014 1.170 1.142	08.07.2025/08.07.2025 08.07.2025/09.07.2025	< LOD < LOD LOD= 0,0025 mg/kg (limit of detection)		No need	

(a) According to CODEX Classification / Guide
(b) Only if relevant
(c) Year must be indicated
(d)Days after last application (Label pre-harvest interval, PHI, underline)
(e)Remarks may include: Climatic conditions; Reference to analytical method and information which metabolites are include

A 2.1.4 Magnitude of residues in livestock

A 2.1.4.1 Livestock feeding studies

No new data were submitted in the framework of this application.
Not applicable.
Mushrooms are not food for livestock animals. A risk assessment for consumers' dietary intake is not necessary.

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 applicable
~~Raw mushrooms should not be frozen for later consumption. The maximum storage time for mushrooms (from harvest) for consumption is 3 days~~
There are no residues of Pyriproxyfen after using Pyrix 20 SL in mushrooms. No need to examine the residues in processed mushrooms (boiling, dry, pasteurisation or canned).
When PYRIX 20 SL used according to the label, there is no risk to the consumer.

A 2.1.5.2 Processing studies on a core set of representative processes

Not applicable.

A 2.1.6 Magnitude of residues in representative succeeding crops

Statement:
Residues are not expected to occur in succeeding crops at levels exceeding the applicable MRLs for these crops.

At this point Agrofarm refers to unprotected data from the review of pyripropxyfen at EU level.

Source: **DAR public version- VOLUME 3 – Annex B (AS) - Pyriproxyfen - B.7 Residue, November 2017**

STUDY 1

Previous evaluation:	*In DAR (2005)*

Characteristics

Reference	:	Waller R.L., 1996	Application rate	:	0.198 kg/ha (0.9-3.3N)
Type of study	:	rotational crops	Concentration	:	not applicable
Year of execution	:	1994-1996	Vehicle	:	soil
Test substance	:	[U-phenoxyphenyl-^{14}C] pyriproxyfen (batch RIS93001; radiochemical purity 99%; specific activity 341 µCi/mg) [2,6-pyridyloxy-^{14}C] pyriproxyfen (batch RIS94010; radiochemical purity 99.5%; specific activity 359 µCi/mg)	Number of treatments	:	1 to bare soil at 30 days before planting of rotational crops.
Plant	:	target crop: no target crop. Application was to bare soil. rotational crops: radish (variety "White icicle"), lettuce (variety "Grand Rapids loose leaf") and wheat (variety "Guard")	Sampling	:	radish, lettuce and wheat (grain/straw/chaff) at maturity wheat forage
GLP statement	:	Yes	Area	:	soil pots with an area of 613 cm^2
Guideline	:	EPA N:165-1	Total rate	:	see application rate
			Acceptability	:	Acceptable

Results

The radioactivity levels in the soil portions (100 g) used to treat the soil pots was determined immediately prior to treatment and found to be 98% (phenyl) and 101% (pyridyl) of nominal. The levels of radioactivity in radish (leaves and roots), lettuce, wheat forage, wheat grain, straw and chaff after a single application of [U-phenoxyphenyl-^{14}C] and [2,6-pyridyloxy-^{14}C] pyriproxyfen at a rate of 0.198 kg as/ha (0.9-3.3N) to bare soil at 30 days before sowing are summarised in Table B.7.6.1-1.Total radioactive residues in rotational crops planted 30 days after application of pyriproxyfen to bare soil were 0.003/0.007 mg eq/kg (lettuce, phenyl/pyridyl), 0.004/0.011 mg eq/kg (radish leaf, phenyl/pyridyl), 0.002/0.005 mg eq/kg (radish root, phenyl/pyridyl), 0.005/0.011 mg eq/kg (wheat forage, phenyl/pyridyl), 0.081/0.059 mg eq/kg (wheat grain, phenyl/pyridyl), 0.032/0.059 mg eq/kg (wheat straw, phenyl/pyridyl) and 0.040/0.082 mg eq/kg (wheat chaff, phenyl/pyridyl). Commodities with TRR >0.01 mg eq/kg were further fractionated in extractables and unextractables (see results in Table 7.6.1-1). The recoveries of the extraction procedures were between 85 and 104%. Extracts >0.01 mg eq/kg were partitioned (see results in Table 7.6.1-1). The recoveries of the partitioning procedure were 96-103%. Results of further extractions of the unextractable residues are given in Table B.7.9-2. The aqueous phase of the wheat straw extract (pyridyl) contained 5 unidentified regions, all <10% TRR and <0.01 mg eq/kg. The aqueous phase of the wheat chaff extract (pyridyl) contained 4 unidentified regions, 6.1-12.4% TRR and 0.005-0.01 mg eq/kg.

Table B.7.6.1-1 **Total radioactive residues and distribution of radioactivity in lettuce, radish (leaf/roots), wheat forage and wheat grain/straw/chaff planted 30 days after treatment of soil with of [U-phenoxyphenyl-^{14}C] and [2,6-pyridyloxy-^{14}C] pyriproxyfen at a nominal rate of 0.198 kg as/ha.**

Commodity/fraction	[U-phenoxyphenyl-^{14}C] pyriproxyfen		[2,6-pyridyloxy-^{14}C] pyriproxyfen	
	TRR (%)	mg eq/kg	TRR (%)	mg eq/kg
Lettuce	100	0.003	100	0.007
Radish leaf	100	0.004	100	0.011
extract	-(A)	-	49	0.005
PES(D)	-	-	37	0.004
Radish root	100	0.002	100	0.005
Wheat forage	100	0.005	100	0.011
extract	-	-	64	0.007
PES	-	-	40	0.004
Wheat grain	100	0.081	100	0.059
extract	7.6	0.006	12	0.007
PES	89	0.072	89	0.052
Wheat straw	100	0.032	100	0.059
extract	27	0.009	39	0.023
organic	-	-	6.9	0.004
aqueous	-	-	32	0.019(B)
PES	71	0.023	58	0.034
Wheat chaff	100	0.040	100	0.082
extract	22	0.009	51	0.042
organic	-	-	12	0.010
aqueous	-	-	38	0.031(C)
PES	70	0.028	48	0.040

(A) -: not determined
(B) contained 5 unidentified regions, all <10% TRR and <0.01 mg eq/kg
(C) contained 4 unidentified regions, 6.1-12.4% TRR and 0.005-0.01 mg eq/kg
(D) post-extraction solids

Table 7.6.1-2 **Further fractionation of unextractable residues of wheat grain and straw.**

Commodity	Fraction	[U-phenoxyphenyl-^{14}C] pyriproxyfen		[2,6-pyridyloxy-^{14}C] pyriproxyfen	
		TRR (%)	mg eq/kg	TRR (%)	mg eq/kg
Wheat grain	PES	89	0.072	89	0.052
	1N HCl	9.7	0.008	17	0.010
	organic	0.0	0	1.5	0.001
	aqueous	9.7	0.008	15	0.009
	PES	78	0.063	68	0.040
	6N HCl	78	0.063	66	0.039
	organic	1.0	0.001	1.3	0.001
	aqueous	77	0.062	61	0.036
	PES	11	0.009	8.0	0.005
Wheat straw	PES	71	0.023	58	0.034
	6N HCl	22	0.007	20	0.012
	organic	-(A)	-	7.3	0.004
	aqueous	-	-	11	0.007
	PES	45	0.014	37	0.022

(A) -: not determined

Field trials for residues in rotational crops are not required based on the available metabolism data and because no significant residues are expected to remain in the soil at the time of sowing or planting possible succeeding crops.

Source:***Peer review of the pesticide risk assessment of the active substance pyriproxyfen; EFSA***

Journal 2019;17(7):5732

Residues in succeeding crops (Regulation (EU) N° 283/2013, Annex Part A, point 6.6.2)	
Confined rotational crop study (Quantitative aspect) **OECD Guideline 502**	The total radioactive residues were <0.01 mg eq/kg in lettuce and radish root, 0.011 mg eq/kg in radish leaves and wheat forage and accounted for up to 0.081 mg eq/kg in wheat grain, 0.059 mg eq/kg in wheat straw and 0.082 mg eq/kg in wheat chaff. In wheat grain, the major part of the radioactive residues was found to be incorporated into natural plant constituents (up to 88% TRR) whilst in wheat straw, the extracted radioactive residues were constituted of unidentified compounds, each below 10% TRR (<0.01 mg/kg). Parent pyriproxyfen and/or its related metabolites were never detected in wheat grain and straw. Further studies addressing the fate of respectively 4'-OH-PYR and PYPAC residues in rotational crops are also not required.
Field rotational crop study **OECD Guideline 504**	Not required based on confined rotational crop metabolism studies.

Conclusion

The field DT_{90} reported in the soil degradation studies evaluated in the framework of the peer review for renewal was 11–135 days (EFSA, 2019b), and thus, investigation of metabolic pattern in rotational crops is triggered.

One confined rotational crop study with pyriproxyfen radiolabelled on the phenoxyphenyl and pyridyl ring was available for this assessment. The study was peer reviewed in the framework of the renewal (Netherlands, 2017; EFSA, 2019b). Pyriproxyfen was applied once at a rate of 198 g a.s./ha onto bare soil. Crops were planted at nominal plant back interval (PBI) of 30 days after treatment (DAT). Crops planted at this interval consisted of leafy vegetable (lettuce), root/tuber crops (radish) and cereals (wheat).

The total radioactive residues were < 0.01 mg eq./kg in lettuce and radish root, 0.011 mg eq./kg in radish leaf. Residues in the different parts of wheat were at 0.011 mg eq./kg in forage, 0.081 mg eq./kg in grain, 0.059 mg eq./kg in straw and 0.082 mg eq./kg in chaff. In wheat grain, a major part of the radioactive residues was found to be incorporated into natural plant constituents (up to 88% TRR) while in wheat straw, the extracted radioactive residues were constituted of unidentifi ed compounds, each below 10% TRR (< 0.01 mg/kg). Parent pyriproxyfen and its related metabolites were never detected in wheat grain and straw.

It is noted that the metabolites 40-OH-PYR and PYPAC have very low to moderate persistence (maximum laboratory DT90 of 148 and 179 days, respectively) and might be taken up by the succeeding crops. As their single residue fraction did not exceed 0.01 mg eq./kg in the rotational crops planted at 30-day PBI, it is not expected that residues > 0.01 mg eq/kg for 40-OH-PYR and PYPAC would be observed in rotational crops planted at longer PBIs. Based on this and the results from the soil dissipation studies (EFSA, 2019b), the peer review concluded that further studies addressing the fate of these two metabolites in rotational crops were not needed and a different residue defi nition for rotational crops was not set. The same conclusion is applicable here.

Comments of zRMS:	Crops under evaluation (mushrooms) are not expected to be grown in rotation. Considering available data on metabolism in rotational crop evaluated during the active substance renewal in lettuce, radish and wheat and because no significant residues are expected to remain in the soil at the time of sowing or planting possible succeeding crops, no study dealing with magnitude of residues in succeeding crops is needed. Field trials for residues in rotational crops are not required.

A 2.1.7 Other/Special Studies

No other/special studies were submitted in the framework of this application.

Appendix 3 Pesticide Residue Intake Model (PRIMo)

Explanation:

Pyriproxyfen residues in mushrooms (field residue study) are below the limit of detection (**LOD) 0.0025 mg/kg**. The approved EU MRL for pyriproxyfen in mushroom is MRL -0.01 mg/

~~For PRIMo calculations we assumed:~~

~~STMR-RAC (median residue) : 0.0025 mg/kg (0.003 mg/kg)~~
~~HR-RAC (highest residue) : 0.0025 mg/kg (0.003 mg/kg)~~

~~PRIMo Excel spreadsheet for Pyrix 20SL (pyriproxyfen) are attached to this document [EFSA_PRIMo_ver3.1 Pyriproxyfen-Cultivated Fungi]~~

~~Summary (see below)~~

A 3.1 TMDI calculations

European Food Safety Authority
EFSA PRIMo revision 3.1; 2021/01/06

PYRIPROXYFEN

LOQs (mg/kg) range from: to:

Toxicological reference values

ADI (mg/kg bw/day):	0.05	ARfD (mg/kg bw):	1
Source of ADI:	EC, 2020a	Source of ARfD:	EC, 2020a
Year of evaluation:		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	Exposure (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)
0.0%	IE adult	0.00	0.0%	Cultivated fungi						
0.0%	SE general	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	NL toddler	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	PL general	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	UK vegetarian	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	NL general	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	FR child 3 15 yr	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	DE child	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	NL child	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	ES adult	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	FR toddler 2 3 yr	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	UK adult	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	UK toddler	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	FR adult	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	IT adult	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	DK child	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	DE women 14-50 yr	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	DK adult	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	IT toddler	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	DE general	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	LT adult	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	IE child	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	ES child	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	FI adult	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	FI 6 yr	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	FI 3 yr	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	FR infant	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
0.0%	UK infant	0.00	0.0%	Cultivated fungi		FRUIT AND TREE NUTS				
	Column7			FRUIT AND TREE NUTS		FRUIT AND TREE NUTS				
	Column7			FRUIT AND TREE NUTS		FRUIT AND TREE NUTS				
	Column7			FRUIT AND TREE NUTS		FRUIT AND TREE NUTS				
	Column7			FRUIT AND TREE NUTS		FRUIT AND TREE NUTS				
	Column7			FRUIT AND TREE NUTS		FRUIT AND TREE NUTS				
	Column7			FRUIT AND TREE NUTS		FRUIT AND TREE NUTS				
	Column7			FRUIT AND TREE NUTS		FRUIT AND TREE NUTS				
	Column7			FRUIT AND TREE NUTS		FRUIT AND TREE NUTS				

Conclusion:
The estimated long-term dietary intake (TMDI/NEDI/IEDI) was below the ADI.
The long-term intake of residues of PYRIPROXYFEN 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.

European Food Safety Authority

EFSA PRIMo revision 3.1; 2019/03/19

Pyriproxyfen

LOQs (mg/kg) range from: 0.01 to: 0.01

Toxicological reference values

ADI (mg/kg bw/day):	0.05	ARfD (mg/kg bw):	1
Source of ADI:	EFSA	Source of ARfD:	EFSA
Year of evaluation:	2020	Year of evaluation:	2020

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	Exposure (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)
17%	NL toddler	8.59	8%	Bananas	3%	Oranges	1%	Tomatoes		
15%	DE child	7.51	6%	Oranges	2%	Bananas	1%	Tomatoes	0.0%	
12%	GEMS/Food G06	5.93	5%	Tomatoes	2%	Tea (dried leaves of Camellia sinensis)	1%	Oranges	0.0%	
11%	IE adult	5.38	4%	Tea (dried leaves of Camellia sinensis)	1%	Oranges	1%	Bananas		
10%	NL child	4.83	3%	Bananas	2%	Oranges	0.9%	Mandarins	0.0%	
10%	FR child 3 15 yr	4.80	5%	Oranges	1%	Tomatoes	1.0%	Bananas	0.0%	
8%	UK infant	3.91	2%	Bananas	2%	Oranges	2%	Tea (dried leaves of Camellia sinensi		
8%	GEMS/Food G07	3.80	2%	Oranges	2%	Tomatoes	1%	Tea (dried leaves of Camellia sinensi	0.0%	
8%	UK toddler	3.76	3%	Oranges	2%	Bananas	0.8%	Tomatoes		
8%	ES child	3.76	3%	Oranges	1%	Bananas	1%	Tomatoes	0.0%	
7%	DE women 14-50 yr	3.68	3%	Oranges	1%	Tomatoes	0.9%	Tea (dried leaves of Camellia sinensi	0.0%	
7%	GEMS/Food G10	3.57	2%	Tomatoes	2%	Oranges	0.9%	Tea (dried leaves of Camellia sinensi	0.0%	
7%	SE general	3.46	3%	Bananas	1%	Tomatoes	1%	Oranges		
7%	FR adult	3.45	4%	Tea (dried leaves of Camellia sinensis)	0.8%	Oranges	0.6%	Tomatoes	0.0%	
7%	GEMS/Food G11	3.36	1%	Tomatoes	1%	Tea (dried leaves of Camellia sinensis)	1%	Oranges	0.0%	
7%	DE general	3.28	2%	Oranges	0.9%	Tomatoes	0.9%	Tea (dried leaves of Camellia sinensi	0.0%	
6%	GEMS/Food G08	3.15	2%	Tomatoes	0.9%	Tea (dried leaves of Camellia sinensis)	0.6%	Oranges	0.0%	
6%	GEMS/Food G15	3.13	2%	Tomatoes	0.9%	Oranges	0.7%	Sweet peppers/bell peppers	0.0%	
6%	FR toddler 2 3 yr	3.12	2%	Oranges	1%	Mandarins	0.6%	Bananas		
6%	RO general	2.94	3%	Tomatoes	0.5%	Sweet peppers/bell peppers	0.4%	Cherries (sweet)		
5%	IT toddler	2.54	2%	Tomatoes	0.8%	Bananas	0.7%	Oranges	0.0%	
5%	UK vegetarian	2.45	1%	Tea (dried leaves of Camellia sinensis)	1%	Oranges	0.9%	Tomatoes	0.0%	
5%	NL general	2.39	1%	Oranges	1%	Tea (dried leaves of Camellia sinensis)	0.6%	Tomatoes		
5%	ES adult	2.38	2%	Oranges	1%	Tomatoes	0.5%	Bananas	0.0%	
4%	DK child	2.18	2%	Bananas	0.7%	Tomatoes	0.3%	Sweet peppers/bell peppers		
4%	FI 3 yr	2.13	2%	Bananas	0.8%	Tomatoes	0.5%	Mandarins		
4%	UK adult	2.06	2%	Tea (dried leaves of Camellia sinensis)	0.8%	Oranges	0.6%	Tomatoes		
4%	PT general	1.99	1%	Tomatoes	0.9%	Oranges	0.5%	Bananas		
4%	IT adult	1.96	2%	Tomatoes	0.5%	Oranges	0.4%	Peaches	0.0%	
3%	FI 6 yr	1.52	1%	Bananas	0.6%	Tomatoes	0.5%	Mandarins		
3%	FI adult	1.42	0.8%	Tomatoes	0.6%	Oranges	0.6%	Coffee beans		
3%	DK adult	1.34	0.7%	Tomatoes	0.6%	Bananas	0.3%	Tea (dried leaves of Camellia sinensi		
3%	PL general	1.28	1%	Tomatoes	0.3%	Cherries (sweet)	0.3%	Bananas		
2%	FR infant	0.93	0.3%	Oranges	0.3%	Milk: Cattle	0.3%	Bananas	0.0%	
2%	LT adult	0.86	0.9%	Tomatoes	0.2%	Apples	0.1%	Oranges		
0.8%	IE child	0.39	0.3%	Bananas	0.1%	Oranges	0.1%	Tomatoes		

Conclusion:

The estimated long-term dietary intake (TMDI/NEDI/IEDI) was below the ADI.

The long-term intake of residues of Pyriproxyfen is unlikely to present a public health concern.

A 3.2 IEDI calculations

Not required.

A 3.3 IESTI calculations - Raw commodities (PRIMo rev 3.1)

Acute risk assessment /children	Acute risk assessment / adults / general population	Acute risk assessment /children	Acute risk assessment / adults / general population
Details - acute risk assessment /children	Details - acute risk assessment/adults	Hide IESTI new calculations	Show IESTI new calculations

The acute risk assessment is based on the ARfD. DISCLAIMER: Dietary data from the UK were included in PRIMO when the UK was a member of the European Union.

The calculation is based on the large portion of the most critical consumer group.

IESTI new calculations:
The calculation is performed with the MRL and the peeling/processing factor (PF), taking into account the residue in the edible portion and/or the conversion factor for the residue definition (CF). For case 2a, 2b and 3 calculations a variability factor of 3 is used. Since this methodology is not based on internationally agreed principles, the results are considered as indicative only.
Since this methodology is not based on internationally agreed principles, the results are considered as indicative only.

Show results for all crops

Unprocessed commodities

Results for children No. of commodities for which ARfD/ADI is exceeded (IESTI): ---	**Results for adults** No. of commodities for which ARfD/ADI is exceeded (IESTI): ---	**IESTI new Results for children** No. of commodities for which ARfD/ADI is exceeded (IESTI new): ---	**IESTI new Results for adults** No. of commodities for which ARfD/ADI is exceeded (IESTI new): ---

IESTI

Highest % of ARfD/ADI	Commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
0.00%	Cultivated fungi	0.01 / 0	0.04

IESTI

Highest % of ARfD/ADI	Commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
0.00%	Cultivated fungi	0.01 / 0	0.01

IESTI new

Highest % of ARfD/ADI	Commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
0.03%	Cultivated fungi	0.01 / 0.01	0.25

IESTI new

Highest % of ARfD/ADI	Commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
0.01%	Cultivated fungi	0.01 / 0.01	0.08

Expand/collapse list

Total number of commodities exceeding the ARfD/ADI in children and adult diets (IESTI calculation)		**Total number of commodities found exceeding the ARfD/ADI in children and adult diets (IESTI new calculation)**	

Processed commodities

Results for children No of processed commodities for which ARfD/ADI is exceeded (IESTI): ---	**Results for adults** No of processed commodities for which ARfD/ADI is exceeded (IESTI): ---	**Results for children** No of processed commodities for which ARfD/ADI is exceeded (IESTI new): ---	**Results for adults** No of processed commodities for which ARfD/ADI is exceeded (IESTI new): ---

IESTI

Highest % of ARfD/ADI	Processed commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
0.0%	Cultivated fungi / fried	0.01 / 0	0.01
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!

IESTI

Highest % of ARfD/ADI	Processed commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!

IESTI new

Highest % of ARfD/ADI	Processed commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
0.01%	Cultivated fungi / fried	0.01 / 0.01	0.05
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!

IESTI new

Highest % of ARfD/ADI	Processed commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!
#LICZBA!	#LICZBA!	#LICZBA!	#LICZBA!

Expand/collapse list

Conclusion:
No exceedance of the toxicological reference value was identified for any unprocessed commodity.
A short term intake of residues of PYRIPROXYFEN is unlikely to present a public health risk.
For processed commodities, no exceedance of the ARfD/ADI was identified.

Appendix 4 Additional information provided by the applicant

The Animal Model 2017, as part of European Commission food safety guidelines, is used to calculate Maximum Residue Levels (MRLs) for pesticides in animal-derived products. The models are used to estimate pesticide concentrations in edible tissues (meat, milk, fat, liver) of livestock.
The Animal Model 2017 **does not contain specific, direct and accurate consumption data for cultivated fungi (grown in substrate).**
Cultivated mushrooms (mushrooms in general) are not feed and are not added to the feed of livestock.
There is no need to present the Animal Model 2017 calculations for the transfer of pyriproxyfen used in the protection of cultivated fungi from animal feed to food products.