

YOOTEEST



SYNTHESIS REPORT EXPORIP

Resident Pesticide Exposure

NOVEMBER 2021

www.yootest.com

www.generations-futures.fr

In 2020, according to the French Ministry of Agriculture and Food¹, more than 44,000 tons of phytosanitary products were sold in France. These chemicals, whose use is regulated, are applied onto crops to control species considered harmful such as insects, weeds and molds.

The application is mainly done by spraying on the crops. Unfortunately, a large part of the applied products do not reach their target and are dispersed in the environment.

Crop protection products are by definition toxic and drifting outside of cultivation areas exposes local residents to treatment residues. In their collective expertise, the INSERM² scientists underline the lack of data concerning the health effects for the residents and that these effects are however not to be excluded.

The question of the protection of local residents is therefore a major public health issue and No Treatment Zones have been defined. They extend today to distances of 5 to 20 m from the property limits.

Due to the lack of data, there is currently no scientific consensus on minimum treatment distances that can effectively protect people living near areas treated with pesticides.

In this context, the association [Génération Futures](#) and the company [YOOTEST](#) have set up a participative scientific project: EXPORIP (EXPOsition des RIverains aux Pesticides). This project aims to obtain unpublished data on pesticide residues present in the environment of buildings located near treated crop areas.

A list of 30 pesticides was selected. These pesticides were measured in samples of glass surfaces taken by the participants. The samples were analyzed in the laboratory and the results interpreted by YOOTEST.

The synthesis report presents the results obtained and the main conclusions of the EXPORIP study.

¹ <https://agriculture.gouv.fr/>

² Institut Nationale de la Santé et de la Recherche Médicale <https://www.inserm.fr/>

Selection of pesticides studied

There are several hundred pesticides with marketing authorization. For economic reasons, it was necessary to choose a reduced list of 30 pesticides to analyze.

This selection was made based on:

- Quantities used, based on pesticide sales information for the year 2019 available in the National Bank of Plant Protection Product Sales by Authorized Distributors³ (BNVD);
- AASQA⁴ data on ambient air pollution by pesticides measured in monitoring stations installed on the metropolitan territory;
- Pesticides authorized for agricultural applications in 2021⁵ (ANSES);
- Pesticides analyzed by the YOOTEEST laboratory;
- **Pesticides that also have a biocidal⁶ use, including commercially available preparations for individuals, were excluded to ensure that the products found were exclusively of agricultural origin.**

Although widely used in France, glyphosate has not been included in this list for economic reasons because it requires a specific analysis protocol different from that applied to other pesticides.

The list of pesticides selected for the EXPORIP study is presented in the following table:

³ <https://bnvd.ineris.fr/>

⁴ <https://atmo-france.org/les-pesticides/>

⁵ <https://ephy.anses.fr/>

⁶ <https://simmbad.fr/servlet/accueilMinistere.html>

Pesticide name	CAS No.	Category	LQ (ng/m ²)
2,4-D	94-75-7	Herbicide	400
Aclonifen	74070-46-5	Herbicide	1000
Ametoctradine	865318-97-4	Fungicide	100
Boscalid	188425-85-6	Fungicide	100
Chlortoluron	15545-48-9	Herbicide	100
Clomazone	81777-89-1	Herbicide	100
Cyprodinil	121552-61-2	Fungicide	100
Dicamba	1918-00-9	Herbicide	400
Diflufenicanil	83164-33-4	Herbicide	400
Dimethomorph	110488-70-5	Fungicide	100
Ethofumesate	26225-79-6	Herbicide	400
Fluazinam	79622-59-6	Fungicide	100
Fluopicolide	239110-15-7	Fungicide	100
Fluopyram	658066-35-4	Fungicide	100
Fluroxypyr	69377-81-7	Herbicide	400
Lenacil	2164-08-1	Herbicide	100
MCPA	94-74-6	Herbicide	400
Metamitrone	41394-05-2	Herbicide	100
Metolachlor	87392-12-9	Herbicide	100
Oryzalin	19044-88-3	Herbicide	400
Pendimethalin	40487-42-1	Herbicide	400
Phenmedipham	13684-63-4	Herbicide	100
Phosmet	732-11-6	Insecticide	400
Propyzamide	23950-58-5	Herbicide	400
Prosulfocarb	52888-80-9	Herbicide	400
Pyraclostrobin	175013-18-0	Fungicide	100
Pyrimiphos-methyl	29232-93-7	Insecticide	100
Spiroxamine	118134-30-8	Fungicide	100
Terbutylazine	5915-41-3	Herbicide	100
Trifloxystrobin	141517-21-7	Fungicide	100

CAS No.: Chemical Abstract Service www.cas.org, unique reference number for each chemical, LQ Limit of Quantification

Sampling kits

The glass surfaces are a homogeneous element common to all buildings. Dust and pesticide residues are deposited on the windows.

Glass surface samples were taken by participants in the EXPORIP study.

A sampling kit was designed to allow easy surface sampling with a wipe. These sampling kits were ordered from www.yootest.com and mailed to the participant.

The recommended area to be sampled is 50 cm x 50 cm, i.e. a surface of 0.25 m².

It contains:

- An instruction manual
- A wipe (Ghost Wipe, Environmental Express)
- A plastic tube
- An information sheet
- A pre-paid return envelope

The instructions for using the kit are shown below.

MODE D'EMPLOI
FR-YOOTEEST-05_V1

YOO TEST 

Campagne EXPORIP
EXPOSITION des Riverains aux Pesticides

Kit de Prélèvement Lingette

Lisez attentivement ce document avant de faire votre prélèvement.

Conservez ce mode d'emploi pour consulter vos résultats.

RESPECTEZ SCRUPULEUSEMENT LES INSTRUCTIONS

1 Vérifiez le contenu de votre kit de prélèvement



Une lingette dans son emballage de protection.



Une fiche de prélèvement. Les informations de la fiche de prélèvement sont indispensables pour l'interprétation des résultats.

Une version électronique de la fiche de prélèvement est disponible en ligne.



Un tube à essai



Une enveloppe de retour prépayée, pour renvoyer votre échantillon à YOOTEEST.

Si un des éléments de votre kit est manquant, contactez-nous à l'adresse : contact@yootest.com

2 Délimitez la surface à prélever

Réalisez votre prélèvement : soit après avoir constaté un épandage OU soit 1 mois après le dernier nettoyage des vitres



1 Le prélèvement s'effectue à L'EXTERIEUR sur une surface vitrée. Choisissez une fenêtre idéalement du côté des cultures.

2 Délimitez une surface de 50 cm x 50 cm à l'aide d'un ruban adhésif.

3 Complétez la fiche de prélèvement. Une fiche de prélèvement électronique est disponible à l'adresse : <https://rapports.science-concept.com/EXPORIP>

3 Prélevez les résidus de pesticides déposés sur la vitre

1 Sortez la lingette de son emballage. Déplier complètement la lingette.

2 Passez la lingette de haut en bas sur toute la zone délimitée.

3 Pliez la lingette en deux avec le côté prélevé à l'intérieur.

4 Passez la lingette de gauche à droite sur toute la zone délimitée.

5 Pliez la lingette en deux avec le côté prélevé à l'intérieur.

6 Passez la lingette de haut en bas (vertical) sur toute la zone délimitée.

7 Roulez la lingette pliée avec le côté prélevé à l'intérieur.

8 Dévissez le bouchon du tube à essai. Placez la lingette roulée dans le tube à essai. Revissez le bouchon du tube à essai.



4 Envoyez votre échantillon au laboratoire

Si vous avez acheté plusieurs kits, veillez à ne pas mélanger les identifiants. L'identifiant du kit sur le tube à essai doit être le même que sur la fiche de prélèvement.

- 
- 1 Préparez l'enveloppe de retour prépayée.
 - 2 Insérez dans l'enveloppe :
 - > Le tube à essai fermé avec la lingette à l'intérieur
 - > la fiche de prélèvement
 - 3 Fermez l'enveloppe.
 - 4 Déposez l'enveloppe dans une boîte aux lettres.

Pour garantir la qualité des résultats, expédiez votre échantillon sous 24 heures. Si vous ne pouvez le retourner dans ce délai, conservez-le au congélateur jusqu'à expédition.

5 Consultez les résultats de la campagne EXPORIP

La synthèse des résultats de la campagne de mesure de l'exposition des riverains aux pesticides agricoles sera accessible en ligne sur les sites de :



www.yootest.com

www.generations-futures.fr

Rendez-vous en Septembre 2021

Voir le 6 pour connaître vos résultats personnels

6 Consultez vos résultats personnels

Pour obtenir vos résultats personnels commandez votre analyse sur www.yootest.com au prix de 135€.

Votre rapport est disponible sous 10 à 15 jours ouvrés

- 1 Connectez-vous à l'adresse: <https://rapports.science-concept.com/>
- 2 Votre identifiant est votre adresse email
Votre code est le numéro du kit de prélèvement

IDENTIFIANT



Vous avez une question ?
Vous avez besoin d'informations ou de conseils ?

N'hésitez pas à nous contacter par courriel à contact@yootest.com

www.yootest.com

YOO TEST

The samples were returned by mail to YOOTEST. Upon receipt, they were stored in a freezer at a temperature below -18°C until their analysis in the laboratory.

Method of analysis

A precise volume of an organic solvent mixture is added to the test tube containing the wipe. The whole assembly is incubated in an ultrasonic bath for a specified time. The extract is transferred to a glass test tube and centrifuged.

The extract is then analyzed by liquid chromatography-tandem mass spectrometry (LC-MSMS) and gas chromatography-tandem mass spectrometry (GC-MSMS).

Questionnaire

Participants were asked to complete a questionnaire for data interpretation and contained the following questions:

Collection date: ___ / ___ / 2021 (DD/MM/YYYY format)

Zip code of the place of collection: _____

Date of the last wash of the sampled window: ___ / ___ / _____ (Format DD/MM/YYYY)

If different from 50 cm x 50 cm, surface of the glass taken: ___ cm x ___ cm (Specify)

Window height:

Ground Floor 1^{er} Floor Other: _____ (Specify)

Distance from window to nearest agricultural parcel: _____ meters

Orientation of the window taken in relation to the agricultural plot:

Front Side Opposite Other: _____ (Specify)

Presence of a barrier to the treated area:

None Plant hedge Artificial hedge Wall Other: _____ (Specify)

Height of hedge: 1 meter 2 meters Other: _____ (Specify)

Type(s) of neighbouring crop(s): (Several choices possible)

None Cereals Crops Orchards Vines

Potatoes Beets Other: _____ (Specify)

Have you noticed any spraying lately? Yes No

If yes, when ___ / ___ / 2021

Do you know the product used? _____

Domestic use of pesticides - Pet treatment, mosquito repellent, wood treatment...

(Specify the product(s) you used and how they were applied)

An electronic version of the questionnaire was also available online.

Terminologies used

The following terminologies are used for reporting results for each pesticide:

- **LQ**: Limit of Quantification of the analytical method in ng/m^2
- **LD**: Detection Limit of the analytical method in ng/m^2 and equal to $\text{LQ} / 3.3$
- **<LQ**: The pesticide was detected in the sample at a concentration below the analytical method LQ but above the instrument's limit of detection (LD)
- **ND**: NOT DETECTED, the pesticide was not detected in the sample
- The value in ng/m^2 when the concentration is greater than or equal to the LQ

Descriptive statistics

All results were interpreted with the following descriptive statistics:

- Occurrence: Equivalent to detection frequency, number of times the pesticide was detected divided by the number of measurements made, expressed as a %.
- Average: Average concentration observed in the samples
- Minimum: Minimum concentration observed in the samples
- Maximum: Maximum concentration observed in the samples
- P10, P25, P50 (median), P75 and P90: Percentiles, PXX indicates that XX% of the study population has a result lower than the indicated value
- The number of pesticides per sample
- The sum of the pesticide concentrations. Values below the LQ were considered with a concentration equal to $\text{LQ}/\sqrt{2}$.

Information on pesticides

Information on the pesticides detected in the EXPORIP samples is presented in the Appendix 3.

The data presented are from the following sources:



European Chemical Agency
(ECHA)

echa.europa.eu



Association Agrée pour
la Surveillance de la
Qualité de l'Air (AASQA)

atmo-france.org



University of Hertfordshire
Pesticides Properties
DataBase - PPDB

sitem.herts.ac.uk/aeru/ppdb/



The Endocrine Disruption
Exchange (TEDX)

www.endocrinedisruption.org

Endocrine
Disruptor
List

Endocrine Disruptor
Lists

edlists.org



DEDuCT

cb.imsc.res.in/deduct

Note on the use of the results

The results of this study are public and can be used freely as long as the reference "Study EXPORIP 2021 - YOOTEEST - Générations Futures" and a link to the synthesis report are mentioned.

The results

All samples received at the laboratory were compliant and were analyzed in three testing sessions: 08/06/2021, 26/08/2021 and 20/10/2021.

Only one questionnaire was not returned.

The individual results and responses to the questionnaires are presented in the Appendix 2.

Descriptive statistics were determined for:

- All samples (N=58)
- Windows located near vineyards (N=18)
- Windows located near field crops (cereals, corn, rapeseed ...) (N = 26)
- Windows located within 20 m of the first crop (N=19)
- Windows located between 21 and 100 m from the first crop (N=21)
- Windows located more than 101 m from the first crop (N=16)

For the sake of clarity, only pesticides detected at least once are presented in the results tables.

All samples (N=58)

Substance	Type	Occurrence	Concentrations (ng/m ²)								
			LQ	Average	Minimum	Maximum	P10	P25	P50	P75	P90
Ametoctradine	F	43.1%	100	2331	ND	122378	ND	ND	ND	<LQ	552
Boscalid	F	5.2%	100	<LQ	ND	270	ND	ND	ND	ND	ND
Clomazone	H	1.7%	100	<LQ	ND	<LQ	ND	ND	ND	ND	ND
Cyprodinil	F	5.2%	100	<LQ	ND	<LQ	ND	ND	ND	ND	ND
Dimethomorph	F	17.2%	100	<LQ	ND	1918	ND	ND	ND	ND	<LQ
Fluopicolide	F	24.1%	100	254	ND	5556	ND	ND	ND	ND	106
Fluopyram	F	37.9%	100	<LQ	ND	2524	ND	ND	ND	<LQ	155
Lenacil	H	1.7%	100	<LQ	ND	<LQ	ND	ND	ND	ND	ND
Metolachlor	H	41.4%	100	<LQ	ND	619	ND	ND	ND	<LQ	<LQ
Phenmedipham	H	3.4%	100	<LQ	ND	1381	ND	ND	ND	ND	ND
Pyraclostrobin	F	8.6%	100	<LQ	ND	644	ND	ND	ND	ND	ND
Pyrimiphos-methyl	I	3.4%	100	<LQ	ND	218	ND	ND	ND	ND	ND
Spiroxamine	F	19.0%	100	<LQ	ND	220	ND	ND	ND	ND	<LQ
Terbutylazine	H	10.3%	100	<LQ	ND	480	ND	ND	ND	ND	<LQ
Trifloxystrobin	F	13.8%	100	<LQ	ND	2841	ND	ND	ND	ND	<LQ

Number of substances	-	79.3%		2,4	0	8	0	1	2	3	5
Total concentrations	-			2976	0	125812	0	71	177	464	2738

Table 1 : Descriptive statistics for pesticides for all samples (N=58).

Dwellings near vineyards (N=18)

Substance	Type	Occurrence	Concentrations (ng/m ³)								
			LQ	Average	Minimum	Maximum	P10	P25	P50	P75	P90
Ametoctradine	F	83.3%	100	7322	ND	122378	ND	<LQ	128	262	2745
Boscalid	F	16.7%	100	<LQ	ND	270	ND	ND	ND	ND	<LQ
Clomazone	H	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND
Cyprodinil	F	5.6%	100	<LQ	ND	<LQ	ND	ND	ND	ND	ND
Dimethomorph	F	50.0%	100	260	ND	1918	ND	ND	<LQ	<LQ	792
Fluopicolide	F	61.1%	100	808	ND	5556	ND	ND	<LQ	301	3202
Fluopyram	F	61.1%	100	232	ND	2524	ND	ND	<LQ	157	381
Lenacil	H	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND
Metolachlor	H	38.9%	100	<LQ	ND	<LQ	ND	ND	ND	<LQ	<LQ
Phenmedipham	H	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND
Pyraclostrobin	F	22.2%	100	<LQ	ND	644	ND	ND	ND	ND	<LQ
Pyrimiphos-methyl	I	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND
Spiroxamine	F	38.9%	100	<LQ	ND	<LQ	ND	ND	ND	<LQ	<LQ
Terbutylazine	H	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND
Trifloxystrobin	F	44.4%	100	200	ND	2841	ND	ND	ND	<LQ	184
Number of substances	-	94.4%		4,2	0	8	2	3	5	6	7
Total concentrations	-			8957	0	125812	191	280	489	3164	8336

Table 2 : Descriptive statistics of pesticides for samples collected near vineyards (N=18).

Dwellings near cereal crops (N=26)

Substance	Type	Occurrence	Concentrations (ng/m ²)								
			LQ	Average	Minimum	Maximum	P10	P25	P50	P75	P90
Ametoctradine	F	34.6%	100	128	ND	1574	ND	ND	ND	<LQ	289
Boscalid	F	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND
Clomazone	H	3.8%	100	<LQ	ND	<LQ	ND	ND	ND	ND	ND
Cyprodinil	F	3.8%	100	<LQ	ND	<LQ	ND	ND	ND	ND	ND
Dimethomorph	F	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND
Fluopicolide	F	3.8%	100	<LQ	ND	<LQ	ND	ND	ND	ND	ND
Fluopyram	F	11.5%	100	<LQ	ND	644	ND	ND	ND	ND	<LQ
Lenacil	H	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND
Metolachlor	H	50.0%	100	<LQ	ND	619	ND	ND	<LQ	<LQ	201
Phenmedipham	H	3.8%	100	<LQ	ND	1381	ND	ND	ND	ND	ND
Pyraclostrobin	F	3.8%	100	<LQ	ND	<LQ	ND	ND	ND	ND	ND
Pyrimiphos-methyl	I	7.7%	100	<LQ	ND	218	ND	ND	ND	ND	ND
Spiroxamine	F	3.8%	100	<LQ	ND	117	ND	ND	ND	ND	ND
Terbutylazine	H	19.2%	100	<LQ	ND	480	ND	ND	ND	ND	<LQ
Trifloxystrobin	F	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND

Number of substances	-	73.1%		1,5	0	5	0	0	1	2	3
Total concentrations	-			359	0	3949	0	<LQ	106	270	585

Table 3 : Descriptive statistics for pesticides for samples collected near cereal crops (N=26).

Windows within 20 m of the first crop (N=19)

Substance	Type	Occurrence	Concentrations (ng/m ²)								
			LQ	Average	Minimum	Maximum	P10	P25	P50	P75	P90
Ametoctradine	F	47.4%	100	6786	ND	122378	ND	ND	ND	128	2105
Boscalid	F	5.3%	100	<LQ	ND	168	ND	ND	ND	ND	ND
Clomazone	H	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND
Cyprodinil	F	10.5%	100	<LQ	ND	<LQ	ND	ND	ND	ND	<LQ
Dimethomorph	F	26.3%	100	122	ND	1918	ND	ND	ND	<LQ	<LQ
Fluopicolide	F	36.8%	100	736	ND	5556	ND	ND	ND	129	2929
Fluopyram	F	52.6%	100	195	ND	2524	ND	ND	<LQ	<LQ	296
Lenacil	H	5.3%	100	<LQ	ND	<LQ	ND	ND	ND	ND	ND
Metolachlor	H	47.4%	100	<LQ	ND	238	ND	ND	ND	<LQ	<LQ
Phenmedipham	H	5.3%	100	<LQ	ND	193	ND	ND	ND	ND	ND
Pyraclostrobin	F	15.8%	100	<LQ	ND	644	ND	ND	ND	ND	<LQ
Pyrimiphos-methyl	I	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND
Spiroxamine	F	21.1%	100	<LQ	ND	<LQ	ND	ND	ND	ND	<LQ
Terbutylazine	H	5.3%	100	<LQ	ND	109	ND	ND	ND	ND	ND
Trifloxystrobin	F	26.3%	100	174	ND	2841	ND	ND	ND	<LQ	109

Number of substances	-	94.7%		3,1	0	8	1	1	3	5	6
Total concentrations	-			8149	0	125812	<LQ	<LQ	263	1436	7403

Table 4 : Descriptive statistics for pesticides for samples taken from windows within 20 m of the first crop (N=19).

Windows between 21 m and 100 m from the first crop (N=21)

Substance	Type	Occurrence	Concentrations (ng/m ³)								
			LQ	Average	Minimum	Maximum	P10	P25	P50	P75	P90
Ametoctradine	F	52.4%	100	277	ND	2093	ND	ND	<LQ	200	824
Boscalid	F	9.5%	100	<LQ	ND	270	ND	ND	ND	ND	ND
Clomazone	H	4.8%	100	<LQ	ND	<LQ	ND	ND	ND	ND	ND
Cyprodinil	F	4.8%	100	<LQ	ND	<LQ	ND	ND	ND	ND	ND
Dimethomorph	F	14.3%	100	109	ND	1890	ND	ND	ND	ND	<LQ
Fluopicolide	F	19.0%	100	<LQ	ND	338	ND	ND	ND	ND	<LQ
Fluopyram	F	42.9%	100	<LQ	ND	644	ND	ND	ND	<LQ	186
Lenacil	H	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND
Metolachlor	H	52.4%	100	<LQ	ND	619	ND	ND	<LQ	<LQ	163
Phenmedipham	H	4.8%	100	<LQ	ND	1381	ND	ND	ND	ND	ND
Pyraclostrobin	F	9.5%	100	<LQ	ND	<LQ	ND	ND	ND	ND	ND
Pyrimiphos-methyl	I	4.8%	100	<LQ	ND	218	ND	ND	ND	ND	ND
Spiroxamine	F	19.0%	100	<LQ	ND	117	ND	ND	ND	ND	<LQ
Terbutylazine	H	14.3%	100	<LQ	ND	480	ND	ND	ND	ND	<LQ
Trifloxystrobin	F	9.5%	100	<LQ	ND	151	ND	ND	ND	ND	ND

Number of substances	-	90.5%		2,6	0	8	1	2	2	3	5
Total concentrations	-			751	0	3949	<LQ	141	289	549	2090

Table 5 : Descriptive statistics for pesticides for samples taken from windows located between 21 and 100 m from the first crop (N=21).

Windows more than 101 m from the first crop (N=16)

Substance	Type	Occurrence	Concentrations (ng/m ³)								
			LQ	Average	Minimum	Maximum	P10	P25	P50	P75	P90
Ametoctradine	F	25.0%	100	<LQ	ND	151	ND	ND	ND	<LQ	<LQ
Boscalid	F	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND
Clomazone	H	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND
Cyprodinil	F	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND
Dimethomorph	F	6.3%	100	<LQ	ND	<LQ	ND	ND	ND	ND	ND
Fluopicolide	F	12.5%	100	<LQ	ND	<LQ	ND	ND	ND	ND	<LQ
Fluopyram	F	12.5%	100	<LQ	ND	<LQ	ND	ND	ND	ND	<LQ
Lenacil	H	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND
Metolachlor	H	25.0%	100	<LQ	ND	<LQ	ND	ND	ND	<LQ	<LQ
Phenmedipham	H	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND
Pyraclostrobin	F	0.0%	100	ND	ND	ND	ND	ND	ND	ND	ND
Pyrimiphos-methyl	I	6.3%	100	<LQ	ND	<LQ	ND	ND	ND	ND	ND
Spiroxamine	F	12.5%	100	<LQ	ND	<LQ	ND	ND	ND	ND	<LQ
Terbutylazine	H	12.5%	100	<LQ	ND	<LQ	ND	ND	ND	ND	<LQ
Trifloxystrobin	F	6.3%	100	<LQ	ND	<LQ	ND	ND	ND	ND	ND
Number of substances	-	50.0%		1	0	6	0	0	1	2	3
Total concentrations	-			89	0	505	0	0	35	141	212

Table 6 : Descriptive statistics for pesticides for samples taken from windows located more than 101 m from the first crop (N=16).

Descriptive statistics

The presence of agricultural pesticide residues on the glass surfaces of a building is the consequence of a drift of phytosanitary products applied on the nearby cultivated areas.

The presence of multiple families of pesticide residues (herbicides, fungicides, insecticides) in a sample demonstrates that several different treatments have been applied to nearby crops. Some formulations may contain multiple active ingredients from the same family.

Of the 30 pesticides searched, 15 were detected at least once. They are 9 fungicides, 5 herbicides and 1 insecticide.

Interpretation note

The number of samples (N=58) is not sufficient to make fine statistical interpretations of the results. However, the number of data is sufficient to identify trends regarding the presence of pesticide residues.

The occurrence of pesticides

For all samples, **the results show that 79.3% of the samples have at least one pesticide residue.** The results are presented in the Figure 1 for all samples (N=58), vineyard (N=18) and cereal crop (N=26) neighbors, and specifically for window-to-crop distances of less than 20 m (N=19), between 21 m and 100 m (N=21) and greater than 101 m (N=16).

Between 94.7% (window less than 20 m from crops), 90.5% (window between 21 m and 100 m from crops) and 50,0% (window more than 101 m from crops) of the samples have at least one pesticide residue.

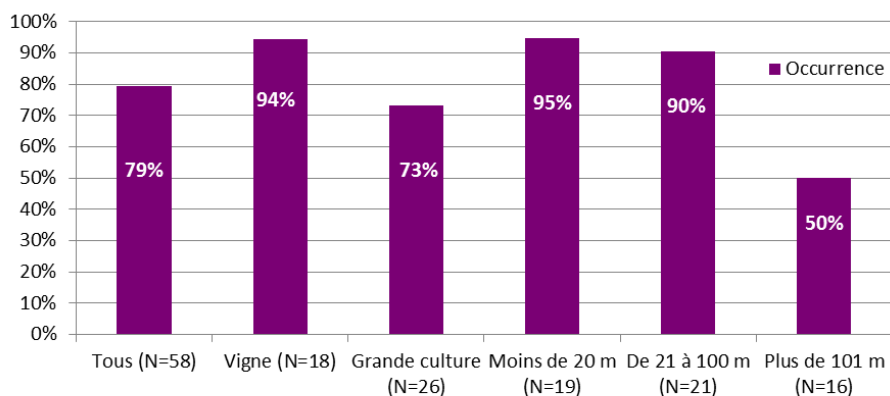


Figure 1 : Pesticide Occurrences for All Samples (N=58), specifically for vineyard (N=18) and cereal crops (N=26) residents, for window to crop distances less than 20 m (N=19), 21 m to 100 m (N=21), and greater than 100 m (N=16).

It is more common to detect pesticides:

- Near vineyards (94.4%) compared to cereal crops (73.1%).
- Close to crops (94.7% within 20 m and 50.0% over 101 m).

Pesticide occurrences for all samples (N=58) are presented in the Table 1 and the Figure 2.

Among the pesticides searched for:

- **2 have occurrences greater than 40%:** Ametoctradine (F, 43.1%) and Metolachlor (H, 41.4%) ;
- **2 have occurrences between 20 and 40%:** Fluopyram (F, 37.9%) and Fluopicolide (F, 26.7%);
- **11 have occurrences between 1.7% and 20%,** including Spiroxamine (F, 19.0%), Dimethomorph (F, 17.2%), Trifloxystrobin (F, 13.8%) and Terbutylazine (H, 10.3%).

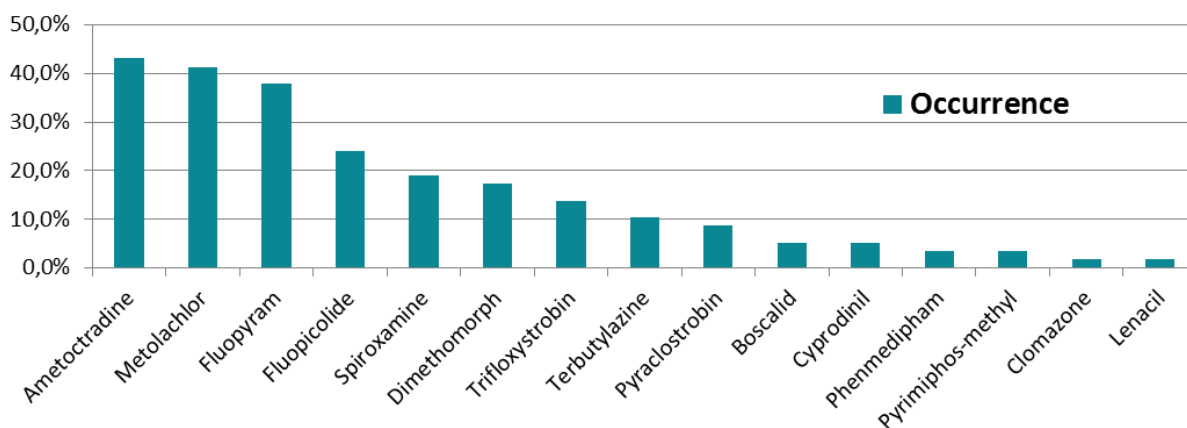


Figure 2 : Occurrence of pesticides for all samples (N=58)

Occurrence of pesticides by crop type

The occurrence of pesticides is compared in the Figure 3 for all samples (N=45), vineyard residents (N=18) and field crop residents (N=21).

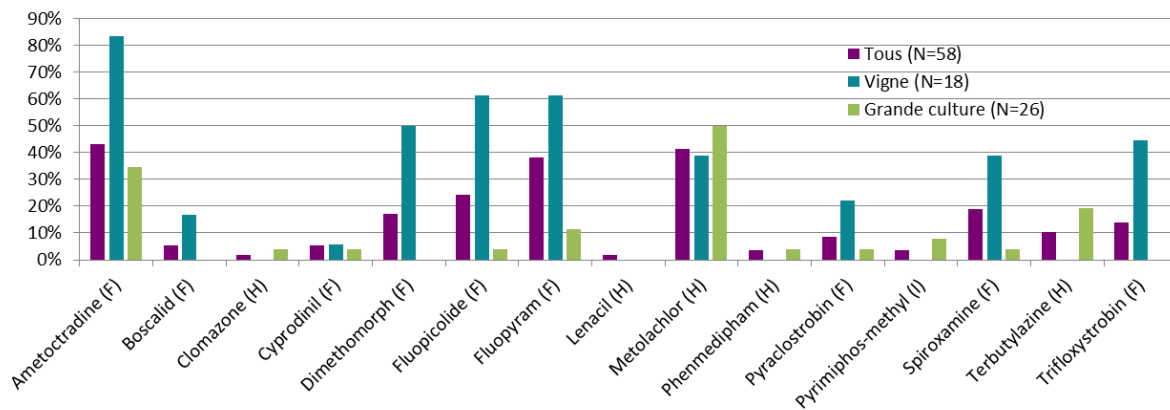


Figure 3 Occurrence of pesticides detected in the EXPORIP study for all samples (N=58) and specifically for residents near vineyards (N=18) and cereal crops (N=26).

The results of the samples collected from the vineyard residents (N=18) show a prevalence of fungicides. Six fungicides (ametoctradrine, cyprodinil, fluopicolide, fluopyram, pyraclostrobin and spiroxamine) were present in samples taken near vineyards and cereal crops. The occurrences for fungicides are always higher near vineyards. Three fungicides were measured exclusively near vineyards: boscalid, dimethomorph and trifloxystrobin.

Results from samples collected near cereal crop (N=26) show a prevalence of herbicides. One herbicide (metolachlor) is present in samples taken near vineyards and cereal crops. Its occurrence is higher near cereal crops. The other herbicides (clomazone, lenacil, phenmedipham and terbutylazine) were found to be present exclusively in the vicinity of cereal crops.

Concerning insecticides, only pirimiphos-methyl was present in 2 samples collected near cereal crops.

Distribution of "pesticide-free" samples

A total of 12 samples did not contain any of the 30 pesticides tested.

The distribution of pesticide-free samples is shown as a function of the distance from the window to the nearest crop (Figure 4).

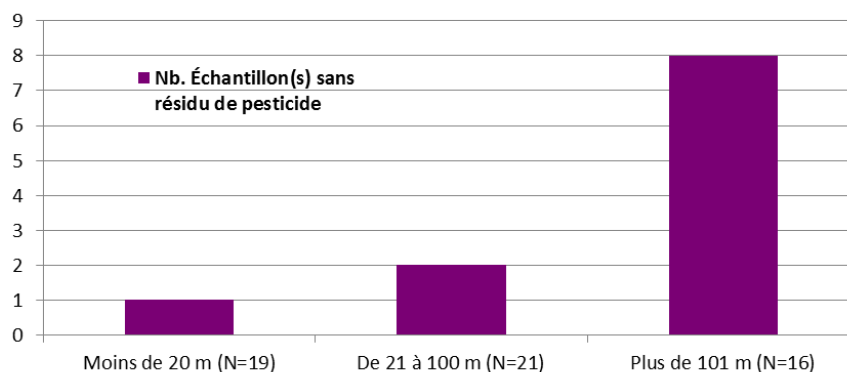


Figure 4 : Distribution of samples without pesticide residues as a function of distance from window to crop.

Most (72.7%) of the samples without pesticide residues were collected from windows located more than 101 m from the crops.

Pesticide occurrences as a function of the distance between the window and the crop

The occurrence of pesticides is compared (Figure 5) for samples collected at less than 20 m (N=19), between 21 and 100 m (N=26), and at distance greater than 101 m (N=16).

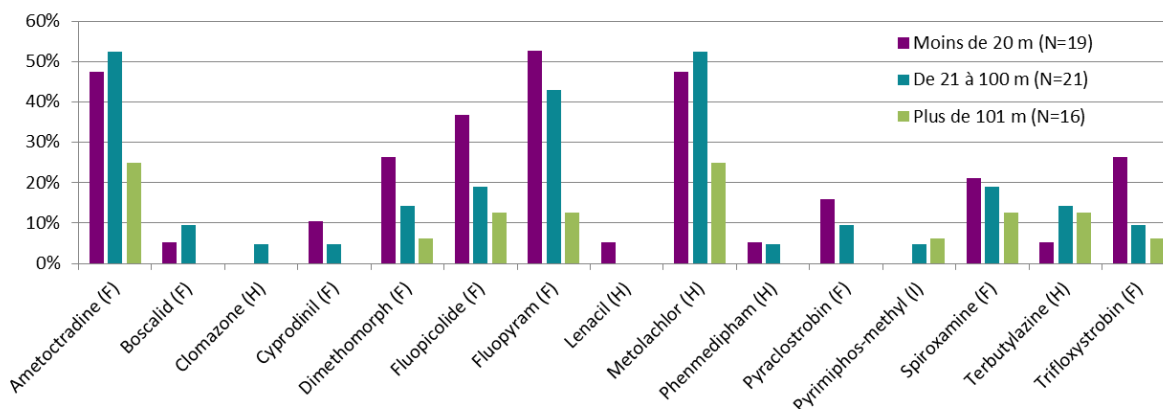


Figure 5 : Occurrences of pesticides detected in the EXPORIP study for window-to-crop distances less than 20 m (N=19), between 21 m and 100 m (N=21) and greater than 101 m (N=16).

The farthest sample from the crops with pesticide residues was located at a distance of 1500 m from the first crop.

The results show a trend of decreasing occurrence with increasing distance from the window to the crop.

Except for 4 pesticides (ametoctradine, boscalid, metolachlor, and terbutylazine), the occurrences for windows within 20 m of a crop are higher than those observed for greater distances.

For ametoctradine, boscalid, metolachlor, and terbutylazine, windows between 21 and 100 m from a crop had the highest occurrences.

Windows above 101 m always have the lowest occurrences.

Occurrence of endocrine disrupting pesticides

Among the active ingredients of pesticides investigated in the EXPORIP study, 11 substances (36.7%) have proven or suspected endocrine disrupting effects.

These substances can therefore affect the hormonal functioning of the body from very low doses of exposure. Moreover, certain periods of exposure are particularly at risk, especially for the embryo, the fetus and the first two years of a child's life.

For these substances, it is not excluded that their mere presence in the environment can have an impact on health. The occurrence of active ingredients suspected of being endocrine disruptors can therefore be considered as a pertinent indicator of exposure to endocrine disruptors.

Of the 11 pesticides searched with a potential endocrine disrupting effect, 4 were detected in the samples: Boscalid (F, Occurrence 5.2%), Cyprodinil (F, 5.2%), Dimethomorph (F, 17.2%) and Terbutylazine (H, 10.3%). These are mainly fungicides.

The number of pesticides

For all samples, the results presented in the Table 1 show that the samples contain up to 8 different pesticide residues.

The mean and median numbers of pesticides were determined (Figure 6) for all samples (N=58), samples collected near vineyards (N=18), near cereal crops (N=26), within 20 m of crops (N=19), between 21 m and 100 m of crops (N=21), and more than 101 m from crops (N=16).

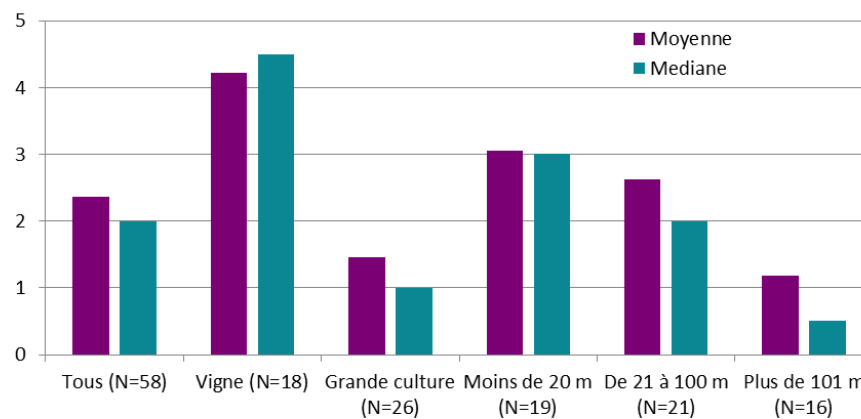


Figure 6: Mean and median pesticide counts for all samples (N=58), specifically for residents near vineyard (N=18) and cereal crop (N=26), and specifically for window-to-crop distances less than 20 m (N=19), between 21 m and 100 m (N=21), and greater than 101 m (N=16).

The results show that:

- The average number of pesticides varies from 1,2 (more than 101 m from crops) to 4,2 (proximity to vineyards) ;
- The median number of pesticides ranges from 0.5 (more than 101 m from crops) to 4,5 (proximity to vineyards);
- **Samples collected near vineyard show more different pesticides** (4.2 average pesticide residues) than samples collected near cereal crop (1.5 average pesticide residue);
- **Windows located within 20 m of crops show more different pesticides** (3.1 average pesticide residues) than those located between 21 m and 100 m (2.6 average pesticide residues) and more than 101 m (1.2 average pesticide residues);
- **Windows located less than 20 m and between 21 m and 100 m from the crops had comparable results** (mean and median number of pesticides) and higher results than windows located more than 101 m from the crops.

The quantities of pesticides

For all samples, the results presented in the Table 1 show that the samples contain up to 125 812 ng/m² of pesticide residues.

The three maximum concentrations are measured for fungicides: 122 378 ng/m² (ametoctradine, F), 5 556 ng/m² (fluopicolide, F) and 2 841 ng/m² (trifloxystrobin, F).

Mean and median pesticide concentrations (Figure 7) were determined for all samples (N=58), samples collected near vineyards (N=18), near field crops (N=26), within 20 m of crops (N=19), between 21 m and 100 m (N=21) and more than 101 m from crops (N=16).

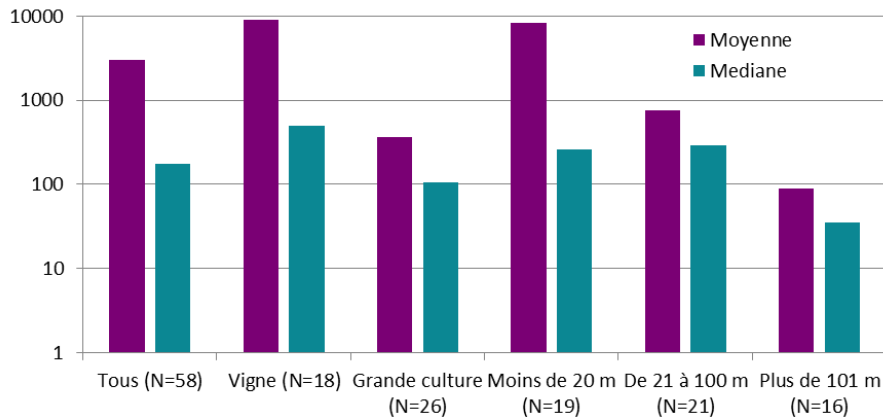


Figure 7: Mean and median pesticide concentrations (logarithmic scale) for all samples (N=58), specifically for residents near vineyards (N=18) and cereal crops (N=26), and for window-to-crop distances of less than 20 m (N=19), between 21 m and 100 m (N=21), and greater than 101 m (N=16).

The very high concentration of amectotradine ($122\,378\text{ ng/m}^2$) detected in a sample taken at 3.5 m from vines induces a significant bias in the mean values. For this reason, the interpretation of the results was based solely on the comparison of median concentrations.

The results show that:

- Median pesticide concentration ranges from <LQ (more than 101 m from crops) to 489 ng/m^2 (proximity to vineyard) ;
- **Samples collected near vineyard have a higher median pesticide concentration (489 ng/m^2) than cereal crop samples (106 ng/m^2).**
- **Windows between 21 m and 100 m from crops had a median pesticide concentration (289 ng/m^2) comparable to, but higher than, that obtained for windows within 20 m of crops (263 ng/m^2) and higher than those beyond 101 m from crops (<LQ).**

Conclusions and perspectives

A measurement campaign of 30 pesticides used exclusively in agriculture was carried out by analyzing wipes used to collect deposits on windows.

The results of this campaign show trends in the presence of pesticide residues on buildings adjacent to treated crop areas.

Of the 58 samples analyzed, pesticide residues were found on 79.3% of the windows and 72.3% of the "pesticide-free" samples were located more than 101 m from the first crops.

Half of the pesticides studied were detected at least once. The occurrences are variable depending on the pesticide but some are found in more than 37.8% of the samples.

The concentrations measured are variable and some samples contained significant amounts of pesticide. The highest concentrations measured were of fungicides.

Windows located near vineyards show more pesticide residues (number and quantity) than those located near cereal crops. The family of active substances found is different according to the type of crop: fungicides are more used in viticulture and herbicides on cereal crops.

These observations are consistent with the agricultural uses and practices for these crops.

The results obtained show a tendency for the number and amount of pesticide residues to decrease with increasing distance between the window and the first crop. This decrease is more marked for windows located more than 101 m from the crops. For distances less than or equal to 100 m, the number and quantities of pesticide residues measured are comparable between the 2 distance intervals evaluated (less than 20 m and between 21 and 100 m).

Considering that the applications of phytosanitary products were carried out according to the regulations in force and in particular:

1. The minimum treatment distances were respected during application;
2. The use of approved spreading equipment ;
3. Spreading was done in the worst case with low winds (<19 km/h) ;
4. Compliance with recommended doses.

At this stage of the study, the results suggest that a distance of more than 100 m from the crops limits the exposure of the residents to pesticide residues.

This distance of 100 m is much greater than the distance currently proposed for No-Treatment Zones (5-10-20 m).

CONCLUSIONS

Pesticide residues were observed up to 1500 m from the first crop, but this minimum distance of 100 m does not rule out the presence of pesticide residues.

The commitment of the participants resulted in an unprecedented scientific study of agricultural pesticide residue measurements and a unique data set within a few months. The descriptive statistics obtained (Table 1) now make it possible to position a result⁷ in relation to the general situation.

The participation to the 2021 campaign was the demonstration of the interest of the citizens to obtain scientific answers to a delicate public health issue. With a budget of less than 10 000€ and a great citizen mobilization, the EXPORIP study brings reliable information and contributes to a better knowledge of the level of exposure of local residents to pesticide residues.

The trends observed during the 2021 campaign will be compared with the results of the EXPORIP survey to be conducted in 2022. The increase in the number of data will allow for finer interpretations such as multi-variable statistical studies with the responses to the questionnaires.



EXPORIP map of pesticide residues

⁷ Ideally, the sample should be studied with the same analysis methodology used by YOOTEST.

Appendix 1: General Information on Pesticides and No-Treatment Zones

You have just been informed of the results of the measurement campaign of agricultural pesticide residues in dust deposited on windows.

In this section, you will find information on no-treatment zone (ZNT) regulations, pesticides, pesticide exposure and health effects, and recommendations for limiting exposure to agricultural pesticides.

The presence of pesticide(s) in a sample indicates a risk of regular exposure. It is then a question of chronic exposure to pesticides, as opposed to an acute exposure which considers an exposure to a high dose over a short period of time as it is the case of a direct exposure during the preparation and the spreading of pesticides.

The No-Treatment Zones or ZNT

Because of the known and suspected health effects of pesticides, the French authorities have defined minimum distances to be respected for agricultural spraying between the point of treatment and the property limits of neighbouring properties:

- 20 meters for substances of greatest concern to human health,
- 10 meters for arboricultural and viticultural crops whose height exceeds 50 cm,
- 5 meters for other crops.

These distances are effective since January 1st, 2020 and aim to protect residents from exposure to agricultural pesticide drift.

Information on ZNTs is available on the Ministry of Agriculture⁸ website.



Source: Ministry of Agriculture and Food 2020

⁸ <https://agriculture.gouv.fr/distances-de-securite-proximite-des-habitations-comment-sapplique-le-dispositif>

The prefectures have undertaken, in consultation with the chambers of agriculture and user groups, to draw up "local" charts in order to adapt (reduce) these minimum treatment distances. These reductions must in principle be justified by scientific and technical studies.

These charts are then submitted to a public consultation (minimum duration of 1 month). After possible modifications, they are validated then applied and in theory the respect of the charters by the farmers is controlled.

Living in a polluted environment is bad for your health

The application of pesticides to crops by spraying creates a mist, much of which does not reach the crops and diffuses into the environment. This method of application leads to pollution of the ambient air which drifts outside the treatment areas. Most of the pesticides are not very volatile, so they settle on the surface and contaminate the dust particles that we breathe daily in the air.

An adult breathes between 12 to 15 m³ of air per day, equivalent to 12 to 15 kg of air. Compared to food (less than 1 kg) and water (about 2 kg), **air represents about 80% of the material absorbed by the body.**

We are unequal when it comes to pollution

The effects of pollution vary from one person to another. There are many factors that may be involved in pathologies related to pollution exposure. The risks depend mainly on the following elements:

- The toxicity of pollutants
- Duration of exposure
- The repetition of the exposure
- The concentration of pollutants
- The exposure period
- Individual sensitivity

The health reference values take into account all these risks. However, some organisms are more sensitive and the effects on health are more pronounced, particularly for children (of all ages), pregnant or breast-feeding women, the elderly and the sick.

What are the main sources of exposure to pesticides?

Pesticides are present in our daily lives. They are mainly found:

- In drinking water and food from so-called "conventional" agriculture;
- In products used for the treatment of agricultural crops;
- In products used for the treatment of driveways, parks, gardens and public roads;
- In products used in gardens and on houseplants;
- In products used on pets for the treatment of parasites (fleas, ticks ...);
- In products used for wood treatment ;
- In products used against mosquitoes, ants, cockroaches and flies inside and outside homes;
- And in products used against parasites such as lice.

Some compounds such as DDT, pentachlorophenol or lindane have been banned for several decades, however they are sufficiently persistent (POPs, Persistent Organic Pollutants⁹) in the environment that people are still exposed to them.

The characteristics of POPs are: highly toxic, very persistent and bioaccumulative.

Acute and Chronic Exposure

Toxicologists consider two forms of exposure to pollution:

Acute exposure is exposure to pollutants for a short period of time (a few seconds to several days). This is the case, for example, when using chemicals (household products, solvents), applying resin or paint, or being directly exposed to a pesticide application. Knowledge of the health effects of acute exposure is generally well documented as it is necessary for the registration of chemicals.

Chronic exposure corresponds to exposure to pollutants over a long period of time or repeatedly (for several hours every day). This is for example the case for indoor air pollution or environmental pollution by persistent organic pollutants (POPs). Knowledge of the health effects of chronic exposure is much less documented than for acute exposure. In recent decades, evidence of the harmfulness of low-dose effects has accumulated and much remains to be discovered about the health effects of low-dose exposure on humans.

⁹ <http://www.pops.int>

What are the main health effects of pesticides

The term pesticide refers to substances or preparations used for the prevention, control or elimination of organisms considered undesirable, whether plants, animals, fungi or bacteria. Depending on their target, pesticides are divided into different categories: herbicides (against plants such as weeds), insecticides (against insects), fungicides (against fungi and molds)...

Pesticides are substances whose purpose is to kill (suffix -cide). Therefore, they generally present an important toxicity and for some of them carcinogenic, mutagenic, reprotoxic, neurotoxic and/or endocrine disruptor effects.

Pesticide regulations are evolving over time and the most toxic products are now banned.

Recent work by **INSERM**¹⁰ (Institut National de la Santé et de la Recherche Médicale) shows a relationship between **pesticide exposure** and:

- neuropsychological and motor development disorders in children,
- cognitive and anxiety disorders in adults,
- neurodegenerative diseases,
- cancers in children and adults,
- endometriosis,
- respiratory pathologies
- thyroid pathologies (of the thyroid).

This work also highlights links between **occupational exposure** and:

- non-Hodgkin's lymphoma (NHL),
- multiple myeloma,
- prostate cancer,
- Parkinson's disease,
- cognitive disorders,
- chronic obstructive pulmonary disease,
- chronic bronchitis.

It is also established that children and pregnant women are more sensitive than the rest of the population to the health effects of pesticides. Several scientific studies have shown that exposure of pregnant women also results in exposure of the fetus, which can lead to

¹⁰ <https://www.inserm.fr/information-en-sante/expertises-collectives/pesticides-et-sante-nouvelles-donnees-2021>

significant malformations, particularly in the genital apparatus of children. In addition, links have been established between *in-utero* or childhood exposure and certain cancers, in particular leukemia and central nervous system tumors.

The data in the literature concerning the exposure of local residents to pesticides are not sufficient to establish a definite link, but they do suggest an increased risk of Parkinson's disease and autism spectrum disorders in children.

Finally, the health effects of pesticides can appear several years after exposure, which makes it difficult to establish a link between exposure and pathology.

To date, there is no reference scale between the concentration measured in the dust on a window and a possible health risk level. However, because of the mechanisms of action at low dose (endocrine disruptor) and the effects of mixtures, **cocktail effect**, identified in some scientific studies, **it is reasonable to consider that the mere presence of pesticide in its daily environment can have an impact on the health of occupants.**

If you experience symptoms of pesticide exposure, you should consult a physician who can refer you to a toxicologist or a hospital department specialized in pathologies related to these chemicals.

You can consult the detailed sheets of the pesticides highlighted in the analyses to know their toxicological properties.

Use of pesticides in agriculture

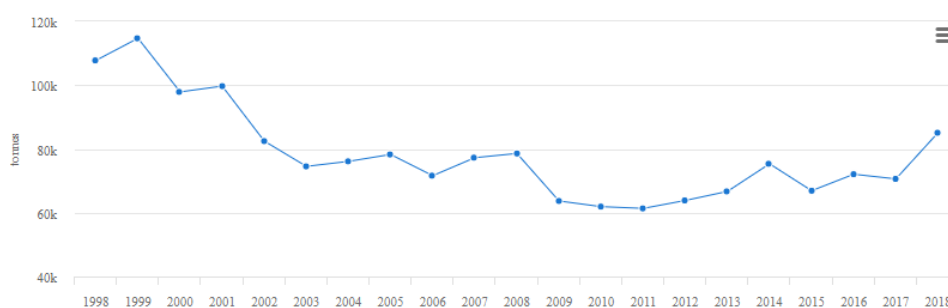
Pesticides are subject to a marketing authorization, **MA**, after the study of a complete file on the active substance present in the marketed formulations. Once obtained, it is valid for a defined period. At the end of this period, the authorization can be renewed or suspended. In the latter case, it is a priori no longer possible to use the substance for agricultural purposes. Substances used for agricultural and veterinary treatments are first authorized at European level and then at national level.

According to the terms of European regulations, a distinction must be made between substances authorized for agricultural use (pesticide, plant protection product or phytopharmaceutical) and those used for other professional uses and by individuals (biocide). The list of products authorized in France for agricultural use is available on the

ANSES¹¹ website (Agence Nationale de Sécurité Sanitaire) and the list of products authorized for biocidal use is available on a website of the ANSES and the Ministry of the Environment¹².

In the EXPORIP study, only pesticides for agricultural use authorized in 2021 were selected. Mixed-use substances (plant protection product and biocide) were not included.

France is now the 6th largest user of pesticides in the world. In 2018, more than 86 000 tons of pesticides were sold in France, of which more than 90% were used for agricultural purposes. According to the FAO¹³ (Food and Agriculture Organization) of the UN (United Nations), the evolution of the total amount (in tons) of pesticides used in France between 1998 and 2018 is presented in the figure below.



Source: FAO 2021

They are generally applied by spraying but a large part of the applied phytosanitary products do not reach the crops and are dispersed in the environment. Agricultural spraying is responsible for air pollution by pesticide residues that drift and are deposited on the plots of land near the application area. The application of phytosanitary products by spraying exposes local residents to phytosanitary products used on plots of land adjacent to their homes.

Since 2006, it is forbidden to carry out a spray application when the winds are too strong (speed higher than 19 km/h) in order to limit the dispersion of pesticides beyond the application areas. However, as shown by the ambient air quality measurements carried out by the **AASQA**¹⁴ (Associations Agréées pour la Surveillance de la Qualité de l'Air), the products applied drift over long distances and are even found in the air of cities.

¹¹ <https://ephy.anses.fr/>

¹² <https://simmbad.fr/servlet/accueilMinistere.html>

¹³ <http://www.fao.org/faostat/fr/#data/RP/visualize>

¹⁴ <https://atmo-france.org/les-pesticides/>

Pesticides and indoor environmental pollution

The application of pesticides in the vicinity of buildings has the potential to contaminate the indoor environment at significant levels over time.

We spend more than 80% of our time inside buildings, at least 40% of which is spent in homes. Exposure to pesticides in a building is a daily occurrence and contributes significantly to our exposure.

Several measurement campaigns^{15,16,17} showed that the indoor environment of homes is polluted by pesticides and biocides.

Pesticides have variable stabilities in the environment. Depending on their persistence, indoor environmental pollution can be persistent and can last for several months or even years.

Depending on the results of the analysis of the dust deposited on the windows, it is suggested to carry out a complementary analysis of the dust present inside the buildings in order to evaluate the pollution by agricultural pesticides and to better know its chronic exposure level.

How to prevent pesticide pollution in your home

Residents do not have the necessary personal protection systems (respirators, suits and gloves) to protect themselves from plant protection products.

Several recommendations can be made to limit the exposure of residents to pesticides:

- The installation of a vegetal barrier (hedges) or a wall capable of retaining the pesticides and slowing down their propagation. The effectiveness of this protection depends on the height of the protective barrier, which must be high enough to improve its effectiveness.
- Close the windows and doors of your home if a spraying is observed in order to limit the persistent pollution of the indoor environment by pesticides of agricultural use.
- Go inside the building if spraying is observed to avoid direct exposure to pesticide residues.

¹⁵ <https://www.generations-futures.fr/actualites/analyses-poussiere/>

¹⁶ <https://www.quechoisir.org/enquete-poussieres-domestiques-chargees-de-composes-toxiques-n77195/>

¹⁷ <https://ged.univ-rennes1.fr/nuxeo/site/esupversions/1e44a34c-389e-46a7-a323-20bb261aff42?inline>

- Communicate with farmers to know the most "at risk" periods and allow residents to organize themselves and protect their habitat.

Pesticides are mainly present on dust particles. Reducing the presence of dust in the indoor environment will reduce exposure:

- Clean surfaces regularly with a damp cloth (floor and furniture).
- Use a vacuum cleaner equipped with a HEPA filter and change the HEPA filter regularly
- Use an air purifier equipped with a HEPA filter of H13 or H14 quality.
- Airing your home outside of the agricultural spraying periods will reduce indoor pollution levels.

APPENDIX 2: Results of the analyses

Sample number		112639	112468	112481	112512	112513
Department		67	87	76	33	25
Surface taken m ²		0,25	0,25	0,25	0,51	0,25
Distance (m)		50	150	15	7	15
Type of crop		Cereal + Potatoes	Cereal	Cereal	Vine	Cereal
Substance	LQ	Concentration	Concentration	Concentration	Concentration	Concentration
2,4-D	400	ND	ND	ND	ND	ND
Aclonifen	1000	ND	ND	ND	ND	ND
Ametoctradine	100	144	ND	ND	<LQ	ND
Boscalid	100	ND	ND	ND	ND	ND
Chlortoluron	100	ND	ND	ND	ND	ND
Clomazone	100	ND	ND	ND	ND	ND
Cyprodinil	100	ND	ND	<LQ	ND	ND
Dicamba	400	ND	ND	ND	ND	ND
Diflufenicanil	400	ND	ND	ND	ND	ND
Dimethomorph	100	ND	ND	ND	189	ND
Ethofumesate	400	ND	ND	ND	ND	ND
Fluazinam	100	ND	ND	ND	ND	ND
Fluopicolide	100	ND	ND	ND	ND	ND
Fluopyram	100	ND	ND	ND	ND	ND
Fluroxypyr	400	ND	ND	ND	ND	ND
Lenacil	100	ND	ND	ND	ND	ND
MCPA	400	ND	ND	ND	ND	ND
Metamitron	100	ND	ND	ND	ND	ND
Metolachlor	100	ND	ND	ND	<LQ	<LQ
Oryzalin	400	ND	ND	ND	ND	ND
Pendimethalin	400	ND	ND	ND	ND	ND
Phenmedipham	100	ND	ND	ND	ND	ND
Phosmet	400	ND	ND	ND	ND	ND
Propyzamide	400	ND	ND	ND	ND	ND
Prosulfocarb	400	ND	ND	ND	ND	ND
Pyraclostrobin	100	ND	ND	ND	ND	<LQ
Pyrimiphos-methyl	100	218	<LQ	ND	ND	ND
Spiroxamine	100	117	ND	ND	ND	ND
Terbutylazine	100	ND	ND	ND	ND	ND
Trifloxystrobin	100	ND	ND	ND	ND	ND
Number of substances		3	1	1	3	2
Sum of the concentrations		479	71	71	330	141
Collection date		07/06/2021	29/04/2021	06/05/2021	15/05/2021	18/05/2021
Last wash date		03/2021	01/2021	09/03/2021	15/01/2021	03/04/2021
Window height		Ground floor	1 ^{er} Floor	Ground floor	Ground floor	Ground floor
Window orientation		In front of	In front of	In front of	In front of	In front of
Barrier		Vegetal hedge	No	No	Vegetal hedge	Vegetal hedge
Barrier height		2 m	-	-	2 m	1 m
Observed application date		04/2021	29/04/2021	05/05/2021	05/05/2021	18/05/2021

APPENDICES

Sample number		112525	112526	112527	112555	112640
Department		26	37	33	30	67
Surface taken m ²		0,25	0,25	0,25	0,25	0,25
Distance (m)		7	15	30	3,5	250
Type of crop		Cereal	Vine	Vine	Vine	Cereal
Substance	LQ	Concentration	Concentration	Concentration	Concentration	Concentration
2,4-D	400	ND	ND	ND	ND	ND
Aclonifen	1000	ND	ND	ND	ND	ND
Ametoctradine	100	ND	ND	200	122378	<LQ
Boscalid	100	ND	ND	ND	ND	ND
Chlortoluron	100	ND	ND	ND	ND	ND
Clomazone	100	ND	ND	ND	ND	ND
Cyprodinil	100	ND	ND	ND	ND	ND
Dicamba	400	ND	ND	ND	ND	ND
Diflufenicanil	400	ND	ND	ND	ND	ND
Dimethomorph	100	ND	ND	1890	ND	ND
Ethofumesate	400	ND	ND	ND	ND	ND
Fluazinam	100	ND	ND	ND	ND	ND
Fluopicolide	100	ND	ND	ND	2383	ND
Fluopyram	100	ND	<LQ	ND	265	ND
Fluroxypyr	400	ND	ND	ND	ND	ND
Lenacil	100	ND	ND	ND	ND	ND
MCPA	400	ND	ND	ND	ND	ND
Metamitron	100	ND	ND	ND	ND	ND
Metolachlor	100	<LQ	<LQ	ND	ND	<LQ
Oryzalin	400	ND	ND	ND	ND	ND
Pendimethalin	400	ND	ND	ND	ND	ND
Phenmedipham	100	ND	ND	ND	ND	ND
Phosmet	400	ND	ND	ND	ND	ND
Propyzamide	400	ND	ND	ND	ND	ND
Prosulfocarb	400	ND	ND	ND	ND	ND
Pyraclostrobin	100	ND	ND	ND	644	ND
Pyrimiphos-methyl	100	ND	ND	ND	ND	ND
Spiroxamine	100	ND	<LQ	ND	<LQ	ND
Terbutylazine	100	ND	ND	ND	ND	<LQ
Trifloxystrobin	100	ND	ND	ND	<LQ	ND
Number of substances		1	3	2	6	3
Sum of the concentrations		71	212	2090	125812	212
Collection date		21/05/2021	20/05/2021	20/05/2021	23/05/2021	07/06/2021
Last wash date		07/05/2021	01/04/2021	11/2020	04/2019	01/08/2019
Window height		Ground floor	Ground floor	Ground floor	Ground floor	1 ^{er} Floor
Window orientation		In front of	In front of	In front of	In front of	In front of
Barrier		Vegetal hedge	Crank handle	Vegetal hedge Vineyard below	No	Wall
Barrier height		0,7 m	1,4 m	1 m	-	-
Observed application date		No	20/05/2021	No	20/04/2021	No

Sample number		112556	112557	112558	112559	112573
Department		31	37	31	56	26
Surface taken m ²		0,25	0,25	0,25	0,25	0,25
Distance (m)		100	12	15	150	200
Type of crop		Cereal	Vine	Cereal	Cereal	Vine
Substance	LQ	Concentration	Concentration	Concentration	Concentration	Concentration
2,4-D	400	ND	ND	ND	ND	ND
Aclonifen	1000	ND	ND	ND	ND	ND
Ametoctradine	100	1574	263	<LQ	ND	ND
Boscalid	100	ND	ND	ND	ND	ND
Chlortoluron	100	ND	ND	ND	ND	ND
Clomazone	100	ND	ND	ND	ND	ND
Cyprodinil	100	ND	ND	ND	ND	ND
Dicamba	400	ND	ND	ND	ND	ND
Diflufenicanil	400	ND	ND	ND	ND	ND
Dimethomorph	100	ND	ND	ND	ND	ND
Ethofumesate	400	ND	ND	ND	ND	ND
Fluazinam	100	ND	ND	ND	ND	ND
Fluopicolide	100	ND	ND	ND	ND	ND
Fluopyram	100	ND	ND	ND	ND	ND
Fluroxypyr	400	ND	ND	ND	ND	ND
Lenacil	100	ND	ND	ND	ND	ND
MCPA	400	ND	ND	ND	ND	ND
Metamitron	100	ND	ND	ND	ND	ND
Metolachlor	100	152	ND	238	ND	ND
Oryzalin	400	ND	ND	ND	ND	ND
Pendimethalin	400	ND	ND	ND	ND	ND
Phenmedipham	100	ND	ND	ND	ND	ND
Phosmet	400	ND	ND	ND	ND	ND
Propyzamide	400	ND	ND	ND	ND	ND
Prosulfocarb	400	ND	ND	ND	ND	ND
Pyraclostrobin	100	ND	ND	ND	ND	ND
Pyrimiphos-methyl	100	ND	ND	ND	ND	ND
Spiroxamine	100	ND	ND	ND	ND	ND
Terbutylazine	100	ND	ND	109	ND	ND
Trifloxystrobin	100	ND	ND	ND	ND	ND
Number of substances		2	1	3	0	0
Sum of the concentrations		1726	263	418	0	0
Collection date		24/05/2021	21/05/2021	24/05/2021	26/05/2021	28/05/2021
Last wash date		05/04/2021	20/03/2021	10/01/2021	04/2020	15/02/2021
Window height		Ground floor	Ground floor	Ground floor	1 ^{er} Floor	Ground floor
Window orientation		On the side	In front of	In front of On the side	In front of	In front of
Barrier		Vegetal hedge	Scattered shrubs	No	Vegetal hedge	Vegetal Diffusion
Barrier height		1 m	1 m	-	2 m	1.5 to 5 m
Observed application date		20/04/2021	20/05/2021	22/05/2021	No	28/05/2021

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Sample number		112574	112575	112576	112578	112619
Department		69	69	26	26	67
Surface taken m ²		0,25	0,25	0,25	0,19	0,25
Distance (m)		10	8	700	50	50
Type of crop		Orchard	Orchard	Vine + Cereal	Orchard+ Cereal+ Aromatic	Orchard
Substance	LQ	Concentration	Concentration	Concentration	Concentration	Concentration
2,4-D	400	ND	ND	ND	ND	ND
Aclonifen	1000	ND	ND	ND	ND	ND
Ametoctradine	100	ND	ND	<LQ	435	ND
Boscalid	100	ND	ND	ND	ND	ND
Chlortoluron	100	ND	ND	ND	ND	ND
Clomazone	100	ND	ND	ND	ND	ND
Cyprodinil	100	ND	ND	ND	ND	ND
Dicamba	400	ND	ND	ND	ND	ND
Diflufenicanil	400	ND	ND	ND	ND	ND
Dimethomorph	100	ND	ND	ND	ND	ND
Ethofumesate	400	ND	ND	ND	ND	ND
Fluazinam	100	ND	ND	ND	ND	ND
Fluopicolide	100	ND	ND	ND	ND	ND
Fluopyram	100	ND	ND	ND	ND	ND
Fluroxypyr	400	ND	ND	ND	ND	ND
Lenacil	100	ND	ND	ND	ND	ND
MCPA	400	ND	ND	ND	ND	ND
Metamitron	100	ND	ND	ND	ND	ND
Metolachlor	100	ND	<LQ	<LQ	ND	163
Oryzalin	400	ND	ND	ND	ND	ND
Pendimethalin	400	ND	ND	ND	ND	ND
Phenmedipham	100	ND	ND	ND	ND	ND
Phosmet	400	ND	ND	ND	ND	ND
Propyzamide	400	ND	ND	ND	ND	ND
Prosulfocarb	400	ND	ND	ND	ND	ND
Pyraclostrobin	100	ND	ND	ND	ND	ND
Pyrimiphos-methyl	100	ND	ND	ND	ND	ND
Spiroxamine	100	ND	ND	ND	ND	ND
Terbutylazine	100	ND	ND	ND	ND	126
Trifloxystrobin	100	ND	ND	ND	ND	ND
Number of substances		0	1	2	1	2
Sum of the concentrations		0	71	141	435	289
Collection date		26/05/2021	27/05/2021	25/05/2021	31/05/2021	06/06/2021
Last wash date		Very long time	-	15/02/2021	15/12/2020	01/2021
Window height		Ground floor	Ground floor	1 st floor	1 st floor	2 nd Floor
Window orientation		In front of	On the side	In front of	On the side	In front of
Barrier		Vegetal hedge	No	Trees	Vegetal hedge	Vegetal hedge
Barrier height		1,5 m	No	10 m	15 m	1 m
Observed application date		No	No	24/05/2021	27/05/2021	No

Sample number	112620	112621	112622	112623	112624
Department	67	67	33	81	33
Surface taken m ²	0,25	0,25	0,25	0,25	0,25
Distance (m)	50	50	3	100	25
Type of crop	Orchard	Cereal	Vine	Orchard	Vine
Substance	LQ	Concentration	Concentration	Concentration	Concentration
2,4-D	400	ND	ND	ND	ND
Aclonifen	1000	ND	ND	ND	ND
Ametoctradine	100	ND	824	4267	<LQ
Boscalid	100	ND	ND	ND	ND
Chlortoluron	100	ND	ND	ND	ND
Clomazone	100	ND	ND	ND	ND
Cyprodinil	100	ND	ND	ND	ND
Dicamba	400	ND	ND	ND	ND
Diflufenicanil	400	ND	ND	ND	ND
Dimethomorph	100	ND	ND	1918	ND
Ethofumesate	400	ND	ND	ND	ND
Fluazinam	100	ND	ND	ND	ND
Fluopicolide	100	ND	ND	5556	ND
Fluopyram	100	ND	644	<LQ	<LQ
Fluroxypyr	400	ND	ND	ND	ND
Lenacil	100	ND	ND	ND	ND
MCPA	400	ND	ND	ND	ND
Metamitron	100	ND	ND	ND	ND
Metolachlor	100	<LQ	619	<LQ	<LQ
Oryzalin	400	ND	ND	ND	ND
Pendimethalin	400	ND	ND	ND	ND
Phenmedipham	100	ND	1381	ND	ND
Phosmet	400	ND	ND	ND	ND
Propyzamide	400	ND	ND	ND	ND
Prosulfocarb	400	ND	ND	ND	ND
Pyraclostrobin	100	ND	ND	<LQ	ND
Pyrimiphos-methyl	100	ND	ND	ND	ND
Spiroxamine	100	<LQ	ND	<LQ	ND
Terbutylazine	100	ND	480	ND	<LQ
Trifloxystrobin	100	ND	ND	2841	ND
Number of substances	2	5	8	4	5
Sum of the concentrations	141	3949	14865	283	549
Collection date	06/06/2021	06/06/2021	02/06/2021	03/06/2021	02/06/2021
Last wash date	-	09/2020	01/04/2021	More than 4 years	05/04/2021
Window height	1 ^{er} Floor	1 ^{er} Floor	Ground floor	1 ^{er} Floor	Ground floor
Window orientation	In front of	In front of	On the other hand	In front of	In front of
Barrier	No	House	Vegetal hedge	Vegetal hedge	No
Barrier height	-	8-9 m	1 m	5 to 10 m	-
Observed application date	No	No	01/06/2021	03/06/2021	02/06/2021

Sample number		112625	112638	113130	112641	112763
Department		81	26	71	31	67
Surface taken m ²		0,25	0,25	0,25 (default)	0,25	0,25
Distance (m)		150	50	No information	25	300
Type of crop		Orchard	Vine	No information	Cereal	Cereal
Substance	LQ	Concentration	Concentration	Concentration	Concentration	Concentration
2,4-D	400	ND	ND	ND	ND	ND
Aclonifen	1000	ND	ND	ND	ND	ND
Ametoctradine	100	ND	ND	103	<LQ	ND
Boscalid	100	ND	270	ND	ND	ND
Chlortoluron	100	ND	ND	ND	ND	ND
Clomazone	100	ND	ND	ND	ND	ND
Cyprodinil	100	ND	ND	ND	ND	ND
Dicamba	400	ND	ND	ND	ND	ND
Diflufenicanil	400	ND	ND	ND	ND	ND
Dimethomorph	100	ND	ND	<LQ	ND	ND
Ethofumesate	400	ND	ND	ND	ND	ND
Fluazinam	100	ND	ND	ND	ND	ND
Fluopicolide	100	ND	ND	<LQ	ND	ND
Fluopyram	100	<LQ	ND	109	<LQ	ND
Fluroxypyr	400	ND	ND	ND	ND	ND
Lenacil	100	ND	ND	ND	ND	ND
MCPA	400	ND	ND	ND	ND	ND
Metamitron	100	ND	ND	ND	ND	ND
Metolachlor	100	ND	<LQ	ND	549	<LQ
Oryzalin	400	ND	ND	ND	ND	ND
Pendimethalin	400	ND	ND	ND	ND	ND
Phenmedipham	100	ND	ND	ND	ND	ND
Phosmet	400	ND	ND	ND	ND	ND
Propyzamide	400	ND	ND	ND	ND	ND
Prosulfocarb	400	ND	ND	ND	ND	ND
Pyraclostrobin	100	ND	<LQ	ND	ND	ND
Pyrimiphos-methyl	100	ND	ND	ND	ND	ND
Spiroxamine	100	ND	ND	220	ND	ND
Terbutylazine	100	ND	ND	ND	ND	<LQ
Trifloxystrobin	100	ND	ND	ND	ND	ND
Number of substances		1	3	5	3	2
Sum of the concentrations		71	411	573	690	141
Collection date		03/06/2021	06/06/2021	No information	06/06/2021	21/06/2021
Last wash date		01/02/2021	2021	No information	06/06/2018	10/05/2021
Window height		Ground floor	1 ^{er} Floor	No information	Ground floor	1 ^{er} Floor
Window orientation		In front of	In front of	No information	In front of On the side	In front of
Barrier		Vegetal hedge	No	No information	Trees	Vegetal hedge House
Barrier height		10 to 20 m	-	No information	4 m	8 to 10 m
Observed application date		03/06/2021	04/06/2021	No information	01/06/2021	No

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Sample number		112768	112769	112867	112940	112949
Department		84	30	59	33	59
Surface taken m ²		0,25	0,289	0,25	0,2755	0,25
Distance (m)		5	40	30	25	10
Type of crop		Vine	Vine	Small pitches	Vine	Potatoes
Substance	LQ	Concentration	Concentration	Concentration	Concentration	Concentration
2,4-D	400	ND	ND	ND	ND	ND
Aclonifen	1000	ND	ND	ND	ND	ND
Ametoctradine	100	142	2093	ND	262	ND
Boscalid	100	ND	<LQ	ND	ND	ND
Chlortoluron	100	ND	ND	ND	ND	ND
Clomazone	100	ND	ND	ND	ND	ND
Cyprodinil	100	ND	ND	ND	ND	ND
Dicamba	400	ND	ND	ND	ND	ND
Diflufenicanil	400	ND	ND	ND	ND	ND
Dimethomorph	100	ND	322	ND	<LQ	ND
Ethofumesate	400	ND	ND	ND	ND	ND
Fluazinam	100	ND	ND	ND	ND	ND
Fluopicolide	100	609	338	ND	<LQ	<LQ
Fluopyram	100	2524	364	<LQ	<LQ	<LQ
Fluroxypyr	400	ND	ND	ND	ND	ND
Lenacil	100	ND	ND	ND	ND	ND
MCPA	400	ND	ND	ND	ND	ND
Metamitron	100	ND	ND	ND	ND	ND
Metolachlor	100	<LQ	ND	<LQ	ND	ND
Oryzalin	400	ND	ND	ND	ND	ND
Pendimethalin	400	ND	ND	ND	ND	ND
Phenmedipham	100	ND	ND	ND	ND	ND
Phosmet	400	ND	ND	ND	ND	ND
Propyzamide	400	ND	ND	ND	ND	ND
Prosulfocarb	400	ND	ND	ND	ND	ND
Pyraclostrobin	100	ND	<LQ	ND	ND	ND
Pyrimiphos-methyl	100	ND	ND	ND	ND	ND
Spiroxamine	100	ND	<LQ	<LQ	ND	ND
Terbutylazine	100	ND	ND	ND	ND	ND
Trifloxystrobin	100	262	<LQ	ND	ND	ND
Number of substances		5	8	3	4	2
Sum of the concentrations		3607	3400	212	474	141
Collection date		19/06/2021	16/06/2021	23/06/2021	27/06/2021	04/07/2021
Last wash date		01/10/2020	09/2012	15/05/2021	03/2021	07/06/2021
Window height		Ground floor	1 ^{er} Floor	Ground floor	1 ^{er} Floor	Ground floor
Window orientation		In front of	On the side	In front of	In front of	In front of
Barrier		Vegetal hedge	Vegetal hedge Wall	No	Vegetal hedge	Vegetal hedge
Barrier height		1 m	10 m	-	3 m	1,5 m
Observed application date		11/06/2021	15/06/2021	23/06/2021	25/06/2021	01/07/2021

Sample number		112952	112980	113025	113044	113069
Department		81	42	84	85	44
Surface taken m ²		0,35	0,25	0,18	1,9795	0,15
Distance (m)		25	50	10	1500	3000
Type of crop		Cereal+ Orchard	Orchard	Vine	-	-
Substance	LQ	Concentration	Concentration	Concentration	Concentration	Concentration
2,4-D	400	ND	ND	ND	ND	ND
Aclonifen	1000	ND	ND	ND	ND	ND
Ametoctradine	100	ND	ND	1564	ND	ND
Boscalid	100	ND	ND	ND	ND	ND
Chlortoluron	100	ND	ND	ND	ND	ND
Clomazone	100	ND	ND	ND	ND	ND
Cyprodinil	100	ND	<LQ	<LQ	ND	ND
Dicamba	400	ND	ND	ND	ND	ND
Diflufenicanil	400	ND	ND	ND	ND	ND
Dimethomorph	100	ND	ND	<LQ	ND	ND
Ethofumesate	400	ND	ND	ND	ND	ND
Fluazinam	100	ND	ND	ND	ND	ND
Fluopicolide	100	ND	ND	187	ND	ND
Fluopyram	100	<LQ	142	420	ND	ND
Fluroxypyr	400	ND	ND	ND	ND	ND
Lenacil	100	ND	ND	ND	ND	ND
MCPA	400	ND	ND	ND	ND	ND
Metamitron	100	ND	ND	ND	ND	ND
Metolachlor	100	<LQ	ND	ND	<LQ	ND
Oryzalin	400	ND	ND	ND	ND	ND
Pendimethalin	400	ND	ND	ND	ND	ND
Phenmedipham	100	ND	ND	ND	ND	ND
Phosmet	400	ND	ND	ND	ND	ND
Propyzamide	400	ND	ND	ND	ND	ND
Prosulfocarb	400	ND	ND	ND	ND	ND
Pyraclostrobin	100	ND	ND	ND	ND	ND
Pyrimiphos-methyl	100	ND	ND	ND	ND	ND
Spiroxamine	100	ND	ND	<LQ	ND	ND
Terbutylazine	100	ND	ND	ND	ND	ND
Trifloxystrobin	100	ND	ND	<LQ	ND	ND
Number of substances		2	2	7	1	0
Sum of the concentrations		141	212	2454	71	0
Collection date		06/07/2021	08/07/2021	09/07/2021	13/07/2021	22/07/2021
Last wash date		5 years	01/06/2021	1 year	31/03/2021	04/2021
Window height		Ground floor	1 ^{er} Floor	Ground floor	Ground floor	1 ^{er} Floor
Window orientation		In front of	In front of	In front of	On the side	In front of
Barrier		No	No	No	Vegetal hedge	House
Barrier height		-	-	-	4 to 5 m	8 to 10 m
Observed application date		15/05/2021	01/07/2021	No	No	No

Sample number		113070	113078	113080	113100	113149
Department		33	30	54	35	34
Surface taken m ²		0.25	0.25	0.25	0.25	0.25
Distance (m)		6	7	105	70	200
Type of crop		Vine	Vine	Cereal+ Orchard+ Sunflower	Cereal + Rapeseed	Vine
Substance	LQ	Concentration	Concentration	Concentration	Concentration	Concentration
2,4-D	400	ND	ND	ND	ND	ND
Aclonifen	1000	ND	ND	ND	ND	ND
Ametoctradine	100	<LQ	114	ND	ND	<LQ
Boscalid	100	ND	168	ND	ND	ND
Chlortoluron	100	ND	ND	ND	ND	ND
Clomazone	100	ND	ND	ND	ND	ND
Cyprodinil	100	ND	ND	ND	ND	ND
Dicamba	400	ND	ND	ND	ND	ND
Diflufenicanil	400	ND	ND	ND	ND	ND
Dimethomorph	100	<LQ	<LQ	ND	ND	ND
Ethofumesate	400	ND	ND	ND	ND	ND
Fluazinam	100	ND	ND	ND	ND	ND
Fluopicolide	100	<LQ	5114	ND	ND	<LQ
Fluopyram	100	<LQ	<LQ	ND	ND	ND
Fluroxypyr	400	ND	ND	ND	ND	ND
Lenacil	100	ND	ND	ND	ND	ND
MCPA	400	ND	ND	ND	ND	ND
Metamitron	100	ND	ND	ND	ND	ND
Metolachlor	100	ND	ND	ND	<LQ	ND
Oryzalin	400	ND	ND	ND	ND	ND
Pendimethalin	400	ND	ND	ND	ND	ND
Phenmedipham	100	ND	ND	ND	ND	ND
Phosmet	400	ND	ND	ND	ND	ND
Propyzamide	400	ND	ND	ND	ND	ND
Prosulfocarb	400	ND	ND	ND	ND	ND
Pyraclostrobin	100	ND	ND	ND	ND	ND
Pyrimiphos-methyl	100	ND	ND	ND	ND	ND
Spiroxamine	100	ND	ND	ND	ND	<LQ
Terbutylazine	100	ND	ND	ND	ND	ND
Trifloxystrobin	100	<LQ	ND	ND	ND	ND
Number of substances		5	5	0	1	3
Sum of the concentrations		354	5538	0	71	212
Collection date		22/07/2021	24/07/2021	27/07/2021	03/08/2021	18/08/2021
Last wash date		05/2021	10/07/2021	15/05/2021	No information	06/2021
Window height		1 st Floor	Ground floor	1 st Floor	Ground floor	1 st Floor
Window orientation		In front of	In front of	Opposite	In front of	On the side
Barrier		Vegetal hedge	No	Vegetal hedge	Vegetal hedge	No
Barrier height		10 m	-	2 to 15 m	No information	-
Observed application date		21/07/2021	21/07/2021	No	No	08/2021

Sample number		113217	112642	112948	113180	113202
Department		42	30	02	26	63
Surface taken m ²		0.25	0.25	0.25	0.25	0.25
Distance (m)		20	300	0,5	200	100
Type of crop		Orchards	Vines	Beet	Cereals + Nuts	Cereals
Substance	LQ	Concentration	Concentration	Concentration	Concentration	Concentration
2,4-D	400	ND	ND	ND	ND	ND
Aclonifen	1000	ND	ND	ND	ND	ND
Ametoctradine	100	ND	151	ND	ND	<LQ
Boscalid	100	ND	ND	ND	ND	ND
Chlortoluron	100	ND	ND	ND	ND	ND
Clomazone	100	ND	ND	ND	ND	ND
Cyprodinil	100	ND	ND	ND	ND	ND
Dicamba	400	ND	ND	ND	ND	ND
Diflufenicanil	400	ND	ND	ND	ND	ND
Dimethomorph	100	ND	<LQ	ND	ND	ND
Ethofumesate	400	ND	ND	ND	ND	ND
Fluazinam	100	ND	ND	ND	ND	ND
Fluopicolide	100	ND	<LQ	ND	ND	<LQ
Fluopyram	100	<LQ	<LQ	<LQ	ND	ND
Fluroxypyr	400	ND	ND	ND	ND	ND
Lenacil	100	ND	ND	<LQ	ND	ND
MCPA	400	ND	ND	ND	ND	ND
Metamitron	100	ND	ND	ND	ND	ND
Metolachlor	100	ND	ND	ND	ND	ND
Oryzalin	400	ND	ND	ND	ND	ND
Pendimethalin	400	ND	ND	ND	ND	ND
Phenmedipham	100	ND	ND	193	ND	ND
Phosmet	400	ND	ND	ND	ND	ND
Propyzamide	400	ND	ND	ND	ND	ND
Prosulfocarb	400	ND	ND	ND	ND	ND
Pyraclostrobin	100	ND	ND	ND	ND	ND
Pyrimiphos-methyl	100	ND	ND	ND	ND	ND
Spiroxamine	100	ND	<LQ	ND	ND	ND
Terbutylazine	100	ND	ND	ND	ND	ND
Trifloxystrobin	100	ND	<LQ	ND	ND	ND
Number of substances		1	6	3	0	2
Sum of the concentrations		71	505	335	0	141
Collection date		20/09/2021	07/06/2021	05/07/2021	09/09/2021	13/09/2021
Last wash date		22/08/2021	22/05/2021	15/02/2021	15/07/2021	13/09/2020
Window height		Ground floor	1 ^{er} Floor	Ground floor	Ground floor	2 ^{eme} Floor
Window orientation		In front of	On the side	In front of	In front of	In front of
Barrier		Vegetal hedge	Vegetal hedge	No	No	Isolated trees
Barrier height		1.5 m	2 m	-	-	10 m
Observed application date		No information	03/06/2021	No	No	03/09/2021

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Sample number		113203	113204	113271	113294	113295
Department		77	26	36	17	17
Surface taken m ²		0.25	0.25	0.25	0.25	0.25
Distance (m)		40	100	30	1000	800
Type of crop		Cereals	Orchards	Cereals	Rapeseed / Maize	Not specified
Substance	LQ	Concentration	Concentration	Concentration	Concentration	Concentration
2,4-D	400	ND	ND	ND	ND	ND
Aclonifen	1000	ND	ND	ND	ND	ND
Ametoctradine	100	ND	ND	ND	ND	ND
Boscalid	100	ND	ND	ND	ND	ND
Chlortoluron	100	ND	ND	ND	ND	ND
Clomazone	100	<LQ	ND	ND	ND	ND
Cyprodinil	100	ND	ND	ND	ND	ND
Dicamba	400	ND	ND	ND	ND	ND
Diflufenicanil	400	ND	ND	ND	ND	ND
Dimethomorph	100	ND	ND	ND	ND	ND
Ethofumesate	400	ND	ND	ND	ND	ND
Fluazinam	100	ND	ND	ND	ND	ND
Fluopicolide	100	ND	ND	ND	ND	ND
Fluopyram	100	ND	ND	ND	ND	ND
Fluroxypyr	400	ND	ND	ND	ND	ND
Lenacil	100	ND	ND	ND	ND	ND
MCPA	400	ND	ND	ND	ND	ND
Metamitron	100	ND	ND	ND	ND	ND
Metolachlor	100	ND	ND	ND	ND	ND
Oryzalin	400	ND	ND	ND	ND	ND
Pendimethalin	400	ND	ND	ND	ND	ND
Phenmedipham	100	ND	ND	ND	ND	ND
Phosmet	400	ND	ND	ND	ND	ND
Propyzamide	400	ND	ND	ND	ND	ND
Prosulfocarb	400	ND	ND	ND	ND	ND
Pyraclostrobin	100	ND	ND	ND	ND	ND
Pyrimiphos-methyl	100	ND	ND	ND	ND	ND
Spiroxamine	100	ND	ND	ND	ND	ND
Terbutylazine	100	ND	ND	ND	ND	ND
Trifloxystrobin	100	ND	ND	ND	ND	ND
Number of substances		1	0	0	0	0
Sum of the concentrations		71	0	0	0	0
Collection date		13/09/2021	12/09/2021	28/09/2021	05/10/2021	05/10/2021
Last wash date		01/03/2021	18/08/2021	2010	No information	No information
Window height		Ground floor	Ground floor	1 ^{er} Floor	Ground floor	1 ^{er} Floor
Window orientation		On the side	In front of	In front of	On the side	In front of
Barrier		Vegetal hedge	Rows of oak trees	No	No	No
Barrier height		3 m	15 m	-	-	-
Observed application date		11/09/2021	No	No	No	No

Sample number		113296	113325	113326
Department		17	87	87
Surface taken m ²		0.25	0.25	0.057
Distance (m)		1000	NC	3
Type of crop		Rapeseed	Cereals	Cereals
Substance	LQ	Concentration	Concentration	Concentration
2,4-D	400	ND	ND	ND
Aclonifen	1000	ND	ND	ND
Ametoctradine	100	ND	ND	ND
Boscalid	100	ND	ND	ND
Chlortoluron	100	ND	ND	ND
Clomazone	100	ND	ND	ND
Cyprodinil	100	ND	ND	ND
Dicamba	400	ND	ND	ND
Diflufenicanil	400	ND	ND	ND
Dimethomorph	100	ND	ND	ND
Ethofumesate	400	ND	ND	ND
Fluazinam	100	ND	ND	ND
Fluopicolide	100	ND	ND	ND
Fluopyram	100	ND	ND	ND
Fluroxypyr	400	ND	ND	ND
Lenacil	100	ND	ND	ND
MCPA	400	ND	ND	ND
Metamitron	100	ND	ND	ND
Metolachlor	100	ND	ND	<LQ
Oryzalin	400	ND	ND	ND
Pendimethalin	400	ND	ND	ND
Phenmedipham	100	ND	ND	ND
Phosmet	400	ND	ND	ND
Propyzamide	400	ND	ND	ND
Prosulfocarb	400	ND	ND	ND
Pyraclostrobin	100	ND	ND	ND
Pyrimiphos-methyl	100	ND	ND	ND
Spiroxamine	100	ND	ND	ND
Terbutylazine	100	ND	ND	ND
Trifloxystrobin	100	ND	ND	ND
Number of substances		0	0	1
Sum of the concentrations		0	0	71
Collection date		05/10/2021	09/10/2021	09/10/2021
Last wash date		No information	Several months	Several months
Window height		Ground floor	Ground floor	Solar panel 30 cm from the ground
Window orientation		In front of	In front of	In front of
Barrier		Garden	Vegetal hedge	No
Barrier height		1 m	5 m	-
Observed application date		No	09/10/2021	09/10/2021

APPENDIX 3: Information on detected pesticides

AMETOCTRADINE

[CAS NO. 865318-97-4]

Category: Fungicide

Chemical family: Triazolopyrimidine

Commercial names (non exhaustive list):
Zampro, Milpat, Plevin, Excite, Cazfungiel, Enervin, Nervazotime, Ametodim, Speedy, Vitimil, Resplend, Decabane, Orvego, Initium

Main Manufacturers (non-exhaustive list):

Main Manufacturers (non-exhaustive list):
BASF, Gritche, Unisem S.A, M. Cazorla, Saga

...

Uses:

The use of ametoctradine is authorized in France and in the European Union for agricultural uses.

Ametoctradine is a fungicide with preventive and curative action. This substance is commonly used in viticulture to treat powdery mildew. It is also used on vegetable and potato crops.

Ametoctradine is not authorized in biocidal preparations. Its presence is therefore only related to agricultural applications.


Presence in ambient air

Air quality monitoring associations (AASQA) carry out the measurement of pesticides in ambient air. The data presented are for the year 2019.

Detection frequency	Maximum measured concentrations
Not measured	Not measured

Toxicological information

Marketed formulations may contain substances of the thiazolinone family that can cause allergic reactions.

Acute toxicity	Carcinogenic	Mutagen	Reproductive & developmental toxicity	Neurotoxic	Endocrine disruptor
Low	NO (PPDB)	NO (PPDB)	Possible (PPDB)	NO (PPDB)	NO (PPDB) Not available (TEDX)
<p>Risk pictogram:  (irritant)</p>					

BOSCALID**[CAS NO. 865318-97-4]**Category: FungicideChemical family: CarboxamideCommercial names (non exhaustive list):

astrial dg, bell + sportak ew, bell, bellis, bigalo, bonafide, bopyr, bosca, boscadim, boscatop, boscavi, bosmet, boss, botria wg, calistrobin, cantazo, cantus, cazocoli, cazpirabo, cobalt, collis, efilor, egebore, evidan sc, filan sc + caramba star, filan sc, flanbi, kawa, mascotte+, mastor wg, metalid, pictor, pulco, racabozeli, racazeliu, rasput, riverdale, ropic, signum, solix sc, stelair, syrmoa wg, talis, tessior, tropic, tucsan, varium, vinitus, viverda, zumba...

Main Manufacturers (non exhaustive list) :

Sharda Cropchem, Globachem, Life Scientific, Gritche, M. Cazorla, Top, Saga, Hmwc, Basf ...

Uses:

The use of boscalid is authorized in France and in the European Union for agricultural uses.

Boscalid is a fungicide with preventive and curative action. This substance is commonly used in viticulture to treat powdery mildew, black rot and grey rot. It is also used on cereals, vegetables, orchards, cabbage, sunflowers, red fruits, flowers and green plants.

Boscalid can be used in combination with pyraclostrobin, kresoxim-methyl, dimoxystrobin and metconazole.


Boscalid is not authorized in biocidal preparations. Its presence is therefore only related to agricultural applications.

Presence in ambient air

Air quality monitoring associations (AASQA) carry out the measurement of pesticides in ambient air. The data presented are for the year 2019.

Detection frequency	Maximum measured concentrations
3.0% (out of 1170 measurements)	0.225 ng/m ³ (Saint Saturnin, 16290) 0.207 ng/m ³ (Department of Aude, 11) 0.196 ng/m ³ (Department of Pyrénées Orientales, 66)

Toxicological information

Acute toxicity	Carcinogenic	Mutagen	Reproductive & developmental toxicity	Neurotoxic	Endocrine disruptor
Low	Possible (PPDB)	NO (PPDB)	Possible (PPDB)	NO (PPDB, PAN)	Not available (PPDB, PAN) Possible (TEDX)
<p>Risk pictogram:  (harmful to the environment)</p>					

CLOMAZONE**[CAS NO. 81777-89-1]**Category: HerbicideChemical family: Oxazolidine

Trade names (non-exhaustive list): afaena, alambix, alcance sync tec, altiplano, angelus, apn clomazone, aroab, axter, bismark, body, carimbo, centaur, centium, choucas, circuit, clomagold, clomanium, clomasim, clomastar, clomate, clomazo-gold, clomazone, clomazor, clomedani, clominator, close, clozone, colzor, command, conan triple, crusher, gamit, herclo, klom, libeccio, metric, nero, nimbus, ozone, pertus, polaire, prize, sirtaki, stallion, teraxls, toutatis, triur, uniclom, upstage, zarkol sim, zebra, zedix ...

Main Manufacturers (non exhaustive list): Basf, Ascenza, Adama, Cheminova, Sharda Cropchem, Simagro, Sipcam Oxon, Upl Europe, Phybelco, Pinus Agro, Top, Soralys, Gro Protection Nunspeet, Eurofyto, M. Cazorla ...

Uses:

The use of clomazone is authorized in France and in the European Union for agricultural uses.

Clomazone is a herbicide active on stems and weeds. It is commonly used for the treatment of asparagus, carrots, beets, celery, cabbage, spinach, beans, peas, root vegetables, potatoes, salsify, soybeans, oilseeds and protein seeds,

Clomazone can be used in combination with dimethachlor, metazachlor, napropamide, dimethenamid-P and aclonifen.



Clomazone is not authorized in biocidal preparations. Its presence is therefore only related to agricultural applications.

Presence in ambient air

Air quality monitoring associations (AASQA) carry out the measurement of pesticides in ambient air. The data presented are for the year 2019.

Detection frequency	Maximum measured concentrations
6.6% (out of 1170 measurements)	1.489 and 1.437 ng/m ³ (West-Cappel, 59380) 1.083 ng/m ³ (Voué, 10150)

Toxicological information

Acute toxicity	Carcinogenic	Mutagen	Reproductive & developmental toxicity	Neurotoxic	Endocrine disruptor
Moderate	NO (PPDB)	NO (PPDB)	YES (PPDB)	NO (PPDB, PAN)	Not available (PPDB, PAN, TEDX)
<p>Hazard pictogram:  (irritant)  (harmful to the environment)</p>					

CYPRODINIL**[CAS NUMBER 121552-61-2]**Category: FungicideChemical family: AnilinopyrimidineCommercial names (non-exhaustive list):

Acanto Prima, Adircyf, Amulette, Baryton, Bipass, Botryl, Cazowich, Celest Orge, Chorus, Clayton Gear, Cospec, Curseur, Erelia, Flucitop, Glazenn, Idole, Iridia, Javise, Kayak, Koara, Korale, Opimes, Osmea, Pan Rouge, Play, Podium, Prodoxyl, Qualy, Shift, Swifter, Switch, Unix...

Main Manufacturers (non exhaustive list) :

Eurofyto, Clayton Plant Protection, Top, M. Cazorla, Pan Amenity, Triasem, Ascenza Agro, Gritche, Syngenta, Nufarm, Unisem, A.D.I.R.H.

...

Uses:

The use of cyprodinil is authorized in France and in the European Union for agricultural uses.

Cyprodinil is a fungicide with preventive and curative action. This substance is commonly used in viticulture to treat grey rot, mildew and botrytis. It is also used on vegetable crops, orchards, soft fruits, cereals, and potatoes.

Cyprodinil can be used in combination with fludioxonil, fenpropidin and tebuconazole

Cyprodinil is not authorized in biocidal preparations. Its presence is therefore only related to agricultural applications.



Presence in ambient air

Air quality monitoring associations (AASQA) carry out the measurement of pesticides in ambient air. The data presented are for the year 2019.

Detection frequency	Maximum measured concentrations
19.7% (out of 1170 measurements)	1,329 ng/m ³ (Cavaillon, 84300) 1,017 ng/m ³ (Kintzheim, 67600) 0,909 ng/m ³ (Saint Yrieix la Perche, 87500)

Toxicological information

Cyprodinil is a skin, eye and respiratory tract irritant.

Acute toxicity	Carcinogenic	Mutagen	Reproductive & developmental toxicity	Neurotoxic	Endocrine disruptor
Low	NO (PPDB,PAN)	NO (PPDB)	Not available (PPDB,PAN)	NO (PPDB,PAN)	Possible (PPDB, TEDX)
<p>Hazard pictogram:  (irritant)  (harmful to the environment)</p>					

DIMETHOMORPH**[CAS NO. 110488-70-5]**Category: FungicideChemical family: MorpholineTrade names (non-exhaustive list): acrobat, ametodim, banjo forte, calgary, cazdimetof, coplus cabri, crossway, dimepyr, dimezoxas, dytoram, enervin team, fastime, filder, foliax, folpec dimeo, forum, funambule, funki, icaro, lectra, metaidime9, metomor, milpat, nacelle, navio, nervazotime, obriotec, ombra duo, optimo tech, pantheos, patator, presidium, pyramorf, reader, roctra, sodina, soditra, speedy duo, spyrit, timoka, vitimil, zampro, zodime...Main Manufacturers (non exhaustive list) :
Eurofyto, Gritche, M. Cazorla, Ascenza, Saga, H.M.W.C, Gowan, Cheminova, Adama, Basf, Cyanamid Agro, Sharda Cropchem, ...Uses:

The use of dimethomorph is authorized in France and in the European Union for agricultural uses.

Dimethomorph is a fungicide with preventive and curative action. This substance is commonly used in viticulture to treat mildew and black rot. It is also used in vegetable crops and potatoes.

Dimethomorph can be used in combination with pyraclostrobin, zoxamide, mancozeb, ametoctradin, metiram, folpel and dithianon.

Dimethomorph is not authorized in biocidal preparations. Its presence is therefore only related to agricultural applications.



Presence in ambient air

Air quality monitoring associations (AASQA) carry out the measurement of pesticides in ambient air. The data presented are for the year 2019.

Detection frequency	Maximum measured concentrations
0.0% (out of 108 measures)	-

Toxicological information

Irritating to skin, eyes and respiratory tract.

Acute toxicity	Carcinogenic	Mutagen	Reproductive & developmental toxicity	Neurotoxic	Endocrine disruptor
Slight (PAN)	NO (PAN, PPDB)	NO (PPDB)	YES (ECHA)	NO (PAN, PPDB)	Not available (PAN) Possible (TEDX)
Risk pictogram:  (hazardous to health)  (harmful to the environment)					

FLUOPICOLIDE**[CAS NO. 239110-15-7]**Category: FungicideChemical family: BenzamideCommercial names (non exhaustive list):

Lekteur, Finitus, Cazoprofi, Cabeoprie, Fosilide, Praecurro, Infinito, Kyriel, Profiler

Main Manufacturers (non exhaustive list):

Bayer, Gritche, Cazorla, Unisem, Saga

Uses:

The use of fluopicolide is authorized in France and in the European Union for agricultural uses.

Fluopicolide is a fungicide with preventive and curative action. This substance is commonly used in viticulture to treat powdery mildew. It is also used in vegetable, cabbage and potato crops.

Fluopicolide is not allowed in biocidal preparations. Its presence is therefore only related to agricultural applications.


Presence in ambient air

Air quality monitoring associations (AASQA) carry out the measurement of pesticides in ambient air. The data presented are for the year 2019.

Detection frequency	Maximum measured concentrations
<i>Not measured</i>	<i>Not measured</i>

Toxicological information

Symptoms of Exposure: May cause impairment of liver, kidney and spleen function (PPDB).

Acute toxicity	Carcinogenic	Mutagen	Reproductive & developmental toxicity	Neurotoxic	Endocrine disruptor
Low (PPDB, Sage)	NO (PPDB) Possible (US EPA)	Possible (PPDB)	NO (PPDB) Possible (Sage)	NO (PPDB)	Not available (TEDX) NO (Sage)
<p>Risk pictogram:  (harmful to the environment)</p>					

FLUOPYRAM**[CAS NO. 658066-35-4]**Category: FungicideChemical family: BenzamideCommercial names (non-exhaustive list):
Fluopyram, Verango, Velum, Ascra Xpro, Bleda, Bledix, Catapulte, Cazlunas, Elanx, Exteris Stressgard, Fluopro, Fongimax, Impro, Kabillo, Keynote, Leda, Luna, Lunereti, Mondax, Orpist, Profluo, Propulse, Pyrume, Raxil Star, Sdhx, Talpa, Trionyl, VecalitepiMain manufacturers (non exhaustive list):
Bayer, Gritche, Eurofyto, Saga, Phyto Service, UnisemUses:

The use of fluopyram is authorized in France and in the European Union for agricultural uses.

Fluopyram is a fungicide with preventive and curative action. This substance is commonly used in viticulture to treat powdery mildew, botrytis and fusarium. It is also used to treat cereal crops (oats, wheat, barley, rye).

Fluopyram also has nematicidal (worm control) effects.

Fluopyram is not authorized in biocidal preparations. Its presence is therefore only linked to agricultural applications.

Presence in ambient air

Air quality monitoring associations (AASQA) carry out the measurement of pesticides in ambient air. The data presented are for the year 2019.

Detection frequency	Maximum measured concentrations
13.4% (out of 2131 measures)	1.146 ng/m ³ (Saint-Estèphe, 33180) 0.987 ng/m ³ (Saint-Estèphe, 33180) 0.952 ng/m ³ (Department of Aude, 11)

Toxicological informationSymptoms of Exposure: May cause liver, kidney and thyroid dysfunction (*Sage*).

Acute toxicity	Carcinogenic	Mutagen	Reproductive & developmental toxicity	Neurotoxic	Endocrine disruptor
Low (<i>Sage</i>)	NO (PPDB) YES (PAN)	NO (PPDB)	NO (<i>Sage</i>) Possible (PPDB)	Possible (PPDB) NO (PAN)	Not available (TEDX, DEDuCT)
Risk pictogram: (<i>harmful to the environment</i>)					

METOLACHLOR**[CAS NO. 87392-12-9]**Category: HerbicideChemical family: ChloroacetamideCommercial names (non exhaustive list):

basar, s-metolastar, deflexo, cazomercanto, orcan, deluge, amplitec, camix, mercantor, aliseo, domanis, dual. bicep, pennant, pimagram

Main Manufacturers (non exhaustive list):

Galenika-Fitofarmacija, Ascenza, Gritche, Life Scientific Ltd, Syngenta, M. Cazorla S.L., Globachem, Ciba-Geigy

Uses:

Metolachlor exists as 2 isomers (R- and S-). Only the use of S-metolachlor is authorized in France and in the European Union for agricultural uses.

Metolachlor is a selective herbicide. This substance is commonly used on cereal crops (corn, soybeans, sorghum ...), sunflower, beets, beans and peas, potatoes.

Metolachlor is not authorized in biocidal preparations. Its presence is therefore only linked to agricultural applications.



Presence in ambient air

Air quality monitoring associations (AASQA) carry out the measurement of pesticides in ambient air. The data presented are for the year 2019.

Detection frequency	Maximum measured concentrations
53,0% (out of 1170 measurements)	9.46 ng/m ³ (Ohnenheim, 67390) 8.876 ng/m ³ (Pouillé, 85570) 7,083 ng/m ³ (Saint-Martin-d'Auxigny, 18110)

Toxicological information

Metolachlor is irritating to the skin and eyes, and produces skin sensitization.

Acute toxicity	Carcinogenic	Mutagen	Reproductive & developmental toxicity	Neurotoxic	Endocrine disruptor
Low	Possible (PPDB)	NO (PPDB)	Possible (PPDB)	NO (PPDB)	Possible (PPDB, TEDX)
Risk pictogram:  (irritant)  (harmful to the environment)					

PYRACLOSTROBIN**[CAS NO. 175013-18-0]**Category: FungicideChemical family: StrobilurinCommercial names (non exhaustive list) :

Abacus, Aneto, Bauxit, Bellis, Cabrio Star, Comet, Diamant, Envoy, Favia, Ibex, Opera, Optimo, Rubis, Signum, Solaram, Viverda

Main Manufacturers (non exhaustive list):

BASF, Phyto Service, Cera Chem, Top

Uses:

The use of pyraclostrobin is authorized in France and in the European Union for agricultural uses.

Pyraclostrobin is a fungicide with preventive and curative action. This substance is commonly used in viticulture to treat powdery mildew. It is also used in cereal crops (wheat, barley, rye and oats).

Pyraclostrobin is not authorized in biocidal preparations. Its presence is therefore only related to agricultural applications.

Presence in ambient air

Air quality monitoring associations (AASQA) carry out the measurement of pesticides in ambient air. The data presented are for the year 2019.

Detection frequency	Maximum measured concentrations
1,2% (out of 162 measures)	0.284 ng/m ³ (Mange-Seille, 54610) 0.21 ng/m ³ (Bourgueil, 37140)

Toxicological information

Symptoms of exposure: Respiratory and skin irritation

Acute toxicity	Carcinogenic	Mutagen	Reproductive & developmental toxicity	Neurotoxic	Endocrine disruptor
Low (PPDB) High by Inhalation (Sage)	NO (PPDB)	NO (PPDB)	YES (PPDB)	NO (PPDB)	Not available (TEDX)

SPIROXAMINE**[CAS N° 118134-30-8]**Category: FungicideChemical family: SpiracetalamineCommercial names (non exhaustive list) :

Aquarelle, Biguine, Buster, Cello, Cazoprospi, Falcon, Helix, Hoggar, Impulse, Input, Milord, Pepper, Prosper, Sage, Spirox, Spiroxatop, Thesorus, Virtuose

Main Manufacturers (non exhaustive list):

Bayer, Agriphar

Uses:

The use of spiroxamine is authorized in France and in the European Union for agricultural uses.

Spiroxamine is a systemic fungicide with preventive and curative action. This substance is commonly used in viticulture to treat powdery mildew. It is also used in cereal crops (wheat, barley, rye and oats).

Spiroxamine is not authorized in biocidal preparations. Its presence is therefore only linked to agricultural applications.

Presence in ambient air

Air quality monitoring associations (AASQA) carry out the measurement of pesticides in ambient air. The data presented are for 2019.

Detection frequency	Maximum measured concentrations
6,2% (out of 1170 measurements)	6.024 ng/m ³ (Kintzheim, 67600) 3.127 ng/m ³ (Verzy, 51380) 1.869 ng/m ³ (Kintzheim, 67600)

Toxicological information

Symptoms of exposure: Irritation of eyes, skin and mucous membranes. May cause respiratory irritations and impairment of liver function.

Acute toxicity	Carcinogenic	Mutagen	Reproductive & developmental toxicity	Neurotoxic	Endocrine disruptor
Moderate (Sage)	NO (PPDB)	NO (PPDB)	Possible (PPDB, ECHA)	NO (PPDB)	Not available (TEDX)
Risk pictogram: (dangerous for health) (irritant) (harmful to the environment)					

TERBUTYLAZINE**[CAS NO. 5915-41-3]**Category: HerbicideChemical family: Triazine

Trade names (non-exhaustive list): amon, arpent, axian, basf hj, calaris, caragarde, carazol, cerac, click, coblat, compliss, crawl+, declic, elron, faneron, fenican, gardoprime, granonet, herbeko, invincible, laddok, levto, lotryzine, mascotte, mester, mpi choc 2, nefer, osiris, phoenix t, plurians, prius, pylios, seller t, sol net choc, sourciel, sunstone, super herboxy t, terbazina, ternet choc, tinextra liquide, toko, visor, vititerb, vivatop, winisk

Main Manufacturers (non exhaustive list):

Makhteshim, Orion Crop Protection Ltd, Sipcam, Syngenta, Phyto Service SAS, Saga SAS, Gritche, PSI LTD

Uses:

Terbutylazine is authorized in France and in the European Union for agricultural uses.

Metolachlor is a selective herbicide. This substance is exclusively used on corn crops.

Metolachlor is not authorized in biocidal preparations. Its presence is therefore only linked to agricultural applications.




Presence in ambient air

Air quality monitoring associations (AASQA) carry out the measurement of pesticides in ambient air. The data presented are for the year 2019.

Detection frequency	Maximum measured concentrations
14,6% (out of 213 measures)	0,148 ng/m ³ (Ohnenheim, 67390) 0,133 ng/m ³ (Ohnenheim, 67390) 0,130 ng/m ³ (Ohnenheim, 67390)

Toxicological information

Metolachlor is irritating to the skin and eyes, and produces skin sensitization.

Acute toxicity	Carcinogenic	Mutagen	Reproductive & developmental toxicity	Neurotoxic	Endocrine disruptor
Low	Possible (PPDB)	NO (PPDB)	Possible (PPDB)	NO (PPDB)	Not available (PPDB) Possible (PPDB, TEDX)
Risk pictogram:  (dangerous for health)  (irritant)  (harmful to the environment)					

TRIFLOXYSTROBIN**[CAS NO. 141517-21-7]**Category: FungicideChemical family: StrobilurinCommercial names (non exhaustive list) :
Boxy, Brocelian, Caraibes, Cazoflin, Consist, Etiage, Fissa, Flint, Floxyplus, Interet, Kapulco, Madison, Mineodr, Natchez, Nativo, Physalis, Twist, Ventura...Main manufacturers (non exhaustive list) :
Agrosud, Bayer, Top, Agrinatur, Syngenta Agro ...Uses:

The use of trifloxystrobin is authorized in France and in the European Union for agricultural uses.

This active substance is a fungicide that inhibits cell respiration and thus prevents the multiplication of the fungus. It is used in various crops: cereals, vegetables, fruit, including viticulture.

Trifloxystrobin is not allowed in biocidal preparations. Its presence is therefore only related to agricultural applications.



Presence in ambient air

Air quality monitoring associations (AASQA) carry out the measurement of pesticides in ambient air. The data presented are for 2019.

Detection frequency	Maximum measured concentrations
7.8% (out of 1166 measures)	1.071 ng/m ³ (Department of Aude, 11)) 0.700 ng/m ³ (Saint-Estèphe, 33180) 0.697 ng/m ³ (Saint-Estèphe, 33180)

Toxicological information

Symptoms of exposure: Moderate eye irritation, allergic reactions on skin contact.

Acute toxicity	Carcinogenic	Mutagen	Reproductive & developmental toxicity	Neurotoxic	Endocrine disruptor
Low (PPDB)	NO (PPDB)	NO (PPDB)	NO (PPDB)	NO (PPDB)	NO (TEDX, PPDB)
Risk pictogram:  (irritant)  (environmentally hazardous)					

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YOOTEST



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[Map of pesticide residue measurements in residents](#)

