

# FIPRONIL IN EGGS

Factsheet – December 2017

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## FIPRONIL CASE

News about the so-called 'FIPRONIL case' has received widespread media coverage, causing one of the most significant food scares in Europe since the 2013 'horse meat scandal' and leading to a judiciary enquiry and withdrawal of millions of eggs from supermarket shelves. The 'FIPRONIL case' is linked to the discovery of the insecticide in contaminated eggs and egg products in several EU Member States and outside Europe. FIPRONIL is authorised to be used as veterinary medicine to combat fleas, mites and ticks in dogs and cats but forbidden for use in animals that are intended for the food chain, such as chickens.

The European Commissioner for Health and Food Safety, Vytenis Andriukaitis, communicated that 26 of the 28 EU Member States reported the presence of FIPRONIL in eggs and egg products, with more than 45 countries affected worldwide, including the United States, Russia, Israel and Canada.

To avoid contaminated food products entering into the food chain, food safety authorities of EU Member States ensure that eggs, egg products or chicken meat from affected farms are neither placed on the EU market nor exported to non EU-countries.

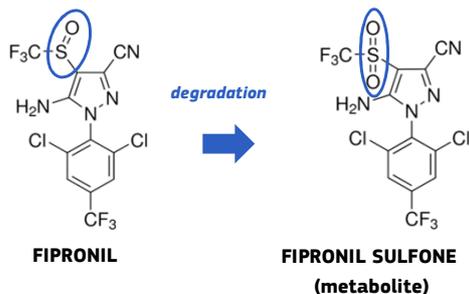
In order to ensure adequate control, the Joint Research Centre (JRC) was requested to offer support in assessing the competence of the official laboratories in quantifying FIPRONIL as specified in the EU legislation.

## LEGAL FRAME

FIPRONIL is an authorised broad spectrum insecticide used as a pest control product, as well as ingredient in flea control products for pets. It attacks the liver, kidneys and thyroid when ingested in large quantities through oral, inhalation and acute dermal exposure. It is a 'moderately hazardous' class II pesticide as classified by WHO. Consequently, it is currently banned by the EU for use on animals meant for consumption.

The European Commission has set a maximum residue level (MRL)<sup>1</sup> for FIPRONIL in eggs and poultry meat at 0.005 mg/kg.

FIPRONIL readily metabolise into FIPRONIL SULFONE that shows similar toxicity. Therefore, the residue definition for enforcement\* requires expressing FIPRONIL CONTENT as the sum of FIPRONIL and FIPRONIL SULFONE (its main metabolite).



**FIPRONIL CONTENT = FIPRONIL + FIPRONIL SULFONE**

\* According to Annex IIIA of (EC) 396/2005<sup>1</sup>

## SAFETY LEVELS

According to the Belgian Federal Agency for the Safety of the Food Chain (AFSCA)<sup>2</sup> and based on a report from the European Food Safety Authority (EFSA)<sup>3</sup>, the FIPRONIL CONTENT below 0.72 mg/kg eggs should not pose any safety concern to consumers. This means eggs containing FIPRONIL above this reference dose are not allowed to be marketed. Similarly, the German Federal Institute for Risk Assessment (BfR) calculated the maximum tolerable consumption per day<sup>4</sup> for children (10 kg) and adults (65 kg) and expressed it as equivalent quantities of different food products.

How much cookies can I eat to reach the maximum tolerance level?\*

210 g/day  
Child (10 kg)

1400 g/day  
Adult (65 kg)

\*Cookies prepared with eggs containing 0.72 mg/kg FIPRONIL

## WHEN WAS JRC INVOLVED?

**2 June 2017.** Notification by egg-breaking plant to the Belgian Federal Agency for the Safety of the Food Chain (**AFSCA**)

**6 July 2017.** The European Anti-fraud platform (**AAC-FF**)<sup>\*\*\*</sup> sends an official request for information to the Netherlands

**20 July 2017.** AFSCA notifies other Member States via the Rapid Alert System for Food and Feed (**RASFF**)

**7 August 2017.** EC announces that contaminated eggs may have been sold in several countries

**8 August 2017.** AFSCA announces some test results with FIPRONIL levels posing a **risk to human health**

**16 August 2017.** The Belgian Authorities contact the **JRC** in the frame of the FIPRONIL crisis

**24 August 2017.** JRC announces to EU official control laboratories the **first proficiency test** for the determination of FIPRONIL and FIPRONIL SULFONE in eggs. JRC starts the preparation of the samples

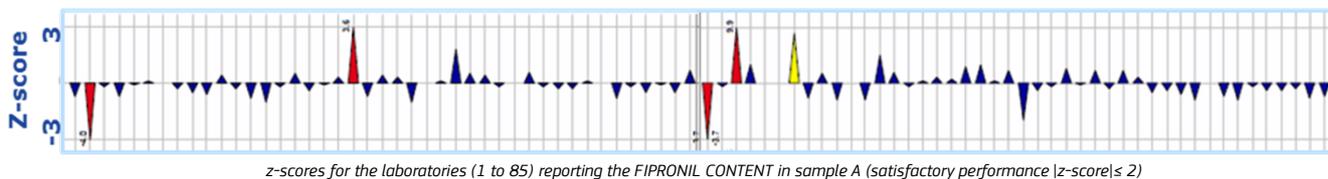
**15 September 2017.** Deadline for registration to participate at the **proficiency test**

**26-27 September 2017.** Sample dispatch made to participating laboratories

**12 October 2017.** Deadline for reporting results

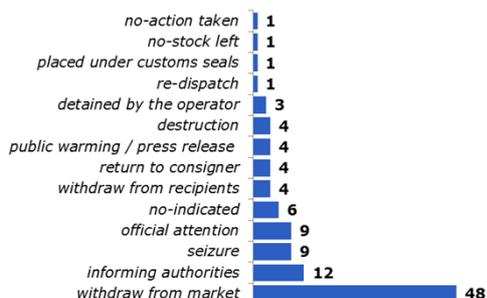
**31 October 2017.** JRC sends the report to the Belgian authorities, DG SANTE and to participants

\*\*\* AAC-FF : Administrative Assistance and Cooperation System – Food Fraud



## FIPRONIL ALERT

According to the RASFF alert triggered by the Belgian authorities (on 20/07/2017), chicken eggs were found to contain between 0.0031 and 1.2 mg/kg FIPRONIL (FIPRONIL + FIPRONIL SULFONE) in eggs. Of the total 107 notifications, six were considered as a serious risk because the safety limits were significantly exceeded.

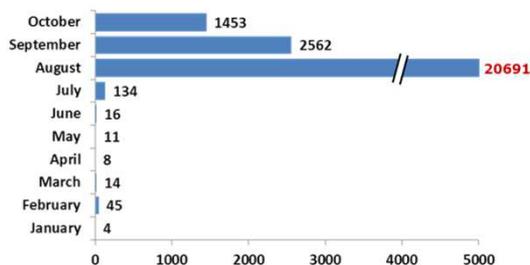


RASFF submissions and actions taken upon investigation (January-November 2017).

Two of the RASFF notifications were related to poultry meat products, while 101 concerned egg and egg products.

Although the reliability of these results has not been assessed, several millions of eggs were withdrawn from the shelves triggering an ultimate economic impact.

The Media has been instrumental in creating public awareness on the presence of FIPRONIL in eggs and egg products. In fact, the Europe Media Monitor (EMM), a tool developed by the JRC for tracking media reports, reveals how just in one month – the month of August, more than 20.000 news items were published on the subject.



Number of news published by the media on Fipronil during January to October 2017 (source: European Media Monitoring, EMM).

## PROFICIENCY TEST (PT) ORGANISED BY JRC

At the request of the Belgian Authorities and after consultation with DG SANTE and the EU Reference Laboratory for pesticide residues in food of animal origin (Freiburg, Germany), the JRC committed to organising a dedicated proficiency test (PT) in the frame of the FIPRONIL crisis.

The PT was designed to assess the competence of Official Control Laboratories (OCLs) and National Reference Laboratories (NRLs) in the Member States in determining the FIPRONIL CONTENT in eggs on samples containing FIPRONIL around the regulated Maximum Residue Level (MRL) and therefore to properly identify non-compliant food commodities.

A total of 85 participants from 24 EU Member States and from Albania, Norway and Serbia participated in the exercise.



PT material distributed among participants containing the two selected levels of Fipronil in eggs.

The JRC prepared and distributed to the participating laboratories two homogeneous and stable batches of samples of frozen liquid eggs.

Participating laboratories analysed two PT samples using their method of choice, mainly based on liquid or gas chromatography with tandem mass spectrometry (LC-MS/MS or GC-MS/MS).

The laboratory performance was evaluated according to the international standard, ISO/IEC 17043:2010 and expressed as z-score. The z-score measures the deviation from the assigned value, where  $|z\text{-score}| \leq 2$  indicates satisfactory performance.

The vast majority of participating laboratories (93 %) obtained satisfactory z-scores and they were able to classify one of the test materials correctly as non-compliant with the regulation. This confirms the analytical capability of most of the participating NRLs and OCLs to accurately detect levels of the insecticide and to enforce the European Regulations (EC) 396/2005 and (EC) 1127/2014 setting maximum residue levels of pesticides in/on food and feed of plant and animal origin.

## JRC FOLLOW-UP ACTIONS

To further support official food control laboratories in assessing the quality of their test results, JRC scientists are preparing a Certified Reference Material (CRM), based on contaminated eggs from a farm under embargo.

The competent laboratories monitor for the presence of residues of FIPRONIL and FIPRONIL SULFONE. The moratorium on farms affected will only be lifted when their eggs or eggs products will fully comply with the EU maximum residue levels<sup>1</sup> and relevant sanitary requirements.

During the Ministerial Conference (26 September 2017) on the follow-up of the 'FIPRONIL case', the Commission was invited to develop a management plan for food and feed incidents.

## REFERENCES

1. EU Regulation (EC) 396/2005 of the European Parliament and of the Council of 23 February 2005 on maximum residue levels (MRL) of pesticides in or on food and feed of plant and animal origin for fipronil.
2. AFSCA: Belgian Federal Agency for the Safety of the Food Chain, [http://www.favv-afsca.be/businesssectors/foodstuffs/incidents/fipronil\\_documents/NoteFipronil\\_17.08.17\\_ENG\\_v1.1.pdf](http://www.favv-afsca.be/businesssectors/foodstuffs/incidents/fipronil_documents/NoteFipronil_17.08.17_ENG_v1.1.pdf)
3. EFSA Scientific Report 65 (2006) 1-110, Conclusion on the peer review of fipronil
4. BfR: German Federal Institute for Risk Assessment, <http://www.bfr.bund.de/cm/349/fipronil-in-foods-containing-eggs-estimations-of-maximum-tolerable-daily-consumption.pdf>
5. RASFF: Rapid Alert System for Food and Feed [https://ec.europa.eu/food/safety/rasff/portal\\_en](https://ec.europa.eu/food/safety/rasff/portal_en)
6. Determination of the Fipronil content in eggs. JRC Technical Report 2017, EUR 28806 EN.

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