Newsletter on Monitoring Plans 2023 Edition

Feed Safety Management
OQUALIM
La Sécurité Sanitaire des Aliments pour Animaux

Contaminants in animal feed, the legislator's concerns

In terms of contaminants, the specific regulations in the animal feed sector change regularly as scientific knowledge progresses. This article presents a panorama of the main issues on contaminants in animal feed under consideration at the European level.

Review of the standards of the Directive 2002/32 "Undesirable substances"

The threshold for **ergot** for cereals should be lowered on 1st July 2025 to 500 mg/kg (from 1,000 mg/kg previously), with the exception of rye for which the threshold of 750 mg/kg will apply. At the same time, the Commission should publish a recommendation for monitoring ergot alkaloids in animal feed in order to obtain data to better understand the relationship between levels of sclerotia and levels of ergot alkaloids.

The data collected as part of the OQUALIM plan shows that the frequency of detection of ergot alkaloids (present in 45% of the cereal samples analysed) is significantly higher than that of sclerotia (12% of samples). The 2022 results on sclerotia are lower than the future regulatory thresholds.

Similarly, the **Datura** threshold will be lowered from 1,000 to 500 mg/kg for the new 2023 campaign.

As a comparison, the OQUALIM 2022 feed plan contained 54 analyses of datura on corn, sorghum and cereal middlings. **Datura** was detected in 5 samples and quantified in two, at levels significantly lower than the future regulatory threshold.

The amended directive should also include a decrease in the maximum levels of **THC** in hemp flour from 20 to 7.5 mg/kg and in complete feed from 1 to 0.5 mg/kg as well as an alignment and harmonisation of the thresholds for organochlorines with those of regulation 396/2005 on pesticides.

Lastly, the directive provides for a reduction in the levels of **dioxins and dioxins + dioxin-like PCBs** for fish products (fat, oil, hydrolysed proteins, fish...). Specifically concerning fish oil, the level of dioxin should decrease from 5 to 2.5 ng/kg and the level of dioxins + dioxin-like PCBs from 20 to 10 ng/kg.

Around ten analyses have been carried out over the last 3 years as part of the supplements plan on this matrix which were lower than these levels; the averages in dioxins and dioxins + dioxin-like PCBs were 0.5 ng/kg and 2 ng/kg respectively.

Monitoring of PFAS

2022 saw the increase in health concerns related to PFAs, which are very persistent environmental contaminants that tend to be concentrated in the feed chain. Thus, following an EFSA opinion, the European Commission issued a recommendation for the monitoring of PFAS in human food, which mentions products intended for animal feed, notably for the search for causes of animal product contamination. It also introduced maximum levels of PFAS for certain foodstuffs of animal origin (eggs, meat and fish). A recommendation for monitoring PFAs in animal feed is under discussion, in order to refine the share of animal feed in the contamination of foodstuffs of animal origin compared to other sources of contamination (water, soil, environment).

Assessing the risks related to emerging contaminants

Several recommendation proposals are being studied at the European level to acquire data that will allow the EFSA to assess the exposure levels for humans and animals. Are notably concerned:

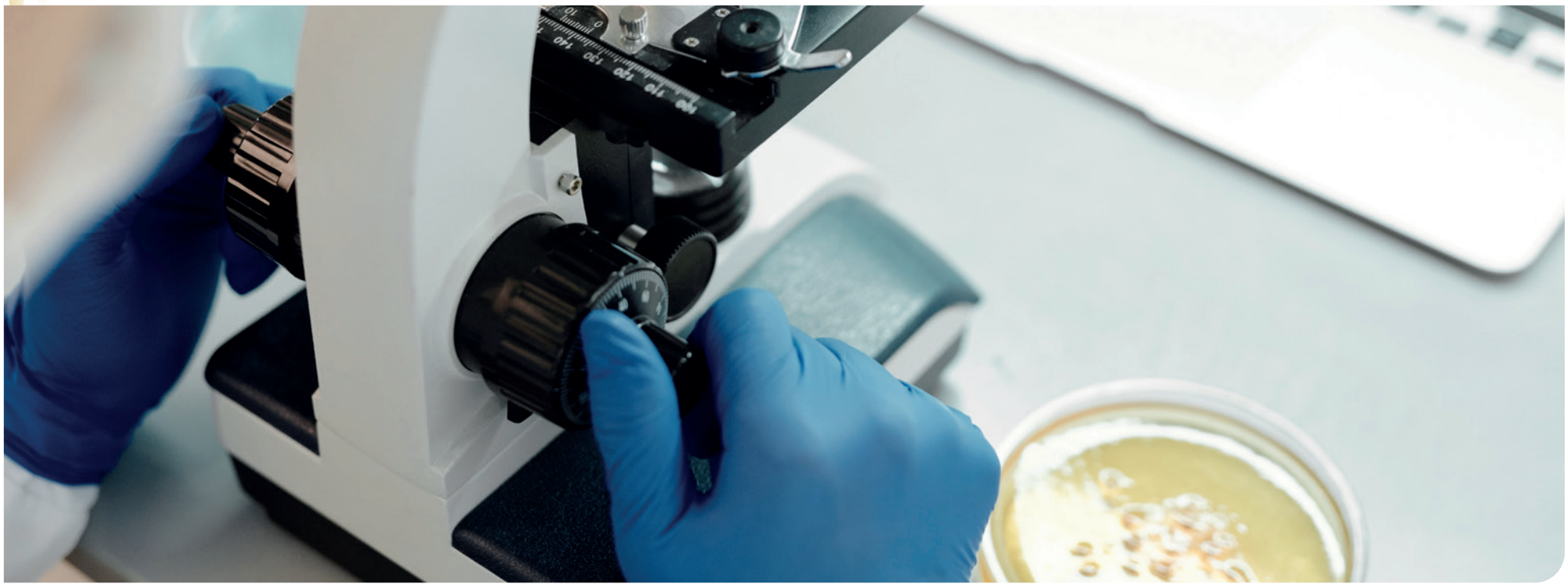
- Pyrrolizidine alkaloids in fodder, grass, grass mixtures and plant extracts and compound feed containing them,
- Quinolizidine alkaloids in lupin seeds and derivative products,
- Hydrocyanic acid (HCN) in flax seeds.

Lastly, while the mycotoxin file has not evolved over the last 18 months, a recent EFSA opinion recommends to revise the recommended DON thresholds downwards for poultry and turkey feed from 5 ppm to 2 ppm. This future threshold seems consistent with the data collected by OQUALIM on poultry feed. ■

OQUALIM is an association whose aim is to provide solutions to help meet **health security and animal feed quality challenges**. The association coordinates the collective approach by the French animal nutrition sector in terms of quality and health safety of animal feed. It has two main objectives: health security and compliance with both public and private specifications. To achieve these objectives, it has constructed two tools: pooled self-monitoring plans and the certification of animal feed plants with the RCNA (Animal Nutrition Certification Reference). ■

OQUALIM 41bis, bd de La Tour-Maubourg - 75007 PARIS - contact@oqualim.fr • 01 44 18 63 55 www.oqualim.com

Managing the salmonella risk and collective progress serving feed safety



OQUALIM, results of the salmonella monitoring

Salmonella has been subject to stronger analytical pressure in the monitoring plans steered by OQUALIM. In 2022, searches for salmonella represented 33% of the feed materials (FM) samples and 90% of the samples of finished products (FP) in the pooled feed plan. The low prevalence observed indicates the good health quality of the animal feed for this contaminant. It is broadly stable over the years, at around 1% on FM and always lower than 0.5% for compound feed. These results may illustrate the bacteriolytic effect of granulation.

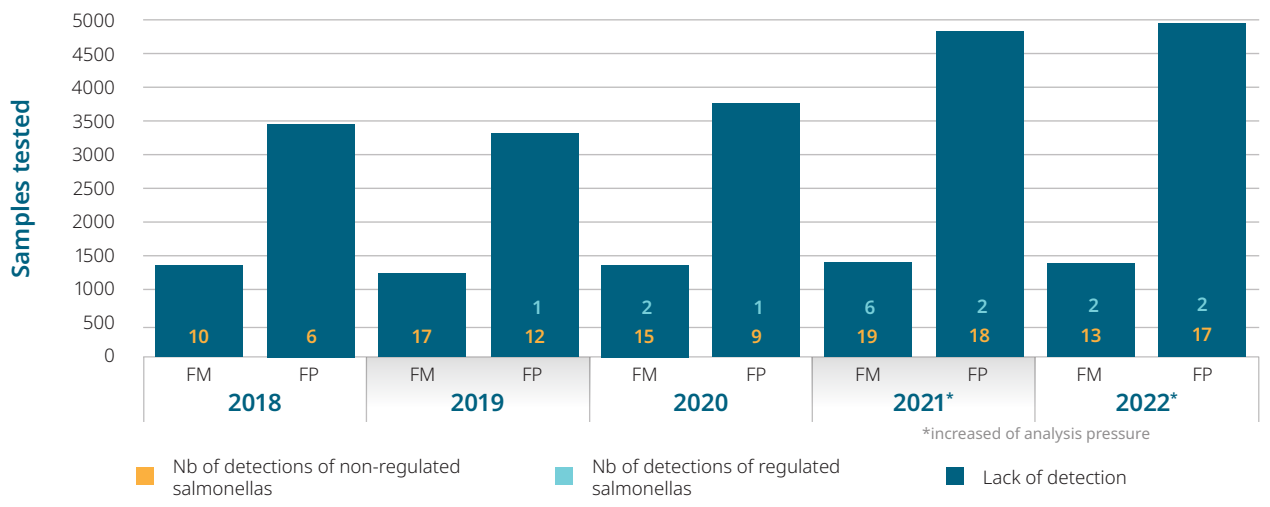
Focus on feed materials

The analytical pressure focused on the most commonly used FM, identified as most at risk such as cake and bran. While OQUALIM provides a representative image of the feed safety of FM entering factories in France, the pooled plans also enable weak signals to be identified and monitoring to be focused. Thus in 2021, OQUALIM noted an increase in the detection of salmonella on cereals and their co-products. The signal intensity on cereal co-products has not been found in 2022. However, the 2 detections of the regulated serotype, *S. Enteritidis*, were found on wheat bran and on sweet lupin respectively.

Focus on compound feed

2 regulated salmonellas *(S. Enteritidis)* were detected in 2022, on feed for laying hens. These FP are those for which the monitoring pressure is the highest due to regulations. The increase in the number of detections and the increase in the analytical pressure decided by the Feed plan steering committee from the 2021 plan may be linked. These results should be put into perspective in view of the stable prevalence.

Detection of *Salmonella* on feed materials and complete compound feed in the pooled feed plans from 2018 to 2022



Monitoring beyond the animal feed link

Participation in the monitoring plans for oilseeds (PSO) and cereals

The results of the analyses carried out as part of the sector plans, in human or animal feed, shared within the sector monitoring plans provide a picture at a given time of the health quality of the sector. The more data and contributors there are, the more relevant and clearer is the picture. The animal feed sector, through OQUALIM, contributes and uses these sector pictures to feed its risk analysis, notably for salmonella.

Beyond this, an involvement in Salmo-surv

OQUALIM, a member of the food chain surveillance platform (PtF SCA), is involved in the Salmo-surv monitoring group. The aim of this group is to contribute to making salmonella monitoring more effective throughout the food chain, thanks to the implementation of the first integrated national monitoring system. Systems exist today, at different levels, for sector professionals and for the authorities. A system such as Salmo-surv may enable the gradual reinforcement of connections and collaboration between the levels, provide signals to focus monitoring, improve the cost-benefit ratio of monitoring for each level and even contribute to investigating multi sector contamination situations on request from the concerned operators. Alongside the ANSES, OQUALIM is participating in the drafting of the agreement that defines the system's framework and conditions.

The sector has set up support tools and management measures

The ANSES opinion in the collective *Salmonella* spp in animal feed expert report (May 2018) was able to build on the data pooled by OQUALIM. Detections of salmonella at the animal feed level are relatively low but events occur on a regular basis. The management measures to be implemented within this framework must be defined and diffused. Through the trade unions, the sector has mobilised to obtain the definition of clear, transparent management measures that are shared between the authorities and operators, that are stable over time and proportionate to the risk. A working group (ASAP) combining *Coopération agricole* NA, SNIA, Synacomex, DGAI and DGCCRF, was set up with the aim of defining a guide on managing salmonella alerts in animal feed. At the same time, SNIA and *Coopération agricole* NA diffused the Salmo-check application. Designed with support from members, this tool aims to guide feed manufacturers concerned by a salmonella detection, step by step, by asking relevant questions, providing elements to respond and possible options for the companies. Methodological sheets provide clarifications on the regulations, definition of a scope, sampling and analyses that are consistent with the requirements for pooled plans. ■

	S. enteritidis	*S. typhimurium*	*S. kentucky*	*S. infantis*	*S. hadar*	*S. virchow*	Other serotypes
Feed materials	●	●	●	●	●	●	●
Feed for breeding flocks of *Gallus gallus* and *Meleagris gallopavo*	●	●	●	●	●	●	●
Feed for *Gallus gallus* et *Meleagris gallopavo* other than breeding	●	●	●	●	●	●	●
Feed for other animal populations	●	●	●	●	●	●	●

● *Salmonella serotype regulated* ● *Salmonella serotype non-regulated*

Color code associated with Salmonella detections in OQUALIM pooled feed plans

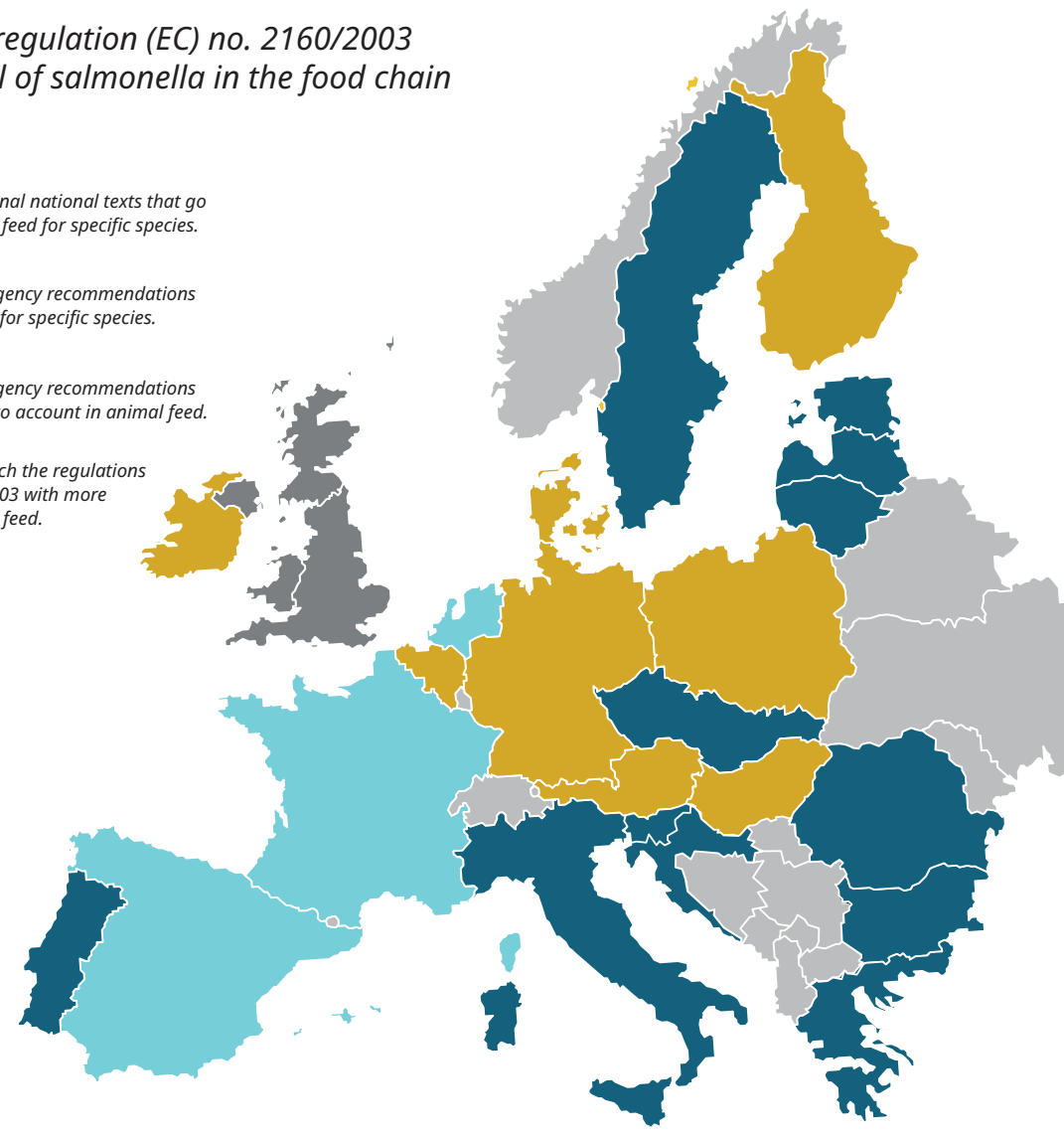
The management of the risk also involves solutions to prevent the risk and to manage suspect batches or batches contaminated by a regulated serotype.

Since 2020, operators can have the bacteriolytical effectiveness of their pelleting press recognised by their local authorities, based on a proof file and according to pre-established parameters. TECALIMAN has proposed a technical protocol explaining how to carry out this demonstration. This approach aims to facilitate the management of salmonella alerts, by removing feed pelleted on a press for which the bacteriolytical effectiveness has been demonstrated for certain parameters from the scope of "salmonella" alerts. Chemical treatments using organic acids or mixtures have proven their effectiveness in reducing the bacterial load of FM contaminated by *Salmonella*. The application of these treatments, therefore, aims to disinfect FM in the event of a salmonella alert and thus release the treated batches. In order to be effective, the chemical treatments must be applied under certain conditions, notably using authorised additives as hygiene condition improvers. While these treatments are frequently used in certain European countries on the arrival of the FM in ports, their implementation was more difficult in France. In order to inform about the effectiveness of these treatments, facilitate their implementation in France and harmonise practices, the professionals at AFCA-CIAL, suppliers of acids and their mixtures, have drafted a guide on good practices to manage these solutions. Presented to the administration that encouraged its drafting, it is now awaiting official validation before publication. ■

A European regulation, with national specificities

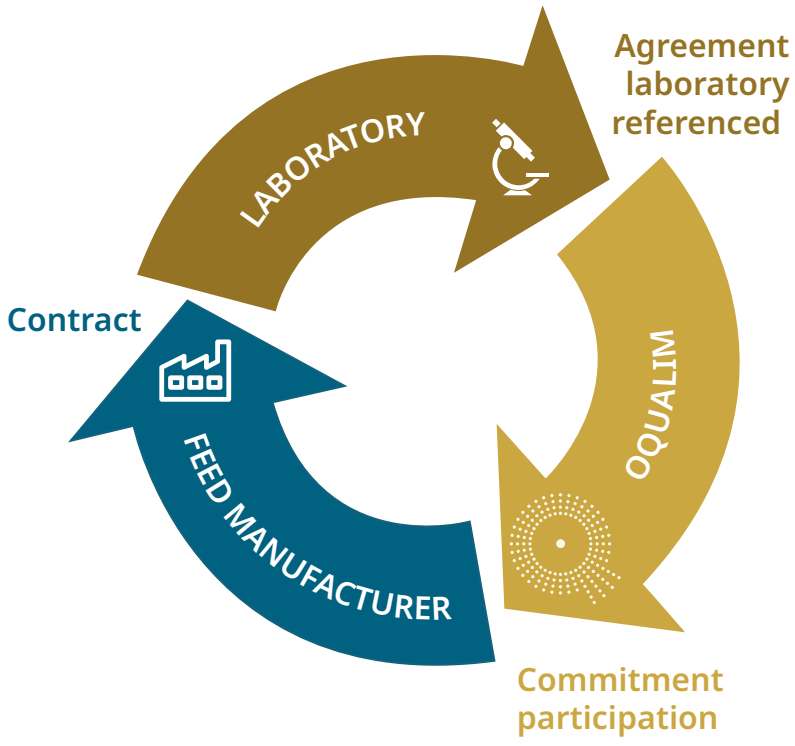
Salmonella, a biological contaminant, are regulated in animal feed by the regulation no. 2160/2003. The regulation and the management measures differ significantly between Member States. In France, 6 serotypes are regulated. The detection of one of them on a feed material or compound feed for which this serotype is regulated is subject to an alert. In other Member States, the notification of the authorities may be broadened to all serotypes but without necessarily involving alerts and withdrawal/recall procedures. Belgium, for example, builds on a technical instruction from the authorities that defines the rules and requirements for operators in terms of management measures. Decontamination solutions and batch management also differ significantly. In France, no decontamination solutions are recognised by the authorities to date for compound feed (the use of organic acids is envisaged only for FM). Some Member States authorise the use of thermal treatments, that may be followed by an analytical verification of the treatment (Belgium, Denmark, Ireland, Portugal...), some authorise the chemical treatment (Finland...) or even both solutions (Czech Republic, Italy, Poland...). ■

European regulation (EC) no. 2160/2003 on the control of salmonella in the food chain



Analytical requirements for quality data

The pooled results from the feed and supplement plans, are the results of the self-monitoring by feed manufacturers. Each manufacturer selects the service provider laboratory to which it entrusts its samples. To pool the self-monitoring controls, it is essential to have homogeneous results in terms of production and reliability. To ensure this, OQUALIM references laboratories authorised to provide results for pooling. A specific referencing agreement defines the obligations for the association and the laboratory. Technically, the laboratory is referenced for its ability to meet the requirements on sample management, analysis conditions, and production of results. The technical requirements evolve in line with progress, analytical needs, new contaminants and use of data.



Coccidiostats

Analysis: dosage of coccidiostat residue.

Objective: vérifier la conformité de l'aliment.
check the compliance of the feed. The residue level of molecules used on the manufacturing site is related to the management of inter batch transfers and production management.

Requirement: ability to quantify in line with the maximum residue thresholds. In 2022, the Laboratory working group stipulated this quantification requirement and upgraded the agreement to take into account changes in molecule authorisations, withdrawal of maduramicin, authorisation of amprolium hydrochloride in 2021. A B

Analyses pooled in 2022: 858 results on 78 samples.

GMO

Analysis: search for Genetically Modified (GM) events

Objective: monitor the presence of GM events in FM for animal feed that are not labelled GM and alert in the event of results > 0.9%.

Primary requirement: Complete DNA extraction. Due to production processes, the quantity of DNA available on plant MP may not be sufficient for the application of the theoretical detection limits. In 2022, for spent grain type matrices, the OQUALIM Laboratory working group worked to define practical detection limits to meet this objective.

Pooled analyses on the STNO and organic plan in 2022: 10,550 results on 637 samples.

Ethylene oxide

Analysis: dosage of ethlyene oxide.

Objective: monitor the use of a prohibited pesticide subject to a wide-ranging health alert on numerous human food and animal feed products. In order to improve knowledge and monitor the quality of inputs in animal feed, this contaminant was added to the pooling of self-monitoring results in 2022.

Requirement: separately dose ETO and 2-chloroethanol (2-CE). The sum of the quantities of ETO and 22-CE (derivative of ETO) must not exceed the maximum limit for residue set by the regulations (sum of ETO and 2-CE expressed in ETO). In 2022, the Laboratory working group issued a technical note for laboratories and participants to ensure that the analyses are carried out according to the requirements and that the results are provided in the expected format, in line with the recommendations of the reference laboratory.

Pooled analyses on the feed and supplement plans in 2022 :
65 analyses.

Dioxins

Analysis: mesure des teneurs en dioxines, PCB de type dioxines et PCB autres que ceux de type dioxines

Objective: monitor the quality of inputs into manufacturing of pre-mixtures and animal feed.

Requirements: to improve data homogeneity, the Laboratory working group modified the requirement on the reporting of "dioxin" results. For the 2022 plans, the working group stipulated the request for the input of "upperbound" results in the "'laboratory" agreement.

The levels of dioxins, dioxin-like PCBs and non-dioxin like PCBs are calculated based on the assumption that all values of the different variants lower than the quantification limit are equal to the quantification limit. Discussions are ongoing to homogenise the data resulting from the analysis of raw feed or feed at 12% moisture content (regulatory thresholds).

Pooled analyses on all plans in 2022: 400 samples. As part of the consistency check carried out, 100% of the results were input including the level of quantification.