

### Structure and running of the survey plan (figure 1)

Firms belonging to the different professional organizations of rapeseed network (storage, crushing, oil refining and feedstuffs) are invited to join the survey plan. The management is made by Cetiom in collaboration with a working group composed of the different professional organizations with the support of scientists. The firms which accept to join the survey plan send to CETIOM their contaminants data (obtained by their own sampling and analytical methods) and contribute in this way to build the database.

This database is completed by the results of yearly contaminants analyses made in seeds, oils and meals, these ones being managed by CETIOM, ONIDOL (National agency for oilseeds development) for seeds and meals, and ITERG (Technical research center for fat and oil industry) for oil.

CETIOM (for seeds and meals) and ITERG (for oil) synthesize the results and send to each partner an annual confidential report.

### Adjustment of reliable methods for analysis of pesticides in seeds and oil

Few methods are standardized at international level (ISO) for sampling and analysis of contaminants and pesticides residues and methods used at national level are often home-made methods developed in industrial or official laboratories. Some official maximum limits (MRLs) are set for contaminants and residues in oils. A network composed of 25 laboratories and managed by CETIOM and ITERG is developing suitable analytical methods for measuring pesticides, mainly insecticides, in seeds and oil. Sixteen compounds (organophosphorous organochlorous and pyrethrinoids) are actually studied. The aim is to propose accurate and standardized methods at international level (ISO) and to increase in this way the reliability of the survey plan.

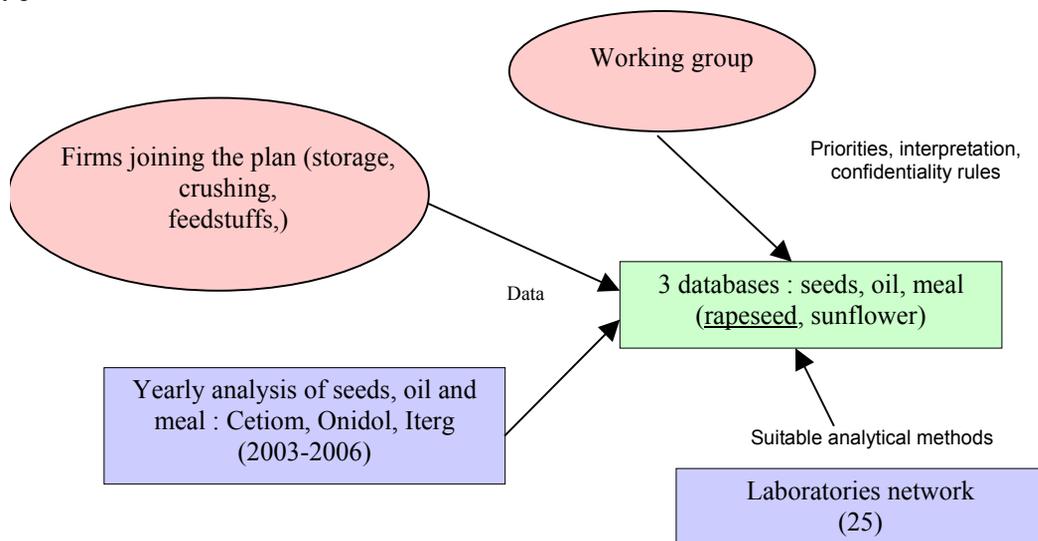


Figure 1 : Structure and running of the survey plan

## Results

### Main contaminants and critical points

The main potential contaminants are heavy metals (transfer from soil to plant), mycotoxins (developing during pre-harvest or post-harvest period), *salmonellas* (occurring during meal storage) and pesticides residues (from treatments on crops or accidental insecticides contaminations during seed storage). The contaminants can be concentrated, relocated or removed all along the chain from rapeseed crop to oil and meal (figure 2). For example, pesticides residues are eliminated during refining ; heavy metals are concentrated in meals.

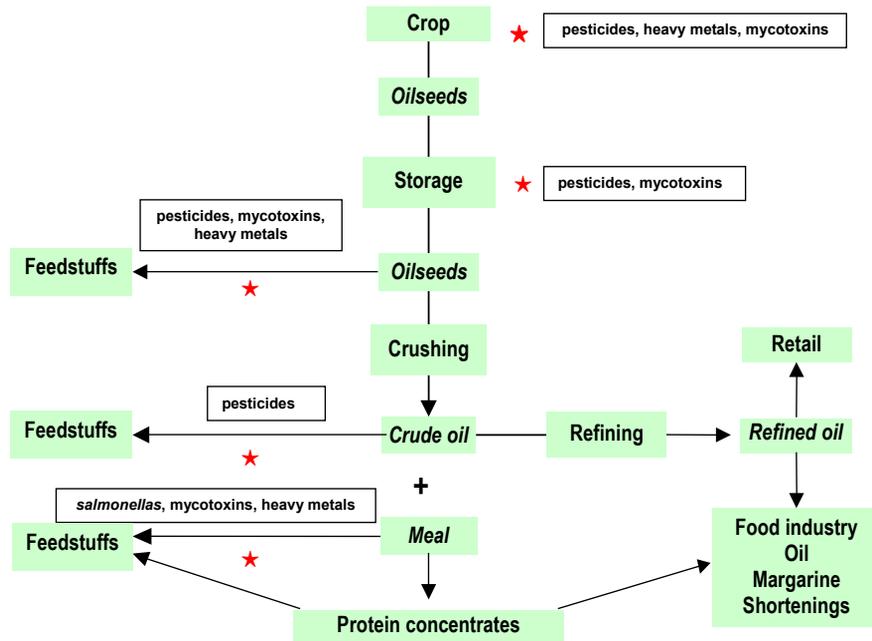


Figure 2 : From crop to oil and meal : the main critical points and potential contaminants

### The survey plan

The survey plan is running for two years and 20 companies have signed an agreement (8 in seed storage area, 7 for crushing and refining, 5 feedstuffs companies). A common software to grains (French cereals survey plan managed by IRTAC) and oilseeds ("QUALISURVEY") is now operating and 2 reports have been produced in 2005 (harvest 2004) and in 2006 (harvest 2005).

To day, 2 800 data (seeds and meal) and 3 500 data (oil) - rapeseed, sunflower and soybean - have been supplied.

### Yearly analysis of contaminants

The sanitary quality survey began in 2003 for a period of four years. Concerning the rapeseed, 25 samples of seeds, 25 samples of meal and 25 samples of oil were analysed in 2003 (corresponding to the harvest 2002) for the following contaminants (tableau 1) :

Table 1 : Contaminants watched in 2003

	Seeds	Meal	Oil
Pesticides	Organophosphorous Organochlorous Pyrethrinoids	Organophosphorous Organochlorous Pyrethrinoids	Organophosphorous Organochlorous Pyrethrinoids
Heavy metals	Cadmium, lead	Cadmium, lead	-
Mycotoxins	Aflatoxin B1	Aflatoxin B1	-
Salmonellas	-	Salmonellas	-
PAHs	-	-	PAHs

Concerning the seeds, pesticides were detected in 8% of total samples. Nevertheless, the analysis didn't detect the same molecules in oil and seeds. It is likely that this difficulty is due to the lack of accurate method for seeds.

Lead was not detected in seeds and cadmium concentration was widely below the MRLs.

*Afatoxin B1 was not detected.*

Concerning the meal, *salmonellas* was detected in 4 samples. Pesticides residues and lead were not detected. Cadmium was detected below the MRLs.

### Conclusion

The survey plan of the French oilseed food chain is still in a training phase. Nevertheless, the communication about this plan has to be developed for increasing the memberships all along the oilseed network and to improve the representativity of the collected data. Moreover, it will be necessary, in a second stage, to target the plan at specific contaminants and to have a good knowledge of the sampling conditions.

### Acknowledgments

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## References

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