



A simple and affordable solution to prevent water contamination

Promoting Phytobac in France



Origin of Water Contamination by Plant Protection Products (PPP)

Water Contamination has <u>TWO MAIN ORIGINS</u> :

DIFFUSE or Non Point Source : transfer by Run Off or Leaching of applied PPP to surface or ground waters.

> **POINT SOURCE** : local pollution due to incident/accident or inappropriate Agricultural Practices

→ The Most Important One



Point Source Contamination Origins

Results from a study performed in Normandie from 1980 à 1990



Inappropriate Management of Liquid Waste (Draining, Cleaning or Rinse) remains a major risk of water contamination.









Biobed / Phytobac®

Inspired by the Swedish Concept of biobeds.

It is a structure

- simple, based on soil capacity of purification
- easy to use
- allowing on the farm site a complete management of liquid wastes (effluents)

N.B : Effluent = Contaminated water from tank wastes, spillages when mixing/loading or produced after a rinse or when cleaning sprayer.

Phytobac

Cover







Principle of Phytobac structure

• Containment and degradation of effluents of PPP.

• Made of a mixture of Top soil and chopped straw isolated from the environment.



Microbial degradation (mainly) as in the soil





Studies on Phytobacs have been going on in France since 1997

2 approaches for this study :

Evaluation of degradation in Phytobac through several studies

Evaluation of feasibility in term of construction and use

Main actors Inra Dijon CRIT ITCF, ITV, Ecopulvi Domaine Latour, Regional Action Group against water contamination, Agricultural Chambers

BP/Copenhagen 28/09/04

<u>Main actors</u> Pilot farms, Agricultural Colleges Bayer CropScience





Studies on degradation:

- ITCF /AERM	97 to 98	efficacy
- CRIT	00 to 01	efficacy + selectivity
- INRA Dijon (going on)	00 à 04	efficacy +functioning
- Domaine Louis Latour	00 to 02	efficacy
- ITV (Avize)	00 to 01	efficacy



Key Conclusions

- Mixture of top soil and straw readily degrades PPP (one or several actives in mixture), even when concentration of a.s is high
- Degradation occurs in less of one year for most a.s.
- Conditions favourable to degradation in Phytobac[®] are the same as the ones in soils (temperature, humidity...)
- Capacity of adaptation of micro-organisms has been observed in Phytobac[®] as in soils
- Disposing of Phytobac[®] content in the field is possible (10 m³/ha)

Respect of Good Agricultural Practices (Good Spraying Practices) leading to limited quantities of liquid wastes and lower concentration of active substances is essential



Feasibility of Phytobac in France:

- 12 with distributors of PPP
- 5 with Agricultural colleges
- 21 with other partners (Ministery of Agriculture, Technical institutes..

An estimated number of a hundred Biobed/Phytobac/ Biobacs is being tested in France. Collaboration with Bayer



Feasibility : Key conclusions





Mr Chambard (80)

INRA Rennes (35)

Lycée de Pouillé (49) EARL Les Lauriers (79) <u>Mr Gagnaire (79)</u>

Mr Chassagne (33) Château Smith haut Laffite (3 Château La Rivière (33)

SCEA Pot au Pin (33)

<u>CEFEL (82)</u>

<u>CIREA (82)</u>

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Dne de Cazes C.A. de l'Aude (11)

GCO (1

Mr Leclercq (02) EARL Kohler (67) Mr Brueder (02) Mr Fontaine (02 Mr Piot (02) Mr Collard (51) LEGTA d'Avize (51) Rougainville (77) EGT Mr Gaullet (10) Mr. Maudoux (10) Mr Pouteau (89) Dne Louis Latour (21) Mr Plantier (01) Lycée L.Giraud (84) Rodilhan (30)

SCEA Les Aires

de Crau (13)

Bayer CropScience Chapter CropScience

Farmer's feeling on Phytobacs

Advantages

- Easy to use and convenient,
- Rather cheap.
- Better organisation, greater awareness of Good Agricultural / Spraying Practices,
- Commitment to sustainable agriculture,
- Respect of Environment,

Drawbacks

- Volume of effluent difficult to evaluate,
- Difficult to protect from rainfall,
- Clogging of pipe circuit,
- Homogeneity of substrate difficult to obtain,
- Stirring of substrate not easy.



Feasibility on the Farm

2 configurations possible



Phytobac[®] on it 's own

Phytobac[®] connected to M/L and Cleaning area (Washing site)









Phytobac with a washing area







Phytobac with a washing area













A few examples







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A few examples









A solution for the management of PPP effluents

Which Strategy for a "Phytobac Service"?



Phytobac :What is at stake

- Quality of water resources.
- Promotion of certification and qualification label for farmers.
- A response to regulatory requirements and societal issue.
- A strong will from the farmers, the PPP suppliers and Bayer to promote sustainable agriculture.



Bayer CropScience Commitment

 Contribution to Integrated Crop Management and Good Agricultural and Spraying practices in collaboration with cooperatives and retailers.

But <u>also with all actors involved in agriculture</u>:

- Professional organisations,
- Officials,
- Ministry of Agriculture,
- Agricultural colleges,
- Association of farmers (CUMA)





Which strategy for a « Phytobac[®]Service»?

Offer a partnership:

to the various organisations supplying Plant Protection
Products to the Farmers :

(In Vivo, FNA,CCAF...)

Opinion leading actors :

Farmer Unions, Leading farmers



Which strategy for a « Phytobac[®]Service»?

Partnership in which Bayer CropScience France passes on it's expertise and know -how to develop the Phytobac[®] solution through :

Training sessions on Phytobacs,

Documents for communication (Leaflets..)

Requirement sheet for Phytobacs,

CD-Rom and different tools,

Extranet

Supply of this expertise and know-how is free of charge.





Thank you for your attention

