

3rd INTERNATIONAL SCIENTIFIC MEUSE SYMPOSIUM

THE MEUSE DISTRICT : CHALLENGES FOR TOMORROW

LIEGE, April 22 – 23, 2010

The use of pesticides in French agriculture: situation and perspectives of reduction ECOPHYTO R&D

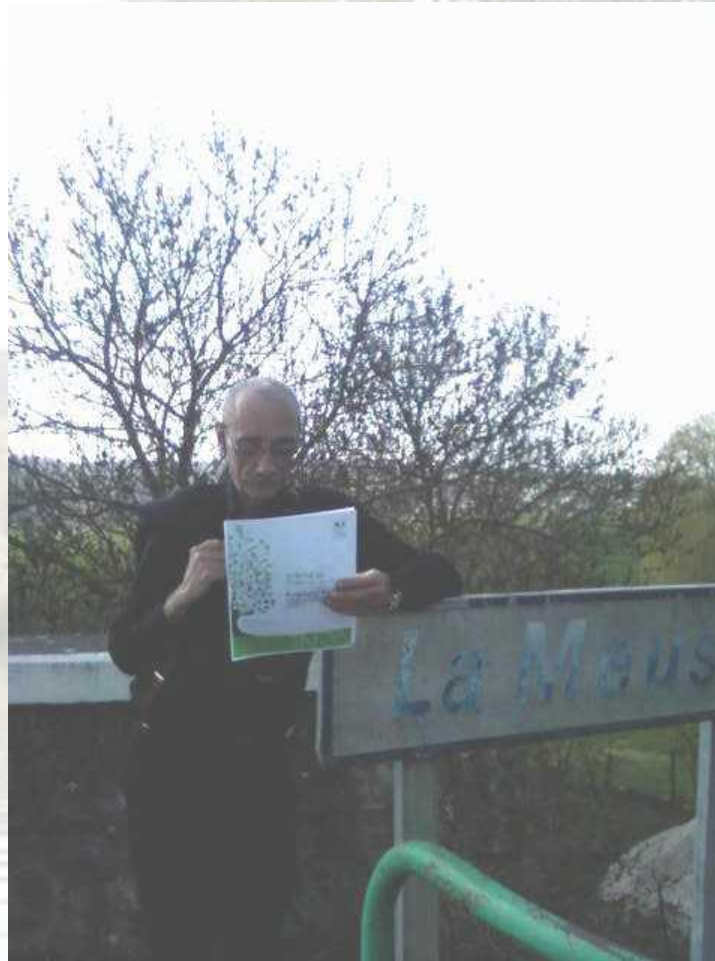
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Sunday April 18, 2010, at Chalaines on and in Meuse (close to Vaucouleurs)



Thursday April 22, 2010, go to Liege,
at the 3rd International Scientific Meuse Symposium

The Framework of Ecophyto R & D

- Engagement of France in a policy of reduction of the use of pesticides
- The Grenelle environment forum: objective to reduce by 50%, if possible, the use of pesticides
- Expertise INRA - CEMAGREF in 2002 on pesticides
- The ministries for agriculture and ecology ask INRA: which are the possibilities of reducing the use of pesticides ?

-Contract Ecophyto R & D 2007-2009

The framework of Ecophyto R & D

Objective of ECOPHYTO R&D: to mobilize all knowledge, including nonacademic knowledge.

Governorship:

- A steering committee INRA/ Ministry for agriculture/ Ministry for ecology

- A committee of orientation bringing together all the partners: agricultural unions, technical institutes, co-operatives, pesticides' industries, environmental organizations....

8 working groups joining together more than 100 experts:

Method

Field crops/vine /orchard /vegetables (field and horticulture)

Scenarios

Sets of actors

Networks

Method and limits of Ecophyto R & D

The specificity of pesticides; it is a factor of production which does not influence directly the volume the production (as for example nitrogen) but which avoids production losses: From where, the recourse to the concept of level of break

(Na)	Current situation	
N0	No limitation to the use of pesticides In crops' sector, the 30% more intensive practices	Intensive Agriculture
N1	Limitation of the recourse to the pesticides by the reasoning of the treatments according to thresholds	Reasoned Protection
N2a	N1 + implementing of prophylactic and alternative methods on the one culture of the rotation	Integrated Protection
N2c	N1 + implementing of prophylactic and alternative methods on all the cultures of the rotation	Integrated Production
N3	Suppression of any treatment with chemical	Organic Agriculture

Method and limits of Ecophyto R & D

Methods

Measure the pesticides' pressure by the TFI

Construction of matrices, for the various productions, by level of break, on:

- **The pesticides' pressure**
- **The yield and the level of output**
- **The input and the gross margin**
- **For different French regions**

Limits

Evaluations made on the basis of current knowledge

Insufficient references for some levels, in particular for the organic farming

A reference: year 2006. Imperfect account of variability

No analyse of the effects on the environment or the public health

On the economic plan, prices are considered as exogenous and given

Three steps for the scenario group

To draw up an inventory on the use of pesticides by product and area in 2006

To generate the states of French agriculture corresponding to the generalisation of each level of break: uniform scenarios

For field crops,

-to associate with each level of reduction of the use of the pesticides, an optimal combination of levels of break

-to analyse public policy instruments (taxes and subsidies)

The inventory on the use of pesticides in 2006

Combination of FADN data, of data from “the farming practices survey”, of the results of the groups “production”

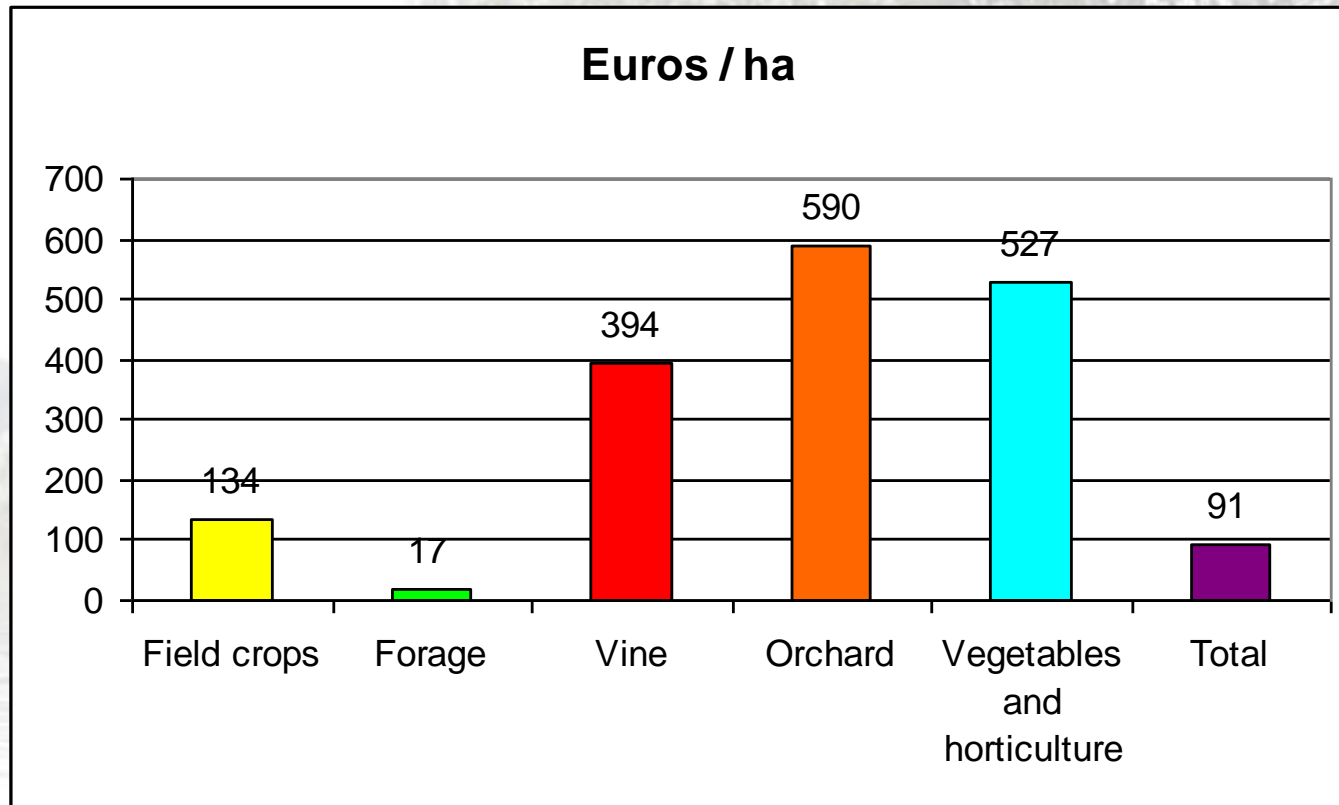
First observation: a strong relationship between TFI and expenditure of pesticides per hectare

	Vine	Apple	Field crops	of which soft wheat	of which canola	of which sunflower	of which potatoes
TFI	12,5	36,5	3,8	4,1	6,1	2,1	16,7
Pesticides €/ ha	394	1267	134	133	203	87	489
« Price » of TFI	31	35	35	33	33	42	29

But the use of certain alternative methods generates more important costs than chemical treatments : sexual confusion and organic farming in arboriculture.

The inventory on the use of pesticides in 2006

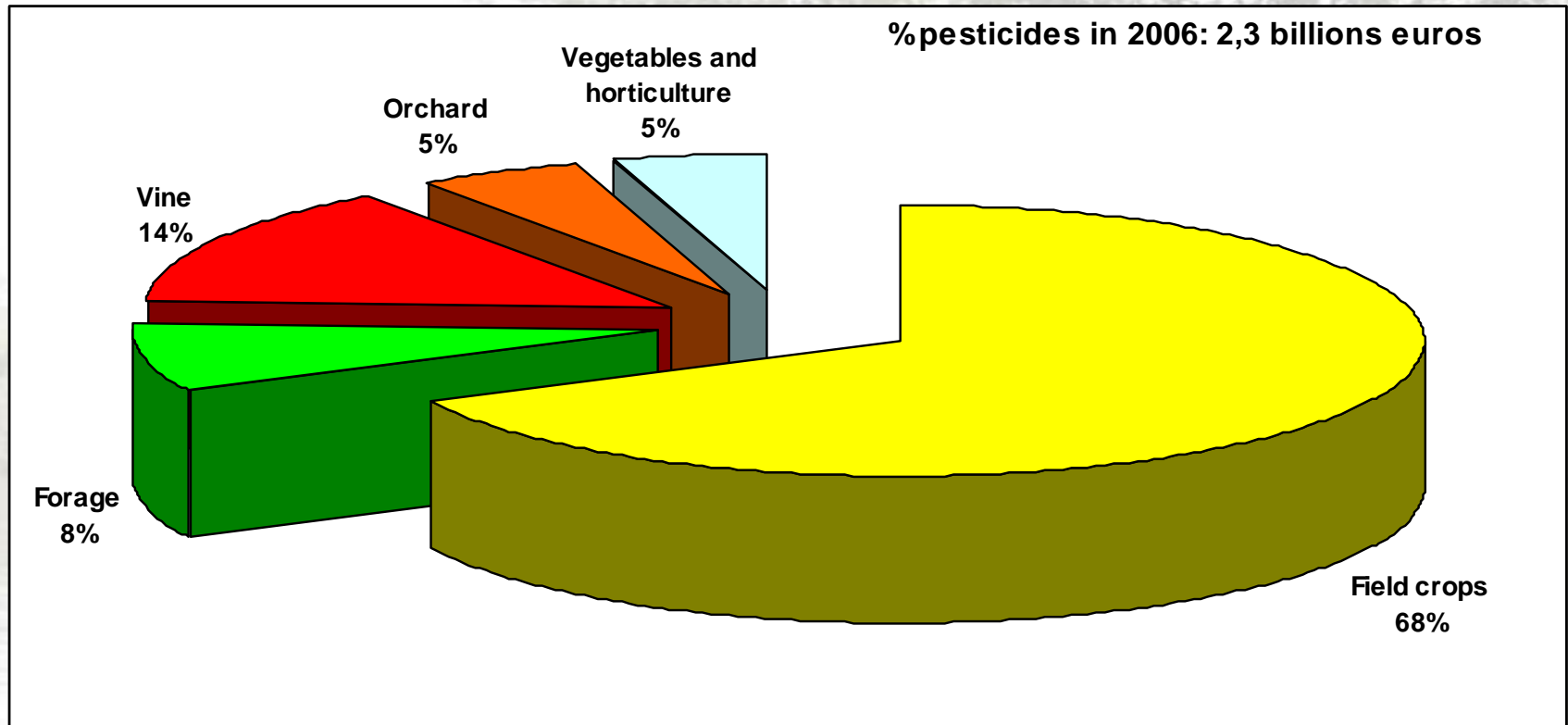
The pesticides' pressure varies according to the sectors



And the pressure of the pesticides varies inside the sectors. For the vine for example, the TFI varies between 7 in Provence and 22 in Champagne. For the fruits, it varies between 36 for apples and 6 for nuts. For the field crops, it varies between 16 for potatoes and 2 for sunflowers.

The inventory on the use of pesticides in 2006

But the areas' effect is more important



76% of the 2,3 billion euros of the pesticides in field crops and forage

The inventory on the use of pesticides in 2006

The pesticides used on field crops dominate over territory



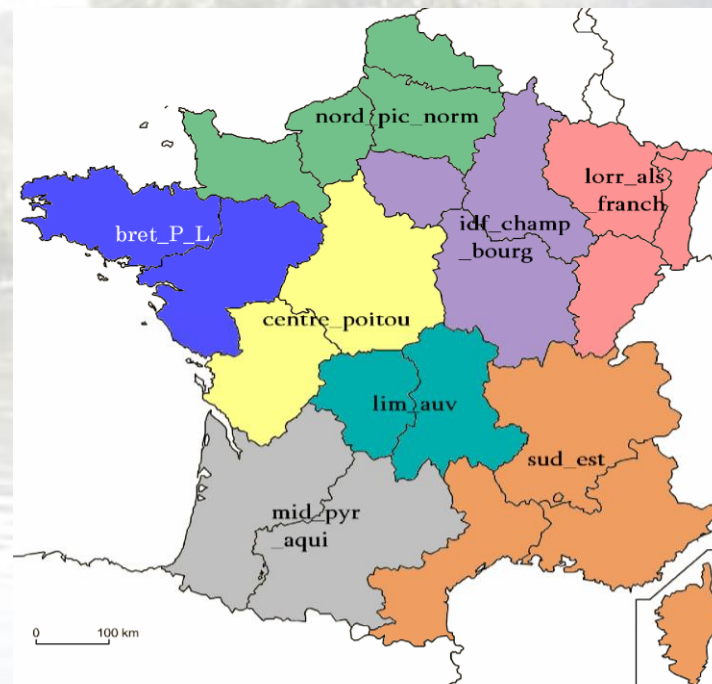
	Dominating origin
Yellow	Field crops
Purple	Vine
Pink	Vegetables and horticulture
Orange	Orchard
Green	Forage

But, the vines, the orchards and the horticulture can be at the origin of strong local pressures

The uniform scenarios

The situations of the French agriculture corresponding to the generalisation of each level of break

From the initial situation, the results of production groups are applied on 8 regions and are aggregated on France



The uniform scenarios

From the initial situation, the results of production groups (agronomists) are applied for the whole French agriculture (excluding vegetables sector) for each level of break

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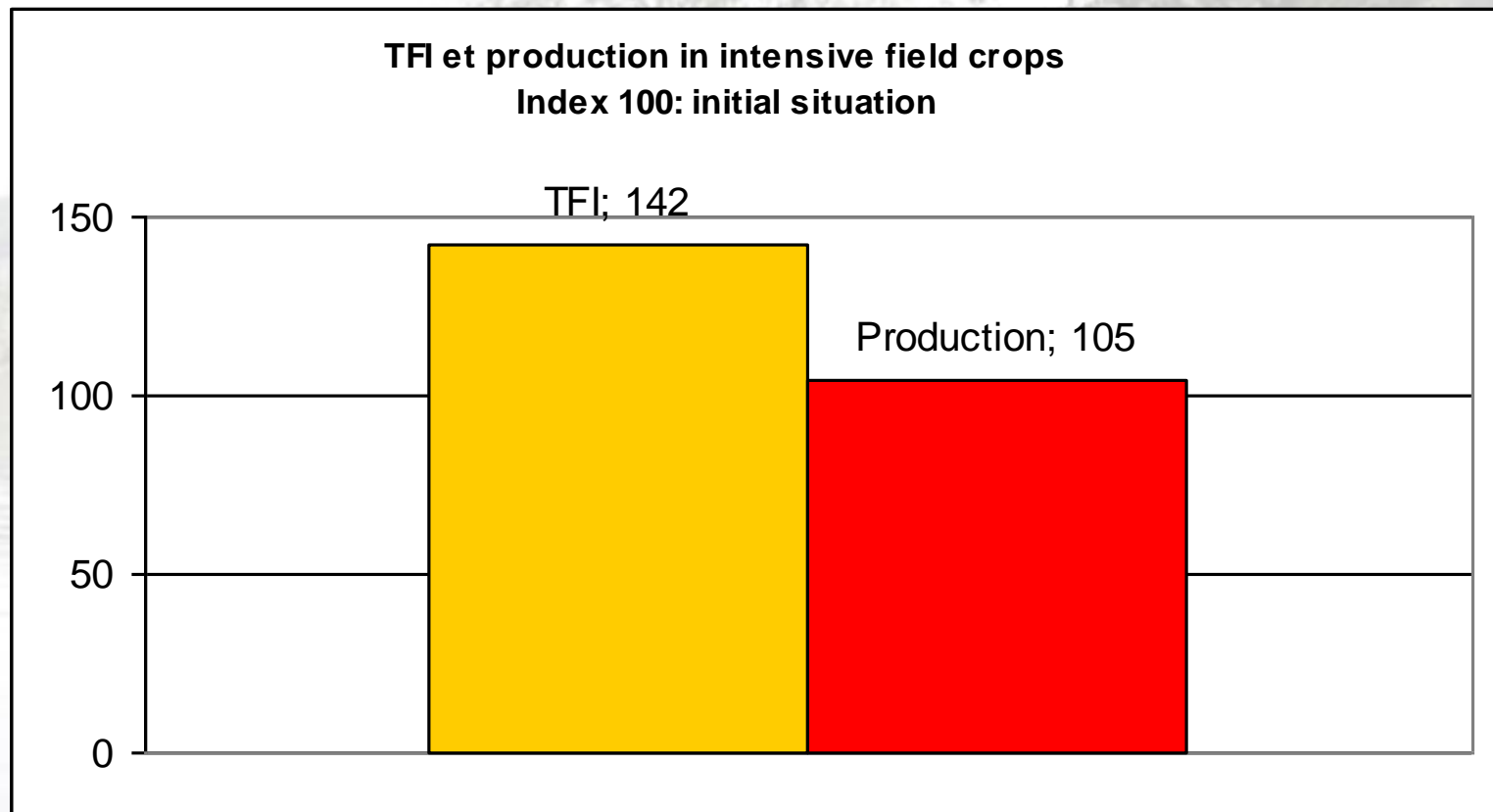
The uniform scenarios

Aggregation of the results on:

- **The pesticides' pressure: FTI**
- **The yield**
- **The volume of the production at the price of 2006**
- **The level of the receipts at the price of 2006 and 2007**
- **The gross margins**

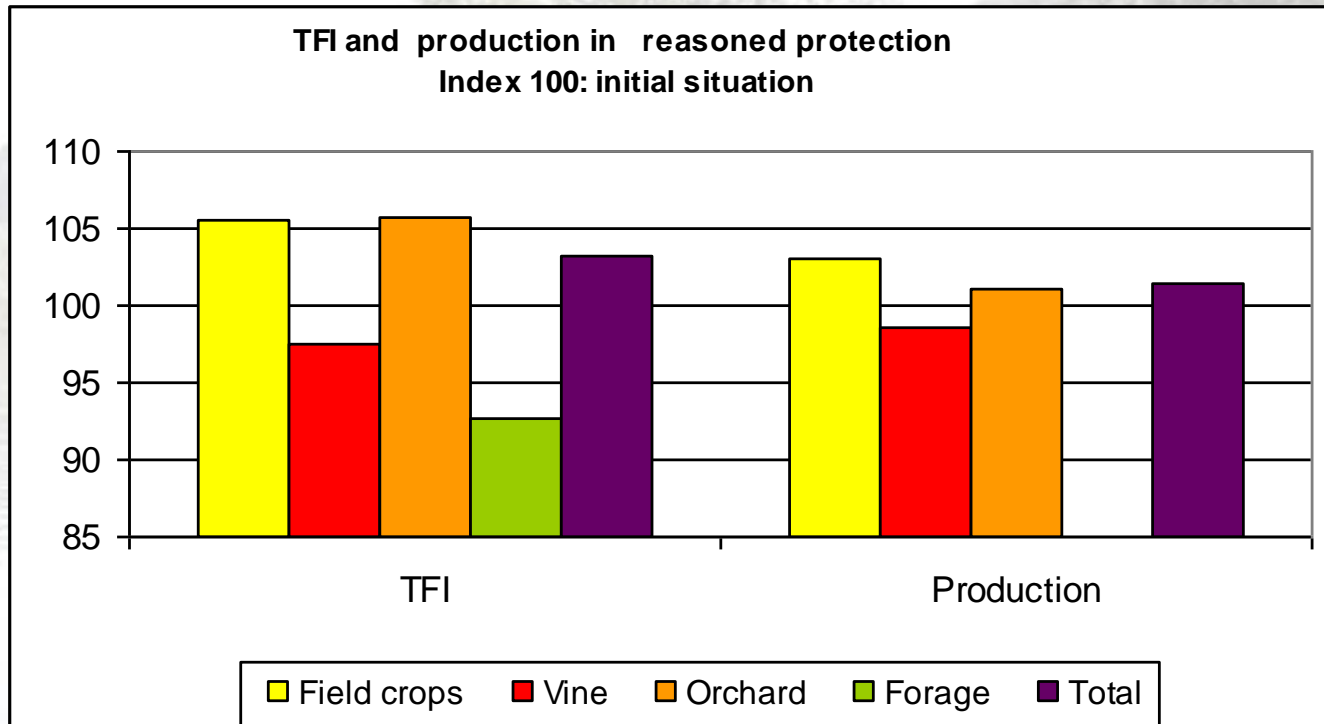
The uniform scenarios

In field crops, the pesticides' pressure is very strong in the intensive farms for a moderate profit of production



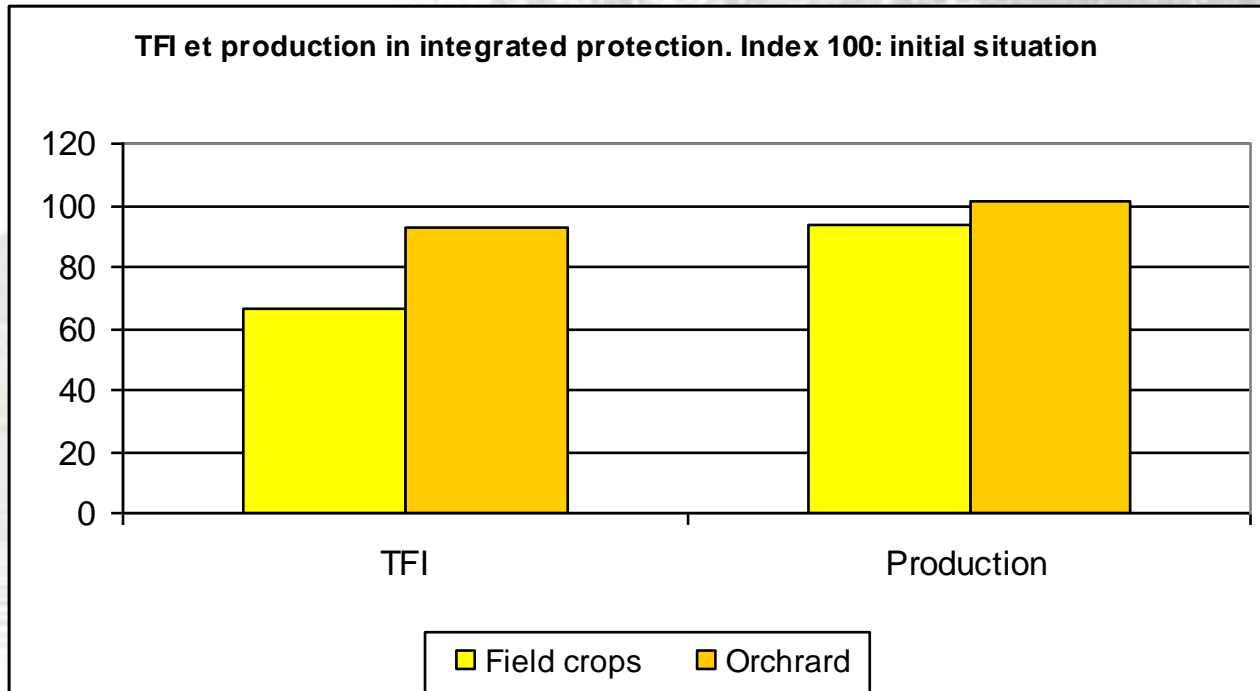
The uniform scenarios

The generalisation of reasoned protection would not change neither pesticides' pressure, nor the volume of the production



The uniform scenarios

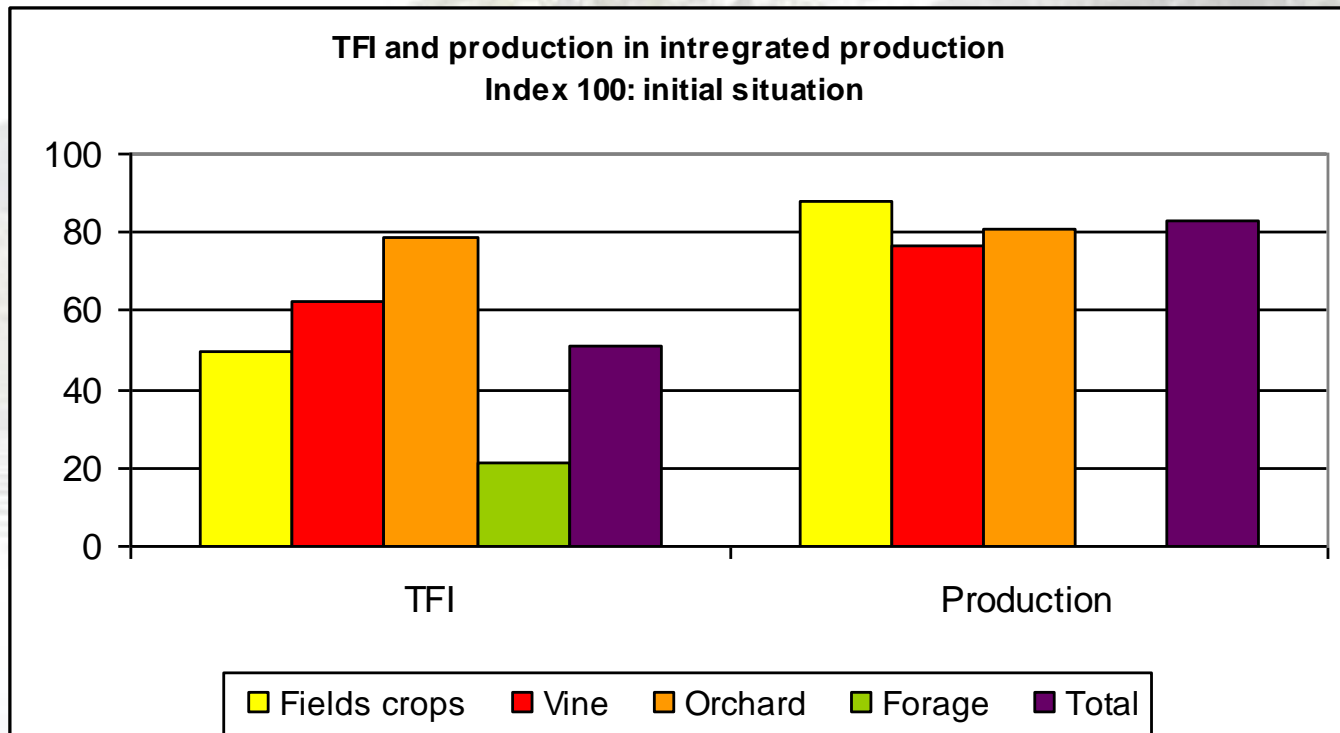
With the generalisation of the integrated protection, the pesticides ' pressure decrease by a third in field crop, for a moderate fall of volume of production (6%)



In arboriculture, the generalisation of sexual confusion would allow to reduce the TFI by 7%

The uniform scenarios

The goal of reducing 50% of pesticide use, set at the Grenelle Environment Forum, is the situation where all farms use integrated farming methods.



The uniform scenarios

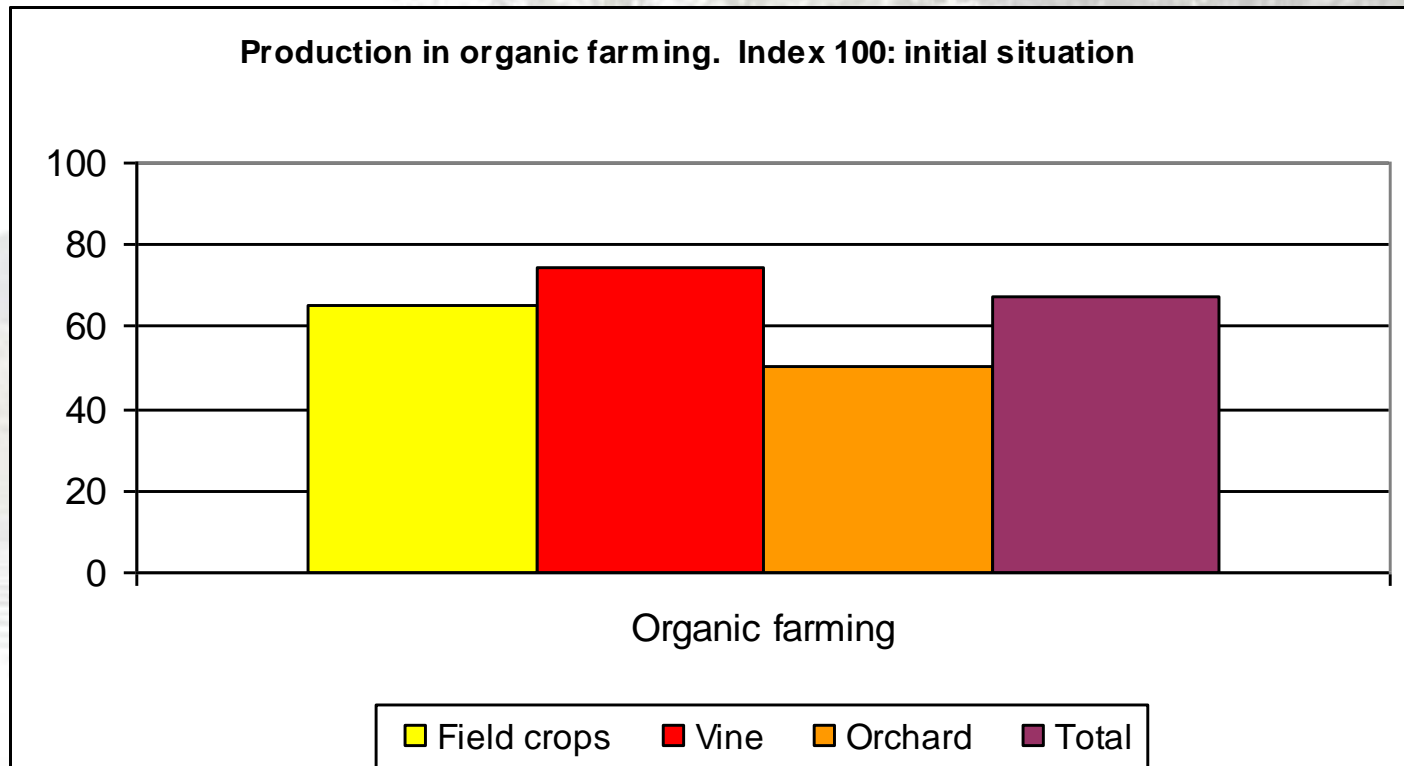
The integrated protection: a difficult way in the short term

- Production decrease by 12% for field crops
- Difficulty to maintain certain products (rapes, potatoes...)
- Lengthening of the rotations : need for increased outlets for certain products
- Risk of yield loss in vine growing
- Renewal of the orchards to establish resistant varieties.

The development of research is necessary.

The uniform scenarios

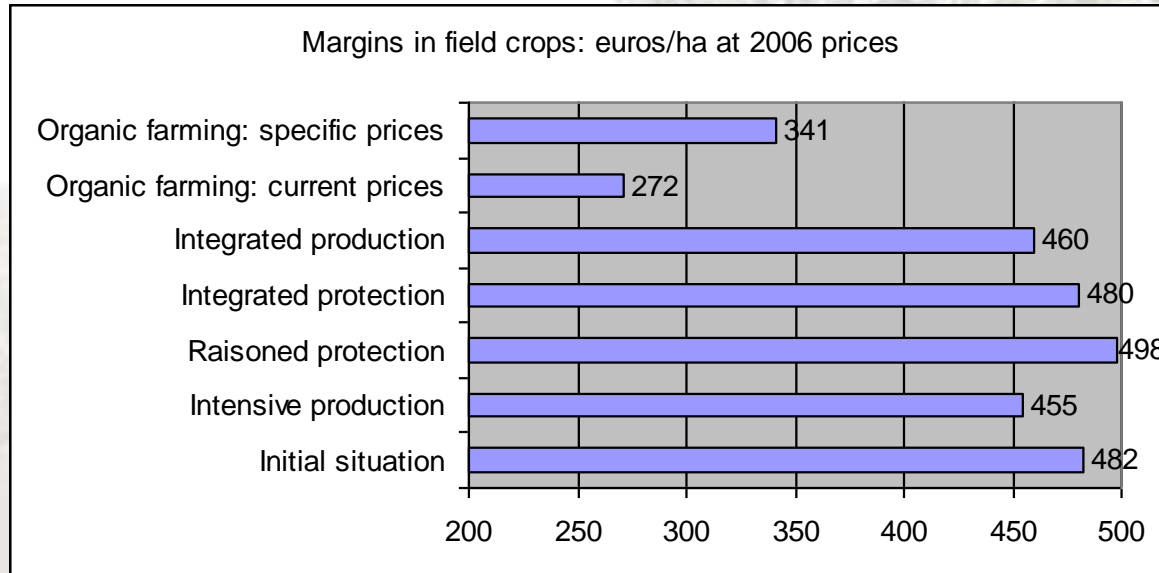
The generalisation of the organic farming would generate important production losses



The uniform scenarios

Evolution of the margins at the 2006 prices , in field crops

Reasoned agriculture has the best margins



The margins are better in integrated protection and in integrated production than in intensive agriculture

The higher prices of the organic farming are not sufficient to generate better margins

2007 Prices accentuate the advantage of reasoned agriculture and stimulate even intensive agriculture

The reverse scenarios in the fields crops

Objective: find the optimal combinations of levels of break to achieve various reduction objectives in the pesticides use.

Model build on the eight regions: maximise the gross margin under constraints on the use of pesticides.

The first result:

Compared to the current situation (2006), the optimised situation would lead to a reduction of the TFI of 9%, a rise of the gross margin of 5% for a light increase in the production (1%)

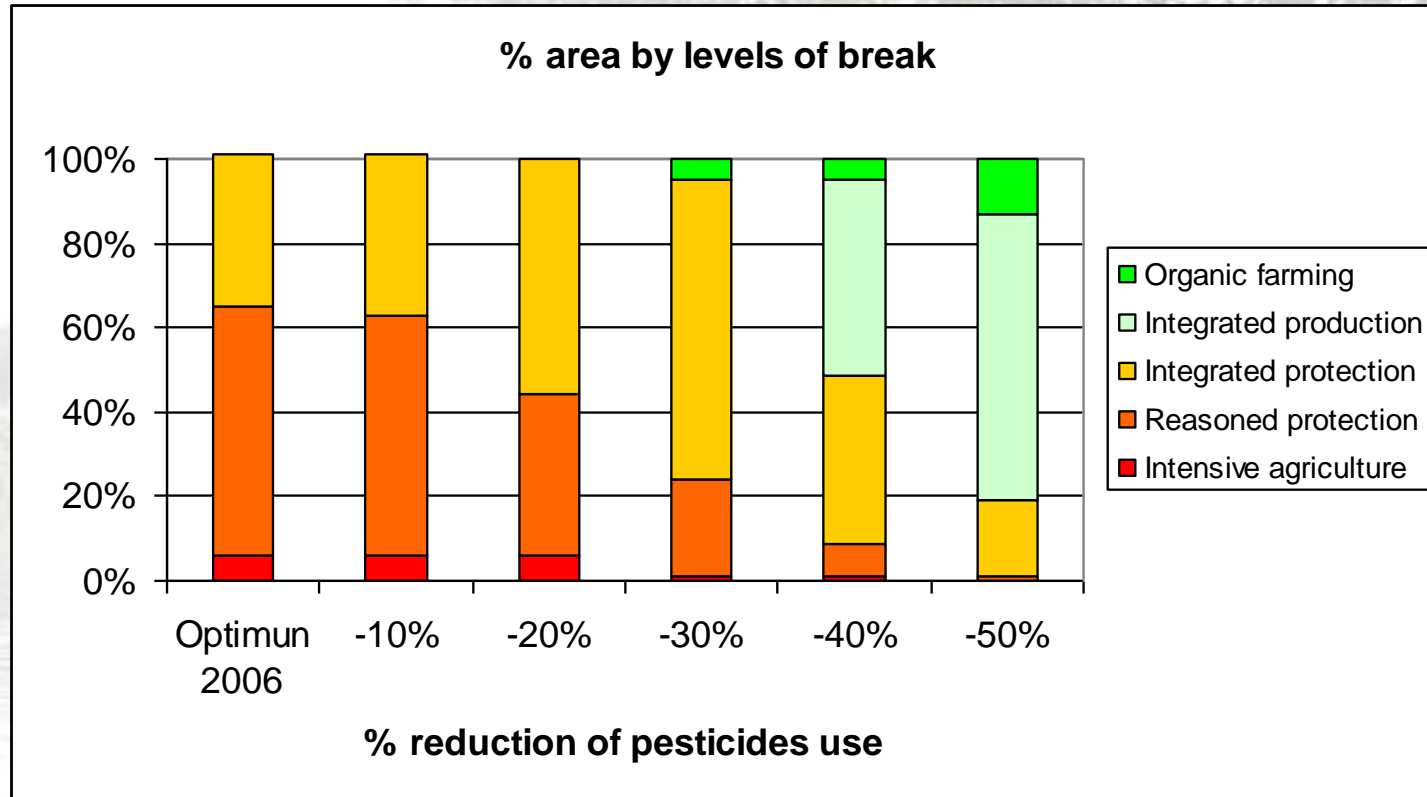
The reason:

The share of the intensive agriculture is 30% in the initial situation and 6% in the optimised situation

It is possible to eliminate inefficiencies

The reverse scenarios in the fields crops

The reduction of the pesticides' use: from red (intensive agriculture) towards green (integrated production and organic farming)

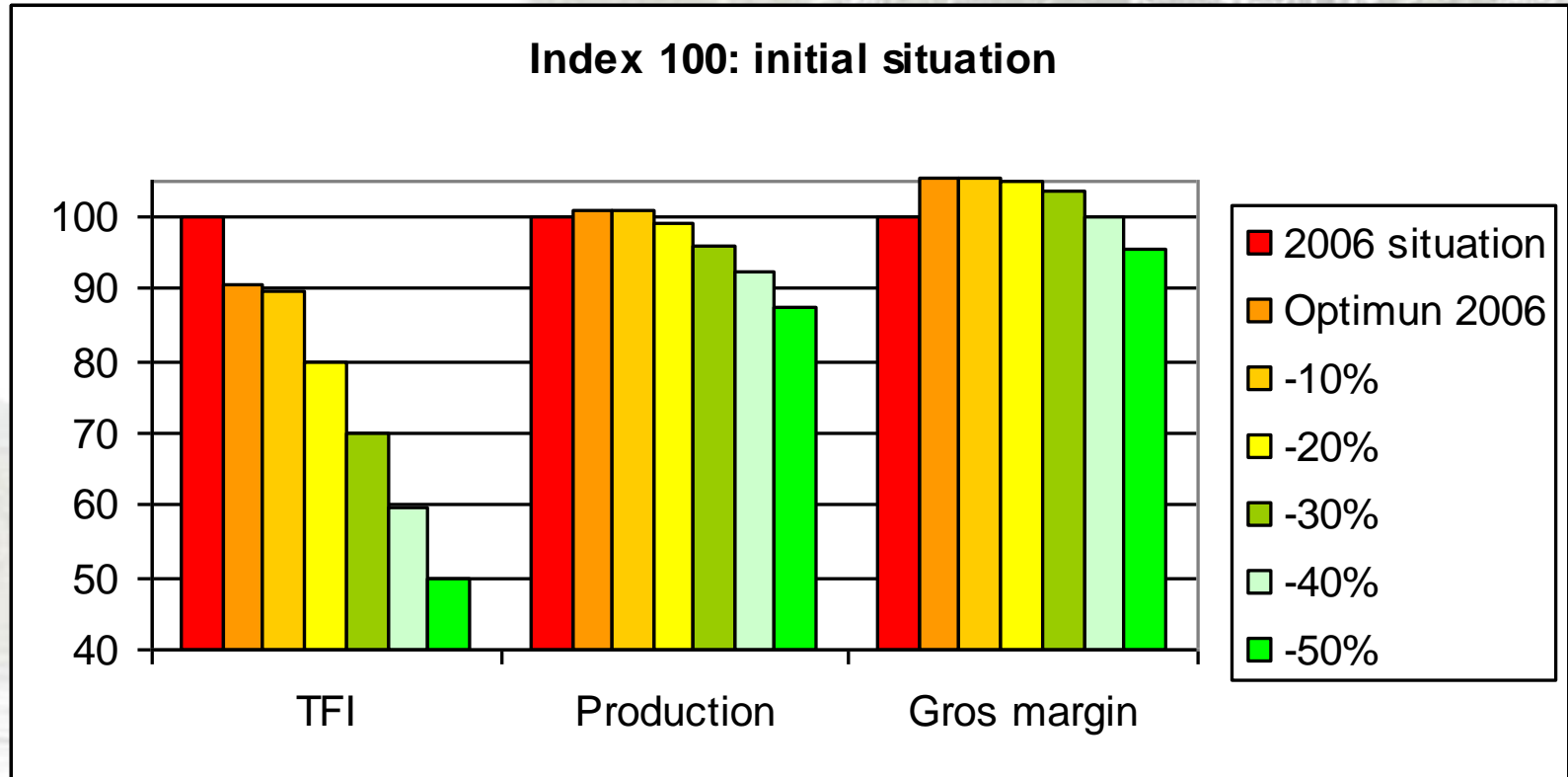


Until 30% of reduction, the objective is achieved by technical modifications without change of rotation

The objective of 50% implies a rise of the integrated production and organic farming

The reverse scenarios in the fields crops

Effects on the production and the margins



Until 20% of reduction, the objective is achieved with a maintenance of the production, up to 40% with a maintenance of the margins

After 50% of reduction, the effects are sensitive on the production (- 12%) and the margins

The first step to reduce the pesticides use is to eliminate the inefficiencies.

It is possible to reduce by 30% the pesticides use by developing integrated protection without important changes in the practices and without loss in production and margin.

The objective to reduce by 50% the pesticides use is more ambitious. Its corresponds to the generalisation of the integrated production which implies important changes in the whole production and supply chain.

A serene landscape featuring a calm river in the foreground, lush green trees along the banks, and rolling hills in the background. The scene is captured in a soft, slightly desaturated light, creating a peaceful and natural atmosphere.

Thank you

Merci

Bedankt