



**Institut Technique de la Betterave**



## Why and How to Reduce the Uses of Herbicides?

**ECOPHYTO 2018: Implementation of 2009/128/CE in France**




# écophyto2018

Réduire et améliorer l'utilisation des phytos :  
**moins, c'est mieux**

- " The aim is to reduce by 50% the uses of PPP « if possible » before 10 years
- Measure year by year the use of PPP via "NODU" and "FTI", which count the number of registered doses used at "national scale" (NODU) or at regional, farm or crop scale (FTI)
- Développement: demonstrative farm network: 1 thousand of farms volunteered
- Research: INRA + Institutes: long term field trials « cropping system »
- Field monitoring: Warning network, « BSV »: Resobet Fongji/ITB

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**Understanding the actual uses and recent trends in Herbicides uses**




► **SITE: Annual survey carried out by ITB since 1997**

- 500 farmers answers=1500 fields every year
- Complete description of their practices at the field level
- Data analysis
- Variability and interactions

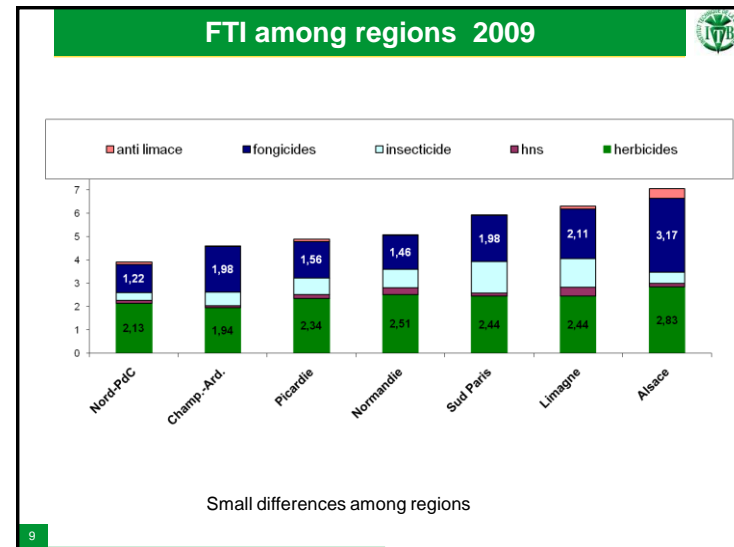
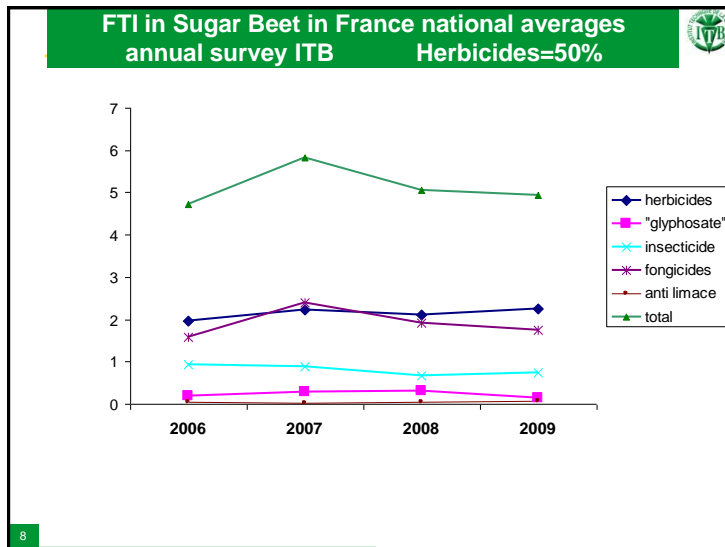
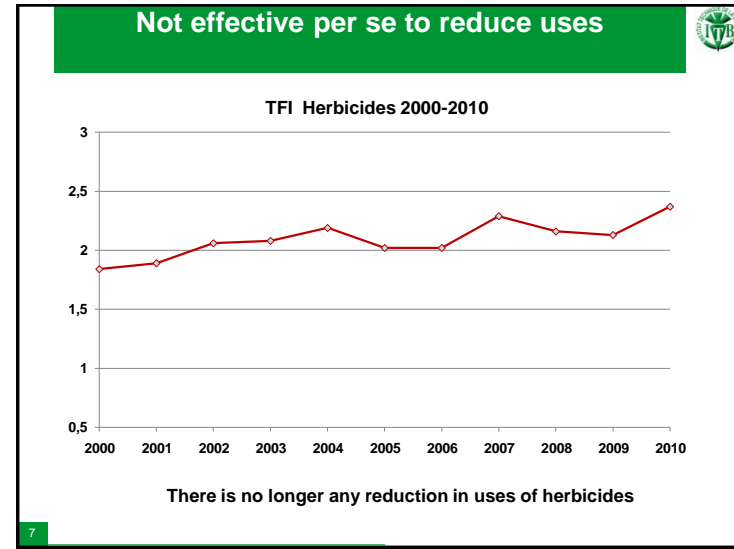
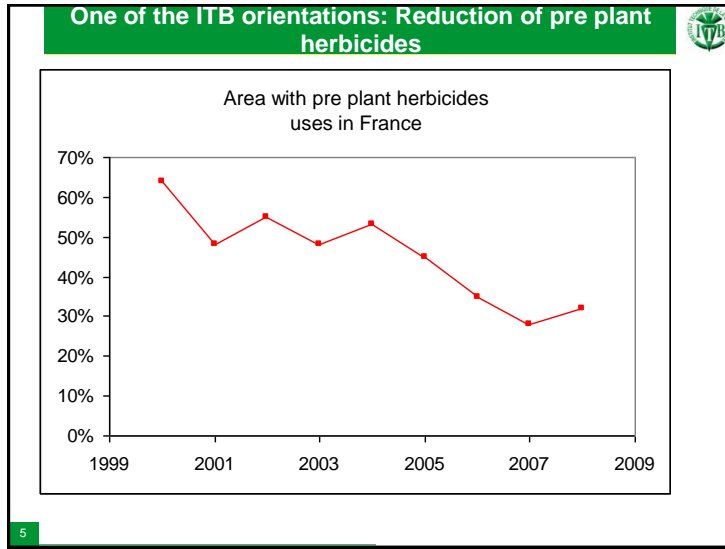
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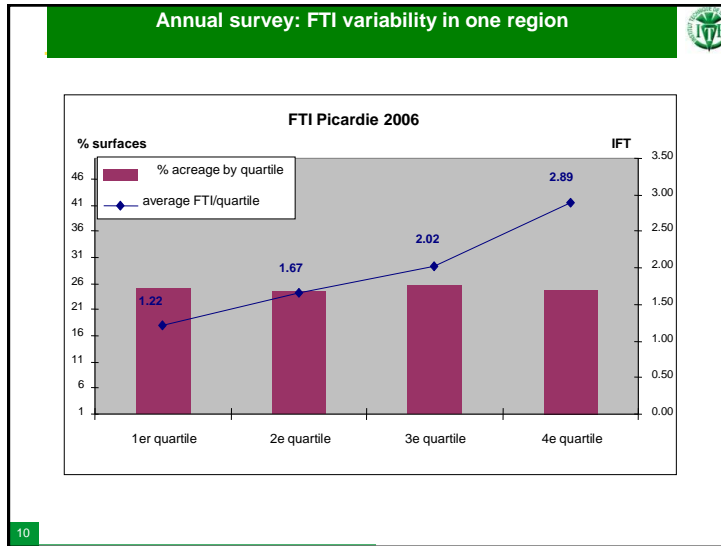
**Possible tools for herbicides use reduction**



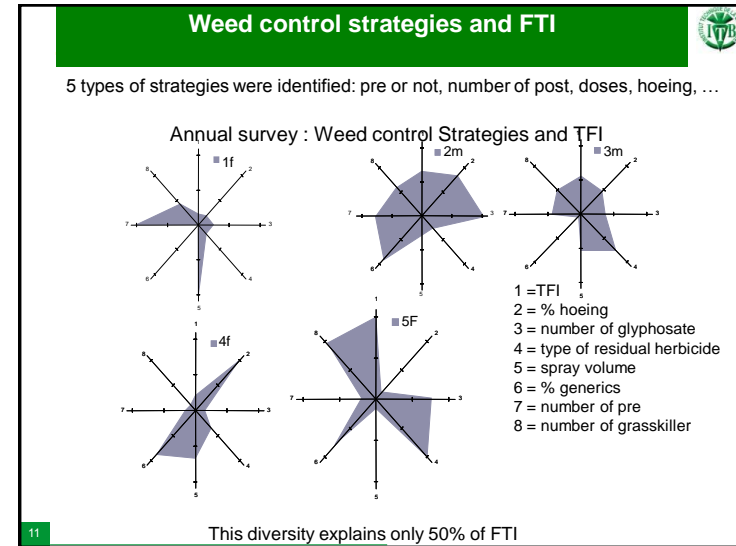
- **BETSY a web tool: Set up « recipes » aiming to determine best programs and mixtures adapted to complex of weeds and their stages**
- **Adapting the system to new herbicides available and regulation (Centium)**
- **Promoting the best « techniques » to the growers**
- **Optimising the spraying quality (volumes, nozzles, pressure, adjuvants...)**
- **Looking for possibles techniques during the intercrop , tillage, false sowing,**
- **Optimizing cropping system: beet frequency, previous crop,**
- **Mechanical complementary weed control**

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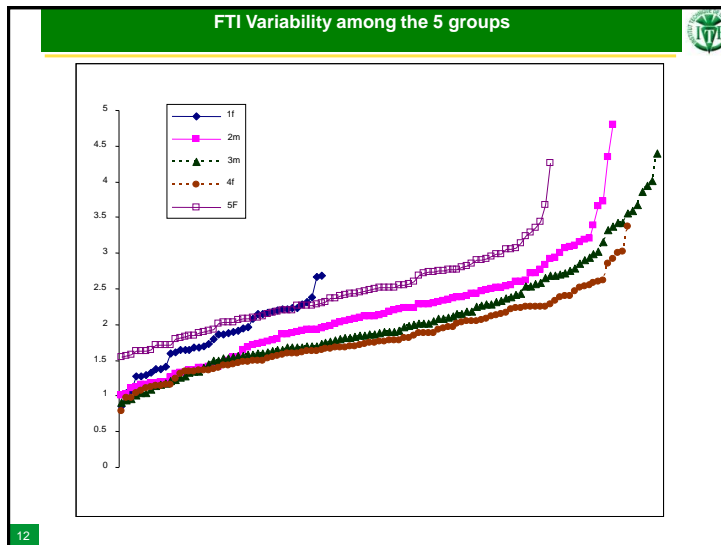




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- ### Understanding the FTI diversity?
- The variability of IFT within a region is promising; what are the reasons for the variability?
  - A fine analysis of the survey did'nt show up any technique that is more « economic » except perhaps « hoeing »
  - No clear effect of cropping system, of tillage, of herbicides programmes?
  - A new tool to understand
    - ▶ VIGIBET, a field network (45 fields en 2010)
      - Evaluate at the field level the needs in herbicides and weed control, (and other PPP), ....
      - Is the use of herbicides and insecticides correct? Or not?
      - Build up new « decision rules » if possible
      - Understand the grower's decisions...

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### Vigibet : diagnosis of weed control techniques at the field level

Started 2010 : 44 fields, weeds counting (species, stages..) when grower sprays, final weed control evaluation.

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### Vigibet : diversity in number of weeds

Comptage maximal d'adventices en rouge sites avec pré

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### Vigibet : some results

4 types d'itinéraires

Itinéraire	Pourcentage
sans pré ni binage	23%
sans pré avec binage	48%
avec pré sans binage	14%
avec pré avec binage	16%

Itinéraires et propreté

Itinéraire	Propreté	Proportion
sans pré ni binage	sale	10%
	échec relatif	10%
sans pré avec binage	échec relatif	14%
	moyen	33%
avec pré sans binage	échec relatif	17%
	moyen	29%
avec pré avec binage	échec relatif	27%
	moyen	29%
Total	échec relatif	20%
Total	moyen	27%
Total	réussi	53%

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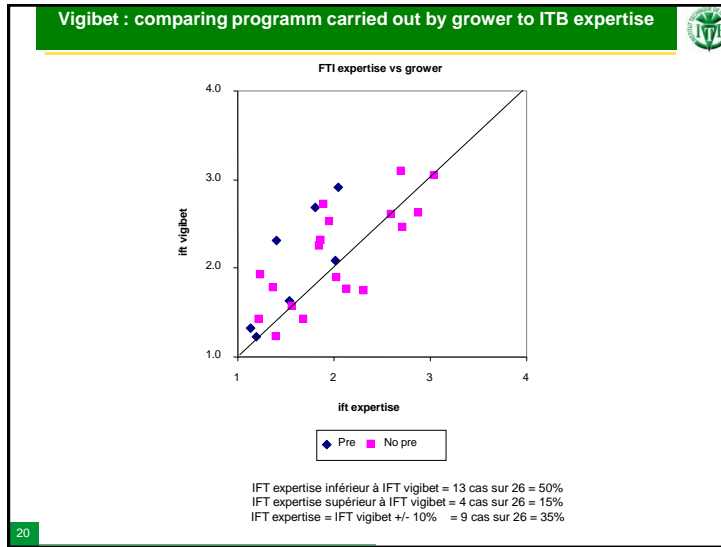
### Vigibet : annual variation among farms

Farms were chosen within the 500 surveyed via SITE.

TFI : annual variations

Ce graphique montre que dans 40% des cas les IFT des 3 dernières années sont très proches ce qui témoigne soit d'une pression adventice très voisine soit de l'utilisation de programme pré établi.  
Notons que l'utilisation de programme pré établi n'est pas toujours synonyme d'IFT élevé.

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**Vigibet : diagnostic des programmes de désherbage**  
 Autres analyses en cours

Understanding Grower's decisions

During summer, discussion with each grower to determine his motivations for His decisions about weed control: how did he decide the herbicides, the doses, the sparying date...

In progress....

**Mechanical weed control**

Mechanical weed control could/should be one important complementary tool To reduce herbicide uses...

Claude Muchembled