

Lessons learnt from the French and European experiences

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**Reducing the use
of pesticides
in tropical agriculture:**

**key challenges
and strategies**

11-12 October 2021
Agropolis International
Montpellier



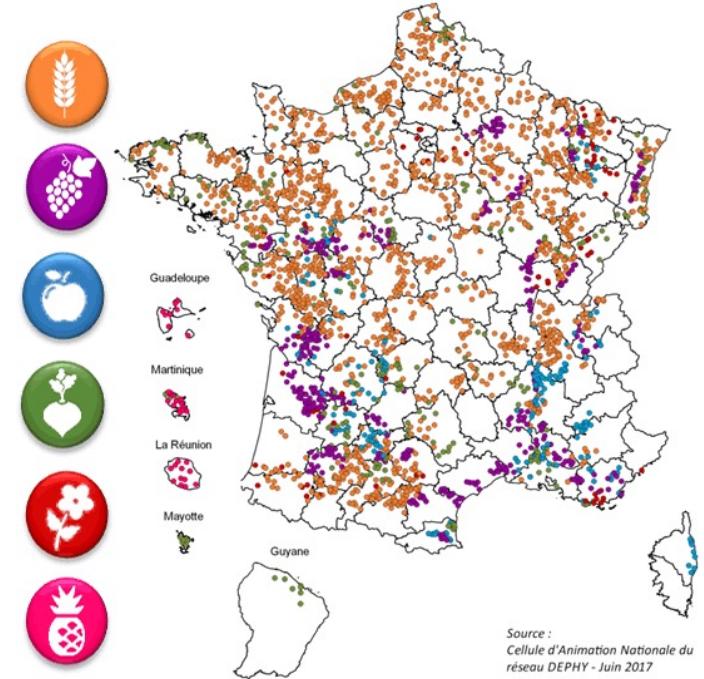
An ambitious plan : Ecophyto



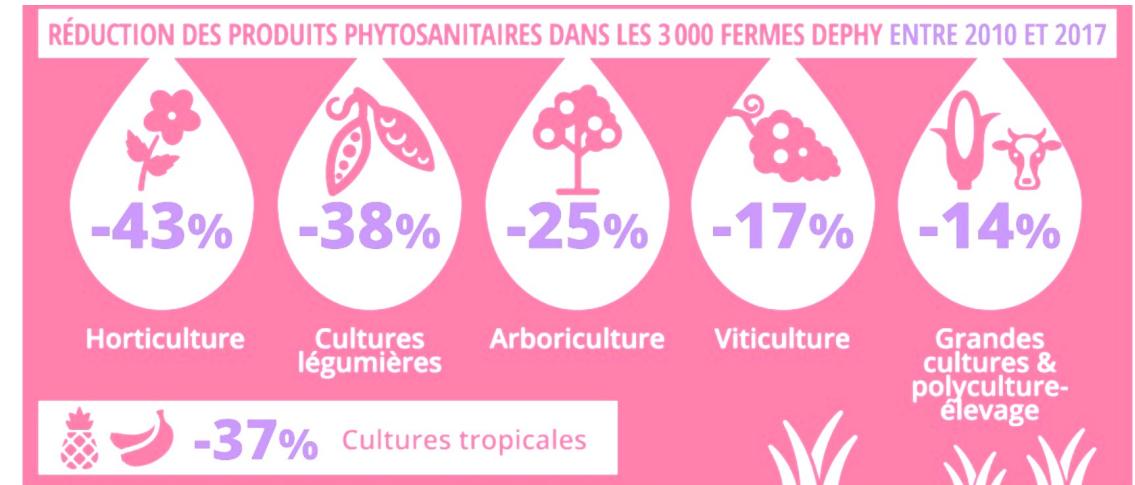
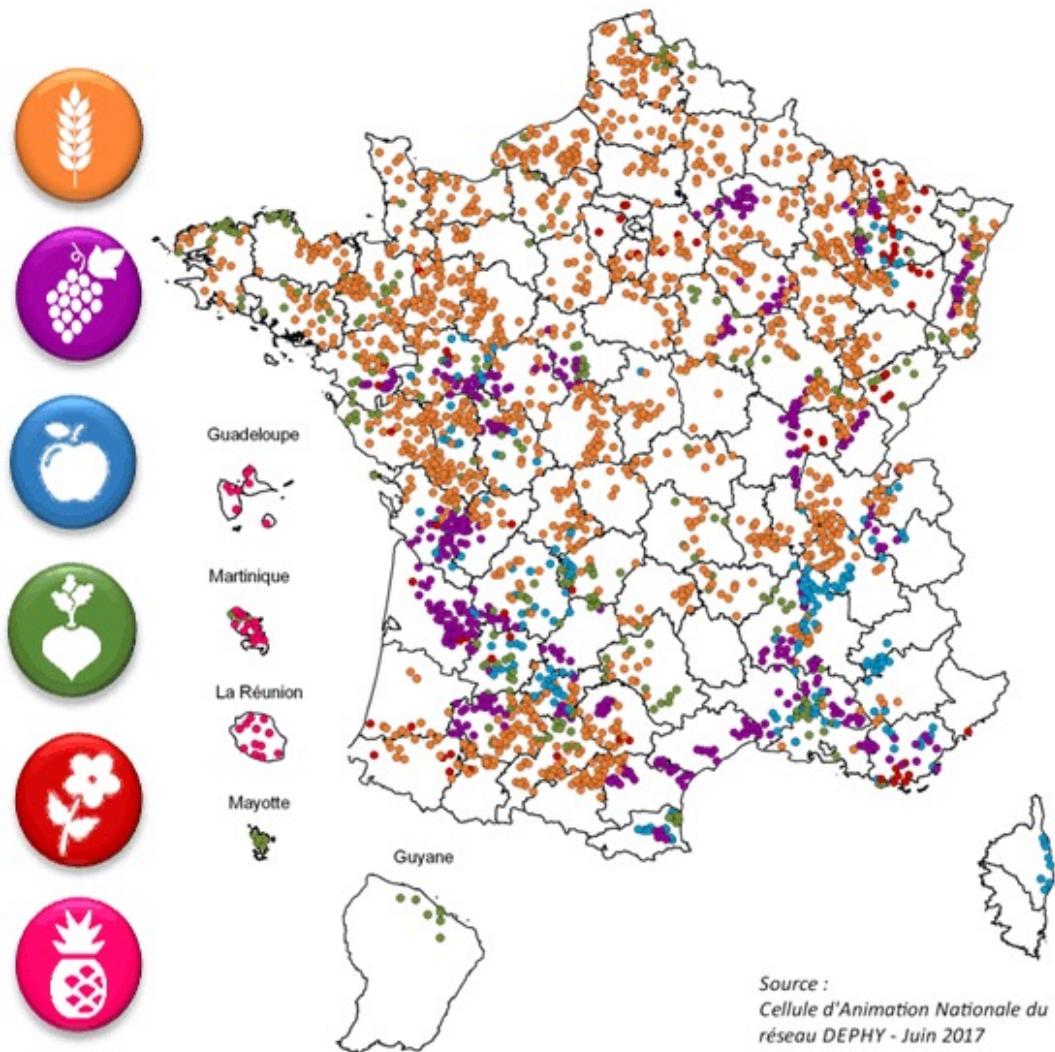
2009-2014
361
millions €

2008-2018
-50 %
of pesticide use

3000
Reference
farms

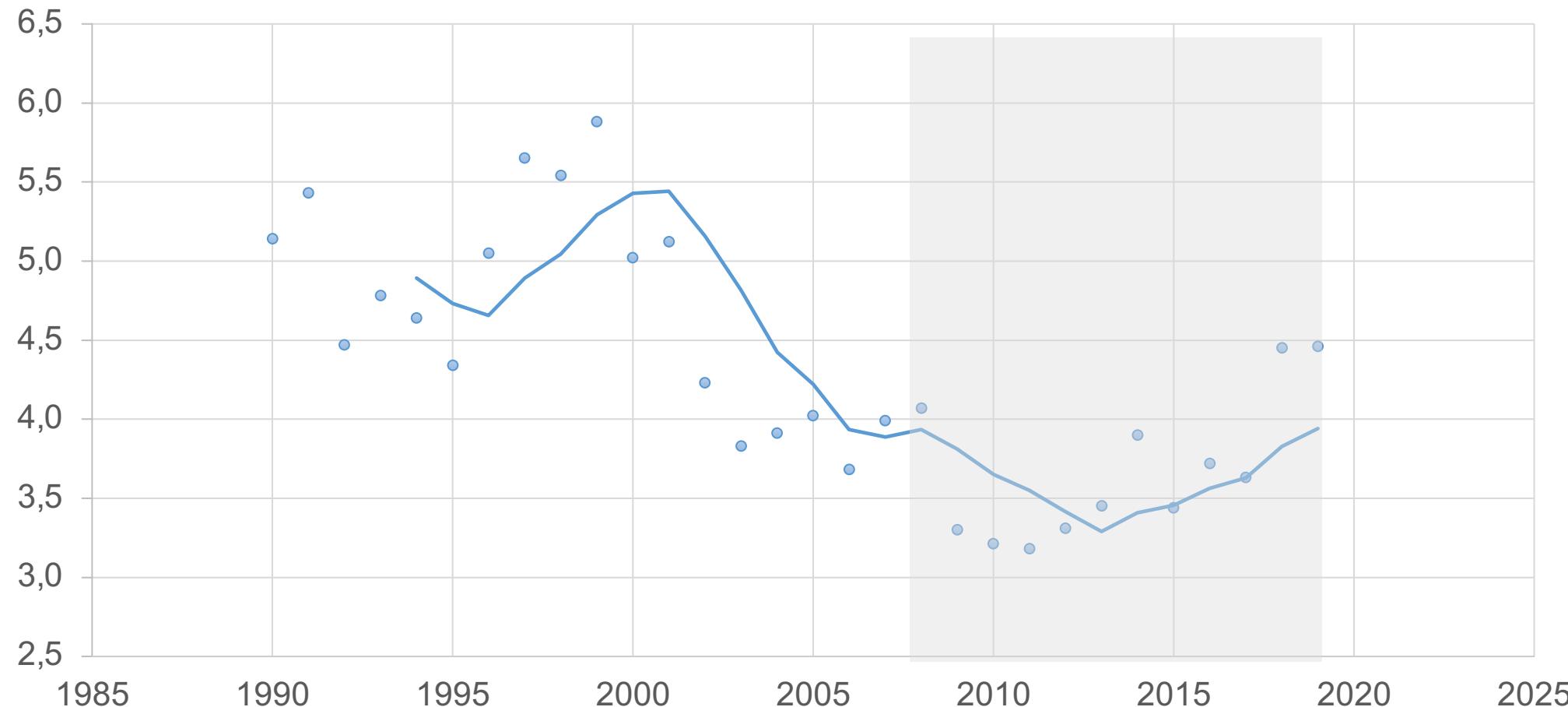


Ecophyto : a success in reference farms



A long term positive pathway of pesticide use

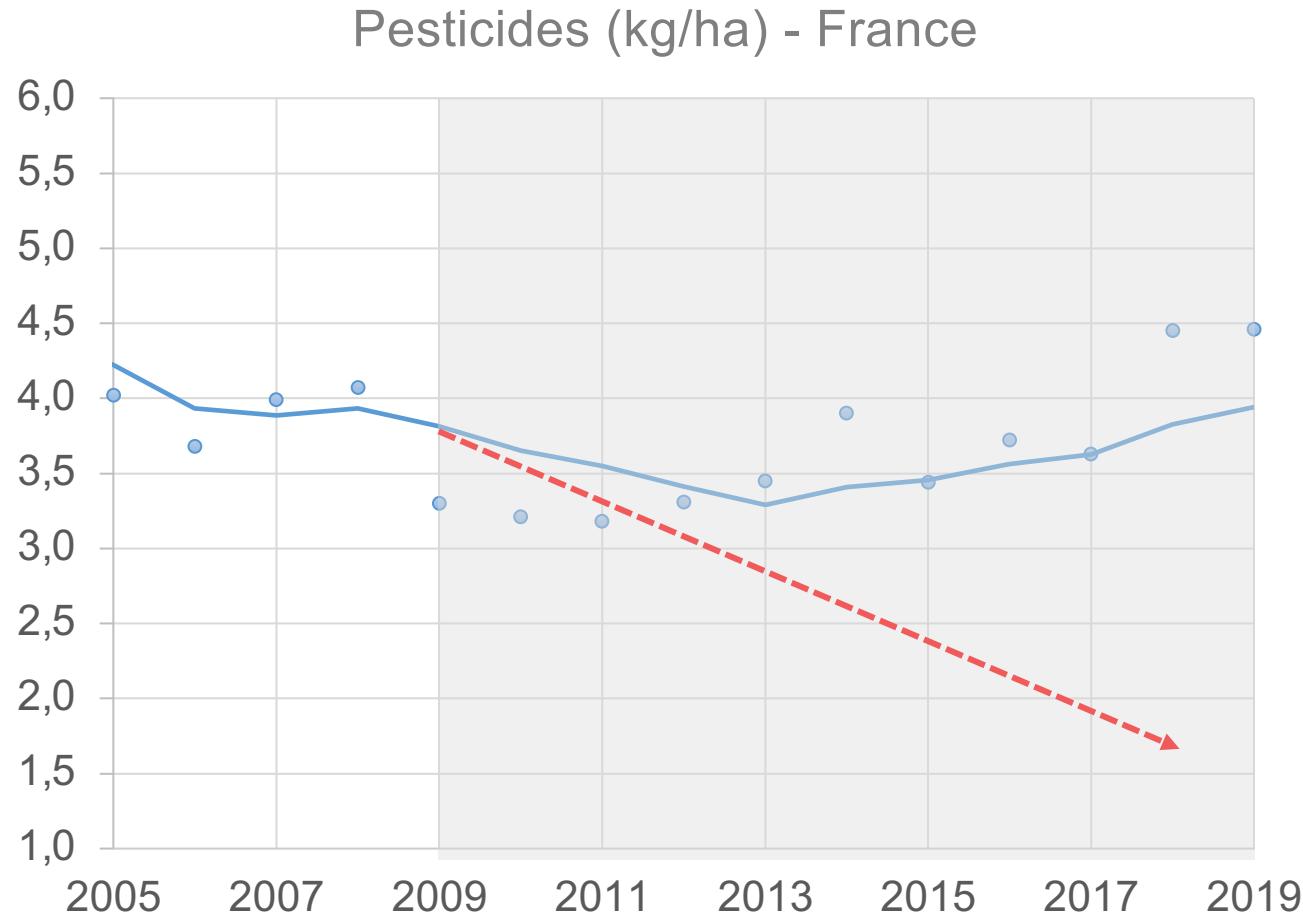
Pesticides (kg/ha) - France



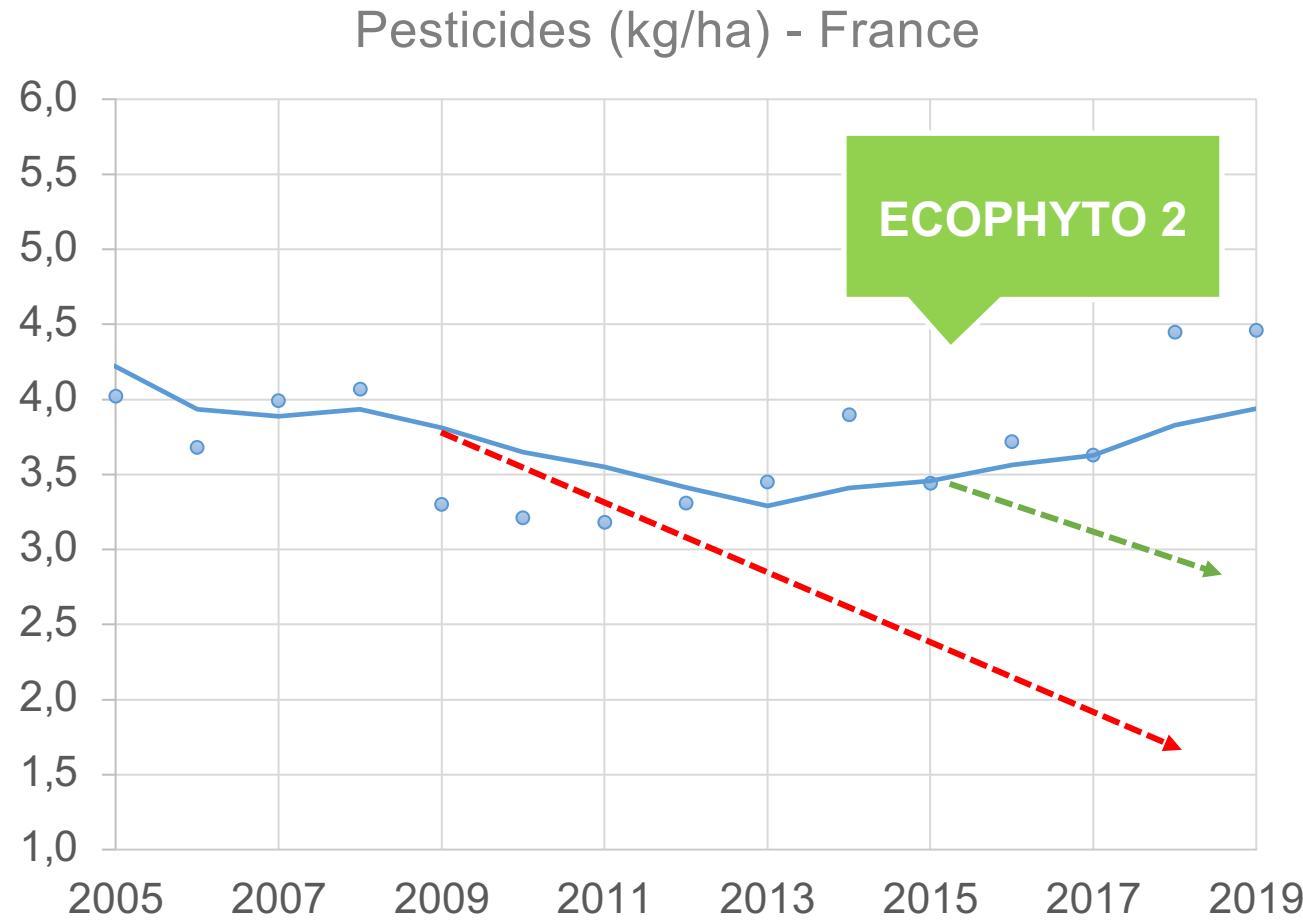
Source : FAOstat

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Ecophyto : a global failure

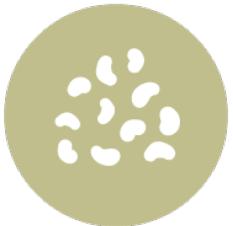


Ecophyto : a global failure - Season 2



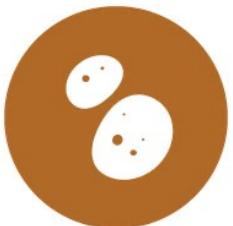
The choice of crops wiped out the gain in practices

The winners



Acreage
+ 96 %

NODU
3.8



Acreage
+ 12 %

NODU
18.1



Acreage
+ 8 %

NODU
4.3



Acreage
+ 7 %

NODU
3.8

2009 -> 2016

The losers



Acreage
-3 %

NODU
0



Acreage
-18 %

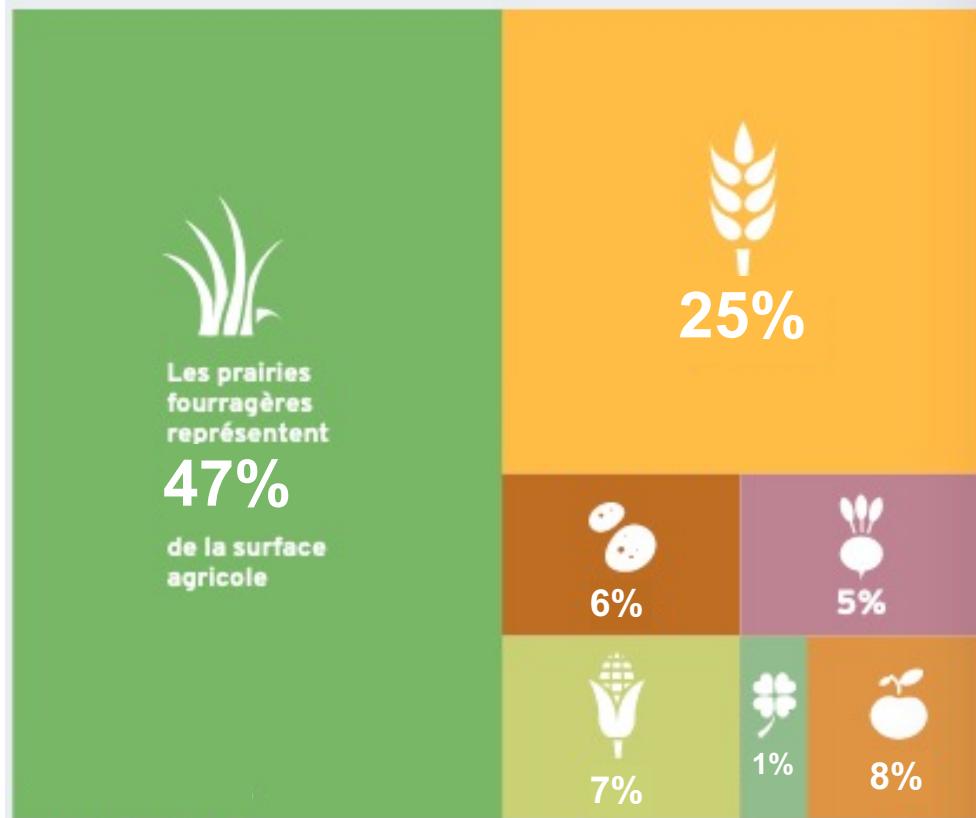
NODU
1.7

A quantitative
explanation

Impact

A stop over in Belgium

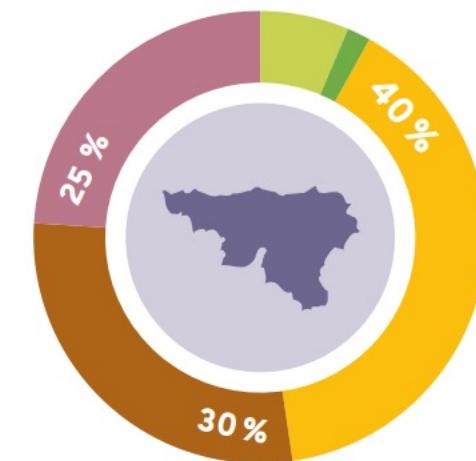
Potato + beets = 10 % acreage, 55 % pesticides ..



Quantité totale de pesticides utilisée sur le territoire wallon

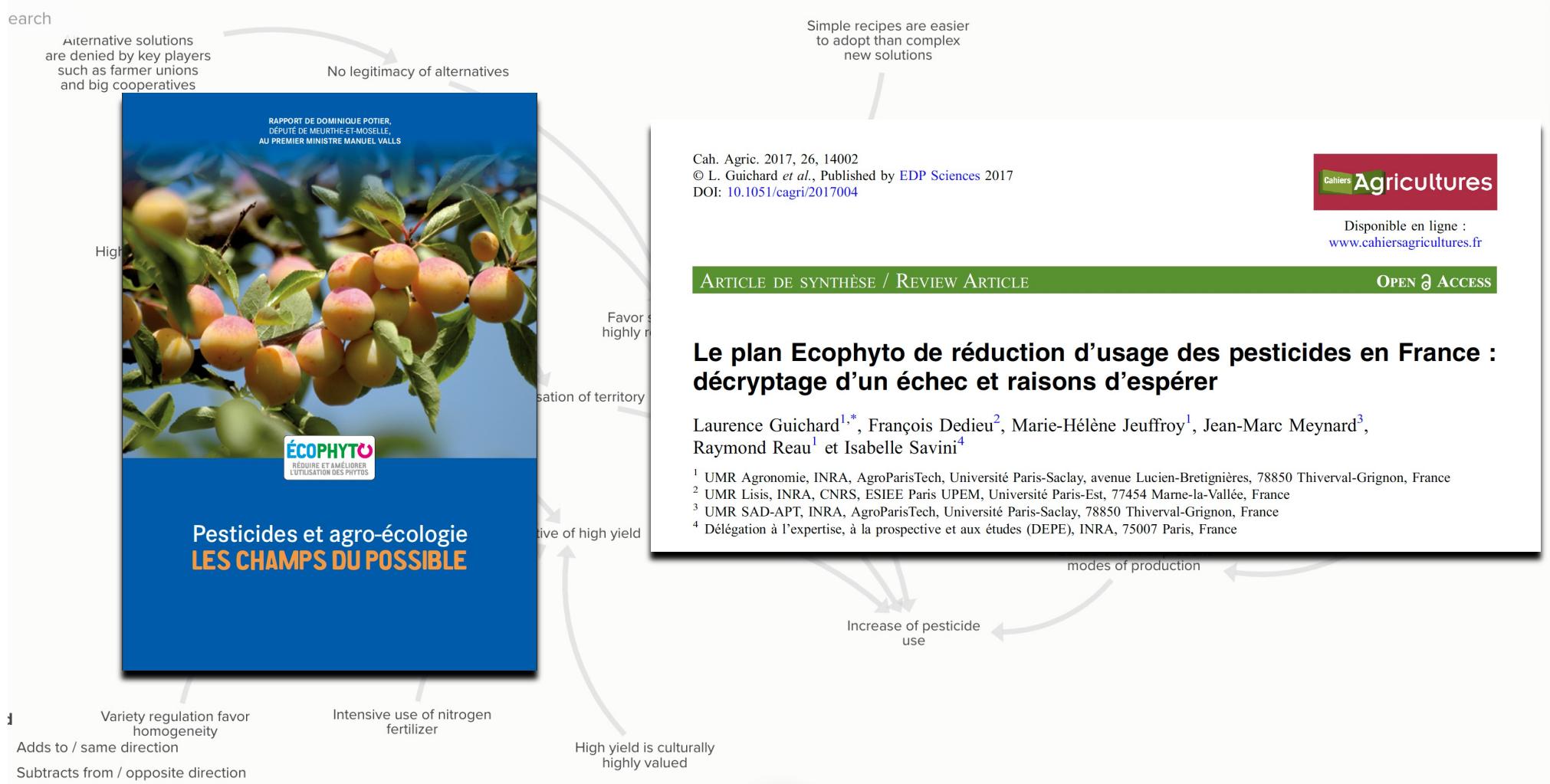


Les filières utilisant le plus de pesticides en quantité sur le territoire sont les céréales, les pommes de terre et les betteraves.

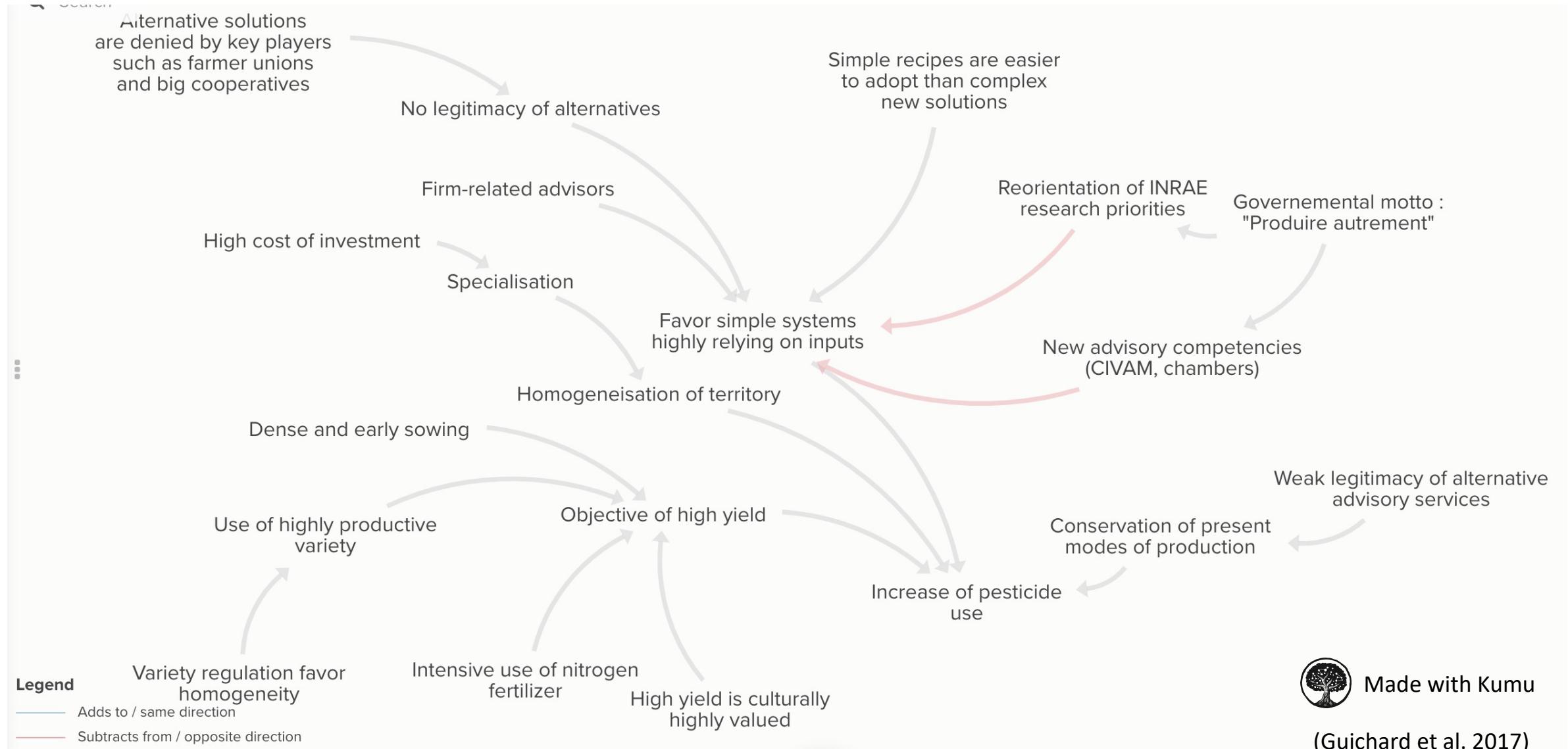


* Moyennes en agriculture conventionnelle pour les années 2011 à 2013, issues des données du Comité régional Phyto. L'utilisation de pesticides pour les autres cultures non reprises dans cette page est considérée comme négligeable à l'échelle régionale.

A systemic assessment of lock-ins



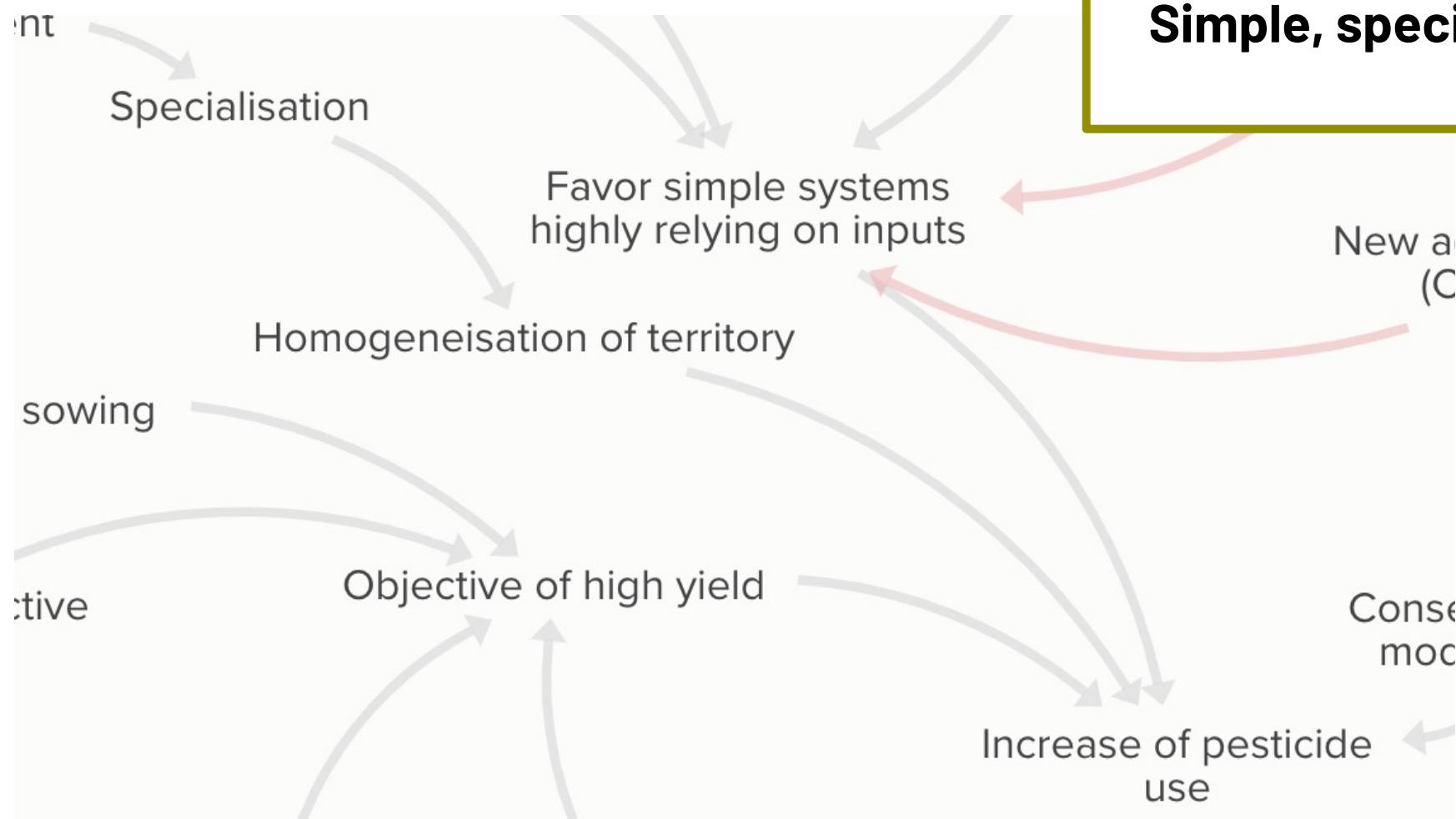
System is locked-in



System is locked-in

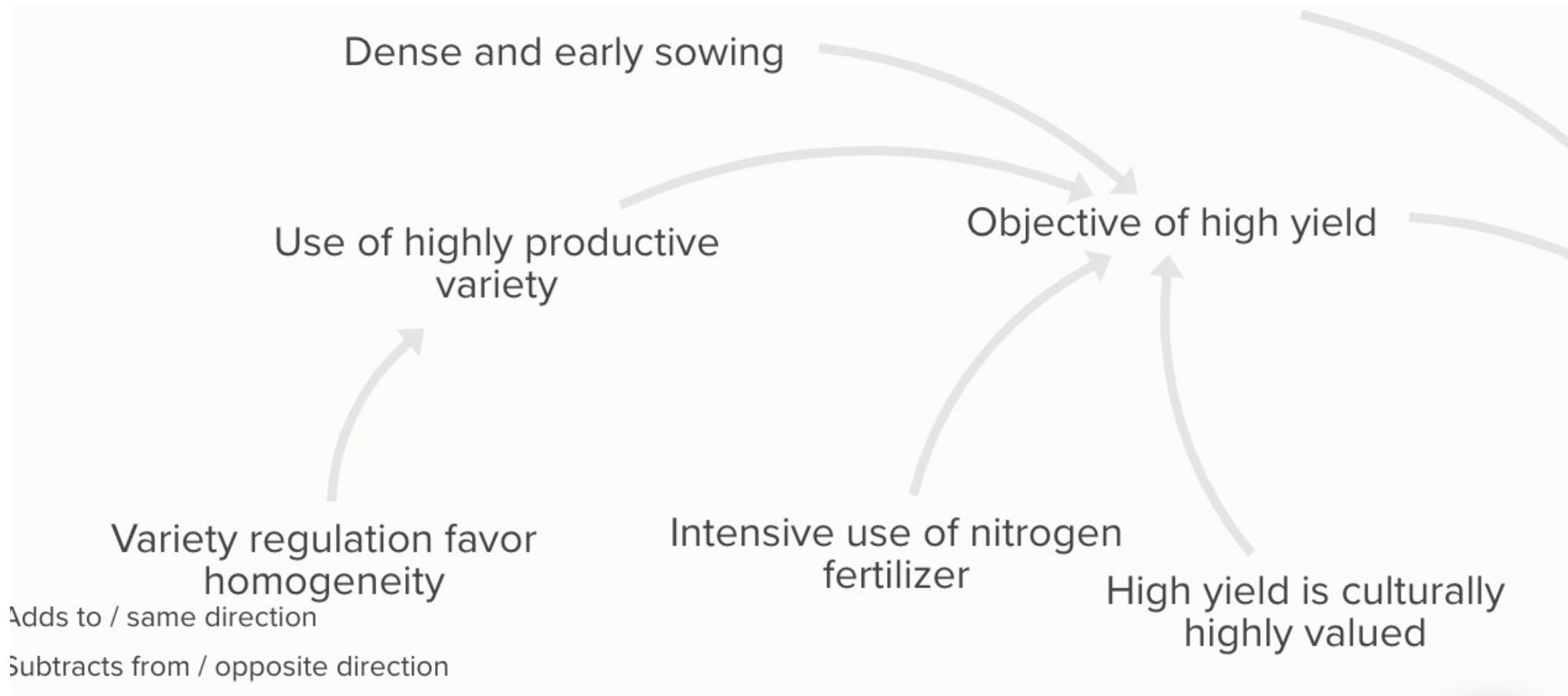
The core of the system

Simple, specialized, productive



System is locked-in

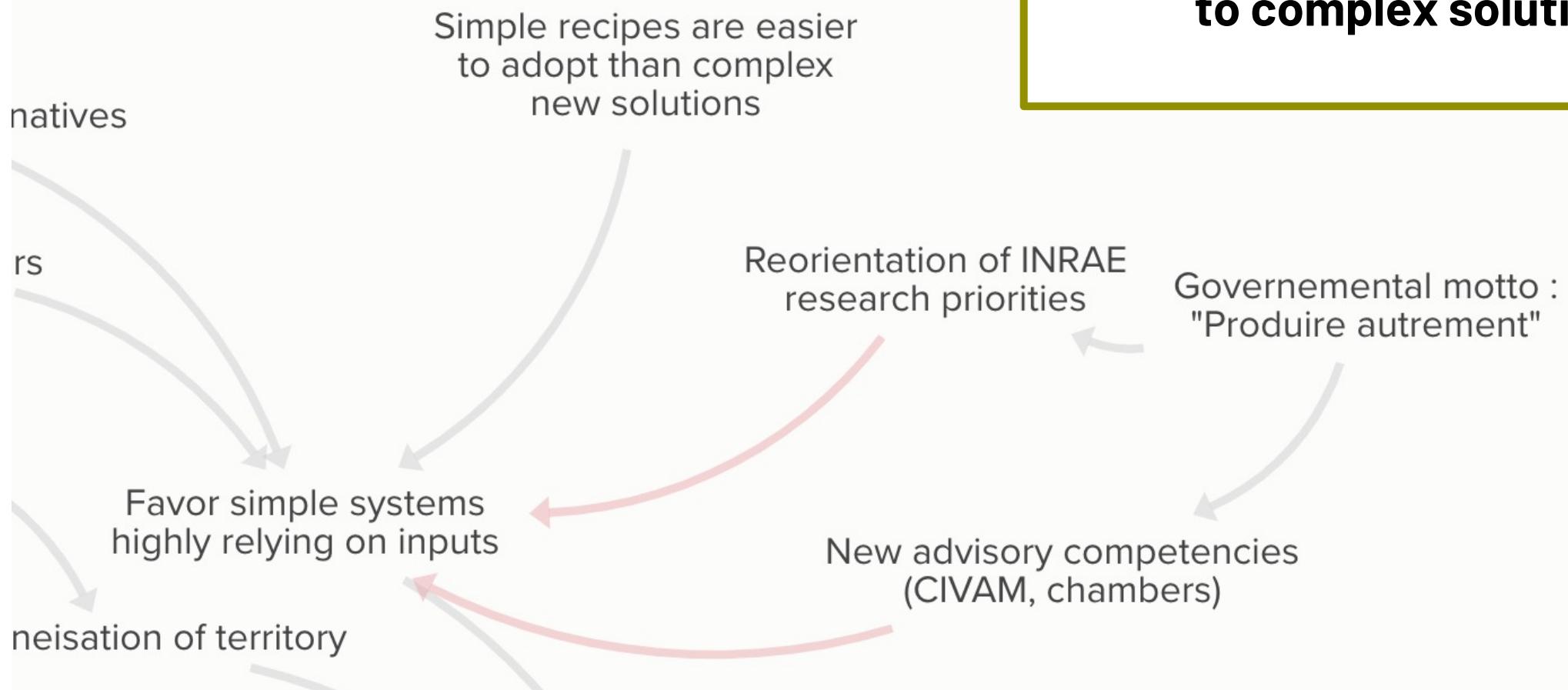
Yield, the single objective



System is locked-in

Research

**From simple recipes
to complex solutions**



System is locked-in

Advisory

**Path dependency
and conflicts of interest**

Alternative solutions
are denied by key players
such as farmer unions
and big cooperatives

No legitimacy of alternatives

Simple
to add
n

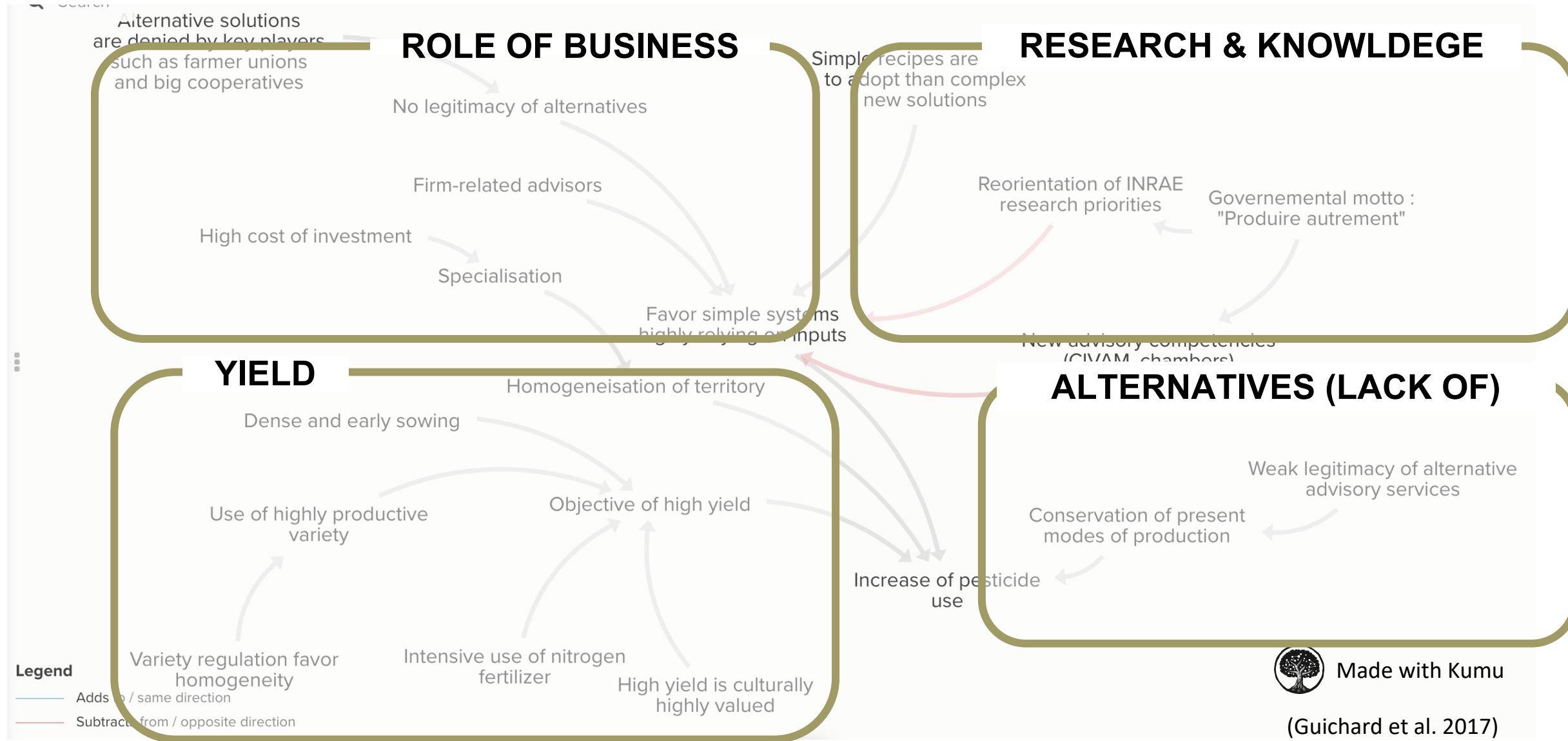
High cost of investment

Firm-related advisors

Specialisation

Favor simple systems
highly relying on inputs

System is locked-in

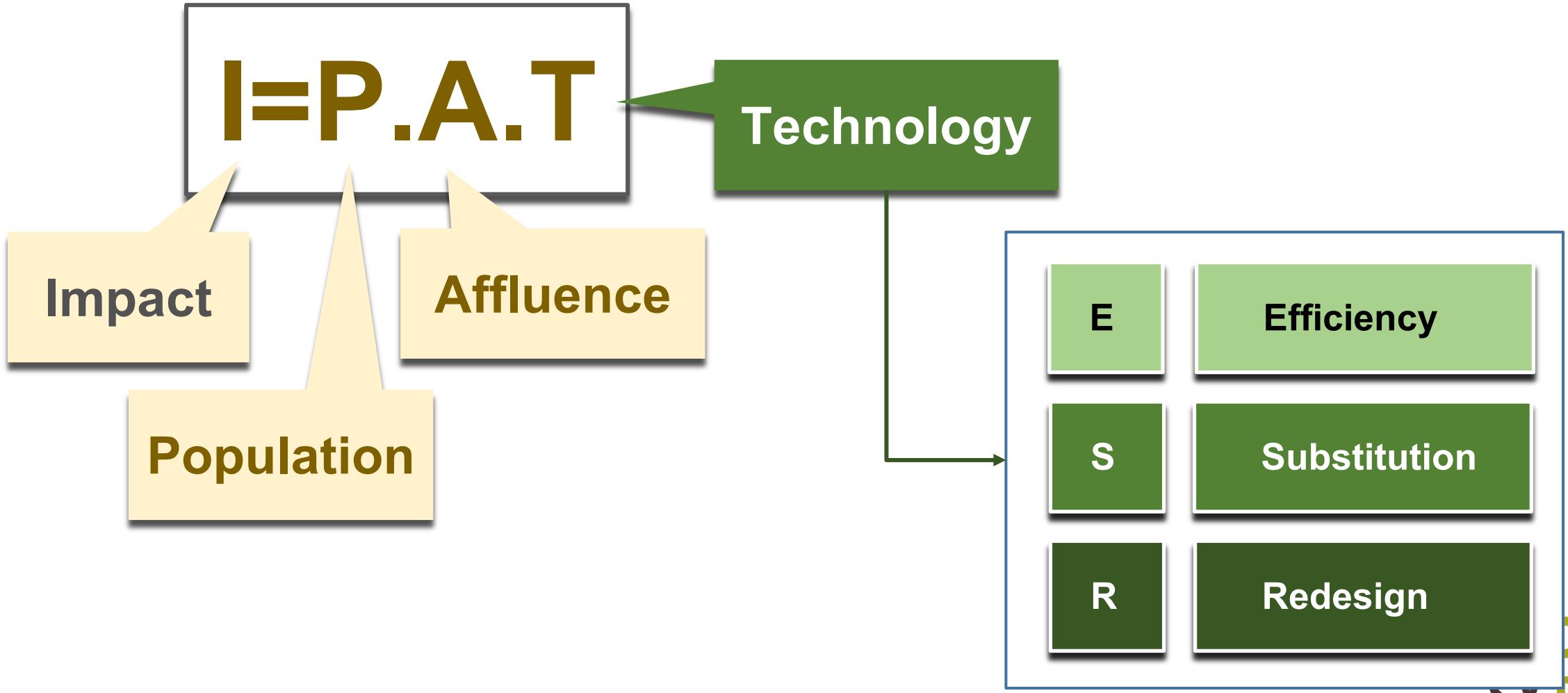


Unlock the system ?

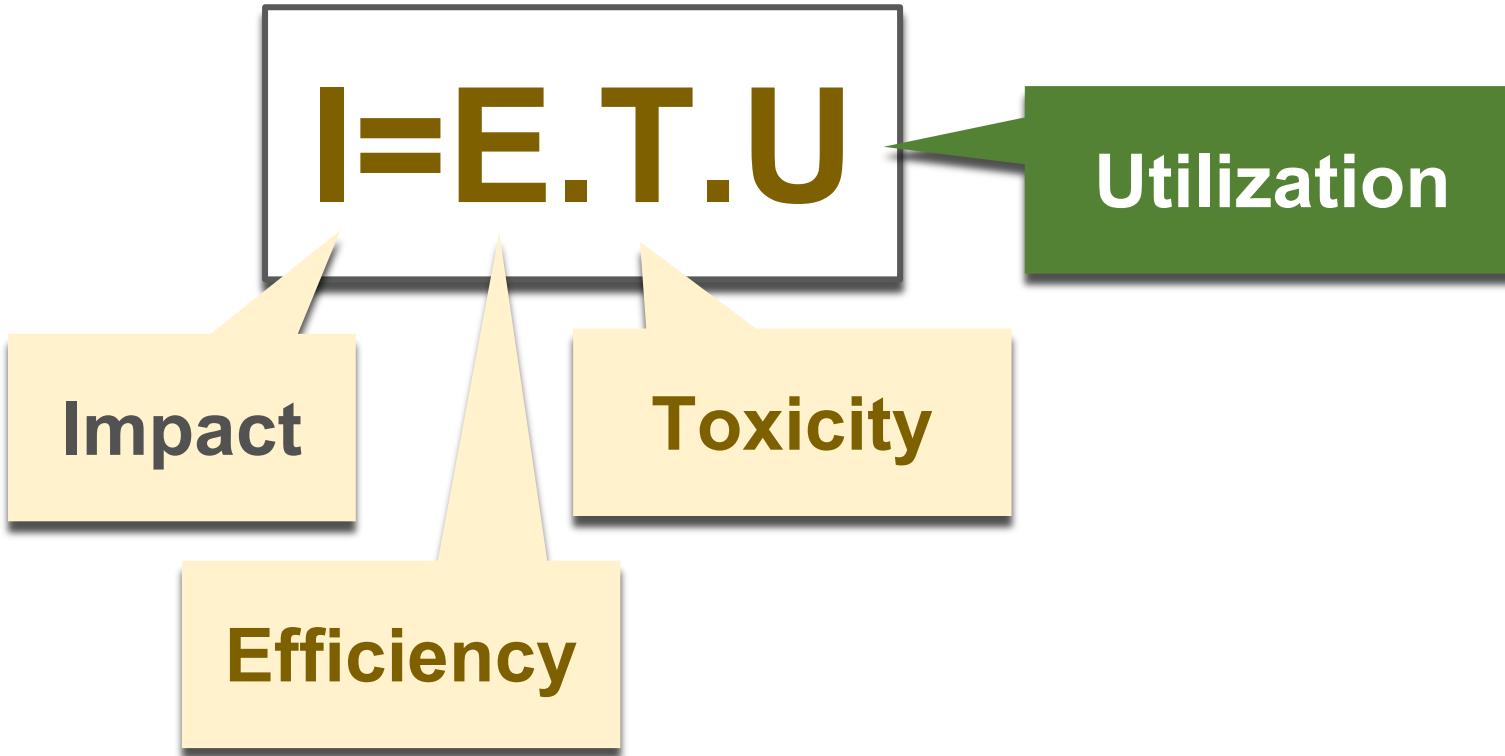


Photo by [Markus Winkler](#) on [Unsplash](#)

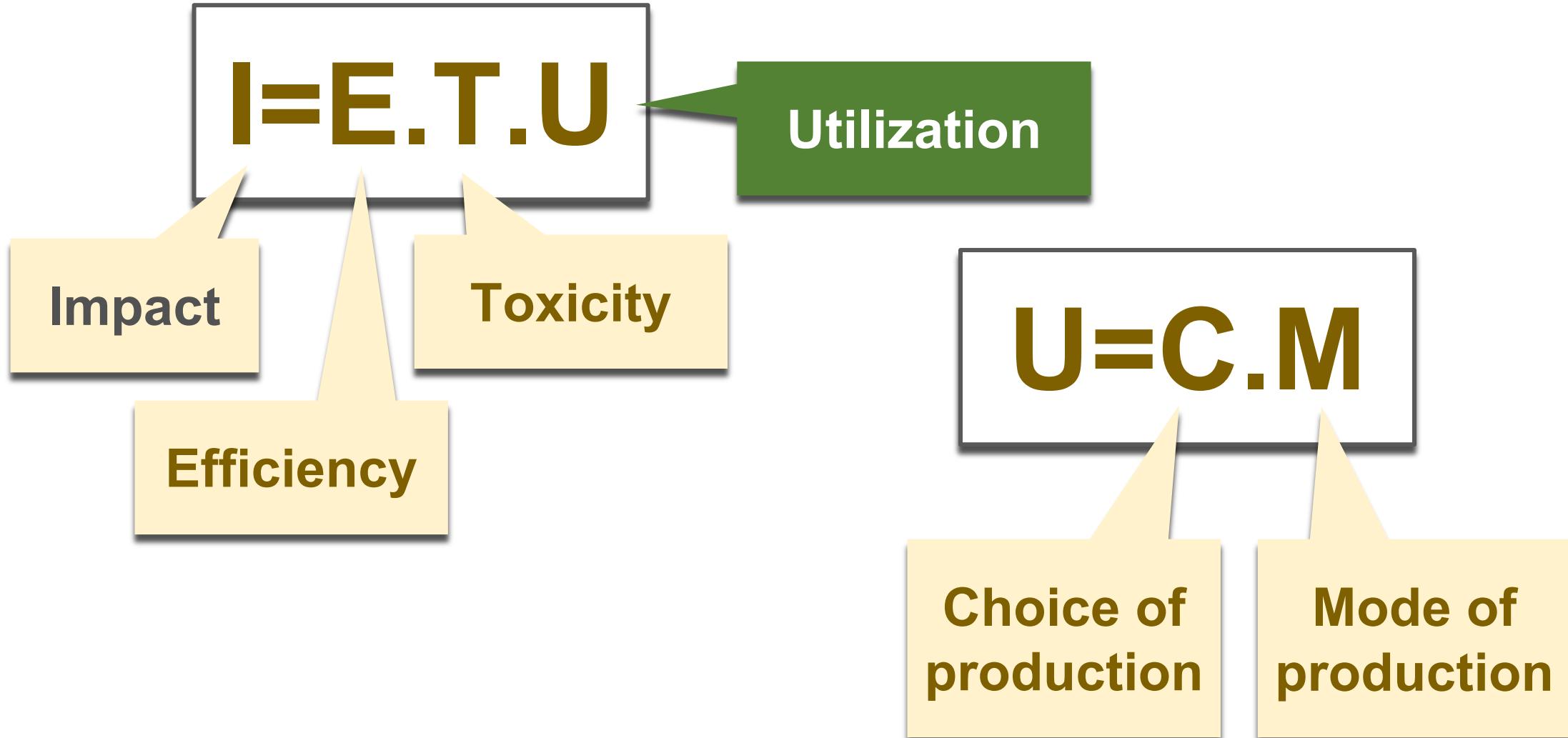
Modeling the impact and the technology transitions



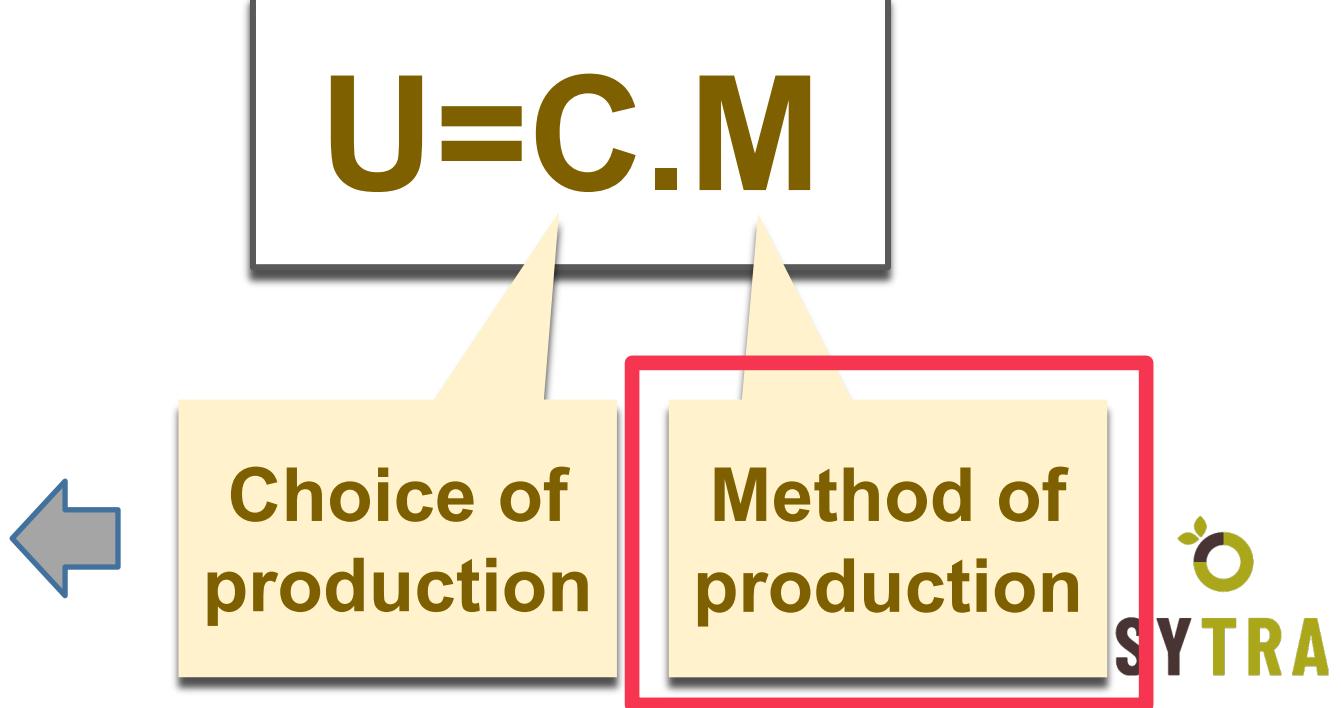
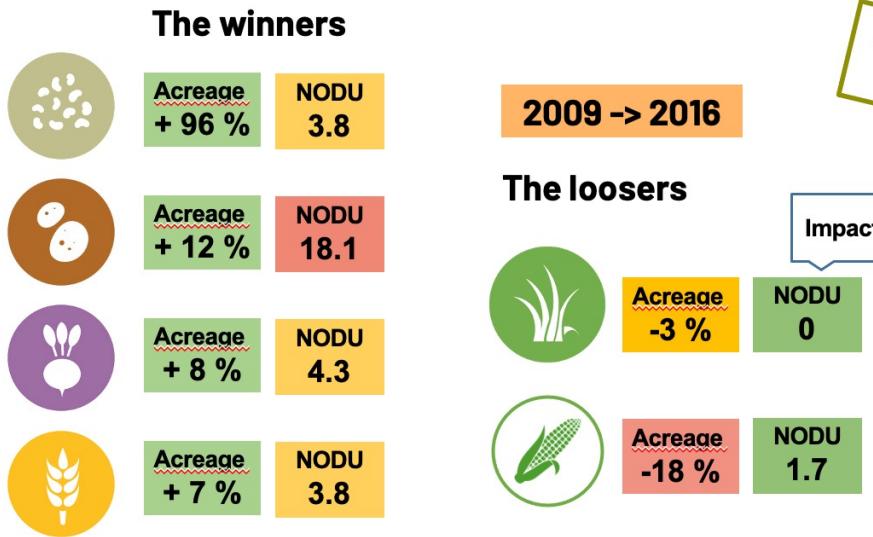
Modeling the impact of pesticides



Modeling the impact of pesticides



Modeling the impact of pesticides

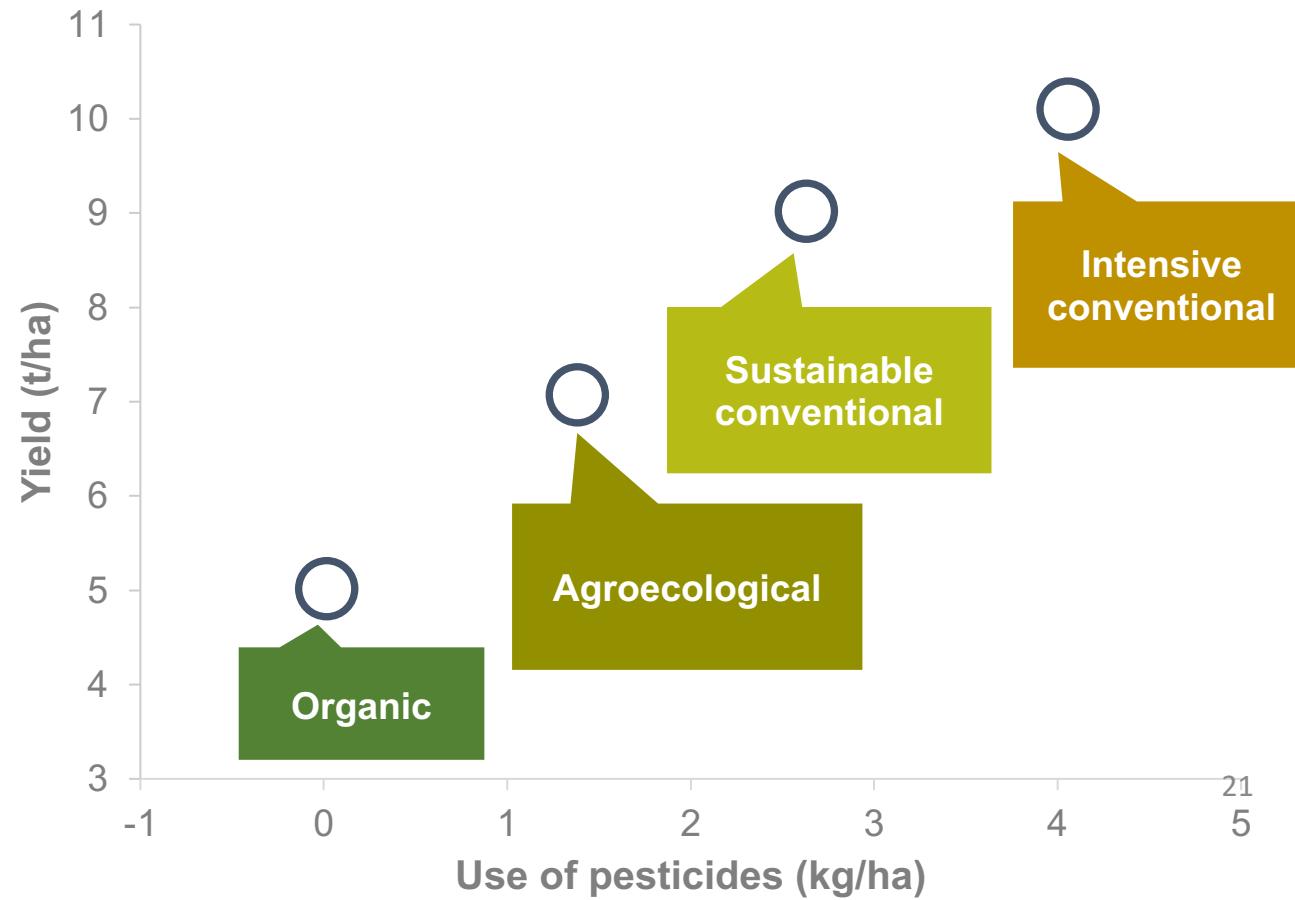


Methods of cultivation of cereals - Belgium

Methods of production



	Production		Engrais azotés		Produits P.P. ¹		
	Rendement moyen interannuel	t/ha	N minéral	N organique	N total	Traitements	Quantité de s. a.
			kg N/ha	kg N/ha	kg N/ha	Nombre/an	kg/ha.an
Agriculture biologique	5	0	60	60	0	0	0
Agriculture écoloquement intensive	7	165	30	195	2	1,3	
Agriculture conventionnelle raisonnée	9	175	20	195	4	2,6	
Agriculture conventionnelle intensive	10	185	10	195	6	4,0	



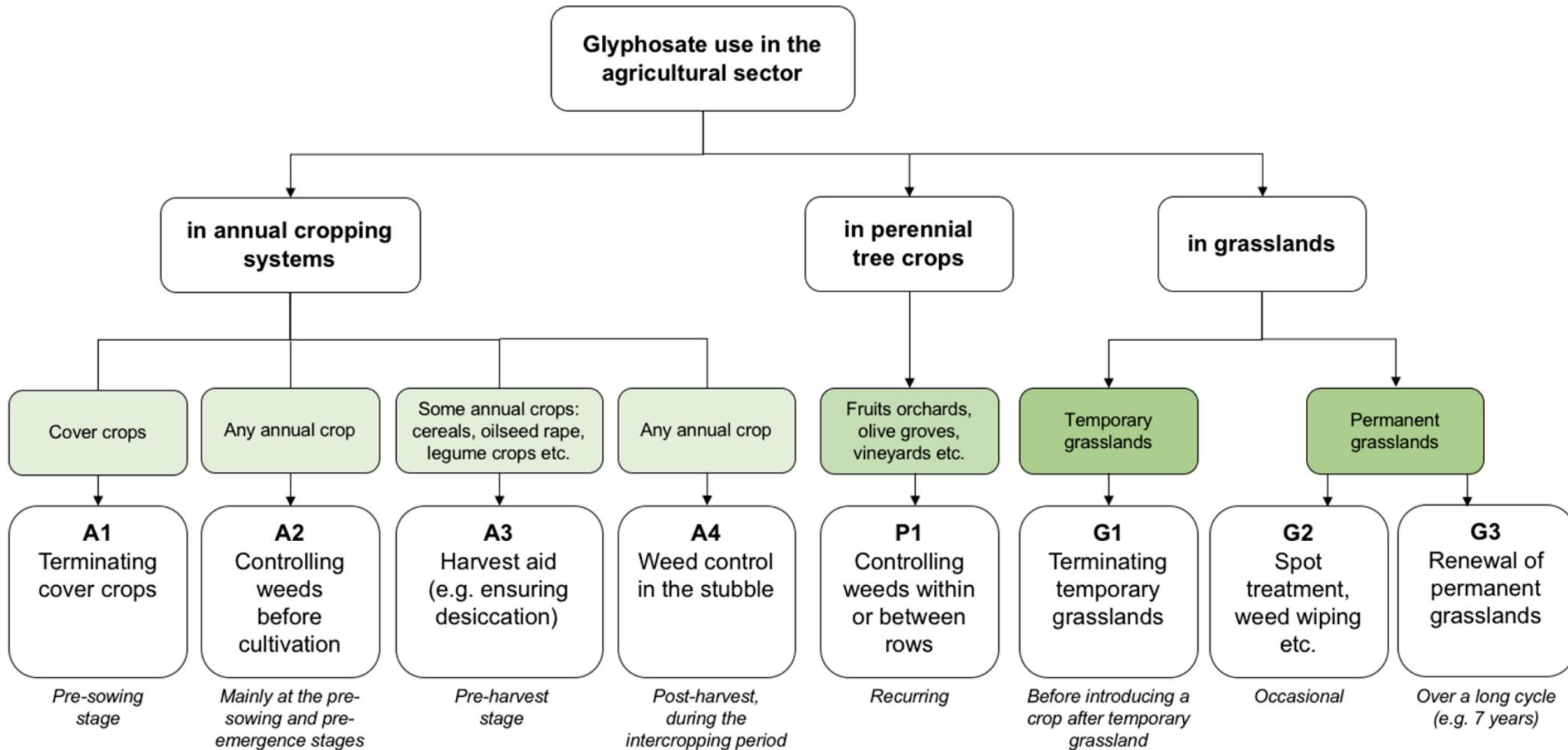
(Antier, Petel, and Baret 2017)



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Glyphosate use

Utilization

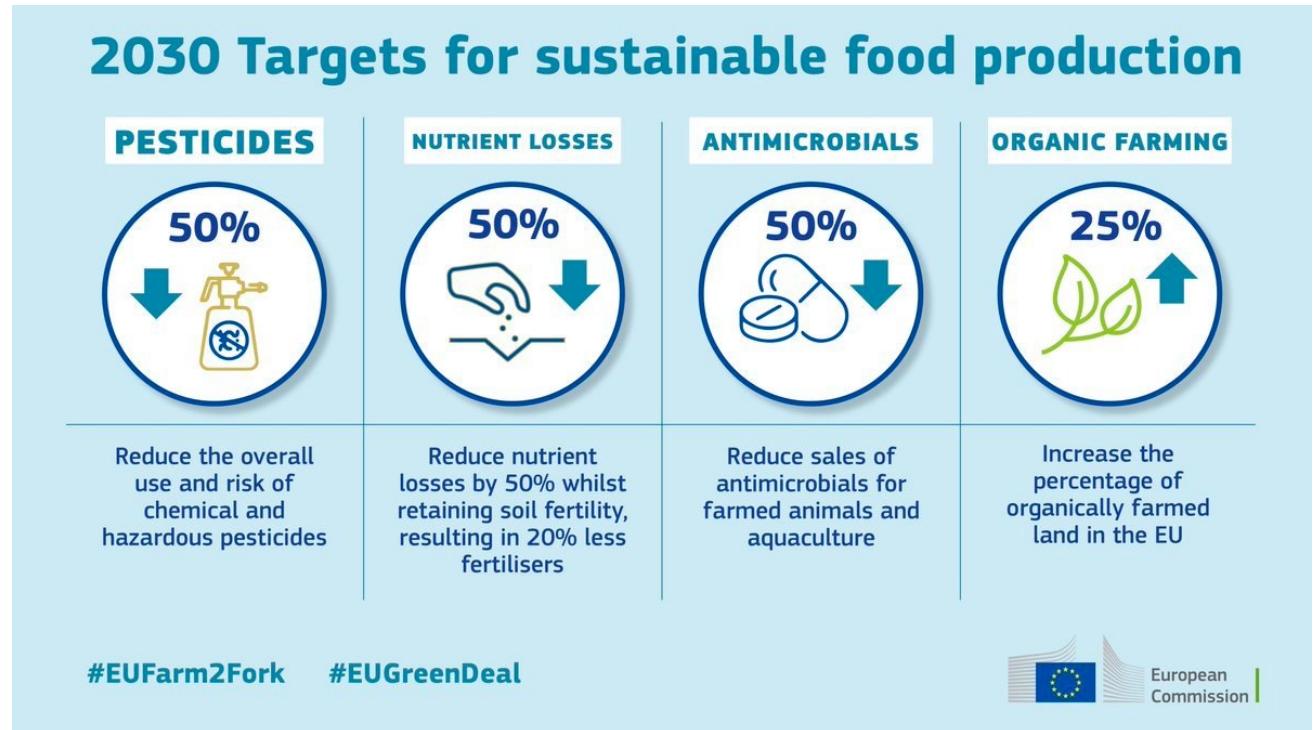


(Antier et al. 2020)



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Pesticide reduction is high in the agenda

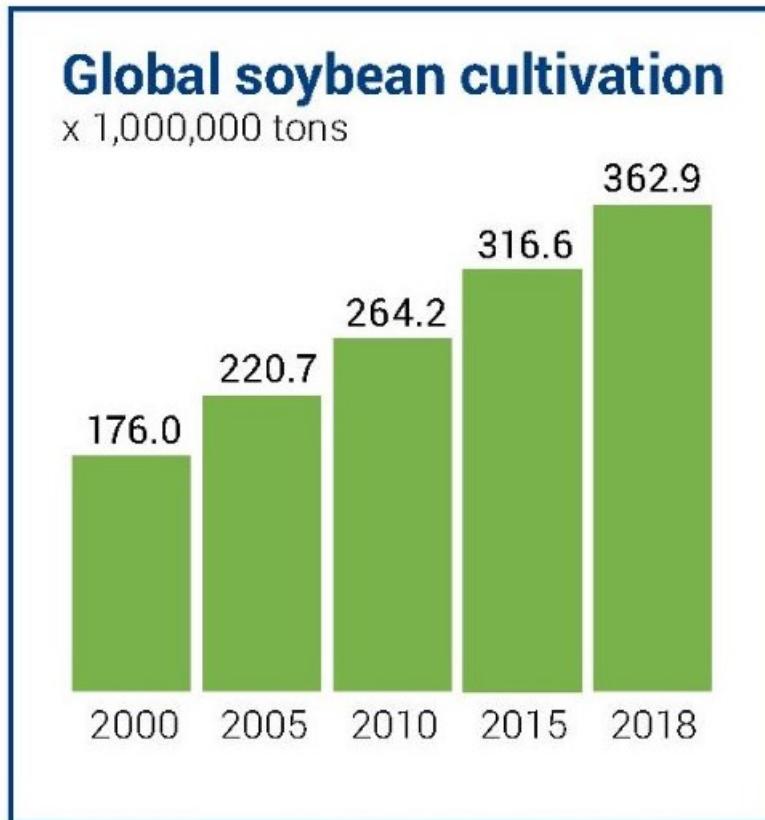


Some hope : Muenchen

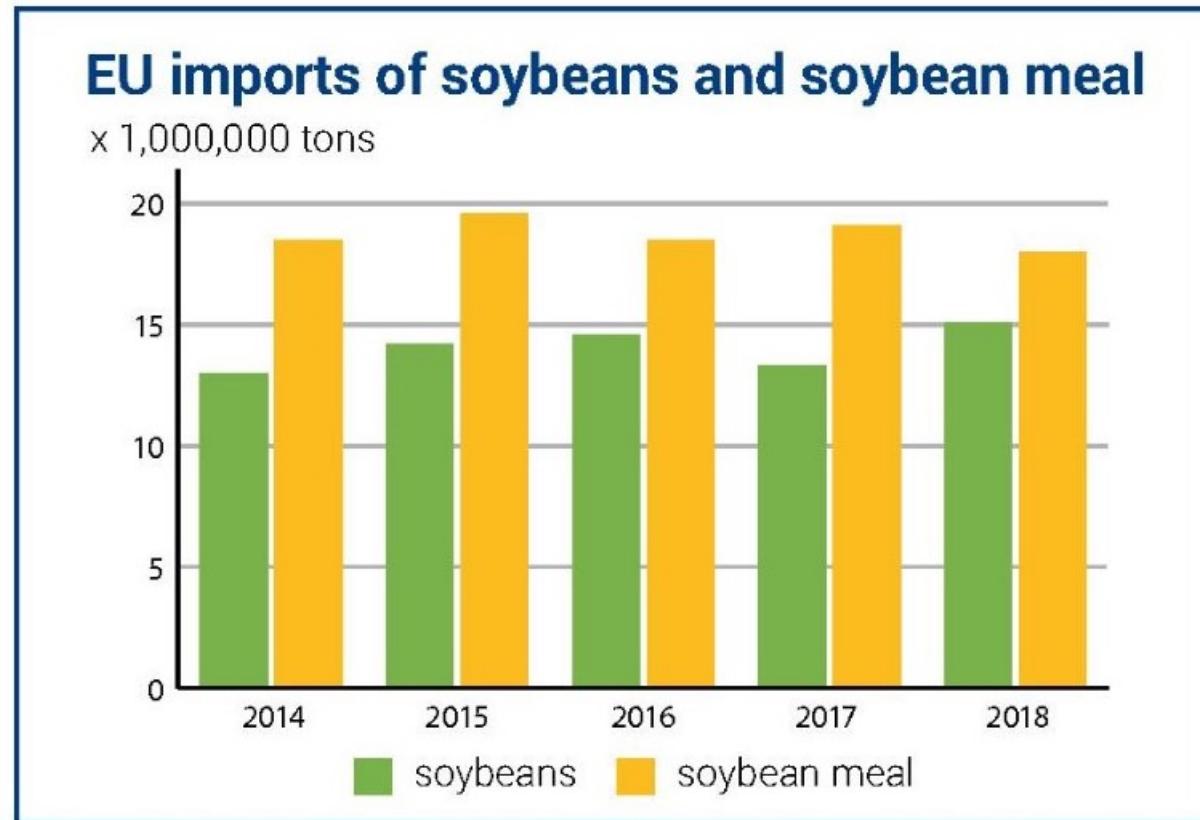


(Belmans et al. 2021)

A major concern : soybean importation

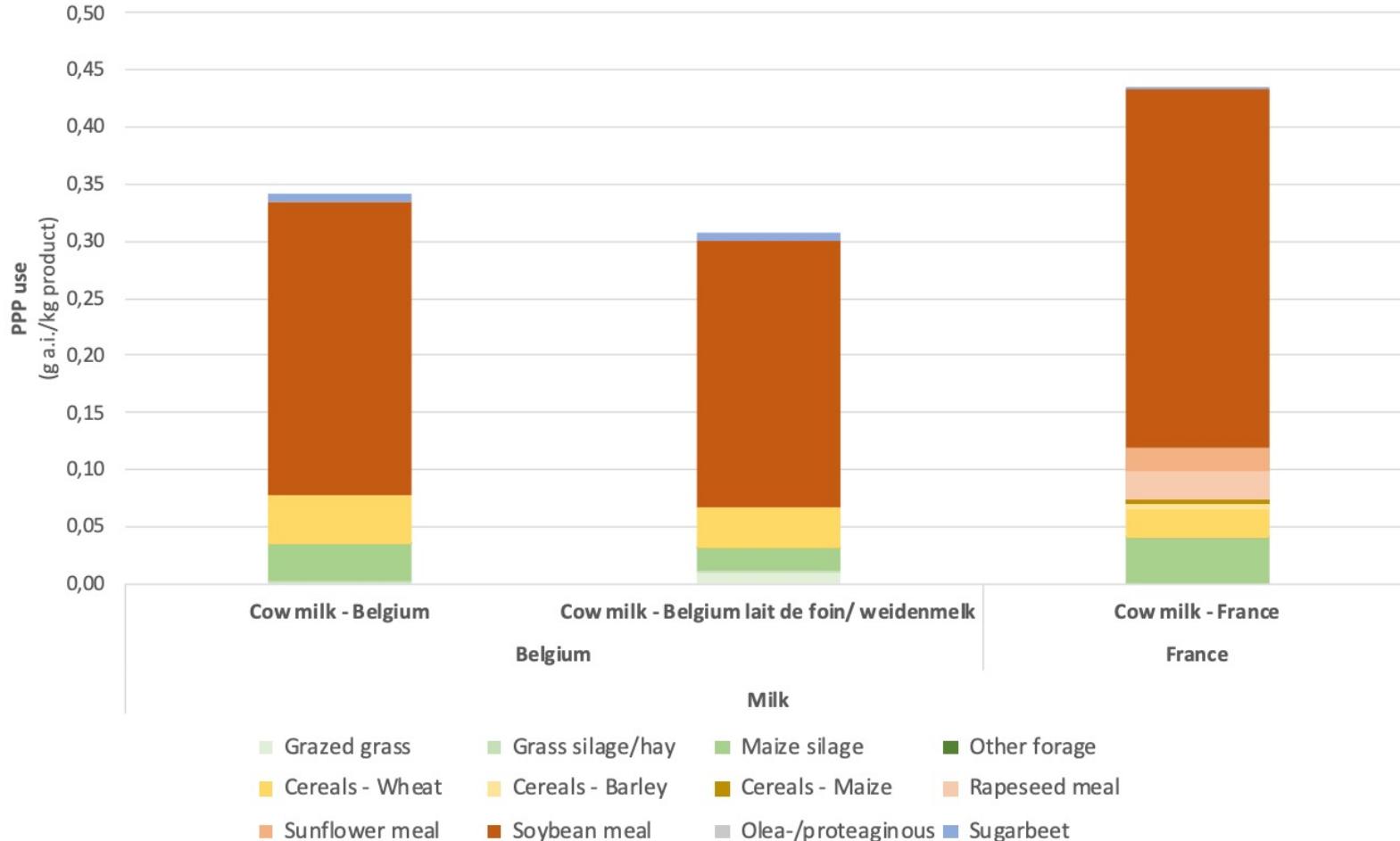


Source: USDA



Source: Eurostat

A major concern : soybean importation



0.20 to 0.30 g of soybean related pesticide active ingredient in one liter of European milk

Figure 20. Total pesticides use (g a.i./kg edible product) associated with non-organic milk in different countries.

Some conclusions



- Change the metrics (yield is has been)
- Build short term and long term
- Unfocus from fields, practices and farmers
- A systemic approach of lock-ins
- Coordinate action with different communities of actors
- Transparency of pesticide content of final product

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- Transparency of pesticide content of final product

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