

Lessons learnt from the French and European experiences

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An ambitious plan : Ecophyto



2009-2014

361

millions €

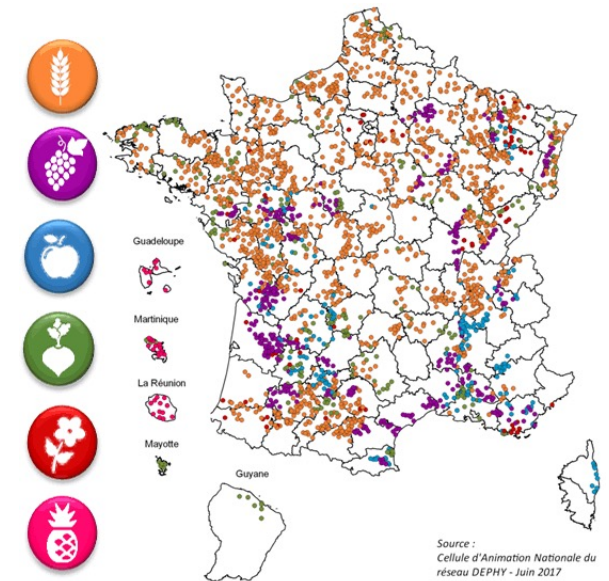
2008-2018

-50 %

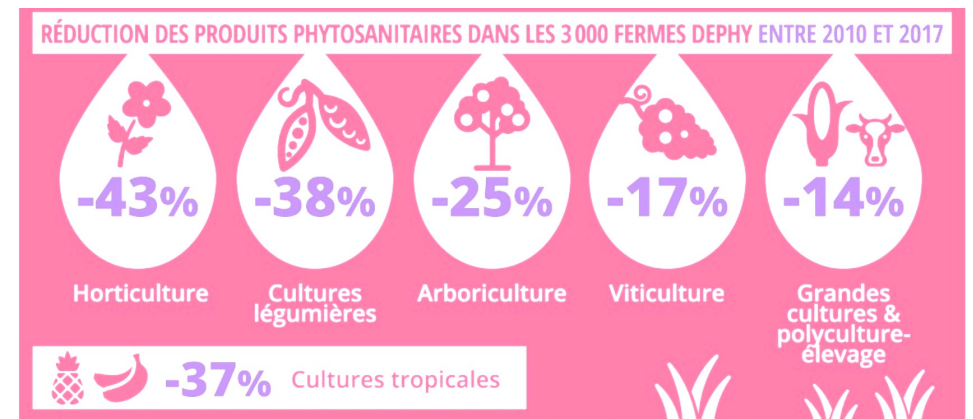
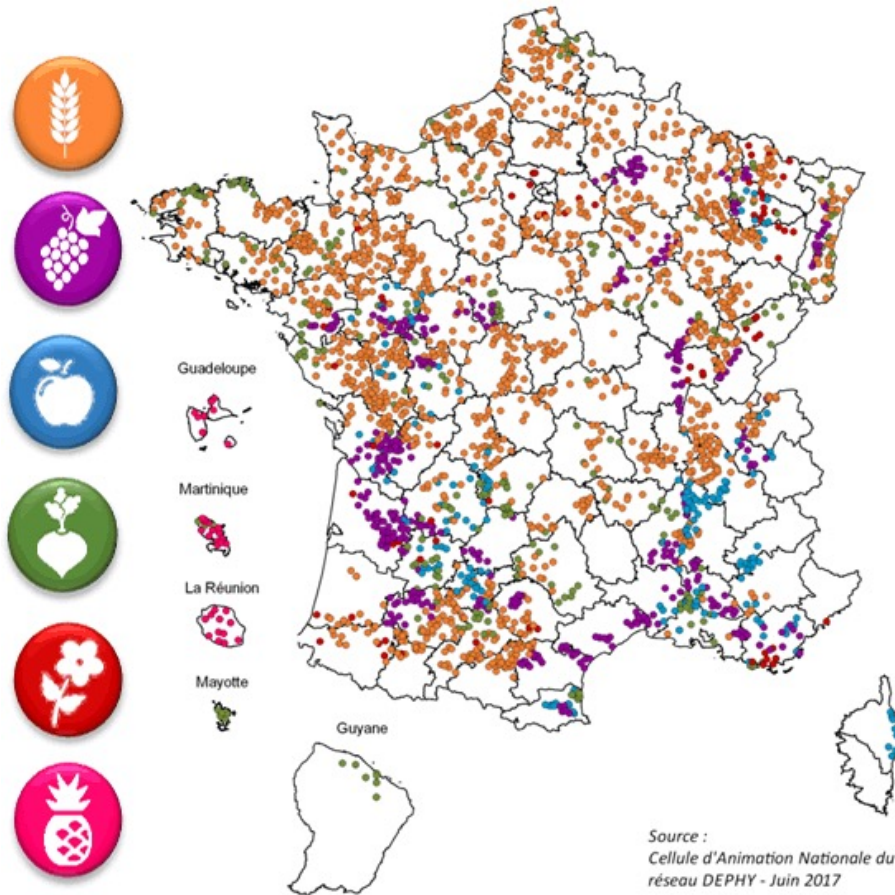
of pesticide use

3000

Reference farms

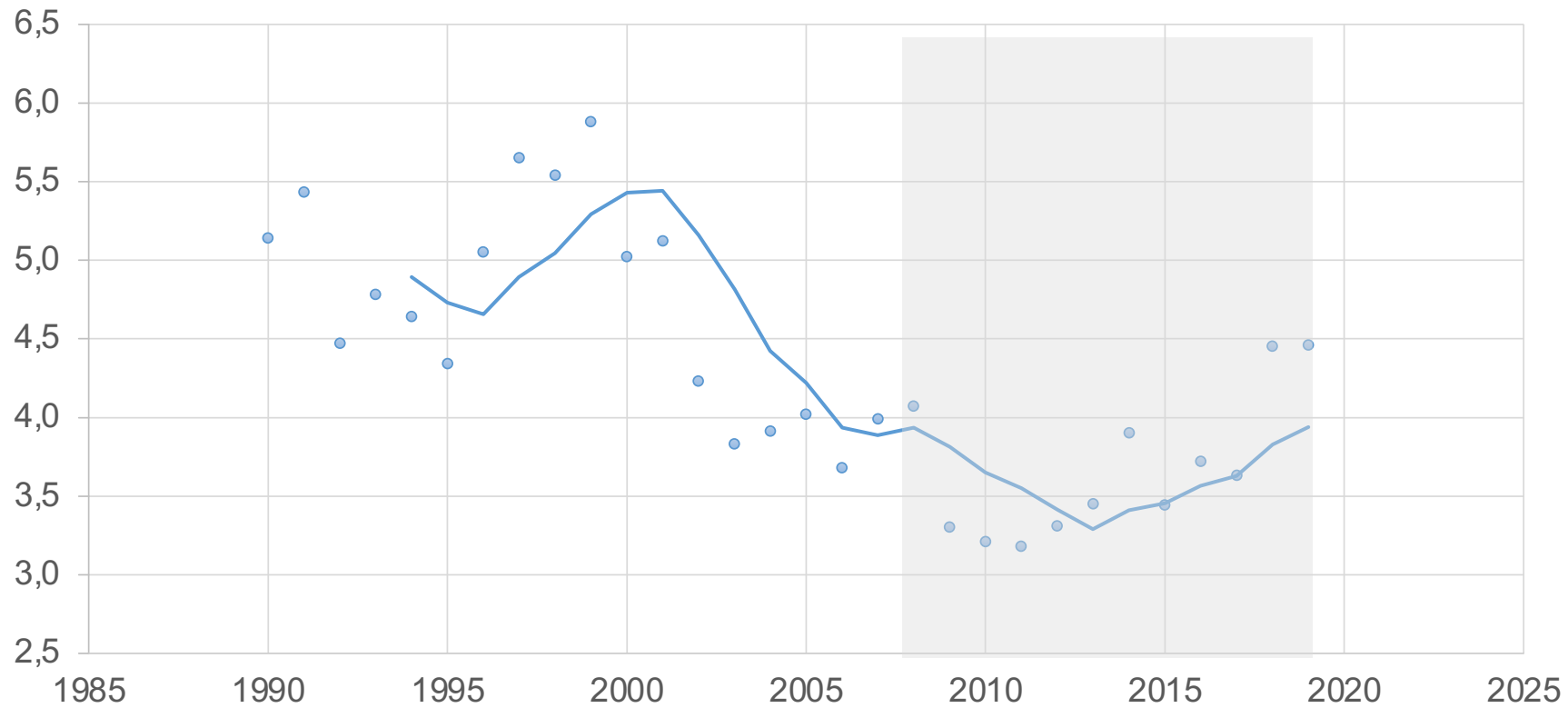


Ecophyto : a success in reference farms



A long term positive pathway of pesticide use

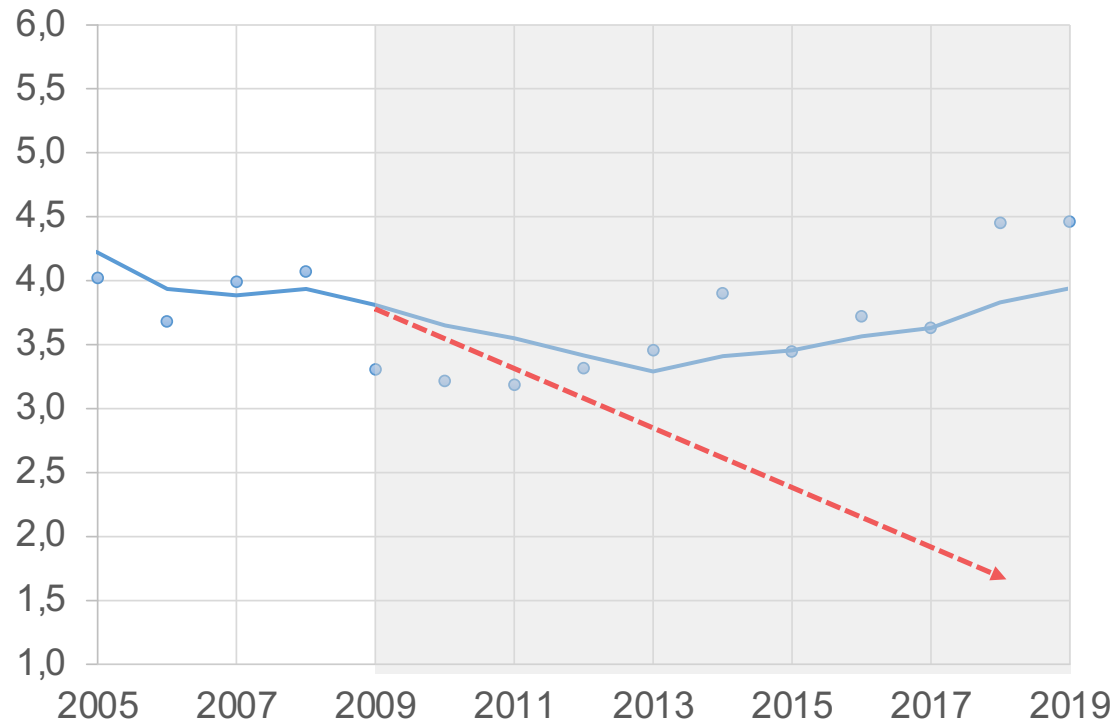
Pesticides (kg/ha) - France



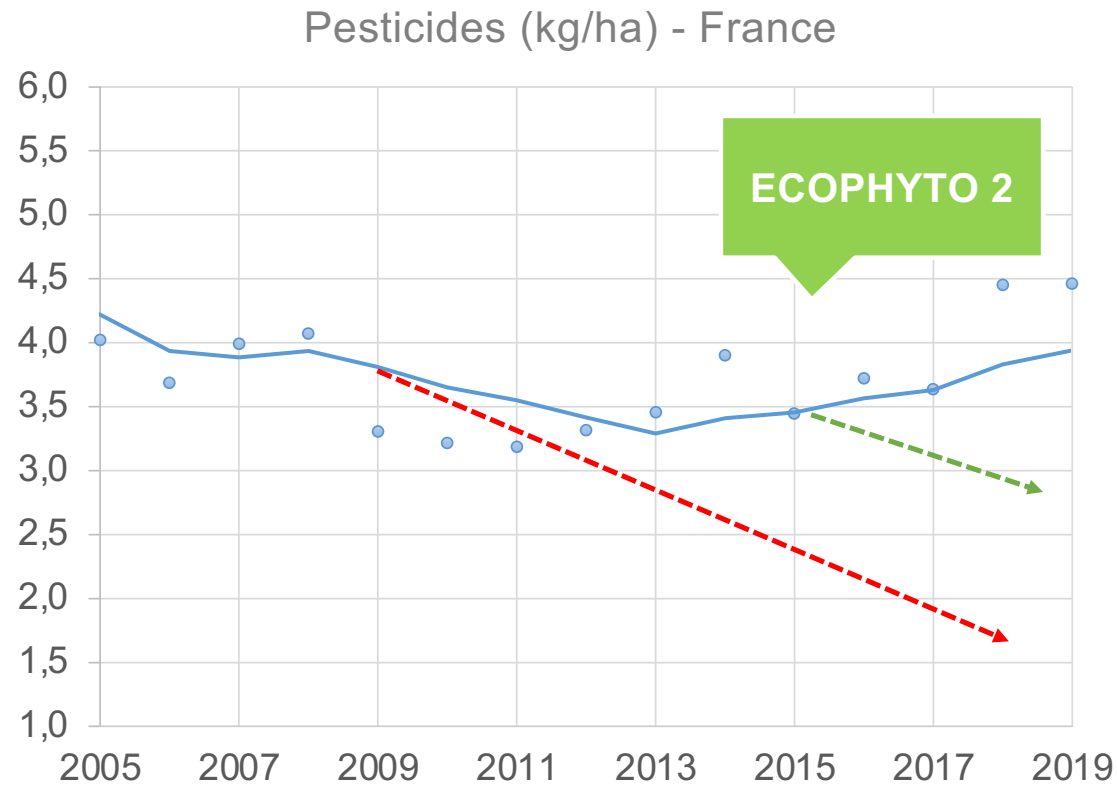
Source : FAOstat

Ecophyto : a global failure

Pesticides (kg/ha) - France

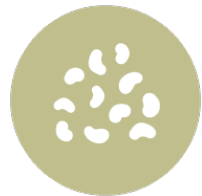


Ecophyto : a global failure - Season 2



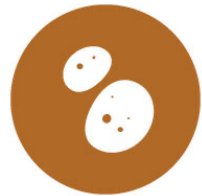
The choice of crops wiped out the gain in practices

The winners



Acreage
+ 96 %

NODU
3.8



Acreage
+ 12 %

NODU
18.1



Acreage
+ 8 %

NODU
4.3



Acreage
+ 7 %

NODU
3.8

2009 -> 2016

**A quantitative
explanation**

The losers



Acreage
-3 %

NODU
0

Impact

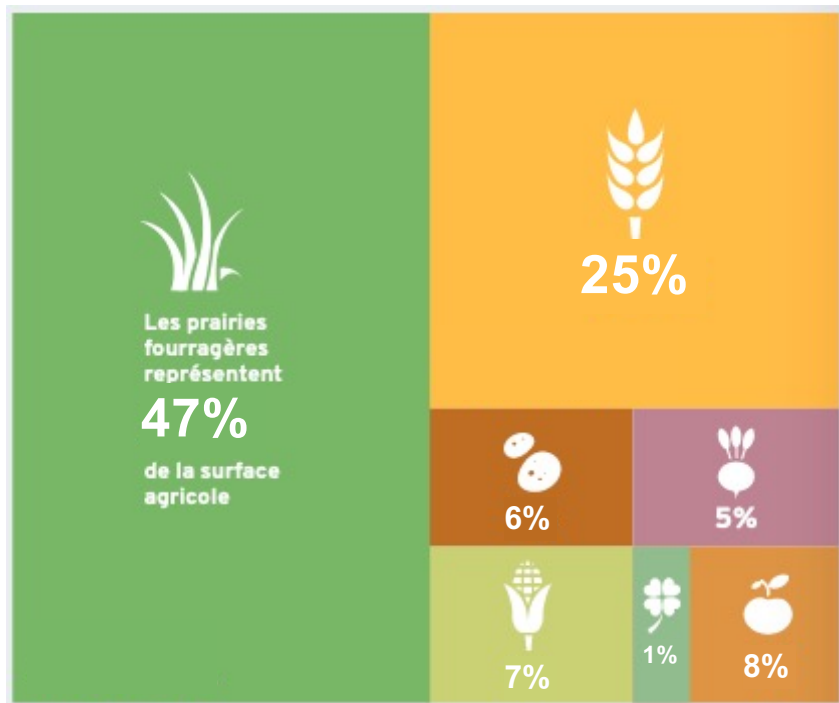


Acreage
-18 %

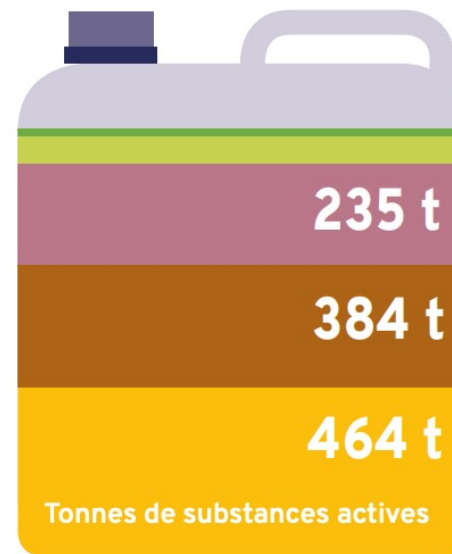
NODU
1.7

A stop over in Belgium

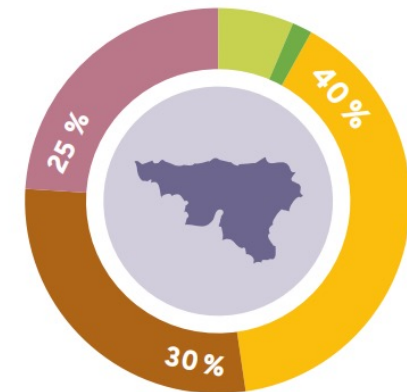
Potato + beets = 10 % acreage, 55 % pesticides ..



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 **potatoes** et les **betteraves**.

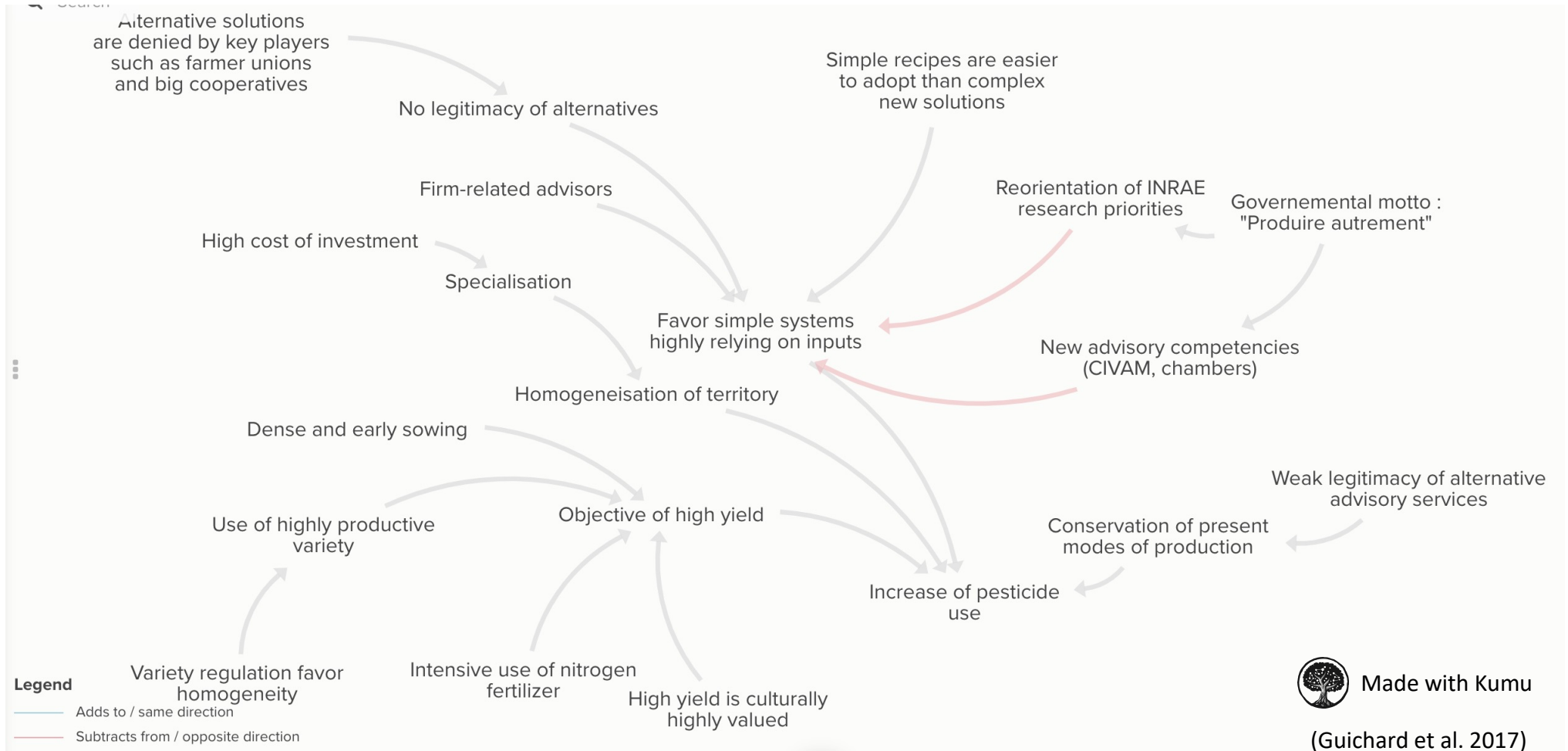


* Moyennes en agriculture conventionnelle pour les années 2011 à 2013, issues des données du Comité régional Phyto. L'utilisation de pesticides pour les autres cultures non reprises dans cette page est considérée comme négligeable à l'échelle régionale.

A systemic assesment of lock-ins

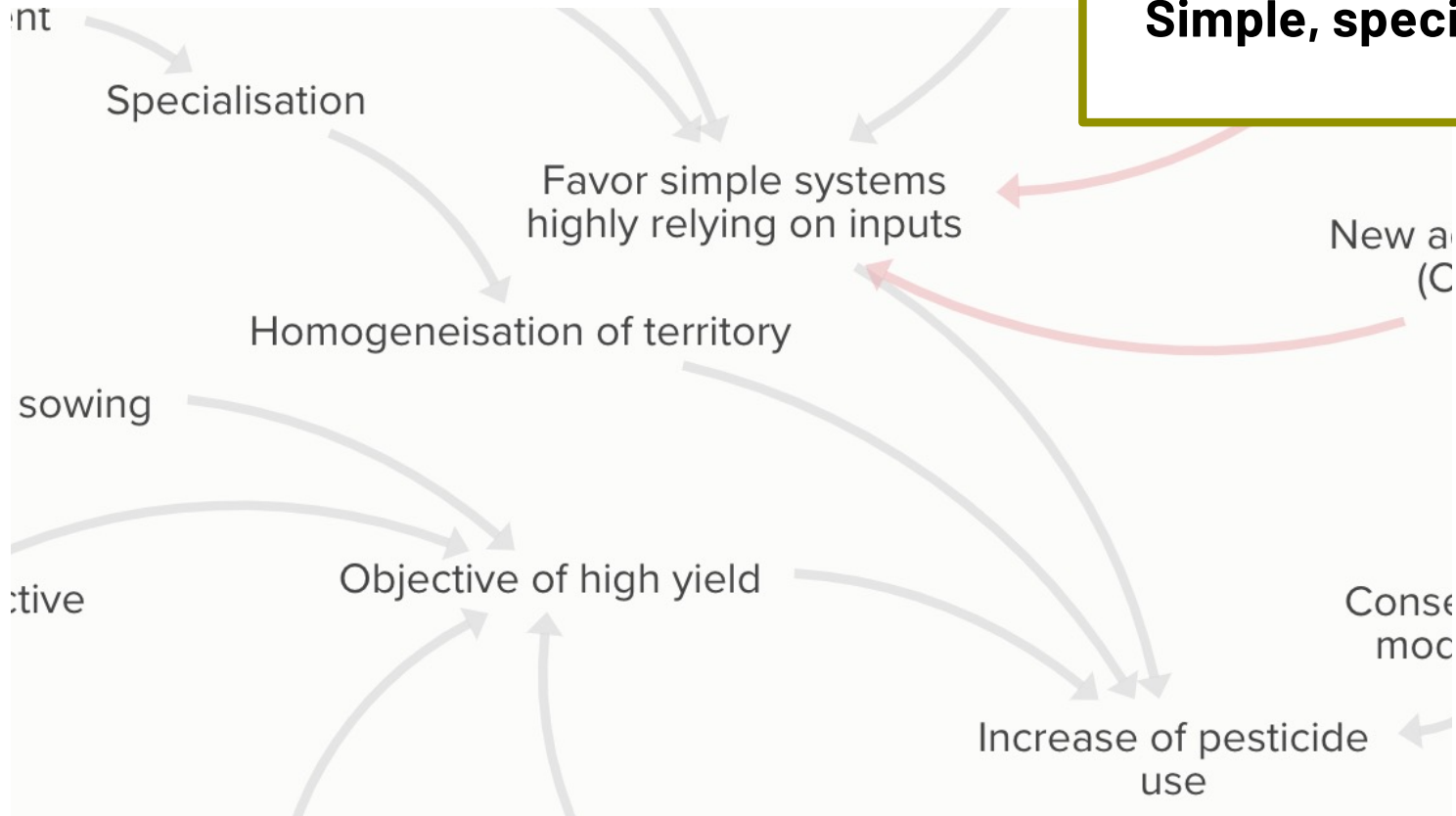


System is locked-in



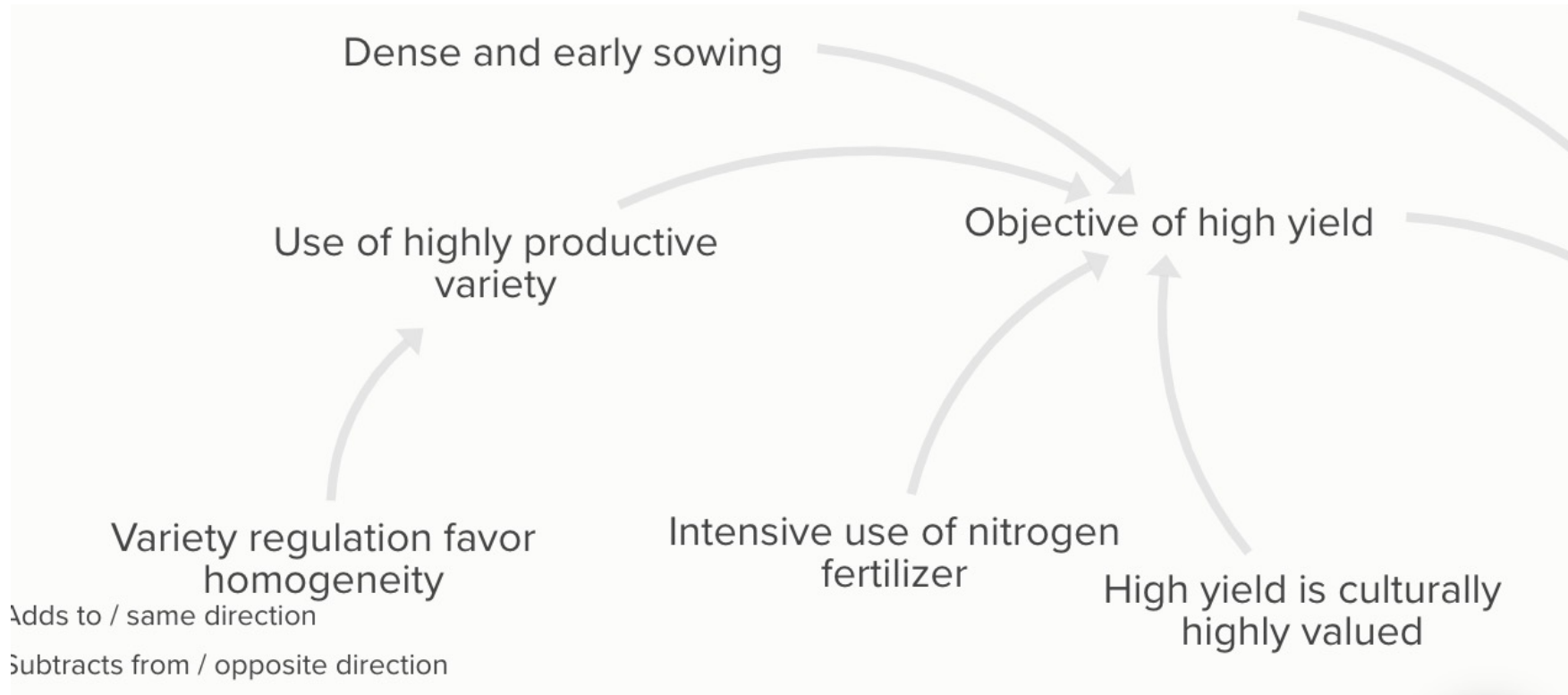
System is locked-in

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

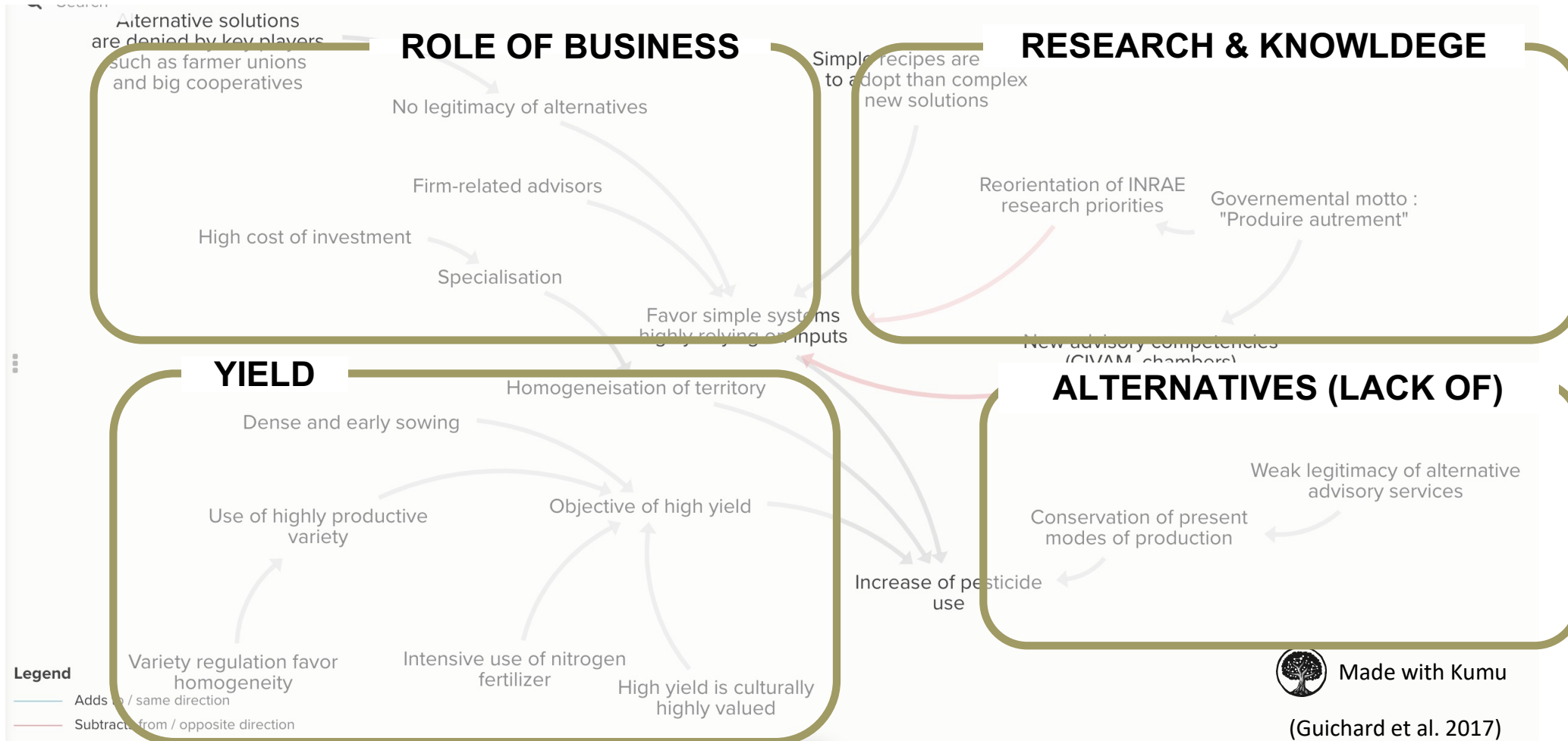


System is locked-in

Advisory
Path dependency
and conflicts of interest



System is locked-in

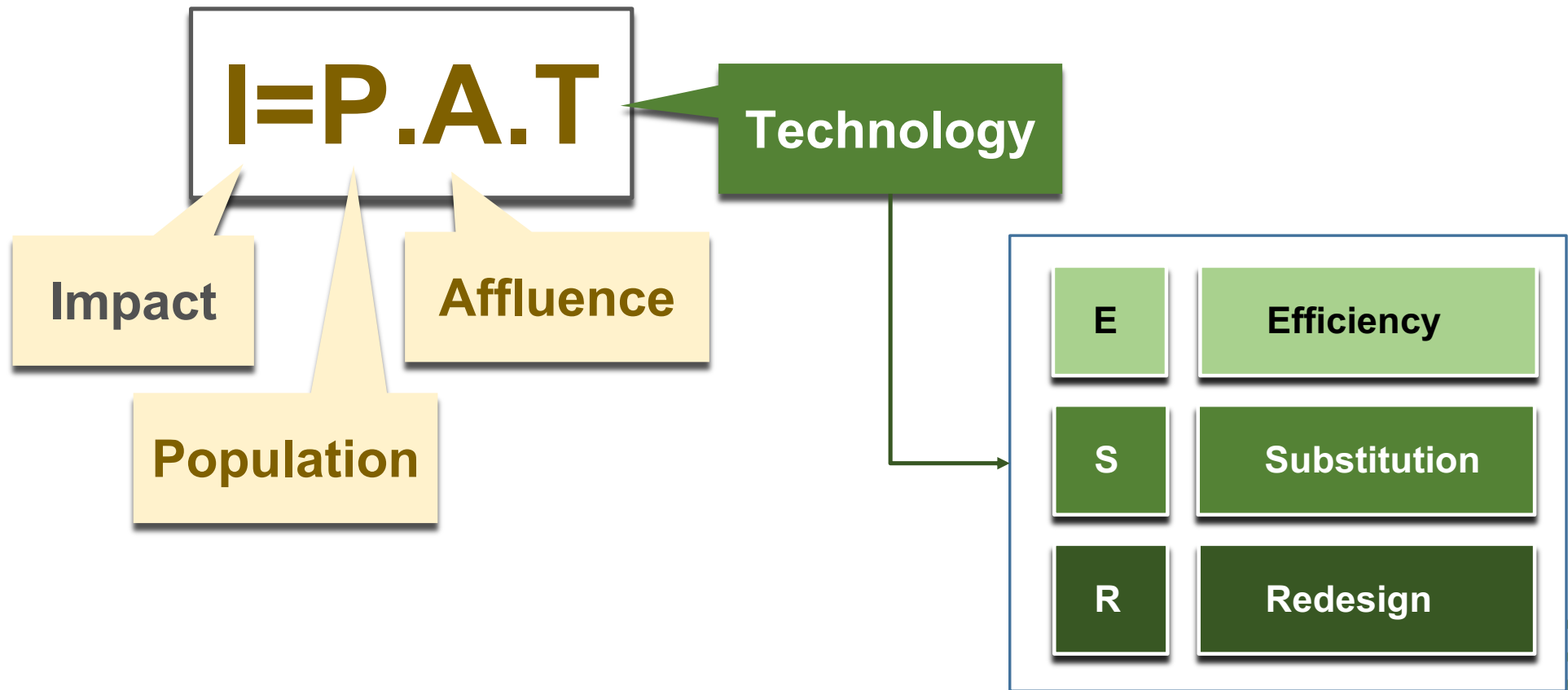


Unlock the system ?

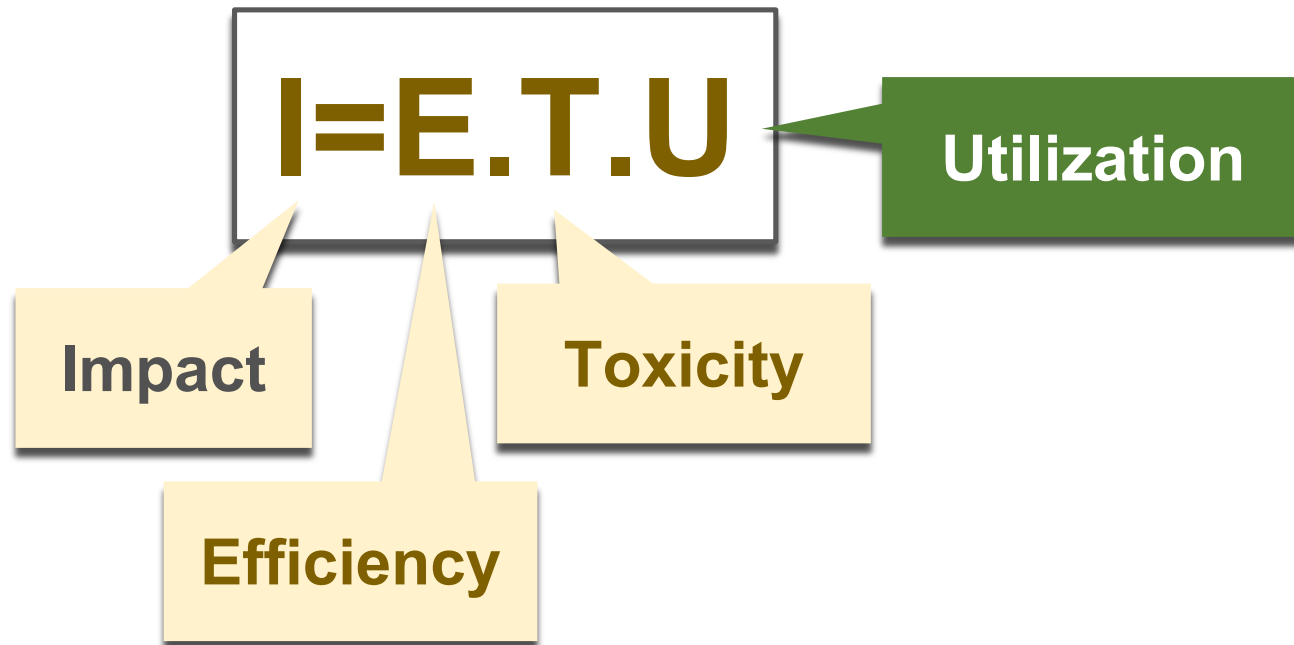


Photo by [Markus Winkler](#) on [Unsplash](#)

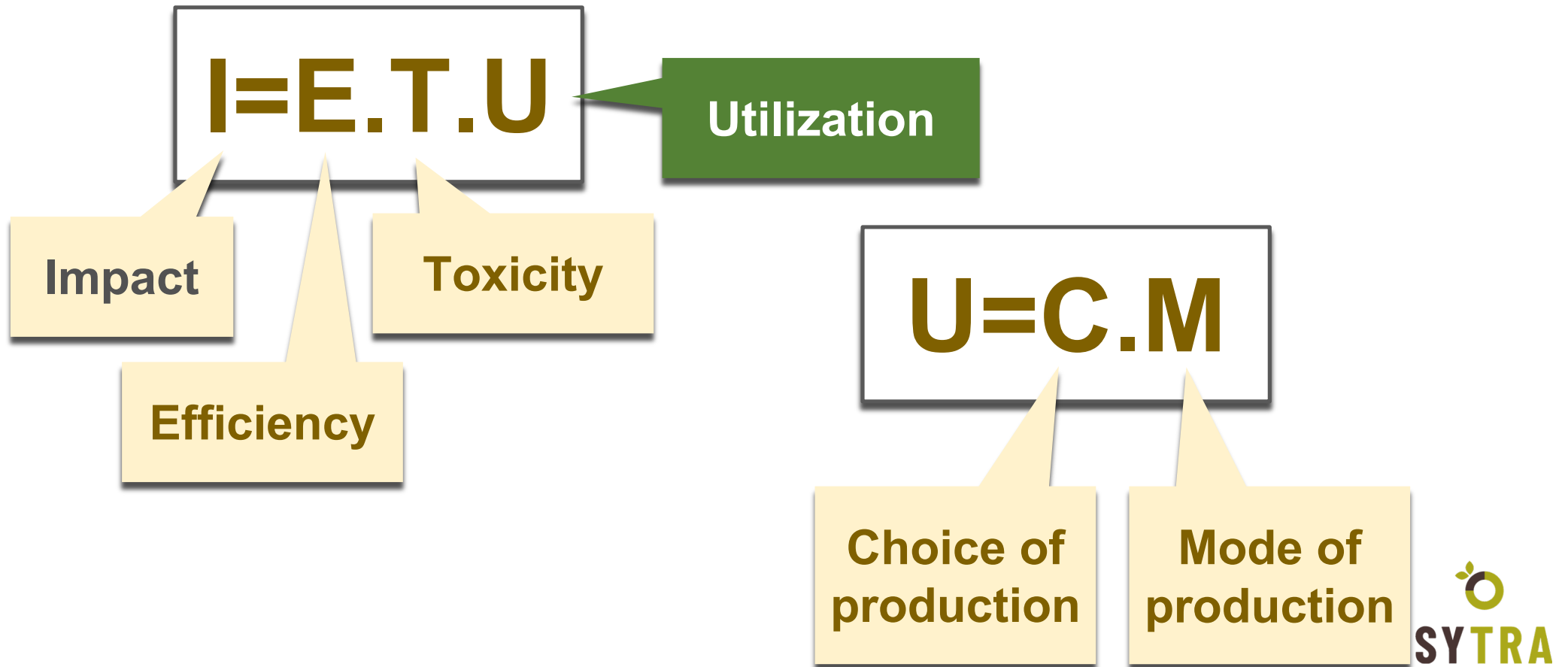
Modeling the impact and the technology transitions



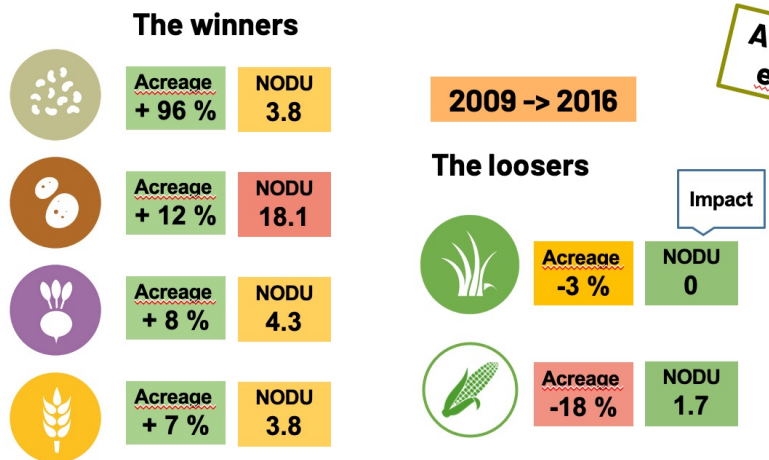
Modeling the impact of pesticides



Modeling the impact of pesticides



Modeling the impact of pesticides



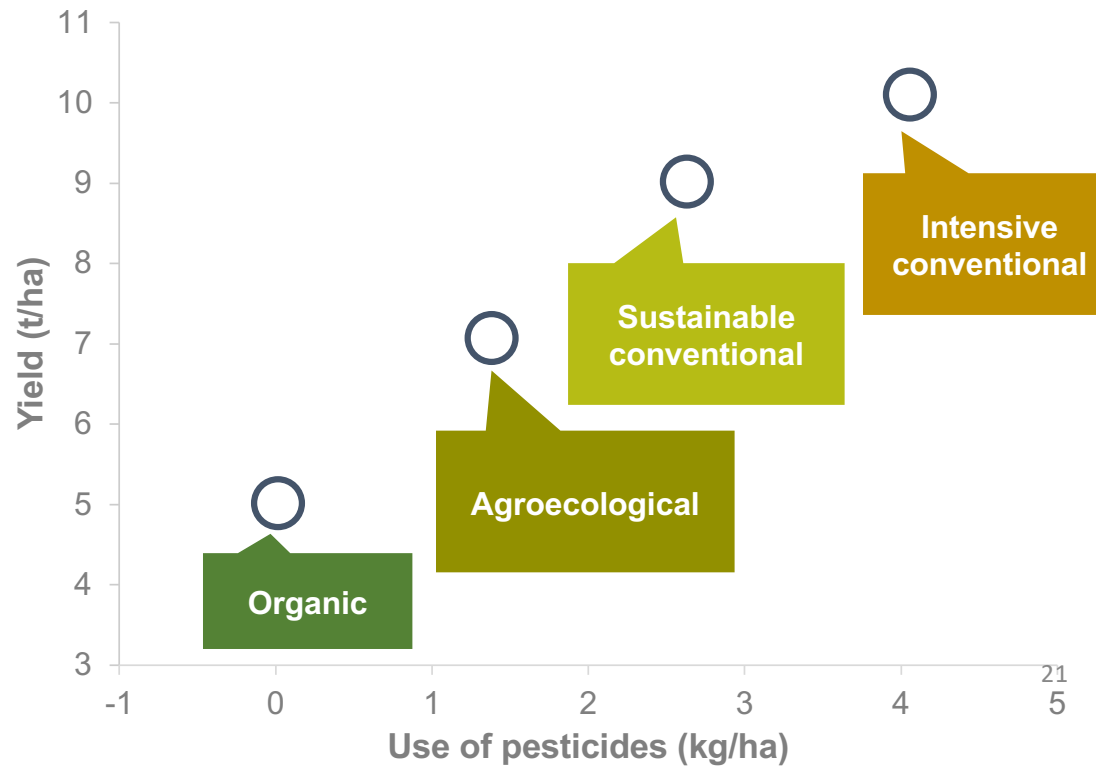
$$U = C.M$$

Choice of production

Method of production

Methods of cultivation of cereals - Belgium

Methods of production

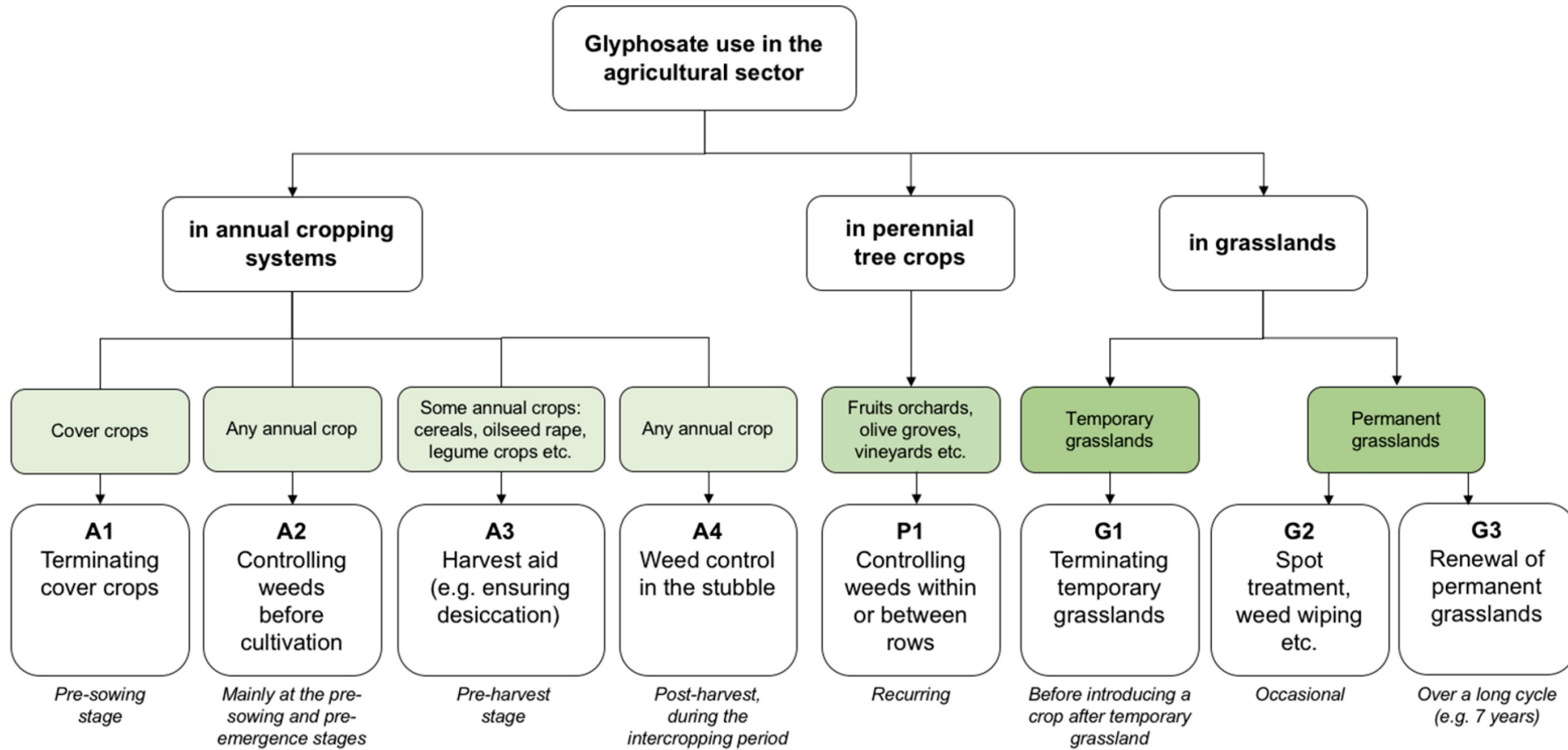


	Production	Engrais azotés			Produits P.P. ¹	
	Rendement moyen Interannuel	N minéral	N organique	N total	Traitements	Quantité de s.a.
	t/ha	kg N/ha	kg N/ha	kg N/ha	Nombre/an	kg/ha.an
Agriculture biologique	5	0	60	60	0	0
Agriculture écologiquement intensive	7	165	30	195	2	1,3
Agriculture conventionnelle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

(Antier, Petel, and Baret 2017)

Glyphosate use

Utilization



(Antier et al. 2020)

Pesticide reduction is high in the agenda



2030 Targets for sustainable food production

PESTICIDES



Reduce the overall use and risk of chemical and hazardous pesticides

NUTRIENT LOSSES



Reduce nutrient losses by 50% whilst retaining soil fertility, resulting in 20% less fertilisers

ANTIMICROBIALS



Reduce sales of antimicrobials for farmed animals and aquaculture

ORGANIC FARMING



Increase the percentage of organically farmed land in the EU

#EUFarm2Fork #EUGreenDeal

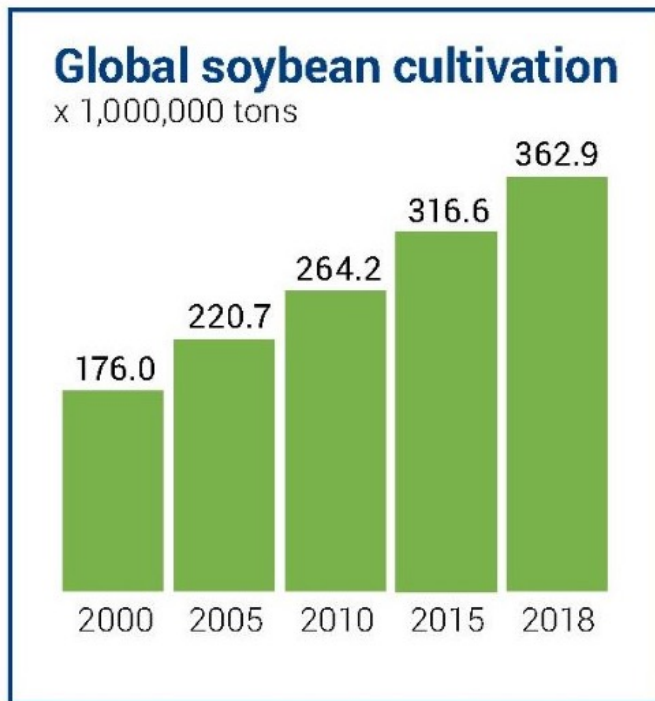


Some hope : Muenchen

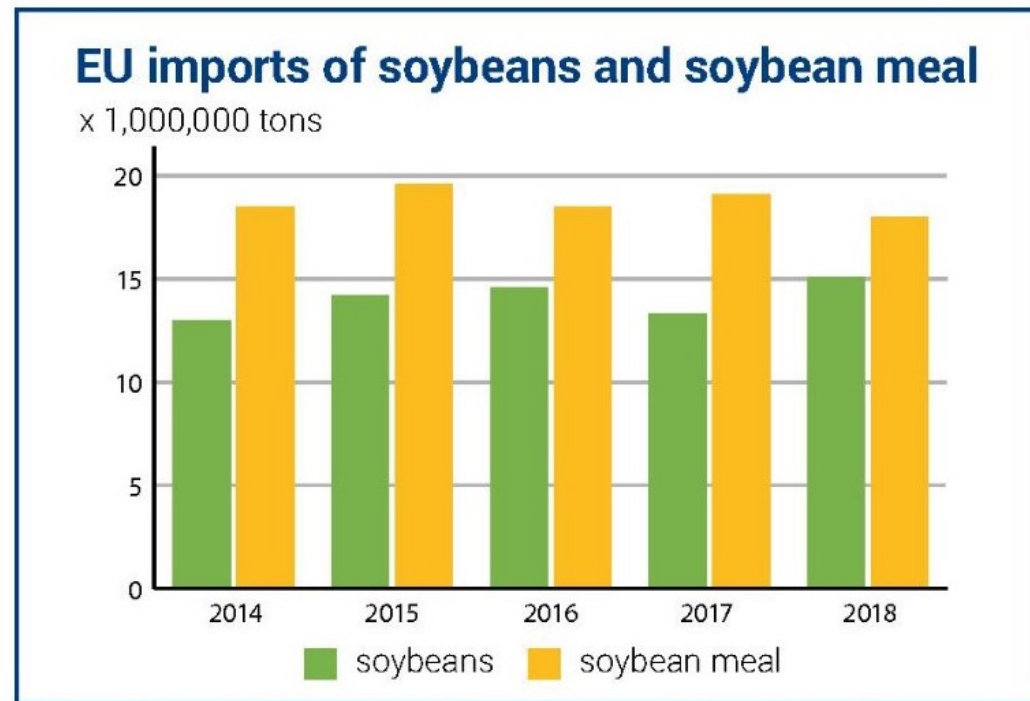


(Belmans et al. 2021)

A major concern : soybean importation

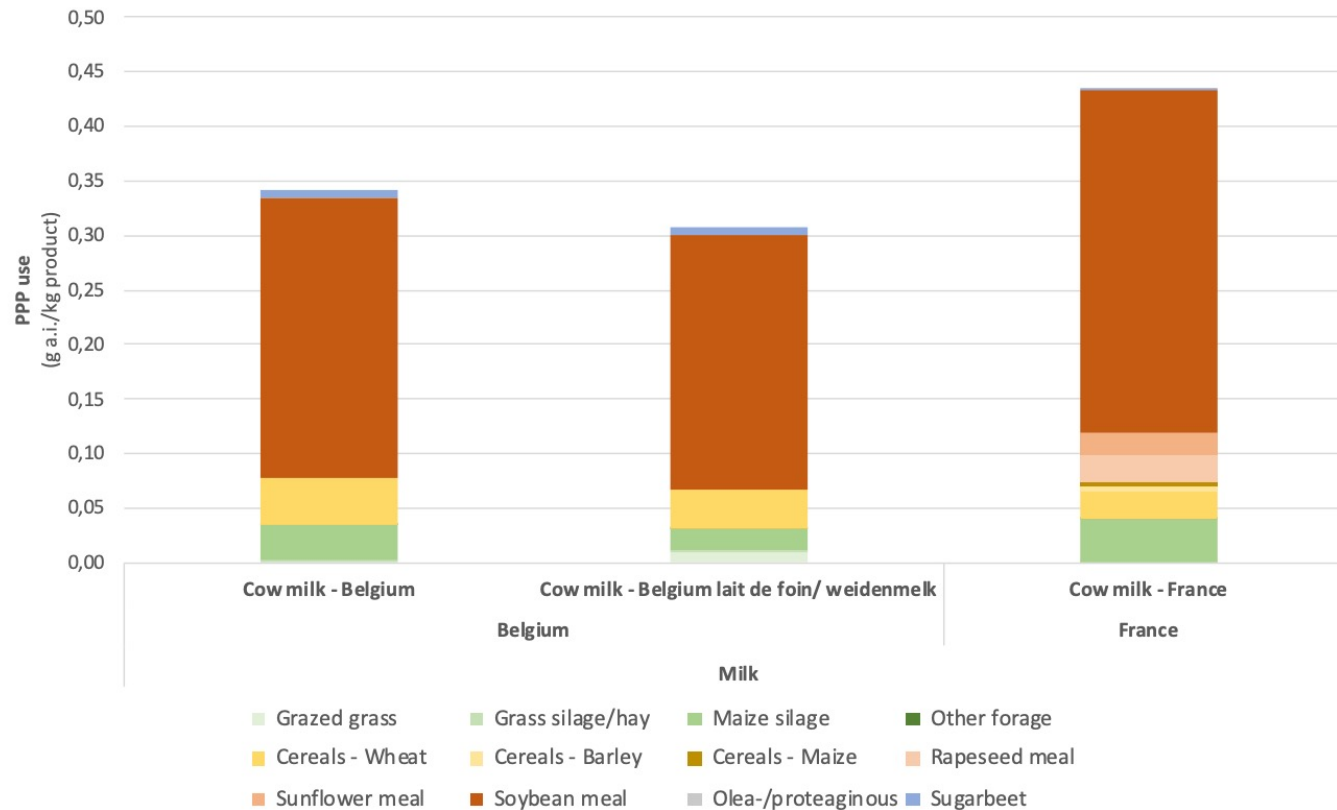


Source: USDA



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

Some conclusions



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- Transparency of pesticide content of final product

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