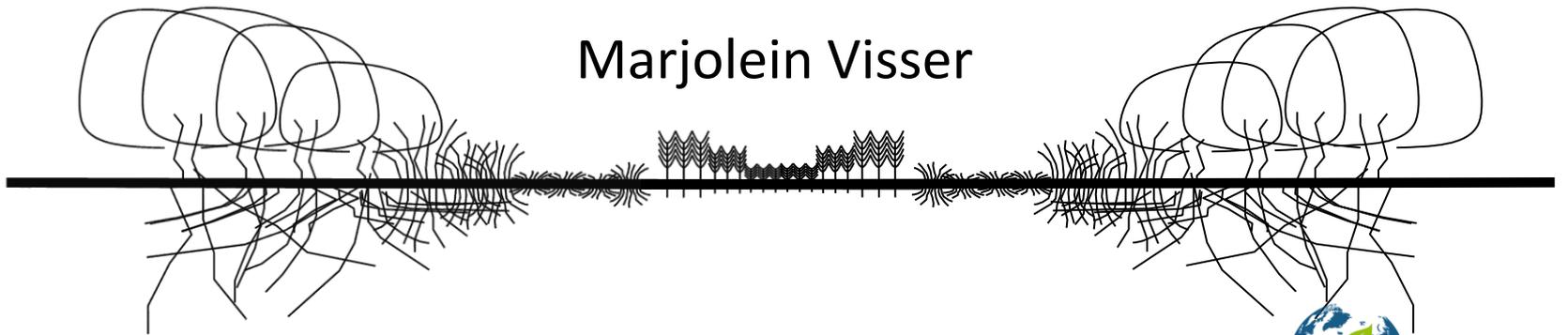


# Farm and food literacy: our healths depend on it

Marjolein Visser



EIB

(Ecole Interfacultaire des Bioingénieurs)

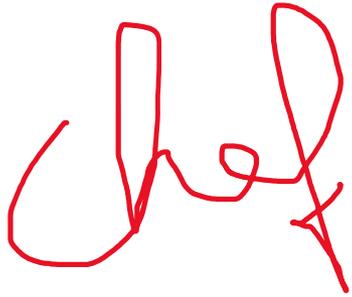
[Marjolein.visser@ulb.ac.be](mailto:Marjolein.visser@ulb.ac.be)





# Outline

- **Cheap food is a false promise**
- The health crisis
- The biodiversity crisis
- Tackling this double crisis through a new prism on food



- Health: ~~Organic~~ Agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible.
- Ecology: ~~Organic~~ Agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them.
- Fairness: ~~Organic~~ Agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities.
- Care: ~~Organic~~ Agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment.

# A shared vision on the food-farming nexus

L'histoire agraire nous montre qu'aucune culture, la plus urbaine soit elle, ne peut se soustraire à la *sine qua non* question agricole. Pour vivre sans faim, la cité doit effectivement organiser et sécuriser un surplus agricole en continu, sans quoi elle s'effondrerait rapidement. Cette question s'impose à chacun(e), plusieurs fois par jour, depuis l'échelle du ménage jusqu'aux arènes politiques les plus transnationales. ¶ Dans un contexte où une majorité de la population se permet de faire autre chose que

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Noémie Maughan 23/5/16 07:49

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**How can we adequately feed ourselves while ensuring a livelihood for farmers in dignity and while fostering the integrity of ecosystems and biodiversity, both locally and globally?**

For  
agr  
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écologiques, humaines et sociales quand il s'agit de formuler et d'analyser la grande diversité d'enjeux(? issues, concerns) liés à la question agricole. ¶

L'agroécologie est à la fois produite par et la réponse à la crise profonde, globale et multidimensionnelle dans laquelle le projet de modernisation de l'agriculture du vingtième siècle a propulsé tant les communautés paysannes, que les citadins. À partir de certaines de ces communautés profondément déstructurées d'aujourd'hui, une timide restructuration s'entrevoit, que l'on pourrait appeler le début d'une repaysannisation. ¶

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b 19/5/16 18:56

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This type of agriculture is part and parcel of our biodiversity crisis...

... but also of our health crisis





**Sustainable Food Trust**  
*A global voice for sustainable food and health*

# The **HIDDEN COST** *of* **UK FOOD**

*November 2017*

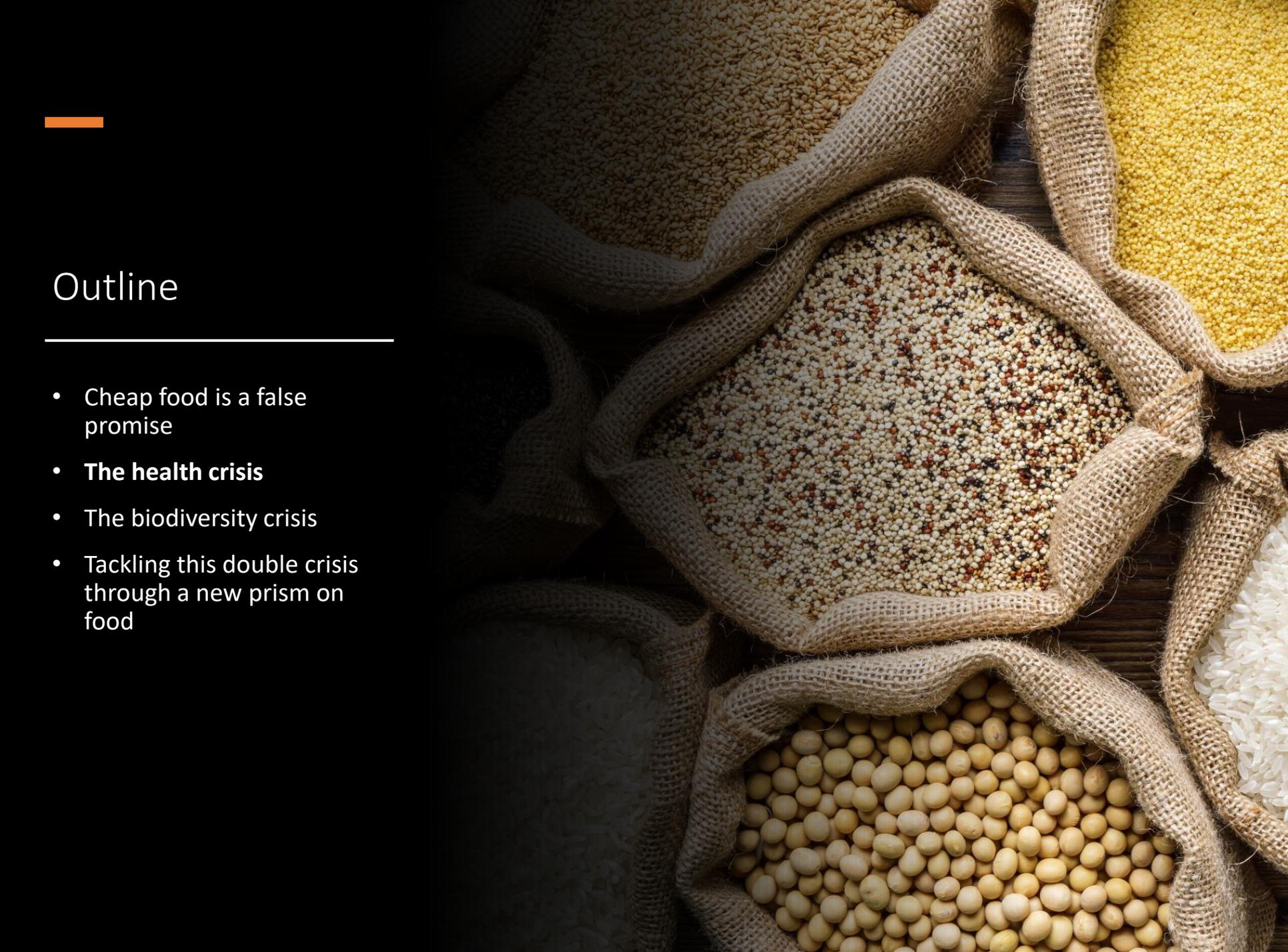
## Hidden costs in 2015

### UK consumer approximate spend

Food	£86.08 billion
Fruit and vegetable juices and non-alcoholic drinks	£8.44 billion
Catering <sup>1</sup>	£25.62 billion <sup>a</sup>
<b>Total</b>	<b>£120.14 billion<sup>b,c</sup></b>

### Hidden food system externality costs

Natural capital degradation	£30.93 billion
Biodiversity loss	£12.75 billion
Food consumption-related health costs	£44.91 billion
Food production-related health costs	£16.08 billion
Farm support payments and regulation	£6.36 billion
Imported food	£9.22 billion
<b>Total</b>	<b>£120.25 billion</b>

The background of the slide is a top-down view of several burlap sacks filled with different types of grains. The sacks are arranged in a grid-like pattern. The grains include light brown wheat, bright yellow corn, a mix of white, red, and black quinoa, and white rice. The lighting is dramatic, with the left side of the image fading into a dark background.

## Outline

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# How ultra-processed food took over your shopping basket

It's cheap, attractive and convenient, and we eat it every day - it's difficult not to. But is ultra-processed food making us ill and driving the global obesity crisis?

By [Bee Wilson](#)

**N**early three decades ago, when I was an overweight teenager, I sometimes ate six pieces of sliced white toast in a row, each one slathered in butter or jam. I remember the spongy texture of the bread as I took it from its plastic bag. No matter how much of this supermarket toast I ate, I hardly felt sated. It was like eating without really eating. Other days, I would buy a box of Crunchy Nut

What do all these  
diseases  
have in common?

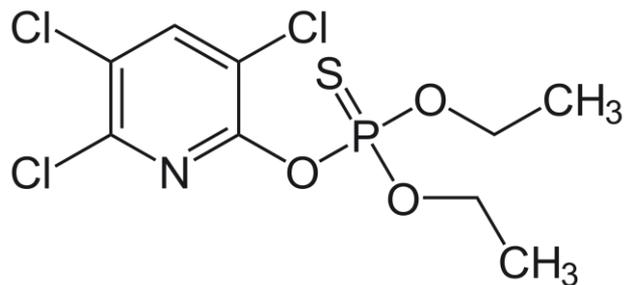
les maladies d'Alzheimer et de Parkinson ;  
diabète et résistance à l'insuline ; allergies plus  
ou moins sévères ; baisse de l'immunité et  
problèmes d'auto-immunité ; manque de  
résistance au stress ; fatigue chronique ;  
dépression ; malformations à la naissance ;  
baisse de fertilité et infertilité ; baisse d'QI et  
retards voire arrêt de développement des  
nouveaux-nés et enfants ; maturité sexuelle  
excessivement précoce ; endométriose ;  
troubles du déficit de l'attention avec ou sans  
hyperactivité (TDAH ou TDA/H) ;  
dysfonctionnements cognitifs ; autisme ;  
féminisation ; transsexualité ; altérations  
comportementales (par exemple d'éducation  
familiale) ; hypospadias (malformation de  
l'urètre chez l'homme), micropénis et bien  
d'autres anomalies de développement des  
organes sexuels (pas constatés à la naissance) ;  
avortements ; tremblement (« tremor » :  
contractions musculaires involontaires) ;  
épilepsie. »

(Source: Visser M., 2016, Actes du Forum de  
l'Autonomie Fourragère)

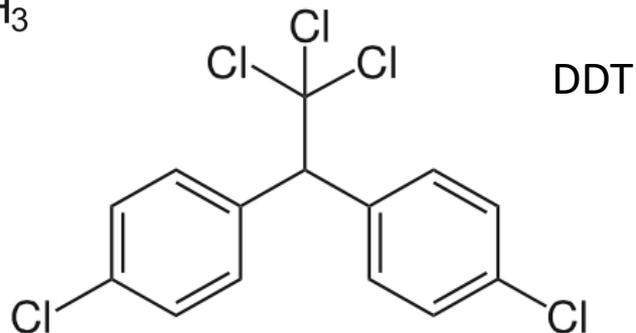
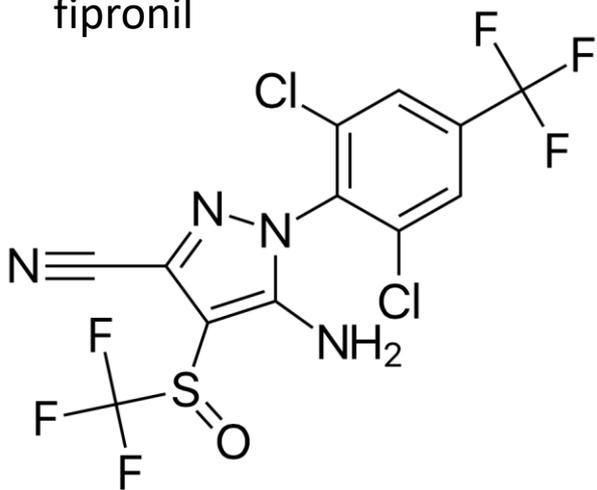
# This is what they have in common

- They are fairly new to humanity
- They are not contagious
- Their incidence is rising at an increasing rate
- They represent an increasing burden to society
- They are systemic expressions of dysfunction related to disruption of our highly intricate immune, nervous and hormonal systems
- They have all been related to pesticide exposure
- Quite of few have a higher prevalence among farmers or farm workers and their families
- **There is a strong human-wildlife connection**

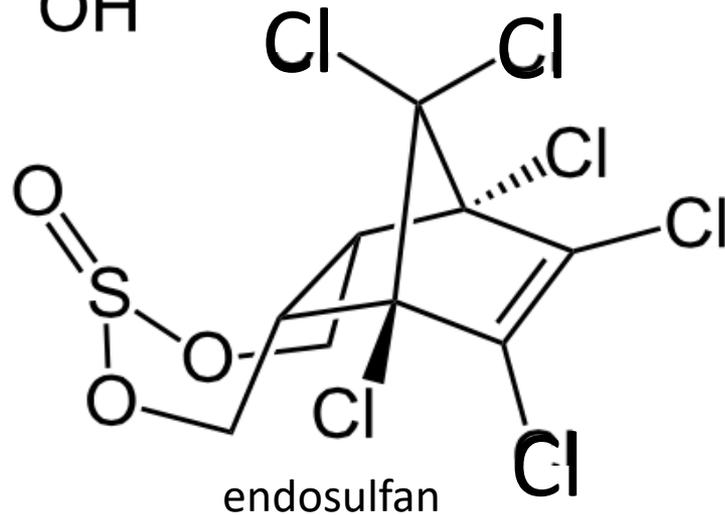
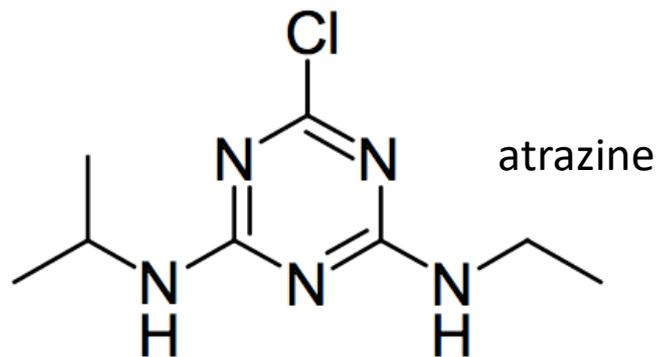
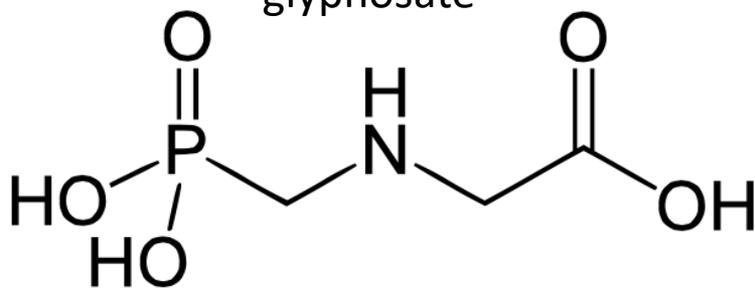




fipronil



glyphosate



# Succinate Dehydrogenase Inhibitors

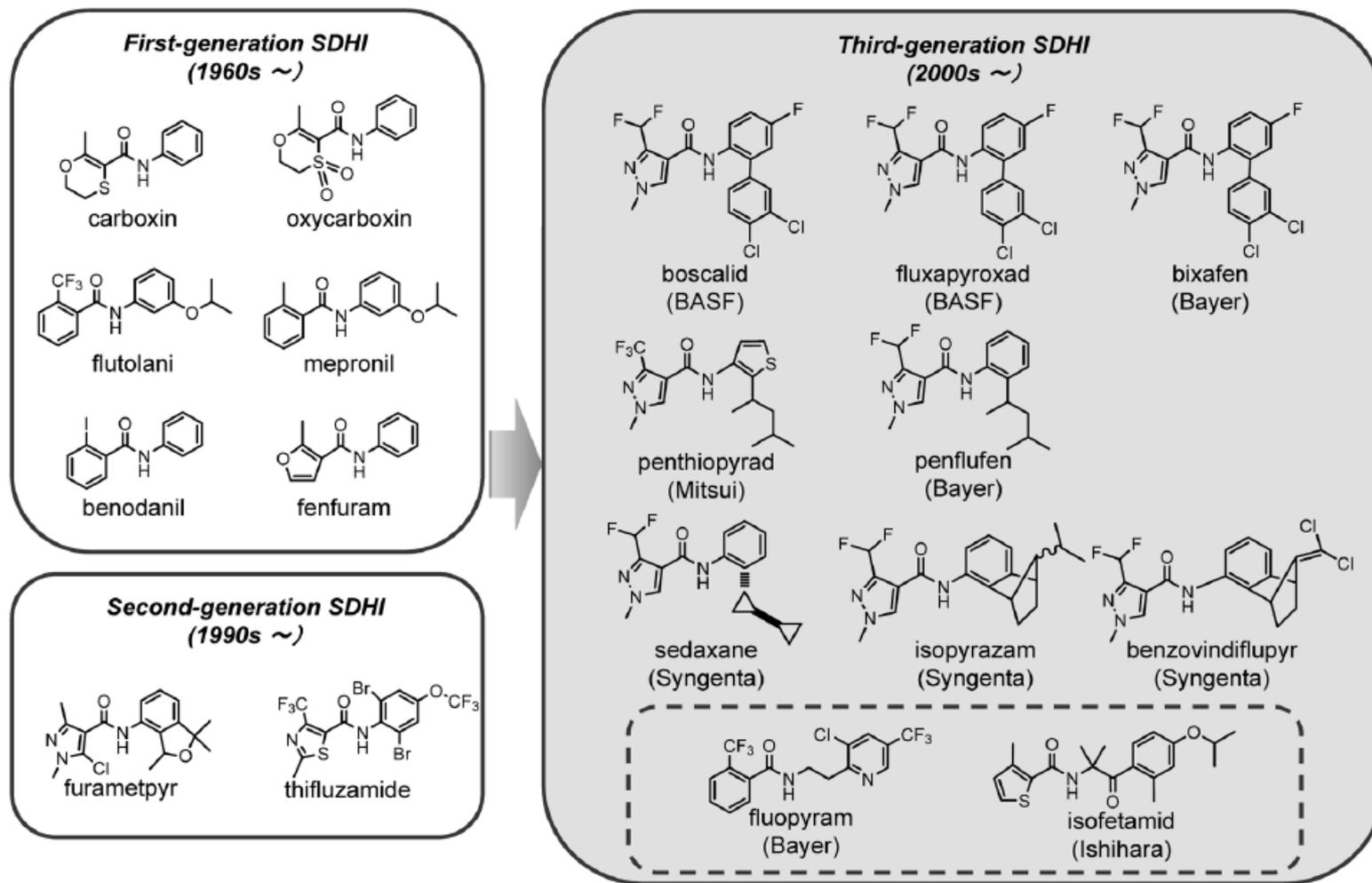


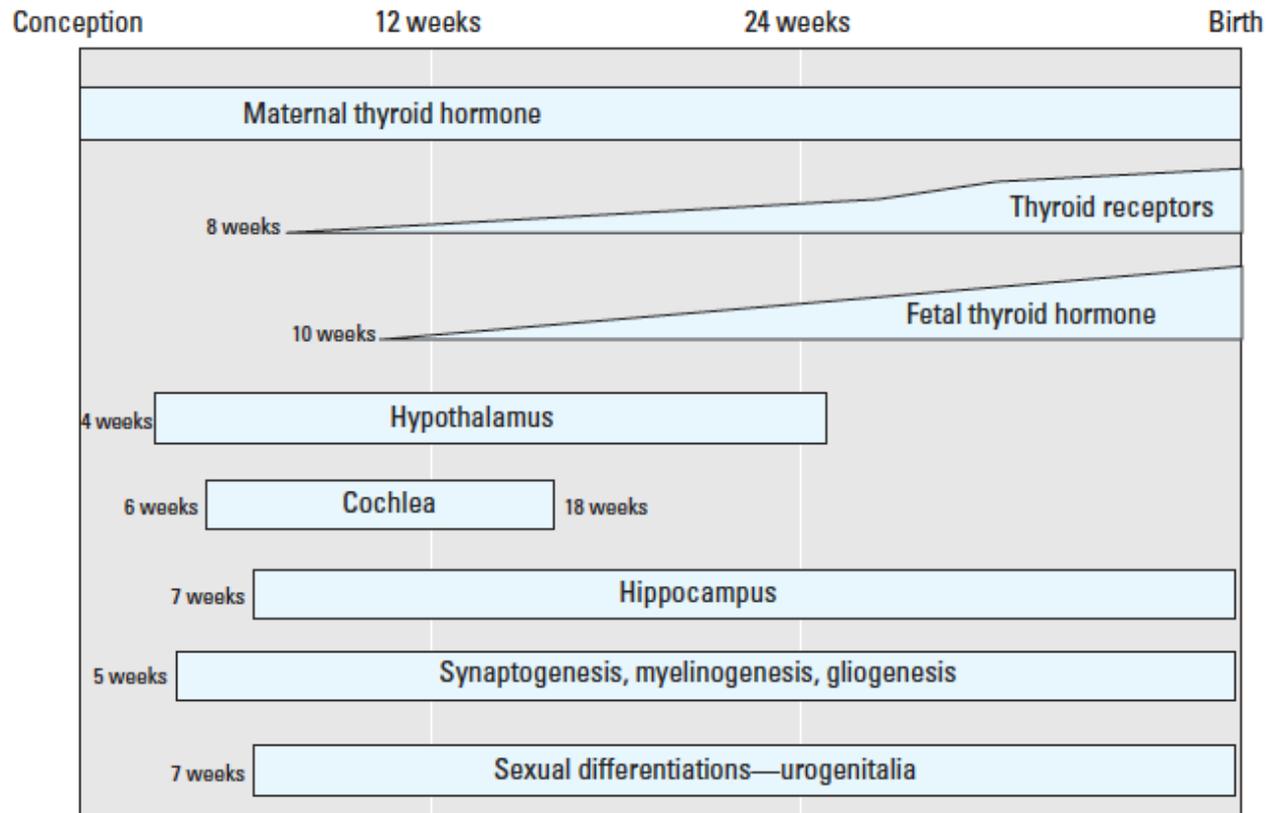
Fig. 1. Structures of SDHI (Succinate DeHydrogenase Inhibitors) fungicide.

# This is what these molecules have in common

- Low molecular weight
- High remanence
- Claims of specificity of action proven false
- Each molecule can have a diversity modes of action with both short and long term effects, depending on dosis, presence of other molecules, development stage of exposed organism
- Endocrine disruption at extremely low doses is very common
- **There is a strong human-wildlife connection**
- They stay on the market for some decades and finally get thrown out when too much evidence has built up proving their toxicity
- They are a linchpin of corporate agriculture and its derivatives

**Table 1. Chronology of human exposure.**

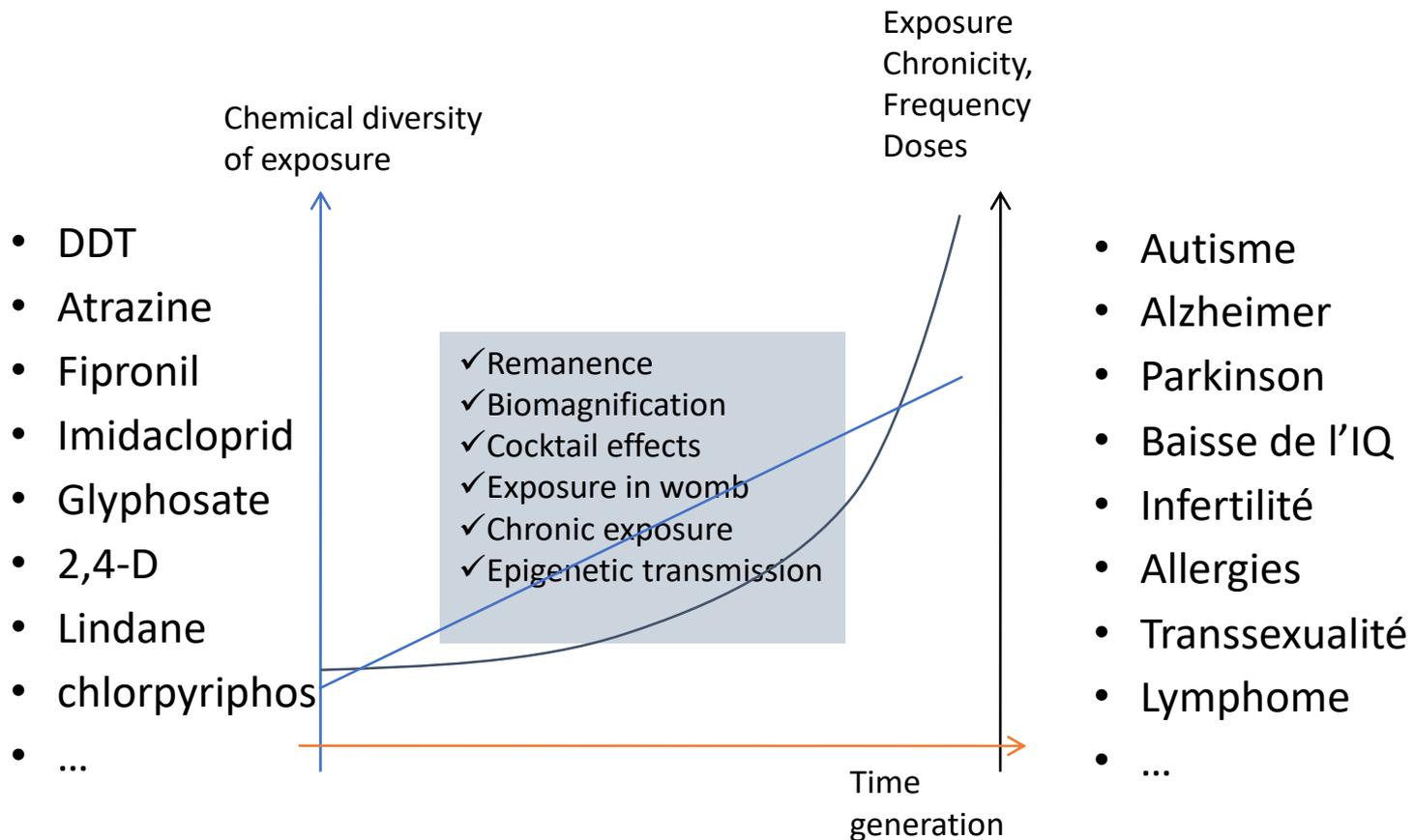
Years	Exposure scenario
1920s–1930s	BPA, PCBs, and DDT commercially introduced. Chlorine industry expanding. Discrete postnatal and prenatal exposure.
1940s–WWII	First wide-scale production and exposure to the above and other chemicals including plastics and chlorinated compounds as technology advanced.
1940s–1950s	First generation widely exposed postnatally and some who may have been exposed prenatally.
1950s–1970s	First generation born that was widely exposed prenatally.
1970s–1990s	First generation that was widely exposed prenatally reached reproductive age.
1980s–present	Second generation born that was exposed in the womb and beginning to produce the third generation. Production volume and exposure still increasing.



Colborn, 2004

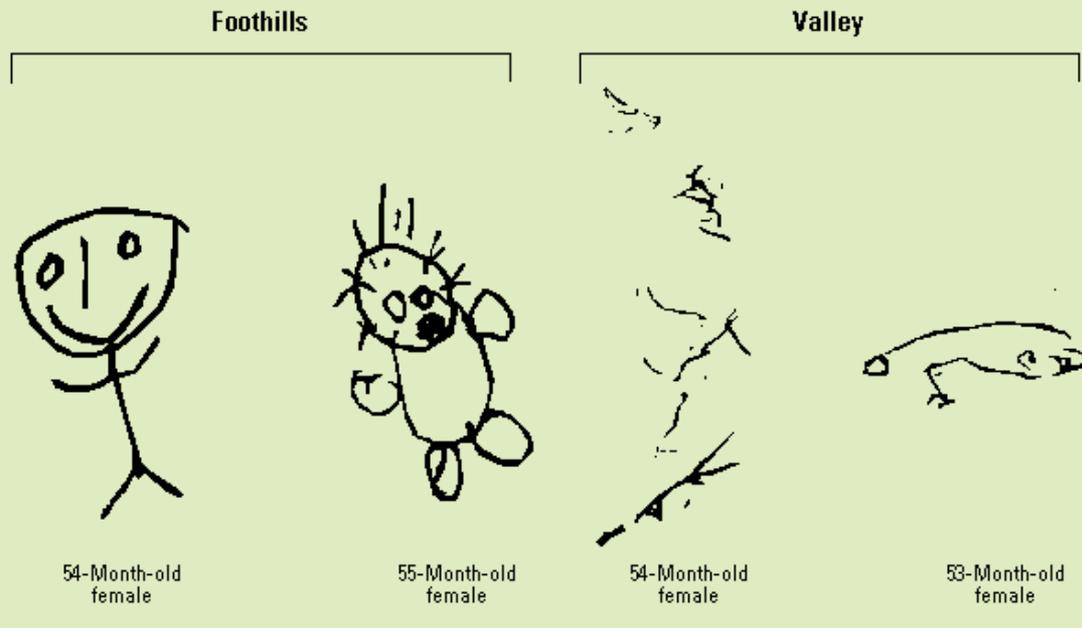
**Figure 1. Role of thyroid hormones in fetal neurologic development in relation to timing of several landmark stages of development. Figure adapted from Howdeshell (2002).**

# Third- and fourth generation exposure results in unprecedented complexity of disruptive effects

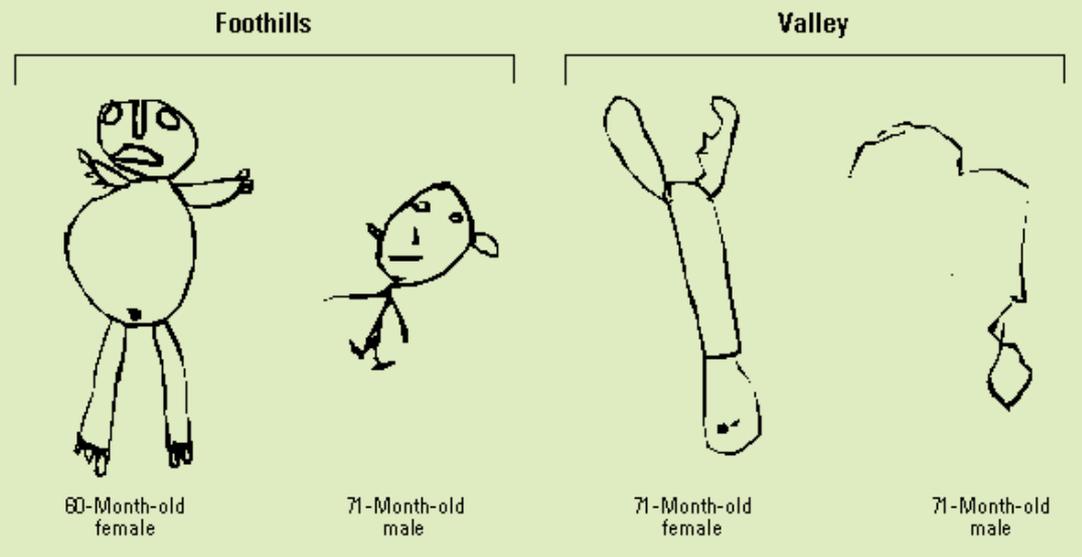


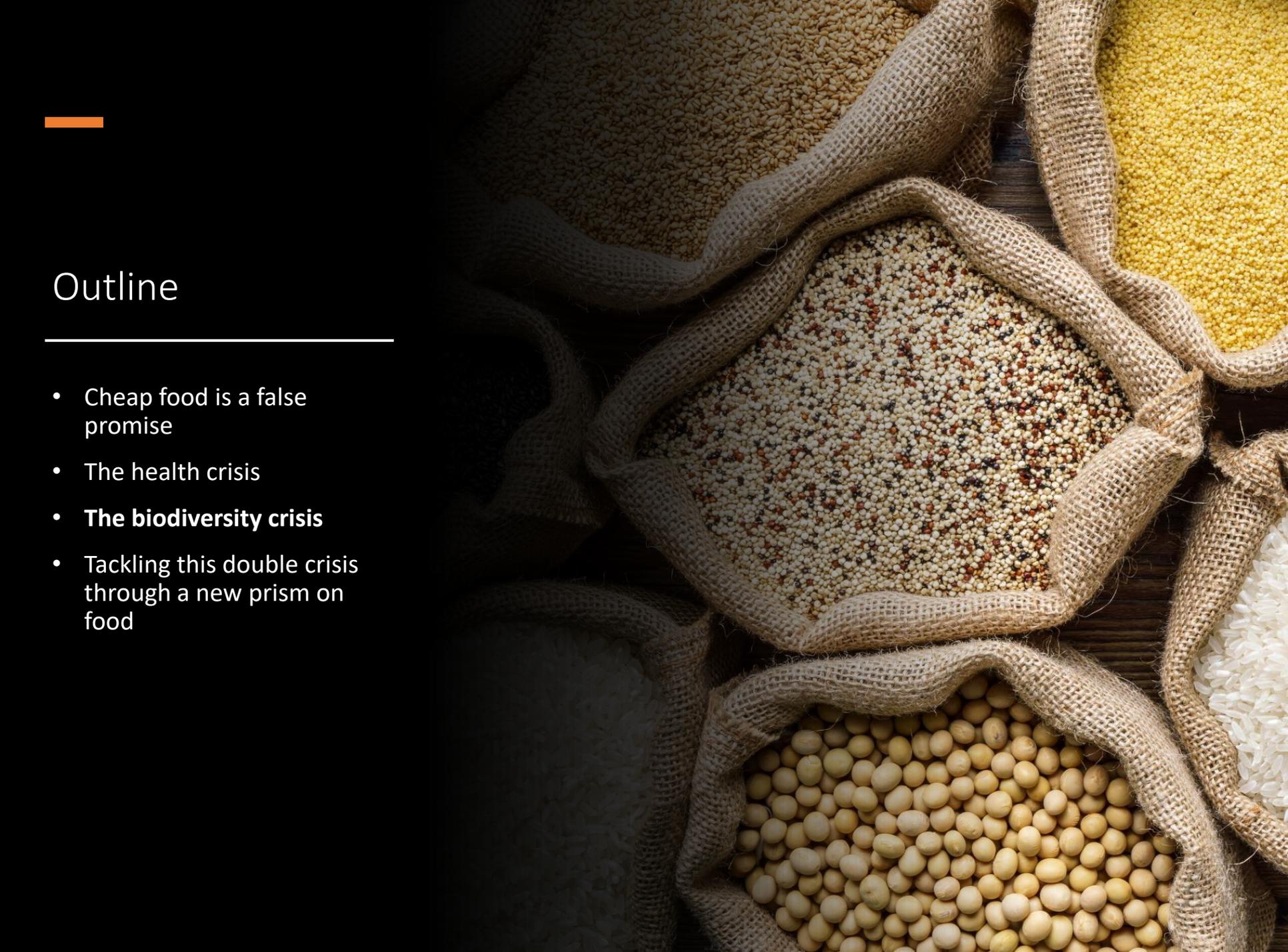
Guillette et al., 1998. An anthropological approach to the evaluation of preschool children exposed to pesticides in Mexico. *Environmental Health Perspectives* 106: 348-353.

**Figure 1.** Representative drawings of a person by 4-year-old Yaqui children from the valley and foothills of Sonora, Mexico.



**Figure 2.** Representative drawings of a person by 5-year-old Yaqui children from the valley and foothills of Sonora, Mexico.





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... but also of our health crisis

## Warning of 'ecological Armageddon' after dramatic plunge in insect numbers

### 'Catastrophe' as France's bird population collapses

Bird populations across the French countryside have fallen by a third over the past decade and a half, researchers have said. The numbers of dozens of species have declined, in some cases by two-thirds, the scientists said in a pair of studies.

"The situation is catastrophic," said Benoît Fontaine, a conservation biologist at France's National Museum of Natural History and co-author of one of the studies. "Our countryside is in the process of becoming a veritable desert," he

said in a communique released by the National Centre for Scientific Research (CNRS). A migratory songbird, the meadow pipit, has declined by nearly 70%.

The museum described the wipeout as on "a level approaching an ecological catastrophe". The primary culprit, researchers believe, is the intensive use of pesticides, especially on wheat and corn crops. The problem is that the insects on which the birds depend for food have disappeared. **AFP**



▲ Flying insects caught in a malaise trap, used by entomologists to collect samples. Photograph: Courtesy of Entomologischer Verein Krefeld

1962

# SILENT SPRING

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PENGUIN SCIENCE

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First published in 1962, Rachel Carson's scientifically passionate exposure of the effects of the indiscriminate use of chemicals is still of vital importance. In her vivid and well-informed text she describes how pesticides and insecticides are applied almost universally to farms, forests, gardens and homes with scant regard to the consequent contamination of our environment and the widespread destruction of wildlife. She argues that unless we recognize that human beings are only a part of the living world, our progressive poisoning of the planet will end in catastrophe. *Silent Spring* remains the classic statement which founded a whole movement and should be read by everyone who is concerned about the future of our world.

Cover photograph by Sebastiao Salgado/Magnum from the John Hilleison Agency



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# Our Stolen Future

THEO COLBORN, DIANNE DUMANOSKI,  
AND JOHN PETERSON MYERS



FOREWORD BY VICE PRESIDENT AL GORE

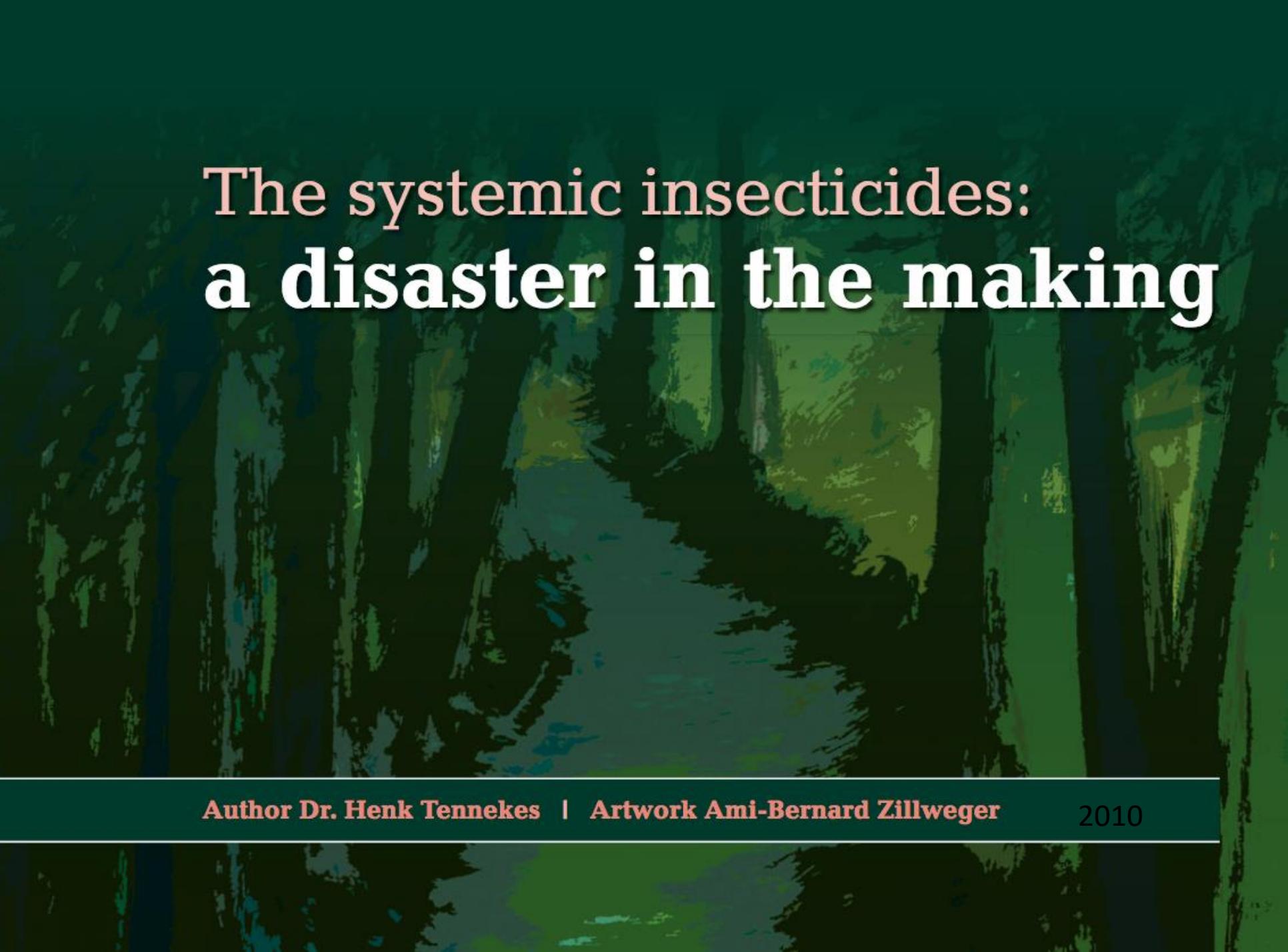
**ARE WE THREATENING OUR FERTILITY,**

**INTELLIGENCE, AND SURVIVAL?**

**A SCIENTIFIC DETECTIVE STORY**



1996



# The systemic insecticides: **a disaster in the making**

**Author Dr. Henk Tennekes | Artwork Ami-Bernard Zillweger**

2010

Preface	4
Index	6
The use of neo-nicotinoid insecticides	9
Contamination of Dutch surface water with imidacloprid	13
The potential toxicity to insects and other arthropods of Dutch surface water contaminated with imidacloprid	17
The decline of invertebrate-dependent Dutch meadow birds	25
The decline of invertebrate-dependent Dutch marsh birds	31
The decline of invertebrate-dependent bird species on Dutch heath land	37
The decline of invertebrate-dependent bird species at the Dutch coast	41
The decline of invertebrate-dependent woodland birds in Britain, France and Germany	49
The decline of invertebrate-dependent farmland birds in Britain, the Low Countries, Germany, Switzerland, and France	53
The decline of invertebrate-dependent birds in settlements in Britain, France, Germany and Switzerland	61
The decline of invertebrate-dependent birds in alpine regions of France, Germany and Switzerland	67
Conclusions	70
Artwork	72

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STÉPHANE FOUCART

# Et le monde devint silencieux

*Comment l'agrochimie a détruit les insectes*

SEUIL

Francis Chaboussou

## Les plantes malades des pesticides



éditions d'utovie

# How Neonicotinoids Can Kill Bees

The Science Behind the Role These Insecticides Play in Harming Bees

*2nd Edition; Revised & Expanded*

Jennifer Hopwood, Aimee Code, Mace Vaughan, David Biddinger, Matthew Shepherd,  
Scott Hoffman Black, Eric Lee-Mäder, and Celeste Mazzacano

Tennekens, 2010. *The Systemic Insecticides:  
A disaster in the Making*  
<http://www.disasterinthemaking.com/>

Gembloux, le 23 avril 2018

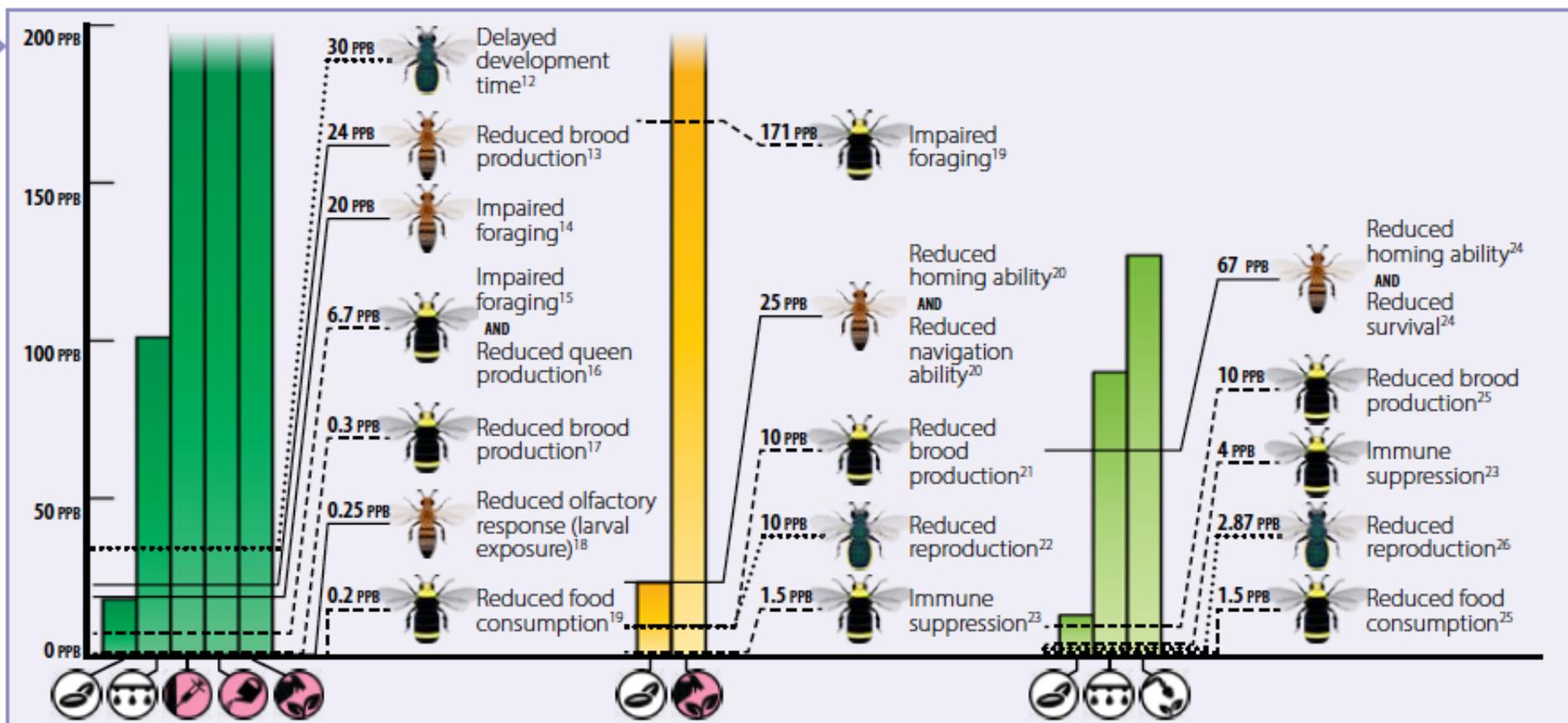
**Avis sur l'utilisation des insecticides de la famille des néonicotinoïdes en betteraves  
et chicorées**

**Le retrait de l'agrément de l'utilisation des néonicotinoïdes pour l'enrobage des  
semences de betteraves et des chicorées n'est vraiment pas souhaitable sur base  
scientifique.**

Ces insecticides utilisés à des doses très faibles en enrobage des semences protègent les plantes durant les premières semaines après la germination et la levée aux champs lorsque les plantules sont sensibles à des ravageurs présents dans le sol et aux pucerons vecteurs du virus de la jaunisse. La technique de lutte via l'enrobage des semences permet de limiter fortement l'incidence environnementale de ces insecticides. Les graines enrobées sont disposées à 20 cm d'intervalle dans la ligne et l'interligne est de 45 cm. Le halo de diffusion de l'insecticide dans le sol n'est que de quelques cm autour de chaque graine, seuls les ravageurs s'approchant de très près des organes souterrains de la plantule durant la phase de croissance juvénile peuvent être touchés par l'insecticide. L'insecticide diffuse aussi durant les premières semaines dans les jeunes feuilles de la plantule et permet de tuer les pucerons qui viennent piquer dans ces jeunes feuilles et inoculer via leur salive le virus à la jeune plantule. La plante est protégée ainsi durant la phase où le virus peut être très dommageable à la culture.

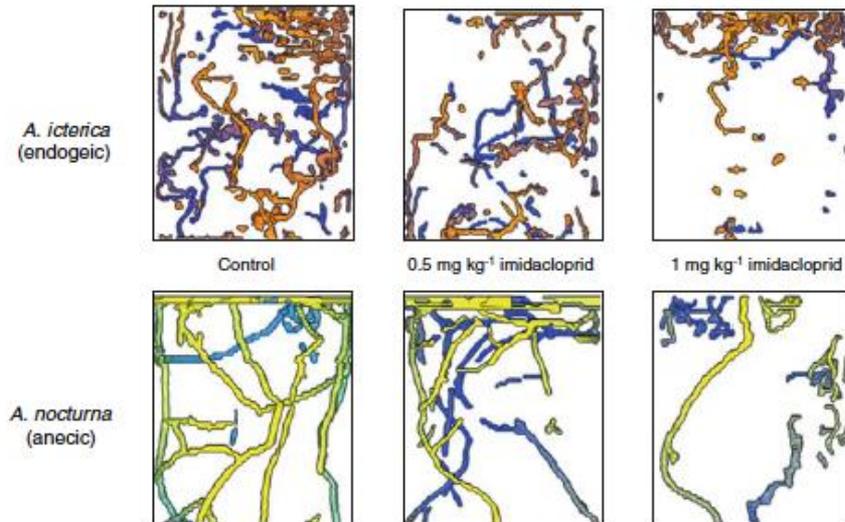
**FIGURE 6.1-2: Documented Sublethal Effects of Neonicotinoids in Bees**

This figure compares plant residues, found after legal applications were made, with pesticide levels that have been shown to cause harm. It provides a blunt assessment of potential risk. This overlay is limited by the fact that residue levels do not necessarily equal exposure level.

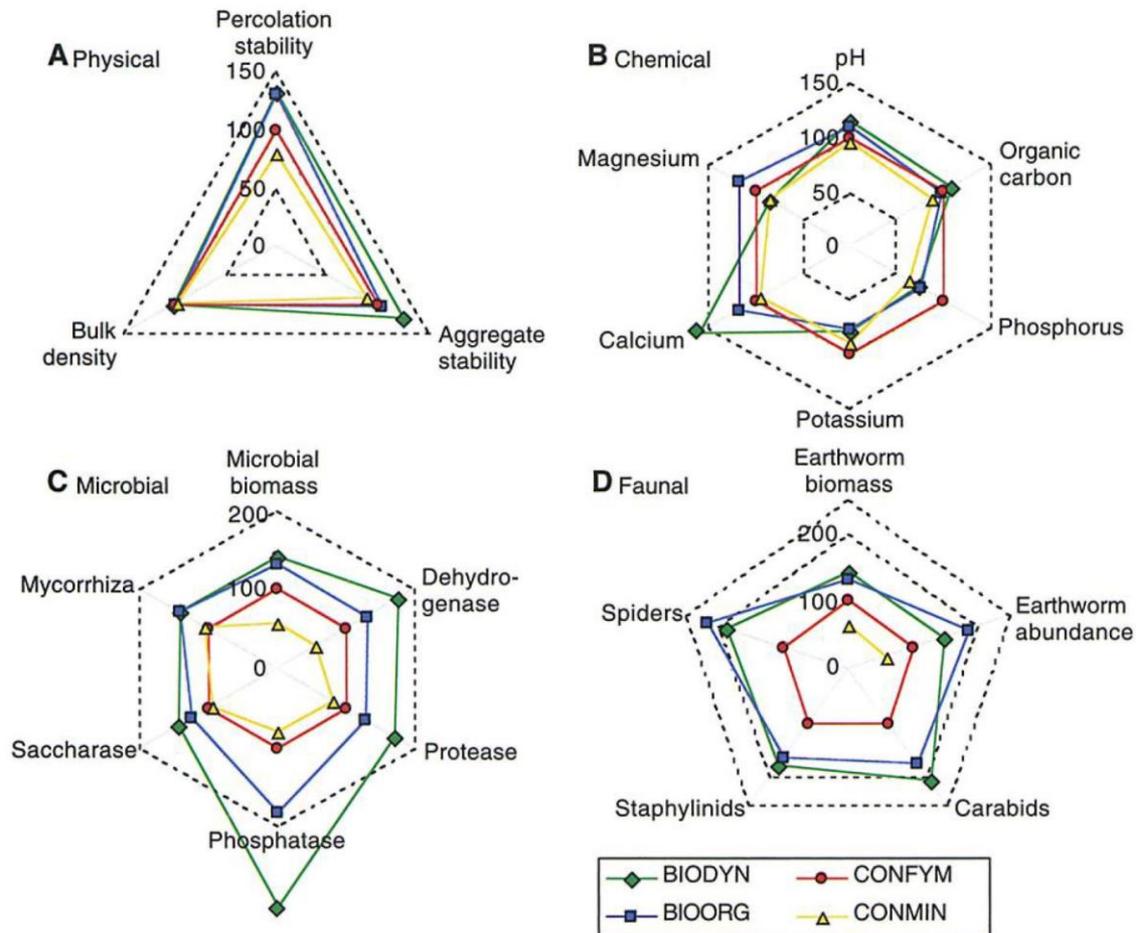


# Wildlife-wildlife connections

**Fig. 4** Effect of different concentrations of imidacloprid on the digging behaviour of two earthworm species (adapted from Capowiez et al. 2006)



# Long-term comparison shows chemicals are detrimental to soil life



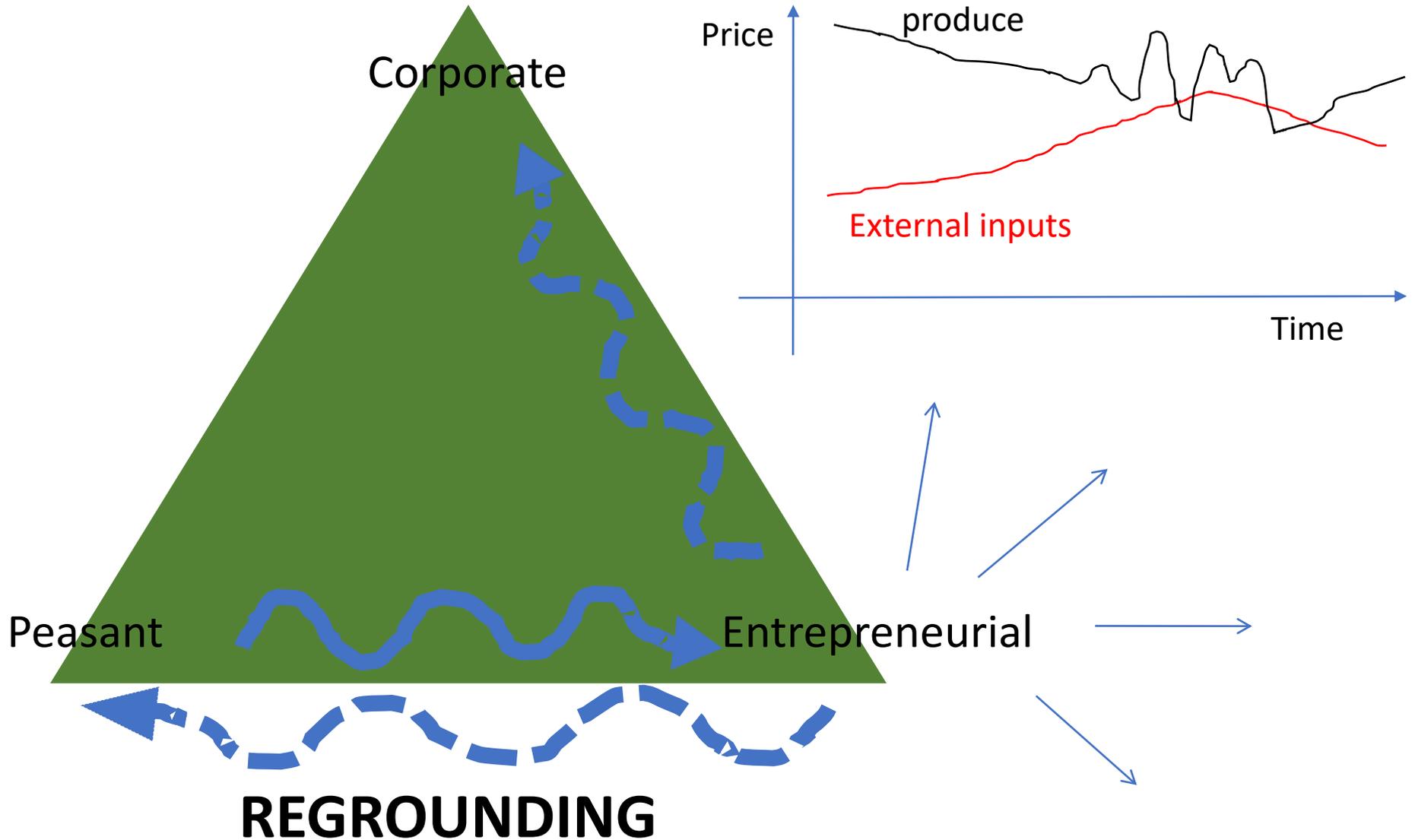


## Outline

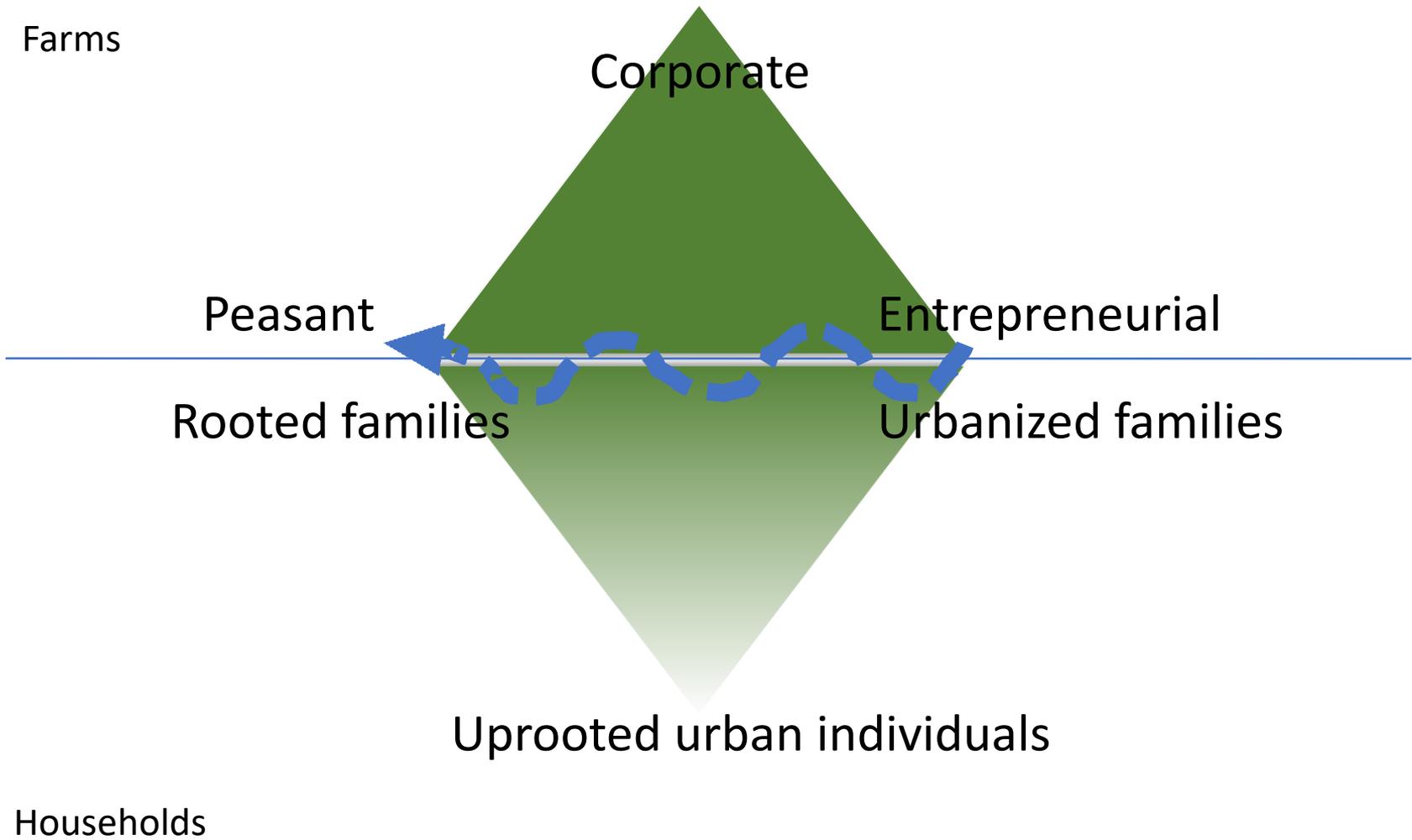
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# Transitioning between three styles of farming



# Three styles reflected



# Regrounding

=

## reconnecting food with farming

- Use the trigger of a health crisis in your household
- Cook more, eat out less and get rid of UPF
- Be picky on your ingredients: fresh, organic, seasonal, as local as possible
- Reduce animal food as much as feasible
- Start a conversation over food whenever you can
- Grow some of it yourself, as much as feasible
- Start a conversation with farmers, wherever you go
- Then, understand that animals are part and parcel of a healthy farm
- Grow literate on that eternal and universal farm-food nexus
- Render food political