

Agr'eau: developing a resource-efficient, eco-friendly, climate-smart agriculture across the Adour-Garonne basin (South-West France)

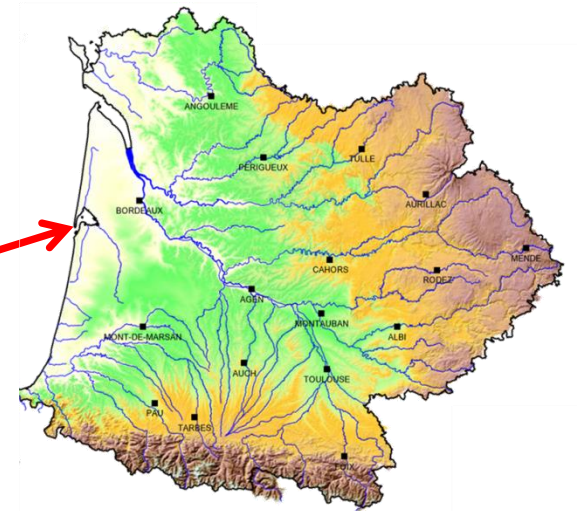


Fabien Balaguer, French Agroforestry Association (AFAF)

Agroforestry 2017

22nd June 2017, Cranfield, England

The Adour-Garonne basin – Where?



Adour-Garonne basin

Farming without trees?



Farming without trees?

Really?



Not enough water?
Too much water?
A matter of (degraded) soils...





Water degrading
the soils...

... And soils
degrading the
water...





The new assessment of soil loss by water erosion in Europe



Panos Panagos^{a,*}, Pasquale Borrelli^a, Jean Poesen^c, Cristiano Ballabio^d, Emanuele Lugato^a,

- Mean soil loss in EU: **2.46 t/ha annually**
- 12.7% of European arable lands have soil loss **>5 t/ha annually**
- Among all land uses, **arable and sparse vegetation** have the highest soil loss rates

Agr'eau – a farmer-centered initiative

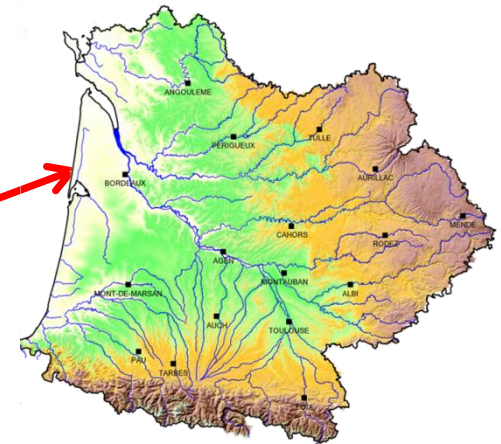
Aim: collaborative development of farming practices that allow for...

- Sustainable soil & water management (landscape approach)
- Intensification & optimization of farming systems

→ Producing more, with less... while protecting the environment



The long-term development programme launched in 2013



Adour-Garonne basin

Agr'eau – A multi-partner, local initiative

The institutions

Programme manager

French Agroforestry Association



Founding partners

IAD : Sustainable agriculture Institute

A.O.C Sols: local soil conservation association

Arbre et Paysage 32: local farmer association



Sponsors



Water Agency: 50% of programme budget

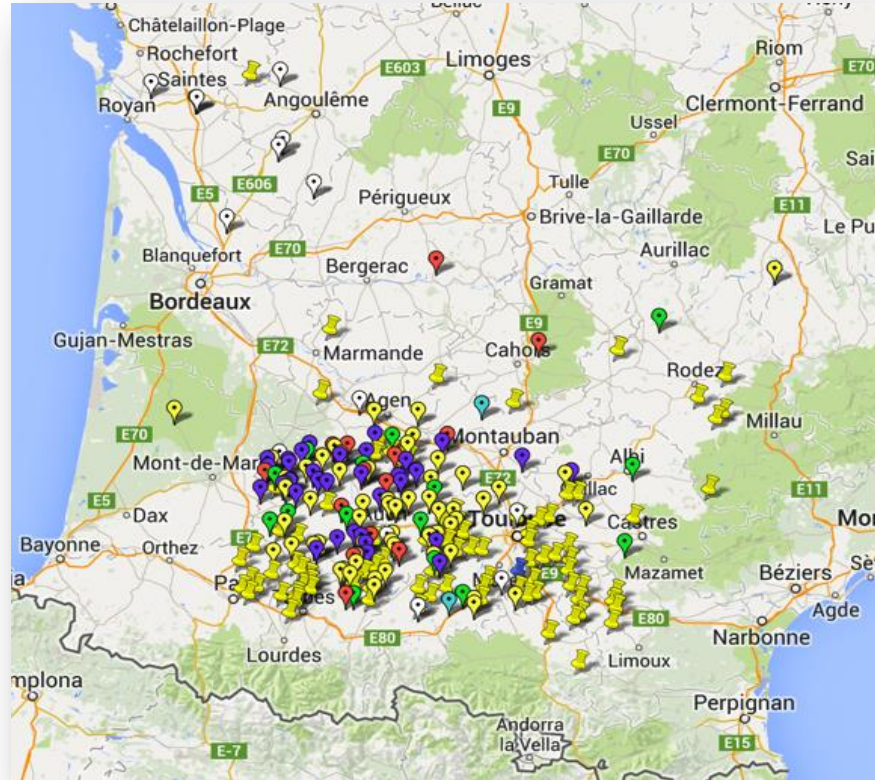
Associated partners



A landscape approach to agroforestry

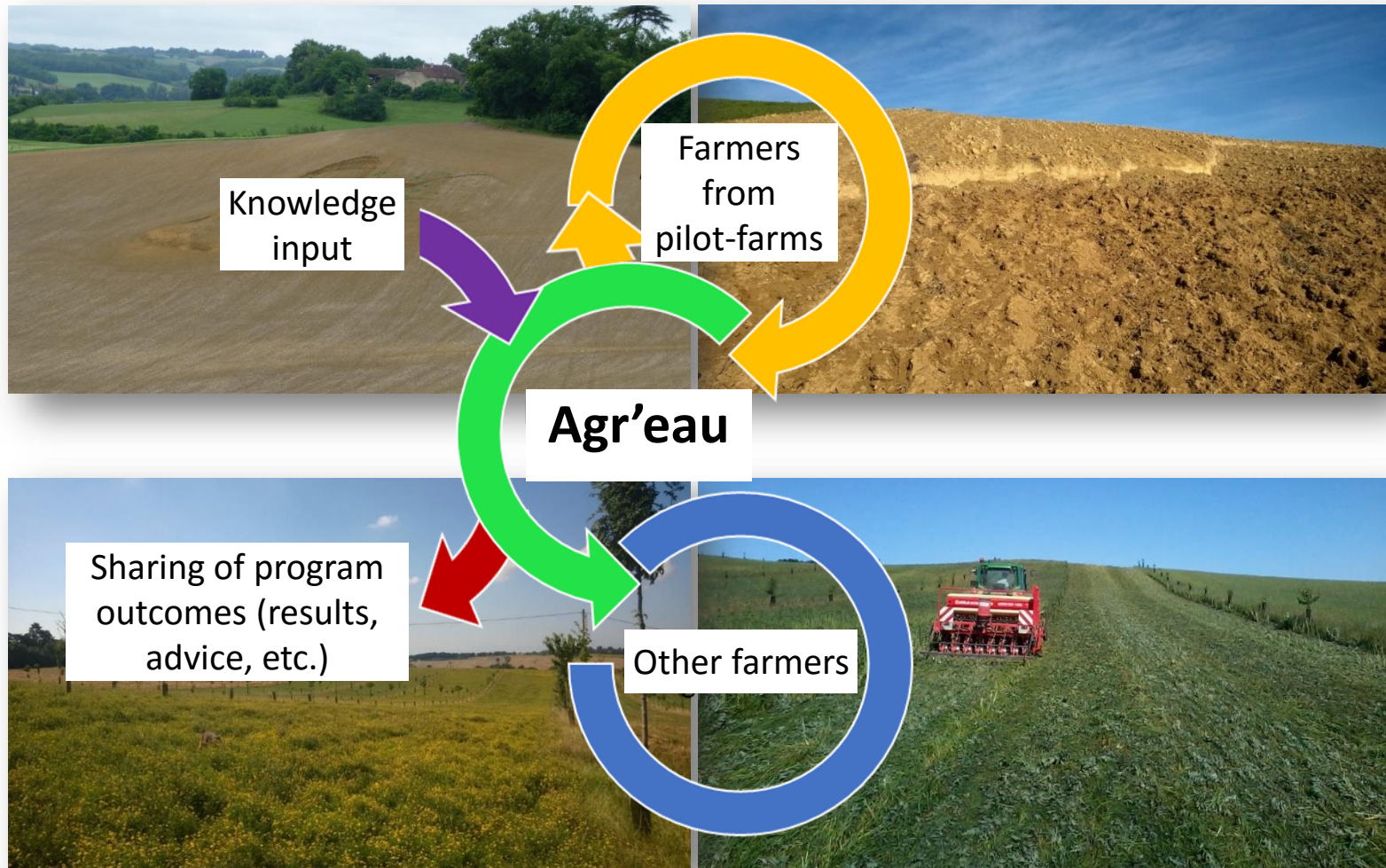


The keystone of the **Agr'eau** initiative: The pilot-farms



Expected: **125 pilot-farms** by 2018

Farmers, the motor of innovation!



Conversation agriculture...





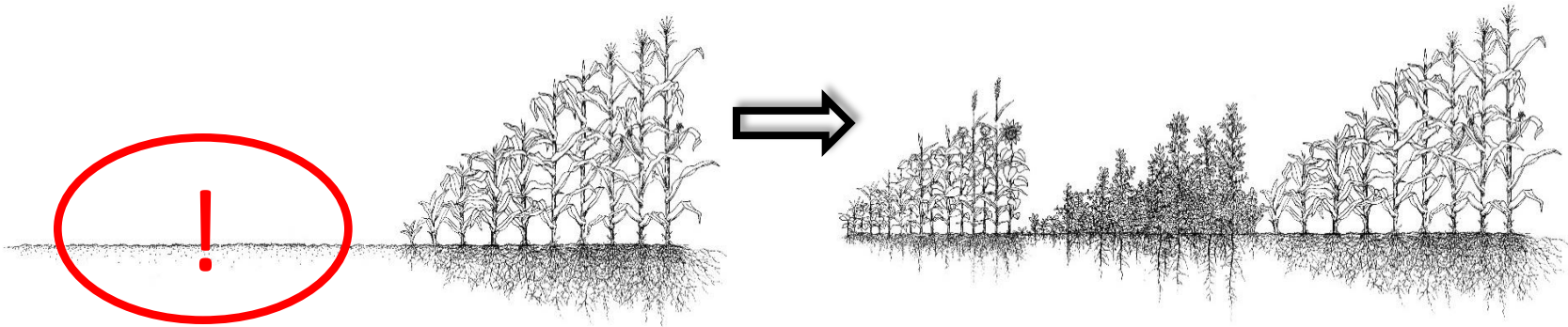
Building on 20+ years of field and research experience...

AGROforestry as a mean to reach sustainable farming





Crop succession (1 year)



BEFORE:

- 1 crop a year
- Soil left bare part of the year
- Low biomass production

Vicious circle

AFTER:

- Up to 3 crops a year
- Soil permanently covered with plants
- High biomass production

Virtuous circle

No-till + direct seeding into living mulch
= healthy, fertile, filtering soils

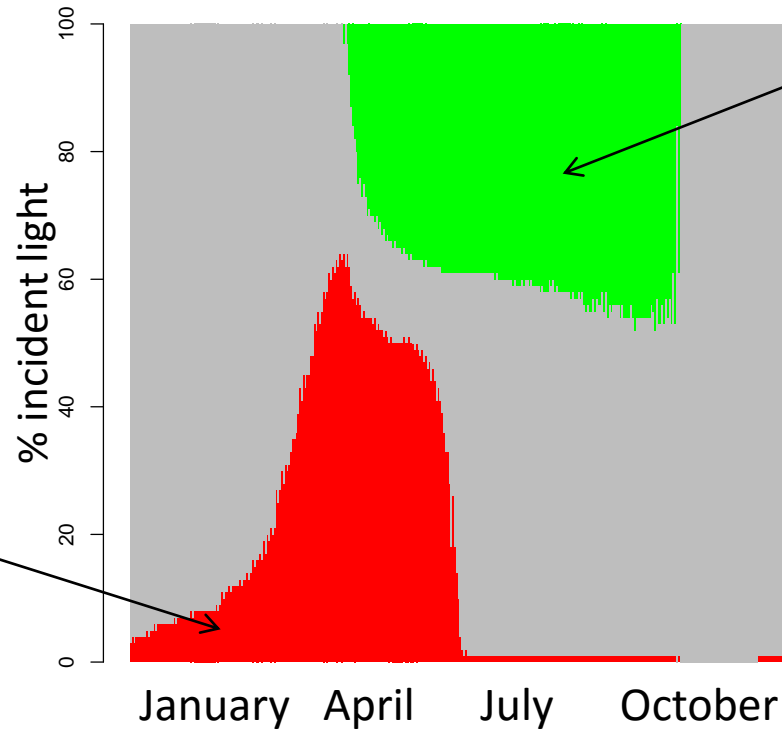


7t of biomass/ha



Capturing sunlight in agroforestry

Complementarity



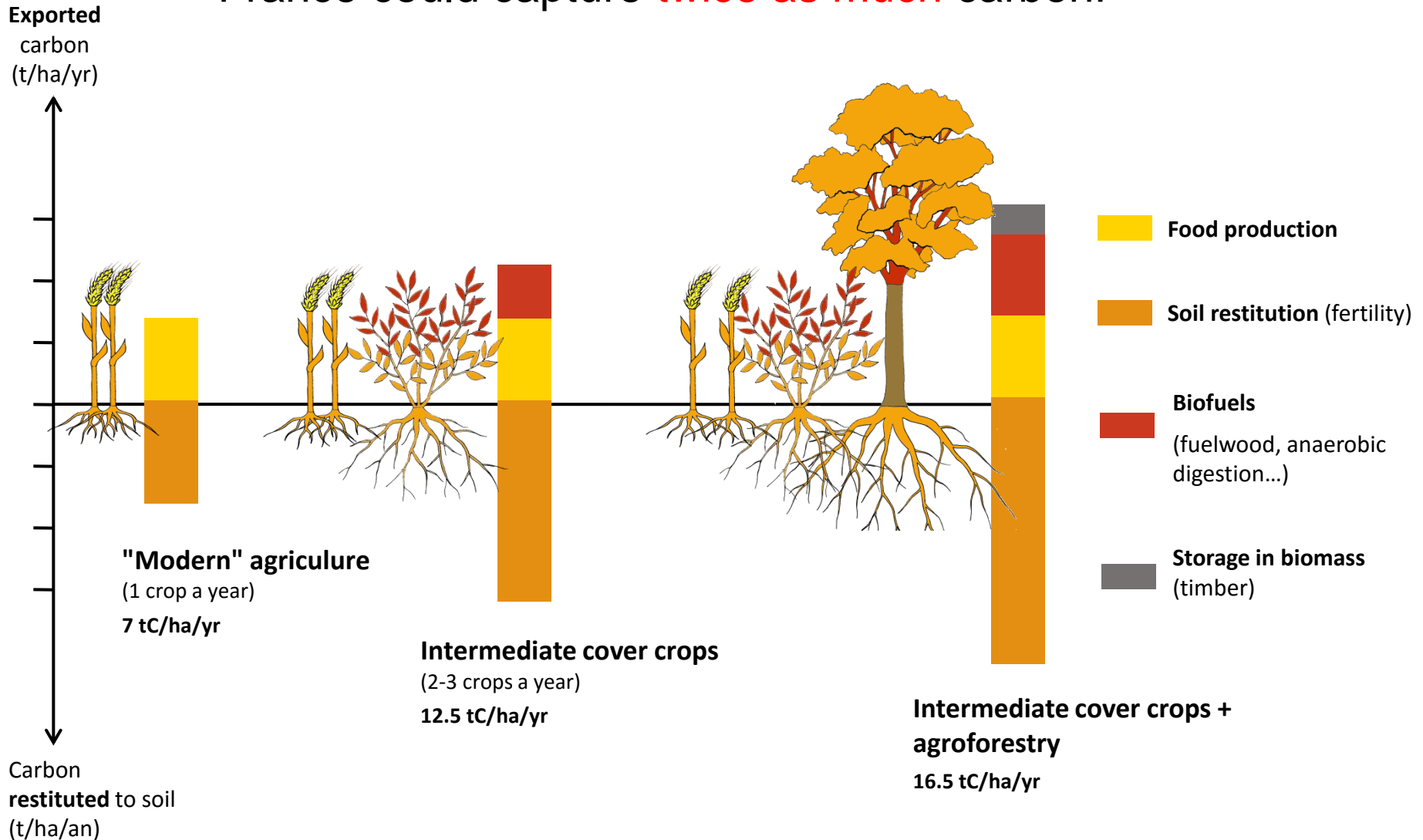
- Walnuts
- Wheat
- Unused

(INRA, Hi-sAFe)

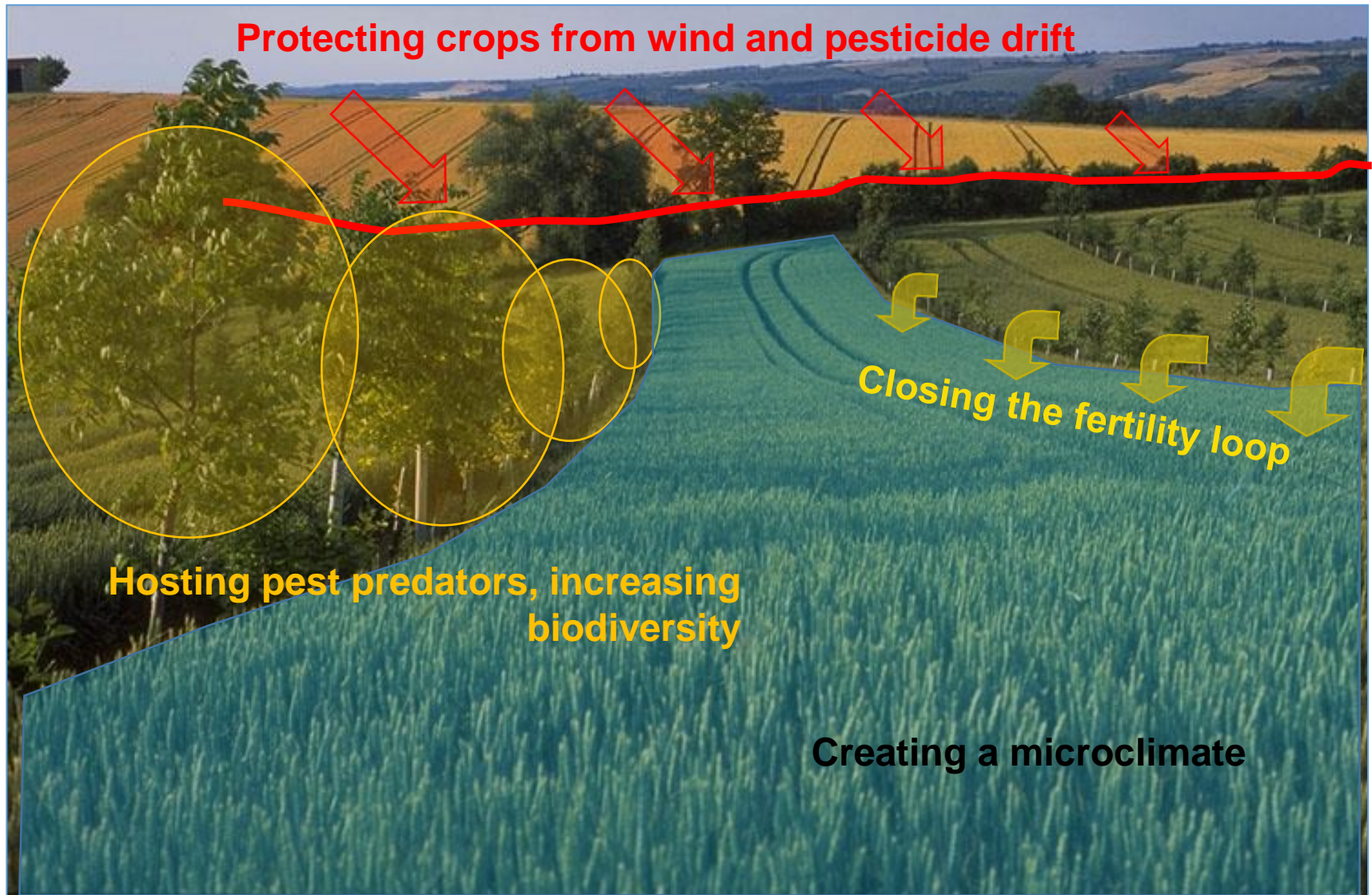
On a 1-yr period, 15 yr old trees + wheat
(without intermediate cover crops)

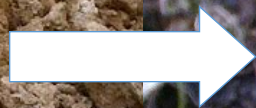
Carbon, fertility... and climate

France could capture **twice as much** carbon!



(Re)shaping farming landscapes





Living soil

=

Autoregulation

- Water
- Chemical pollutions
- Temperature
- Pathogens

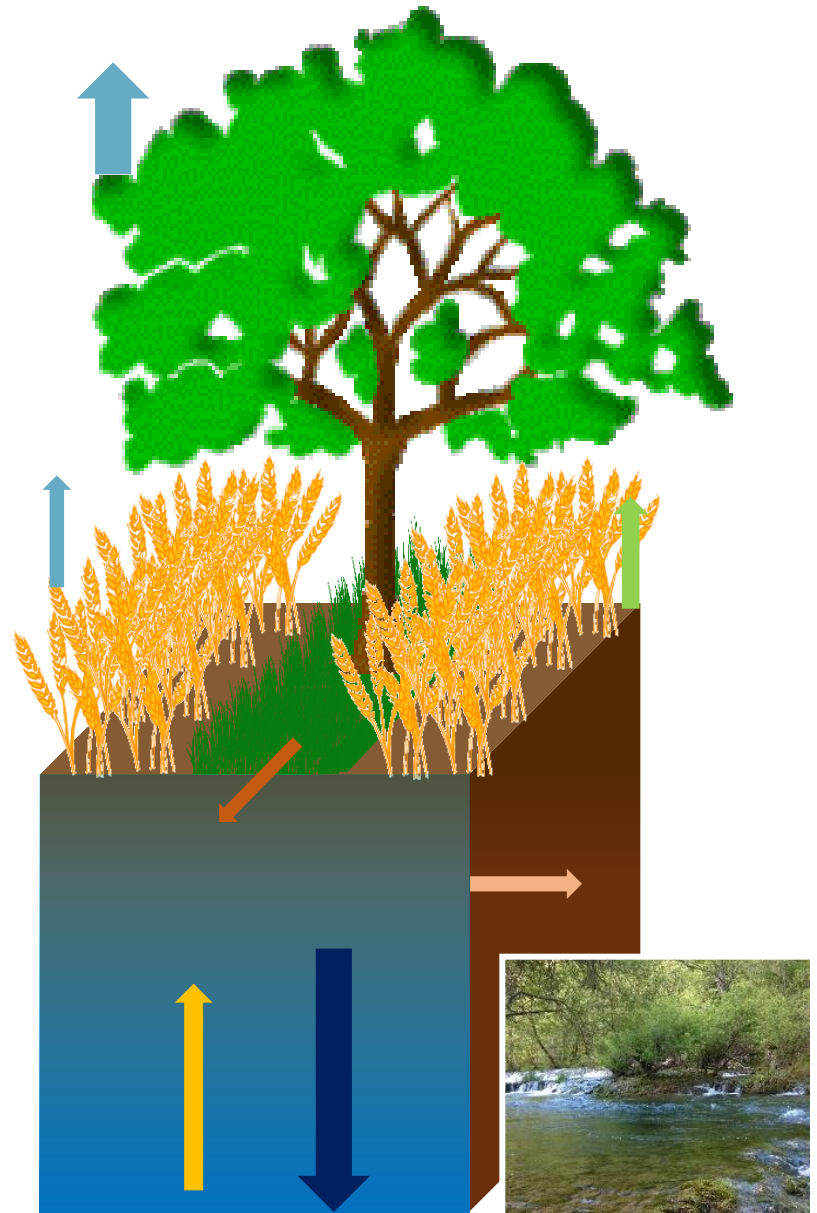
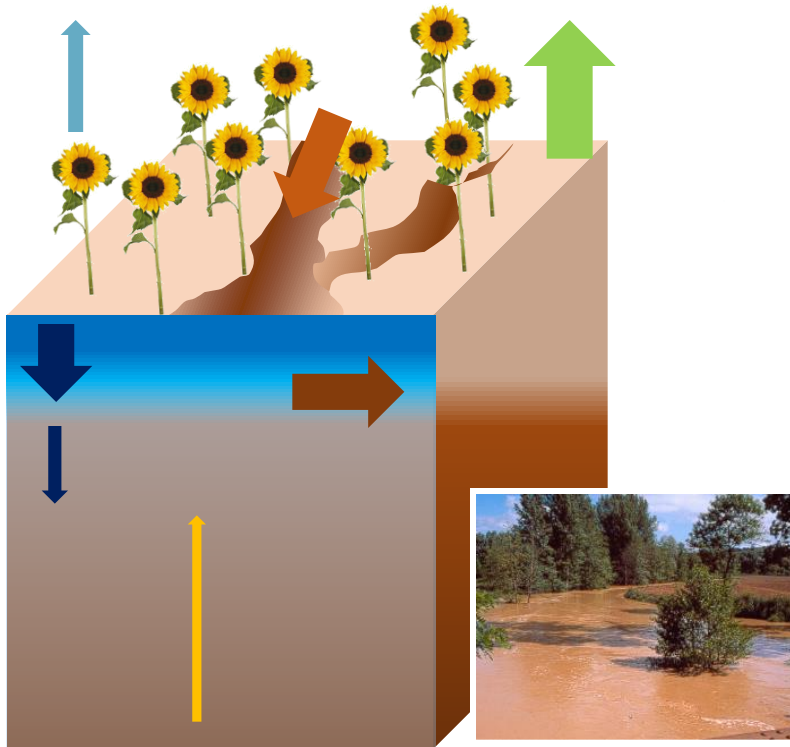


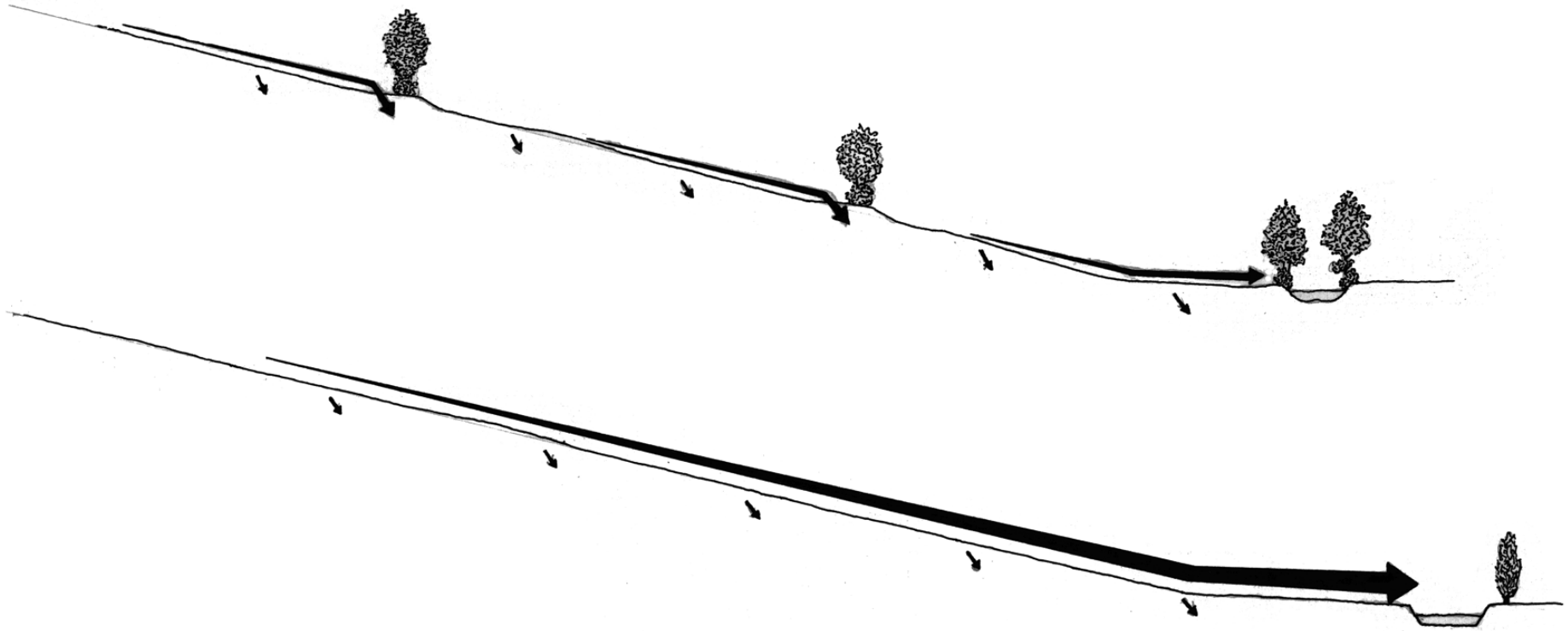
Maize on ploughed soil



Direct seeded maize

Improving the **water** **balance**





Protecting spaces, not species...



From desert to forest:
finding the right balance...



To plant ... or not to plant

(Assisted Natural Regeneration)



The thorn (*Rubus* spp.) is the mother
of the oak



Tree growth without planting cost

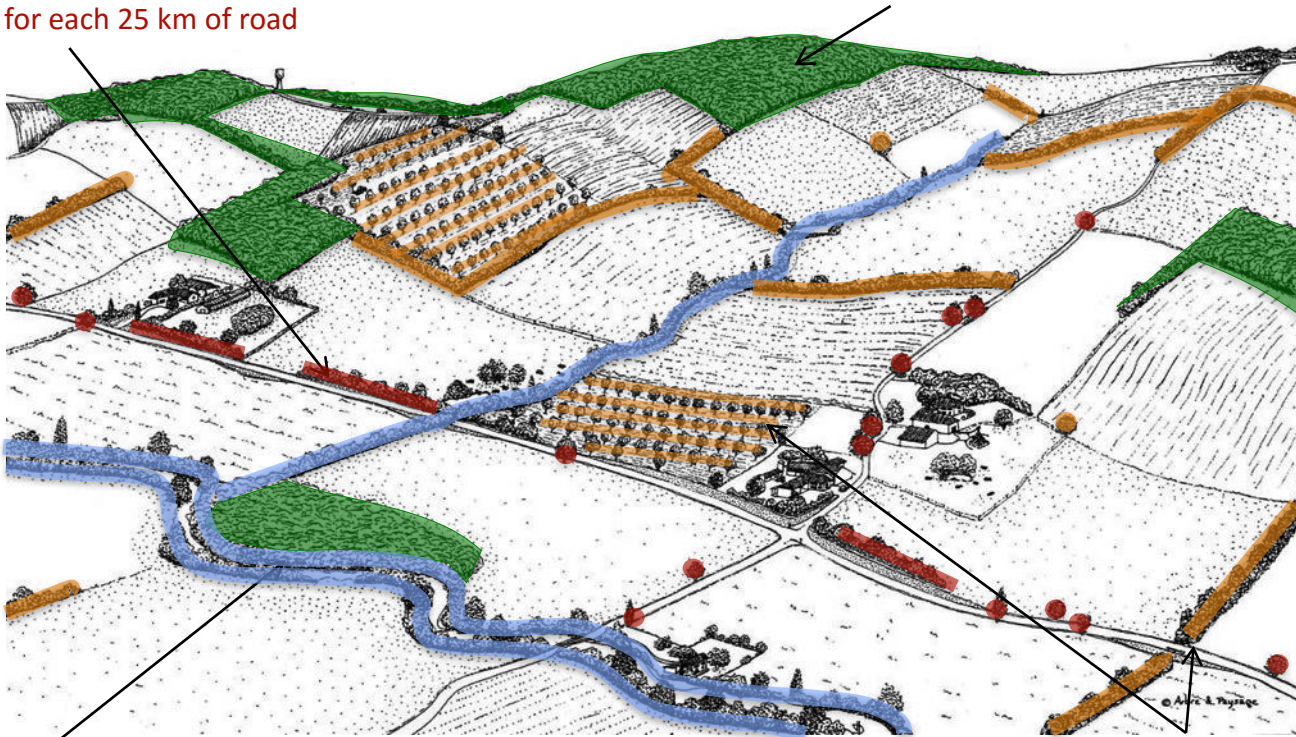
A diversified and productive landscape

Highway engineers

125 m³/yr of fuelwood
75 t of grass for each 25 km of road

Foresters

880 m³ of fuelwood for an area of
800 ha



River conservationists

460 m³/yr of fuelwood for each 55 km
of river

Farmers

30 m³ of fuelwood/yr/farm
(100 ha, of which 20ha are agroforestry
+ 5km of hedges)

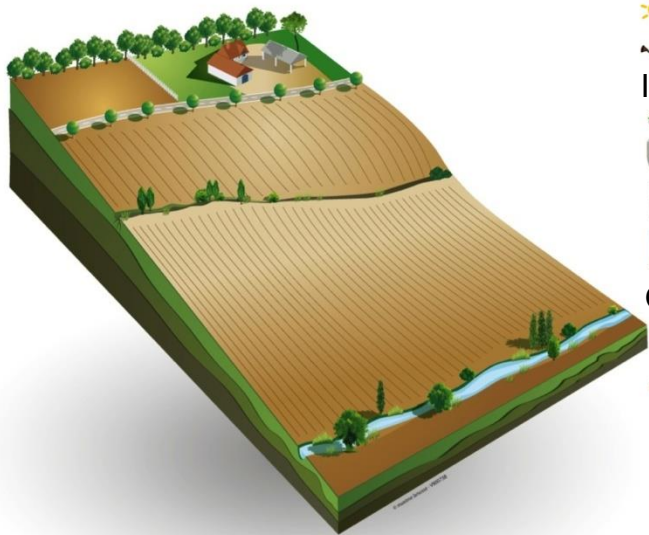
The multi-purpose biomass as a socio-economic leverage

Development of new **jobs** and **market channels**



More innovations on the way...





Natural resources



Inputs



Outputs



Natural resources



Inputs



Outputs



C L I M A T S B I W A T E F L A N D P O L L I N A H E D G E E N E R G
T E R O N O M Y E E S I L O O D D I V E R S I T Y R T I L I T Y C A P E O R S O W S
AGROFORESTRY



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AGROFORESTERIE
association française

fabien.balaguer@agroforestrie.fr