



Agroforestry – Multiple Benefits For Irish Agriculture

1 - Introducing Agroforestry to Irish Agriculture

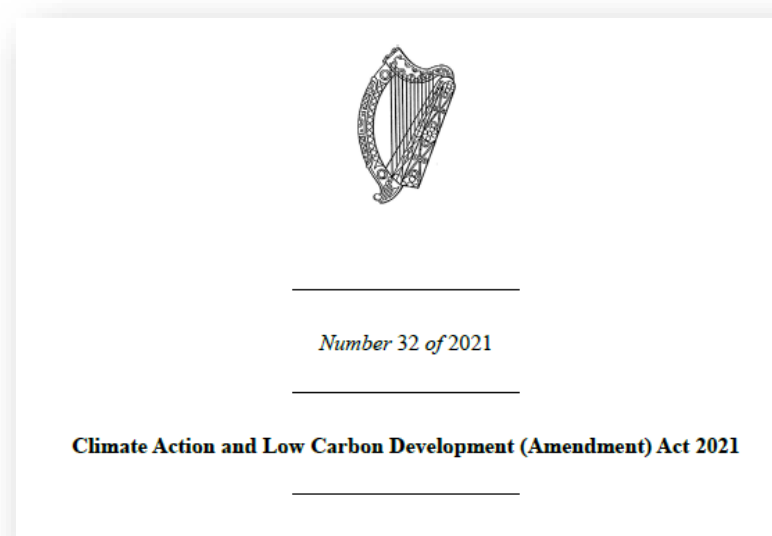
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Teagasc Forestry Development Dept.

Content

- Context
- What is agroforestry?
- Agroforestry in Europe
- EU experience

Context

- Committed to reduce GHG emissions by 51% by 2030.

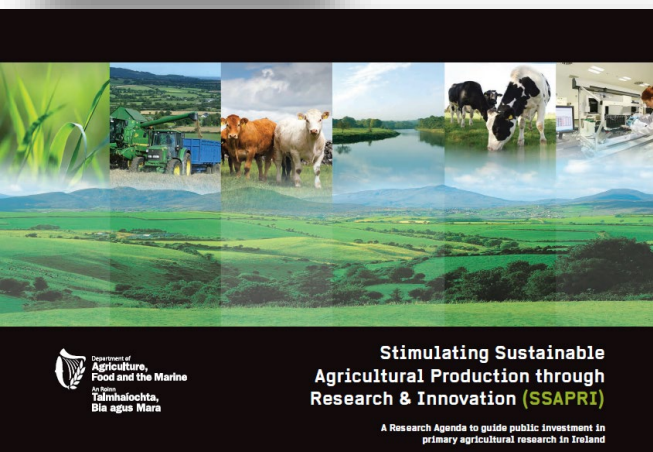
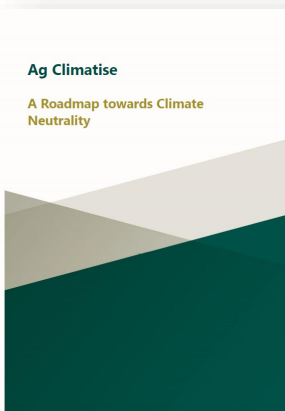


- AgClimatise – A roadmap towards neutrality

- ACTION 13: to review and analyse the full suite of land diversification options to consider alternative economic opportunities that could assist with a just transition to lower emissions land use options, **including agroforestry**.
- ACTION 14: Expand areas of broadleaved and native woodland planted through **initiatives such as Agroforestry**; Encourage diversification of different types of forestry systems **such as agroforestry**.

- SSAPRI report (p. 21) identifies the need to

“Develop technologies/practices to decrease environmental impacts (on water, air, and biodiversity) without negatively affecting production and profitability at farm level”



Context

- EU Forest Strategy 2030
 - Member States are encouraged to accelerate the roll out of carbon farming practices, for instance via eco-schemes on agroforestry
- EU 3 billion tree planting pledge
 - Not only expanding existing forests, but also focusing on agroforestry and trees in agricultural land



COMMISSION STAFF WORKING DOCUMENT

The 3 Billion Tree Planting Pledge For 2030

Accompanying the document

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

New EU Forest Strategy for 2030

{COM(2021) 572 final} - {SWD(2021) 652 final}

What is Agroforestry?



Agroforestry - Definition

- Agroforestry is a collective name for land-use systems and technologies where **woody perennials** (trees, shrubs, palms, bamboos, etc.) are **deliberately** used on the **same** land-management units as **agricultural crops and/or animals**, in some form of spatial arrangement or temporal sequence. In agroforestry systems there are both **ecological and economical interactions** between the different components.
- Agroforestry can also be defined as a **dynamic, ecologically based**, natural resource management system that, through the **integration of trees on farms** and in the agricultural landscape, **diversifies and sustains production** for increased social, economic and environmental **benefits** for land users at all levels.
- In particular, agroforestry is crucial to smallholder farmers and other rural people because it can enhance their food supply, income and health. Agroforestry systems are **multifunctional systems** that can provide a wide range of **economic, sociocultural, and environmental benefits**.

FAO



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FAO

EC Agroforestry definition

- Land-use systems and practices where woody perennials are **deliberately** integrated with **crops and/or animals** on the **same parcel** or land management unit without the intention to establish a remaining forest stand.
- The trees may be arranged as **single stems**, in **rows** or in **groups**, while **grazing** may take place inside the parcels (silvoarable agroforestry, silvopastoralism, grazed or intercropped orchards) or on the limits between parcels (hedges, tree lines)

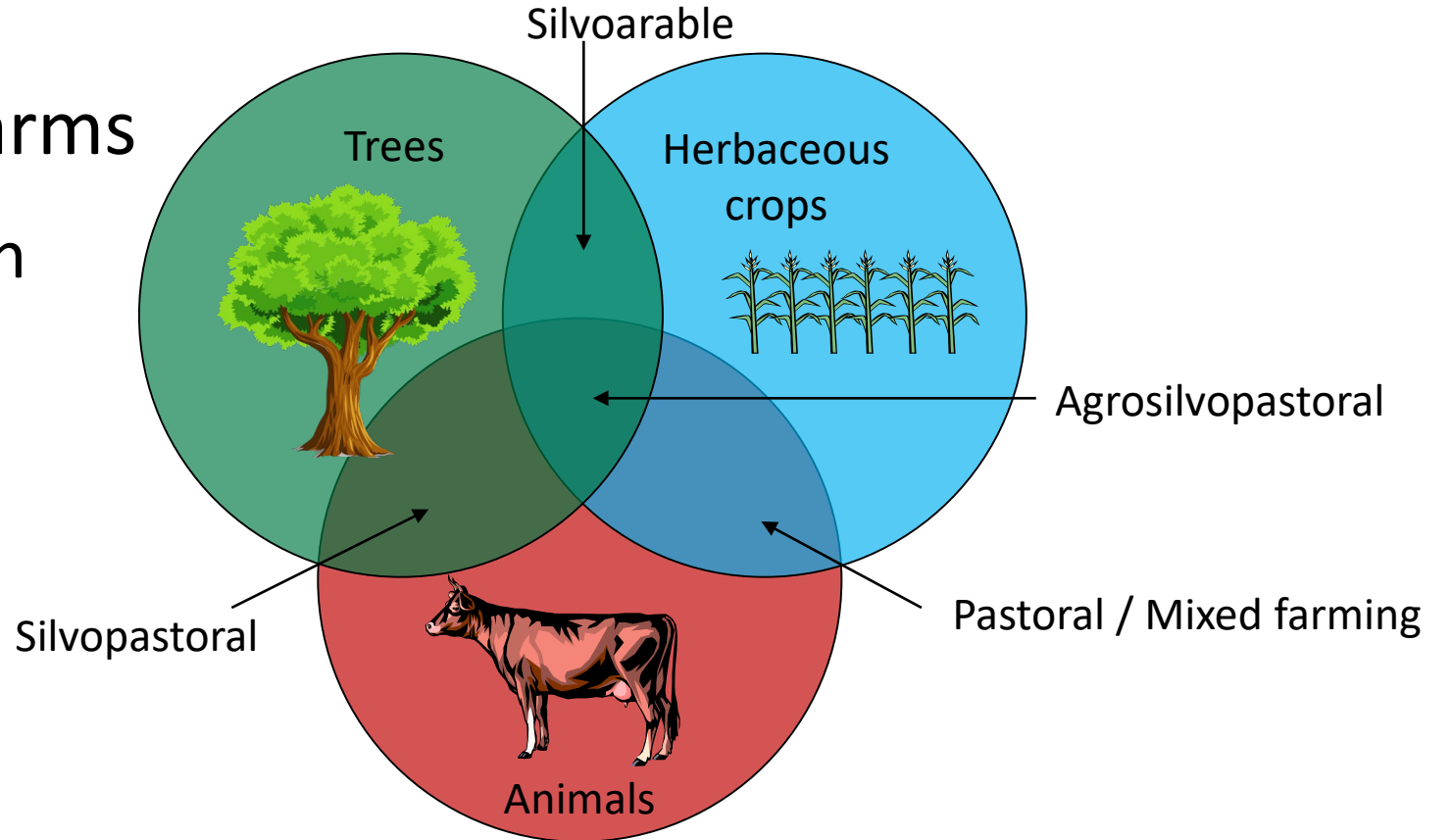
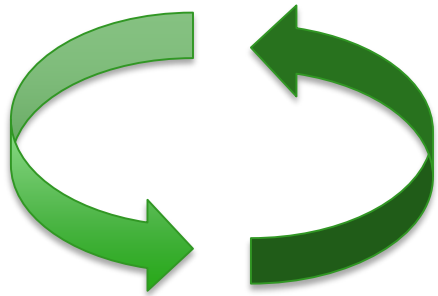
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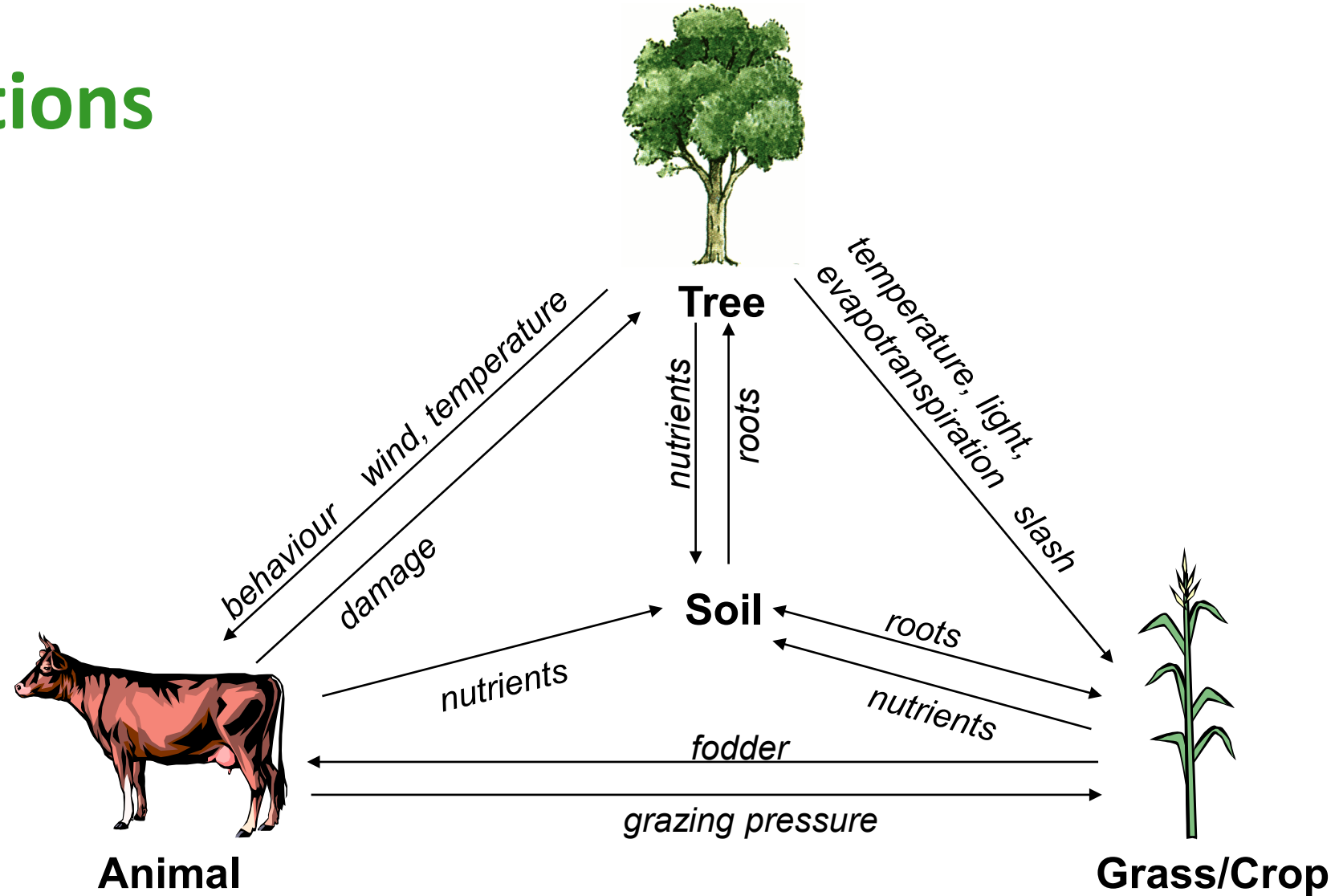
Agroforestry is -

- Growing trees on farms
 - Interactions between agriculture and tree components



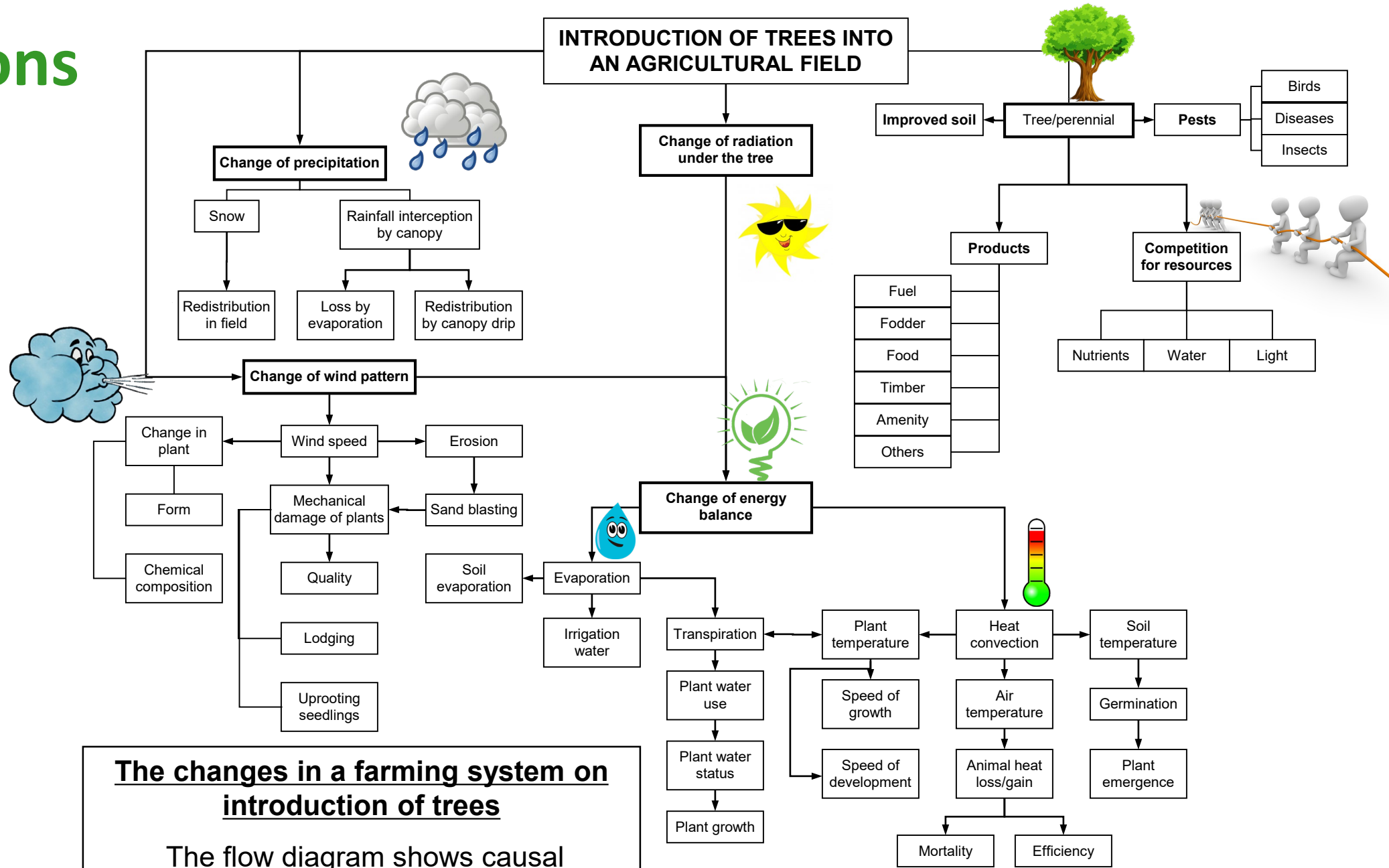
Redrawn from: Combe, J. (1982). Agroforestry techniques in tropical countries: potential and limitations. *Agroforestry Systems* 1: 13-27

Interactions



Redrawn from: Étienne, M. (1996). Research on temperate and tropical silvopastoral systems: a review. In: Étienne, M. (ed.) *Western European Silvopastoral Systems*. INRA: Paris. pp. 5 – 19

Interactions



The changes in a farming system on introduction of trees

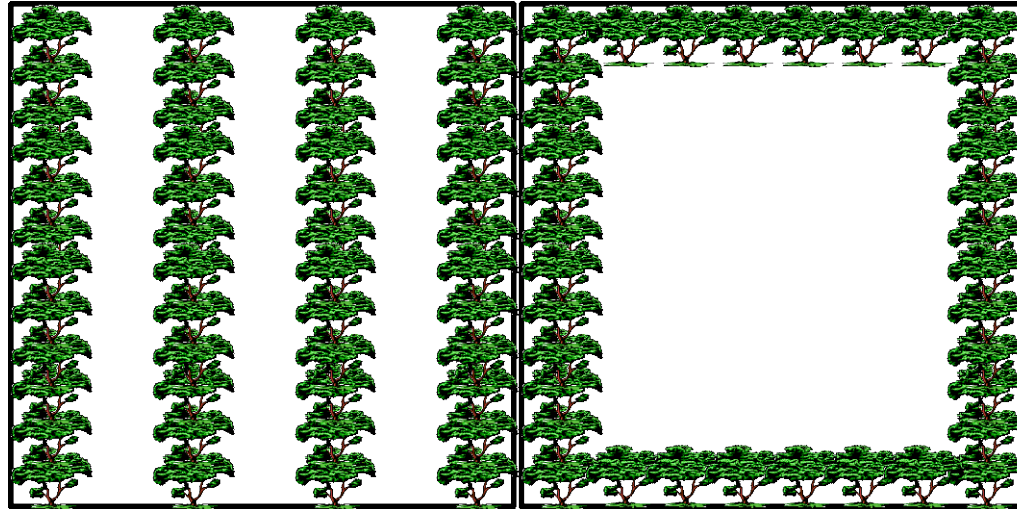
The flow diagram shows causal relationships by lines with arrows and subdivisions by lines without arrows.

Source: Brenner, J. (1996). Microclimatic modifications in agroforestry. In: Ong, C.K. and Huxley, P. (eds.) *Tree-Crop Interactions: A Physiological Approach*. CABI, Wallingford, Oxon.



Where to have trees??

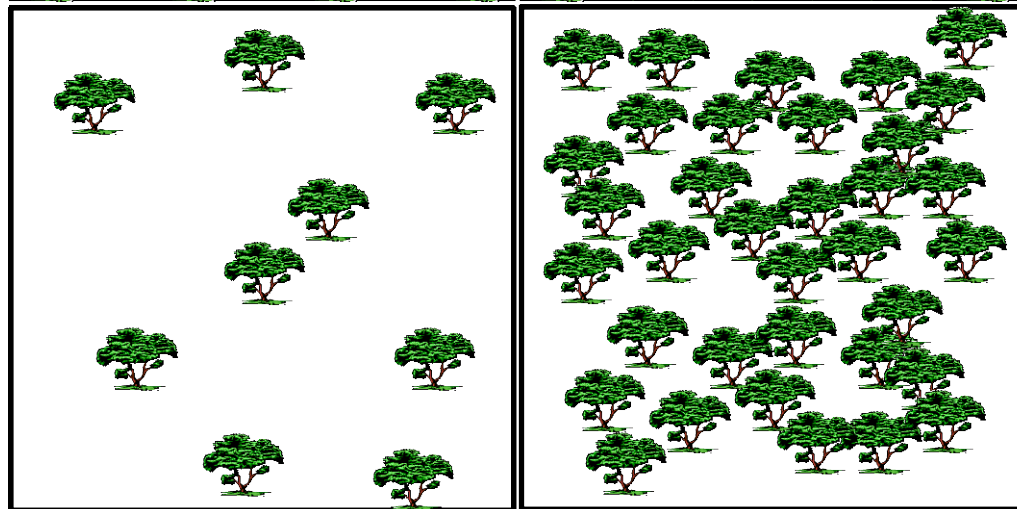
Linear within fields
e.g. alleys; contour planting



Boundaries

e.g. hedgerows;
shelterbelts; woody
riparian zones; screening

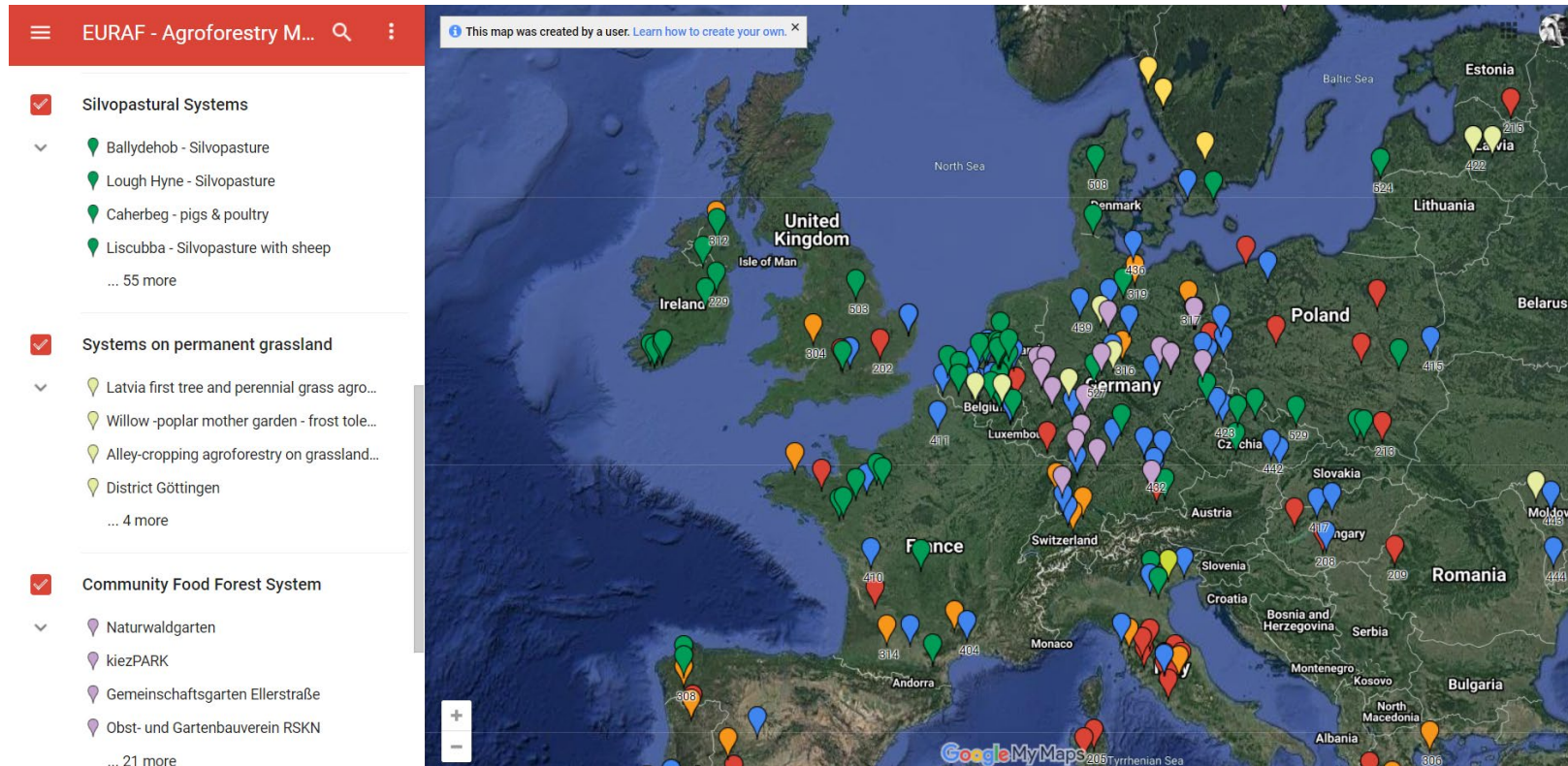
Scattered within fields
e.g. parkland; regular
spacing





Agroforestry in Europe

- 15.4 million ha of AF in Europe = 9% UAA.
 - 15.1 million ha is silvopastoral (AGFORWARD project)



Some EU results

- Can contribute to climate change mitigation & adaptation
- Supports biodiversity
- Prevent soil erosion & loss
- Improve nutrient cycling
- Reduced external inputs required
- Beneficial to animal welfare