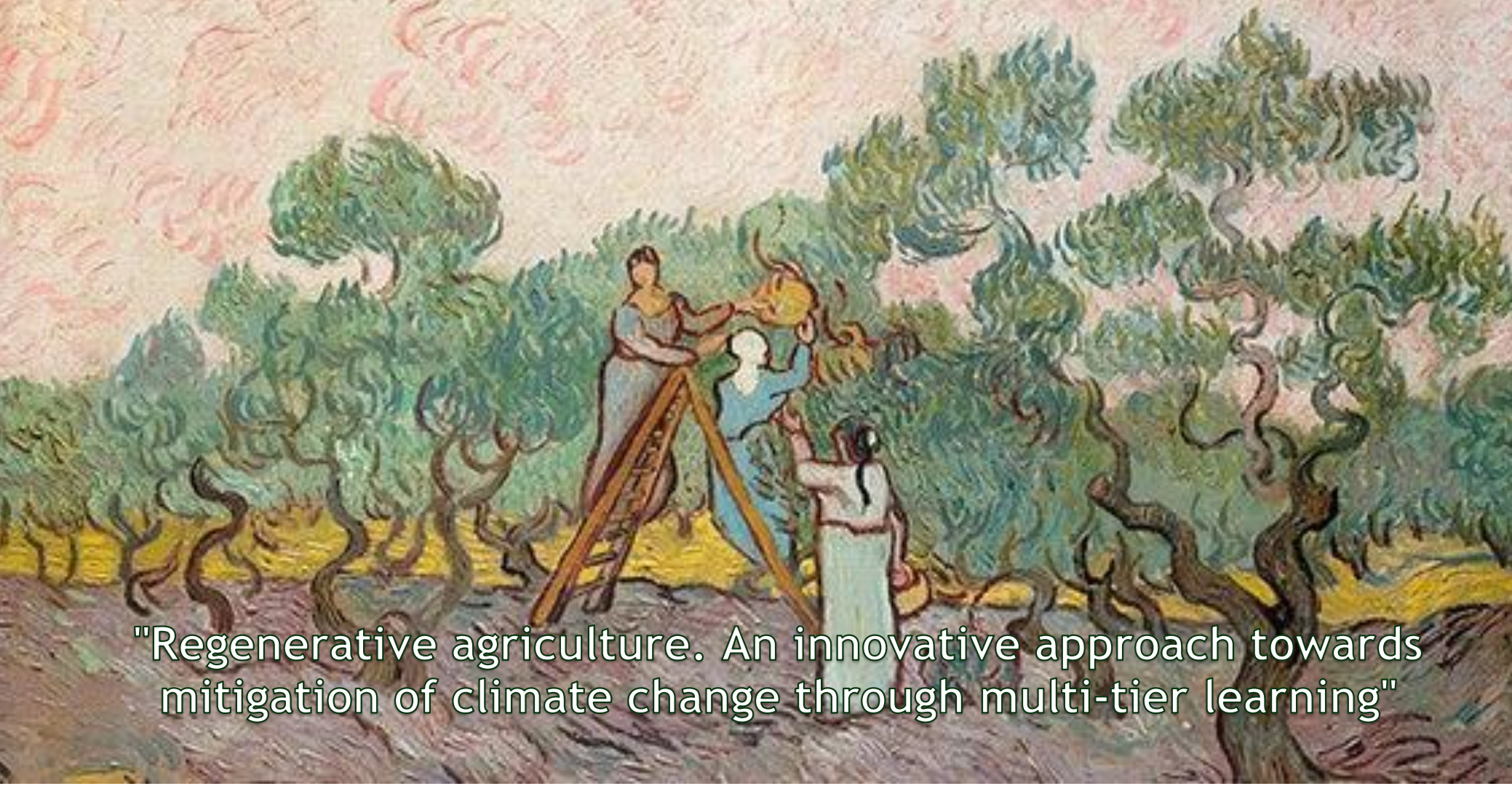


Regenerative farming practices
An example of Greek olive orchards.



"Regenerative agriculture. An innovative approach towards mitigation of climate change through multi-tier learning"

**Agronomist &
Researcher
Ioanna Michail**



ELGO - DIMITRA
HELLENIC AGRICULTURAL
ORGANIZATION - DIMITRA

The olive sector in Greece

- 33 million olive trees
- 65% of agricultural land
- 70-100.000 tons of olive oil every year

The environmental price

- Erosion
- Biodiversity loss



Farm examples..

Kakkavas (Peloponnese)

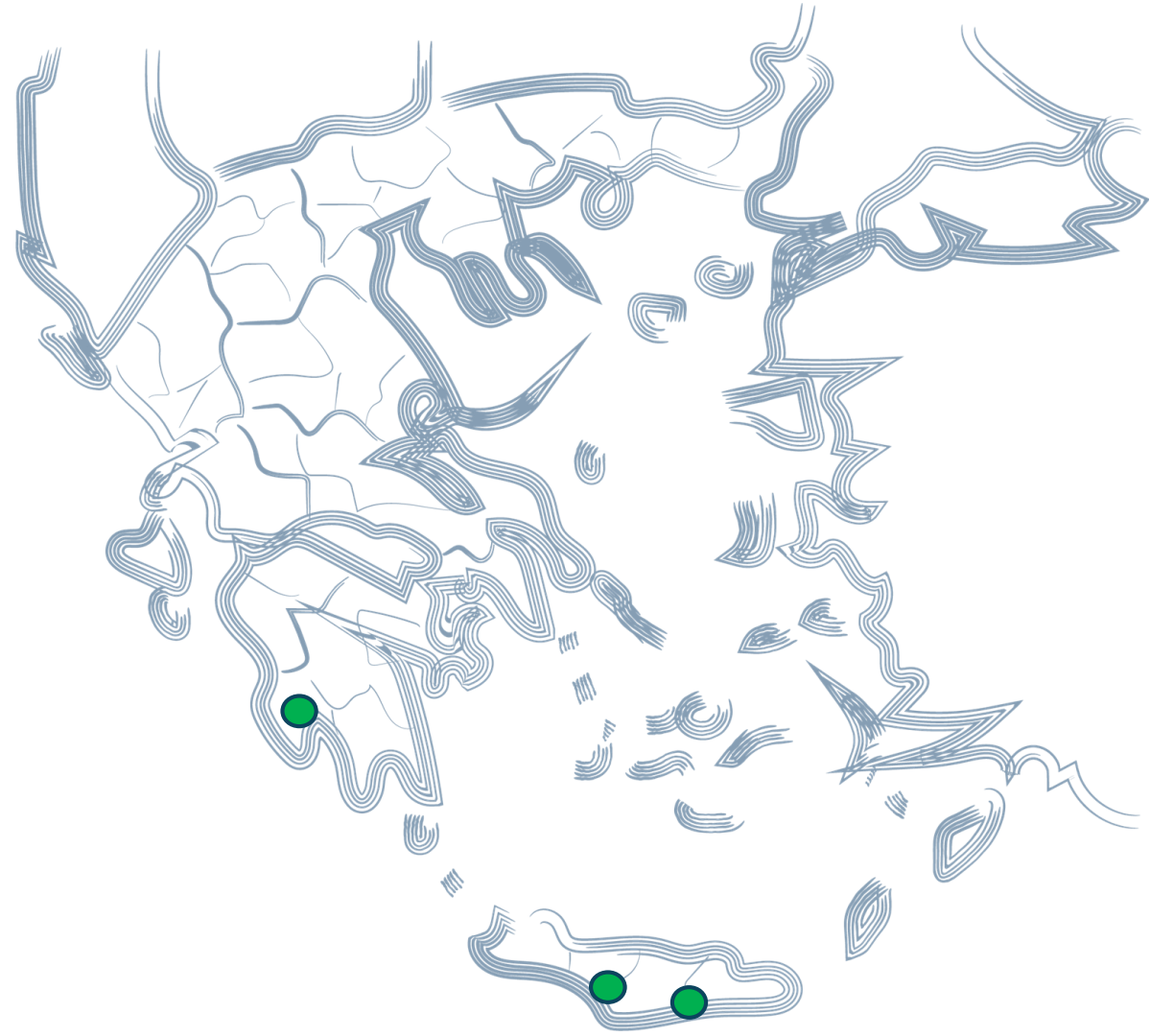
- no till
- bird nests
- perennials
- ponds
- incorporating pruning biomass

Amira (Crete)

- Inverted hugo culture
- Intercropping / polyculture
- Dry stone walls
- Manure

Messara (Crete)

- Cover cropping
- Horse integration
- Field borders



Kakkavas, Messinia

Land size: 3,5 ha

Annual Rainfall: 750mm

Soil: Silt clay soil

Existing cultivation on the site:

Olives

Practices:

- Cultivator -no till
- Bird nests
- Perennials on field
- Ponds
- Incorporating pruning biomass



Revitalizing habitats in Kakkavas, Messinia



*Dittrichia
viscosa*

Kakkavas, Messinia

Evaluating the effectiveness:

Application	Liked	But..
Cultivator -no till	<ul style="list-style-type: none">• Mulch with pruning residues;• Maintain shallow olive roots & mycelium;• Maintain soil porosity to retain water.	<ul style="list-style-type: none">• Perennial weeds reappearing affecting harvesting operations.
Bird nests	<ul style="list-style-type: none">• Decreasing mice populations that harm the crop & consume beneficial soil arthropods.	<ul style="list-style-type: none">• Difficulty and cost in establishment.
Perennials on field	<ul style="list-style-type: none">• Attracting beneficial insects;• Repelling olive fly,• Producing biomass	<ul style="list-style-type: none">• Many losses due to drought;• Necessity of maintenance.
Ponds	<ul style="list-style-type: none">• Attracting beneficial fauna (<i>insects, mammals, reptiles & birds</i>)• Used as a back up for water storage	<ul style="list-style-type: none">• Difficulty and cost in establishment.

Monitoring the results in Kakkavas, Messinia



Kakkavas, Messinia

Evaluating the effectiveness:

Application	Yield & quality	Operational costs	Satisfied or not?
Cultivator -no till	Increased yield compared to others, especially in drought conditions.	Cheaper than tilling or herbicide application.	Yes
Bird nests	No significant differences for olive yield & quality.	Establishment cost.	No
Perennials on field	Greater yield & quality due to less infestations.	Investment in plant purchase & establishment.	Yes
Ponds	No significant differences for olive yield & quality, only to the near-by trees	Great establishment cost.	Partially

Greater labor but **less investment** in herbicides, pesticides, fertilizers & water
Products are sold as biological with a **slightly higher price**.

Would recommend **Cultivator & selected perennials**.

Necessity of a more specified **certification & branding**.

Amira, Heraklion

Land size: 0.8 ha

Annual Rainfall: 450mm

Soil: Loam

Existing cultivation on the site: Olives

Practices:

- Inverted hugo culture
- Intercropping / polyculture
- Dry stone walls
- Manure



Incorporating natural elements in
Amiras, Crete



Amira, Heraklion

Evaluating the effectiveness:

Application	Liked	But..
Inverted hugo-culture	Maintain soil porosity to retain water; Create Organic matter; Facilitate root growth.	Great labor for establishment. Necessity for maintenance.
Intercropping / polyculture	Alternative sources of food . Hosting beneficial microorganisms & insects.	Labor for pruning and harvesting.
Manure	Introducing beneficial microbes; No nutrient leaching ; Facilitate the formation of OM	Labor for transferring, Difficulty into finding a good quality source .
Drystone walls	Reduce erosion ; Retain water into the land by infiltrating it.	Cost & labor for establishment.

Amira, Heraklion

Evaluating the effectiveness:

Application	Yield & quality	Operational costs	Satisfied or not?
Inverted hug-culture	Increased yield	Labor for establishment & maintenance.	Partially
Intercropping / polyculture	Increased yield & biomass production	Labor for maintenance	Yes
Manure	Greater yield & quality	Application cost	Yes
Drystone walls	No significant differences for olive yield & quality	Great establishment cost.	Necessary for future evolution

Greater labor but **less investment** in herbicides, pesticides, fertilizers & water

Products are sold at a local CSA at a **higher price**.

Would recommend to follow only when the labor is covered.

Necessity for selling outside of Greece.

Messara, Heraklion

Land size: 4 ha
Annual Rainfall: 450mm
Soil: Silt clay
Existing cultivation on
the site: Olives

Practices:

- Cover cropping
- Horse integration
- Field borders



Messara, Crete

Evaluating the effectiveness:

Application	Liked	But..
Cover cropping	Mulch & organic mater Maintain humidity in the soil; Minimize soil erosion.	Sowing needs to be with specific equipment , to be effective
Horse integration	Treating the cover crops Fertilizing the land	Labor for taking care of the animal.
Field borders	Windbreakers ; Attracting beneficial insects; Covering the odors for the olive fly; Producing biomass	Cost in establishment. Necessity of maintenance.

“Beautiful” taking care of the cover crops
in Messara, Crete



Messara, Crete

Evaluating the effectiveness:

Application	Yield & quality	Operational costs	Satisfied or not?
Cover cropping	Increased yield compared, especially in drought conditions.	Cheaper compared to N-fertilisers	Yes
Horse integration	No significant differences for olive yield & quality.	No notable costs	Yes
Field borders	Increased yield	Investment in plant purchase & establishment.	Yes

Greater labor but **less investment** in herbicides, pesticides, fertilizers & water
Products are sold as biodynamic with a **higher price** in already **established networks**.

Would recommend and **has set an example** to the region.

Needs to **find out more** related practices and improve the current ones.

A wide-angle photograph of a field filled with numerous small red and yellow flowers. The field is lush and green, with the flowers scattered throughout. In the background, there are several large, leafy trees and a hazy mountain range under a grey, overcast sky. The overall scene is peaceful and natural.

Thank you!