Kythera Roadmap Outputs

<u>Summary of action:</u>

The use of smart farming solutions on the island is expected to promote agricultural and environmental sustainability on the island, enhancing the production of local products, mainly olive-oil production, honey, as well as aromatic and medicinal plants, while promoting and preserving Kythera's landscapes, ecosystems and biodiversity.

The aim is to provide complementary expertise to the "Terra Kytheria - Sustainable Agriculture in Kythera" program, which is promoting the Kytherian olive oil, supporting producers and in general the economic and social revitalization of the primary sector of Kythera. To achieve this goal, a feedback and scientifically documented precision farming and certification system for olive cultivation is being developed.

In support of the envisaged output related to the Data collection to enrich the "Terra Kytheria" dataset, the following outcomes are recorded:

Obtaining data from olive orchards to enrich the "Terra Kytheria" dataset

As part of the SR21 project, a three-day data collection was carried out in September in fields with olive trees on the island of Kythera. The aim of this action was to enrich the dataset on local biodiversity collected in the framework of the programme "Terra Kytheria - Sustainable Agriculture in Kythera", which promotes Kythera olive oil, supports producers and generally supports the economic and social revitalisation of the primary sector of Kythera.

EXPEREMENTAL FIELDS

Olive groves in Kythera used as experimental fields

In collaboration with the Mediterranean Institute for Nature and Anthropos (MedINA), a Greek non-profit organisation (and with the project leader, Mr. Rigas Zafeiriou), the olive groves that were to be evaluated and where the data collection with smart farming technologies took place were selected. These trial fields are geographically balanced across the island according to the requirements of the Terra Kytheria programme.

Experimental fields code, location and geographical area where they are located in Kythera.

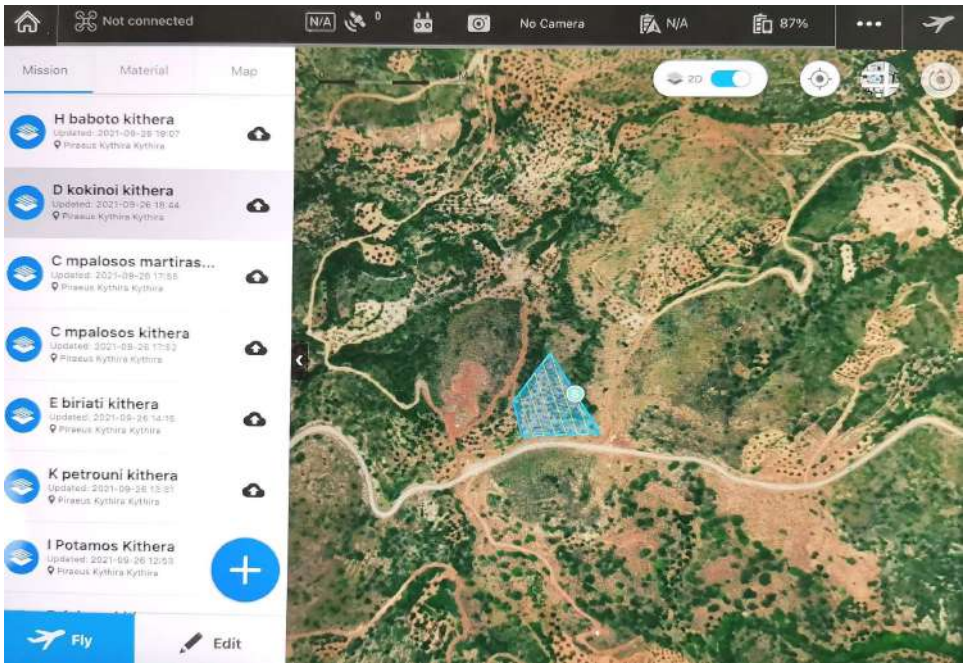
PARCEL CODE	LOCATION	AREA
A	KOURI	CHORA

B	BLASTIANIKA	LIVADI
C	BALOSOS	PALEOPOLI
C WITNESS	BALOSOS	PALEOPOLI
D	KOKKINOI	PALEOPOLI
E	BIRIATI	KARAVAS
F	DOKANA	DOKANA
G	XEROSOVALAS	KARVOUNADES
H	VAVOTO	FRATSIA
I WITNESS	POTAMOS	POTAMOS
J	AGIOS IOANNIS	MITATA
K	PETROUNI	PETROUNI

DATA COLLECTION WITH THE USE OF DRONES

Through this action AUA collected data with the use of a multispectral camera (Parrot Sequoia) mounted on an Unmanned Arial Vehicle (UAV).

UAV with a multispectral parrot sequoia camera



List of fields on flight mission planner for the data collection

Preparing the UAV

The drone pilots (George Papadopoulos and Stathis Stathopoulos) of the AUA team prepare the drone for launch and calibrate the multispectral camera.

Once the preparation of the drone is complete, we are ready to collect data from the field. In the picture above we see the drone pilot flying the drone and starting to collect data.

In the picture below we can see a flight plan that our UAV must execute to accomplish the data acquisition (collection of photos).

Flight plan

Eyes above the Kytherian fields: photo from the drone during the flight

DATA COLLECTION ON THE FIELD

While AUA was taking aerial imagery with the drone, the Terra Kytherian partner was preparing traps for insects on the field.

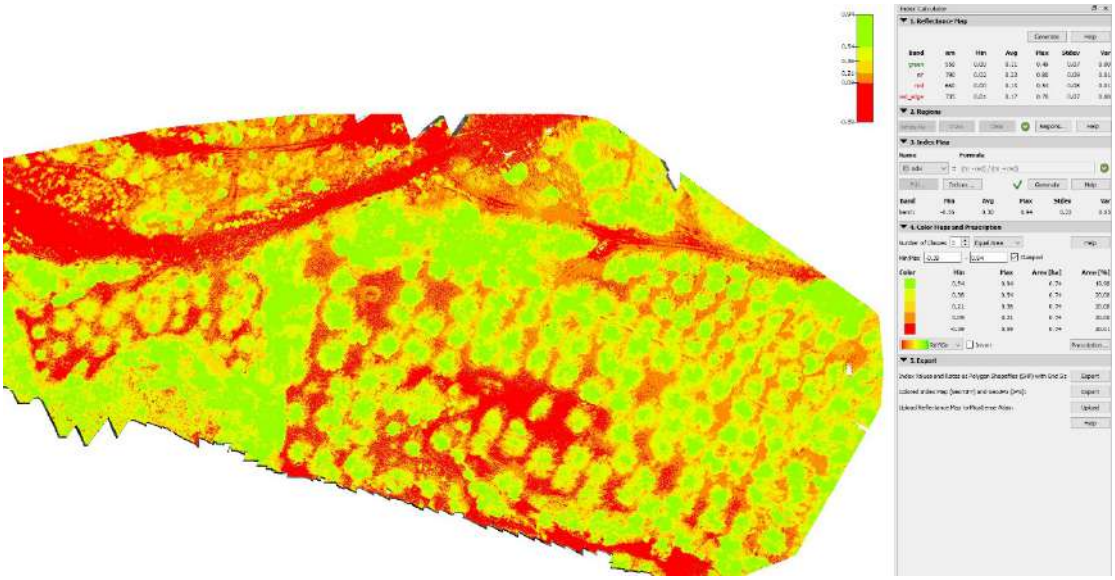
This work is very important to record all the different insect species involved in the microbiome of each field. This data helps the producers to control pesticides and infections that could harm the olive trees.

One such insect is the olive fruit fly Dacus. This insect is very harmful to oil producers as it affects the quantitative and qualitative production of olive oil.

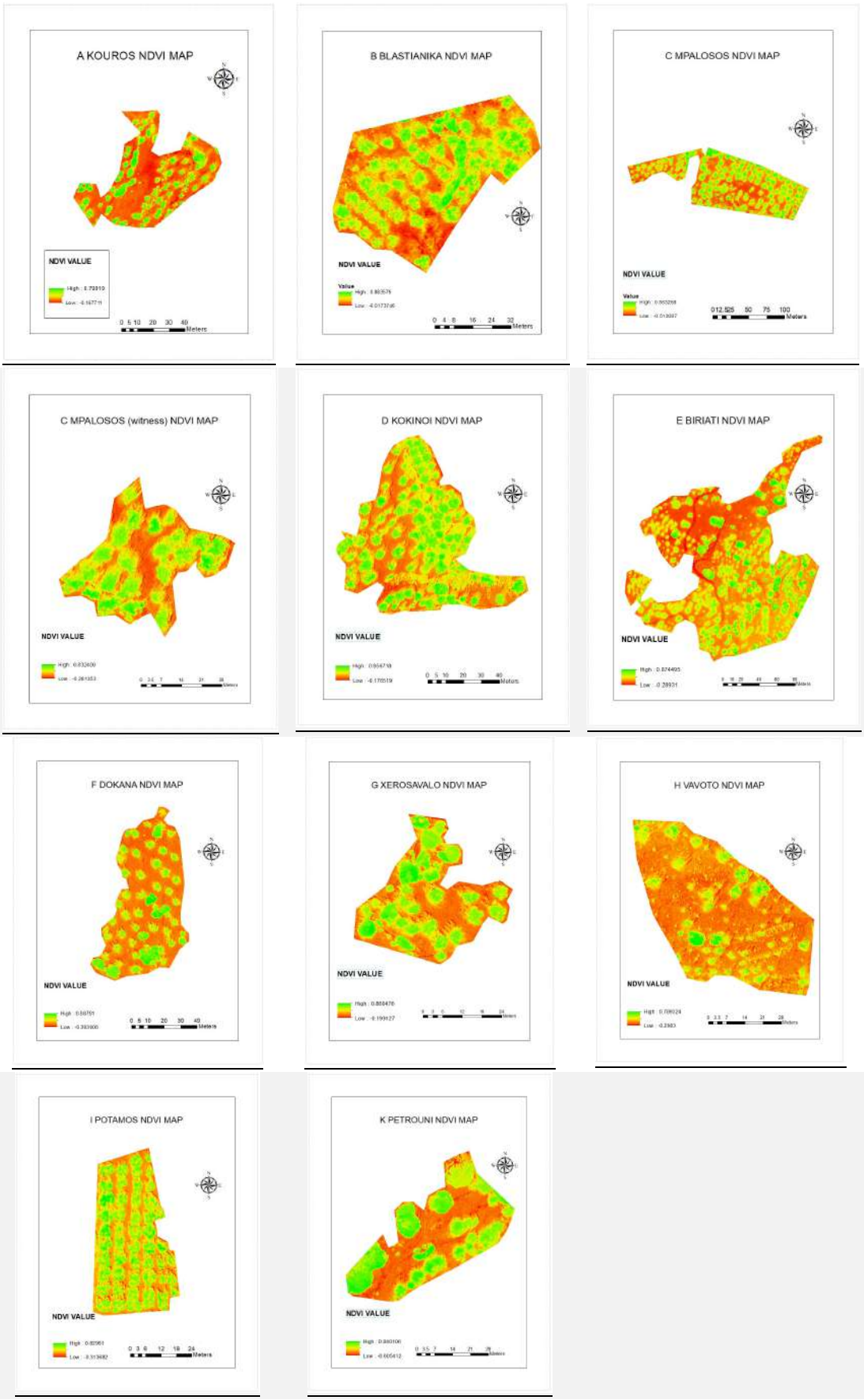
To protect the olive grove from dacus, there are special traps, as you can see in the picture on the right.

DATA PRE-PROCESSING, ANALYSIS AND MAPPING

After processing the data, we have been able to produce maps with vegetation indices such as the NDVI (Normalised Difference Vegetation Index). These maps help us to assess the robustness of the olive trees and their biomass.



NDVI map



All experimental fields NDVI

KYTHERA ROADMAP

This action aims to promote agricultural and environmental sustainability on the island by introducing new technologies in agriculture, increasing the production of local products, especially olive oil production, while promoting and preserving Kythera's landscapes, ecosystem and biodiversity.

Olive grove from Kythera

The use of smart farming solutions on the island is expected to attract young people to the island, as modern agriculture has the potential to help producers make critical decisions to maximise productivity and sustainability.

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