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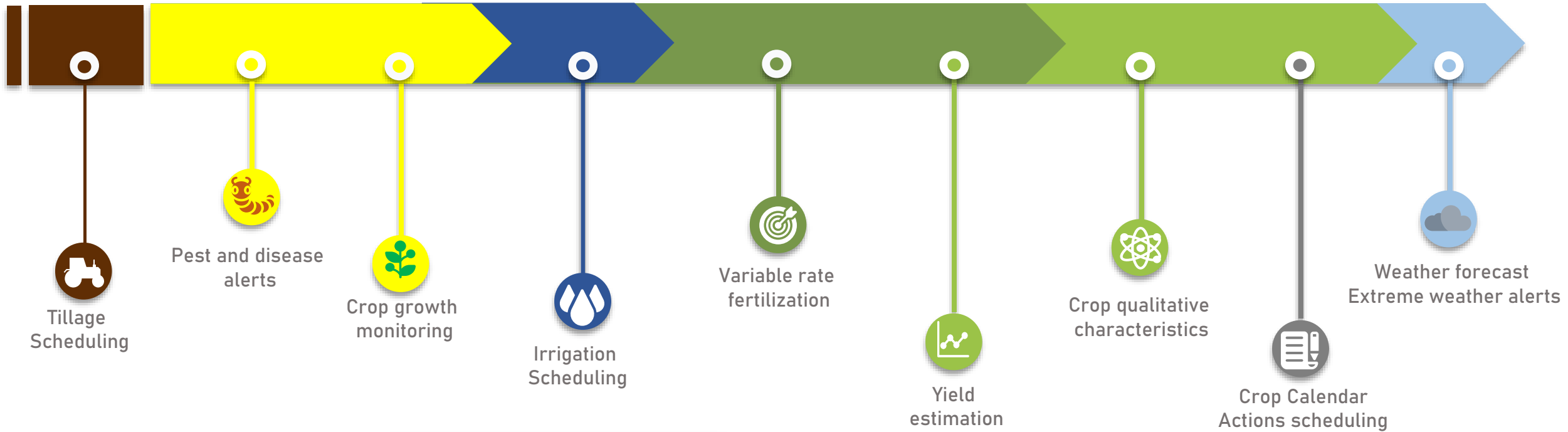
Digital Consultant

Earth Observation services in support of agriculture and Common Agricultural Policy

Dr Emanuel Lekakis ,
Agriculture Engineer

agroapps.gr

Services

Tillage
Scheduling

Pest and disease
alerts

Crop growth
monitoring

Irrigation
Scheduling

Variable rate
fertilization

Yield
estimation

Crop qualitative
characteristics

Crop Calendar
Actions scheduling

Weather forecast
Extreme weather alerts

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Digital Consultant in numbers

Crop types	Parcels	Hectares	Users
>7	>3900	>6,500	>900

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Crop Growth Monitoring and Yield Estimation

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| NDVI Vegetation Index	Leaf Area Index	Chlorophyll content	Yield Estimation	Qualitative Characteristics

- Sentinel 2A and 2B satellite images. Spatial resolution 10 m
- Temporal resolution 3 – 5 days image acquisition.
- Vegetation Index zones.
- Soil and vegetation spatial variability.
- Detection of stress and pathology, based on satellite indices.
- Yield maps.
- Yield estimation one month prior to harvest.

NDVI vs Date

May   June   July   Aug   Sep

— 2021   — 2020

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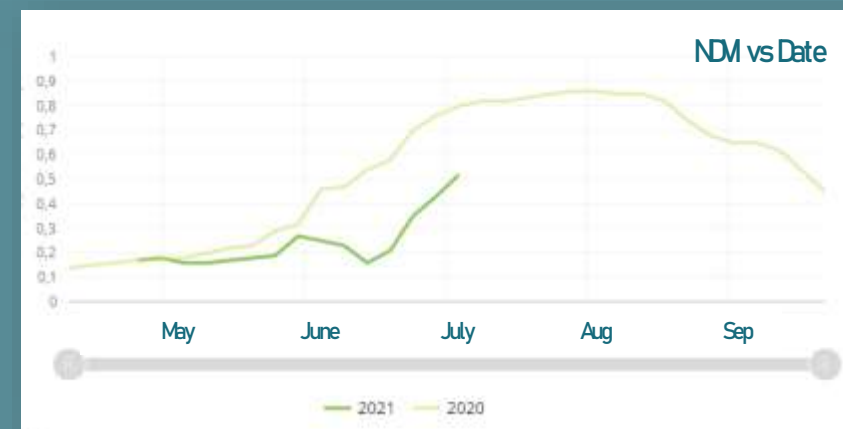
Tillage and Irrigation Scheduling

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| Daily Soil Moisture Calculation | Soil conditions for tillage | Irrigation Registration | Best timing for water application |

- Available Soil Water, Field Capacity, Permanent Wilting Point and Lower Allowable Moisture, based on variable rooting depth.
- Soil moisture calculation in the plough layer (30 cm topsoil layer).
- Crop coefficient (Kc) determined by satellite data and current vegetation status.
- Soil water balance model.

Daily Soil Moisture vs Date — All days

Soil Water (mm) — Soil Water · Field Capacity · Lower Available Moisture · Permanent Wilting Point

Soil Conditions
Optimum · Good · Medium · Bad

Irrigation dose

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Pest and Disease alerts

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Colorado potato beetle	Wireworms	Potato Tuberworm	Aphids	Potato Late Blight	Potato Early Blight

- Prediction of the insect's generations and most susceptible crop growth stages throughout the cultivation period.
- Prediction of disease outbreaks, based on the prevailing meteorological conditions.
- Risk levels on map.
- Report on weekly possible threats.

Pest and Disease	21/07	22/07	23/07	24/07	25/07	26/07	27/07
Colorado Beetle	🐞	🐞	-	-	-	-	-
Wireworms	-	🐞	🐞	-	🐞	🐞	🐞
Tuberworm	🐞	🐞	🐞	-	🐞	🐞	🐞
Aphids	🐞	🐞	🐞	-	-	-	-
Late Blight	-	-	-	-	-	-	-
Early Blight	-	-	🐞	-	-	-	-

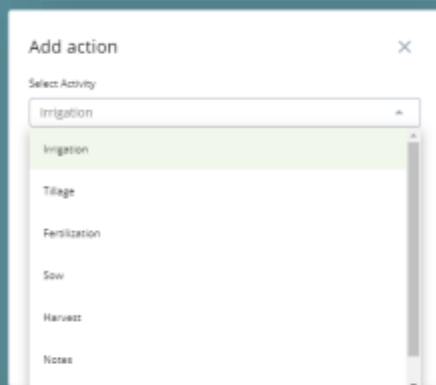# Crop Calendar – Actions Planning – Photo Upload

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| Registration of actions | Action Planning & reminder | Registration of Observations | Photo Upload |

- Proper fields for easy action registration and planning (Irrigation, Spraying, Tillage, Fertilization, Sowing, Harvest, Notes).
- Pest and disease specific observation sheet (symptoms, trap captures).
- Special filters for actions mining.
- Photo upload per action or observation.
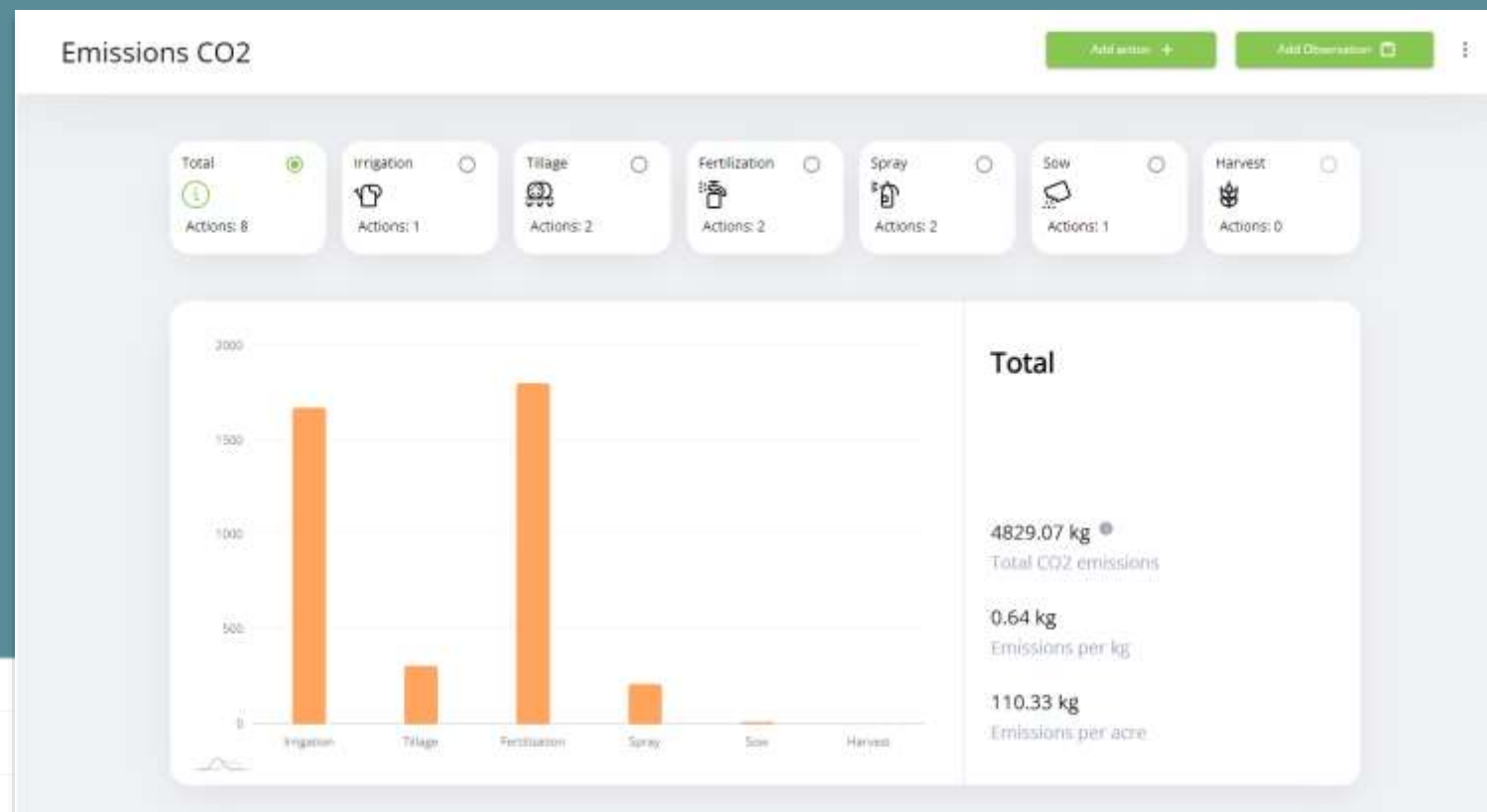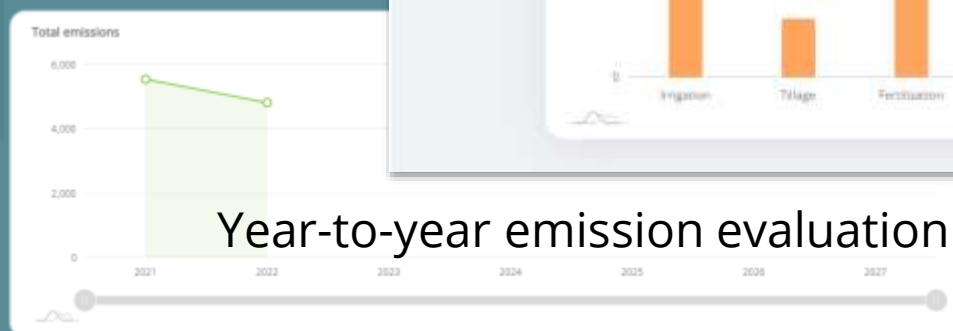

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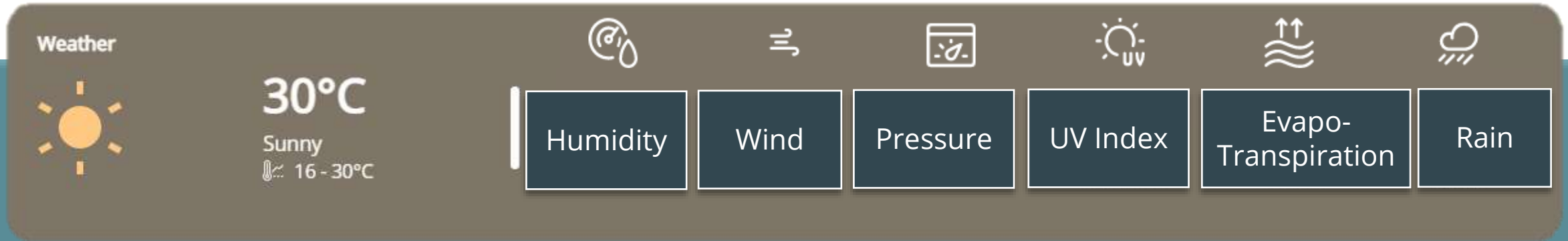# CO$_2$ emissions estimation per action

CO$_2$ is estimated per action

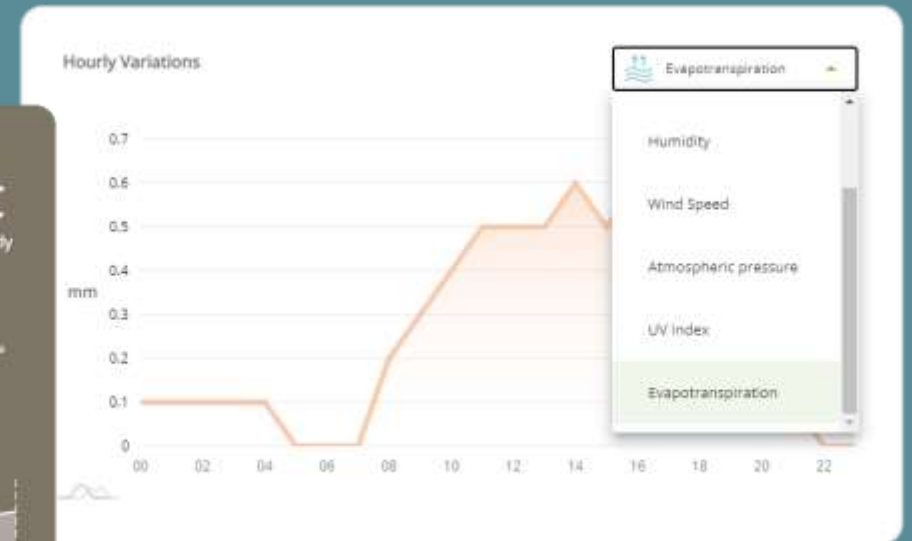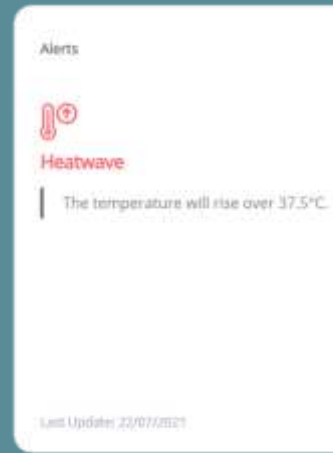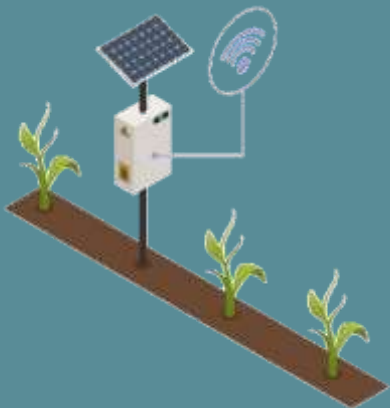CO$_2$ per parcel, per kg of product

Categorization of emissions

Dynamic charts and reports

Year-to-year emission evaluation

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Weather Forecast

Weather — 30°C — Sunny — 16 - 30°C

Humidity | Wind | Pressure | UV Index | Evapo-Transpiration | Rain

- Short-range (6 days) weather forecast.
- Hourly variation of meteorological parameters for the next 6 days.
- Extreme weather events alerts.
- Weather station data.

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