

## LIFE Cyclamen Networking Event 12/12/2019, Nicosia, Cyprus



#### LIFE GAIA Sense: Innovative Smart Farming services

supporting Circular Economy in Agriculture

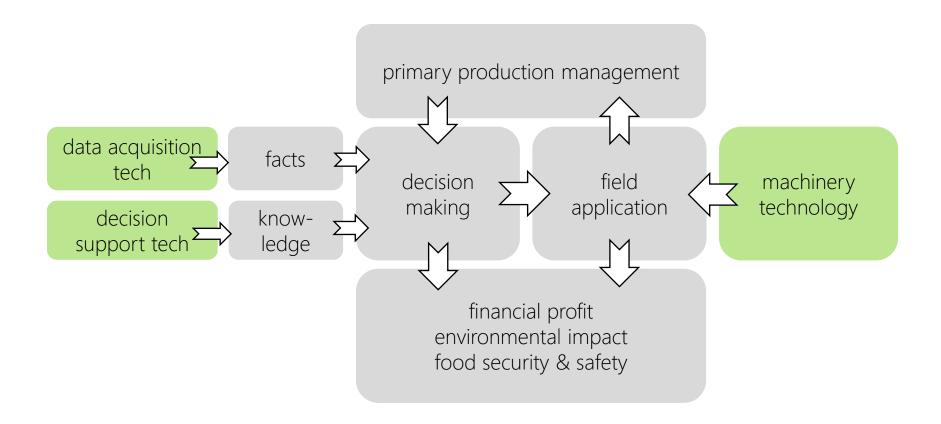


Dr. Vassilis Protonotarios
Outreach & Networking Manager, NEUROPUBLIC

## About smart farming



### what is smart farming about?





#### Benefits of smart farming services

Production cost

fertilizer

water - energy

pesticides

Production risks

parasitic diseases

non-parasitic

post-harvesting

Product quality

residuality

organoleptic

fruit size

preservability

Product value

traceability

environmental footprint

Environmental risks

desertification

drought

Biological imbalance

Yield

Financial benefit

+

Environmental benefits

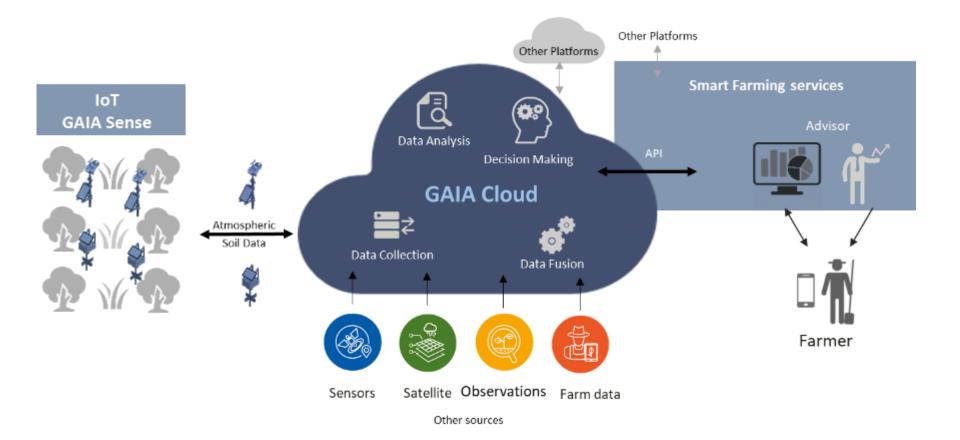


# The gaiasense smart farming system











## Data acquisition







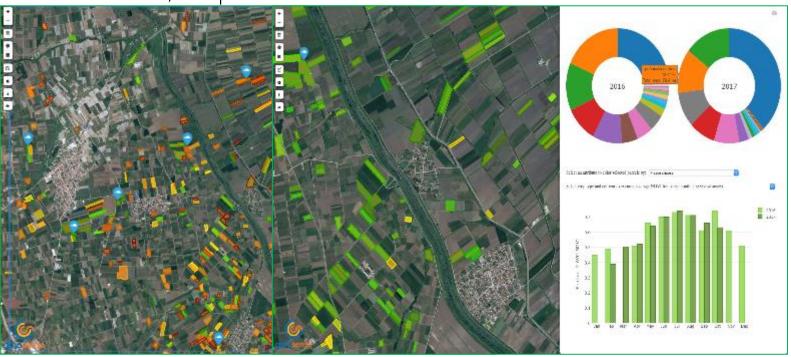


#### gaiasense remote 1/2



• What: Earth Observation data

• Source: ESA / Copernicus

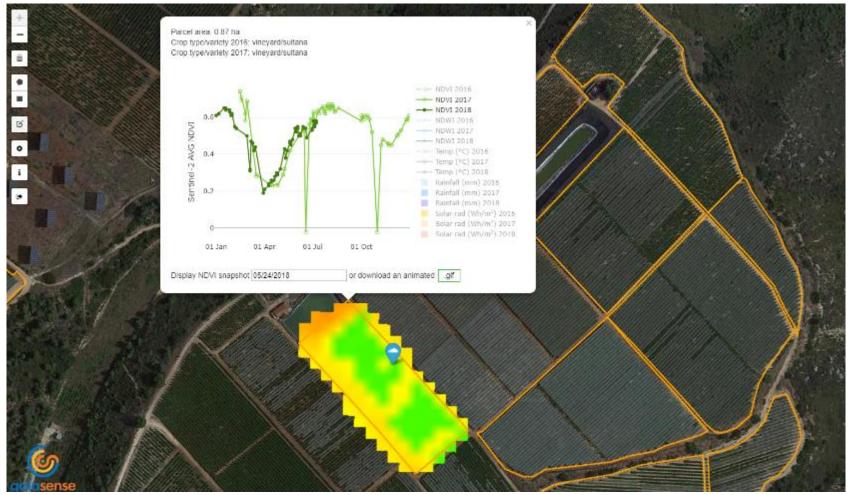






#### gaiasense remote 2/2









#### gaiasense field 1/3



• What: Atmospheric & soil data

• **Source**: gaiatron telemetric stations

#### Atmospheric data

Ambient temp
Relative humidity
Wind speed / direction
Solar radiation
Leaf wetness
Precipitation
Other

#### Soil data

Soil humidity
Soil temperature
Other

Date	Leaf Wetness	Wind Strength (Km/h)	Rain (mm)	Ext. Temp (oC)	Rel. Humidity (%)	Wind Direction	Solar Panel (V)	Solar Panel (Linear)	Solar Panel (Ex
2018-03-16 16:00:00	0.00	0.87	0.00	14.27	57.38	-	0.33	0.50	0.44
2018-03-16 15:00:00	0.00	3.05	0.00	14.72	56.98	*	0.75	0.63	0.62
2018-03-16 14:00:00	0.00	0.54	0.00	13.32	65.42	-	1.18	0.71	0.71
2018-03-16 13:00:00	0.00	0.70	0.00	12.47	70.77	#	1.08	0.69	0.69
2018-03-16 12:00:00	0.83	0.73	0.00	9.95	79.02	-	1.02	0.68	0.67
2018-03-16 11:00:00	1.00	0.99	0.40	8.95	79.03	-	0.47	0.56	0.56
2018-03-16 10:00:00	0.50	0.49	0.00	8.08	72.98	*	0.15	0.18	0.00
2018-03-16 09:00:00	0.00	0.15	0.00	7.65	67.58	-	0.15	0.18	0.00
2018-03-16 08:00:00	0.00	0.62	0.00	6.98	70.25	-	0.05	0.00	0.00
2018-03-16 07:00:00	0.00	0.55	0.00	6.72	71.90	-	0.07	0.00	0.00
2018-03-16 06:00:00	0.00	0.78	0.00	6.07	77.20	-	0.02	0.00	0.00
2018-03-16 05:00:00	0.00	0.00	0.00	5.28	83.52	-	0.08	0.00	0.00
2018-03-16 04:00:00	0.00	0.17	0.00	5.23	81.78	-	0.03	0.00	0.00
2018-03-16 03:00:00	0.00	0.00	0.00	4.98	82.92	-	0.08	0.00	0.00
2018-03-16	0.00	0.00	0.00		04.17	_	2.02	2.00	0.00

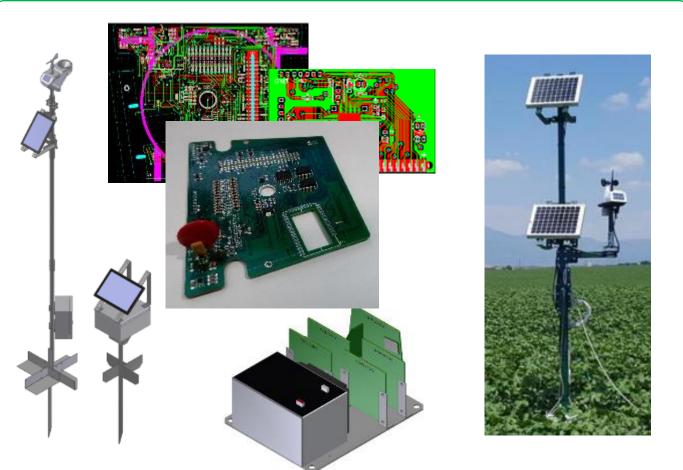






### gaiasense field 2/3





**IoT** devices

autonomous

easy to transfer

easy to setup

agrienvironmental

low maintenance

modular design

expandable

Designed & developed inhouse





#### gaiasense field 3/3





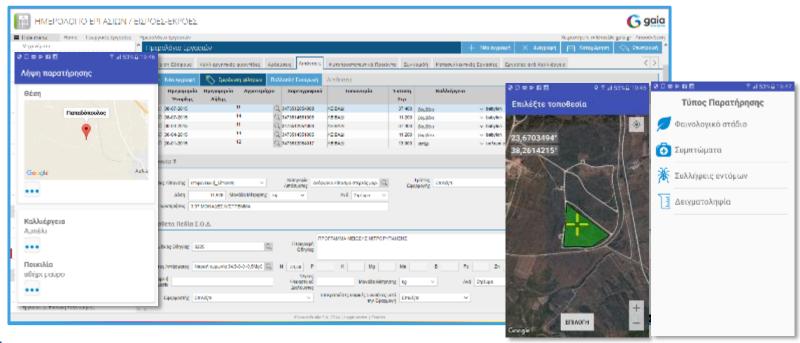




#### gaiasense eye



- What: Field observations, analyses etc.
  - Insect traps, soil, leaf samples etc.
- Source: Farmers / agricultural advisors through field visits



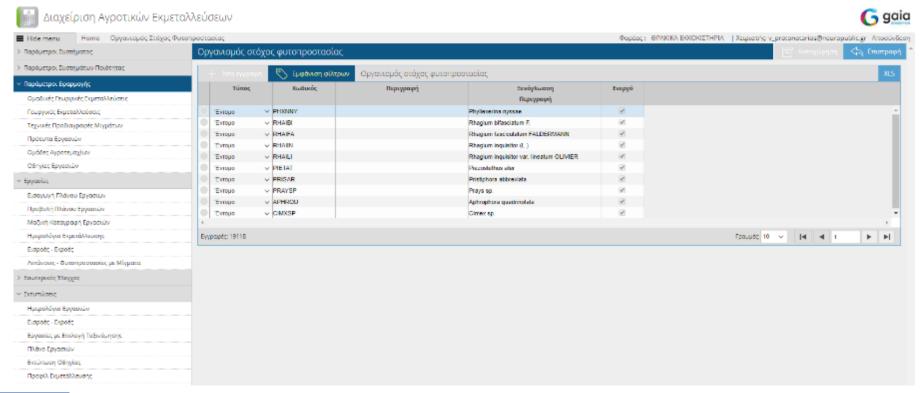




#### gaiasense farm 1/2



- What: activities taking place in the field
- Source: Digital log updated by the farmer or his agricultural advisor

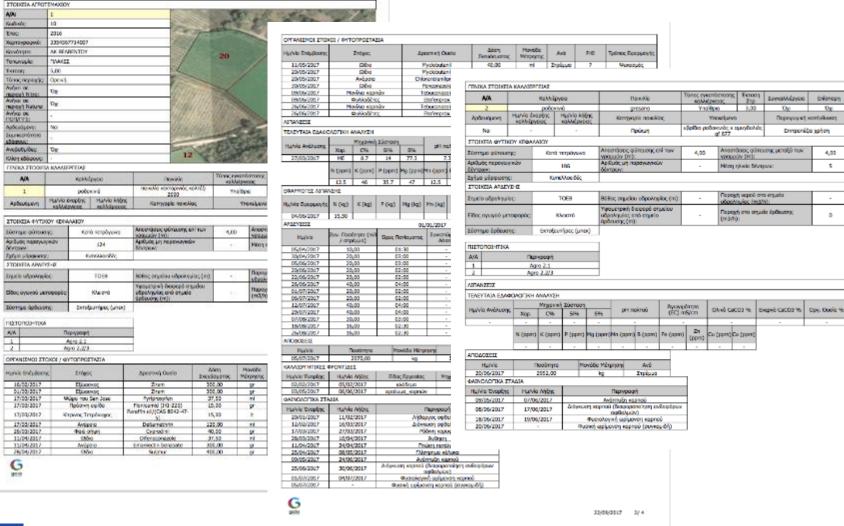






#### gaiasense farm 2/2

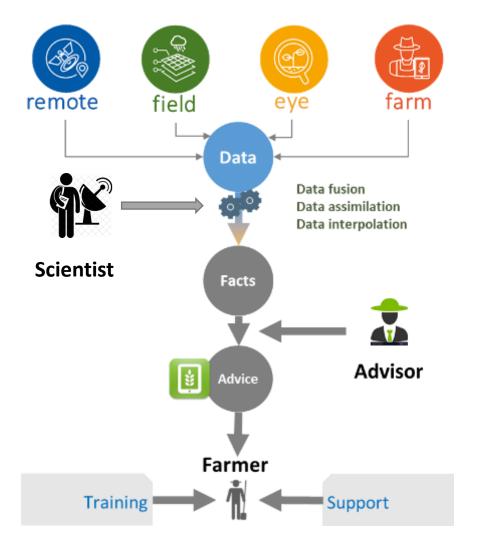






### From data acquisition to advice







# The LIFE GAIA Sense project







Environment
Sustainability
Natural Resources
Circular Economy







G	ene	erai overview
		LIFE GAIA Sense at a glance
 4 81		LIEE47 END//CD/000000

LIFE17 ENV/GR/000220 LIFE Project Number

**Title** Innovative Smart Farming services supporting Circular Economy in

Agriculture

**Total budget** €2.979.291

**Duration** 01 July 2018 – 30 June 2022 (48 months)

NEUROPUBLIC AE PLIROFORIKIS & EPIKOINONION (Coordinating Beneficiary) **Beneficiaries** Agrícola de Portugal CCRL

Aristotle University of Thessaloniki Confederação Nacional das Cooperativas Agrícolas e do Crédito

Viña Costeira S.C.G.

GAIA EPICHEIREIN Anonymi Etaireia Psifiakon Ypiresion

Agricultural Cooperative Partnership Mirabello Union S.A.

Agrotikos Synetairismos Epexergasias kai Poliseos Oporokipeftikon Proionton (ASEPOP) Velventou SYN.P.E

### LIFE GAIA Sense: Specific objectives (1/2)



- 1. Setup and establish a large scale **SF infrastructure for data collection** and analysis and 18 demonstrators of the LIFE GAIA Sense SF solution.
- 2. Establish a **network of scientists and professionals** and engage them in adapting the **SF services and models** to the specific needs of each demonstrator and each crop.
- 3. Apply the results to the field and measure the rate of decline of inputs on selected crops and correlate between the LIFE GAIA Sense results' and the targets set as policy by EU over the CE.
- 4. Measure the **impact** of LIFE GAIA Sense on **soil**, **water** and air quality.



#### LIFE GAIA Sense: Specific objectives (2/2)



- 5. Build a robust **business model** to ensure their replicability and sustainability.
- 6. Form **policy making proposals** in order to implement efficient methods of **managing resources in agriculture** sector.
- 7. Starting from investing on the success of small scale demonstrators, the project intends to attract the interest of larger stakeholder groups, to achieve the scale needed for adaptation efforts that make real sense e.g. from local cooperatives to organizations like Copa Cogeca
- 8. Disseminate the project's results at national and EU level

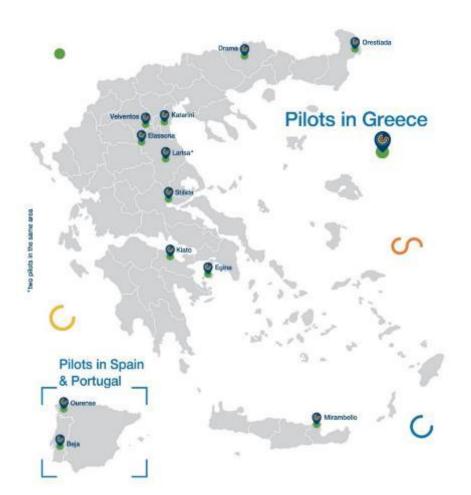


# Validation of environmental sustainability









Organization	Crop		
EAS Orestiadas	cotton		
ASEPOP Velventos	table peach		
OP Aiginas	pistachio		
AS Speko	kiwi		
EAS Elassonas	walnut		
Stylis OPC	table olive		
THESTO	industrial tomato		
THESGI	cotton		
Geoponiki Kiatou	table tomato		
EAS Lasithiou	potato		
AC Mirabello	olive		
VIÑA COSTEIRA SCG	grape		
CONFAGRI	olive		



# Consideration of economic sustainability

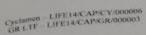
Reduced use of inputs, including □ Natural resources ☐ Agrochemicals **□**Energy ■ More effective production management □ Lower production costs ☐ Higher yields / better quality ☐ Improved competitiveness



# Contribution to social sustainability

- ■40 farmers and agronomists will be actively engaged and closely monitored
- □750 farmers who will just receive the advice
- □134 new job positions will be created by January 2023.
- ☐ A network of well-educated farmers, cooperatives, professionals and specialists who will take advantage of the SM model across EU







#### 2nd of July 2019 - Networking Event with Greek Projects Green Fund, Villa Kazouli, 241 Kifisias Avenue, 14561 Kifisia

#### 10:00 Welcome Coffee/Introduction

### 10:15 - 12:30 1st Networking Meeting with Environment Projects:

- 1. LIFE DEBAG Integrated information and awareness campaign for the reduction of plastic bags in the marine environment (LIFE14 GIE/GR/001127). George Papatheodorou - Professor of Environmental & Geological Occanography, Department of Geology, Dean of School of Natural Sciences,
- 2. LIFE RE-WEEE Development and Demonstration of Waste Electrical & Electronic Equipment (WEEE) Prevention and Reuse Paradigms (LIFE14 ENV/GR/000858). Haris Angelakopoulos - Technical / Environmento Manager of "Appliances Recycling SA", Project Manager of the project LIF
- 3. LIFE GAIA Sense Innovative Smart Farming services supporting Cir. Economy in Agriculture (LIFE17 ENV/GR/000220), Vassilis Protonot Outreach & Networking Manager, NEUROPUBLIC
- 4. LIFE CONOPS Development & demonstration of management pla -the climate change enhanced- invasive mosquitoes in (LIFE12 ENV/GR/000466), Angeliki Stefopoulou - Agronomist, I Agricultural Entomology, Benaki Phytopathological Institute
- 5. Natural Capital Financing Facility (NCFF): Municipality Myrivili - Vice-Mayor of Urban Green Space, Urban Wild-I Resilience and Adaptation to Climate Change
- 6. LIFE DIANA Development of a pilot unit for the (Petroleum Refinery Sludges) to new added-value r ENV/GR/000461), Katerina Maliachova - Researcher



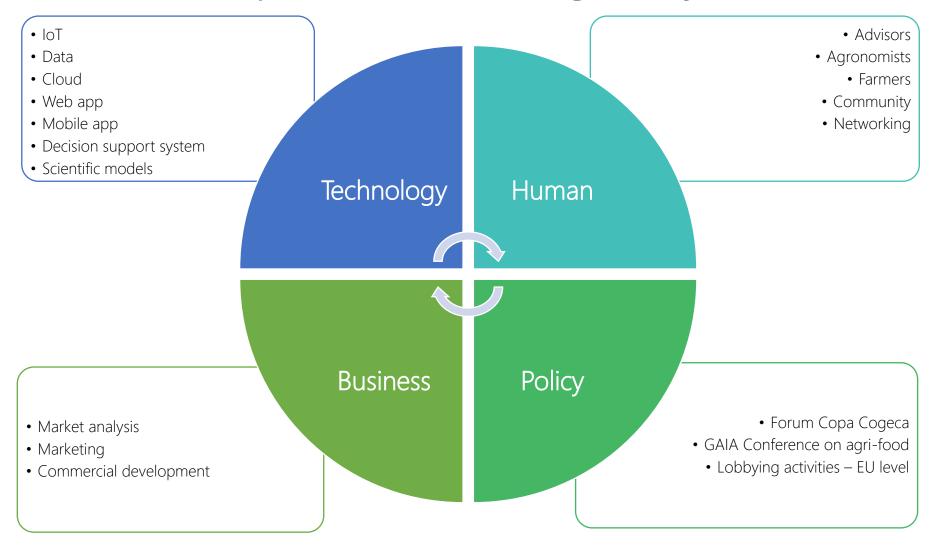
Cyprus Capacity Building for Life LIFE14 CAP/CY/000006

Title: Agenda Twinning Greece Prepared by: Panos Kakonitis Comments: Spyridoula Ntemiri, Dimitris Homatidis (GR LTF)



#### LIFE GAIA Sense: A complex smart farming ecosystem







#### Connect with LIFE GAIA Sense



www.lifegaiasense.eu



www.facebook.com/lifegaiasense



www.twitter.com/lifegaiasense



www.linkedin.com/company/lifegaiasense





#### Thank you!

