Precision Agriculture Practices in Albania

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NEXUS

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OBJECTIVES

- NEXUS implementation as a cross sectorial interlinkage with Precision Agriculture Practices in Albania
- Build a road map on how should Albania adapt the implementation of the different PA practices
- Adjust a pre-feasibility study on the application of PA technologies in pilot locations in Albania.

Actions

- Mapping the related national and local **strategies, plans** and **support schemes**
- Engage National **Stakeholders** in the Project Development and Implementation of PA
- Describe and Propose technical solutions for 3-4 different **pilot sites** depending on crop, irrigation and other farming inputs
- Propose **funding and budget** alternatives

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Actual Situation

- Agriculture production dominant by smallholders
- Extremely small and fragmented fields (average size of **1.2 ha**)
- Labour deficiency due to low mechanization
- Poor Irrigation and Drainage infrastructures – Maintenance Problems
- Land Ownership Problems and Migration of young farmers
- Lack of Market opportunities
- Regional Divisions by Crops: **(ATTC & AREB)**

  Shkodra – Medicinal and Aromatic Plants & Maize

  Lushnja – Vegetables & Wheat

  Vlora – Olive orchards, grapevine and fruit trees

  Korca – Apples and cherries

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Current Policy, Strategies and Action Plans

- SARDF is aligned with CAP and Green Deal
- SARDF states "**precision agriculture and digitalisation in agriculture are still rarely applied**"
- Implementation of Irrigation and Drainage Strategy 2019-2031 increasing resource-efficient irrigated land
- **MARD** Action Plan for 2022 – 2024: providing advice for farmers and the rural development/**demonstration farms**
- IPARD III (Strategy 2021-2027) : PA investments for **fruits and vegetable farmers**, related to precision agriculture

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Processes and analyzes temporal, spatial and individual data and combines it with other information to support management decisions .

Precision Agriculture – Smart Agriculture – Digital Agriculture – eAgriculture

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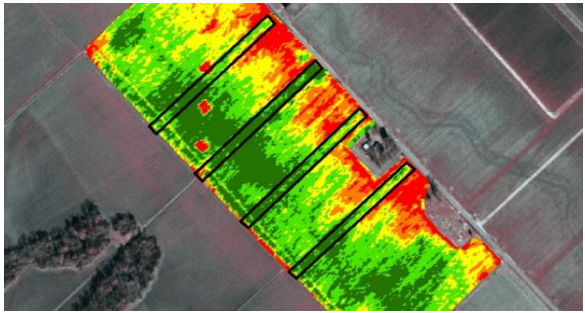
Precision Agriculture Technologies – Satellite Imagery

- Free resources from Copernicus (Sentinel 2)
- Ready available outputs – Vegetation Index NDVI
- 1 image per week (average)



Applications:

- Crop growth monitoring
- Harvest date decision
- Variable rate application of inputs
- Larger scale analysis for crops and drought

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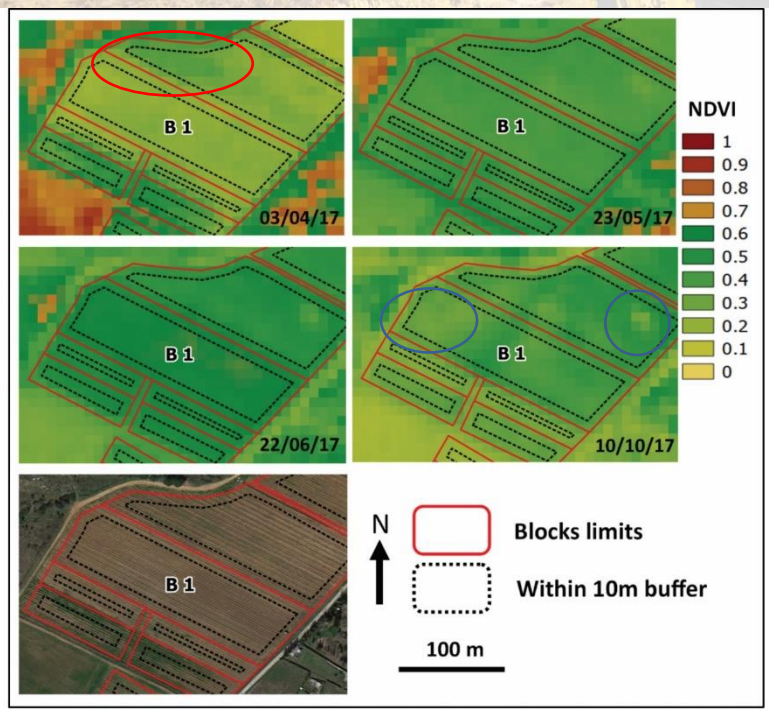
Precision Agriculture Technologies – Satellite Imagery



Crop growth monitoring - Grapevines

Limitations:

- Row crop – high % of soil cover is between rows and the proportion of vines/cover crop changes along the year
- Sentinel 2 imagery has a minimal pixel of 10 m

Benefits:

Possible to identify differences of cover-crop development at early stages and early canopy senescence

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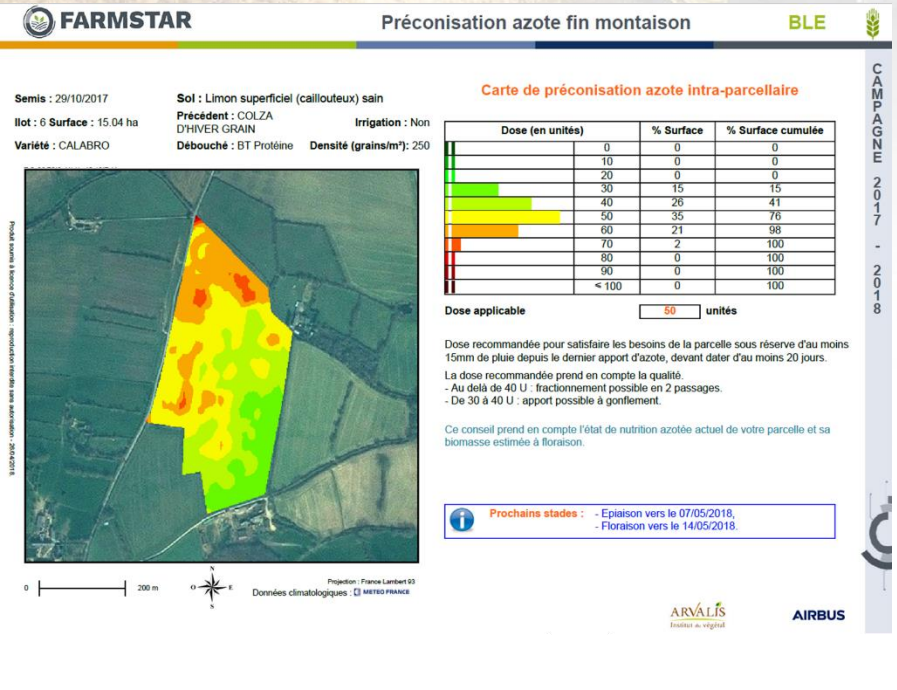
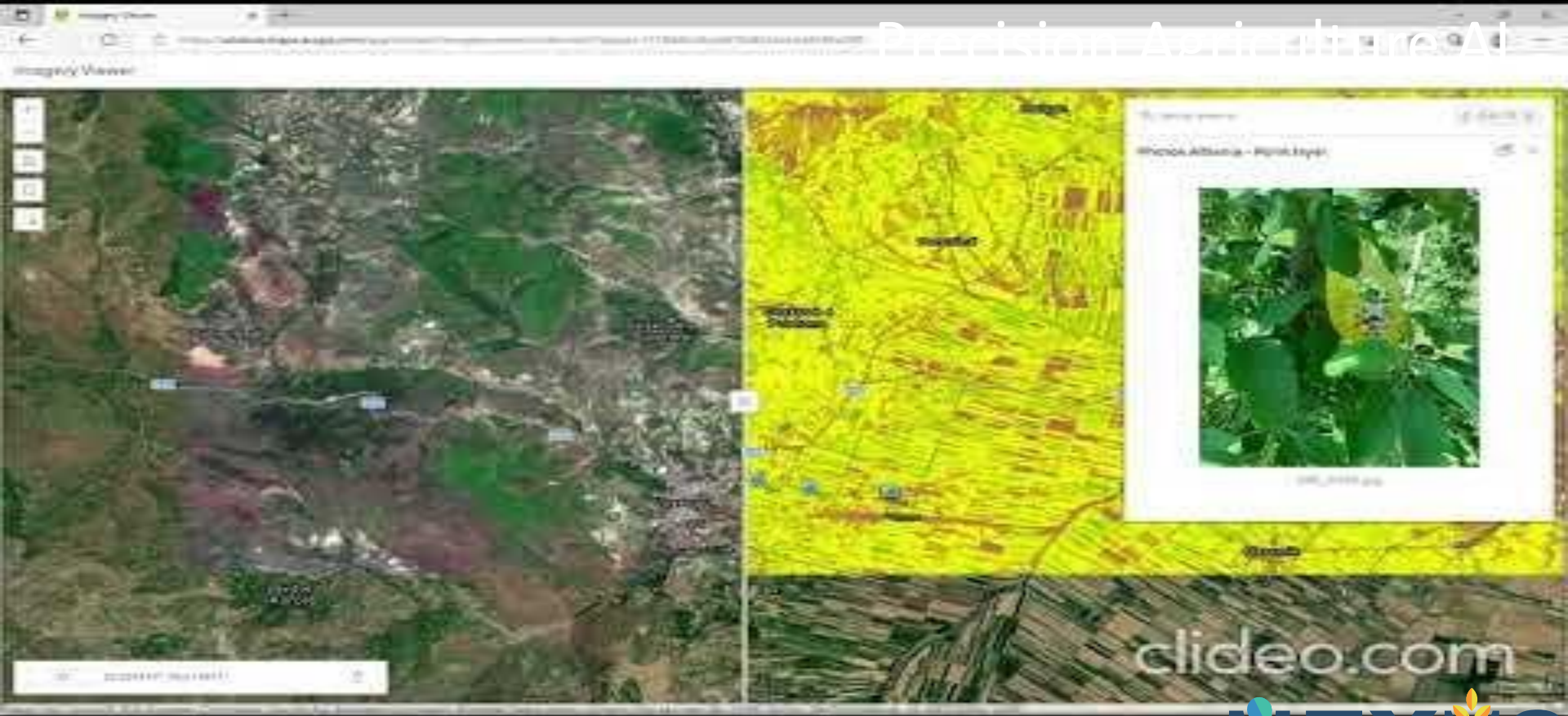
Precision Agriculture Technologies – Satellite Imagery



- Variable rate application of inputs – Colza
- Total area of 15 ha
- Map represent variable doses of nitrogen for application

Precision Agriculture Technologies – Satellite Imagery



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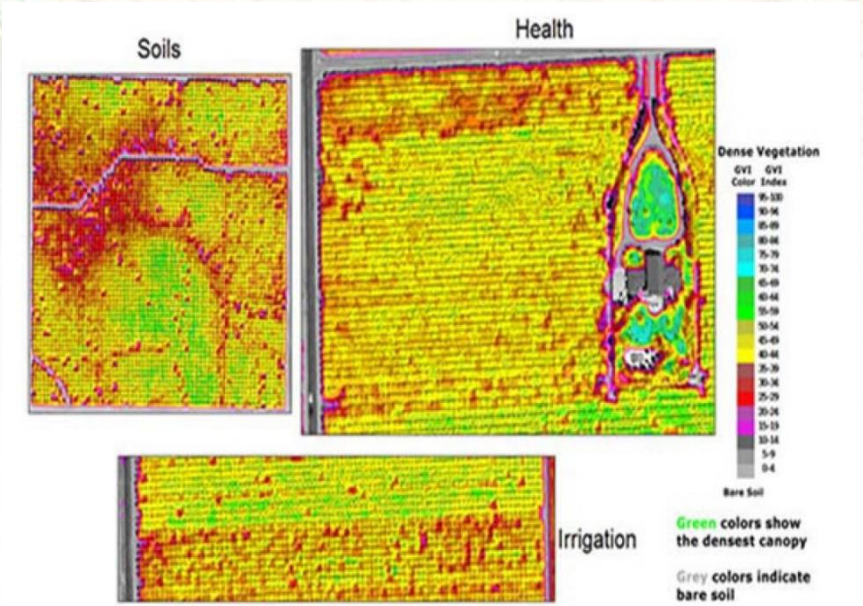
Precision Agriculture Technologies – Drone Imagery

Advantages over Satellite:

- Much higher resolution (cm level)
- Fly when want and “under clouds”
- Commercial available options

Disadvantages:

- Investment cost
- Operation constraints (know-how, risk evaluation)



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Precision Agriculture Technologies – Irrigation Management

Soil monitoring sensors:

- Soil water content monitoring;
- Define when and how much to irrigate
- Manage the irrigation system according to crop water requirements

Plant monitoring sensors:

- Adding an extra layer of information
- Manage crop stress in real time

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Project Progress…

1. Key National Actors and Stakeholders :

- Government, public agencies and institutions
- Academic and research institutions
- NGOs, organizations and farmer associations
- Private service providers involved in digitalization of agriculture

2. Online Survey

https://docs.google.com/forms/d/e/1FAIpQLScsHiu1v5XeKpBLc0PGBWaYQC0r9vgpK5LbnqXiKjRmYo-CbQ/viewform

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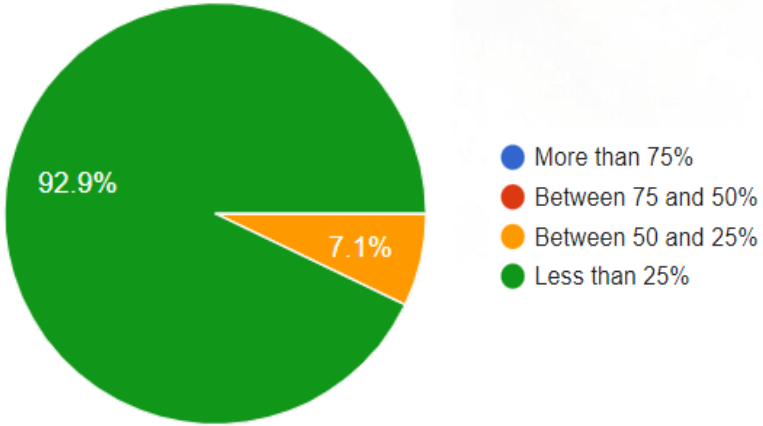
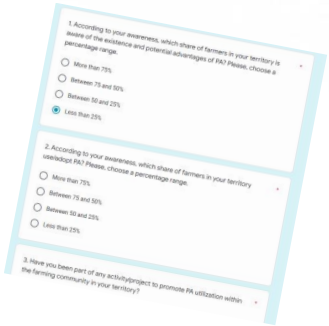
Project Progress…

According to the Survey and the Stakeholders Consultation:

i. Just a very small persentage of the farmers are aware and use/adopt PA.
These are mainly bigger producers in vegetable and/or apple farms.





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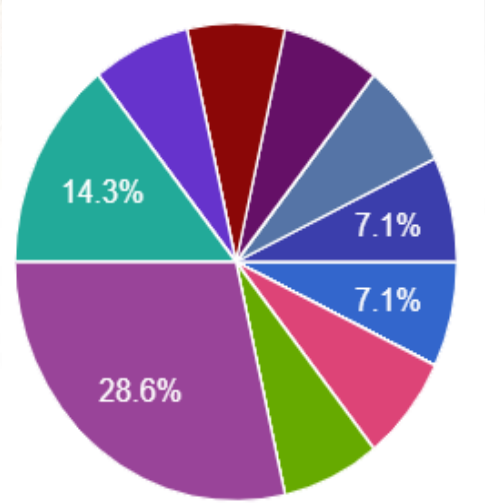
Project Progress…

ii. Which kind of PA was more encouraged through information/training/advisory activities?



- Global Navigation Satellite System (G…
- Controlled Traffic Farming (fixed track…
- Yield monitor
- Parcel boundary mapping with GNSS…
- Management zone maps
- Variable rate technology - fertilisation
- Variable rate technology - crop protect…
- Variable sowing / planting

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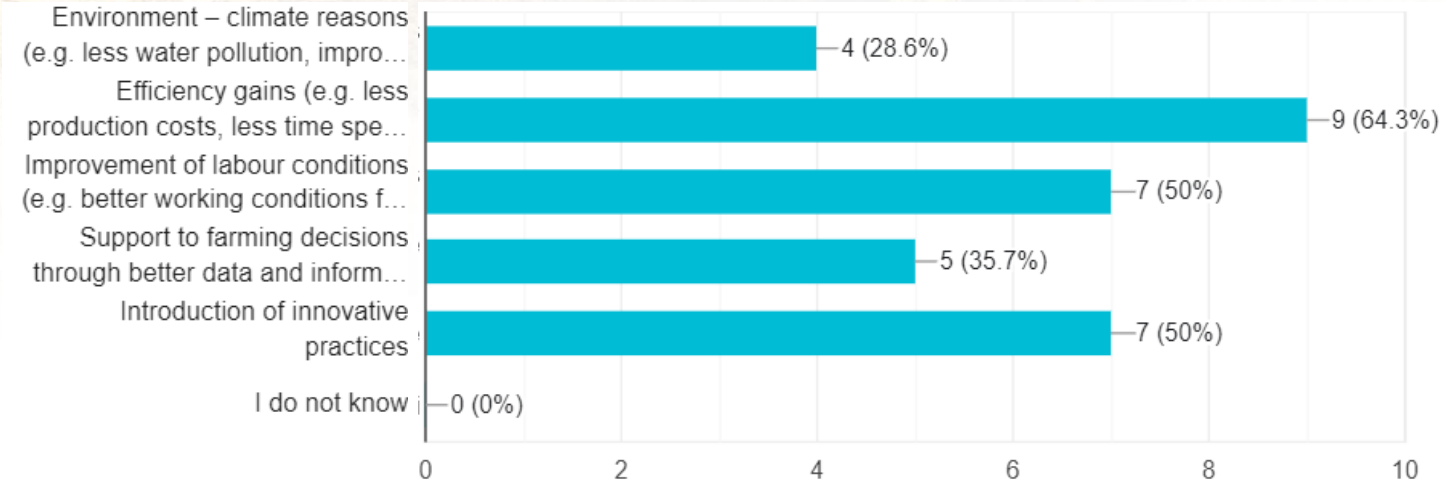
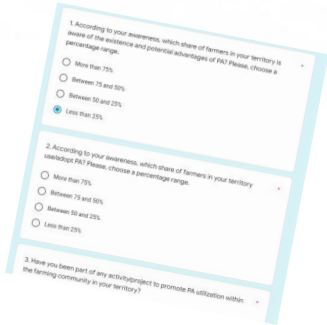
Project Progress…

iii. What factors influence farmers' adoption of PA in your territory?





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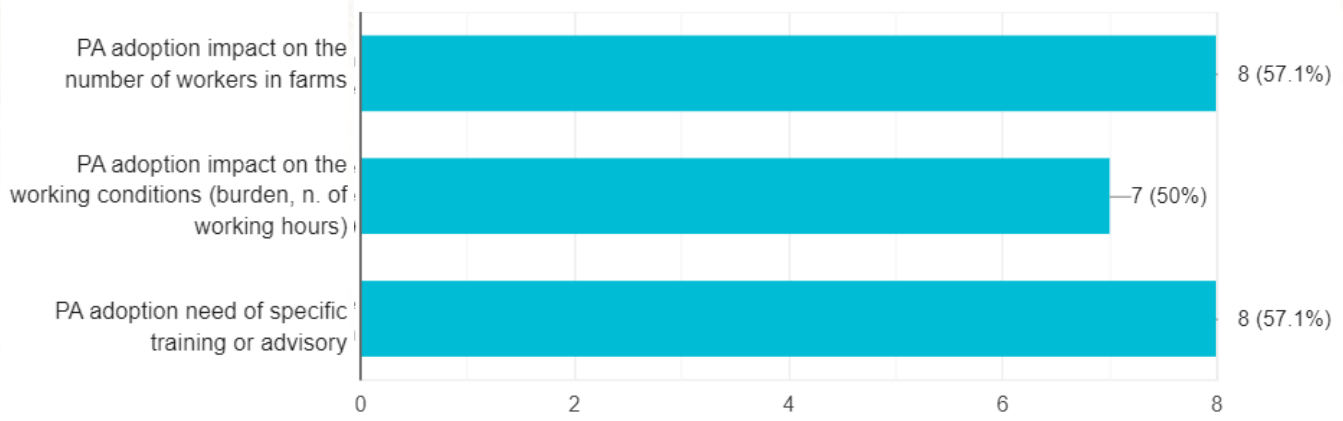
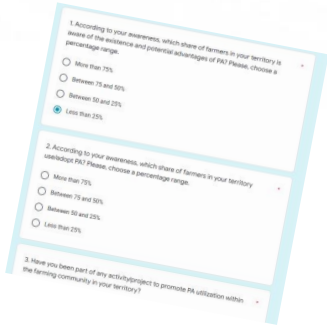
Project Progress…

iv. How would you assess the potential effects of PA on labour at farm level?





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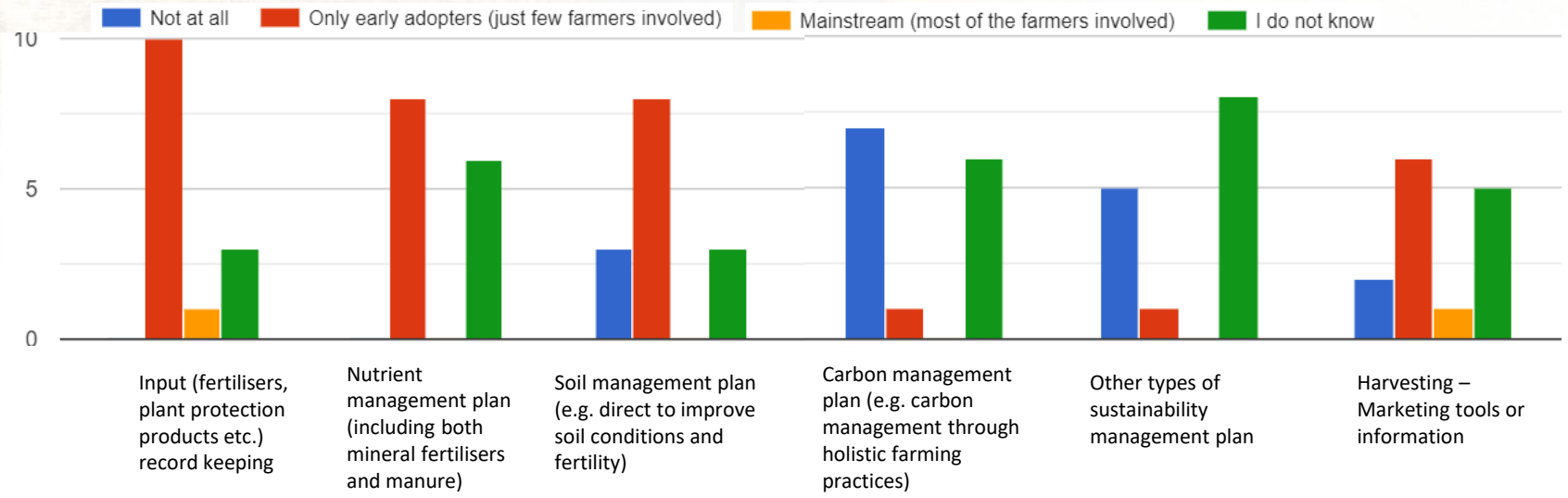
Project Progress…

According to the Survey and the Stakeholders Consultation:

v. Are farm Management Information Systems used by farmers in your territory?



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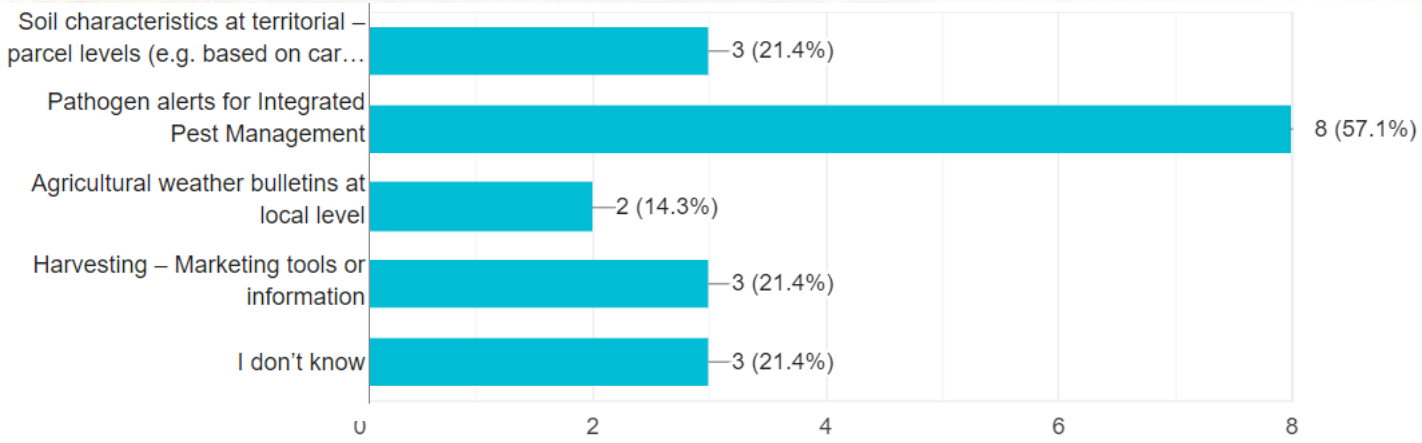
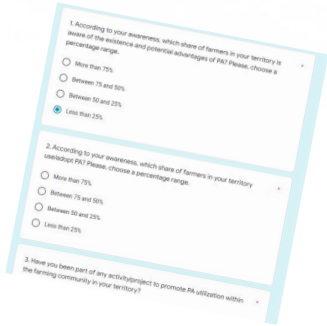
Project Progress…

According to the Survey and the Stakeholders Consultation:

vi. Are there any systems providing information to improve decision making for farmers?





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Next Step…

3. Workshop with stakeholders to discuss on proposed pilots from Project team

- Academic and research institutions
- NGOs, organizations and farmer associations
- Private service providers involved in digitalization of agriculture