

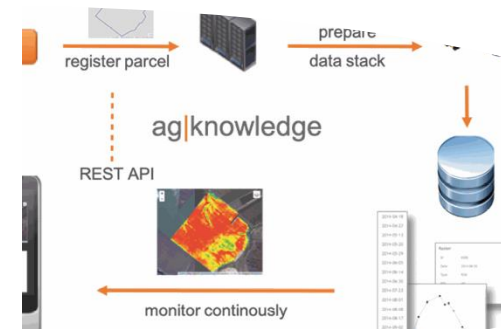
Space technologies for ESG compliance monitoring at farm level

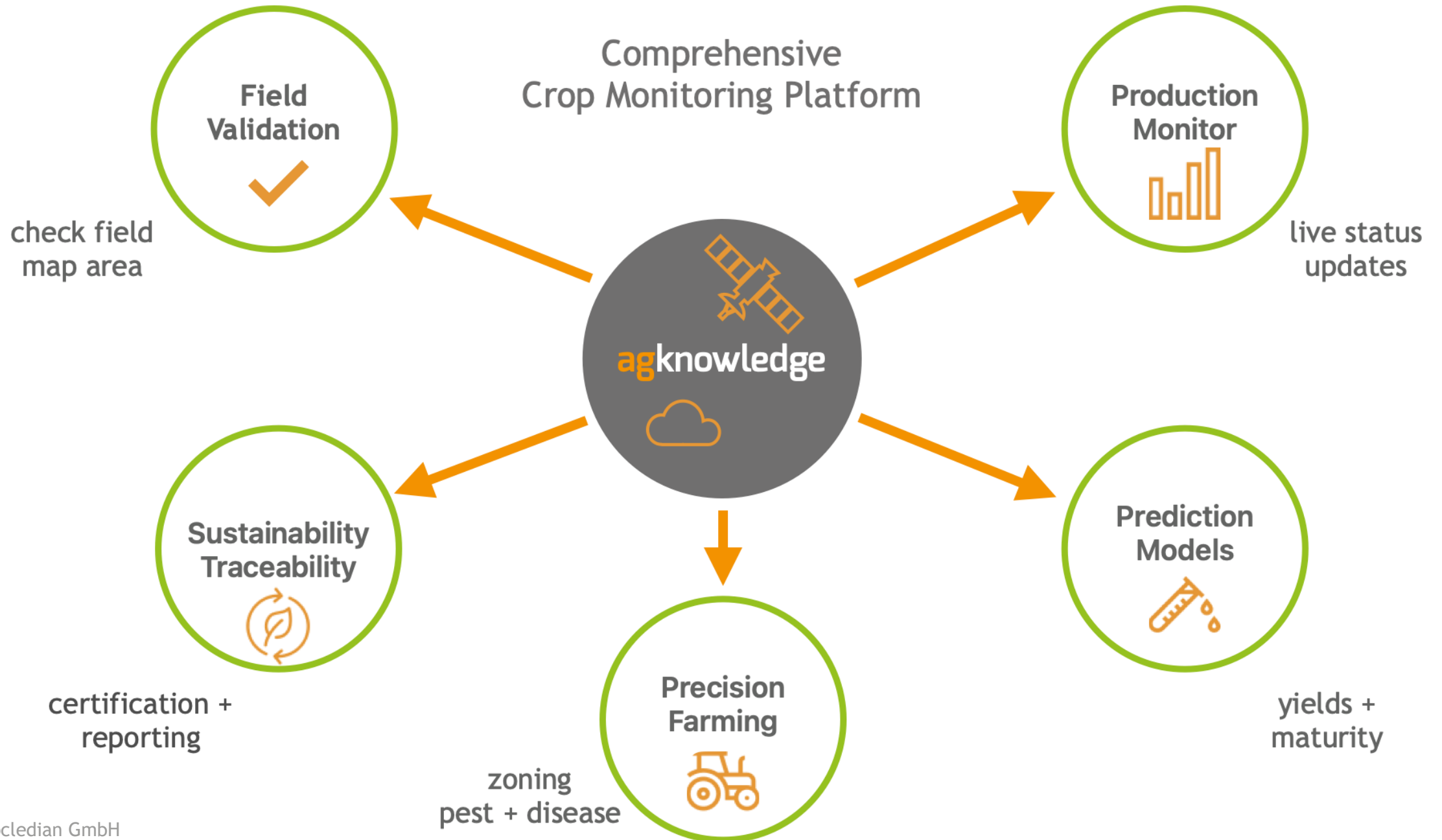
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spatial architects





- Agricultural data analytics
- Experienced German team est. 2013
- Global working knowledge
- Custom crop monitoring solutions





- **EU Deforestation Regulation (EUDR)**
 - Cocoa, coffee, soy, beef, leather, timber, palm oil, rubber
 - effective 01.01.2025/26
- **Corporate Sustainability Reporting Directive (CSRD)**
 - **ESRS draft reporting standard**
 - e.g. E4: identify sites located in or near biodiversity-sensitive areas
 - Announced to be adapted by G20
- **German: Corporate Due Diligence in Supply Chains - Lieferkettensorgfaltspflichtengesetz - LkSG, effective 01.01.2023/24**
- **Industry sustainability standards**
 - Rainforest Alliance, PEFC, Global GAP, BCI ... up to now voluntary
- **SDGs compliance**
- ... more to come

Requirements

- Supply chain traceability for agricultural production down to field becomes mandatory
- From textual reporting to data proof and audits
- Short time frame for implementation
- Voluntary sustainability standards not adapted yet
- Affects corporates, mid size companies & SMEs and farmers

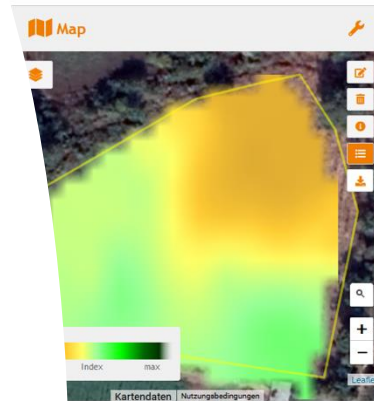
Translates at field level to

- Geolocation of fields becomes mandatory
- Crop validation at field level
- Cultivation history
- Crop monitoring
- Farmer need to be advised

1. Protect Crop Identity

- Map areas
- Check fields
- Protected areas check
- Deforestation check

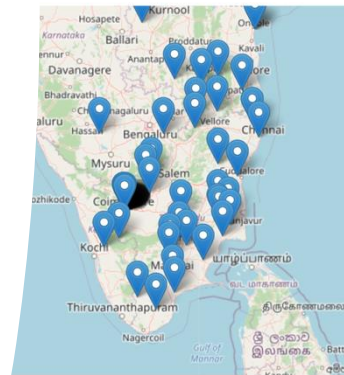
→ Trust



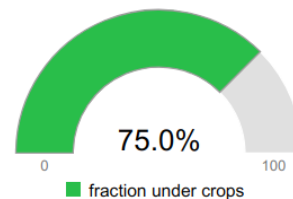
2. Production Monitoring

- Status monitoring
- Drought risk monitoring
- Yield assessment

→ Transparency



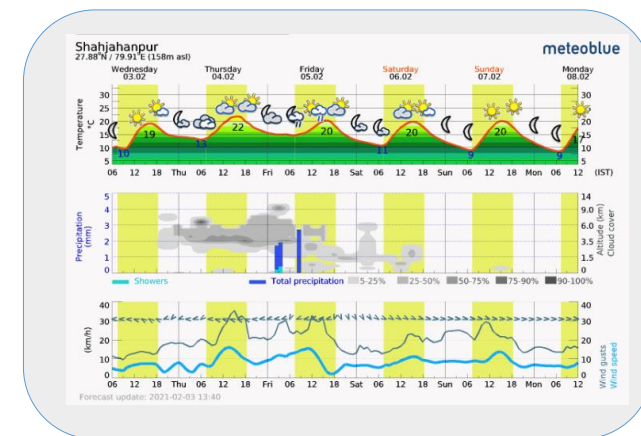
Cultivated area:



3. Support Extension Services for Growers

- Field benchmarking
- Sustainability KPIs
- Agronomical weather and forecast
- Pest & disease risk management
- Water use efficiency assessment

→ Sustainability



Data Validation: False Crop Type

Cotton field in India: field signature \neq cotton signature

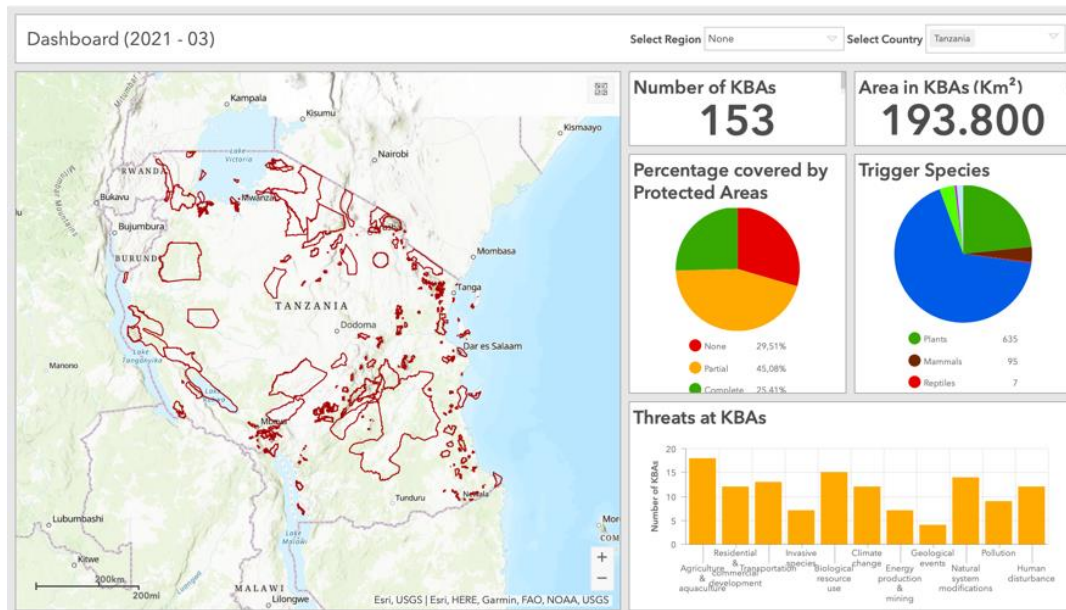
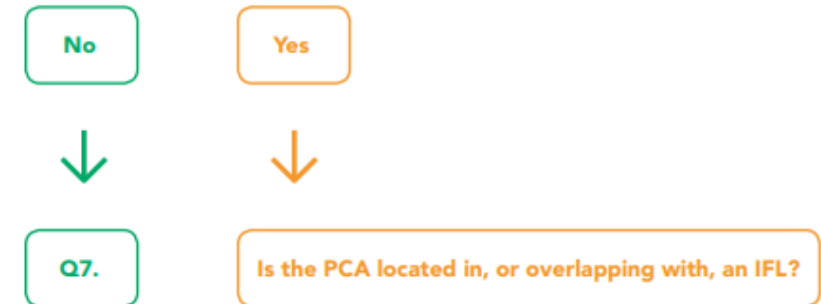
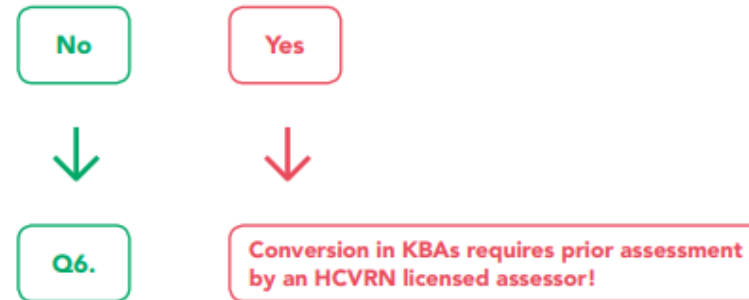
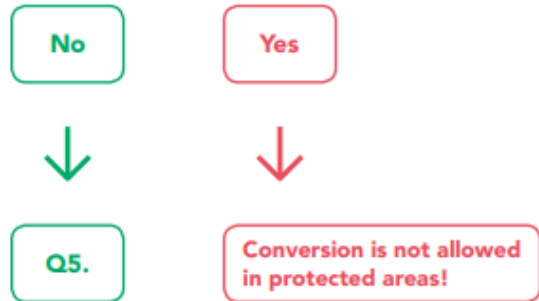


Protected Areas Check

Q4: Is the PCA located in, or overlapping with a Protected Area?

Q5: Is the PCA located in a Key Biodiversity Area (KBA)?

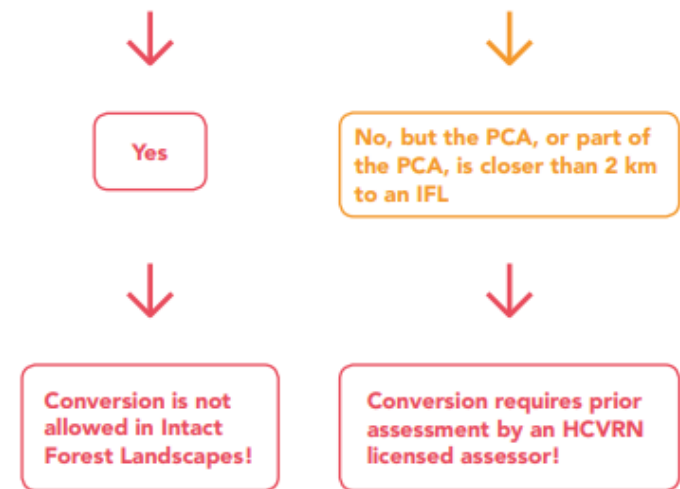
Q6: Is the PCA located in, or closer than 2 km to, an Intact Forest Landscape (IFL)?



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Status:

- compliant
- partially compliant
- non-compliant



ESG Reporting: ESRS Req E 4

„identify sites located in or near biodiversity-sensitive areas“

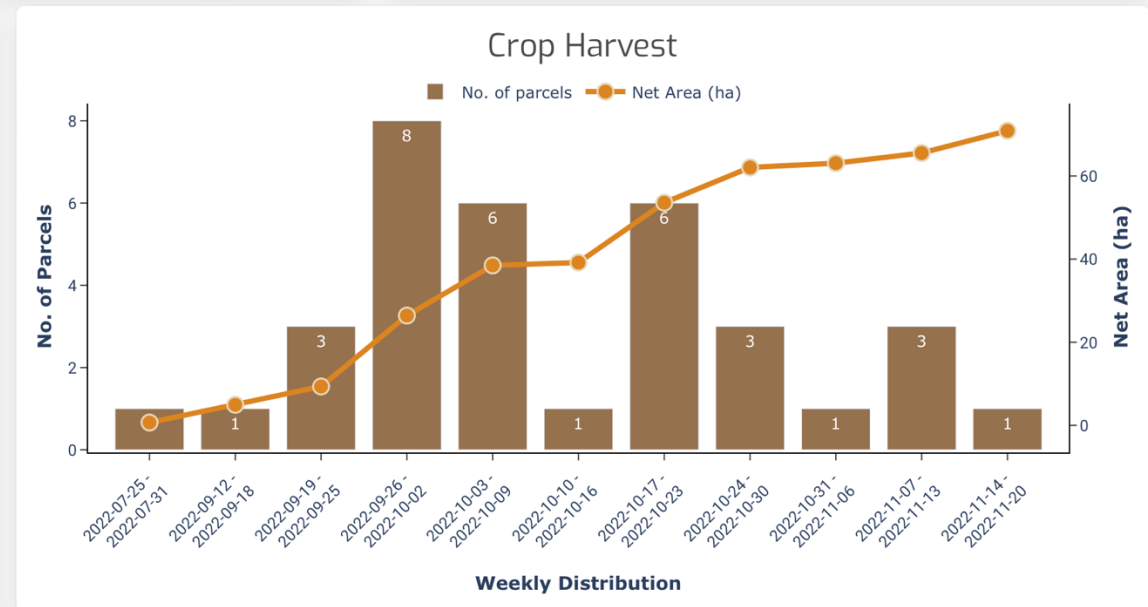
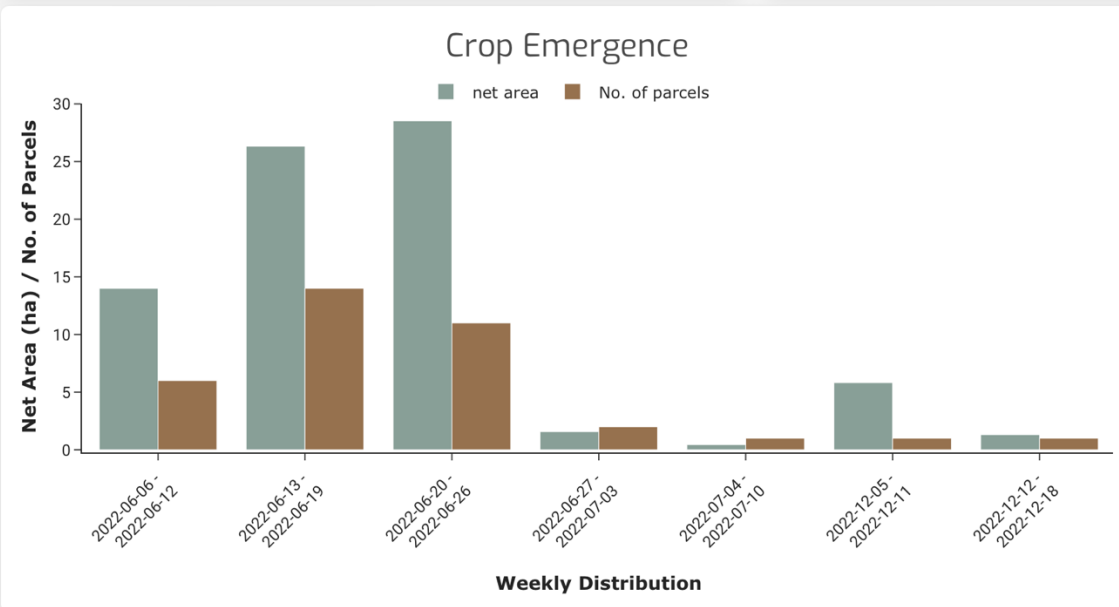
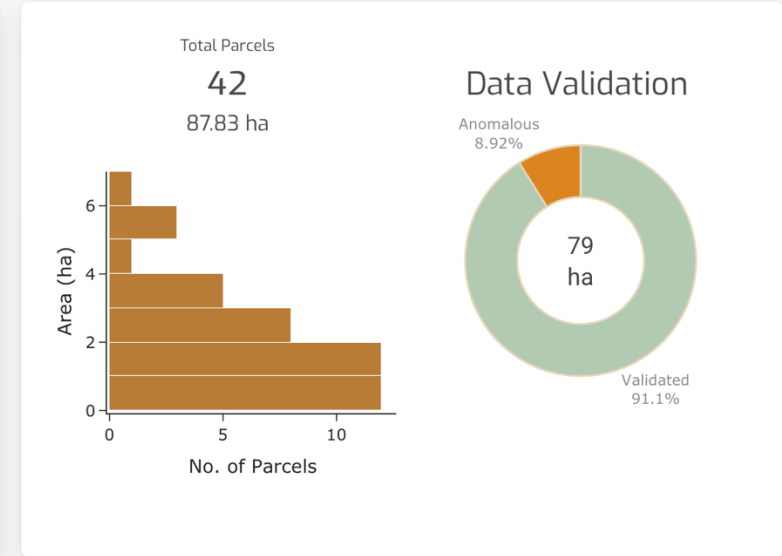
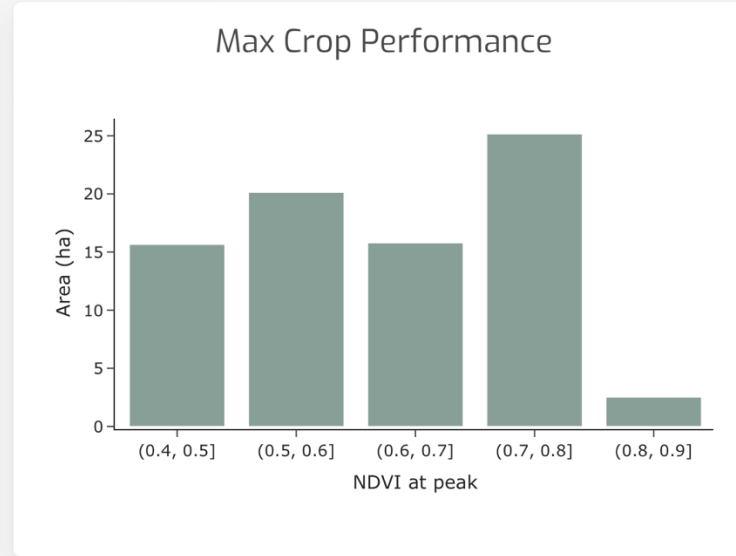
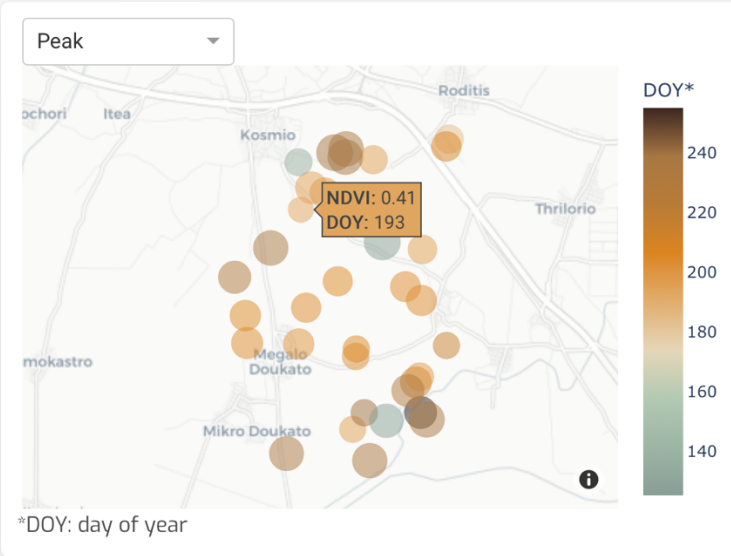
Production Monitor

Cotton production monitor

Komotini ginnery 3

Last update: 2023-04-17

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Sustainability KPIs

- Check crop rotation cycles
- Check for winter cover
- Determine annual days of actively growing crop

3 years cotton without crop rotation

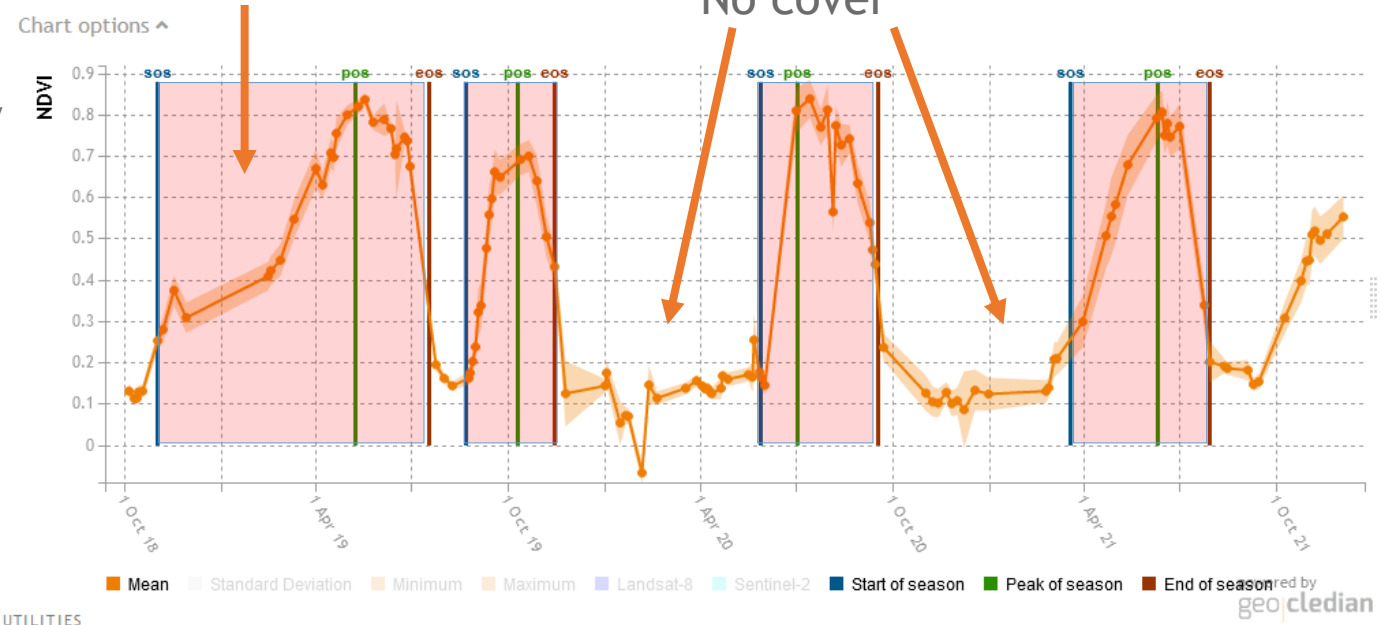


Winter cover

No cover

Annual days of actively growing crop

- 2019: 269 days
- 2020: 112 days
- 2021: 133 days



Conclusion

- New sustainability laws induce **need of geolocating** and verifying **crop production**
- Additional **positive effects** for farmers, agroindustry and consumers expected
- Space technology can provide **efficient and auditable solutions for compliance monitoring**
- Integration of **AgKnowledge with traceability platforms** -> System for Management Reporting Verification

Thank you for your attention

More info: <https://docs.geocledian.com/solutions/>

Company video:

<https://www.youtube.com/watch?v=Gw89tkuZcGA&pp=ygUKZ2VvY2xlZGlhbg%3D%3D>

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