Farming from Space: Digital Innovation for Agriculture



Sustainability, risk management and decision making. Satellites, drones and artificial intelligence @ work for agriculture

Precision Farming as a vertical application





Webinar









Earth Observation: contribution to crop monitoring





Multi-sensor



Multi-temporal Thematic & bio-geophysical information In space and time at different scale



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IBF Servizi: innovation serving Agro-Industrial sector IBF Servizi is a company born to support Italian and international farmers in adopting innovative approaches by improving the acquisition of geoinformation, data management and analysis generating services to support cropping system management.



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From product to service



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Remotely crop cycle monitoring





Crop and tillage systems detection

- Crop detection performed analyzing the evolution the vegetation land cover over the season
- Spectral firm based apprach to detect crops belonging to different species
- Monitoring fields which are involved in specific tillage systems programme







Study and characterization of field variability

- Vegetation indices are useful to create a multi-year database describing the evolution among the space and the time of the crops during the vegetative cycle
- A geo-statistical based approach allows to analyse the behavior of different areas of the fields within the cropping season over the years
- Through the study of the variability it is possible to define a selective sampling point plan useful to assess quantitative information regarding variables influencing cropping systems
- The characterization of the different areas leads to the definition of Management Unit Zones which are the starting point to define a site-specific management system approach





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Crop suitability and yield stability assesment

- According to a reference crop requirements it is possible to define the vegetative potential at farm-scale and field-scale level
- Integrating EO information in a data fusion based approach the growth suitability of the fields for a reference crop can be defined
- The information belonging to each zone derived from the study of field variability are inserted in a workflow leading to define the best agronomic model, especially seeding rate and fertilization



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Fertilization

- Top-dressing fertilization is one of the most important managing operation influencing yield performance and quality
- The estimation of bio-physical crop parameters enables to optimize site-specific fertilizer application
- Monitoring the crop cycle during the season allows to get information regarding the crop response to fertilizer application







Irrigation and water management

- The integration of climatic data and crop water requirements can be an optimal tool to give support to define the optimal irrigation plan according to the critical phenological crop stages
- Installation of moisture sensors and weather station allows to measure data real-time of soil moisture, soil moisture values, temperature, wind speed, etc.
- Soil Moisture content can be estimated by SAR data





Smart scouting and data collection

Earth Observation can be integrated with proximal sensing technologies. Taking advantage from Earth Observation field representative areas detection, it is possible to perform smart scouting to collect data in order to increase the incisiveness of the analysis. The installation of proximal sensors in representative plots of the field allows to collect high resolution quantitative data enabling to gain specific crop requirements during crop cycle.



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THE LAST MILE

User needs

Downstream services

Research & development

Technology