

CEMA Technical Forum

*«Vineyard world towards digital farming:
a recognized value from a sustainable
farm cost and investment. Needs and key
elements for the roll-out.»*





■ Connected Vineyard

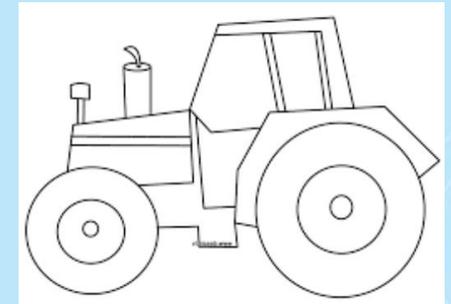
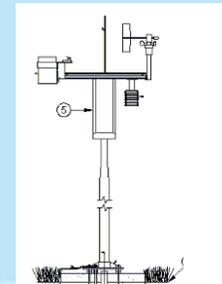


Technology today into vineyard



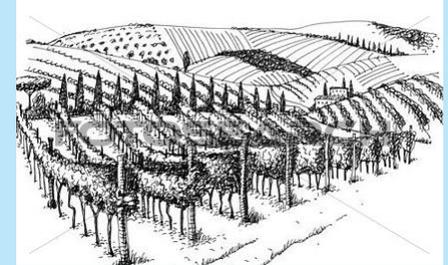
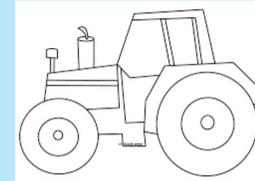
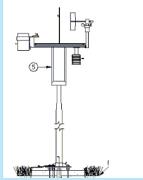
Today several technological solutions are already available:

- Drones: to get pictures of field (and other specific functions)
- SW tools: to generate vigor and prescription maps
- Weather station: to plan and take decisions
- ISOBUS machine: to apply prescription maps in field and collect data from field (yield mapping)
- Connectivity module: to manage the fleet

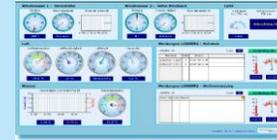
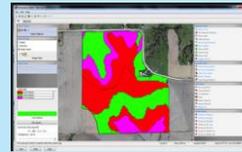


Limits of actual solution

- No integration among machines, sensors and operator SW tools



- Several tools without data sharing
- Low compatibility among systems
- Customer talks with different references according to the specific activity, and the related system used
- Complex system to be used implies low diffusion
- Interpretation and use of the systems are in the farmer knowledge hands with time consuming decisions
- Decision taken are, anyway, neither efficient nor effective





OPEN FIELD



VINEYARD



- **High level of ground digitization**

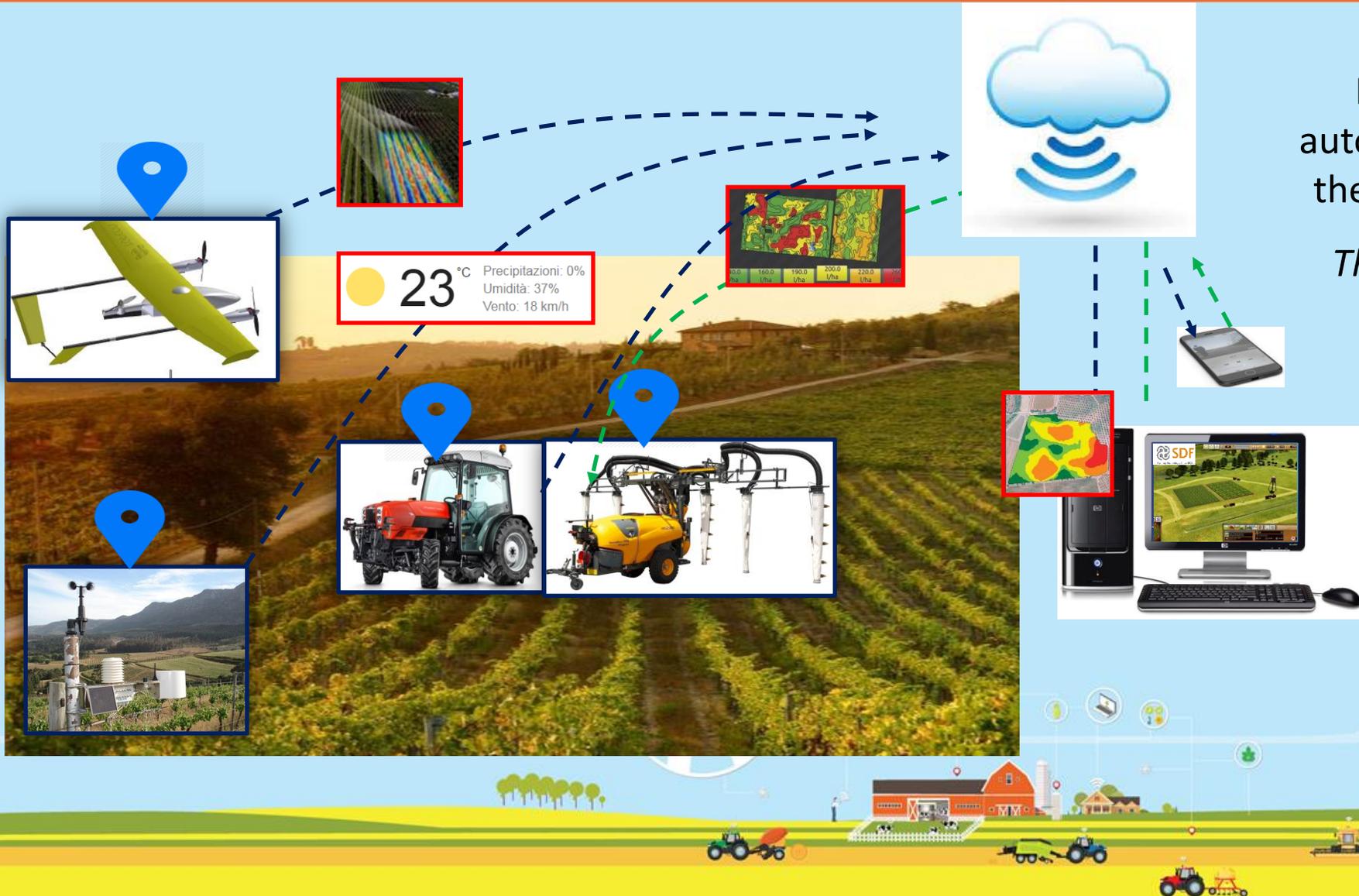
- Particular orography characteristics (hilly land)
- Heterogeneous environment (local humidity, temperature, soil)



- More complex net sensor
- More complex disease models



Concept- infrastructure



Integrated system designed to automate, integrate and make easier the vineyard process management.

The system is oriented to support the farmer "decisions".

All connected



High density vineyard infrastructure

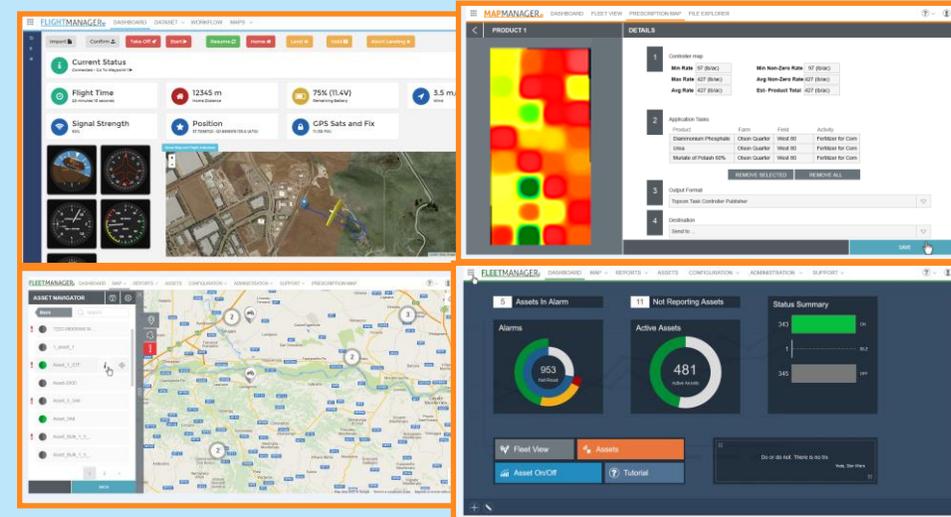
- connectivity infrastructure
- connected tractor and implement
- sensor net
- data sharing
- big data (volume, variety)



One tool, all functions

One tool to manage all functions:

- for data analysis (harvesting, diseases)
- prediction models for optimization of machine use (cost, timing, grape quality and quantity)



- High level of integration among machines and operator
- Full compatibility among services and tools
- One single environment to manage the entire process from remote
- Only one interface for the customer
- Easy to be used
- Operations time reduction
- Scalable solution for different vineyard sizes
- Site-specific job reduces environmental impact

Make easier, more efficient and effective the farmer decision





■ Challenges



Old world

- farmer knowledge as decision maker
- few actors (manufacturers of machine, sensors, seed, products...)
- not connected systems (tractor, implement, sensors...)
- raw data management (biodata, ...)
- simple predictive model based on the farm experience
- no data storage
- no data sharing among nearby farmers and actors



New world

- tools to support the decision maker
- multiple actors (manufactures, suppliers of platforms, services, hw modules...)
- connected systems (tractor, implement, sensors...)
- data analytics (biodata, ...)
- complex predictive model based on data collected
- data storage
- data sharing among nearby farmers and actors



Farm size and farmers' generation:

- EU medium size ~ 15ha
- ROI related to new technology

- EU farmers average age ~50 years
- farmers' readiness to data sharing for data analytics and farming prediction models
- readiness to new working model, based on consultancy and external company support



More actors involved:

- Who will do and What?

More sophisticated HW (tractors, implements, sensors, infrastructure)

- shorter life cycle due to technology fast obsolescence
- new generation of autonomous vehicles

Connectivity: steady, reliable and with the right cost (5G, LORA,...)

Investment:

- for common infrastructure
- for farmers' support
- for the knowledge of the farmer's operators
- for scalability of precision farming offering



Market size



Smart devices Market
BILLIONS devices



Car Market
100 MILLIONS pieces



Agricultural devices Market
MILLIONS devices



FARMING 4.0

Moving towards connected & sustainable agriculture in Europe
What can digital technologies & advanced farm machines deliver?



Big challenges for new opportunities



12 October 2017

#CEMASummit