2014 2020 POR CreO PROGRAMMA OPERATIVO REGIONALE CRESCITA e OCCUPAZIONE

Unione europea
Fondo Europeo di Sviluppo Regionale

REPUBBLICA ITALIANA

Regione Toscana

dronebee

Agricoltura Intelligente

Digitalisation and New Technologies in Agrifood

Málaga, 2019

3 - 4th, December

Agr. Niccolò Bartoloni

Company

DroneBee is a company founded in 2018 that offers highly technological services in precision farming and agronomic consultancy to farms, agricultural consortia, research institutions and agronomists.
We are retailers of precision agriculture products such as drones, multispectral sensors, management softwares and decision support systems. We provide assistance and training on both the theoretical and practical side of precision farming and on the software-sensor side.

Simone Kartsiotis
Aerospace Engineer,
UAV Pilot and Data Analyst

Niccolò Bartoloni
Agronomist and UAV Pilot

Regione Toscana Funding

2014 2020 POR CreO
REGIONE TOSCANA
FONDO EUROPEO DI SVILUPPO REGIONALE

Regione Toscana 2018 Innovation Award

PREMIO INNOVAZIONE TOSCANA

1st Price in Research & Development

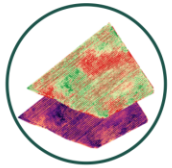
ReAgritech 2019 Competition Winner

Partners

AGRICOLUS netsens
Parrot PIX4D

Services

Aerial Surveys



NDVI/Thermal Maps

Stress Detection

Fertilization Planning

Thermal Stress Detection

Irrigation Planning

Disease Identification

Treatments Planning

Prescription Maps

Variable Rate Technology

Yield Mapping

Harvest Planning

Products

Professional Drones
Commercial Drones
Sensors Integration
Gimbal and Accessories Installation

Multispectral Sensor Parrot Sequoia+

Photogrammetry Software Pix4D
Precision Farming Software Pix4D Fields

On-the-field Sensors
Weather Stations
Decision Support Systems
Disease Prevision Models

Training

Precision Farming Course

Pix4D Software Course

Data Analysis and Processing Course

Technology Transfer

Portfolio

AZIENDA AGRICOLA INAMA

Marchesi de' FRESCOBALDI

IN SUPREMÆ DIGNITATIS 1343 UNIVERSITÀ DI PISA

COLI Mastri Vinai dal 1926

MONTEVERTINE

Illuminati FRUTTA

Pasolini dall'Onda Borghese

Agri 2000

SAN GIUSTO A RENTENNANO

BLUAGRI CRESCERE CON LA NATURA

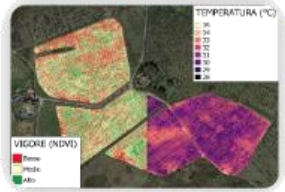
Consiglio Nazionale delle Ricerche imaa Istituto di Metodologie per l'Analisi Ambientale

Savignola Paolina

General Workflow

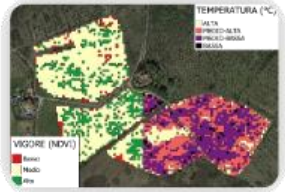
RILIEVO FOTOGRAMMETRICO CON DRONE 1

Individuazione fallanze
Modelli digitali del terreno
Conteggio piante
Misurazione aree e distanze
Modelli 3D



ELABORAZIONE MAPPA DI VIGORE E TERMICA 2

Mappa di vigore
Mappa di temperatura
Mappa di stress
Mappa di clorofilla
Mappa visibile

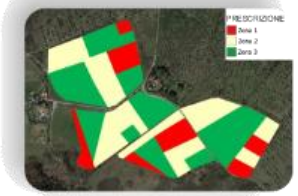


INDIVIDUAZIONE ZONE DI VIGORE E STRESS IDRICI 3

Individuazione stress vegetativi
Individuazione stress idrici
Individuazione infestanti
Individuazione focolai malattie

DECISIONE AGRONOMICA 4

Analisi mappe telerilevate
Confronti in campo a campione
Confronto con dati storici azienda
Generazione prescrizione agronomica

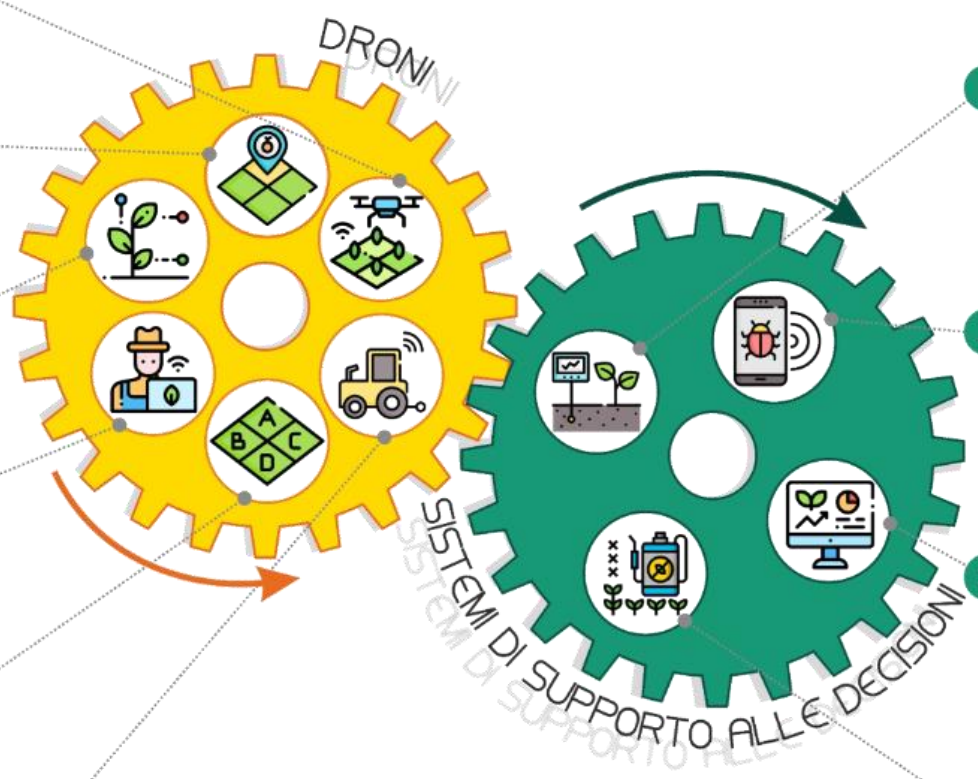


MAPPA DI PRESCRIZIONE PER AZIONI IN CAMPO 5

Zonizzazione
Mappa di concimazione
Mappa di irrigazione
Mappa per raccolta

MACCHINE A RATEO VARIABILE O APPLICAZIONI MANUALI 6

Concimazione a rateo variabile
Irrigazione di precisione
Raccolta a rateo variabile
Compatibilita' ISOBUS

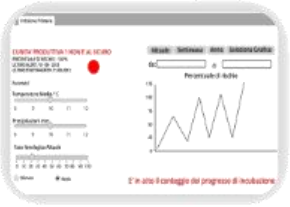


CENTRALINE METEO E SENSORI IN CAMPO 1

Anemometro e barometro
Sensori temperatura
Sensori bagnatura foglia
Sensori umidita'
Sensori suolo
Pluviometro

MODELLI PREVISIONALI DELLE MALATTIE 2

Modelli fitosanitari
Indicazione fasi infettive
Stima rischio infezione
Analisi sviluppo patogeni
Individuazione stress idrici



MONITORAGGIO CONTINUO E SUPPORTO DECISIONI 3

Dati in tempo reale
Pannello meteo completo
Dati statistici sintetici
Modelli ed indici bioclimatici
Integrazione mappe drone
Analisi dati storici

PIANIFICAZIONE INTERVENTI IN CAMPO 4

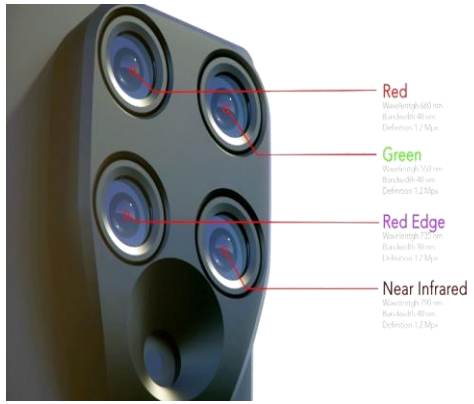
Pianificazione trattamenti
Pianificazione irrigazione

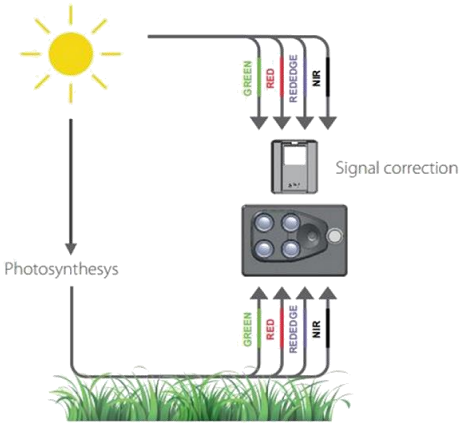
Case Study: Illuminati Frutta

Scope: remote sensing in early April has been used to assess the vigor of a pear orchard through the NDVI index into 3-4 homogeneous zones in order to identify the most suitable points in the field for the installation of water stress wireless sensors network (University of Pisa).
Illuminati Fruits: a 350-hectares consortium company, made up of 6 Tuscan fruit producers located in the northern part of the Val di Chiana. The average fruit production is over 18.000.000 kg per year.

Case Study: Illuminati Frutta

UAV: exacopter with counter-rotating coaxial carbon blades with a maximum take-off weight of 4kg and a flight autonomy of 38 minutes.
Multispectral Sensor: Parrot Sequoia sensor, able to acquire 4 multispectral bands (red, green, red-edge, nir), as well as the classic visible bands (RGB), with a resolution of 4.7cm/pixel at 50m of altitude.
The camera is equipped with a sunshine sensor for in-situ calibration of the solar brightness at the time of acquisition in order to generate normalized data comparable over time.



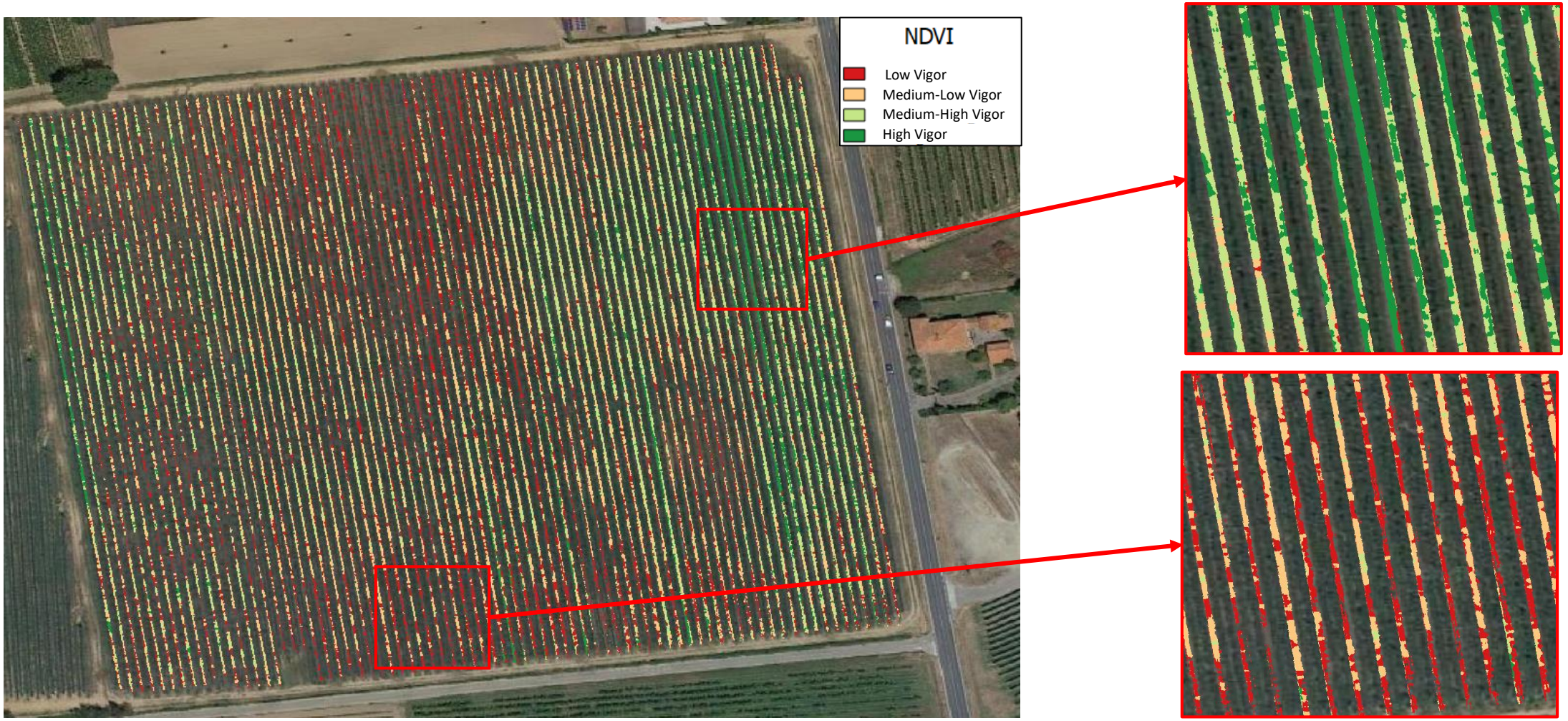


Case Study: Illuminati Frutta

Visible (RGB) Map

Case Study: Illuminati Frutta

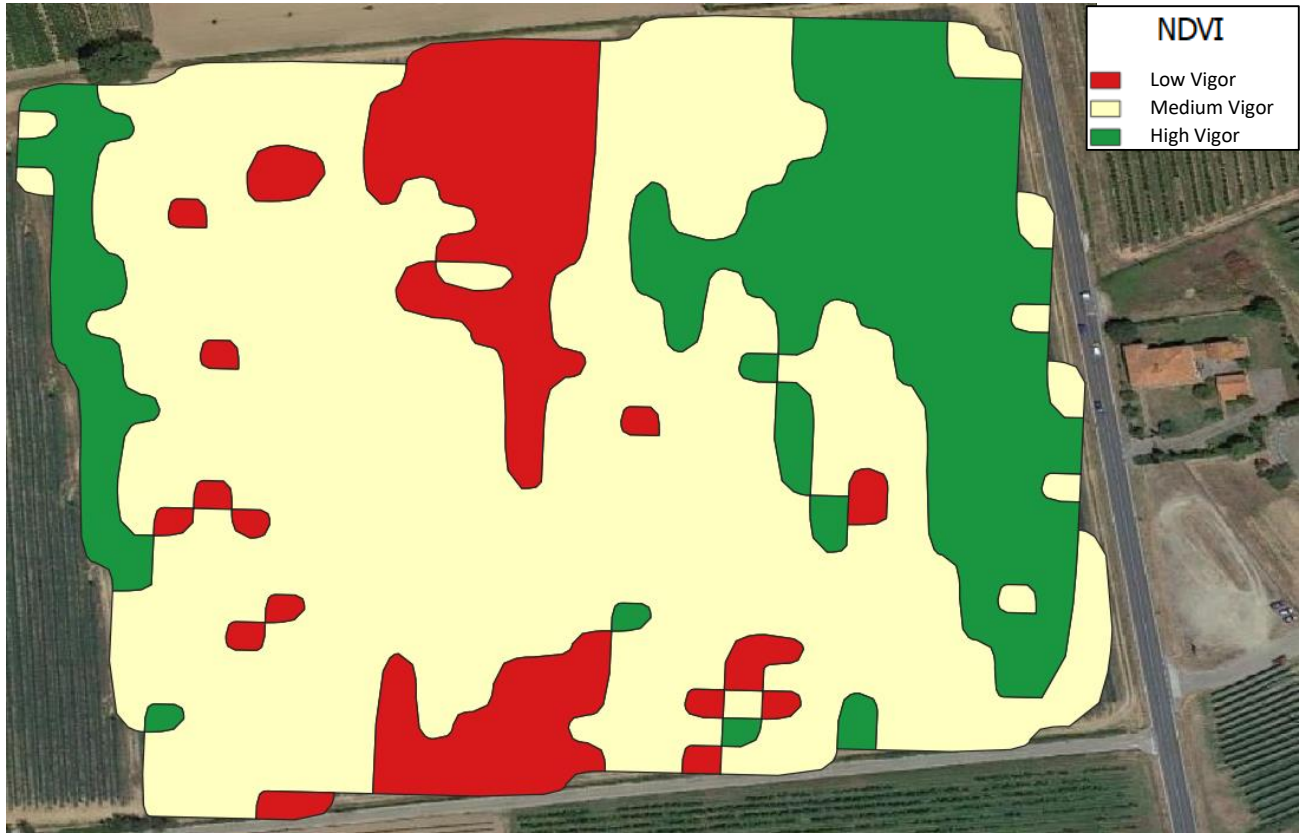
Vigor (NDVI) Map



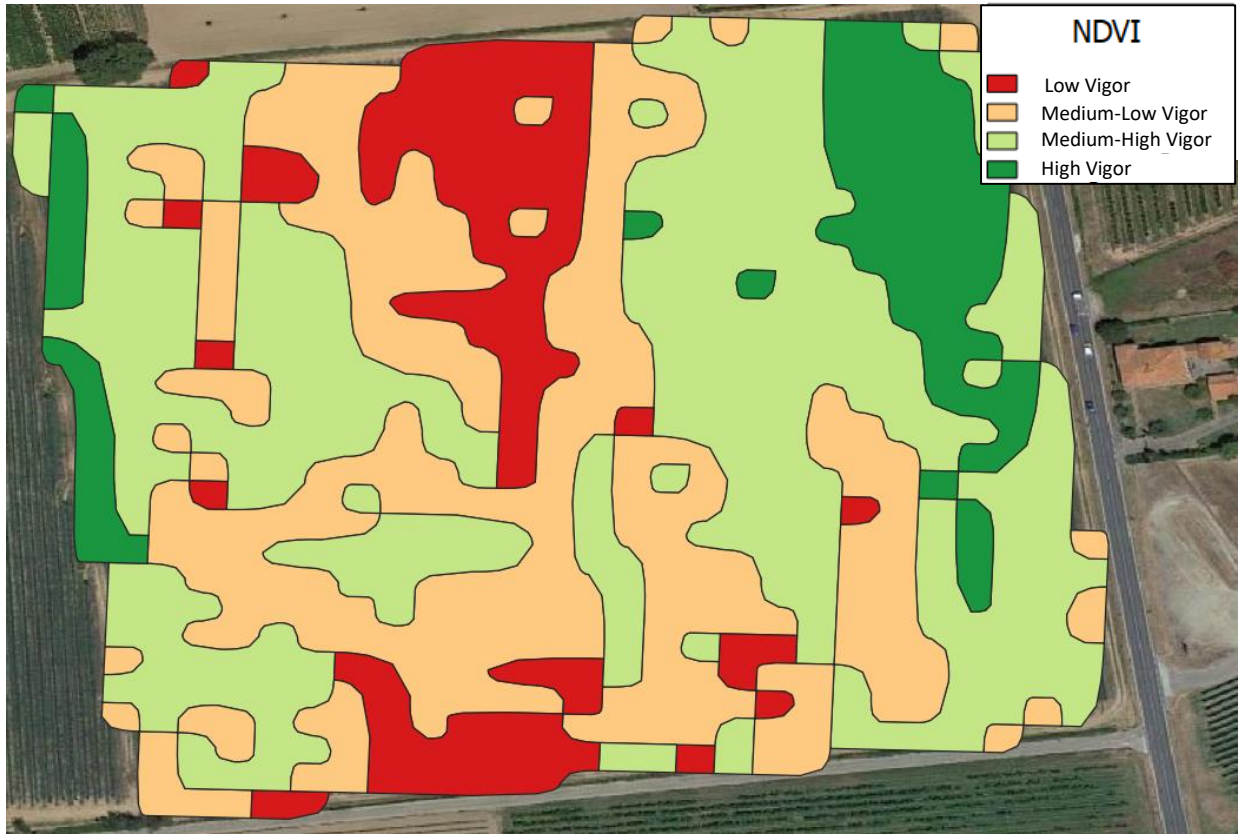
Case Study: Illuminati Frutta

Vigor Zonation Map

3 Classes



4 Classes



Case Study: Illuminati Frutta

Water Stress WSN Installation

Thank You!

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