CAMERA DI COMMERCIO
RIVIERE DI LIGURIA
IMPERIA LA SPEZIA SAVONA

CeRSAA

CENTRO DI SPERIMENTAZIONE E ASSISTENZA AGRICOLA

PESTICIDE DISTRIBUTION WITH DRONES: AN IMPORTANT SUPPORT IN COMPLEX OLIVE-GROWING SCENARIOS FOR PGI OILS

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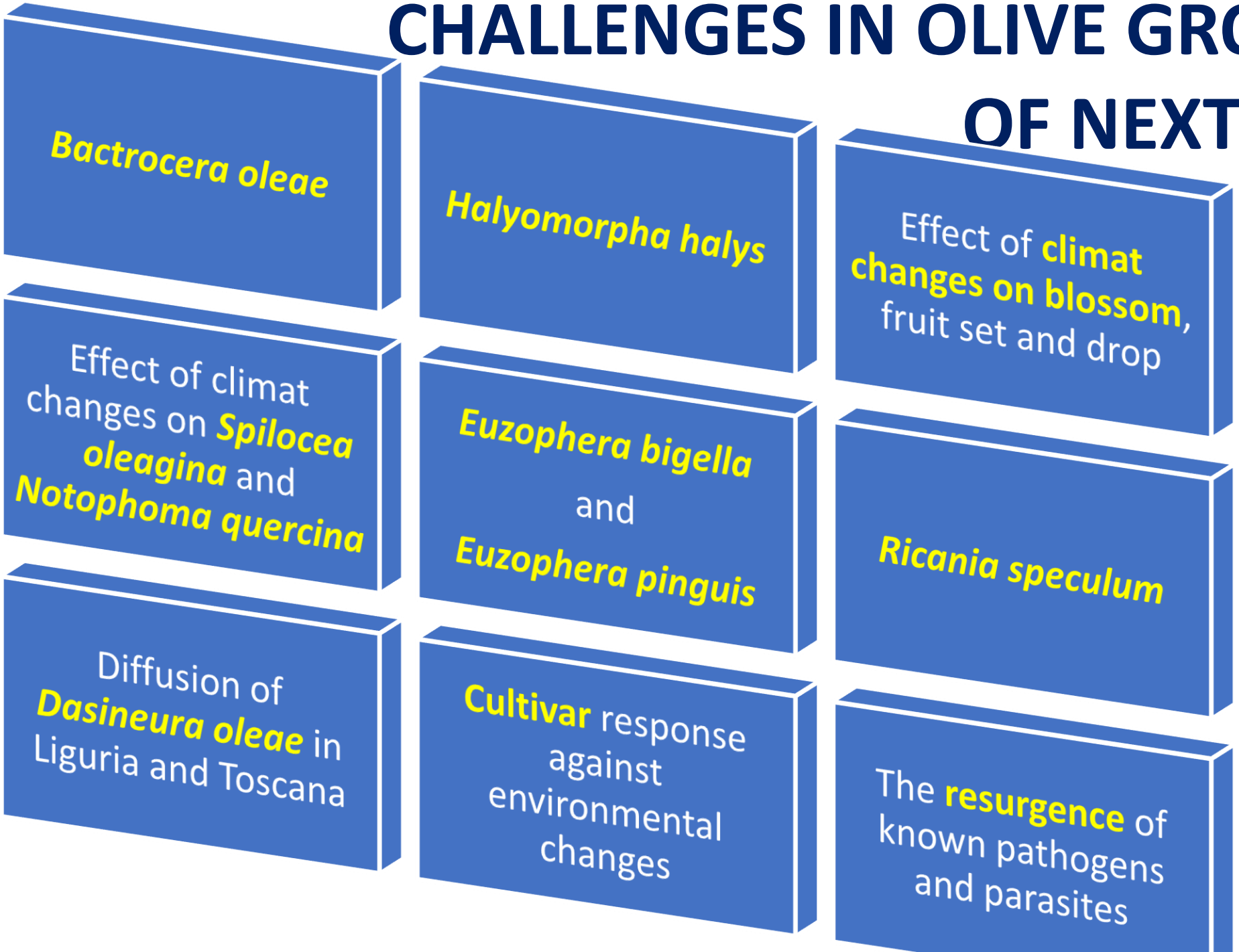
CHALLENGES IN OLIVE GROWING OF NEXT YEARS



THE EUROPEAN GREEN DEAL

CLIMATE PACT AND CLIMATE LAW

INVESTING IN SMARTER, MORE SUSTAINABLE TRANSPORT

STRIVING FOR GREENER INDUSTRY

ELIMINATING POLLUTION

ENSURING A JUST TRANSITION FOR ALL

FINANCING GREEN PROJECTS

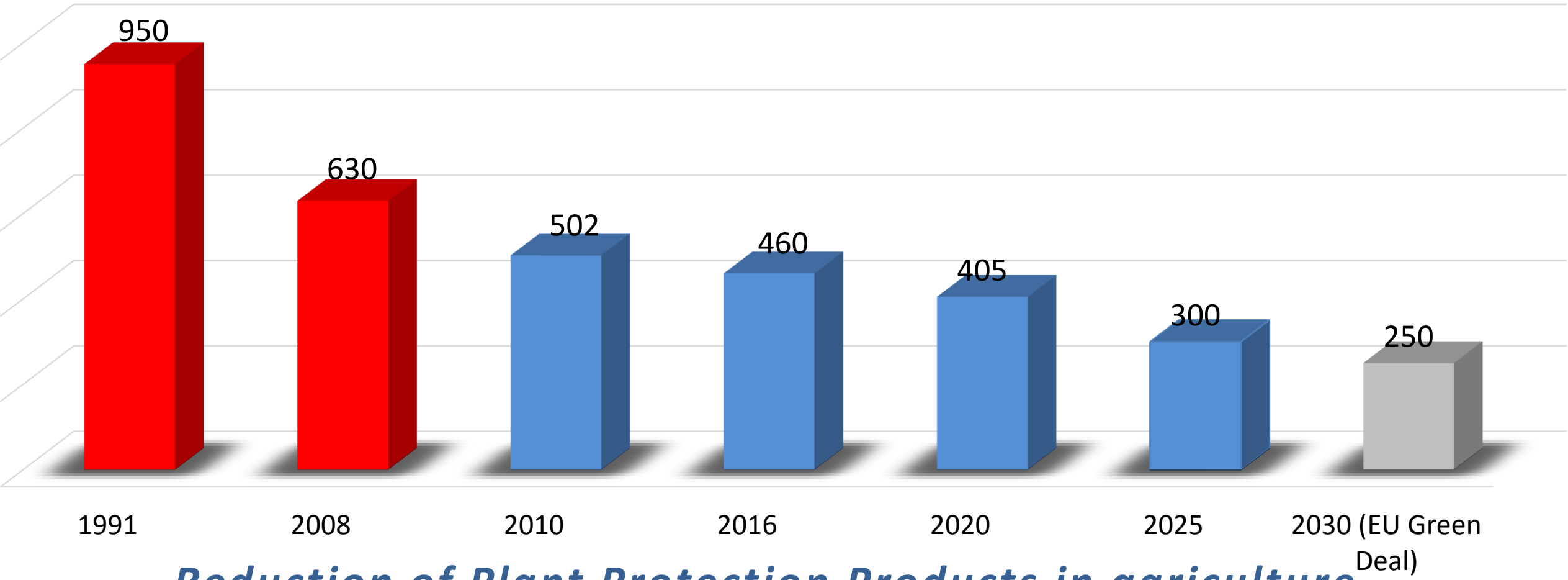
MAKING HOMES ENERGY EFFICIENT

LEADING THE GREEN CHANGE GLOBALLY

FROM FARM TO FORK

PROTECTING NATURE

PROMOTING CLEAN ENERGY



Reduction of Plant Protection Products in agriculture

DIR 194/91

REG 1107/09

FUTURE IPM

Data from
CeRSAA; EPPO; Copa-Cogeca WG Minor Uses

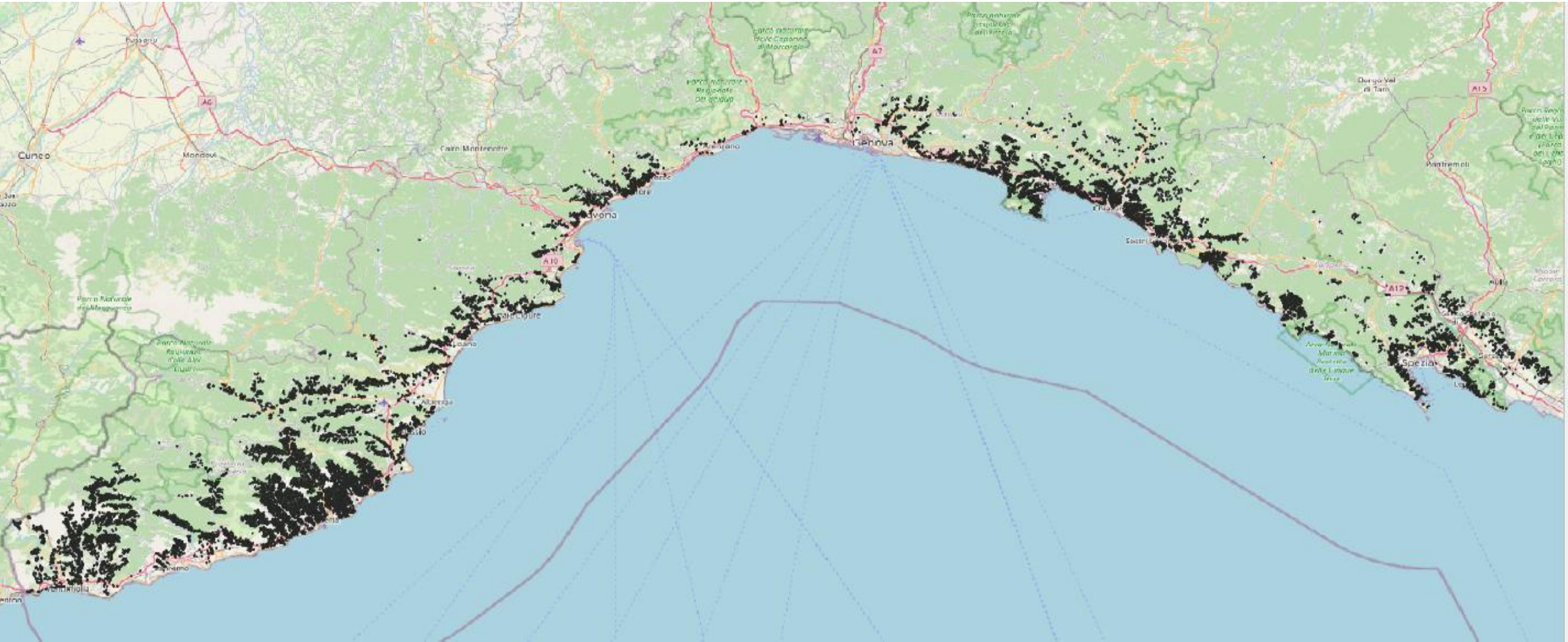
KEY PEST OF THE OLIVE TREE :

OLIVE FLY (*Bactrocera oleae*)

Case study of Liguria: cultivated and abandoned olive groves

16.250 ha cultivated

13.600 ha abandoned due to access difficulties, management and pathogens/pests control and, consequently, economic yield of the crop.



TERRACED GROUNDS

LIMITED WATER AVAILABILITY

DIFFICULT ACCESS WITH MACHINERY

HIGH CULTIVATION AND MANAGEMENT COSTS

INCREASINGLY DIFFICULT PATHOGENS/PESTS CONTROL

DISTRIBUTION OF PLANT PROTECTION PRODUCTS WITH DRONES IN OROGRAPHICALLY COMPLEX SCENARIOS

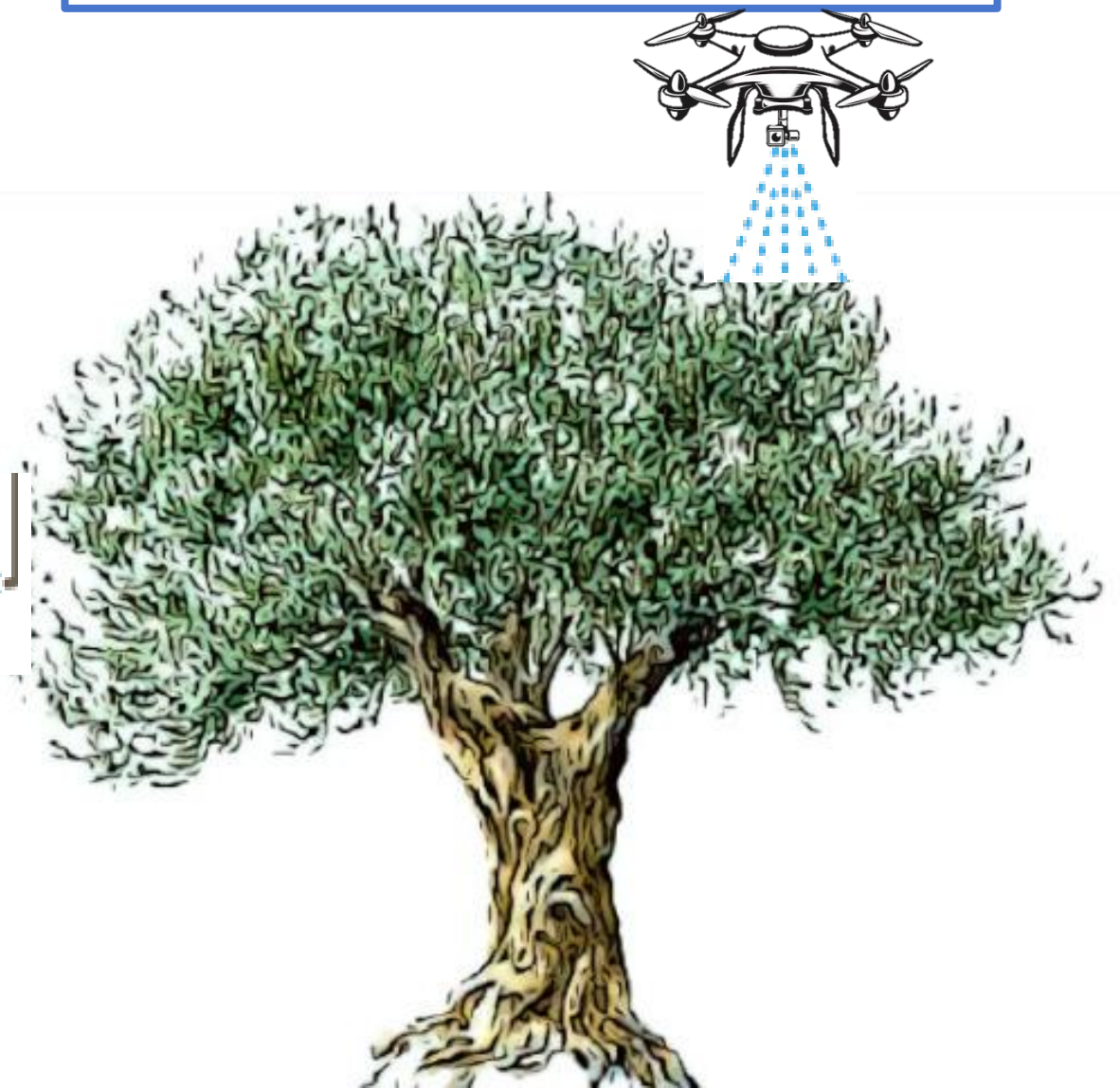
Full canopy treatment

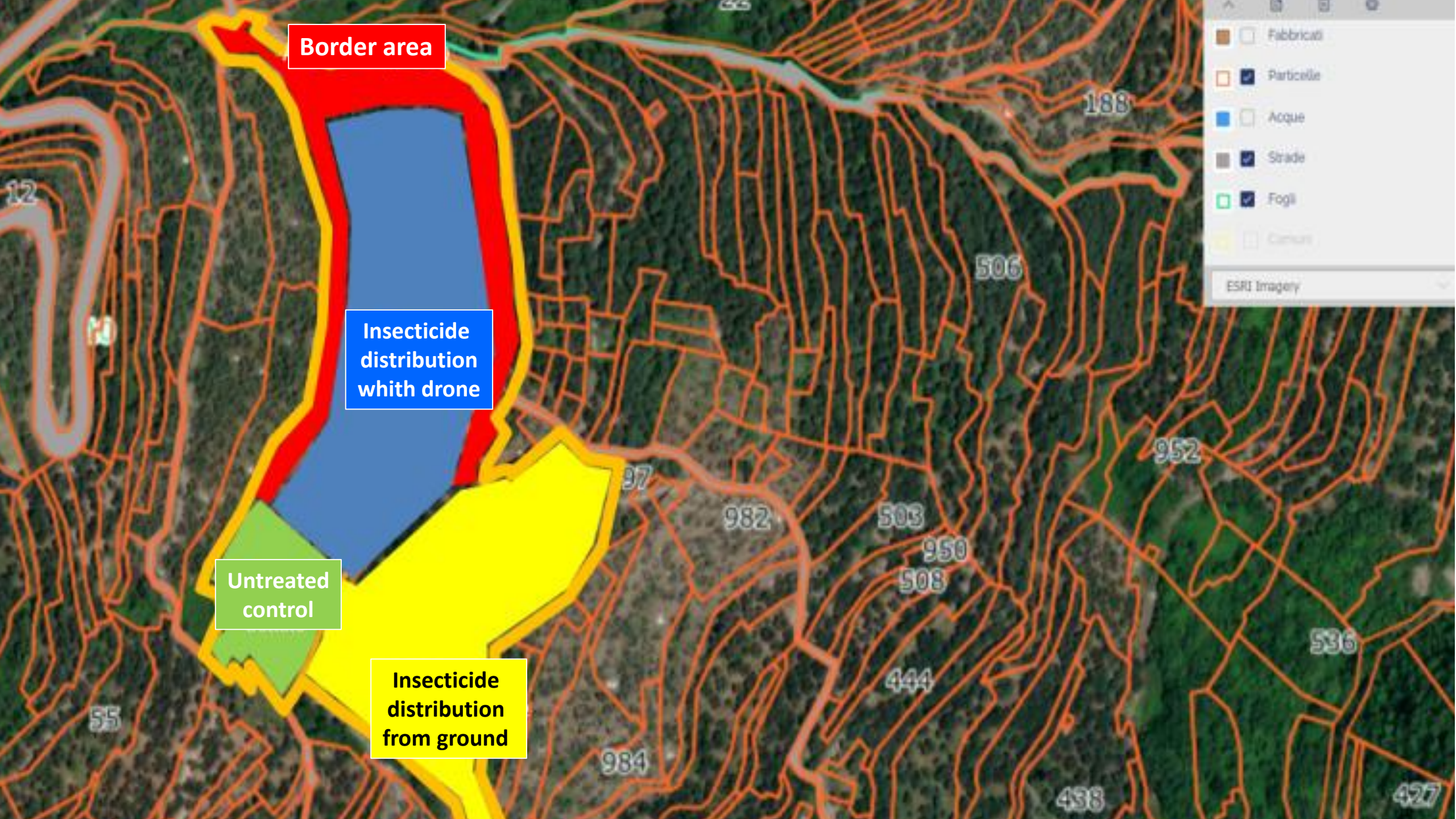
Distribution of the insecticide over the entire canopy
Volume of water: 700-1000 l/ha
Working time: 2 people; 4 hours/ha

VS.

Localized treatment

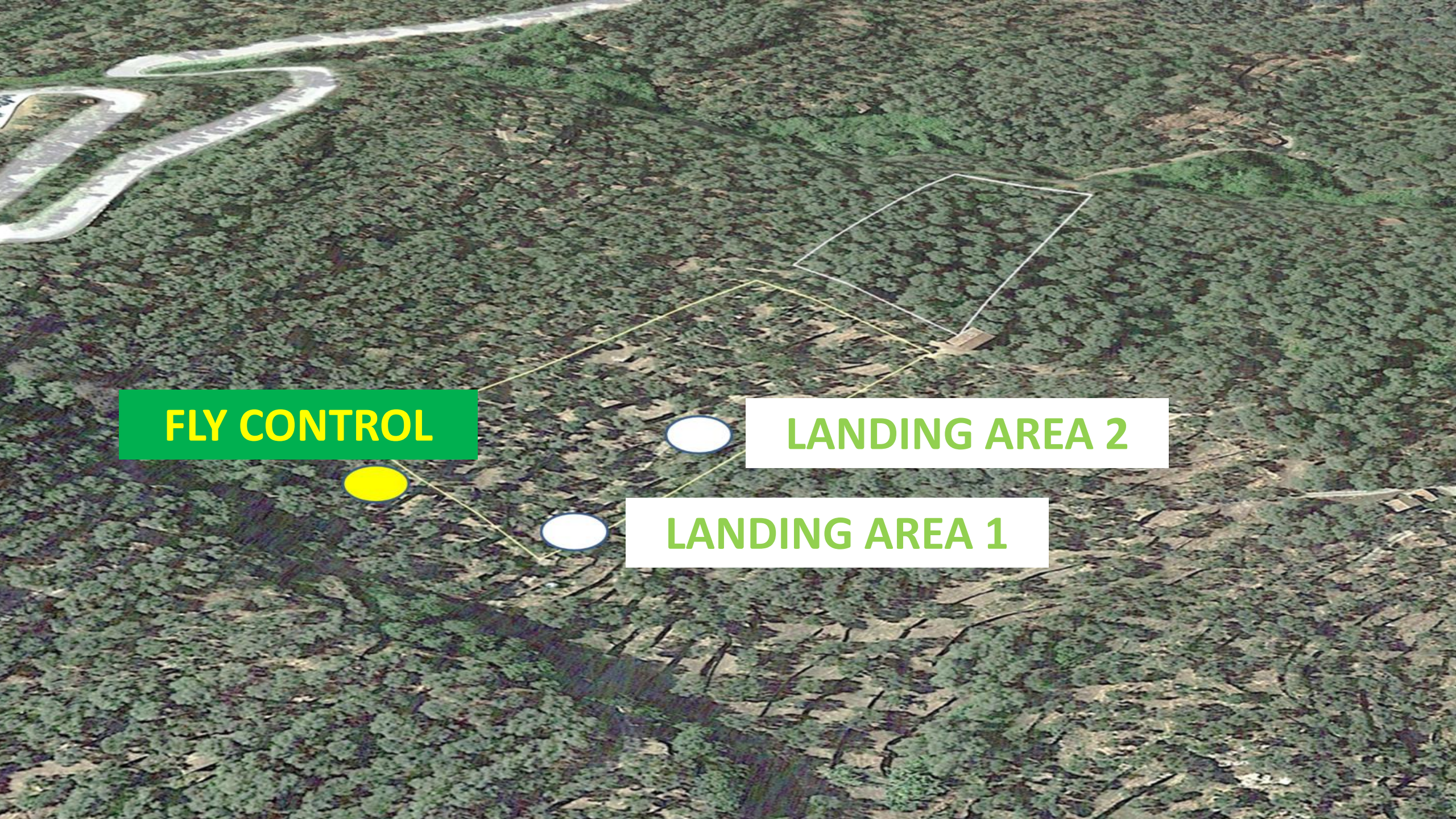
Distribution of the insecticide ON 2m^2 leaves
Volume of water: 15-30 l/ha
Working time: 2 people; 10 ha/hour




Border area
Insecticide distribution whith drone
Untreated control
Insecticide distribution from ground
Fabbricati
Particelle
Acque
Strade
Fogli
ESRI Imagery
188
506
952
982
503
950
508
536
444
984
438
427
55
12

Treatment protocol

	Treatments	Data of treatments
Untreated	No treatments	-
Attract and kill distributed with <u>drone</u>	Exirel (a.i. Cyantraliniprole) 75 ml/ha, + bait (Visarel 1,25 l/ha)	**Treat. 1**: 21/09/2023 **Treat. 2**: 06/10/2023
Attract and kill distributed with <u>ground sprayer</u>	Exirel (a.i. Cyantraliniprole) 75 ml/ha, + bait (Visarel 1,25 l/ha)	**Treat. 1**: 21/09/2023 **Treat. 2**: 06/10/2023

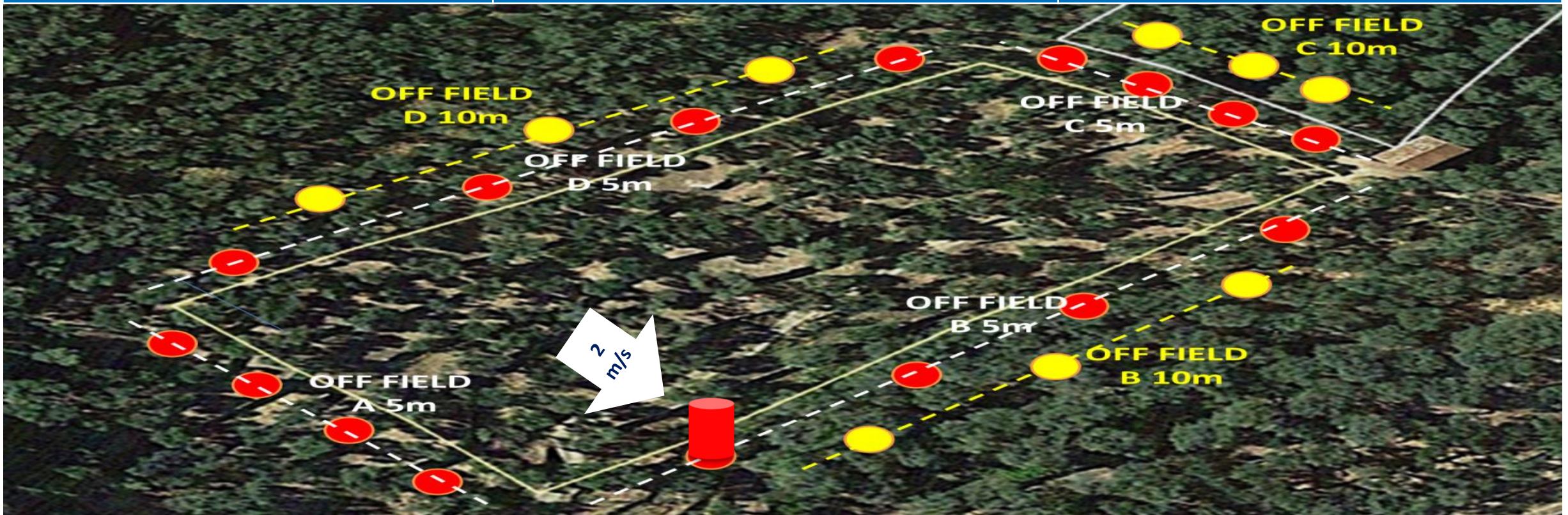

FLY CONTROL
LANDING AREA 2
LANDING AREA 1

Determination of ground deposition of Cyantraniliprole with drone.

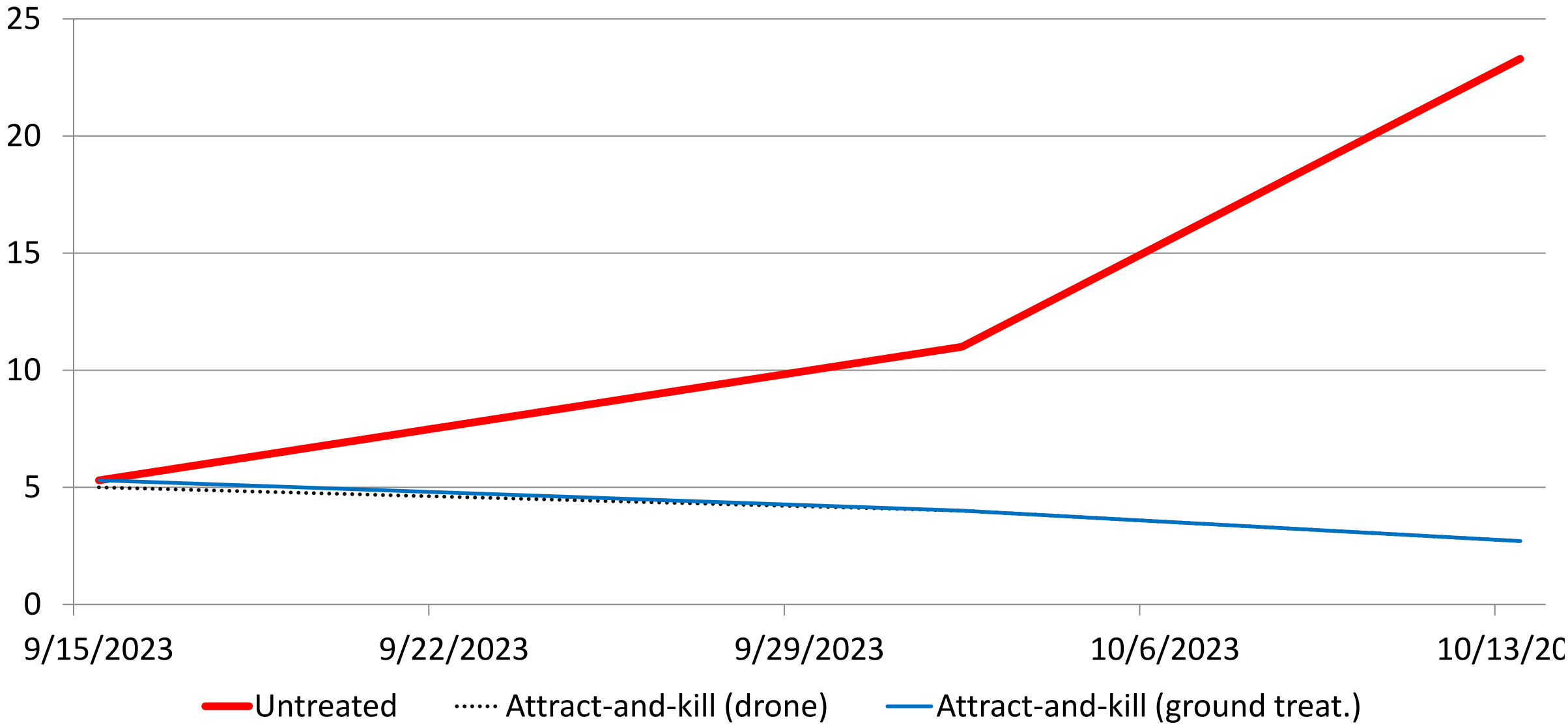
Expected deposition of Cyantraniliprole, considering distribution over the entire surface, without tree cover	749,07	mg/m²
Actual deposition on the ground calculated from analytical quantification carried out on areas not covered by plant canopies	594,49	mg/m²
Reduction in ground loss compared to expected	**20,70**	**%**

Drift at 5 and 10 m far from treated area with drone.

Sampler position	Measured value (mg) at 5 m	Measured value (mg) at 10 m
off field A	NR (<1)	NR (<1)
off field B	18,0	NR (<1)
off field C	NR (<1)	NR (<1)
off field D	NR (<1)	NR (<1)



Efficacy of treatments. Total infestation (% damaged olives by *B. oleae*)



Residues of Cyantraniliprole in olives

Treatment		Residues (mg/kg)
Untreated		**NR (<LOQ=0,01)**
Attract and kill distributed with <u>drone</u>	Cyantraniliprole + bait	**NR (<LOQ=0,01)**
Attract and kill distributed with <u>ground sprayer</u>	Cyantraniliprole + bait	**NR (<LOQ=0,01)**

Residues of Cyantraniliprole in olive oil.

Treatment		Residues (mg/kg)
Untreated		**-**
Attract and kill distributed with <u>drone</u>	Cyantraniliprole + bait	**NR (<LOQ=0,01)**
Attract and kill distributed with <u>ground sprayer</u>	Cyantraniliprole + bait	**NR (<LOQ=0,01)**

Costs of control strategy against *B. oleae* with authorized insecticides (december 2024) on olive.

Control strategy (sequence of treatments)	Cost €/ha with drone	Cost €/ha without drone	Cost variation (%) with drone
Exirel Bait (localized distribution)	119,90	146,36	**-18,08**
Exirel Bait (localized distribution)	119,90	146,36	**-18,08**
Sivanto Prime (full-canopy distribution)	134,09	134,09	0,00
Exirel Bait (localized distribution)	119,90	146,36	**-18,08**
Epik SL (full-canopy distribution)	132,78	132,78	0,00
Epik SL (full-canopy distribution)	132,78	132,78	0,00
Total cost	**759,34**	**838,72**	**-9,46**


THANK YOU FOR YOUR ATTENTION
Giovanni Minuto