SURVEY PLANNING IN LOMBARDY REGION

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PLANT HEALTH SERVICE - MILANO
1 ERSAF
2 REGIONE LOMBARDIA

ERSAF
ENTE REGIONALE PER I SERVIZI ALL'AGRICOLTURA E ALLE FORESTE

RegioneLombardia

THE ROUTE TAKEN BY THE DATA

REGIONAL PLANT HEALTH SERVICE

NATIONAL MEASURES

NPPO

EC- DG SANCO

REGIONAL MEASURES

EUROPEAN COMMISSION

EUROPEAN MEASURES

A SERIOUS RESPONSIBILITY

ECONOMIC LOSSES

ENVIRONMENTAL IMPACT AND BIODIVERSITY LOSS

The PPS of Lombardy Region conducts monitoring in order to:

- define the pest status of its territory:
  - to issue export certification
  - to apply emergency measures
  - to maintain a pest free area
- collect the data required by DG SANCO and NPPO
- prepare a contingency plan on a new pest;
- verify the effectiveness of control measures applied
- develop defense strategies in low input of PPPs

The monitoring is carried out in

- field crops
- orchards
- vineyards
- forests
- green areas
- sites considered to be sources of risk such as wood processors

Inspections in nurseries, checks and controls for import and export are not considered in these survey activities.

In 2013 the monitoring was carried out on **48** pests

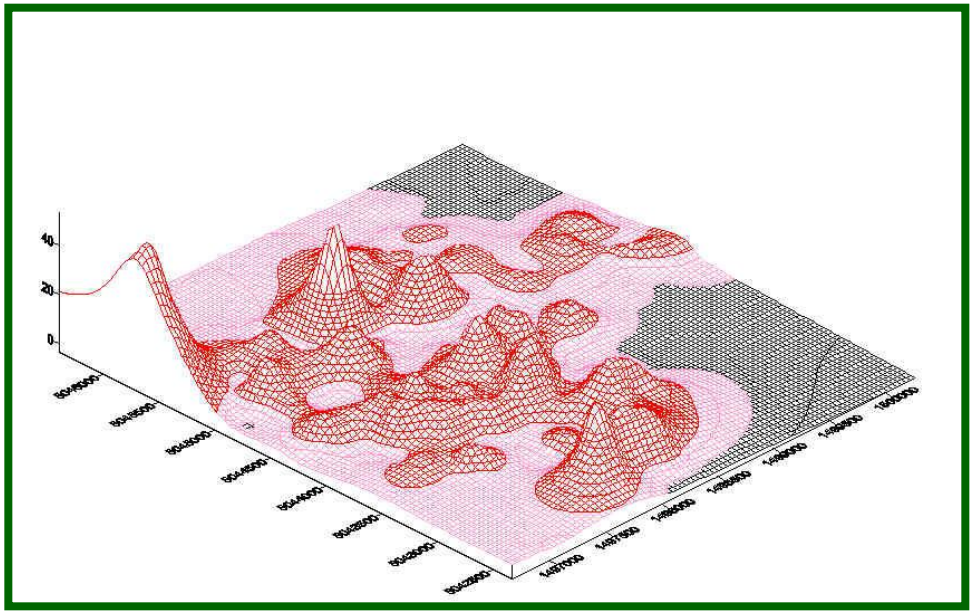
	N°
INSECTS	14
FUNGI	8
BACTERIA	4
PHYTOPLASMA	4
VIRUSES/VIROIDS	13
NEMATODES	4
MOLLUSCS	1

	Common name	Scientific name	Acronym
INSECTS	Spotted-wing drosophila	*Drosophyla suzuki*	
	Red palm weevil	*Rhynchophorus ferrugineus*	
	Palm moth	*Paysandisia archon*	
	Chestnut gall wasp	*Dryocosmus kuriphilus*	
	Pine sawyer beetle	*Monochamus spp.*	
	Tomato leafminer	*Tuta absoluta*	
	Tuber flea beetle	*Epitrix spp.*	
	Rice water weevil	*Lissorhoptrus oryzophilus*	
	Grapevine leafminer	*Antispila oinophylla*	
	American grapevine leafhopper	*Scaphoideus titanus*	
	Cotton leafworm	*Spodoptera littoralis*	
	western corn rootworm	*Diabrotica virginifera virginifera*	
	European vine moth	*Lobesia botrana*	
FUNGI	Sudden oak death	*Phytophthora ramorum*	
	Pitch cancker of pine	*Gibberella circinata*	
	Intensive dieback of ash	*Chalara fraxinea*	
	Canker of apple	*Valsa ceratosperma*	
	Downy mildew of grapewine	*Plasmopara viticola*	
	Grape powdery mildew	*Unicinula necator, Oidium tuckeri*	
	Black rot	*Guignardia bidwellii*	
BACTERIA	Fireblight	*Erwinia amylovora*	
	Bacterial canker of kiwi fruit	*Pseudomonas syringae pv. Actinidiae*	PSA
	Bacterial wilt	*Ralstonia solanacearum*	
	Bacterial canker of tomato	*Clavibacter michiganensis subsp. michiganensis*	
	Bacterial leaf spot of capsicum	*Xanthomonas campestris pv. vesicatoria*	

PHYTHOPLASMA	Baco 22A disease	Grapevine flavescence dorée phytoplasma	
	Black wood	Grapevine bois noir phytoplasma	
	Apple proliferation	Apple Proliferation Phytoplasma	APP
	Stolbur	*Potato Stolbur phytoplasma*	
	Maize redness phytoplasma	*Phytoplasma solani*	
VIRUSES/ VIROIDS	Sharka	*Plum Pox Virus*	PPV
	Tristeza of citrus	*Citrus Tristeza Virus*	CTV
	Pepino mosaic potexvirus	*Pepino Mosaic Virus*	PeMV
	Cucumber mosaic	*Cucumber mosaic virus*	CMV
	spotted wilt of tomato	*Tomato Spotted Wilt Virus*	TSWV
	Tomato yellow leaf curl virus	*Tomato Yellow leaf curl virus*	TYLCV
	Potato mottle	*Potato Y virus*	PVY
	Potato mild mosaic virus	*Potato X Virus*	PVX
	Alpha Mosaic Virus	*Alpha Mosaic Virus*	AMV
	Pelargonium zonate spot virus	*Pelargonium zonate spot virus*	PZSV
	Iris Yellow Spot Virus	*Iris Yellow Spot Virus*	IYSV
	Iris Yellow Spot Virus	*Iris Yellow Spot Virus*	ToMV
	Potato spindle tuber	*Potato spindle tuber viroid*	PSTVd
NEMATODES	Pine wood nematode	*Bursaphelenchus xiliphilus*	
	Yellow and white potato cyst nematode	*Globodera spp.*	
	Potato wart disease	*Synchytrium endobioticum*	
	Soybean cyst nematode	*Heterodera glycines*	
MOLLUSCS	Apple snails	*Pomacea spp.*	

STRATEGIC PLANNING STEPS:

✓**which data to collect:** data requested by DG SANCO and by NPPO, but also other data to develop control strategies or monitor their effectiveness (ex. *Anoplophora chinensis* N. of exit holes and sawdust per infested tree)



STRATEGIC PLANNING STEPS:

✓**how:** detailed protocols are processed on how to make the survey, which species to control (all host plants or those specified by an EC Emergency Decision or listed in EPPO standard or those most at risk) and which symptoms are to be checked

Anoplophora glabripennis	*Anoplophora glabripennis*	*Anoplophora glabripennis*
Genera listed by the Lombardy Regional Law	**Genera listed by EPPO Standard PM 9/15**	**Genera listed by EPPO Standard PM 9/15**
Acer	*Acer*	*Fraxinus*
Betula	*Betula*	*Morus*
Salix	*Salix*	*Platanus*
Populus	*Populus*	*Prunus*
Ulmus	*Ulmus*	*Pyrus*
	Aesculus	*Robinia*
	Albizia	*Sorbus*
	Alnus	*Sophora*
	Carpinus	*Fagus*

STRATEGIC PLANNING STEPS:

✓**how many:** n ha, n sites according to the importance of the crop in the area and of its GDP;

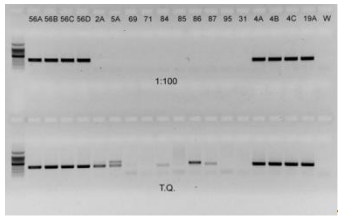
✓**Who and time commitment:** n. days for inspectors, agents, technicians calculated on the basis of efficiency ratios that vary from crop to crop, but also from area to area (ex, if the ground is flat, hilly or terraced. We have developed performance indices based on real data recorded in recent years;

	INDEX	AVERAGE COST(€)
FD in Vineyards	1,5 ha/day	118/ ha
SHARKA PPV in orchards	2,0 ha/day	95/ha
Erwinia in orchards x	3,5 ha/day	61/ha
PSA in orchards	1,5 ha/day	132/ha
Rhynchophorus RPW	0,6 site/day	319/site
Drosophyla suzukii	0,9 site/day	232/site
Bursaplenchus in forestry	1,9 site/day	108/site
Monochamus x PWN	0,4 site/day	510/site
Tomato crops	9,0 ha/day	22/ha
Potato crops	4,5 ha/day	33/ha
CTV in public gardens	3,7 site/day	54/site

STRATEGIC PLENNING STEPS:

✓**when:** on a scientific basis, the timing depends on the cycle of the HO, the presence of symptoms, the expiry of the reporting

✓**support tools:** GPS, laboratory analysis, pheromone or kairomones traps, binoculars, tree-climber, platform), etc.



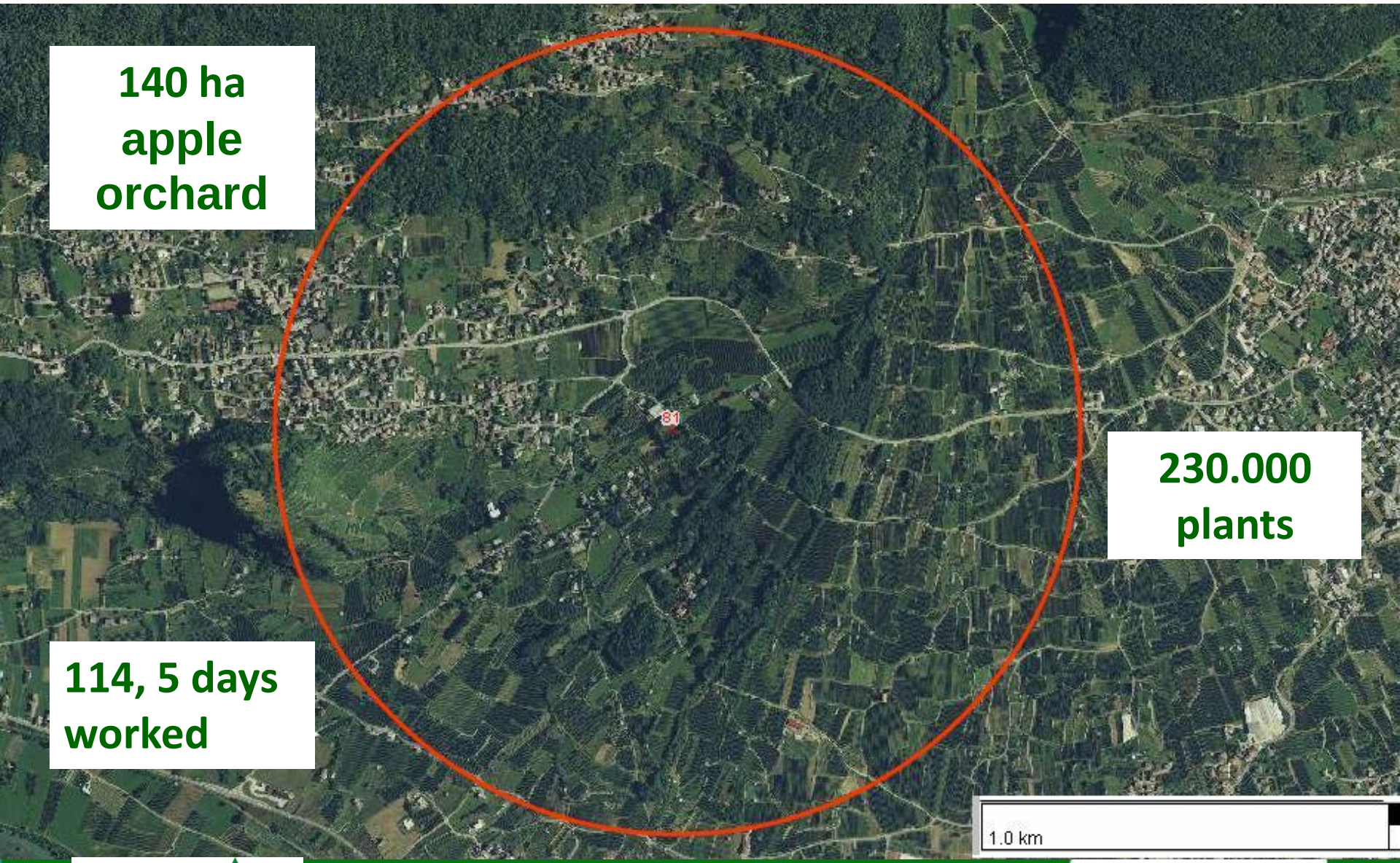
SPREADSHEET

	PROV	ATTIVITA'	PERIODO DEI CONTROLLI		HA COLTIVATI PER PROVINCIA	HA-SITI-N° CONTROLLI	HA-SITI-N° CONTROLLATI	CAMPIONI PRELEVATI	INVIO AL LABORATORIO	GG Effettive	indice Effettivo
			DA	A							
	BG BS LC MI LO MN PV SO	**FD VIGNETI + CONTROLLO VETTORE + Antispila oinophylla + BLACK ROT**	luglio	settembre	da dichiarazioni SIARL 2013 (esclusi vivai): **21621 Ha**	150 HA	**180,11**	**110**	max 15 campioni a settimana (avvisare il laboratorio quando si effettua il prelievo per allertare la ricezione	**106,25**	**1,7**
	BG	FLAVESCENZA DORATA VIGNETI + CONTROLLO VETTORE + Antispila oinophylla	luglio	settembre	655	10 HA	9,51	6	3 positivi a FD ed 1 positivo LN	9	1,1
	BS	FLAVESCENZA DORATA VIGNETI + CONTROLLO VETTORE + TIGNOLETTE +	luglio	settembre	5612	27 HA	31,46	16	5 positivi a FD e 5 positivi a LN	12	2,6
	LC	FLAVESCENZA DORATA VIGNETI + CONTROLLO VETTORE + Antispila oinophylla	luglio	settembre	53	7 HA	7,74	10	6 positicvi a FD e 1 positivo a LN	4	1,9
	MI-LO	FLAVESCENZA DORATA VIGNETI + CONTROLLO VETTORE + Antispila oinophylla	luglio	settembre	178	8 HA	8,77	12	7 positivi a FD e 3 positivi a LN	6,75	1,3
	MN	FLAVESCENZA DORATA VIGNETI + CONTROLLO VETTORE + Antispila oinophylla	luglio	settembre	1715	10 HA	14,15	8	8 positivi a FD	7	2,0
	PV	FLAVESCENZA DORATA VIGNETI + CONTROLLO VETTORE + Antispila oinophylla	luglio	settembre	12877	80 HA (vedi note)	100,18	37	34 positivi a FD e 2 positivi a LN	55,25	1,8
	SO	FLAVESCENZA DORATA VIGNETI +	luglio	settembre	470	8 HA	8,20	21	10 positivi a FD e 8	12,25	0,7

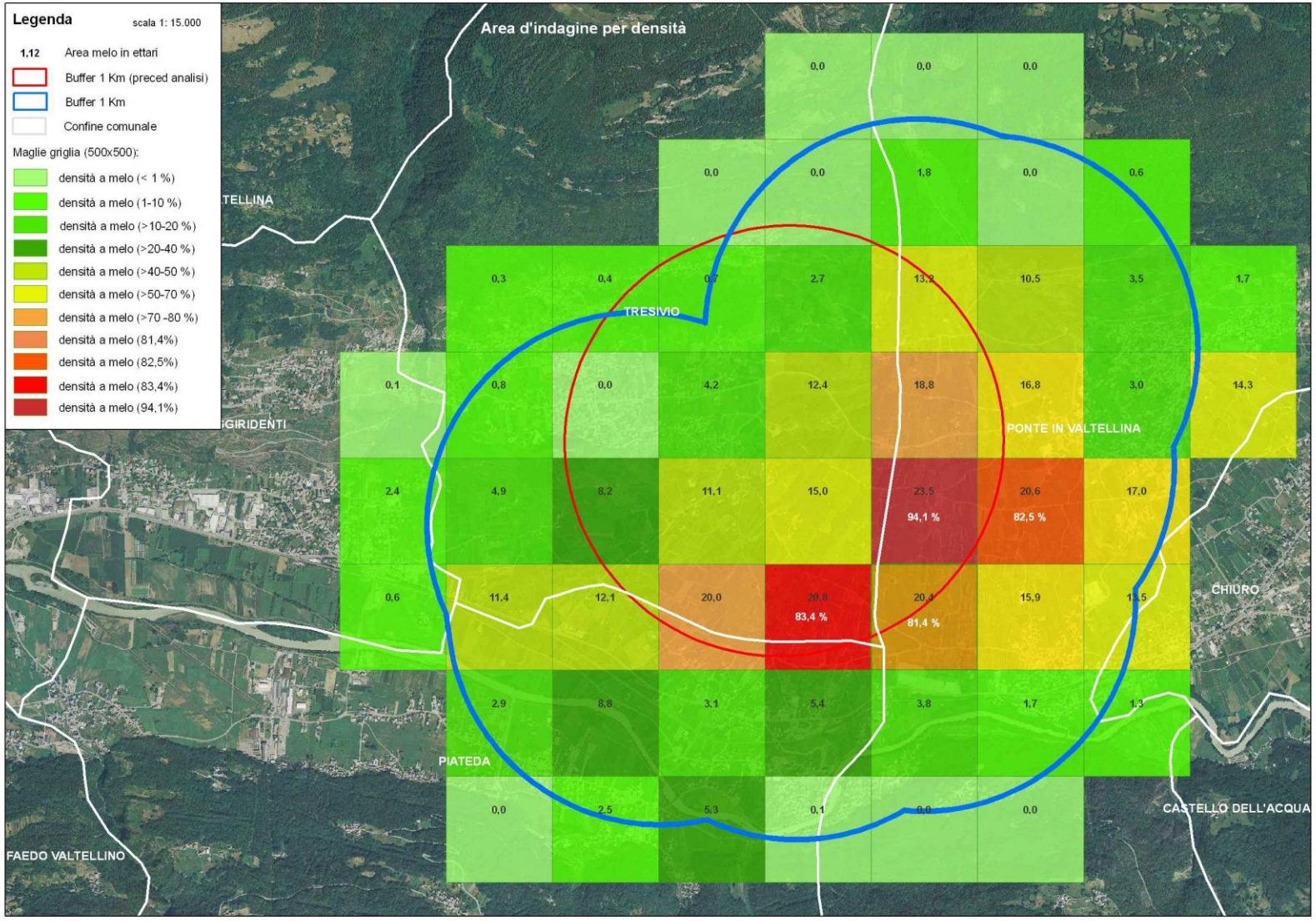
Erwinia amylovora outbreak in Sondrio: how to change plans in course of work

NEW OUTBREAK AUTUMN 2010

2011 Demarcated area radius 1 km



2012 Demarcated area radius 1 km



The demarcated area was divided into squares of 25 ha, within which sample checks were carried out on a surface to apple / pear variable:

within the squares with apple/pear orchards less than 40% of the surface: inspection of more than 10% of orchards;

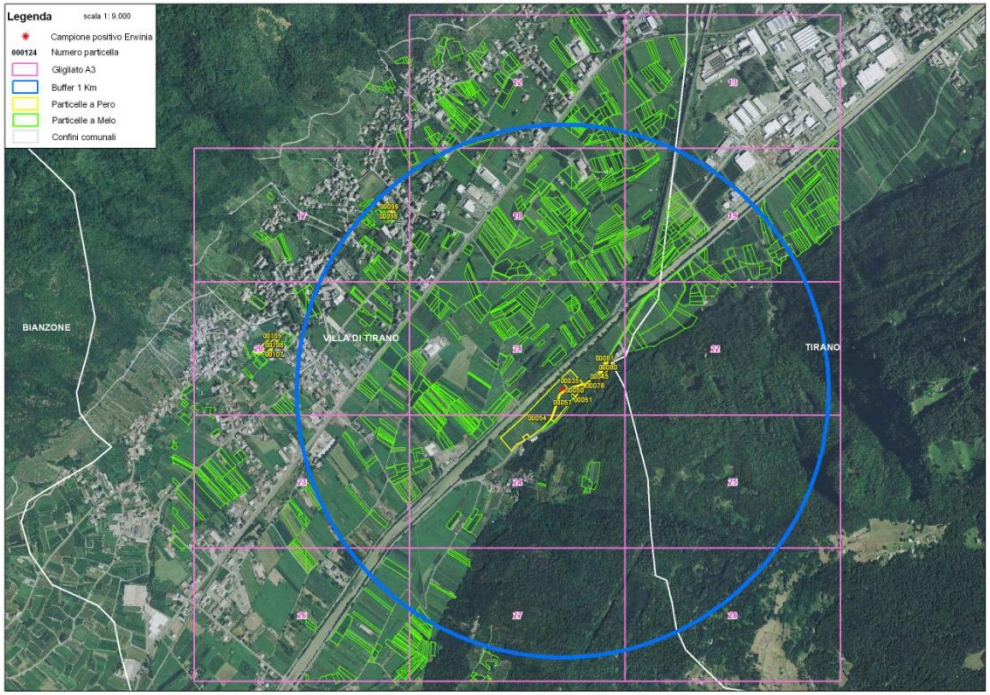
within the squares with apple/pear orchards between 40% and 80% of the surface: inspection of more than 15% of orchards;

within the squares with apple/pear orchards more than 80% of the surface: inspection of more than 20% of orchards;

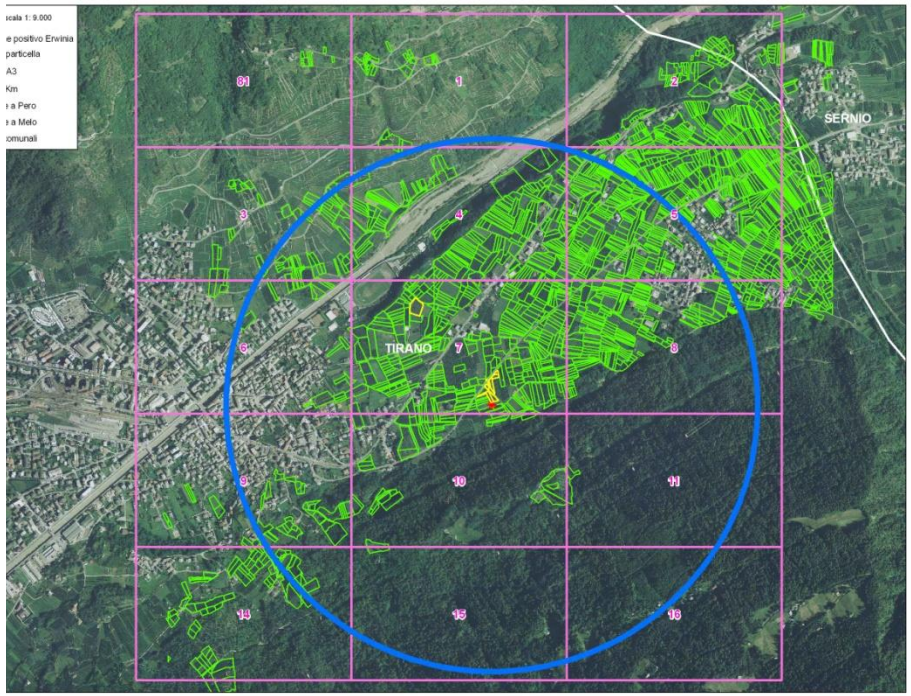
Presence of unfested plants by *E. amylovora* while checking spring: inspection of more than 30% of orchards.

2012 Demarcated area radius 1 km

VILLA DI TIRANO



TIRANO



2012 Demarcated area radius 1 km

Plantaregina prevention plan

- **the Plantaregina district area extends for more than 50.000 ha and is specialized in the cultivation of full-size deciduous ornamental trees**
- **each year, almost 3 million plants of the species most vulnerable to *A. chinensis* are grown in open fields**
- **to protect this district and ensure its economic well-being, the RPPS has designed and applied a stepped-up surveillance system, in line with the FAO ISPMs**

prevention plan - general goals

- protecting the territory
- keeping the district pest free
- protecting nursery production
- ensuring product quality
- ensuring district competitiveness
- informing producers and local authority

prevention plan - territory surveillance

a new methodology was devised for the enhanced territorial surveillance

- **drew up a map with a buffer zone of 2 km (500m + 1500m) radius around all the areas dedicated to nursery cultivation**
- **in addition to controlling the plants being cultivated, a buffer zone with a radius of 100 m around the company headquarters was also controlled**
- **superimposed a grid of 500m on each side, leading to the creation of 2,156 cells subsequently classified based on the risk to plant health and identified by different colors**

Surveillance of the territory

number of spy points:

- **500 m buffer zones: from 2 to 4 sentinel points/grid unit**
- **1500 m buffer zones: 1 sentinel point/grid unit**

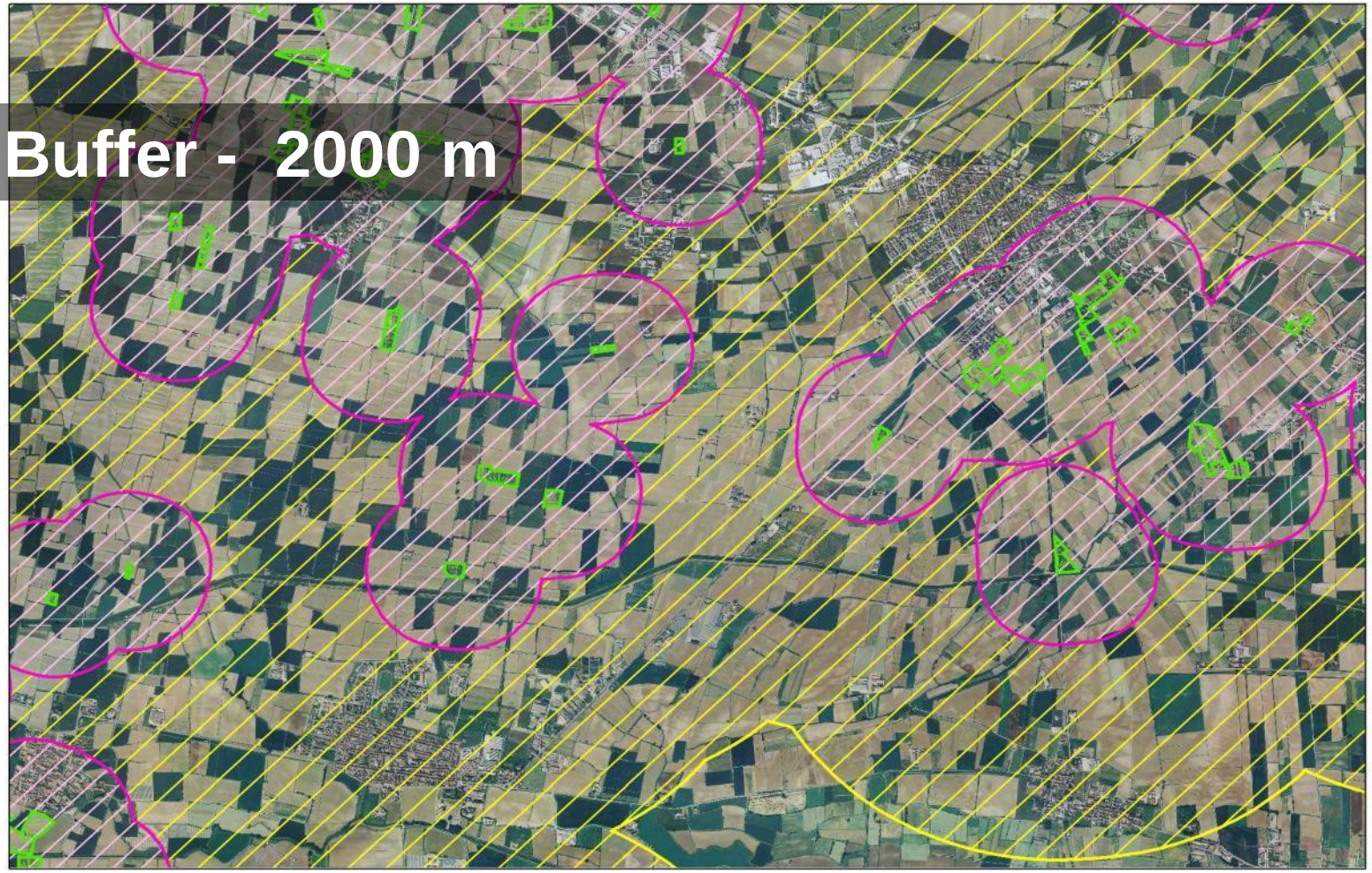
survey:

- **more sensitive host plants**
- **proximity to risk sources**
- **detection feasibility and ease of control**

Ortophoto - 2007

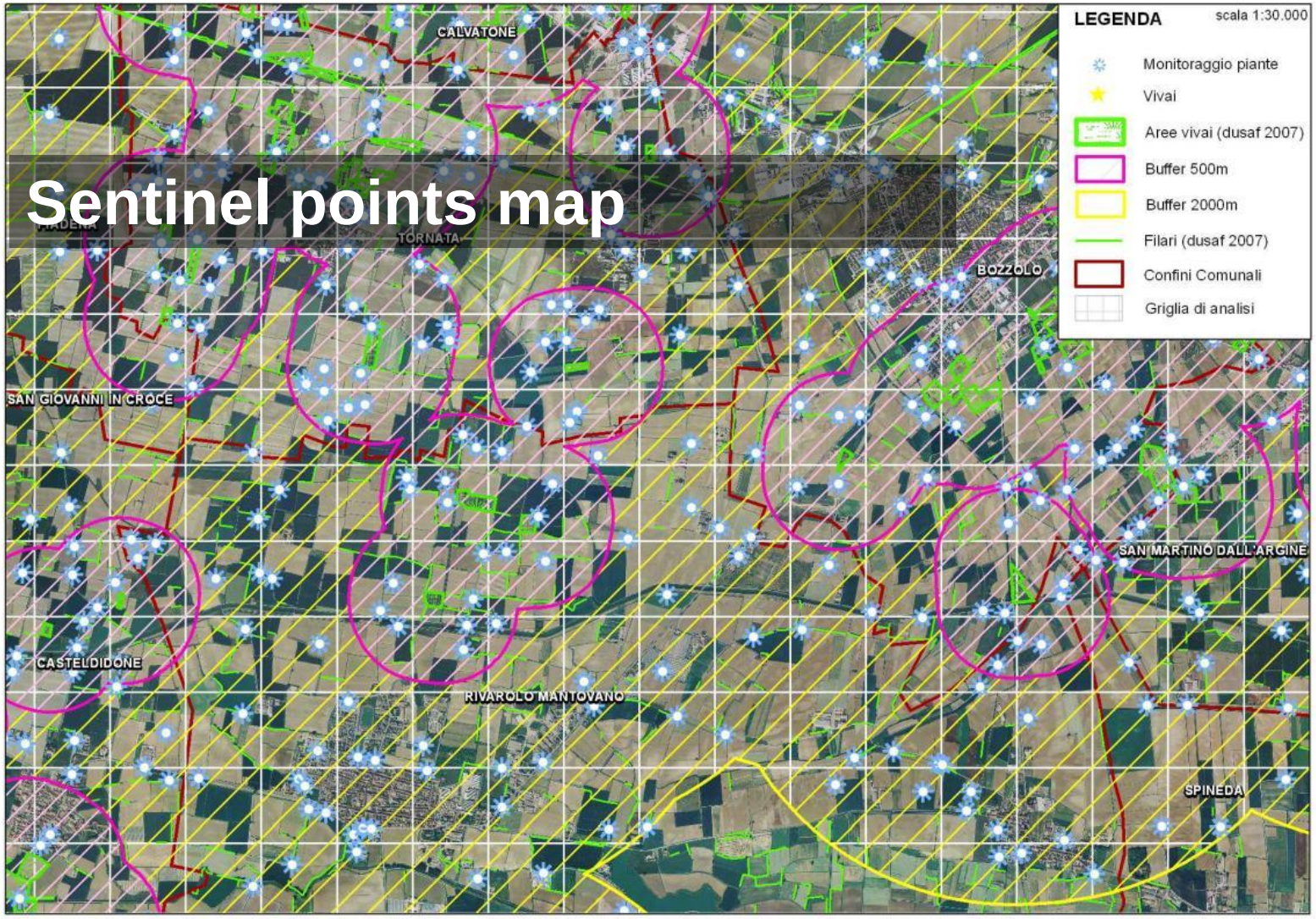

DUSAF - 2007/2010


Buffer - 500 m


Buffer - 2000 m

500x500 m - Grid

Sentinel points map



Summary of Survey Results

- survey of 6.223 host plants in urban green areas of 31 municipalities
- survey of 82.275 host plants in 15 nursery fields
- 3450 sentinel points (11.233 trees)
- 140 days worked

The cost of the first year application plan was 40.000 euro

Annual maintenance is 30.000 euro

The District annual value of the production is 120.000.000 euro

0,025%

Conclusions

- Monitoring is an essential tool for the application of a proper plant health regime.
- Monitoring is extremely expensive and although specific and representative should be graduated according to the real risks present in EU plant health PRA need to pay increasing attention to the specific reality of Union territory.
- Need for clear *legenda,* key, for a unique reading of the DG SANCO survey template.
- Need to identify a unique protocol that define what is meant by inspection site in the forest, in the urban environment, field, etc.