



COLOSS Work Shop Monitoring

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Bee mortality and colony loss survey in Italy

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Colony loss in Italy

Data estimated from questionnaire surveys



- **2006:**
30-40%;
- **2007:**
30-40% North;
10-30% South
- **2008 *:**
50,000 hives in North Italy

* Data about bee mortality in North Italy during dressed corn sowing

History

Till now, colony losses in Italy were estimated only by questionnaire surveys and local monitoring initiatives;

At the end of 2008 Ministry of Agriculture financed a National research project to study bee mortality and establish a national bee monitoring network

Italian approaches to study bee mortality and colony loss in 2009

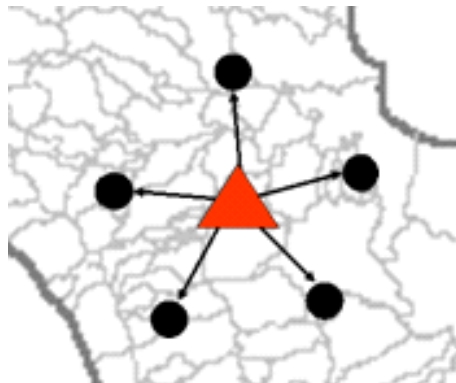
- 1. Questionnaires** – beekeepers give data about their own cases;
 - + much lower cost;
 - + possibility to obtain much more data;
 - data biased by the subjectivity of the operator (directly involved beekeeper);
 - low availability of data regarding no-bee-loss situations (beekeepers report only cases of damage);
 - we have no possibility to fix the conditions (landscape, beekeeping practices)
we only record the occurring situation;
- 2. Large scale monitoring** – national bee monitoring network – APENET (by IZS- Venetie in collaboration with DiSTA, Bologna University, and CRA-API)
 - + produces much data regarding different environmental situations;
 - + many experimental units (hives) involved allow to individuate the potential factors;
 - + reliable data – assessment carried out by specialists and following the protocol;
 - + possibility to choose the environment and many other parameters;
 - very expensive and possible organisation problems

To assess the extent and the causes of bee and colony loss in Italy it is essential the combination of both methods.

National bee monitoring network (APENET)

0.1% of the total Italian bee colonies

- Modules: 20 on the national territory
- Apiaries: 5 per each module disposed at a mean distance of 50 km
- Hives per apiary: 10
- Total hives involved: 1000
- Controls per year: 4 (after winter, spring, summer, before winter)
 - colony strength (bees, brood, stores, drones, queen)
 - bee mortality, flight activity, pests & diseases, abnormal behaviour
 - colony management
 - bee & pollen sampling for residual analysis
 - environmental data

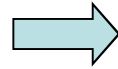


LEGEND

- ▲ 1. Module coordination centre
- 2. Apiary
- 3. Distance of max 50 km

APENET steps

Collection of data



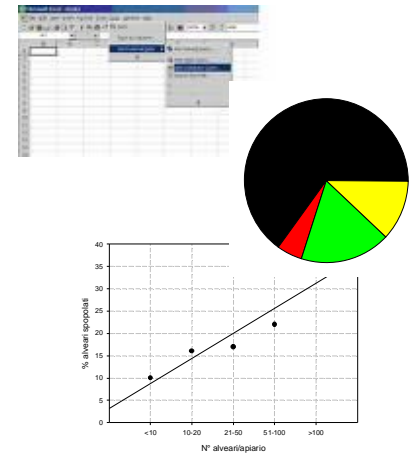
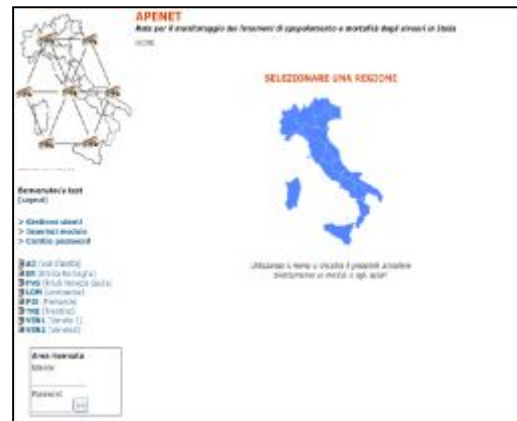
Send data by Internet



Record keeping in the database



SCHEDA APENET		
MODULO	APICCOLTORI	
LOCALITA'	INDIRIZZO	
COORDINATE GIS	N° TOTALE ALVEARI DELLA PARCHE	
TIPO DI ZONA:	<input type="checkbox"/> PIANURA <input type="checkbox"/> COLLINARE <input type="checkbox"/> MONTAGNA <input type="checkbox"/> ZONA UMIDA <input type="checkbox"/> TERRITORIO (n %): <input type="checkbox"/> AGRICOLA <input type="checkbox"/> INDUSTRIALE <input type="checkbox"/> URBANO <input type="checkbox"/> NATURALE <input type="checkbox"/> COLTURE (n %): <input type="checkbox"/> ORTICOLE <input type="checkbox"/> FRUTTICOLE <input type="checkbox"/> FORAGGERE <input type="checkbox"/> CEREALICOLE <input type="checkbox"/> SERRE <input type="checkbox"/> FIORICOLE <input type="checkbox"/> SILVICOLE <input type="checkbox"/> ALTRO	
EPISODI DI MORTALITA'/SOPOPLAMENTI NEGLI ANNI PRECEDENTI:	SI <input type="checkbox"/> NO <input type="checkbox"/>	
Se SI: ANNO	PERIODO	
CAUSE PRESUNTE O STABILITE	ALVEARI CONVOLTI (n %)	
DATA/ORA	CONTROLLI N° (1, 2, 3, 4, extra)	
OSSERVAZIONI (se condizioni meteo diverse dal controllo)		
OSSERVAZIONI METEOROLOGICHE DEL PERIODO (nei 15 giorni antecedenti la data del controllo)		
Normale (giornate di bel tempo interrotte da giornate con piogge)	<input type="checkbox"/>	
Piovoso (molte giornate caratterizzate da pioggia e cielo nuvoloso)	<input type="checkbox"/>	
Sciocoso (molte settimane caratterizzate da assenza di piogge)	<input type="checkbox"/>	
Freddo (molte giornate con basse temperature che inibiscono i voli)	<input type="checkbox"/>	
Caldo afoso (molte giornate di alte temperature, presenza di barba)	<input type="checkbox"/>	
OSSERVAZIONI AGRONOMICHE E VEGETAZIONALI DELLA ZONA		
Pratiche agronomiche del periodo (nei 15 giorni antecedenti la data del controllo)		
Coltura	Pratico	Treatment
Coltura	Pratico	Treatment
Coltura	Pratico	Treatment
Coltura	Pratico	Treatment
Coltura	Pratico	Treatment
Coltura	Pratico	Treatment
Specifica i prodotti usati nei trattamenti (se necessari)		
Principali specie botaniche (coltivate o spontanee) in FIORI presenti		
Specie	Fioritura	Periodo
Presenza di malattie	Specie botanica	



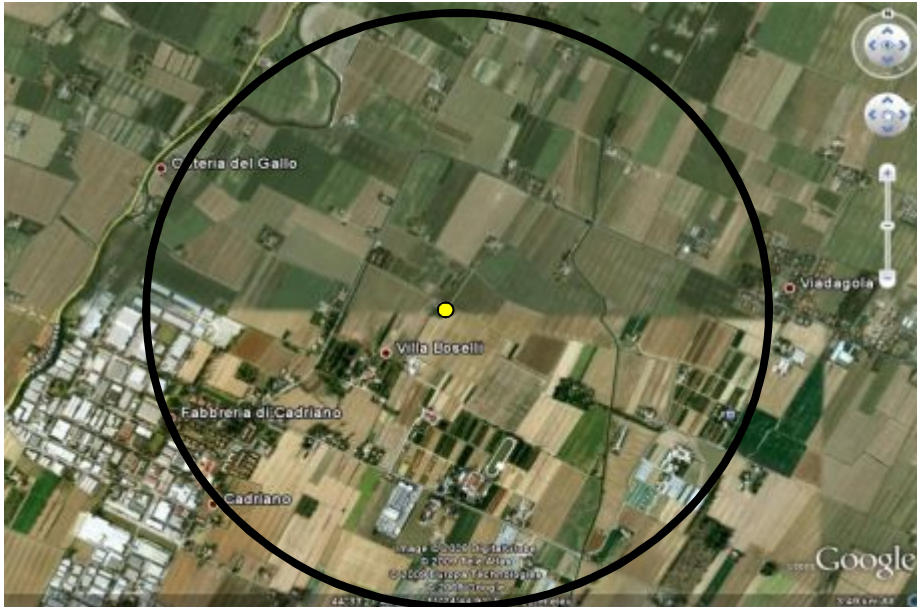
Field form

APENET web site

Analysis of data

Information gathered from APENET

Geographic and environmental information around apiary



- Location of apiary (address);
- GIS coordinates;
- Landscape management;
- Nearby crops;
- Agrochemical applications;
- Forage abundance and quality;
- Climatic condition;

Information gathered from APENET

Beekeeping management



- Operation size (n° of hives);
- Nutrition;
- Pests and diseases management;
- Additional feeding;

Information gathered from APENET

Colony conditions



- Pests and diseases;
- Queen age and condition;
- Colony size (adults and brood);
- Stores (honey, pollen)
- Bee mortality;
- Abnormal behaviors;
- Flight activity

Information gathered from APENET

Chemical, palinological and pathological analysis

Sampling

Routine-sample

Live bees

Pollen

Wax

Extra-sample

Live bees

Dead bees

Larvae and pupae

Brood in the comb

APENET – Home page

<http://www.izsvenezie.it/apenet>

APENET
Rete per il monitoraggio dei fenomeni di spopolamento e mortalità degli alveari in Italia

HOME

SELEZIONARE UNA REGIONE

Venerdì 24/04/09

Benvenuto/a

- ABR1 (Abruzzo 1)
- BLZ1 (Bolzano 1)
- BSL1 (Basilicata 1)
- CLB1 (Calabria 1)
- CMP1 (Campania 1)
- EMR1 (Emilia Romagna 1)
- EMR2 (Emilia Romagna 2)
- LGR1 (Liguria 1)
- LZO1 (Lazio 1)
- MI S1 (Molise 1)
- MRC1 (Marche 1)
- PGL1 (Puglia 1)
- SCL1 (Sicilia 1)
- SRD1 (Sardegna 1)
- TRN1 (Trento 1)
- TSC1 (Toscana 1)
- TSC2 (Toscana 2)
- UMB1 (Umbria 1)
- VNT1 (Veneto 1)
- VNT2 (Veneto 2)

Area riservata
Utente

Password

Region selection

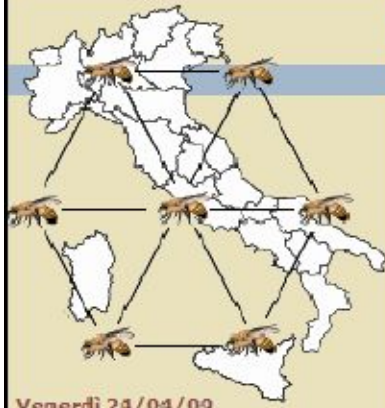
Utilizzando il menu a sinistra è possibile accedere direttamente ai moduli e agli epiri

Reserved access

APENET

Rete per il monitoraggio dei fenomeni di spopolamento e mortalità degli alveari in Italia

HOME



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- ⊕ **EMR2** (Emilia Romagna 2)
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- ⊕ **VNT2** (Veneto 2)

Area riservata

Utente

Password



REGIONE Veneto

Moduli presenti:

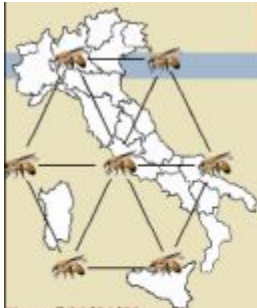
- VNT1 - Veneto 1
- VNT2 - Veneto 2



APENET

Rete per il monitoraggio dei fenomeni di spopolamento e mortalità degli alveari in Italia

HOME - Modulo Veneto 1



Venerdì 24/04/09

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- TSC2 (Toscana 2)
- UMB1 (Umbria 1)
- VNT1 (Veneto 1)
- VNT2 (Veneto 2)

Area riservata

Utente

Password



MODULO Veneto 1

Dati meteorologici

Selezionare apiario:



indietro



Venerdì 24/04/09

Benvenuto/a Claudio Porrini
[Logout]

> Cambia password

- ABR1 (Abruzzo 1)
- BLZ1 (Bolzano 1)
- BSL1 (Basilicata 1)
- CLB1 (Calabria 1)
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Area riservata

Utente

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APENET

Rete per il monitoraggio dei fenomeni di spopolamento e mortalità degli alveari in Italia

HOME - Modulo Veneto 1 - Apiario VNT1-1

APIARIO VNT1-1

Dati geografici e ambientali

Episodi mortalità/spopolamenti

Dati controlli

The aims of APENET

1. To know the bee health in Italy in relation to several parameters: environment, beekeeping management, landscape management, use of agrochemicals, pests and diseases;
2. To know the bee loss factors and the period of occurrence;
3. To understand possible action to reduce bee losses;
4. To evaluate the efficacy of the introduced law (suspension of seed dressing) on colony losses, from the 2009 season.

PROBLEMS

specific case: ITALY

1. Beekeeping in Italy:
 - a. About 1,000,000 registered colonies
 - b. At least same number of not registered colonies
 - c. Total: about 2,000,000 colonies !!!
 - d. Beekeepers: about 100,000 (including non professional)

2. Impossible to cover 5% of Italian colonies by the national monitoring network
 - a. Very expensive
 - b. Difficult to manage so many colonies in one network

- 3. Because APENET covers the 0.05-0.1% of the Italian bee colonies, it is important to integrate these data with the data obtained from questionnaires.**



Thank you for your attention!