



# BIOGARD®



**ABIM 2013**  
*Andrea Braggio*

# FROM GLOBAL MARKETING TO AGRICULTURE:

*Biocontrol challenges in the Italian market*





CBC is employing global thinking to create a business with a worldwide network currently comprising over 30 bases around the world.



## CBC Co. Ltd. - Japan

### BUSINESS AREA

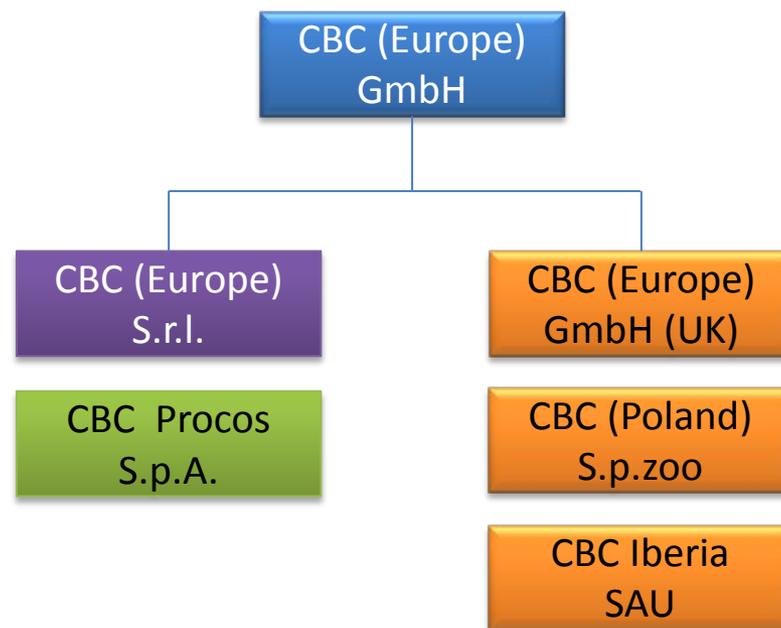
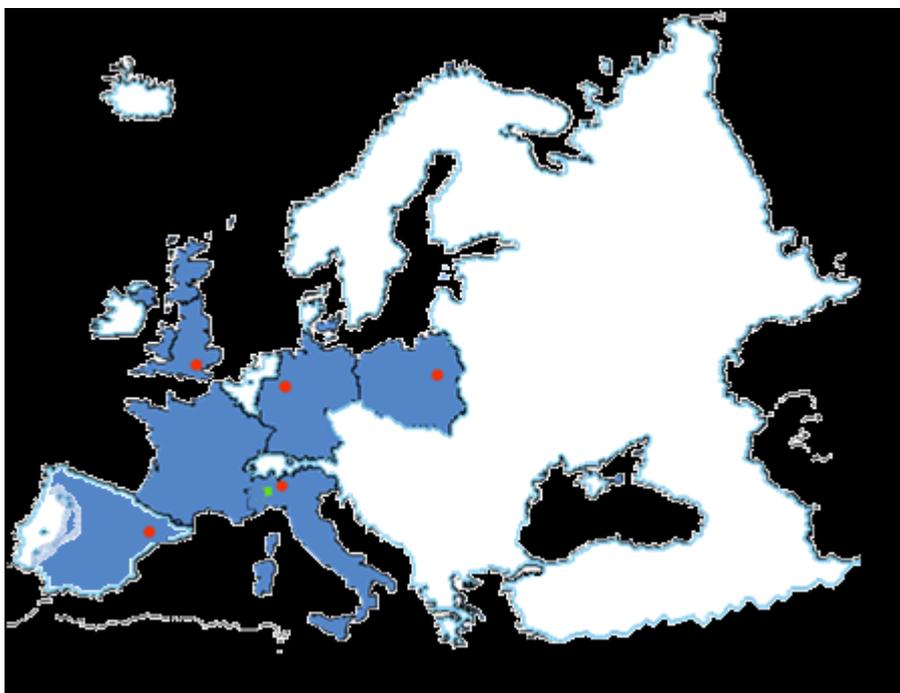
Manufacturer and/or trading in:

- Chemicals & Resins
- Electronic Materials & Advanced Devices and Materials
- Electric Device Materials (CBC INGS COMPANY)
- Healthcare, Pharmaceuticals & Agriculture
- Foods & Textiles Business
- Lenses and Video surveillance products
- Eco Energy

### COMPANY OUTLINE

- Company name CBC Co., Ltd.
- Founded January 20, 1925
- Head Office address 2-15-13 Tsukishima, Chuo-ku, Tokyo 104-0052, Japan
- President Utaro Doi
- Employees 525(Japan) as of March 2012 (Consolidated 3.275)

## CBC Group European Operations



*approx. 400 people involved in CBC Group including Procos Factory*

## CBC Group - Italian Operations

### **CBC (EUROPE) Srl**

Via E. Majorana, 2  
20054 – Nova Milanese (MB) Italy

3 sites: Milan, Bergamo, Cesena  
Warehouse 15.000 cm  
52 Employees (on 3 sites)

**BIOGARD**<sup>®</sup>  
Division – Bergamo office  
Via 25 Aprile, 44  
24050 – Grassobbio (BG)

### **CBC Procos SpA**

Via G. Matteotti, 249  
28062 – Cameri (No) Italy

Factory Area 120.000 sqm, Warehouse 24.000 cm  
Production capacity 300 MT API (Active Pharmaceutical Ingredients)  
240 employees

98% Export (60% Japan, 20% USA)



[www.cbceurope.it](http://www.cbceurope.it)



[www.biogard.it](http://www.biogard.it)



[www.procos.it](http://www.procos.it)

CBC (Europe) S.r.l. – BIOGARD® Division

a full range of **biocontrol agents (BCAs)** for  
organic and IPM agriculture [www.biogard.it](http://www.biogard.it)



nutrition

microbials

pheromones  
& monitoring

beneficials

botanicals

# ITALY: leading country in fruit, grape and vegetable production

- Protected vegetables 26,000 ha
- Open-field vegetables 430,000 ha
- Fruit crops 317,000 ha
- Grapes 717,000 ha
- ORGANIC (fruits, vegetables, grapes) 167,000 ha



***Average farm size***

***7.7 ha***



# WHY BCAs IN THE ITALIAN MARKET?

## BECAUSE OF 4 MAIN REASONS:

1. Residue issues (GDO)
2. Withdrawal of many chemicals due to EU regulation
3. Development of pathogen/pest populations resistant to chemicals
4. Minimize the impact of agriculture on the environment

# WHY BCAs IN THE ITALIAN MARKET?

## 1. Residue issues (Retail - Supermarket)

- To fulfill consumers' requests, Supermarket chains are focusing their attention not only on the application of IPM strategies but also on chemical residue levels
- IPM changed by including new technologies to reduce the levels of undesired residues
- BCAs can play a key-role in this context

# WHY BCAs IN THE ITALIAN MARKET?

## 1. Residue issues (Retail)

Source: (Waldner W. Frutta e Vite, 2009)



Maximal Residue Level requested by Supermarket chains in **Italy**



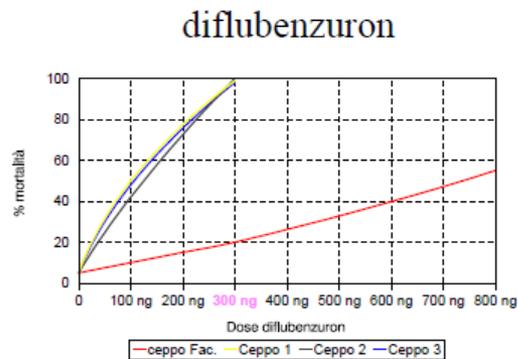
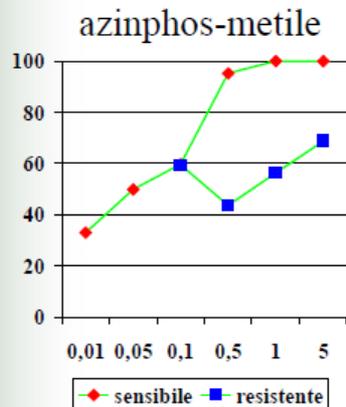
Maximal Residue Level requested by Supermarket chains in **Germany**

# WHY BCAs IN THE ITALIAN MARKET?

2. Development of pathogen/pest populations resistant to chemicals (insecticide, fungicides, acaricides). Up to a few years ago, resistance was the main reason to look for alternative methods.

## Resistenza

E' stata ormai accertata da tempo nella nostra Regione la minore efficacia dei tradizionali prodotti utilizzati contro la carpocapsa

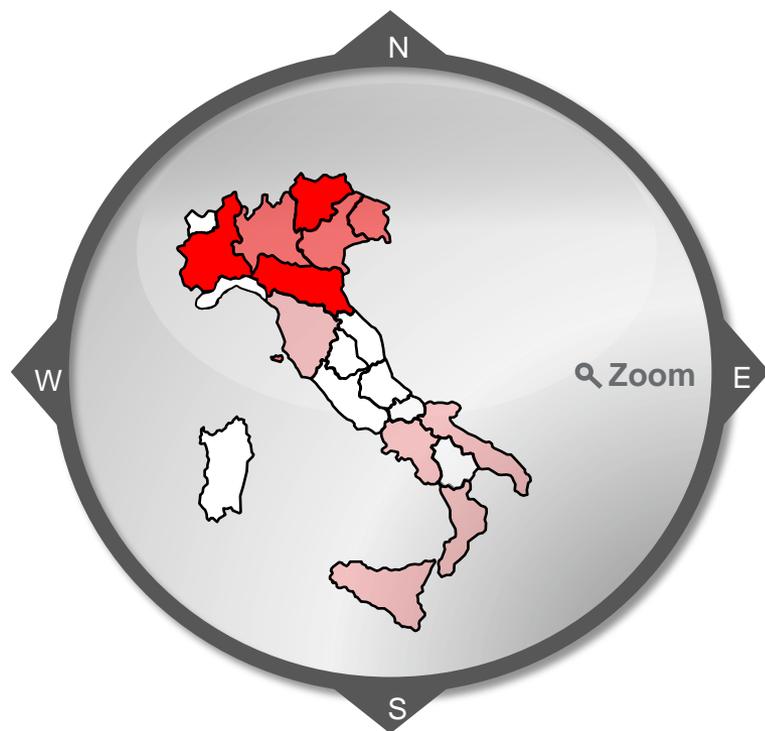


An Example?  
*Codling moth in the  
Emilia Romagna region*



# BCAs IS A SOLUTION!

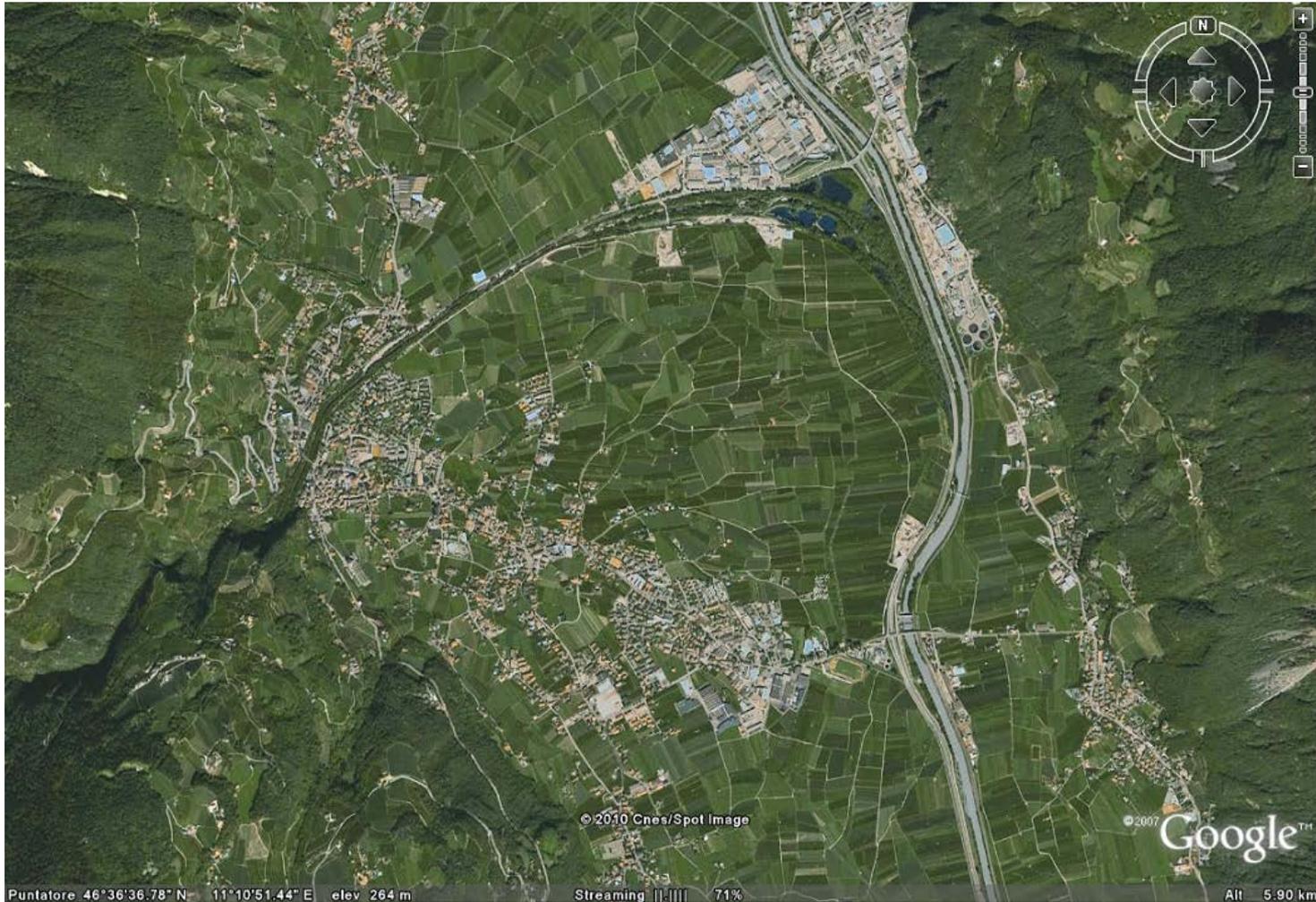
**MATING Disruption:** MD allows for a reduction in the number of insecticide sprays, thus the likelihood of resistance development as well as residue on fruits is reduced .



Pome fruit area	Organic
+/-80,000 ha	4,600 ha
Covered by MD:	
34,000 ha	



# MATING DISRUPTION IN ITALY: main areas



**Bolzano area  
intensive top  
fruit  
orchards**

# BCAs IS A SOLUTION!

## Demo trial in Emilia Romagna apple production



- Farms with medium pressure of Codling Moth
- Application of **Mating Disruption** and **entomopathogenic nematodes**
- Use of new a.i.s: **Chlorantraniliprole** and **Emamectine Benzoate**
- Use of biological products (***Cydia pomonella* GranuloVirus** and **Spinosad**)
- Exclusion of organophosphates
- Comparison with 2009 strategy

Source: *Consorzio Fitosanitario Provinciale Modena*

# BCAs IS A SOLUTION!

## 2009 Strategy Farm n.1



Spr.ays	Date	Active Ingredient
1	13 – 5	CpGV
2	22 – 5	Chlorpyriphos –e
3	29 -5	Fosmet
4	6 – 6	Methoxyfenozone
5	27 – 6	Chlorpyriphos-e
6	6 – 7	Chlorpyriphos-e
7	15 – 7	Chlorpyriphos-e
8	24 – 7	Fosmet + Teflubenzuron
9	4 – 8	CpGV + Teflubenzuron
10	16 – 8	Spinosad
11	30 – 8	Spinosad

**Damage at harvest: 1%**

# BCAs IS A SOLUTION!

## Farm n.1 strategies

2010

Sprays	Date	Active Ingredient
	20 - 4	Isomate C TT
1	7 - 5	Chlorantraniliprole
2	18 - 5	Chlorantraniliprole
3	31 - 5	CpGV
4	29 - 6	Emamectine b.
5	8 - 7	Emamectine b.
6	20 - 7	Spinosad
	23 - 10	<i>S. feltiae</i>

**Damage at harvest: 0**

**Residue: Spinosad**

2011

Sprays	Date	Active Ingredient
	10 - 4	Isomate C TT
1	28 - 4	Chlorantraniliprole
2	12 - 5	Chlorantraniliprole
3	24 - 5	CpGV
4	7 - 7	Emamectine b.
5	20 - 7	Emamectine b.
6	11 - 8	CpGV
	23 - 10	<i>S. feltiae</i>

**Damage at harvest: 0**

**Residue: none**

# BCAs IS A SOLUTION!

## 2012 Strategy Farm n. 1



Sprays	Date	Active Ingredient
	10 - 4	Isomate C TT
1	3 - 5	Chlorantraniliprole
2	17 - 5	CpGV
3	25 - 5	CpGV
4	7 - 7	Emamectine b.
5	20 - 7	Emamectine b.

**Damage at harvest: 0**

**Residue: none**

***Thanks to MD, pest pressure decreases year by year.  
Further reduction of sprays and total costs is possible***

# BCAs IS A SOLUTION!

## 2009 Strategy Farm n.2



Number	Date	Active Ingredient	Strategy cost
1	6 -5	Diflubenzuron	30
2	13 -5	Chlorpyriphos -e	28
3	21 - 5	CpGV	40
4	29 - 5	Fosmet	39
5	5 -6	Chlorpyriphos -e	28
6	25 -6	Chlorpyriphos -e	28
7	6 - 7	CpGV	20
8	11 -7	CpGV	20
9	17 -7	CpGV	20
10	24 -7	CpGV	20
11	30 -7	Chlorpyriphos -e	28
12	7 -8	CpGV	20
13	13 -8	CpGV	20
14	19 -8	Spinosad	125
15	27 - 8	Spinosad	125
16	3 -9	Spinosad	125

**Damage at harvest: 2%**

# BCAs IS A SOLUTION!

## Farm n.1 strategies

2010

Sprays	Date	Active Ingredient
	20 - 4	Isomate C TT
1	8 - 5	Chlorantraniliprole
2	17 - 5	Chlorantraniliprole
3	3 - 6	CpGV
4	6 - 7	Emamectine b.
5	13 - 7	CpGV
6	20 - 7	Emamectine b.
7	15 - 8	CpGV
	23 - 10	<i>S. feltiae</i>

**Damage at harvest: 0,5%**

**Residue: none**

2011

Sprays	Date	Active Ingredient
	15 - 4	Isomate C TT
1	29 - 4	Chlorantraniliprole
2	12 - 5	Chlorantraniliprole
3	24 - 5	CpGV
4	30 - 5	CpGV
5	1 - 7	Emamectine b.
6	7 - 7	Emamectine b.
7	30 - 7	CpGV
8	5 - 8	CpGV
	10 - 10	<i>S. feltiae</i>

**Damage at harvest: 0 %**

**Residue: none**

# BCAs IS A SOLUTION!

## 2012 Strategy Farm n.2



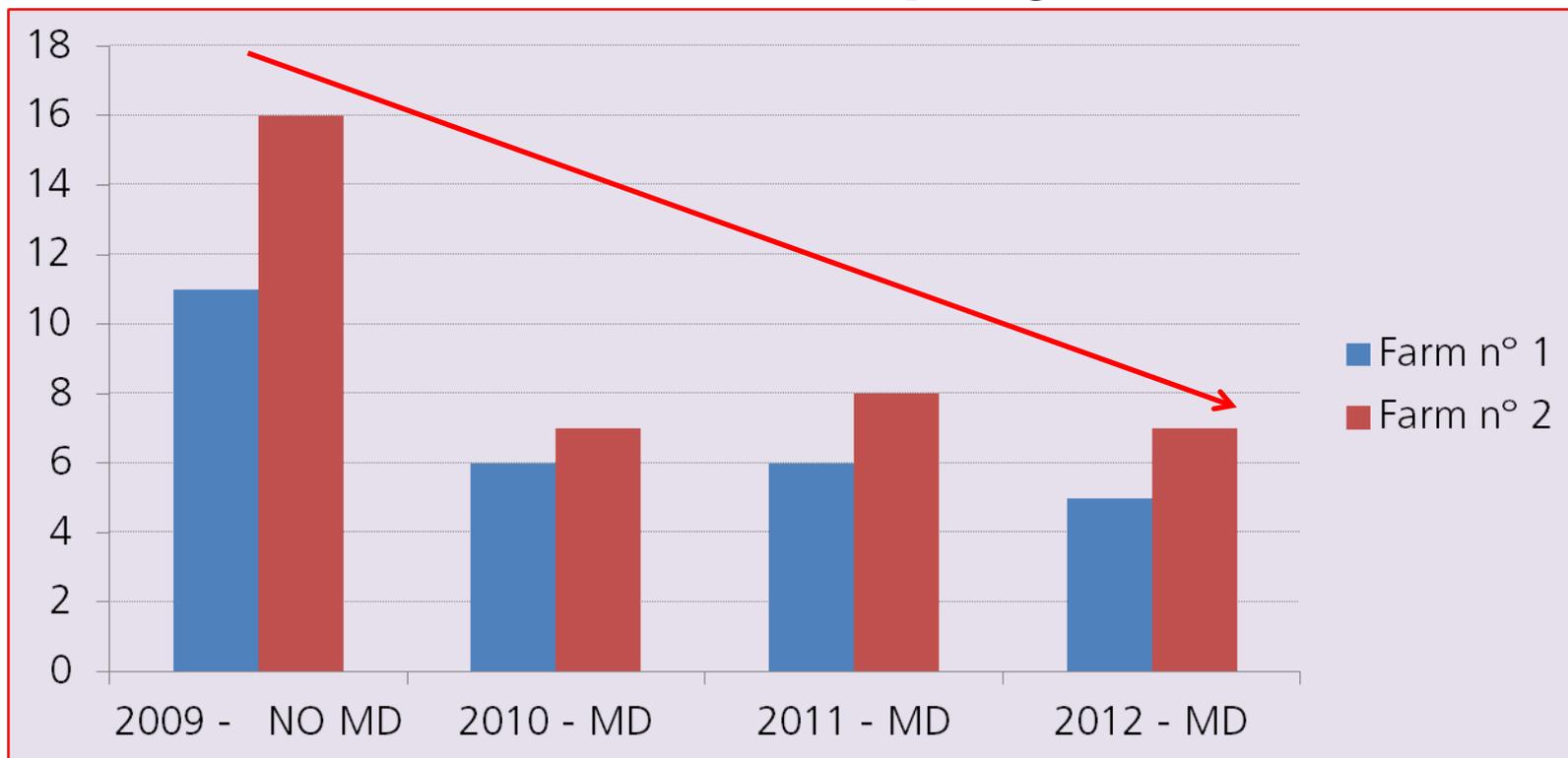
Number	Date	Active Ingredient
	15 -4	<b>Isomate C TT</b>
1	2 - 5	Chlorantraniliprole
2	14 - 5	CpGV
3	22 - 5	CpGV
4	30 -5	CpGV
5	3 - 7	Emamectine b.
6	13 - 7	Emamectine b.
7	24 - 7	CpGV

**Damage at harvest: 0 %**

**Residue: none**

# BCAs IS A SOLUTION!

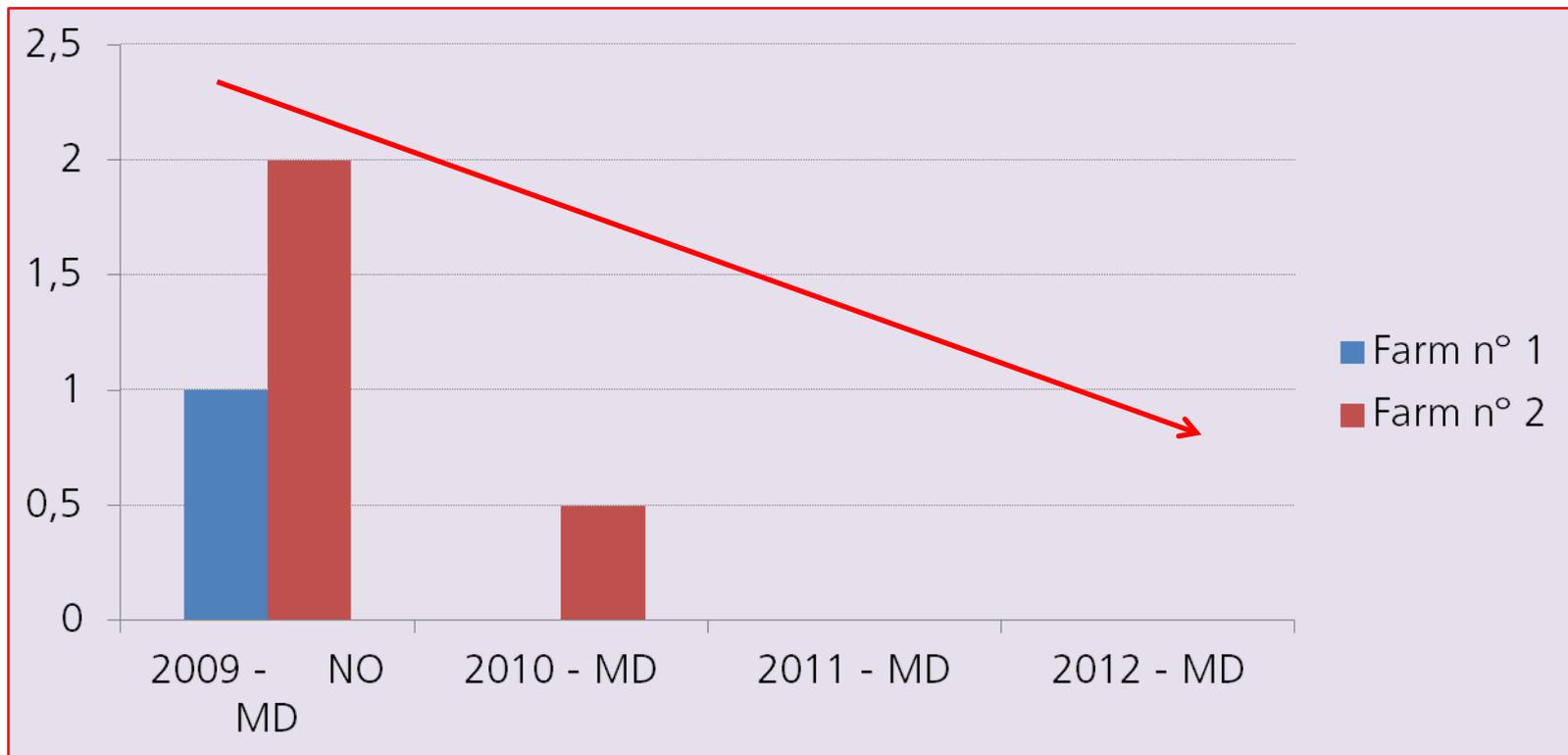
## Number of sprays:



- Considerable reduction in number of sprays from the first year on
- Possible reduction of residues (very low in 2010, none in 2011-12)
- Further reduction of insecticide sprays is possible

# BCAs IS A SOLUTION!

## Damage at harvest:



Very good efficacy of the new strategy

**Mating Disruption is the key element  
on which to build the CM control strategy**

# MATING DISRUPTION IN ITALY: BOLZANO area

YEAR	number of scouted orchards	harvest damage % by CM	% orchards below 1% damage	average additional spray
1994	421	0.5	86.7	1.5
1995	631	0.8	80.0	0.5
1996	91	0.5	92.3	0.6
1997	66	0.4	89.4	0.3
1998	156	0.9	76.9	0.5
1999	279	0.6	81.7	1.6
2000	187	0.3	92.0	0.7
2001	154	0.3	94.8	0.4
2002	184	0.7	85.8	0.6
2003	223	1.1	77.6	0.9
2004	252	0.8	85.0	0.6
2005	224	0.5	87.0	0.3
2006	155	0.4	85.0	0.3
2007	255	0.4	n.d.	n.d.
2008	256	0.18	n.d.	n.d.
2009	259	0.09	98.8	n.d.
2010	279	0.26	95.6	n.d.

# WHY BCAs IN THE ITALIAN MARKET?

3. Withdrawal of many chemicals (EU). IPM is changing in order to adapt to this new situation

**STARTING POINT: THE REVIEW IMPLEMENTED  
BY THE COMMUNITY DIRECTIVE 91/414/EEC**

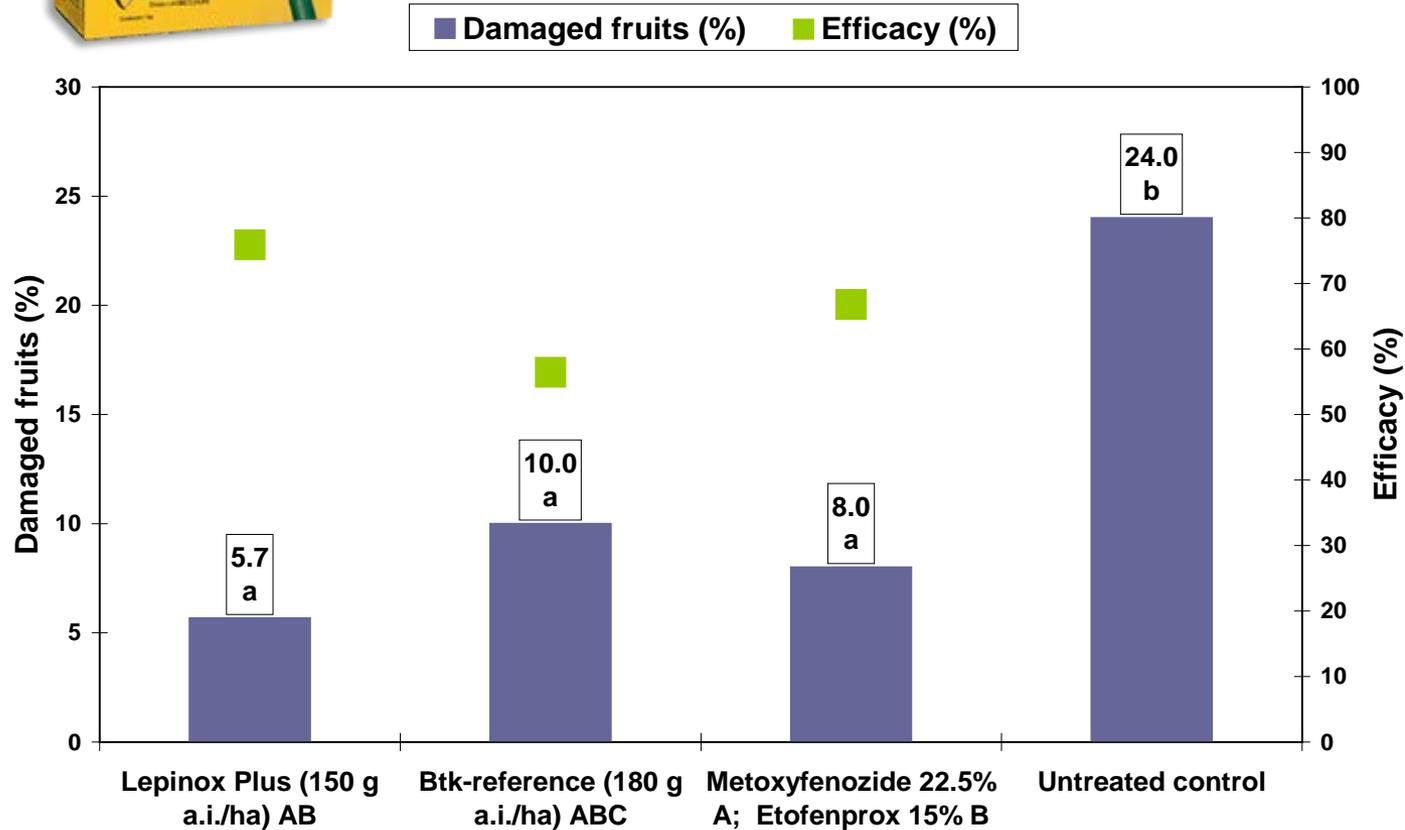
Table 1: Status of the review process of active substances at EU level to 1 February 2009.

Active substance	Active substance on the market before July 26, 1993 (EAS) (n°)	Active substance on the market after July 26, 1993 (NAS) (n°)	Total (n°)
Included into Annex I	189	82	271
Under evaluation	16	54	70
Not included into Annex I	714	9	723
Total	919	145	1064

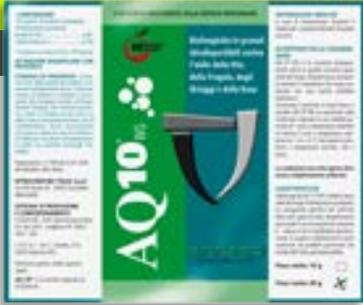
# BCAs IS A SOLUTION: Lepinox Plus



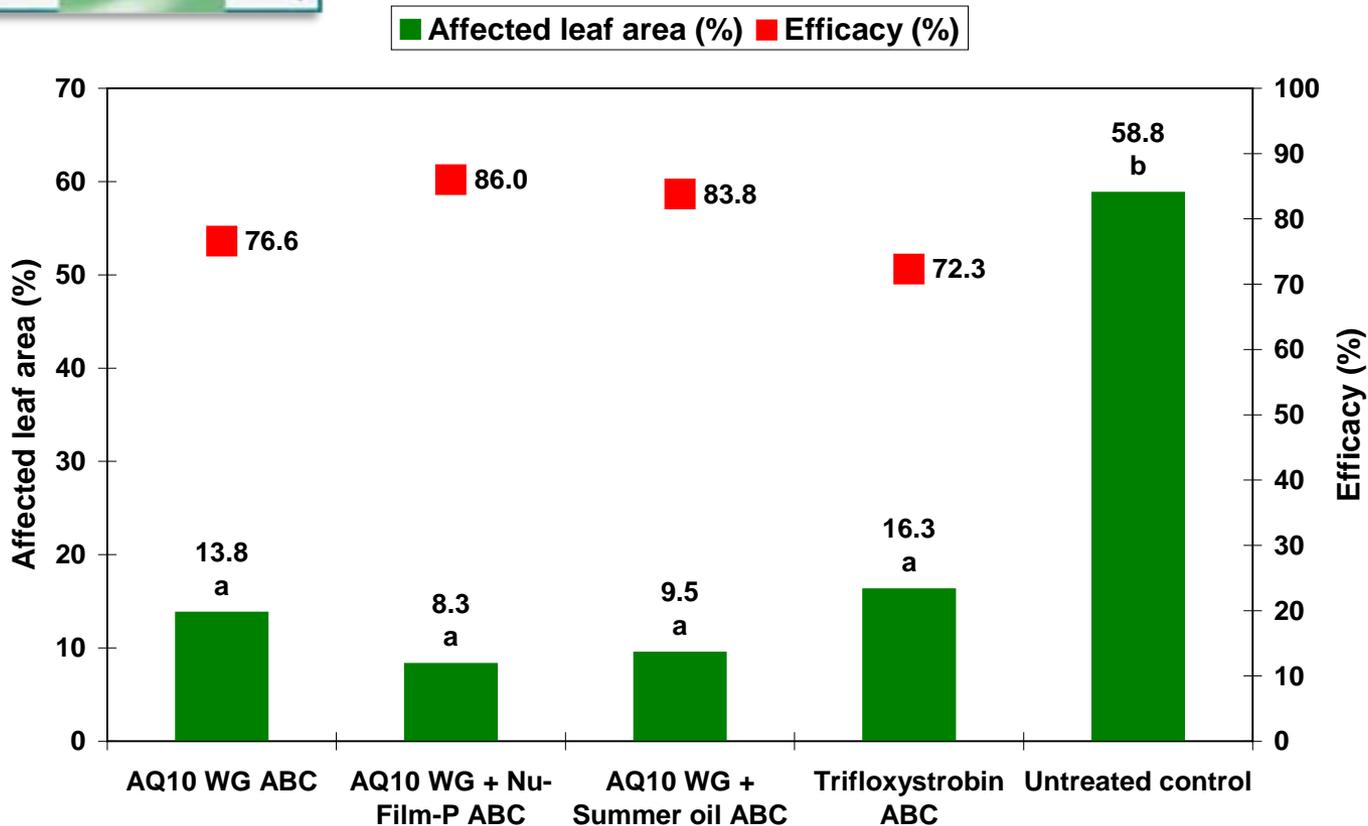
*Against Oriental Fruit Moth on nectarine (2008)  
2 applications 14 (A) and 7 days (B) prior to harvest*



# BCAs IS A SOLUTION: AQ 10



## TRIAL ON CUCUMBER – Severity (%)



A = 23 days before harvest;

B = 16 days before harvest;

C = 8 days before harvest

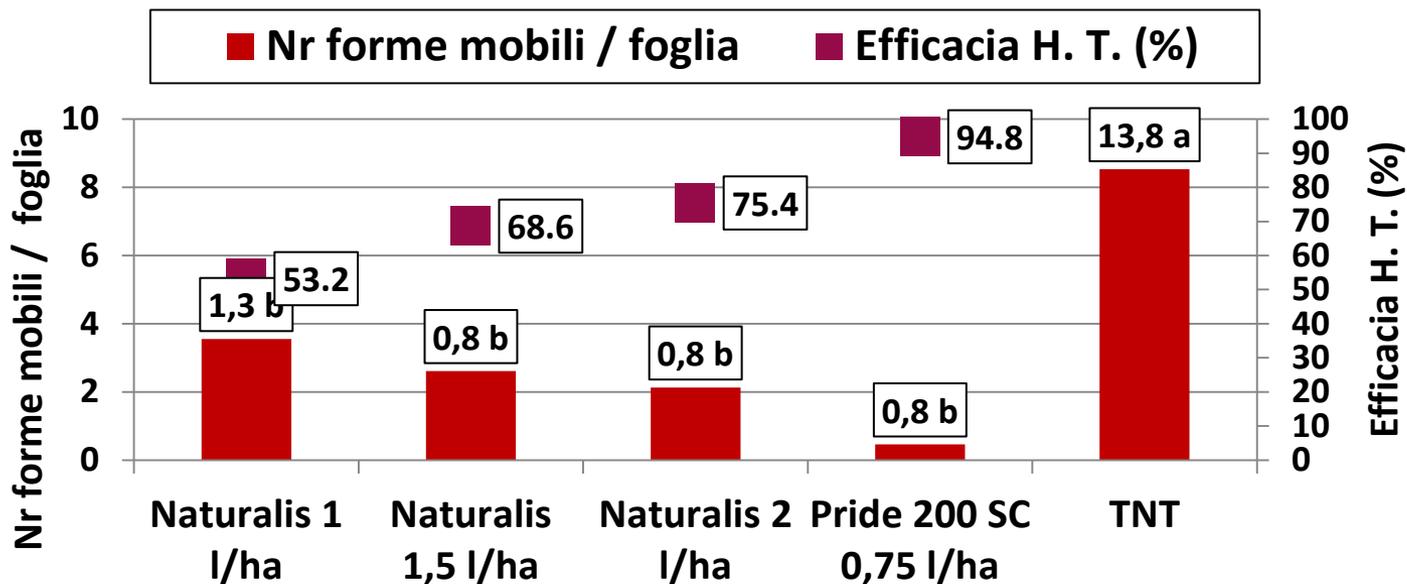


# BCAs IS A SOLUTION: Naturalis

**Location: Cento (FE)**  
**A): at first appearance**  
**B): 3 DAA; C): 6 DAB; D): 8 DAC**

**Assesment: 4 DAD n. mobile stages/leaf**

Tesi	Prodotto / p.a.	Dosaggio	Nr. Trattamenti*
1	NATURALIS (B. bassiana - ATCC74040 – 7,16%)	1,0 l/ha	A, B, C, D
2	NATURALIS (B. bassiana - ATCC74040 – 7,16%)	1,5 l/ha	A, B, C, D
3	NATURALIS (B. bassiana - ATCC74040 – 7,16%)	2,0 l/ha	A, B, C, D
4	PRIDE 200 SC (Fenazaquin – 18,32%)	0,75 l/ha	A
5	Untreated control	-	-



# WHY BCAs IN THE ITALIAN MARKET?

4. Minimize the impact of agriculture on the environment (again, BCAs can be easily integrated with chemicals)



# WHY BCAs IN THE ITALIAN MARKET?

EU AGRI-ENVIRONMENT PROGRAMMES generated official national IPM rules for farmers («*Disciplinari di difesa integrata*»). These rules are approved year by year and region by region (i.e. *REGULATION (EEC) NO. 2078/92, DIRECTIVE (EEC) NO. 128/2009*), and give access to EU subsidies in which BCAs are strongly recommended

## DIFESA INTEGRATA DEL POMODORO IN COLTURA PROTETTA



UNITA' PERIFERICA SERVIZI FITOSANITARI

AVVERSITA'	CRITERI D'INTERVENTO	SOSTANZE ATTIVE E AUSILIARI	CARENZA GIORNI
<b>FITOFAGI</b>			
<b>Afidi</b> <i>Myzus persicae</i> , <i>Macrosiphum euphorbiae</i> , <i>Aphis gossypii</i>	<b>Controllo biologico:</b> le infestazioni possono essere controllate dagli ausiliari presenti in natura <b>Difesa chimica:</b> Zone ad alto rischio per le virosi - interventi alla comparsa delle prime colonie Zone a basso rischio di virosi - almeno il 10% delle piante infestate da colonie	Piretrine naturali Imidacloprid (1) Thiamethoxam (1) Acetamiprid (1) Pymetrozine (2) Etofenprox (3) Flonicamid (4)	2 7 7 3 3 3 3
<b>Aleurodide</b> <i>Trialeurodes vaporariorum</i> <i>Bemisia tabaci</i>	<b>Controllo biologico:</b> - utilizzo di insetti utili: <i>Encarsia formosa</i> <i>Macrolophus caliginosus</i> <b>Interventi meccanici:</b> - esporre pannelli gialli invischiati di colla per il monitoraggio degli adulti (1 ogni 100 mq.) <b>Difesa chimica:</b> - nelle aree a forte rischio di virosi, intervenire all'inizio delle infestazioni - nelle altre aree, intervenire alla presenza di 10 neanidi per foglia	<i>Beauveria bassiana</i> <i>Piretro naturale</i> Azadiractina Pymetrozine (1) Acetamiprid (2) Imidacloprid (2) Thiametoxam (2) Thiacloprid (2) Pyriproxyfen (3) Flonicamid (4)	nr 2 3 3 3 7 7 3 3 3

LINEE TECNICHE DI  
DIFESA INTEGRATA  
Anno 2011

# WHAT ELSE IS NEEDED?

## BCAs

- are usually more complex than a chemical to be used
- need technical support and more know-how: a strong NETWORK
- are generally thought to have lower efficacy

## THEREFORE

- there is a need to provide the knowledge to make Biopesticides work

# BIOGARD IN THE ITALIAN MARKET

- BIOGARD has been working on the development of a new IPM approach for more than 20 years
- BIOGARD has one of the largest biopesticide and pheromones portfolios in Europe
- Many of its biopesticides are based on microbial control agents
- BIOGARD products: *Btk* EG2348, *B. bassiana* ATCC 74040 and *A. quisqualis* M 10

# BIOGARD IN THE ITALIAN MARKET

- 7 area managers
- 36 technically trained and qualified sales rep's
- 3 pheromone supervisors
- RD station in Cesena with 5 fully dedicated staffs to efficacy evaluation and development of products
- a network of 67 selected and trained dealers all over Italy

## Area **NORD/OVEST**

dr. **PAOLO PRIGIONE**

n. 8 agents

## Area **TRIVENETO**

dr. **ARNALDO FAZZINI**

n. 4 agents

## Area **EMILIA ROMAGNA**

dr. **MARCO ARDIZZONI**

n. 4 agents

## Area **TOSCANA**

dr. **GIANNI SALVI**

n. 5 agents

## Area **SUD/OVEST**

dr. **LUIGI CACCIAPUOTI**

n. 5 agents

## Area **SUD/EST**

dr. **FILIPPO ROTUNNO**

n. 6 agents

## Area **SICILIA**

dr. **DINO REINA**

n. 4 agents



## **Pheromones Supervisor:**

Andrea Iodice  
Carlo Bassanetti  
Francesco Savino

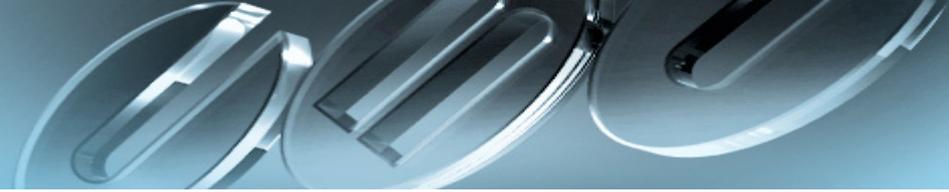
## **R&D:**

Massimo Benuzzi  
Edith Ladurner  
Fabio Fiorentini  
Alberto Lucchi  
Mauro Piergiacomi

# NETWORK OF BIOGARD AGENTS



36 technically trained sales rep's



*AS a conclusion:*

*Dream Together: BCAs are  
a necessary future...with  
the support of all us*

*Thanks for your attention*

*Bring new values into every corner of the world  
CBC «creative marketing company»...*