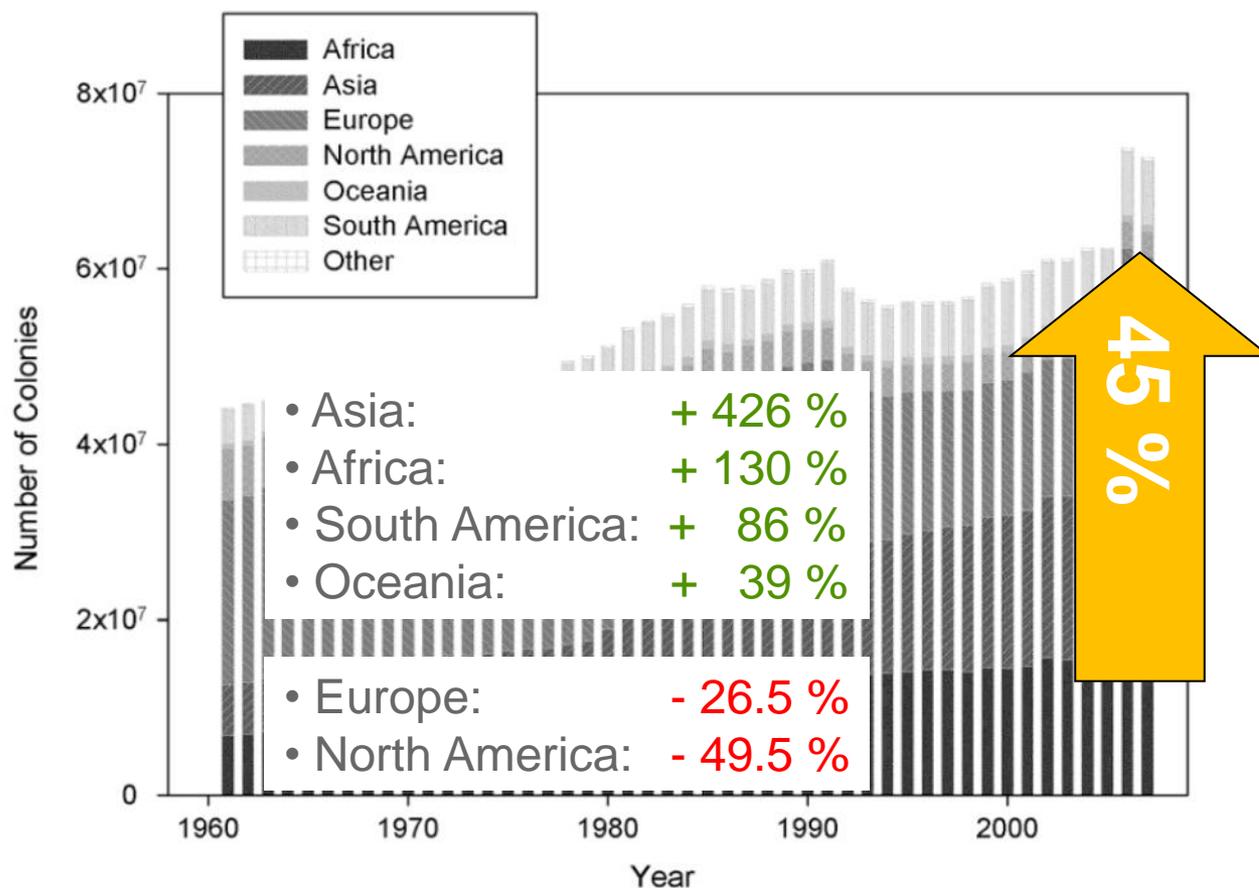


# Pollination and bee health: the crop protection industry perspective

Dr Peter Campbell  
ECPA

# Global Honey Bee Colony Numbers



Since **2010**, the total number of bee colonies has not decreased in Europe.

~ **15 to 16 million** bee hives in **Europe** (FAO, 2012)

Source: Aizen and Harder (2009), based on FAO data

1960 ← → 2007

# EU Honeybee Colony losses vary between years: COLOSS & EPILOBEE

 In 2013/14

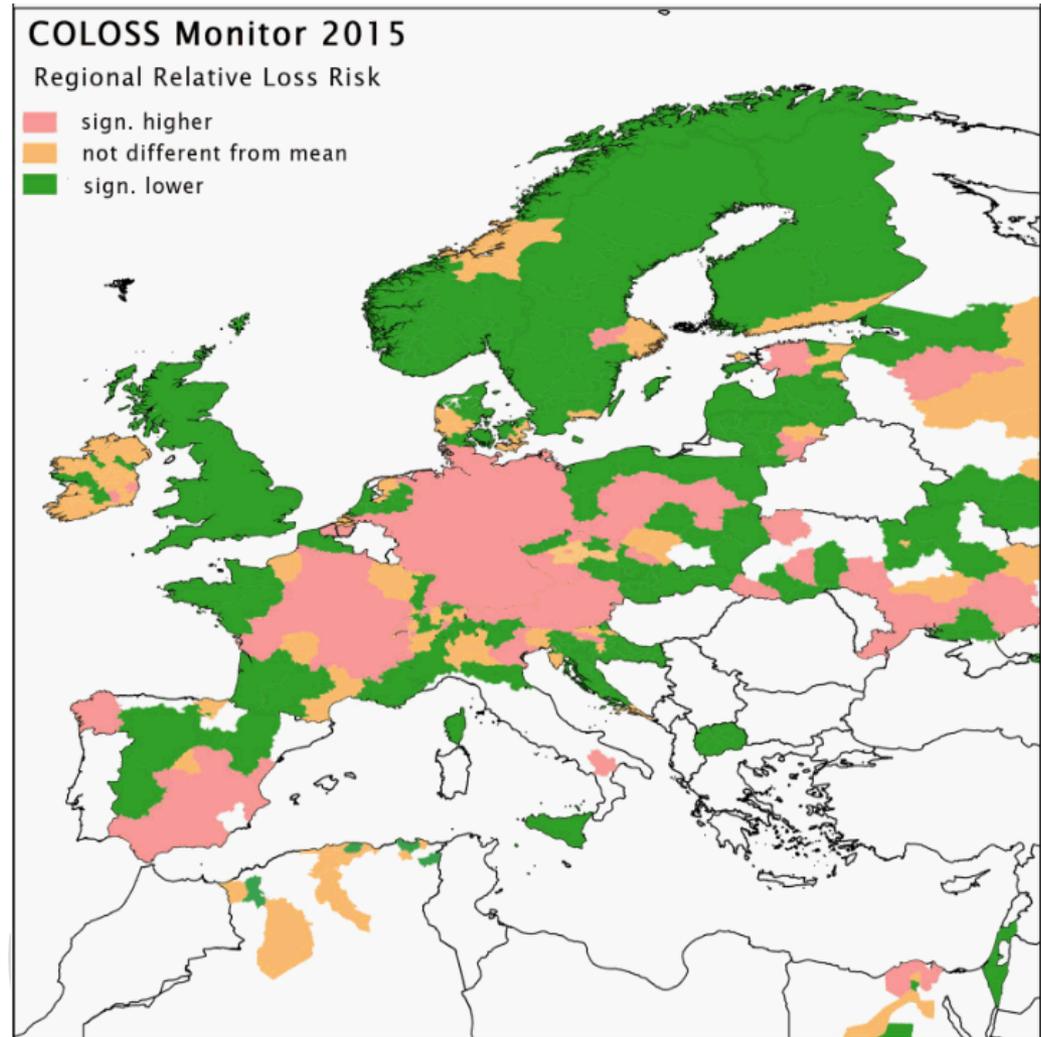
Colony losses 9% lowest since the international working group started collecting data

 In 2014/15

Colony losses rose to 17.4%

**The Statistical analysis of EPILOBEE dataset shows strong correlation between beekeeper experience and colony mortality.**

**ie high experience = low colony loss**



# Wild Pollinators Health

- Much less population/monitoring data available compared to Honey bees.
- Declines in diversity and occurrence reported for bees, butterflies and hover flies in North America and Europe
- Up to 40% of species are “threatened” on some National lists.



# Inter-Governmental Platform on Biodiversity and Ecosystem Services



## Multiple threats to pollinators

- Intensive agricultural management
- Pesticides
- Genetically Modified (GM) crops
- Pathogens and pests
- Climate change
- Invasive alien species
- Land use change
- Interactions



Linking specific drivers to observed declines is limited by data availability or complexity

# Industry Contributions to Pollinator Health



# Industry Contributions: Data Generation & Stewardship



## ■ Safety Testing (pre authorisation):

- ✓ Acute, chronic, sub-lethal, adults, larvae, bees & other insects

## ■ Field & Monitoring Studies

## ■ Risk Mitigation:

- ✓ e.g. spray restrictions on flowering crops

## ■ Stewardship – e.g. Low drift technology

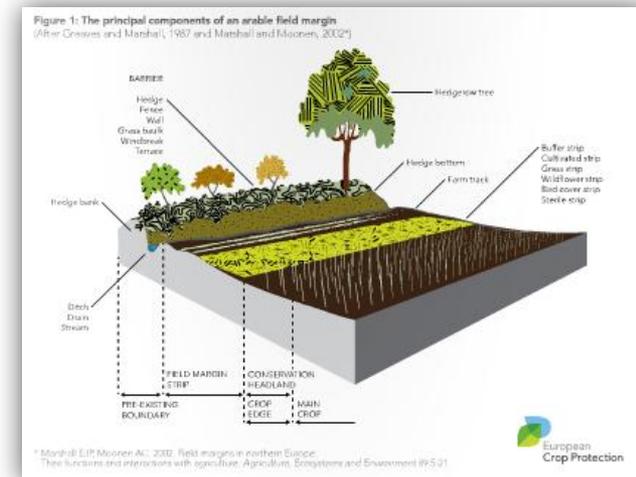
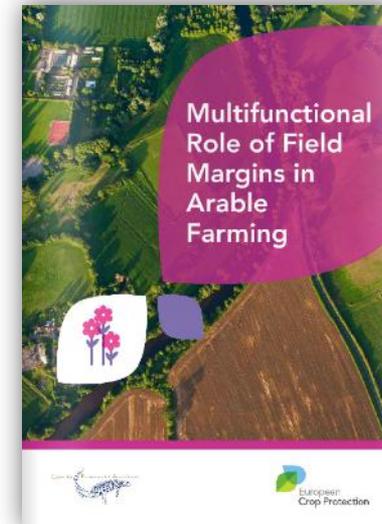
## ■ Research Projects:

- ✓ **Syngenta** & Rothamsted, Exeter University, Warwick University, Helmutz University - *Developed 'BEEHAVE' a Honeybee Colony Population Model*
- ✓ **Syngenta** & Southampton University developing a honeybee tracking device



# Industry Contribution: Habitat, forage (biodiversity)

- ▶ Multifunctional Role of Field Margins in Arable Farming (ECPA – Providing Information)
- ▶ European literature review
- ▶ Descriptions of the different types of field margins (FM).
- ▶ How FM implementation can be optimised for different conservation objectives – *inc. honey bee and other pollinators*



# Industry Contribution: Control of Pathogens & Parasites

## Solutions control of the Varroa:

### Monsanto

- BioDirect™ (new technology in R&D)

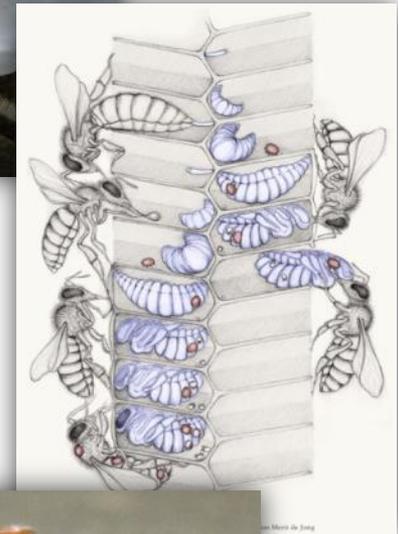
### BASF

- MAQSTM Beehive Strip (formic acid)

### Bayer CropScience

- Supporting Arista foundation Bee Research on Varroa Resistant Honeybees
- VarroaGate (new method of delivery of acaricide)

Exploration for new varroacidal  
active ingredients



# Industry Contribution: Provide Information

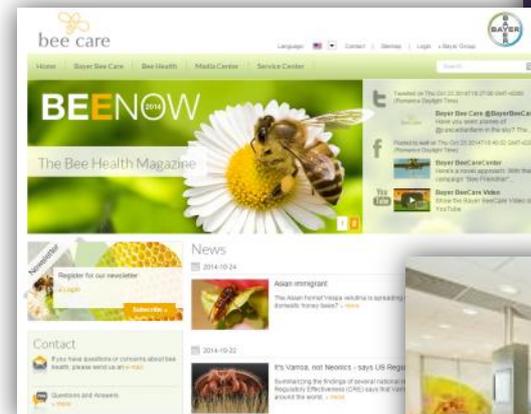
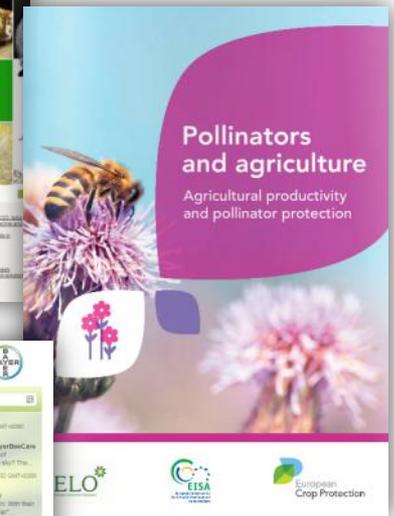
## ■ Pollination Station (ECPA)

## ■ Pollinators & Agriculture (ECPA)

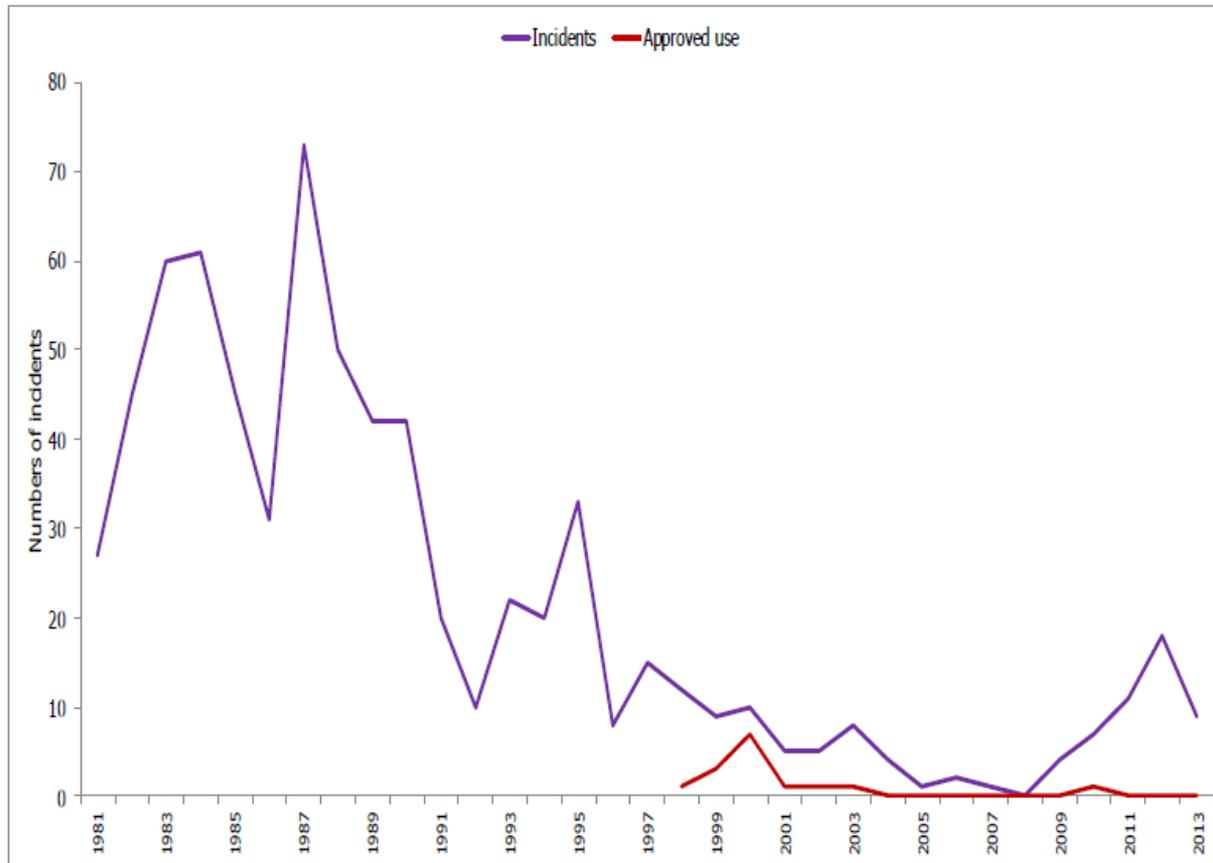
## ■ Bayer Bee Care Centre(s)

## ■ Publishing of Company Bee Data

- ✓ e.g. Pilling et al, 2013; Thompson et al 2015; Thomson et al, 2016; Thompson & Miles, 2015; Thorbek et al 2015, Thorbek et al 2015.



# Industry Progress: Honey bees **Significant Reductions in Reported Pesticide Bee Incidents. E.g UK.**



Carreck & Ratnieks, 2014:  
Journal of Apicultural  
Research 53(5): 607-614

**Via Improved Product Stewardship and Risk Reduction Measures**

# Industry Progress: Wild Pollinators

## Increased forage & habitat availability

- Operation Pollinator (Syngenta + Sainsburys, Unilever, CEH, DEFRA, Wildlife Farming Company)

- International program to boost number of pollinating insects on commercial farms.

- Creates specific FM habitats, tailored to local conditions & native insects.

- ✓ Flowering plant seed mixes
- ✓ FM Management advice

- Qualifies for Environmental Subsidies under e.g. CAP



Scientific Project  
2001-2004



- Bee popln up 600%
- Regeneration of rare *Bombus ruderatus*
- Butterflies up 12 fold
- Other pollinating insects rose 10 fold

Roll-out in UK  
2005-2008



- 570 Farmers joined
- 1000 ha of margins
- Partner - Sainsbury's
- Link to UK subsidy scheme

Roll-out across Europe  
2009 - 2014



- 8 new countries (PT, ES, FR, CH, IT, UK, DE, HU) & USA
- Target 10k ha margins
- Partners - Governments, Univer, Food Chain etc.

**Thank You**