



# Strawberry cultivar infestation with the strawberry mite (*Phytonemus pallidus*) and possibility to control the pest in Poland.

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# Introduction

- Strawberry is an economically important crop in Poland.
- It is grown on about 45-55 thousand hectars.
- Strawberry plants are damaged by several species of pests, which influence the growth and the crop yield. The most important is the strawberry mite.
- The pest is noted on all cultivars grown in Poland.
- At present, strawberry mite needs to be controlled on many strawberry plantations in the country.
- Possibility to control the strawberry mite is however poor: only fenpiroxymate (single treatment per year) and pyridaben (just after harvest) are permitted.

# **Strawberry mite – harmfulness**

- **weakness of growth, discolouration and deformation of leaves as well as the inhibition of the growth, shortening of petioles**
- **reduction of the number of flowers**
- **reduction of fruit yield**
- **reduction of fruit size and quality (smaller size, lower sugar content)**
- **reduction in the number and quality of runners**
- **mite is introduced to new plantations with planting material (new plants)**



**Eggs**



**Damaged plant**

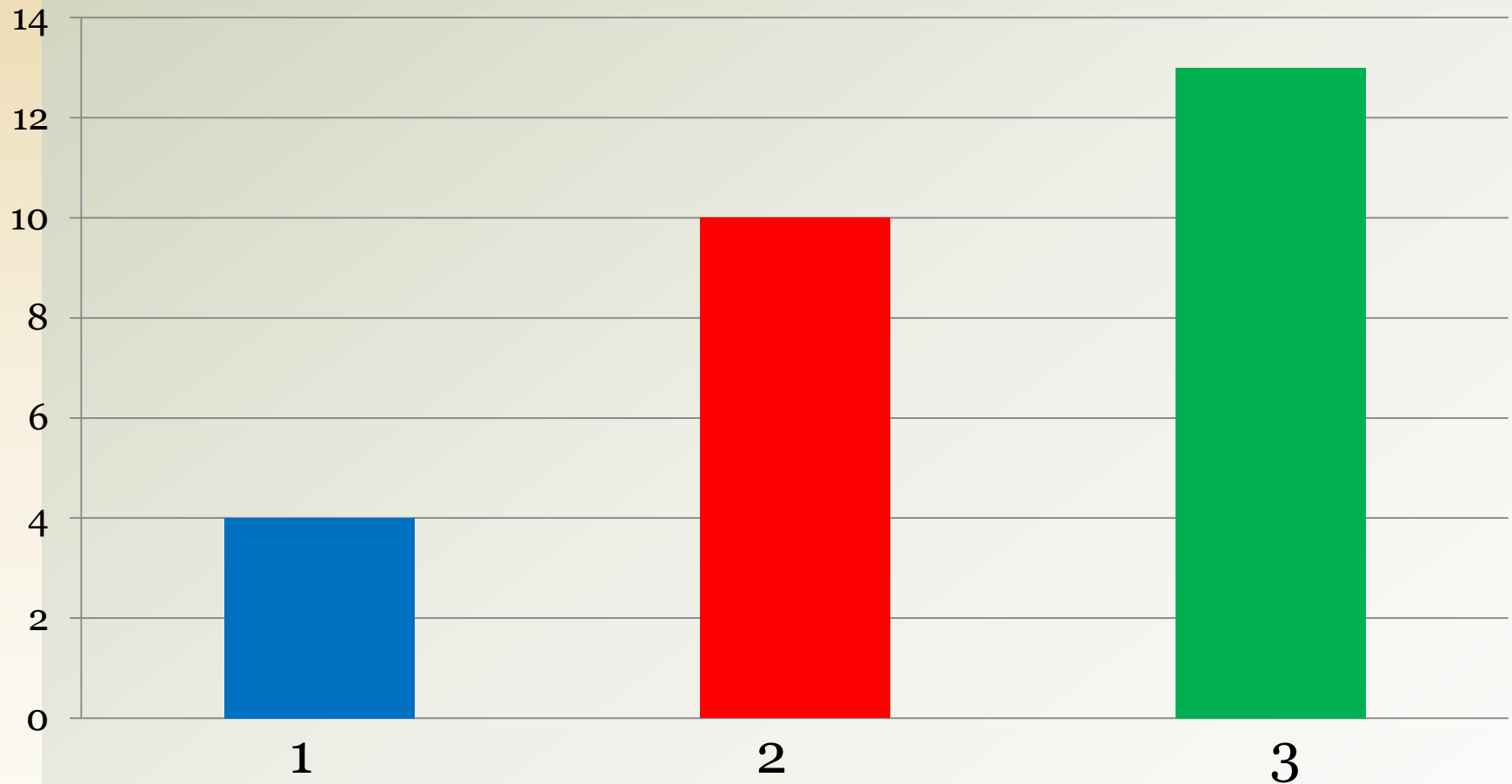


**Larvae and adults**



**Damaged leaves and fruit**

# Distribution of the strawberry mite (*P.pallidus*) on strawberry cvs. (1-3 years after planting)



Real +, Marmolada ++, Dana +, Senga Sengana ++++, Redgauntlet ++, Elsanta ++++, Syriusz ++++, Cortina ++, Kent ++++, Dukat ++, Gerida ++, Kama +, Honeoye ++

# The aim of the study:

1. estimation the strawberry cultivars infestation level by the strawberry mite in the field
2. evaluation the efficacy of some acaricides against the strawberry mite on strawberry



# **Material and methods**

## **1. Cultivar infestation**

**The study was carried out during 2010-2013 on strawberry plantation (Experimental Orchard, Skierniewice). The number of motile forms and eggs of the strawberry mite was counted on the youngest leaves 1-2 times per year.**

# **Material and methods**

## **2. The control of the strawberry mite**

### **Glasshouse experiments**

**The experiments were conducted in 2012-2013 on four cultivars (splited-block, 4 replications/5 plants)**

**The strawberry mite was introduced artificially on the strawberry plant**

**The acaricides were applied after the mites colonization on plants.**

# Field experiments

- The experiments were conducted in 2012-2013,
- Treatments were applied out before bloom or after the strawberry fruit harvest.



**Damaged plant**

# Material and methods

- Experiment (2012) was carried out on the plantation, on which old leaves were mowed after fruit harvest and treatment was performed after the leaves re-growth.
- Experiment (2013) was carried out in the spring. One treatment was applied just before bloom. Effectiveness was evaluated up to five weeks after treatment.
- The mites and eggs were counted on the youngest leaves of strawberry.

# Results

- cultivar infestation



# Infestation level of strawberry cultivars by the strawberry mite, Skierniewice 2010

| Motile form/1 leaf | Cultivars                                                                                                             |
|--------------------|-----------------------------------------------------------------------------------------------------------------------|
| 0,0                | none                                                                                                                  |
| 0,1 – 2,0          | none                                                                                                                  |
| 2,1 – 4,0          | none                                                                                                                  |
| 4,1 – 10,0         | none                                                                                                                  |
| 10,1 – 20,0        | Vima Rina, Susy                                                                                                       |
| > 20,1             | <b>Albion</b> , Camarosa, Malling Pearl, Ventana, Gloria, Vima Xima, <b>Elsanta</b> , Elianny, <b>Honeoye</b> , Nancy |

# Infestation level of strawberry cultivars by the strawberry mite, Skierniewice 2011

| Motile form/1 leaf | Cultivars                                      |
|--------------------|------------------------------------------------|
| 0,0                | none                                           |
| 0,1 – 2,0          | <b>Darselect, Albion, Senga Sengana, Dukat</b> |
| 2,1 – 4,0          | <b>Elsanta, Camarosa, Hokent</b>               |
| 4,1 – 10,0         | <b>Florence</b>                                |
| 10,1 – 20,0        | <b>Honeoye, Kama, Kent, Filon, Elkat</b>       |
| > 20,1             | none                                           |

# Infestation level of strawberry cultivars by the strawberry mite, Skierniewice 2012

| Motile form/1 leaf | Cultivars                                                                                                                                                                            |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0,0                | Dukat, Filut, Flair 03-08-01, Real, Salut, Vima Rina, Malling Pearl                                                                                                                  |
| 0,1 – 2,0          | <b>Algol</b> , Camarosa, Dana, <b>Darselect</b> , Dominika, Eros, Florence, Florin, Gerida, Gloria, Grandarosa, Kama, Kaster, Kent, Marmolada, Polka, <u>Senga Sengana</u> , Syriusz |
| 2,1 – 4,0          | Susy, Tenira, DO 01501, Evie 2, Selva                                                                                                                                                |
| 4,1 – 10,0         | Elianny, Elkat, Pandora                                                                                                                                                              |
| 10,1 – 20,0        | Alfa, <b>Elsanta</b> , <b>Fara</b> , Vega, Ventana, Vima Xima, DM 027552                                                                                                             |
| > 20,1             | Evita, <b>Feriusz</b> , Hokent, <b>Honeoye</b> , Karel, <b>Albion</b>                                                                                                                |

# Infestation level of strawberry cultivars by the strawberry mite, Skierniewice 2013

| Motile form/1 leaf | Cultivars                                                        |
|--------------------|------------------------------------------------------------------|
| 0,0                | Filon, Karel, Melody, Real, <u>Senga Sengana</u> , Senga Precosa |
| 0,1 – 2,0          | Camarosa, Dukat, Elianny, Elkat, <b>Elsanta</b> , Ventana        |
| 2,1 – 4,0          | Alfa, Dominika, Evita, Marmolada                                 |
| 4,1 – 10,0         | <b>Darselect</b> , Florin, Kama, Markat                          |
| 10,1 – 20,0        | Dana, Feriusz, Pandora                                           |
| > 20,1             | Algol                                                            |

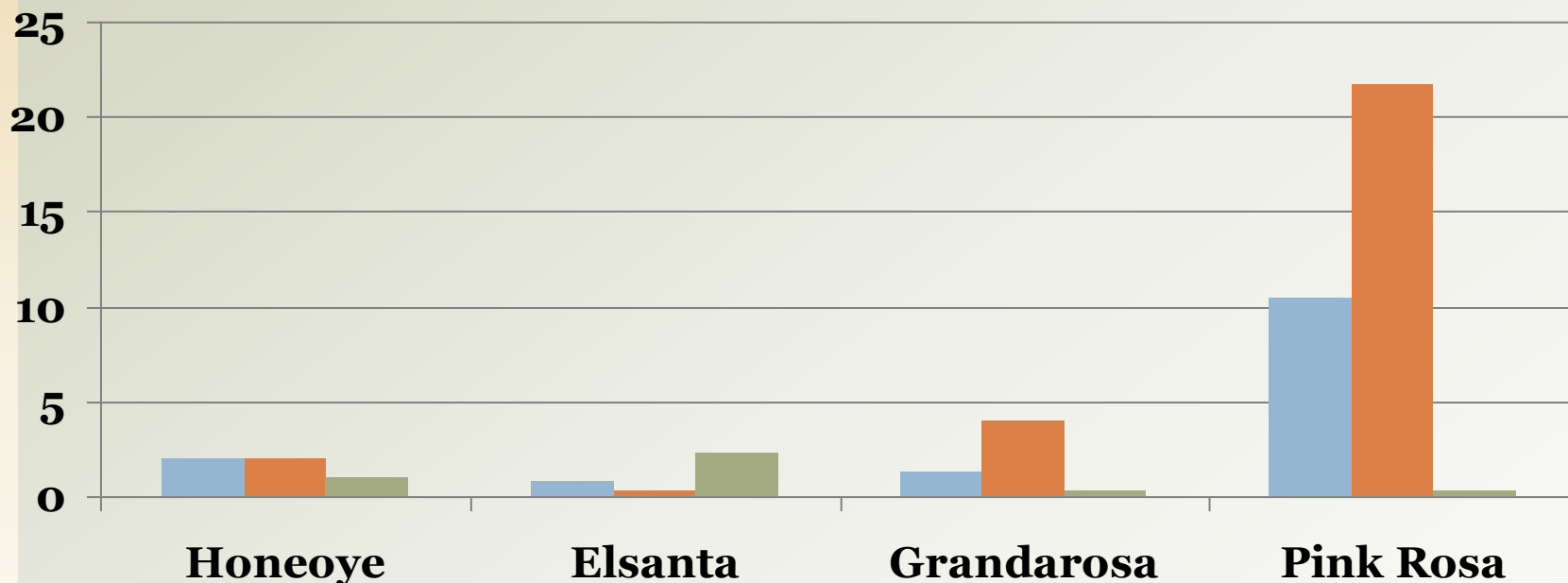
# Results

## control of the strawberry mite



# Average number of the strawberry mite per 1 leaf of strawberry, Skierniewice 2012

Motile forms / 1 leaf – one week after treatment



■ Control

■ Naturalis 1.5 l/ha + Protector - 300 ml/ha

■ Vertimec 018 SC - 1.0 l/ha

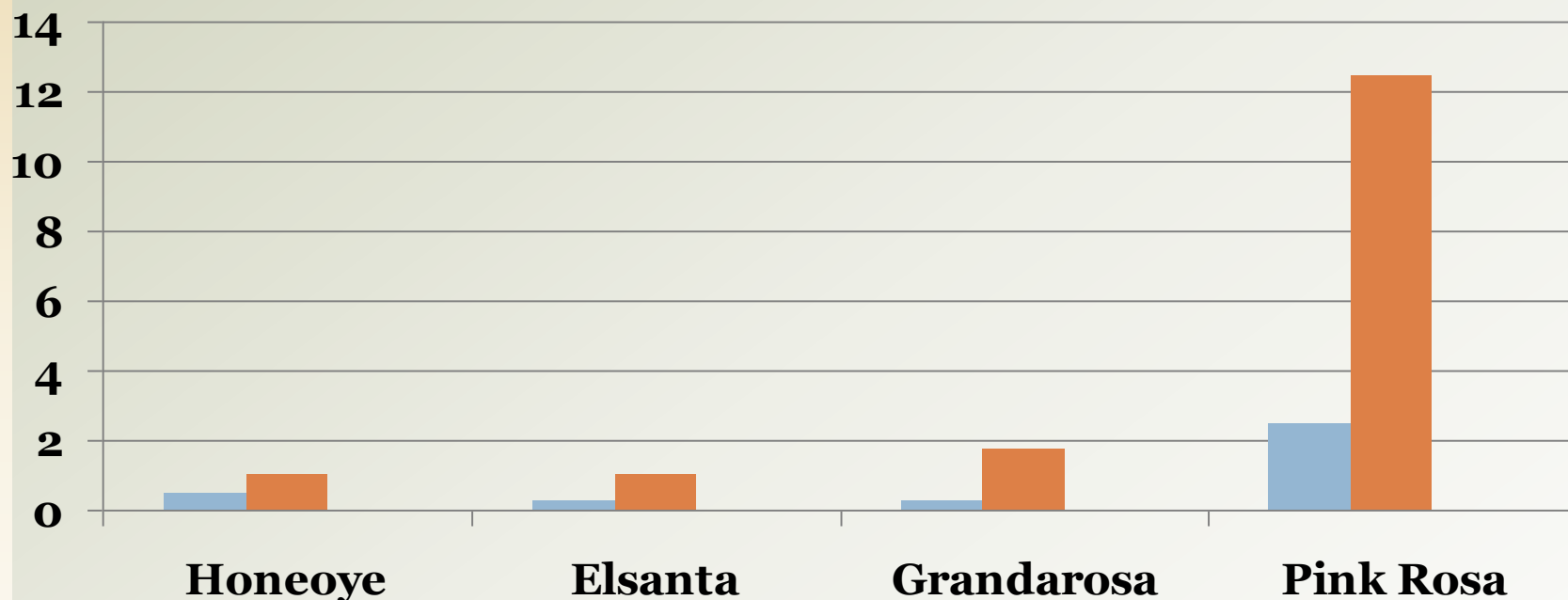
17.08

Date of treatment: 8.08.2012



# Average number of the strawberry mite per 1 leaf of strawberry, Skierniewice 2012

Eggs / 1 leaf - – one week after treatment



■ Control

17.08

■ Naturalis 1.5 l/ha + Protector - 300 ml/ha

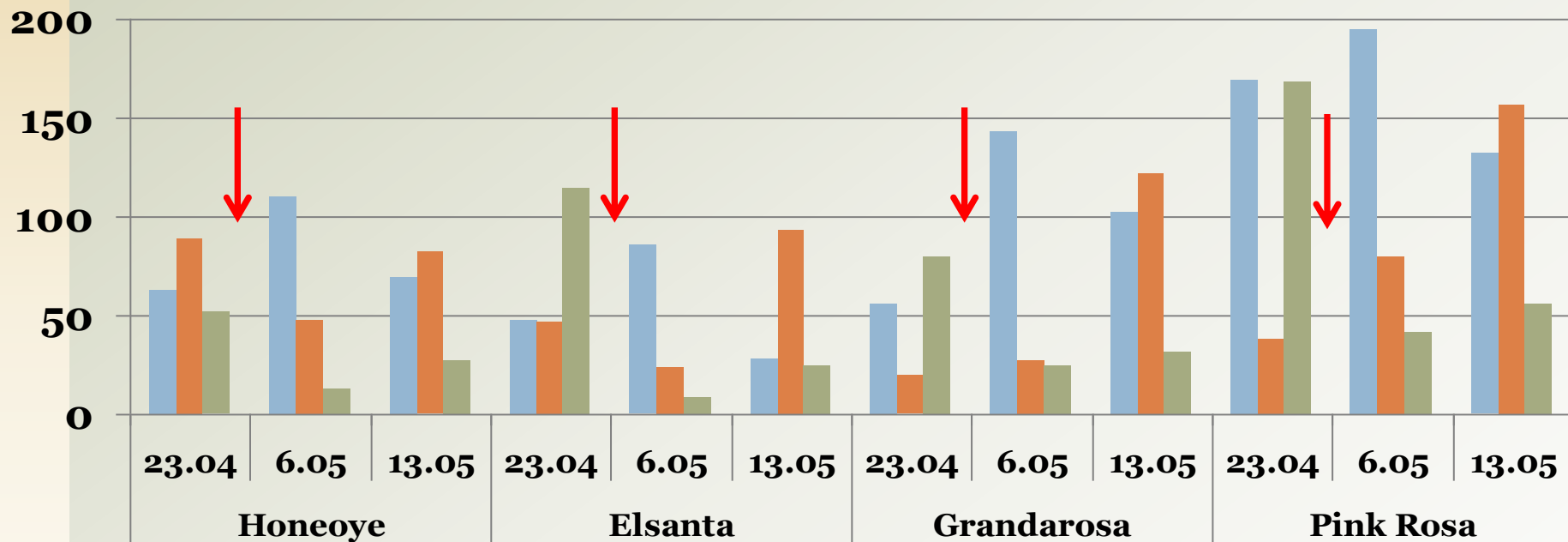
■ Vertimec 018 SC - 1.0 l/ha

Date of treatment: **8.08.2012**



# Average number of the strawberry mite per 1 leaf of strawberry, Skierniewice 2012

Motile forms / 1 leaf



■ Control

■ Naturalis 1,5 l/ha + Protector - 300 ml/ha

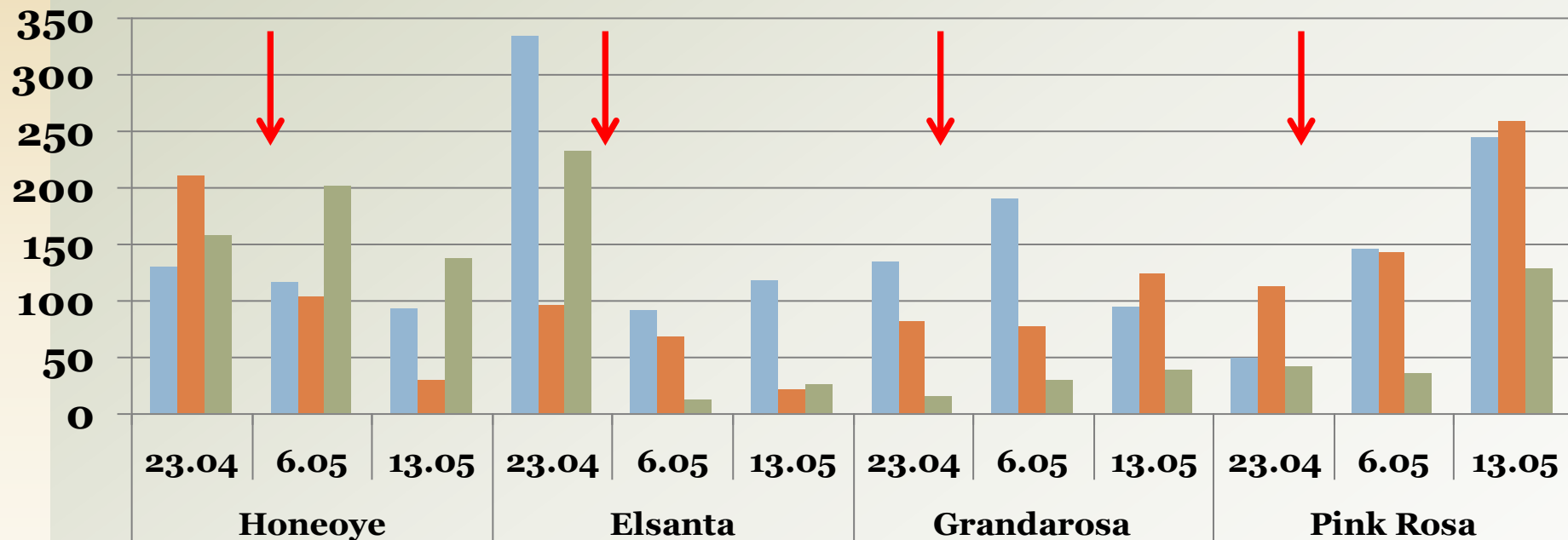
■ Vertimec 018 SC - 1,0 l/ha

Date of treatments: 23.04 and 29.04.2013



# Average number of the strawberry mite per 1 leaf on strawberry, Skierniewice 2013

Motile forms / 1 leaf



Control

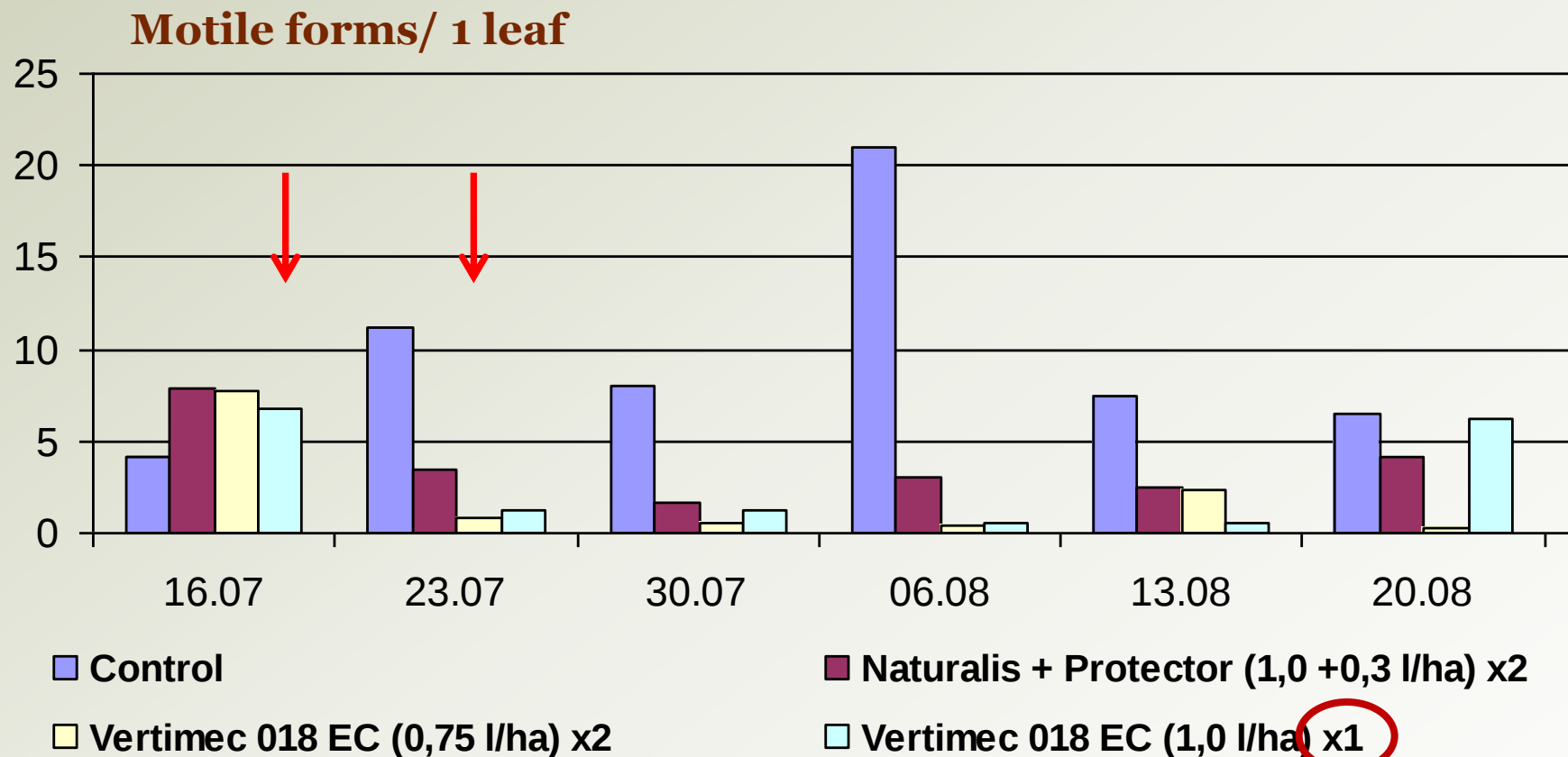
Naturalis 1,5 l/ha + Protector - 300 ml/ha

Vertimec 018 SC - 1,0 l/ha

Date of treatments: 23.04 and 29.04.2013



# Average number of the strawberry mite per 1 leaf of strawberry, Jamno 2012

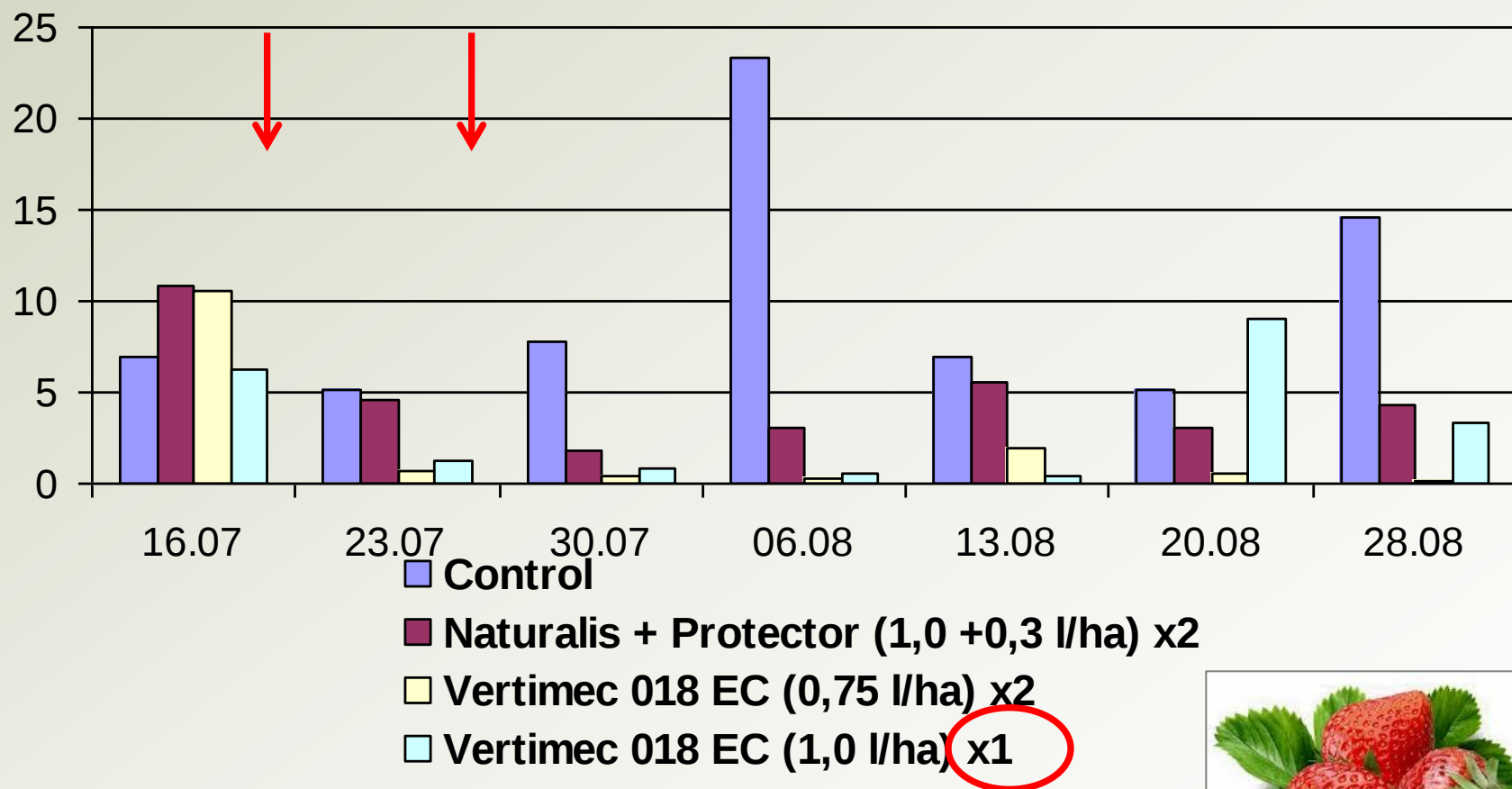


Date of treatments: 16. and 23.07.2012



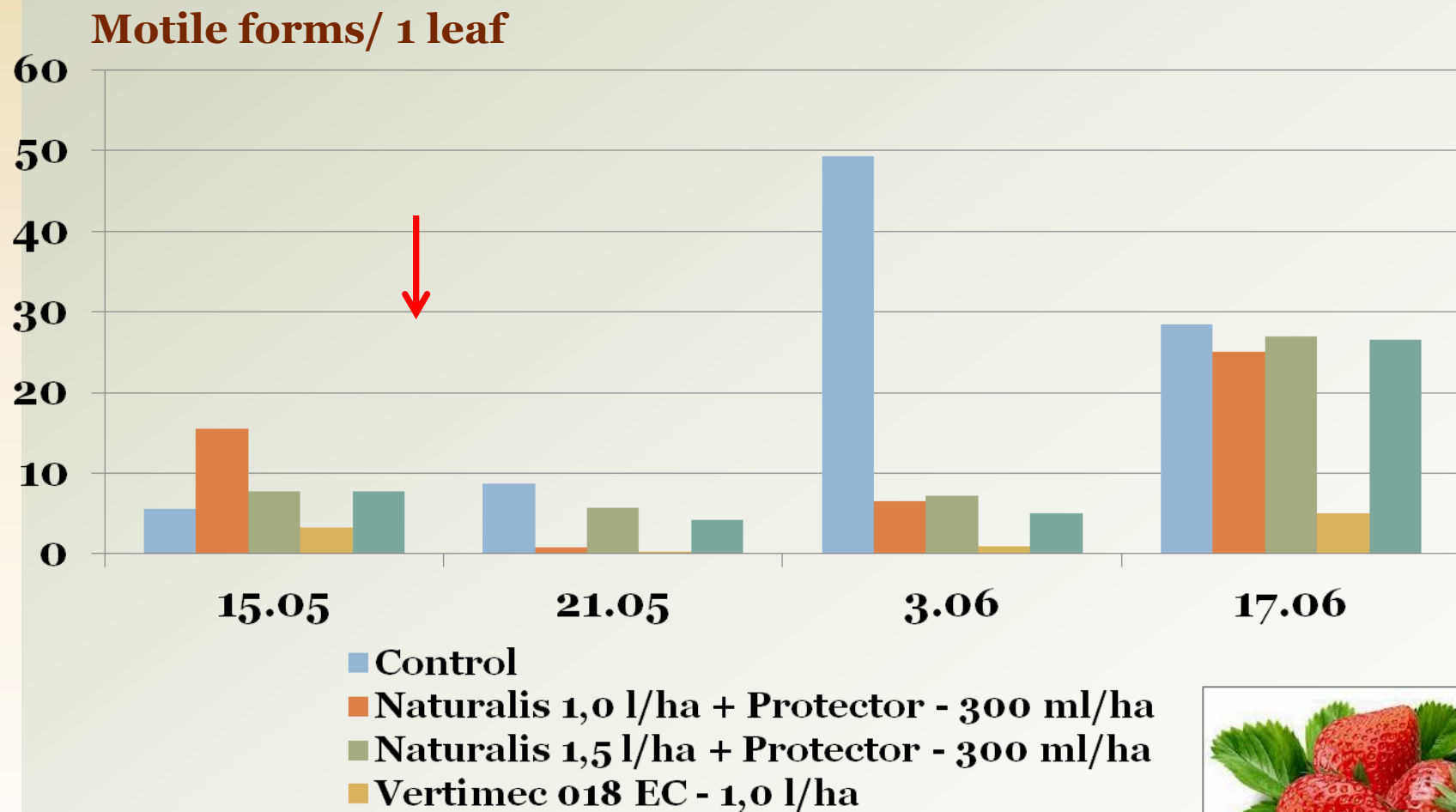
# Average number of the strawberry mite per 1 leaf of strawberry, Jamno 2012

eggs/ 1 leaf



Date of treatments: 16. and 23.07.2012

# Average number of the strawberry mite per 1 leaf of strawberry, Bobrowa 2013

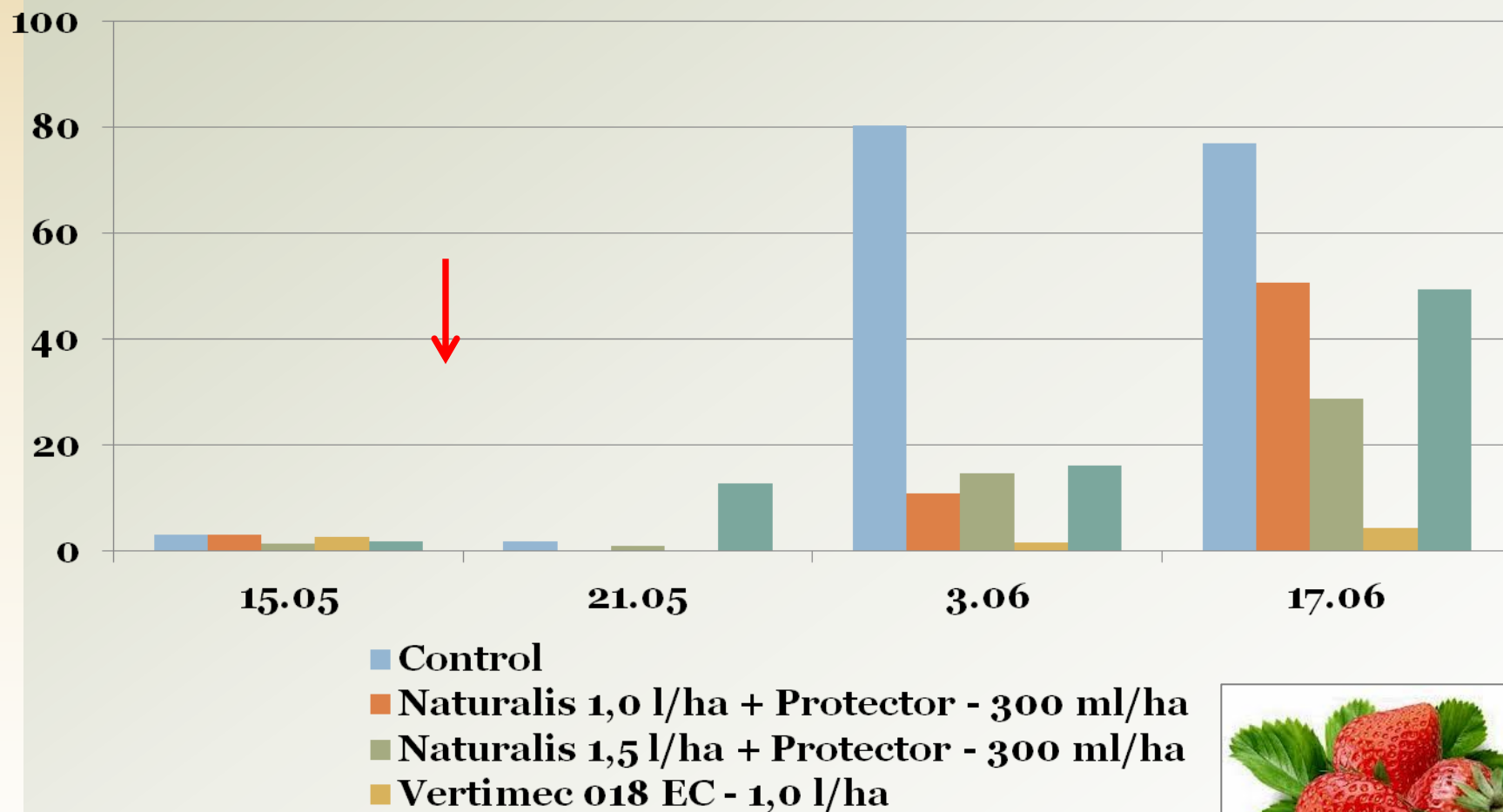


Date of treatment: **15.05.2013**



# Average number of the strawberry mite per 1 leaf of strawberry, Bobrowa 2013

Eggs/ 1 leaf



Date of treatment: **15.05.2013**



# Summary

- **The strawberry mite is very important pest of strawberry**
- **It is noted on all cultivars grown in Poland**
- **Over 20 mites per 1 leaf were noted on few cultivars**
- **The Vertimec 018 EC was most effective in the control of pest**
- **It is possible, that Vertimec 018 EC will be registered on strawberry crop in Poland before next season**
- **We are still looking for new possibilities to control the strawberry mite**



# Thank you for your attention

