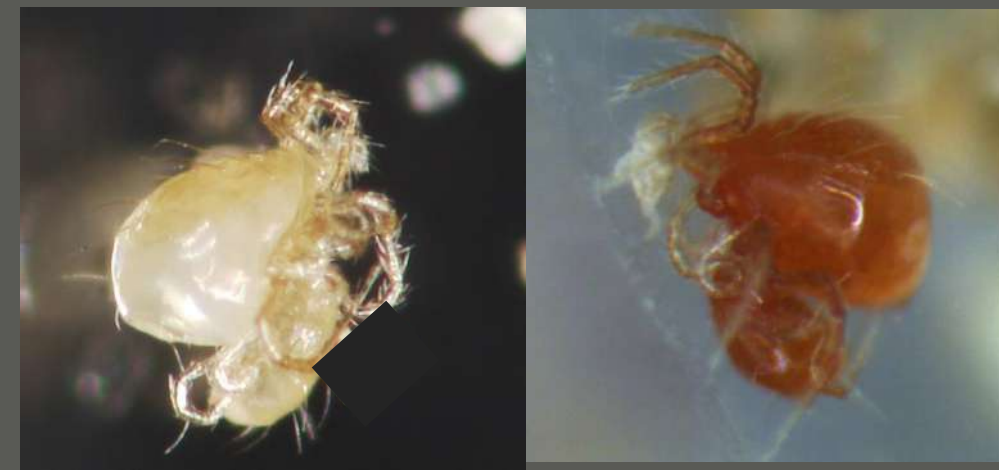




A case study of selective breeding in the Biological Control industry

**Improving mass rearing of a predatory mite, phenotyping,
selecting and identifying molecular markers**

SPIDER MITES

World-wide pests which attack hundreds of plant species in dozens of botanical families



PREDATORY MITE: *Phytoseiulus persimilis*

**The most important commercially-available
global natural enemy of spider mites.**

Since 1968

Billions of predatory mites are sold on an annual basis



PREDATORY MITE: *Phytoseiulus persimilis*

Tri-trophic system:

Under greenhouse conditions



BioBee's Production Facility (partial view)



Can you be less specific?



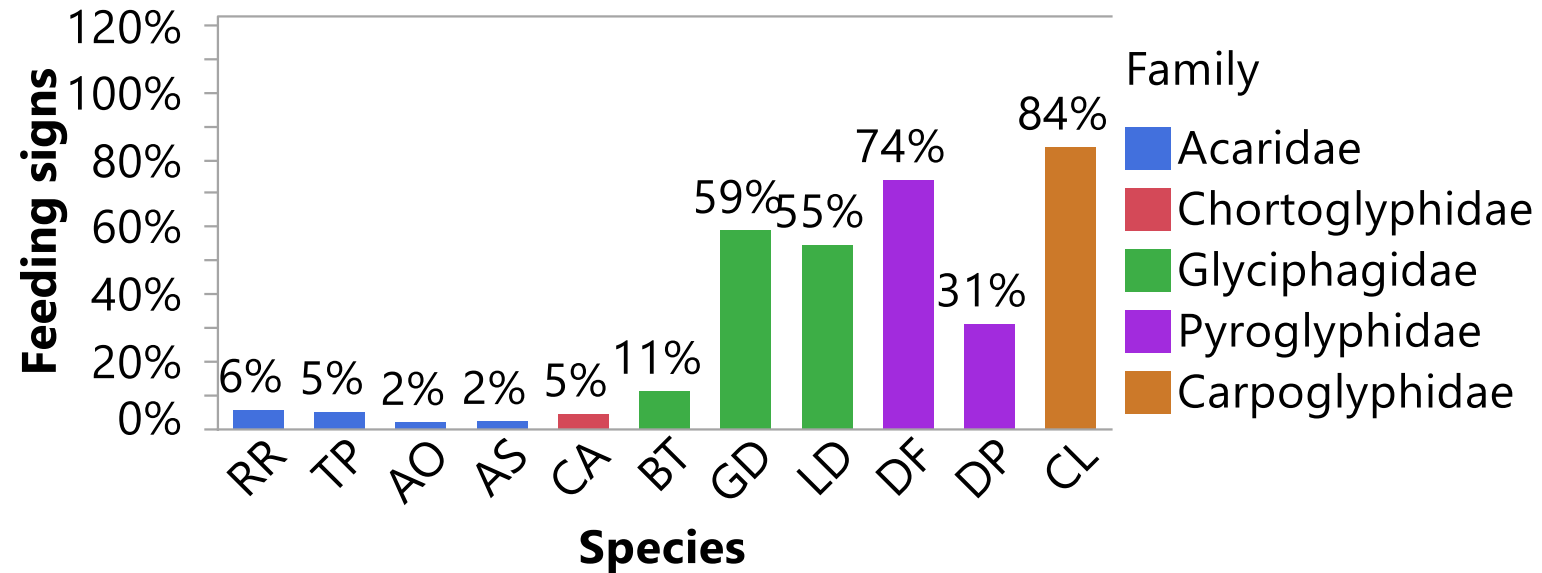
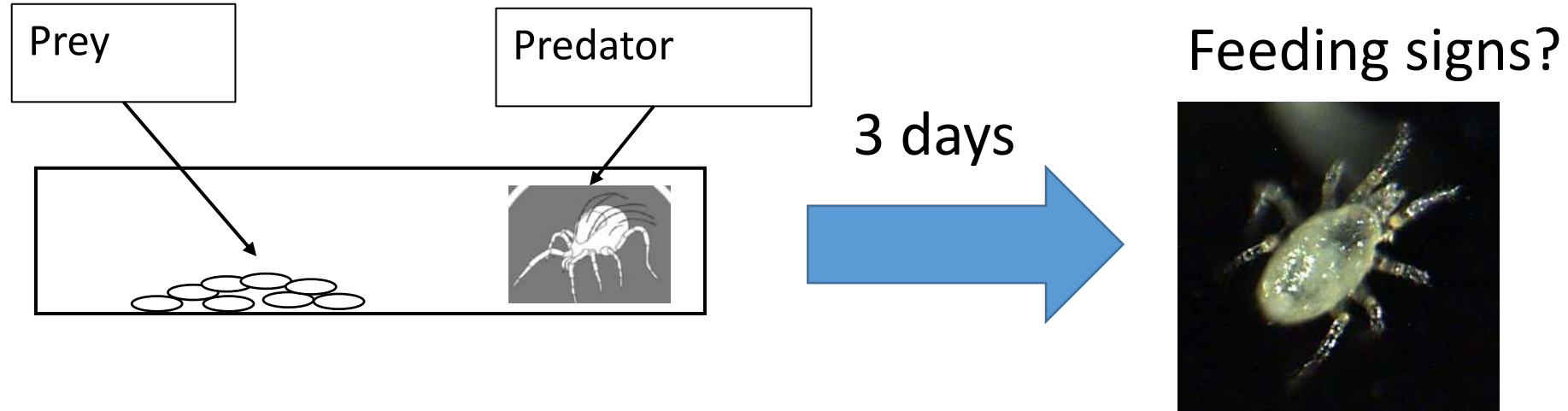
Can you be less specific?



The right food

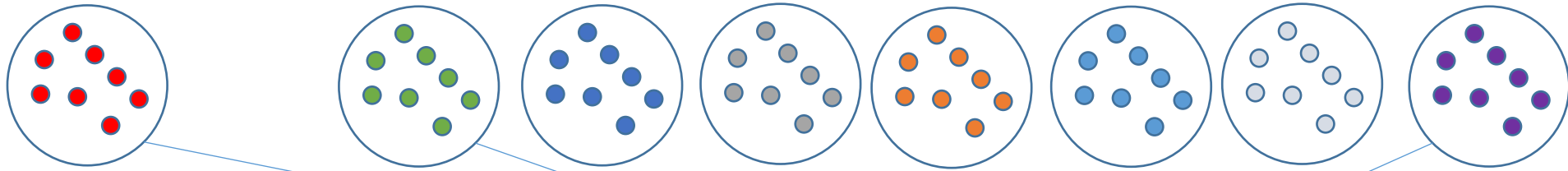
The right genotype

SCREENING FOR ALTERNATIVE FOOD

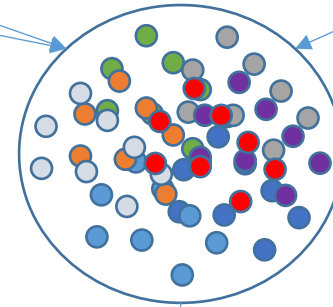


BREEDING SCHEME

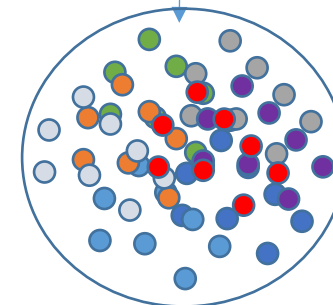
Narrow



Broad

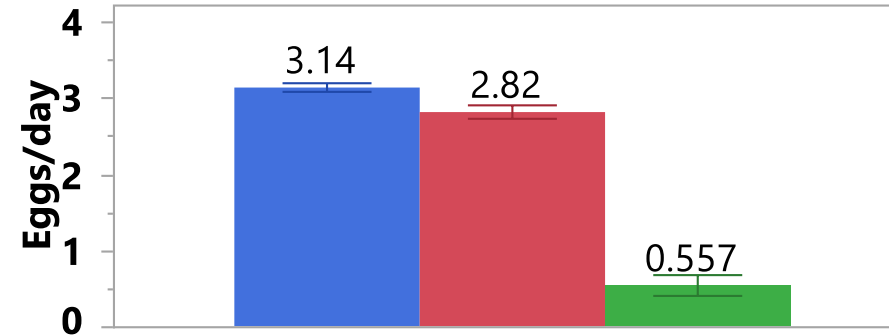
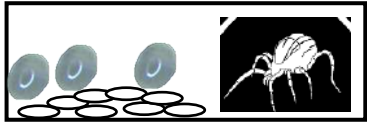


Broad + selection



PHENOTYPIC EFFECT OF POPULATION SOURCE

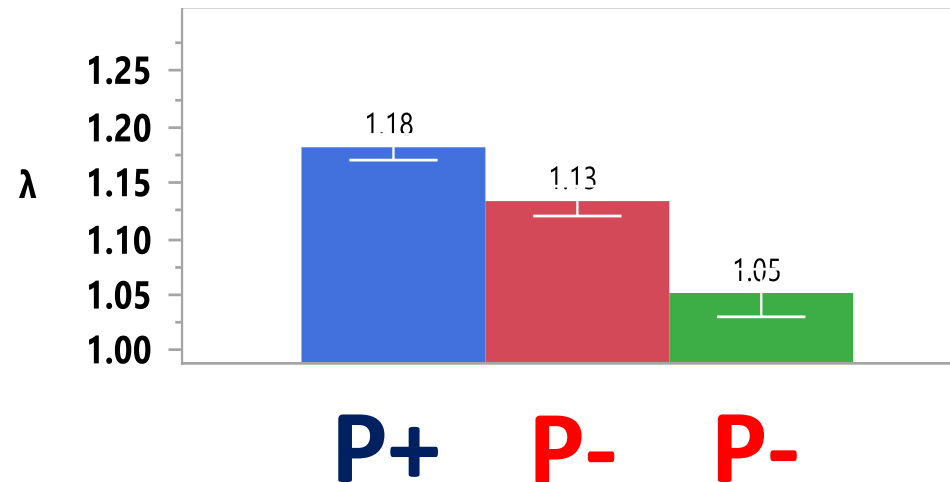
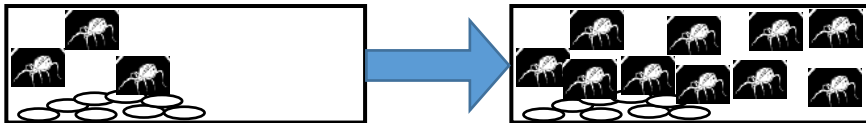
Measuring Individuals



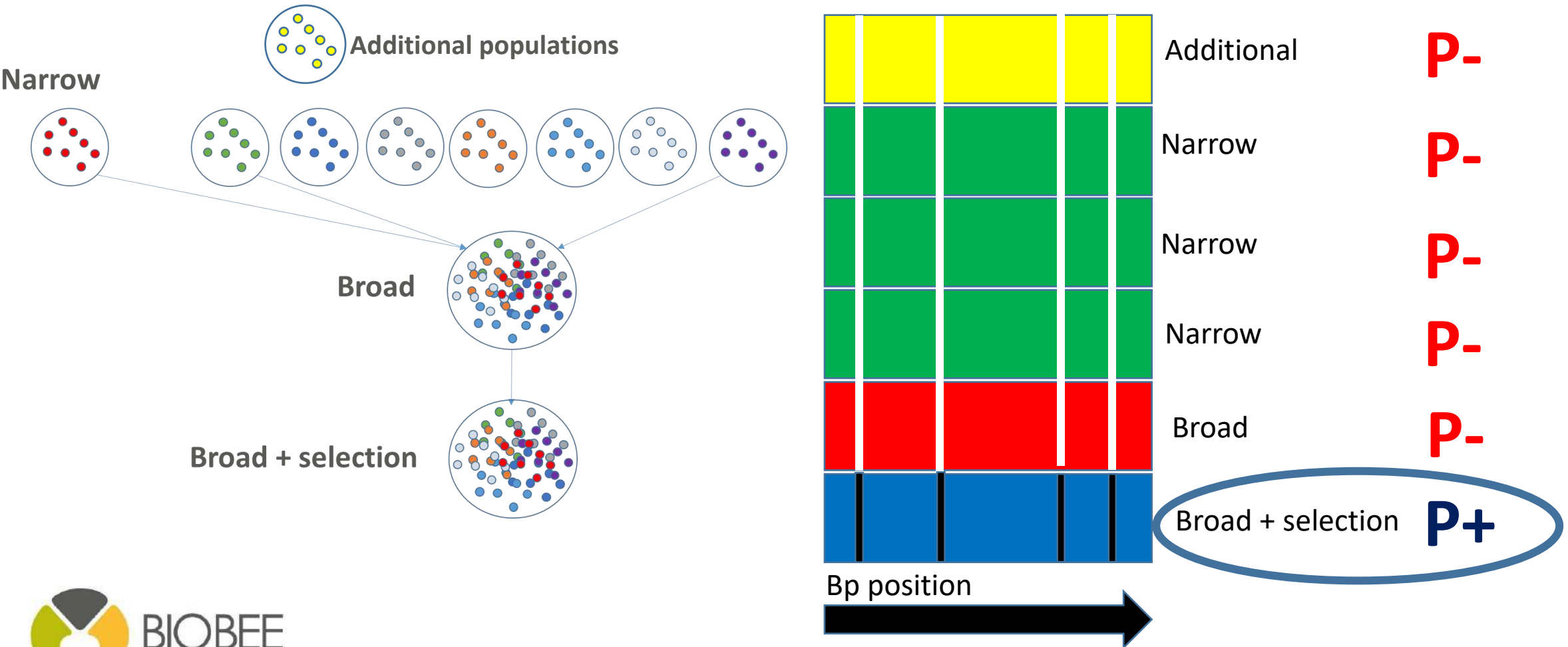
Source

- Broad + selection
- Broad
- Narrow

Measuring populations



MAPPING GENETIC MARKERS

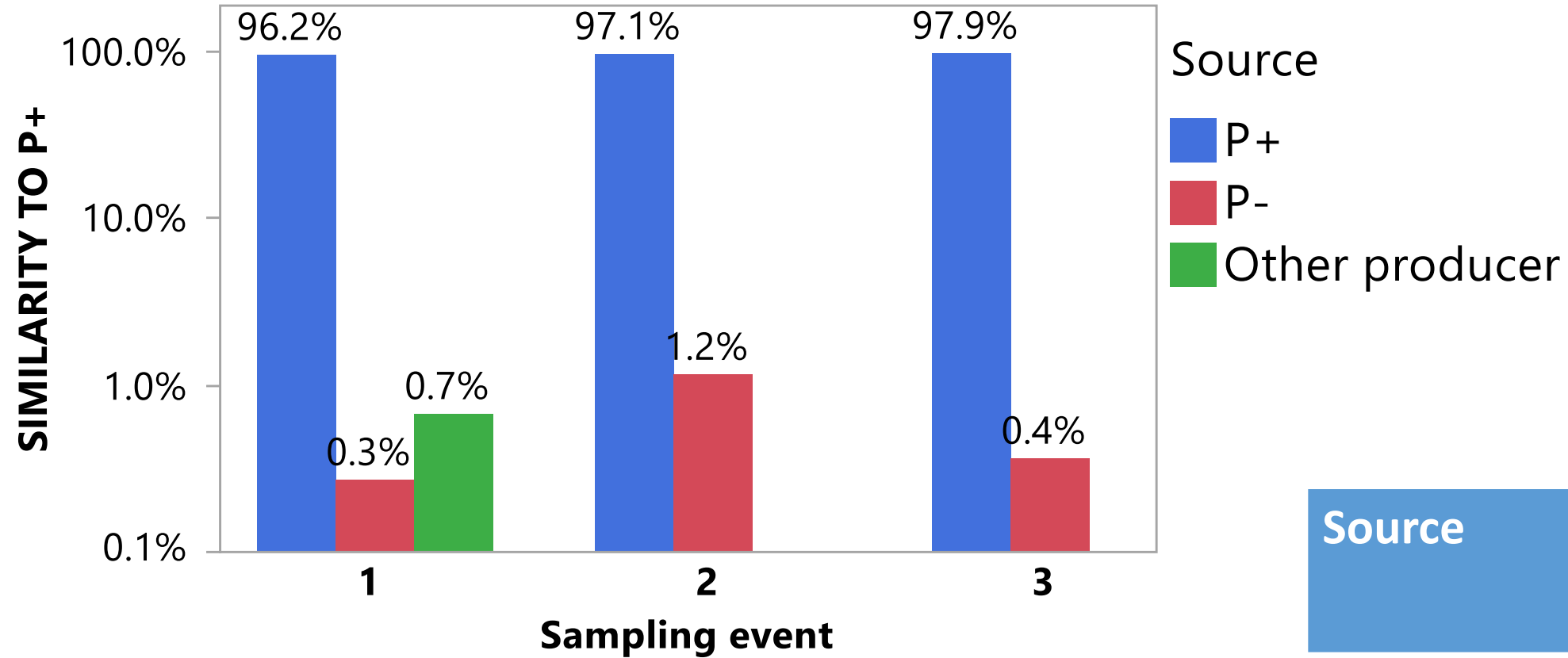


MAPPING GENETIC MARKERS

- **Results – 34 markers distinguishing P+ from P-**
- **Primer design for PCR reactions**
- **Validating results with new samples – PCR + NGS**

GENETIC MARKERS – VALIDATION RESULTS

NGS



PCR

Source	Similarity to P+
P+ (n=27)	100%
P- (n=33)	0%

A NEW PRODUCT: BioPersi+

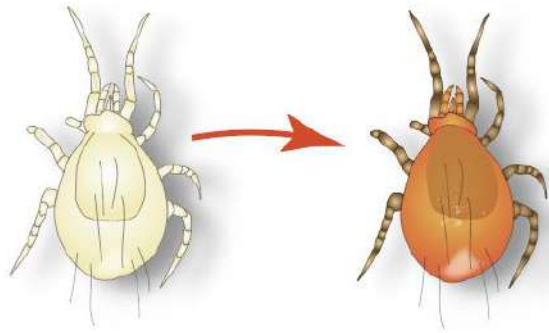
**A novel production
method**

Reared in climate rooms

Different product



BioPERSI+: COLOR



1-2 days



A TRUE REVOLUTION IN SPIDER MITE CONTROL

Slow-Release Sachets of *Phytoseiulus persimilis*



“Classic” - Preventive



“Speed” - Curative

Take home message

- **Balancing between work with individuals and populations**
- **Selective breeding results are already implemented at the commercial level in the field of Biological Control.**

THE TEAM BEHIND THE SCENE

Tom Katz

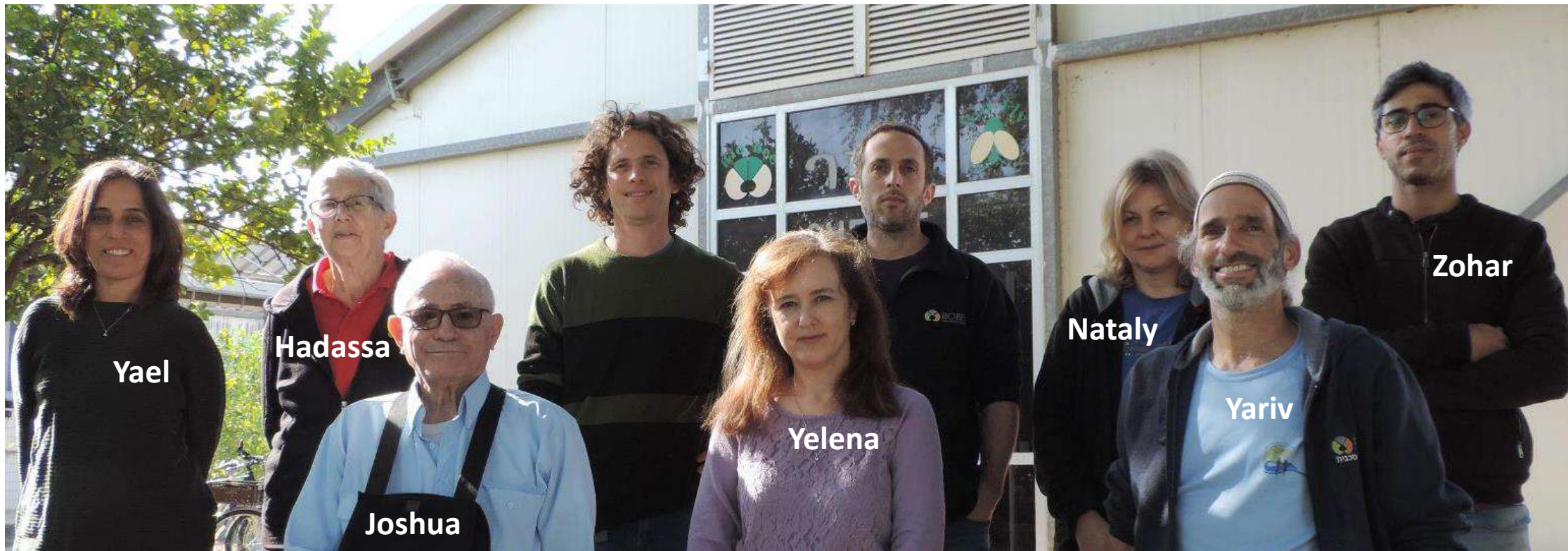


The Feed

Amit Sade



Field R&D



Yael

Hadassa

Joshua

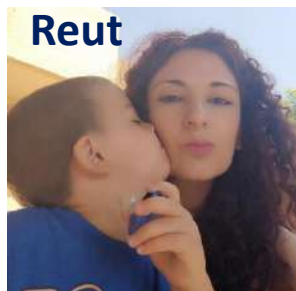
Yelena

Nataly

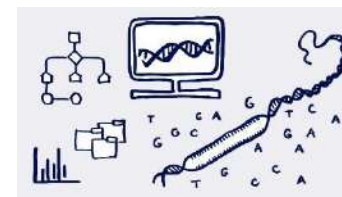
Yariv

Zohar

Reut



Maya and Tal



SPIDER MITE CONTROL ENTERS A NEW ERA

