

# SUSTAIN CpGV MEETING

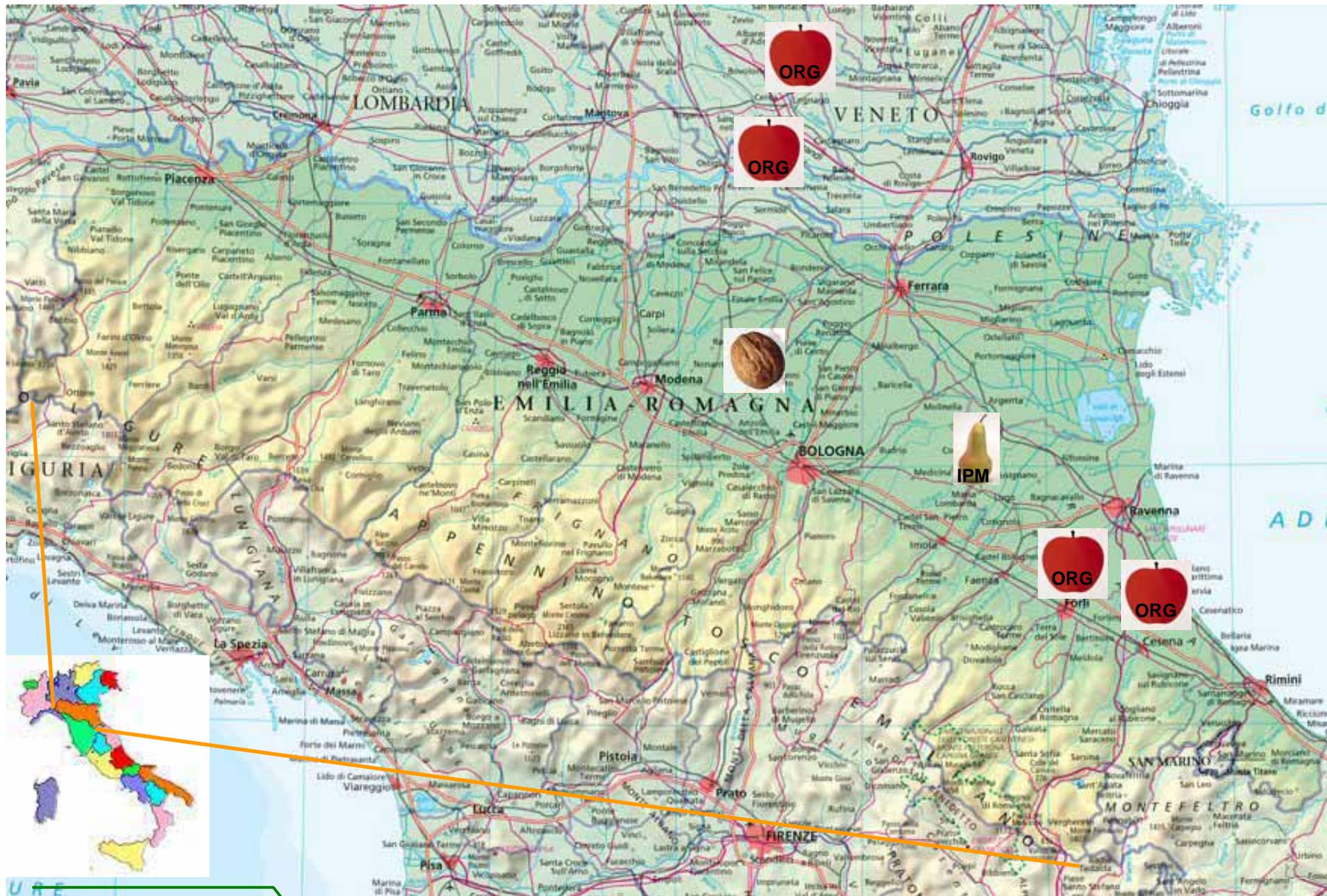
Lucerne (CH) 2006

## INTRABIO WORK PLAN 2006

Collection of CM populations (at least 200 larvae/orchard) from 6 different sites:

- 1 population from Walnut orchard  
(no contact with CpGV)
- 1 population from IPM orchard
- 4 populations from organic orchards



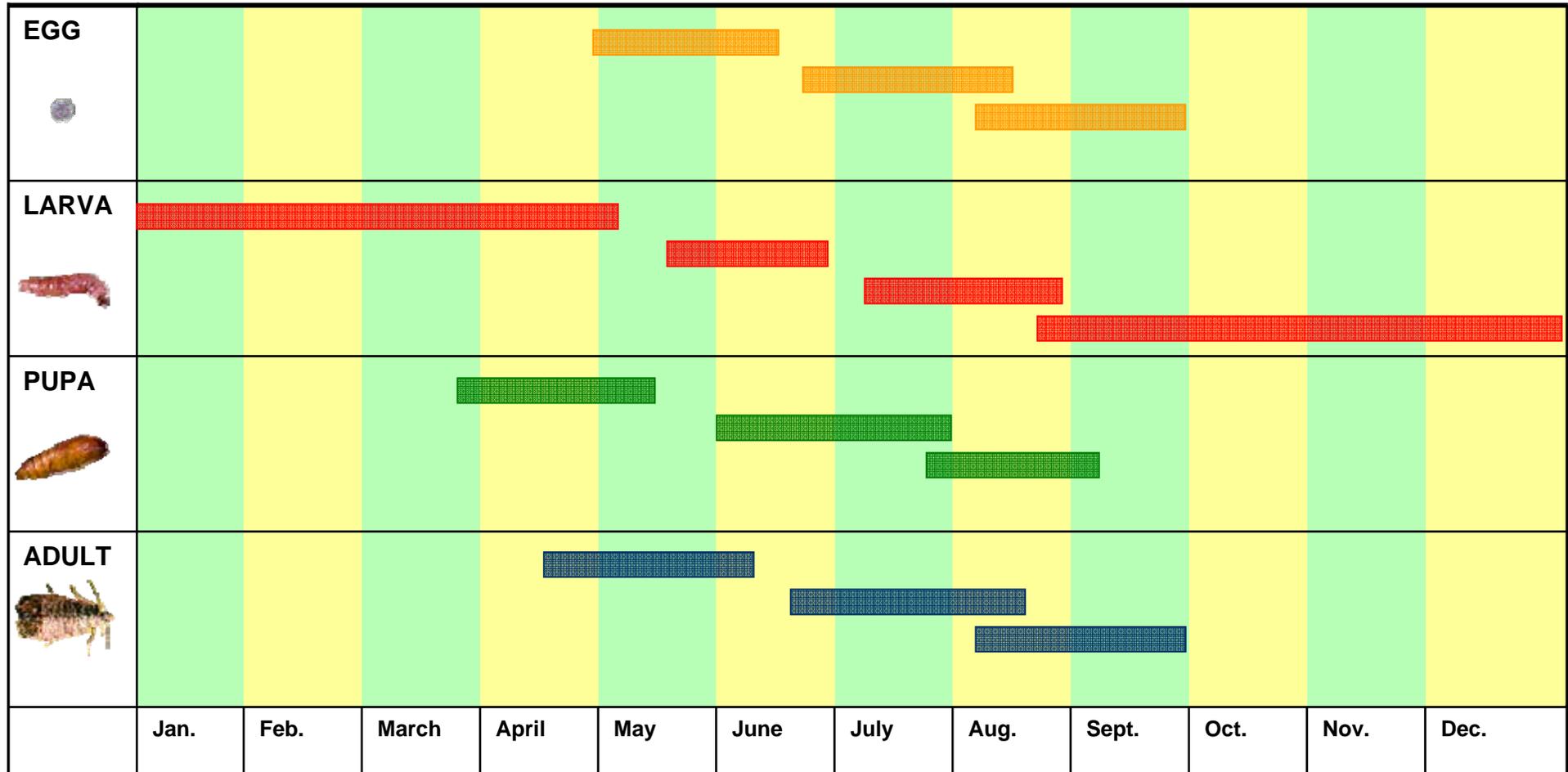




# EFFICACY EVALUATION OF DIFFERENT CpGV-BASED PRODUCTS AGAINST CODLING MOTH



# CODLING MOTH LIFE CYCLE (PO VALLEY)



## **I-GENERATION CM LARVAE**

**3 field trials (randomized block design)  
No conclusive results due to extremely  
low infestation levels**



## **II-III GENERATION CM LARVAE**

**2 field trials (1 randomized-block-design trial + 1 large-plot  
trial)**



# TRIAL NO. 1 – SPINIMBECO (VR)

## STUDY SITE DESCRIPTION

STUDY SITE	Spinimbeco (VR)
CROP	apple cv Imperatore
BACKGROUND	organic orchard; applications of CpGV since 1998; 25% fruit damage at harvest in 2005; 7-8% I-generation fruit damage in 2006
EXPERIM. DESIGN	randomized block design (4 reps/treatment)
PLOT SIZE	19.2 m <sup>2</sup> (4 plants)

## TREATMENTS

1. **Madex Plus** at 100 ml/ha (**3x10<sup>12</sup> CpGv/ha**)
2. **Madex** at 200 ml/ha (**3x10<sup>12</sup> CpGv/ha**)
3. **Untreated control**



No. TREATMENTS 6 (15/7, 21/7, 29/7, 5/8, 14/8, 18/8)

# TRIAL NO. 1 – SPINIMBECO (VR)

## DATA ASSESSMENT

Close to harvest (01/09/06), on 100 randomly selected fruits per plot:

- % fruits with stings (without deep entries and/or living larvae)
  - % fruits with deep entries (without living larvae)
  - % fruits with living larvae (with at least one living larvae)
  - % total fruit damage
- 
- no. living I-II-instar larvae (III generation)
  - no. living III-V-instar larvae (II generation)

## STATISTICAL ANALYSIS

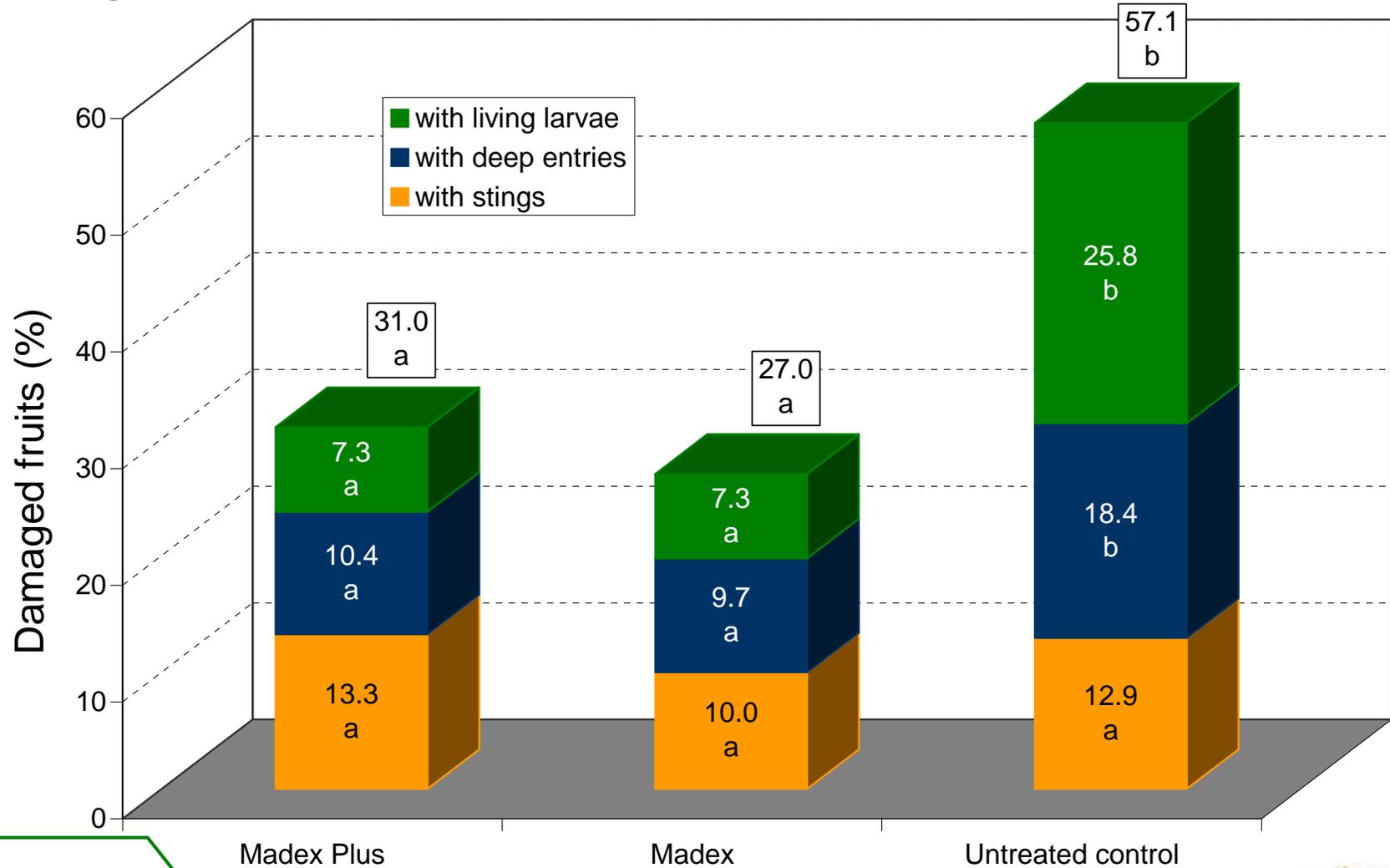
One-way ANOVAs, followed by Tukey's test for post hoc comparisons of means. Levene's test was used to test for homogeneity of variances.



# TRIAL NO. 1 – SPINIMBECO (VR)

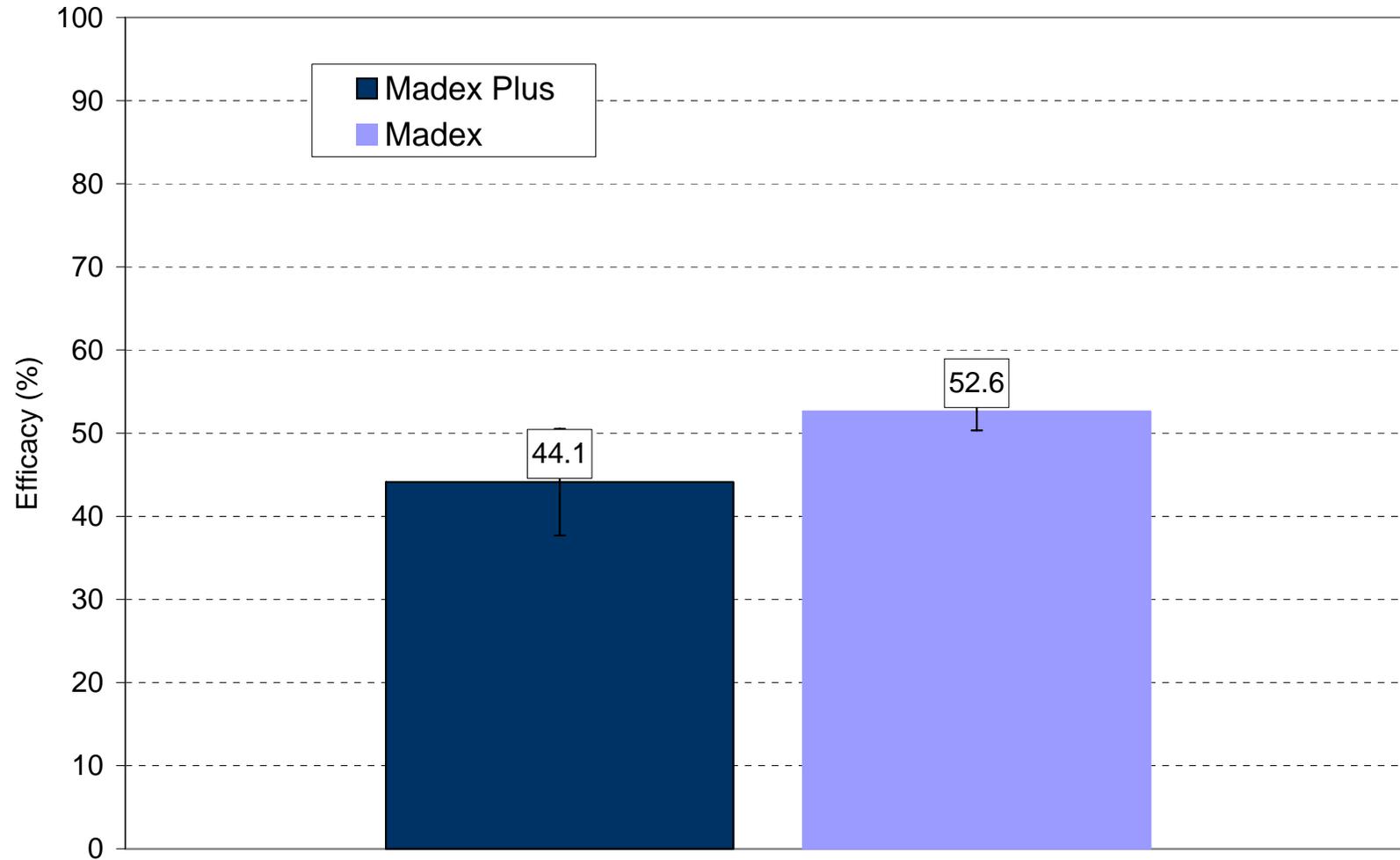
## RESULTS

Fruit damage close to harvest (01/09/06)



# TRIAL NO. 1 – SPINIMBECO (VR)

RESULTS - efficacy (%) in reducing fruit damage caused by II and III generation CM larvae



# TRIAL NO. 1 – SPINIMBECO (VR)

## RESULTS

No. living larvae (mean)

TREATMENT	I-II-instar larvae (III generation)	IV-V-instar larvae (II generation)
Madex Plus	6.5 a	1.0 a
Madex	5.8 a	1.5 a
Untreated control	17.8 b	3.3 b



# TRIAL NO. 2 – Forlì (FC)

## STUDY SITE DESCRIPTION

STUDY SITE	Villafranca di Forlì (FC)
CROP	pear cv William
BACKGROUND	organic orchard; applications of CpGV since 2000; 80% fruit damage at harvest in 2005; 9% I-generation fruit damage in 2006
EXPERIM. DESIGN	large plots

## TREATMENTS

1. **Madex Plus** at 100 ml/ha ( $3 \times 10^{12}$  CpGV/ha); plot size: 1670 m<sup>2</sup>
2. **Old Madex** at 200 ml/ha ( $3 \times 10^{12}$  CpGV/ha); plot size: 1670 m<sup>2</sup>
3. **Untreated control** – 180 m<sup>2</sup>

NO. TREATMENTS 3 (12/7, 20/7, 28/7)



(all plots had been treated with Madex on 4/7/06)



# TRIAL NO. 2 – Forlì (FC)

## DATA ASSESSMENT

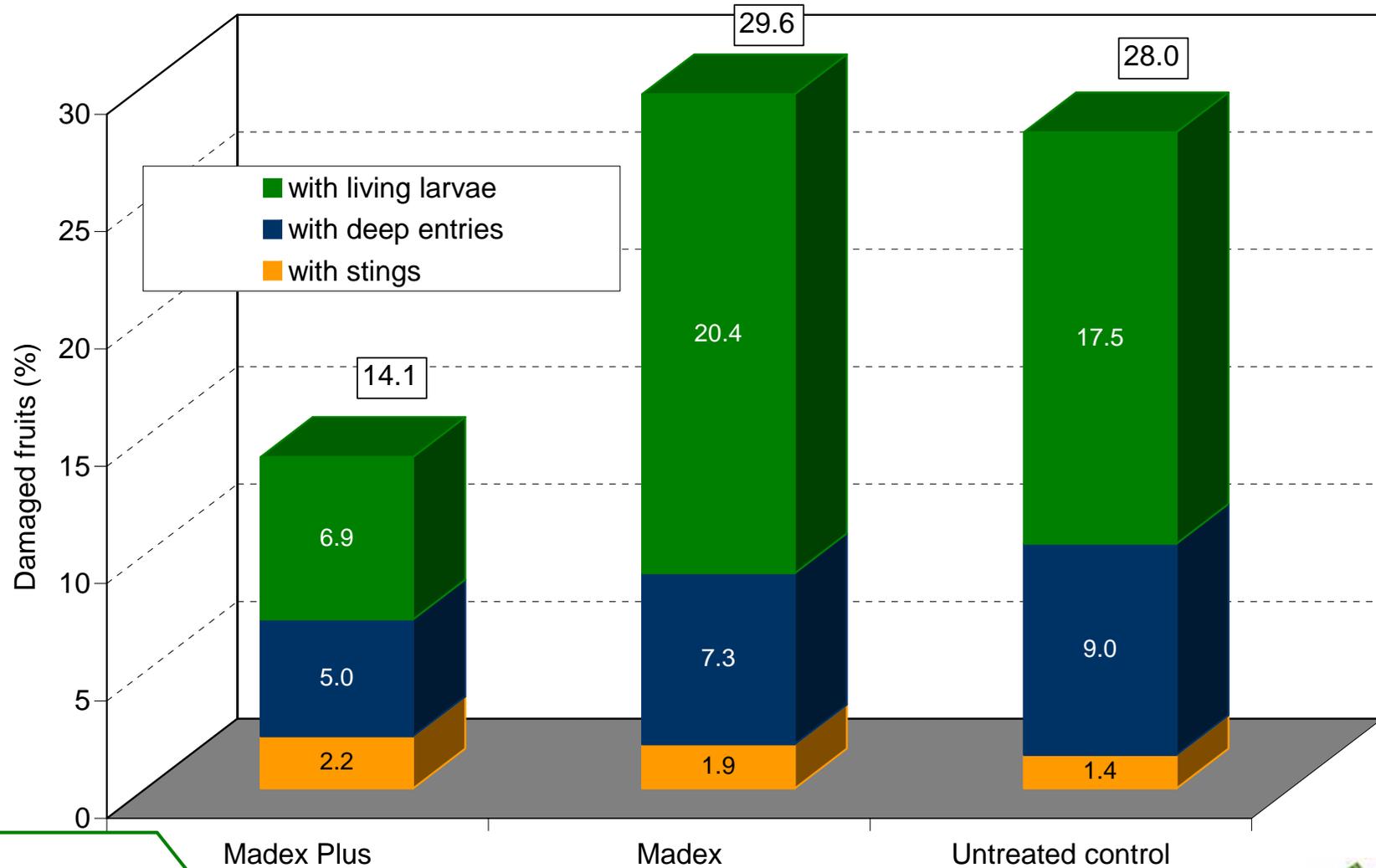
- % fruits with stings (without deep entries and/or living larvae)
- % fruits with deep entries (without living larvae)
- % fruits with living larvae (with at least one living larva)
- % total fruit damage



# TRIAL NO. 2 - Forlì (FC)

## RESULTS

### Fruit damage close to harvest



# CONCLUSIONS

Even though both organic study orchards have been treated with CpGV-based products for at least 6 years, low susceptibility of the CM population to Madex was observed only in Trial no. 2.

Overwintering CM larvae have been collected in both study orchards. Larvae will be sent to BBA (Germany) to verify whether the test populations show reduced susceptibility / resistance to Madex.

In case of reduced susceptibility / resistance of the target population to Madex, Madex Plus may provide effective CM control.



# THANK YOU FOR YOUR ATTENTION

