

# Use of Oxalic Acid against Varroa mite

Dr. Fani Hatjina

Hellenic Institute of Apiculture- GREECE

Project though DIR 797/04 EC

# Trickling method



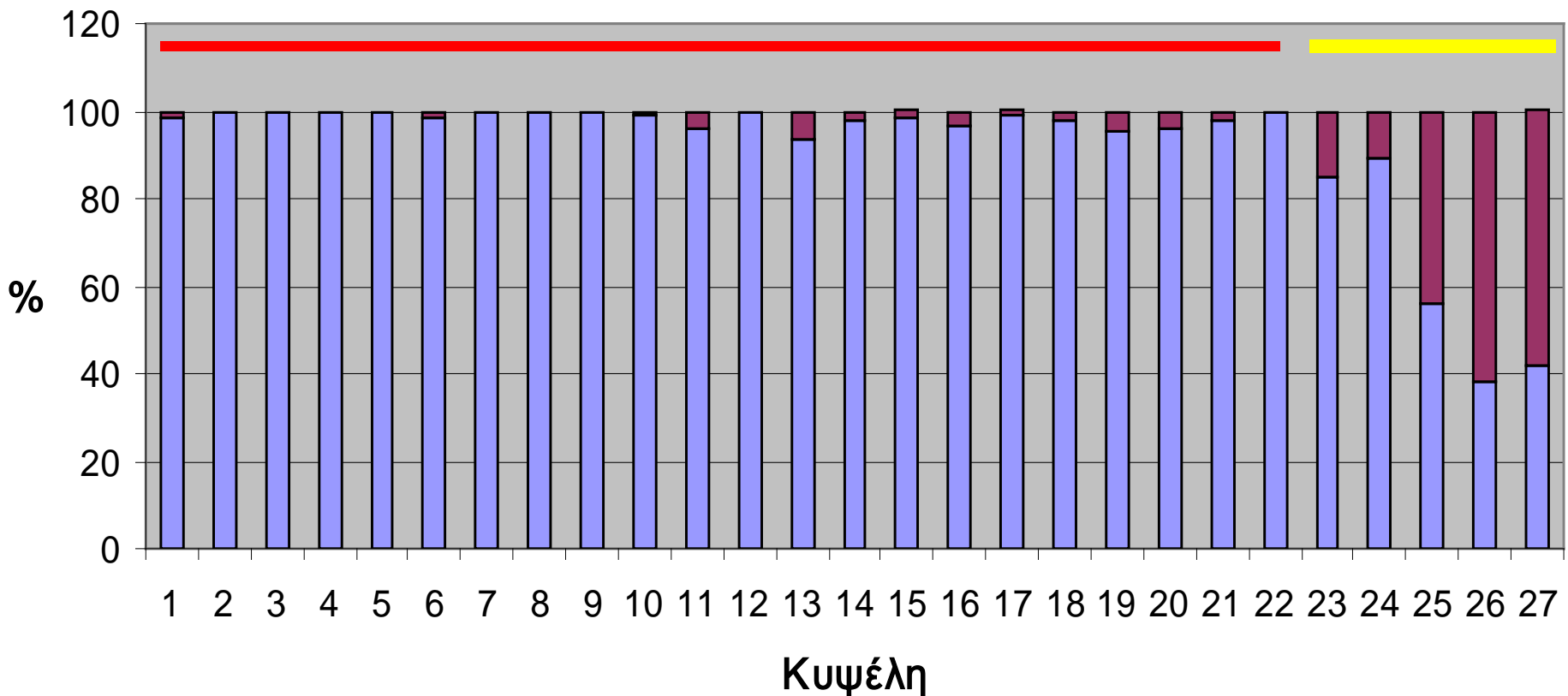
Varro: sublimation



# 3.5% O.A. 1:1 Sugar (winter 2005)

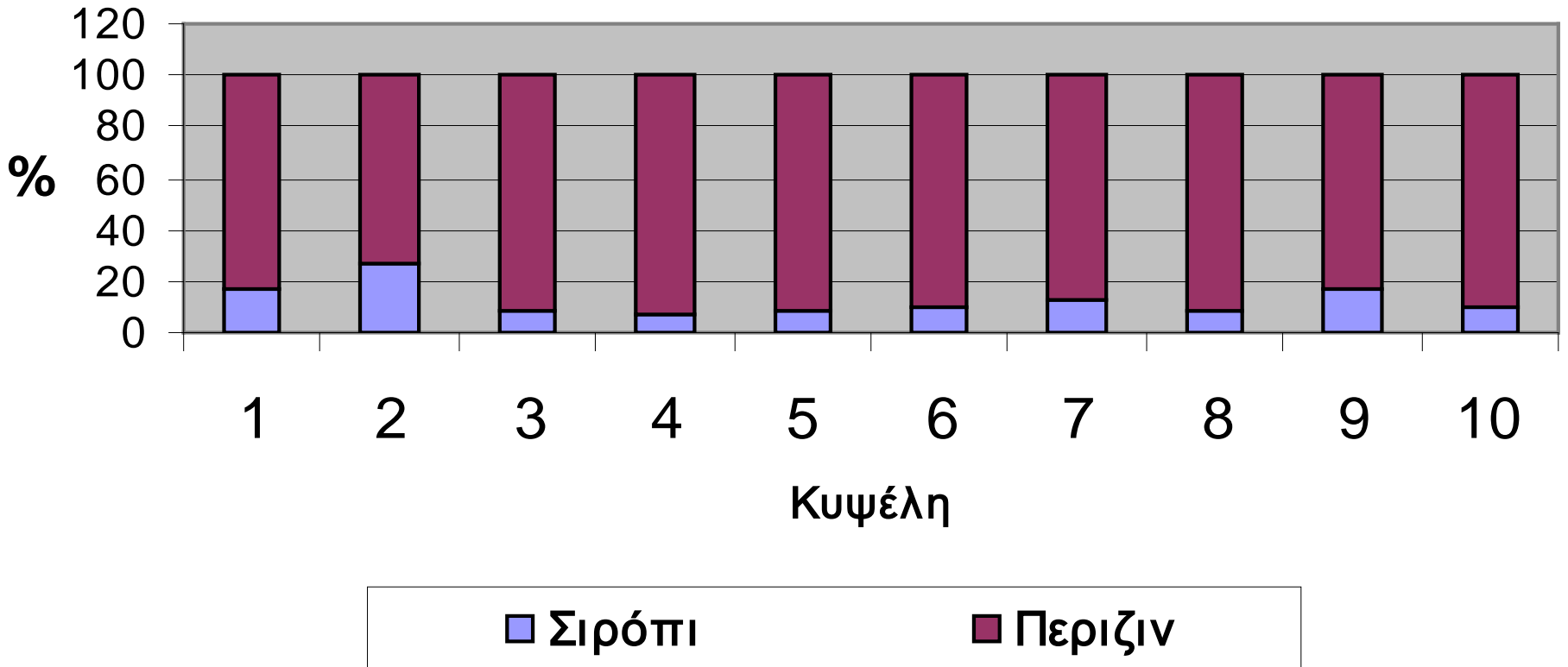
## 80 g OA in 1Kg water and 1kg sugar

Efficiency in presence and absence of brood



**OXALIC ACID = 98,4 % (no brood) και 62 % (with brood)**

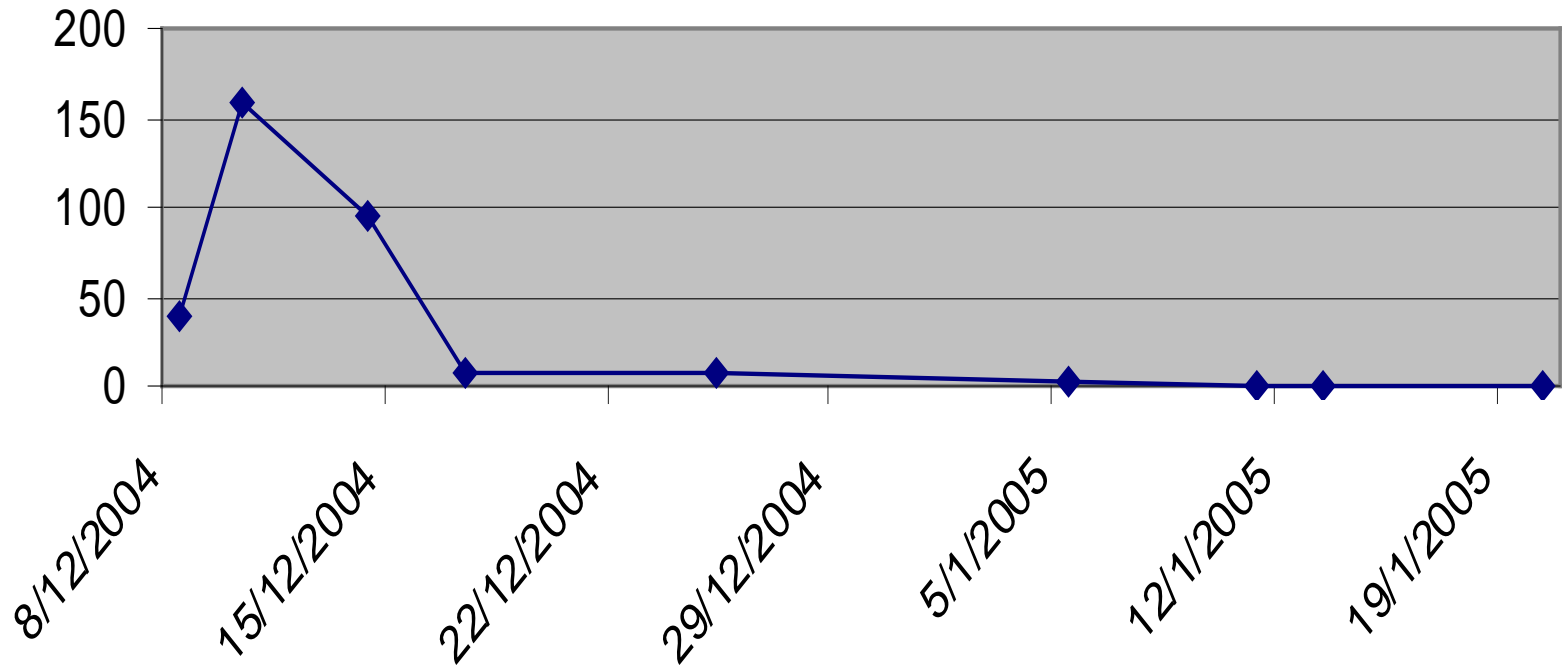
## Controls



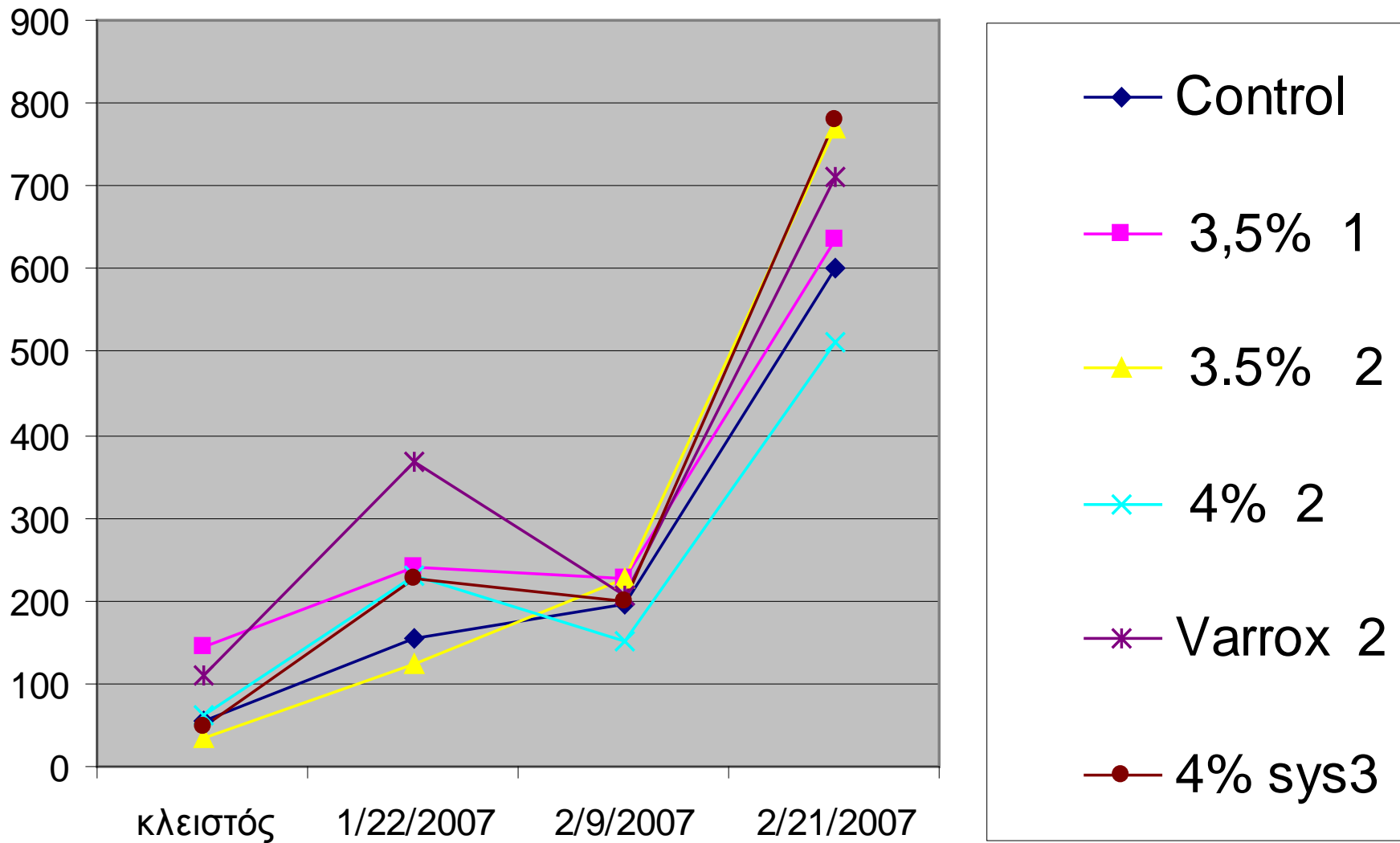
Sugar syrup = **12,7 %**

Perizin = **87,3 %**

# Duration of effectiveness (8-10 days)



# Development (winter 2007)

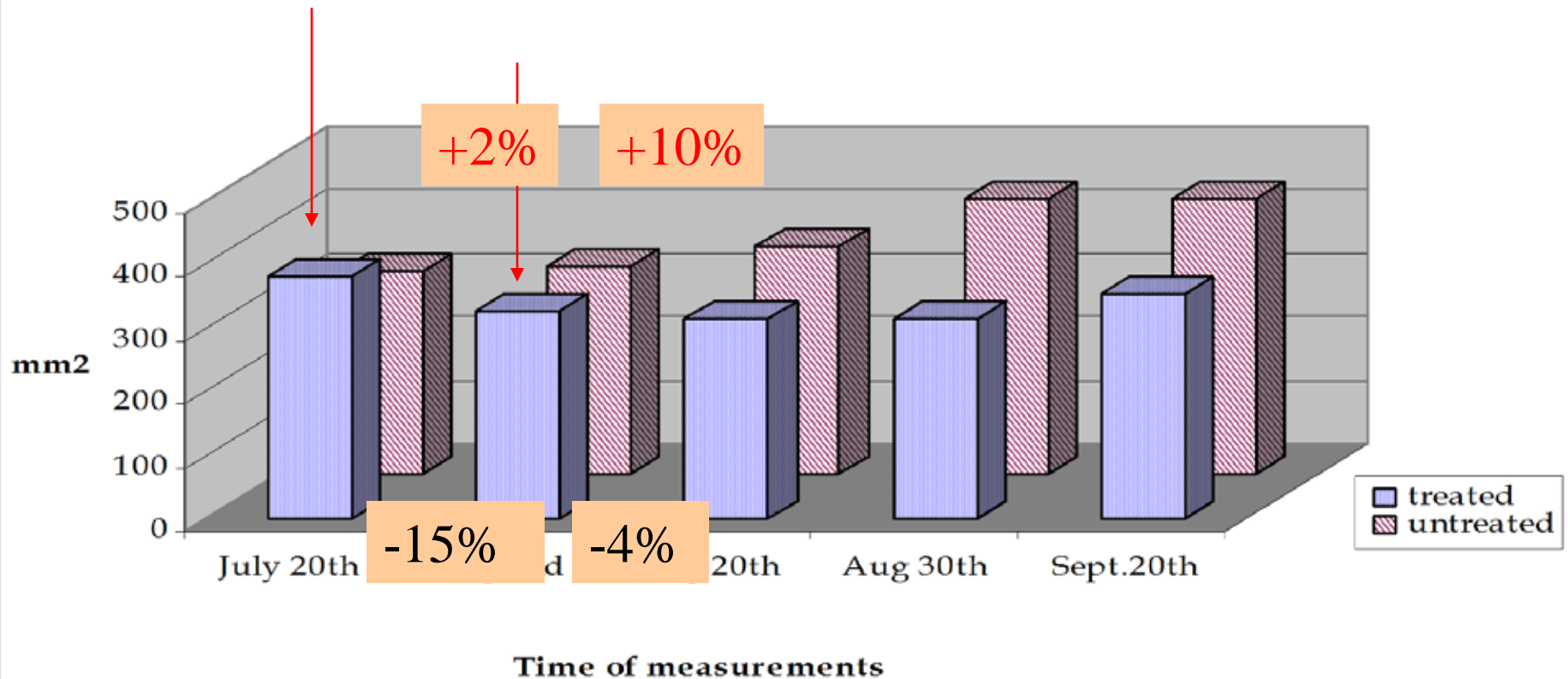


## Conclusions: (for winter)

- 1 application with O.A. when there is no brood is very effective
- 1 application with O.A. has no bad effect on brood development
- We recommend the dosage of 3,5% of O.A.
- That is 80 gr. of O.A. dihydrate in 1 kg. of water and 1 kg. of sugar
- If there is need for second application we recommend the use of an other substance

# Bad Effect on brood of 3.% O.A (70g OA.and 1Kg water + 1kg sugar) (summer 2004)

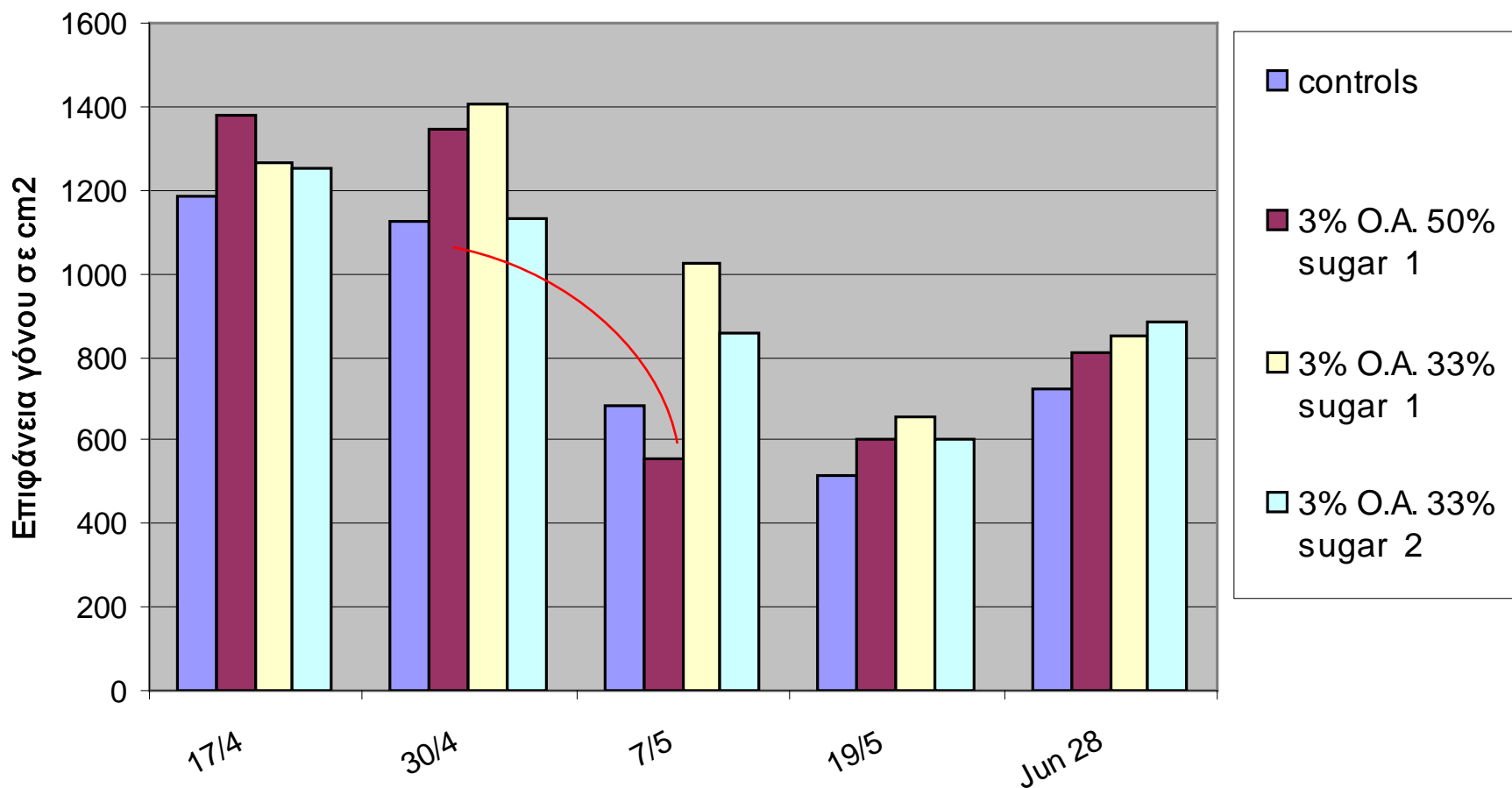
Average surface of brood area (Hatjina & Haristos 2005)



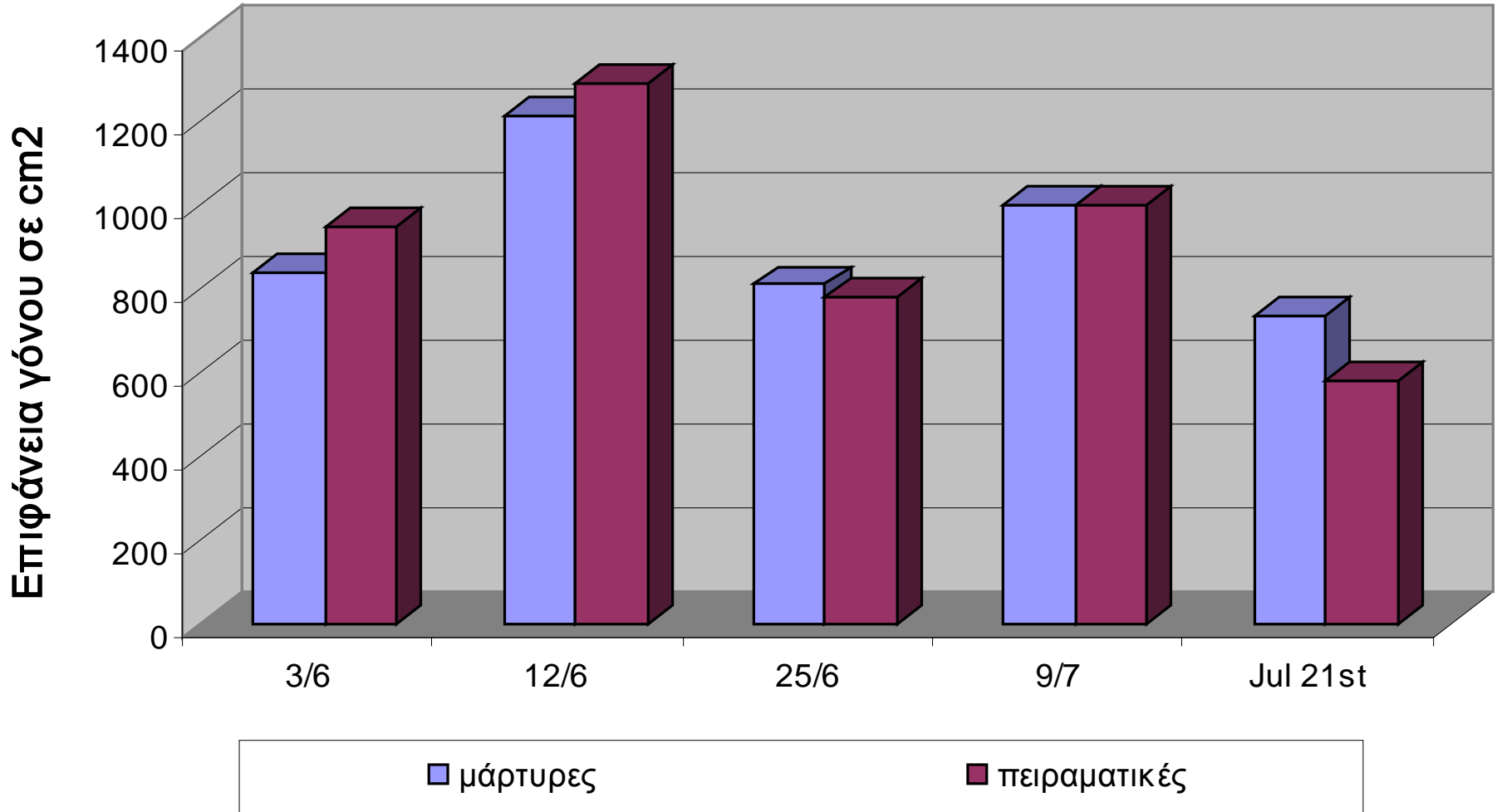


# No Effect on brood of 3% O.A. (56g) and 1Kg water + 0.5kg sugar (spring 2006)

Επίδραση 3% Ο.Ο. και 33% ή 50% ζάχαρης στην ανάπτυξη του γόνου

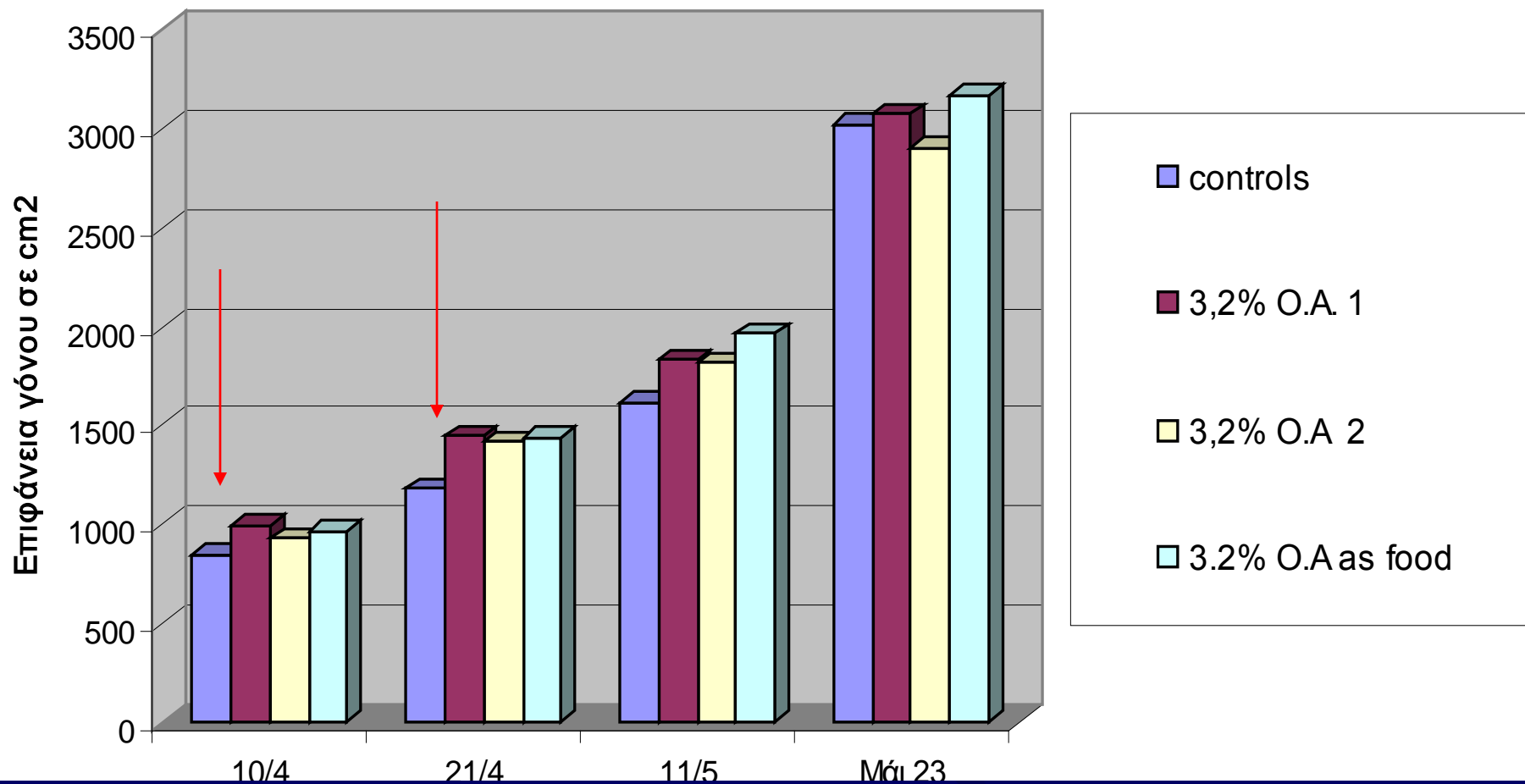


## Επίδραση 3% Ο.Ο. (33% διάλυμα ζάχαρης) στην ανάπτυξη του γόνου



# No Effect on brood of 3.2% O.A. (60g 1Kg water + 0.5kg sugar (spring 2007)

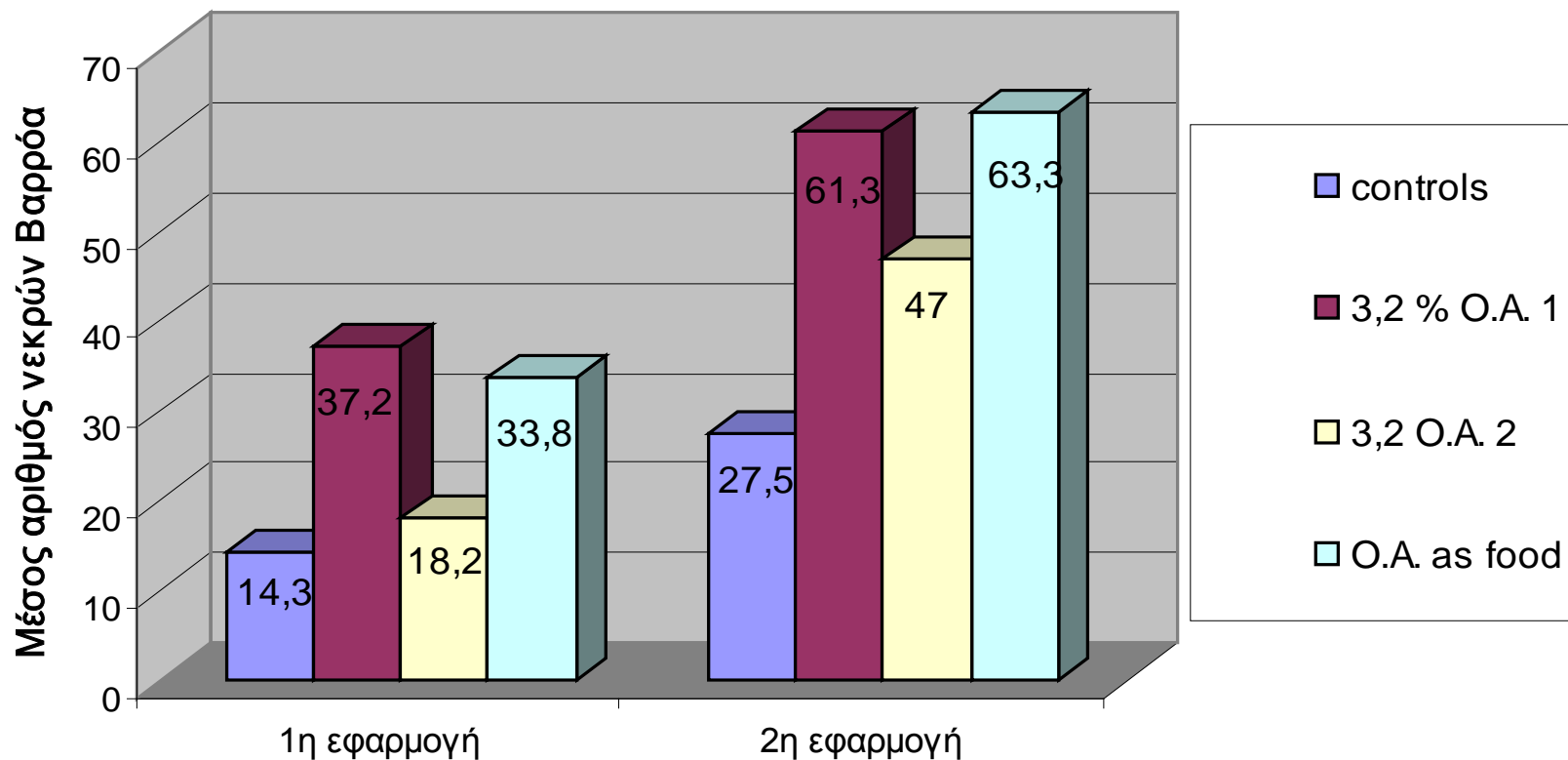
Επίδραση του 3,2%Ο.Ο. στην ανάπτυξη του γόνου



# Efficiency of summer treatments

## 3.2% O.A. and 33% of sugar

Αποτελεσματικότητα 3,2 % Ο.Ο. και 33% ζάχαρης εναντίον του Βαρρόα



# Conclusions: for summers

- When O.A. is diluted in 1:1 sugar syrup (=50% of sugar) has a detrimental effect on brood development
- O.A. in 33% of sugar is not harmful to the colonies
- We recommend use of only 1 application
- We recommend the use of 3.2 % of O.A. as follows: 60 gr. of O.A. dihydrate in 1 kg of water and ½ kg of sugar.



Tesecur Enteriz