

I R A C - B R

COMITÊ BRASILEIRO DE AÇÃO A RESISTÊNCIA A INSETICIDAS

www.irac-br.org.br

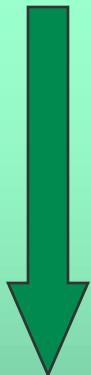
IRAC- BRAZIL UPDATE

Antonio Cesar dos Santos

Edinburgh, April, 2006

Members

- 05 May 97 IRAC-BR Established
- February, 24th, 2005 24th Assembly



New Member joined the group:
Sumitomo do Brasil

- Arysta
- Basf
- Bayer
- Dow AgroSciences
- DuPont
- FMC
- Iharabras
- Milênia
- Monsanto
- Sipcam
- Syngenta
- Ministry of Agriculture
- Consultants:
 - Dr. Celso Omoto (ESALQ/USP)
 - Dr. Raul Guedes (UFV)

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Elections in Feb, 2006

Members in the leading group

Chair
Fábio Schimdt
Sumitomo

Vice-Chair
Leandro Martinho
Syngenta

Secretary
Giorla Piubelli
Milênia

Treasure
F. Lozano
Bayer

2nd Secretary

2nd Treasure

Educational
Florindo Orsi (IRAC officer)

Institutional
Florindo Orsi (IRAC officer)

Research Coordinators

IRAC-BR: Educational Activities in 2005

- National Cotton Congress: IRM Round Table
- Fall Season Corn Symposium: IRM speech
- IRM Training – Course at Brasilia
- “Instituto Biológico” Meeting: IRM Speech
- CropLife Meeting: IRAC-BR activities

IRAC-BR: To participate in 2006

- ENFRUTE (Subtropical fruits meeting): presentation of first results in apples
- National Entomology Congress:
 - organizing and/or financial support for 3 round tables on IRM themes
 - IRAC projects results presentation
 - IRM on Bt crops
 - MoA
 - Several others small events
- IRAC-BR Course at Caxias, RS

IRM – Bt Corn / Brazil

GBio – Group of Biotechnology

- Sub-group of IRAC-BR
- 1st Meeting – April, 11, 2000
- Monsanto, Syngenta, DuPont / Pioneer, Dow
- Consultants: C. Omoto (ESALQ), I. Cruz (EMBRAPA/CNPMS), A. L. Fancelli (ESALQ), E. Lima (UFV), O. Fernandes (UNESP)
- Main purpose: to establish a feasible refugee area for Bt Corn in Brazil – still under discussion

On-Going Research Projects

- Maize/ Cotton: *Spodoptera frugiperda*
- Tomatoes: *Tuta absoluta*
- New projects



IRM: *Tuta absoluta* in Tomatoes

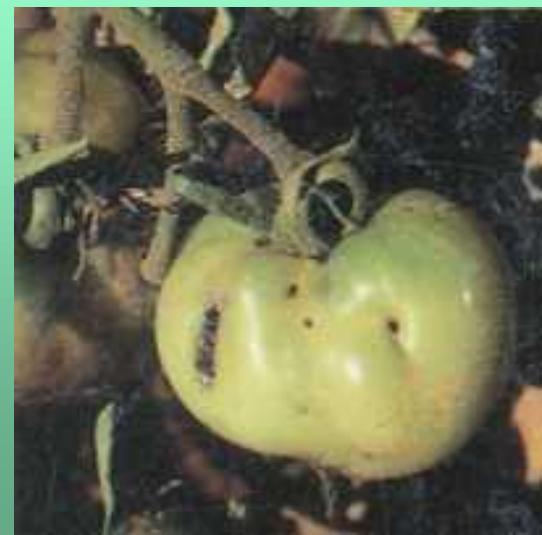
Phase III: Monitoring and Management

Prof. Marcelo C. Picanço*

*Prof. Adjunto de Entomologia

Univ. Federal de Viçosa

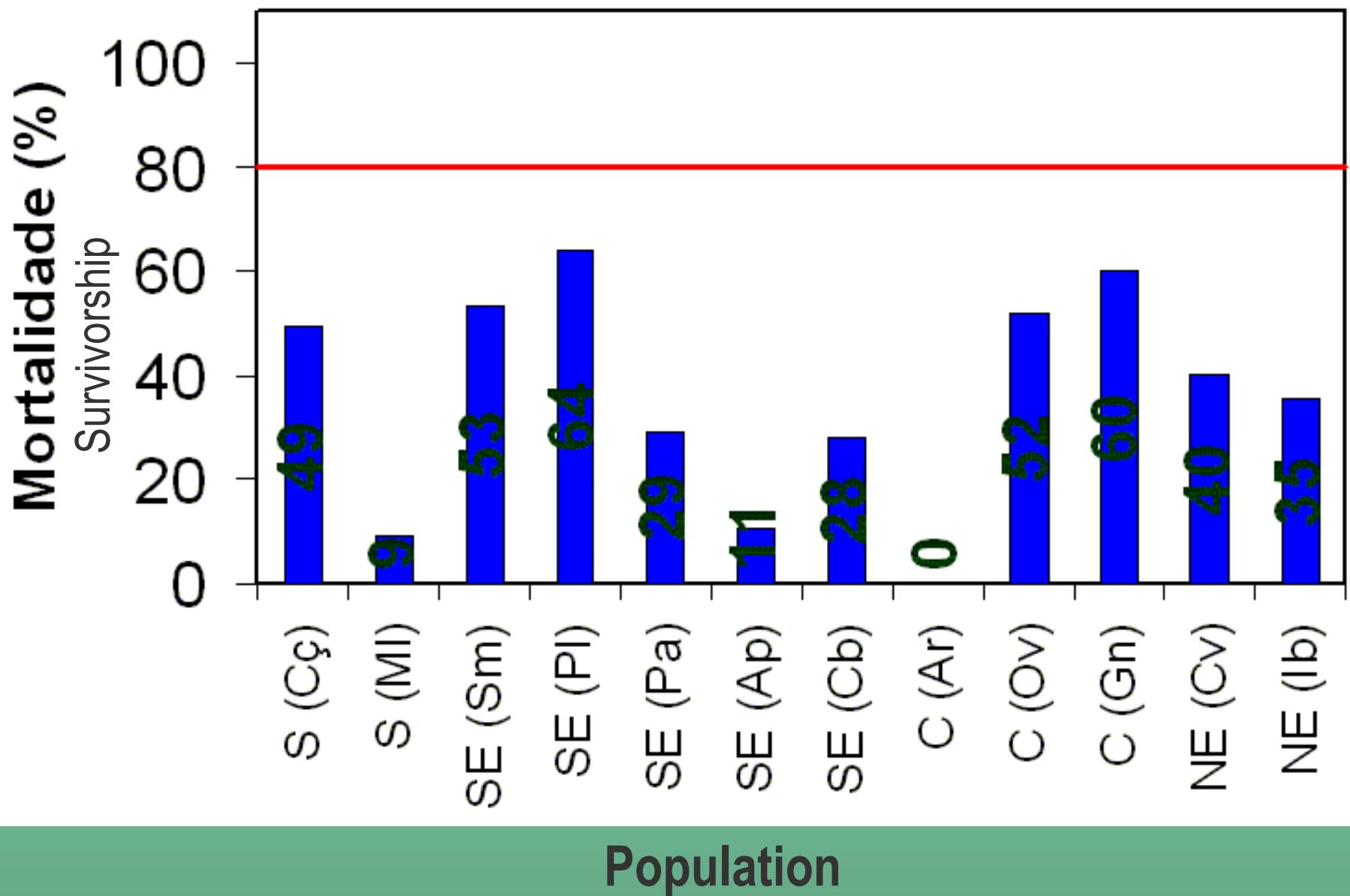
E-mail: picanco@ufv.br



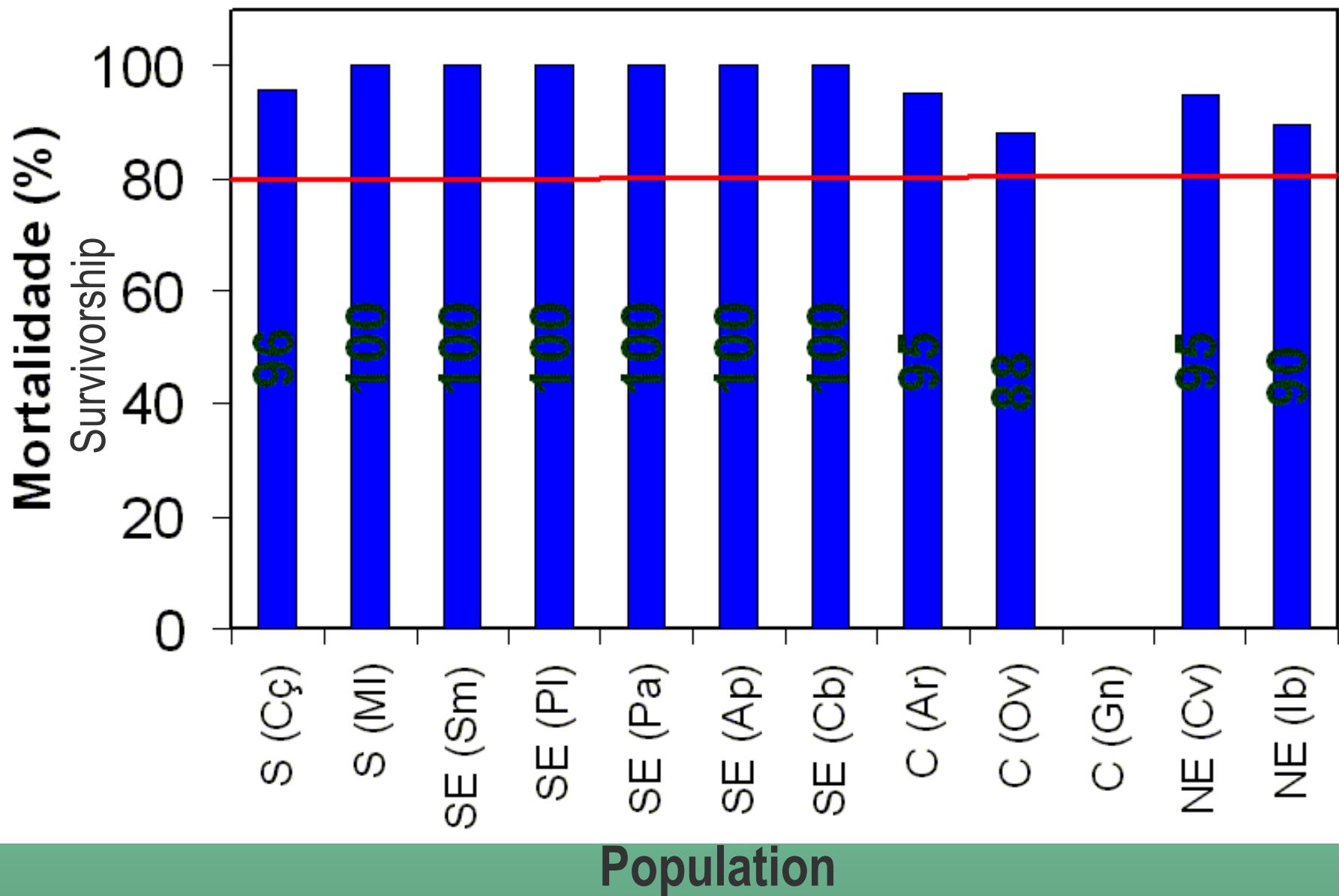
IRM: *T. absoluta* in Tomatoes

Data obtained
(some examples)

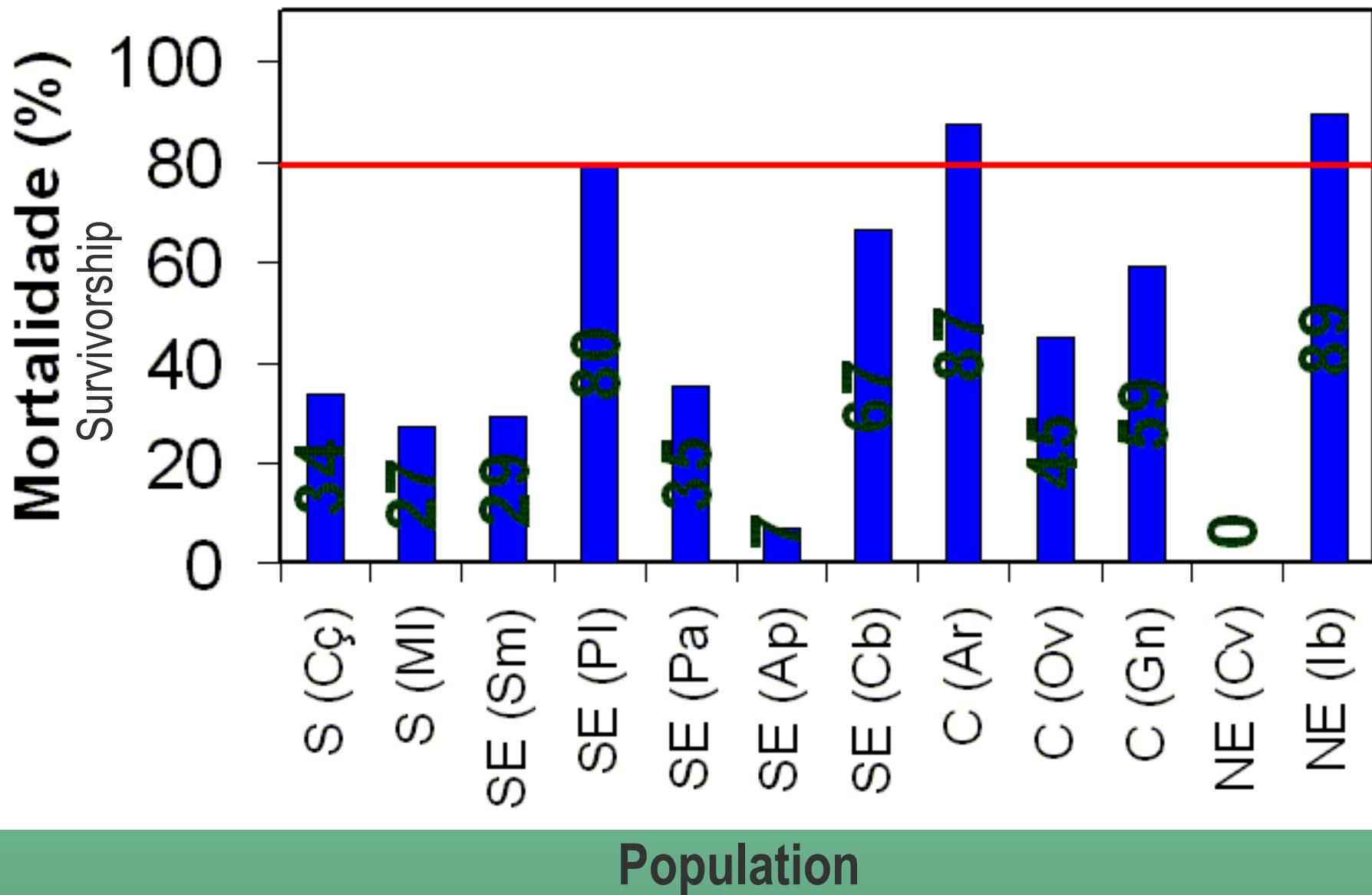
Pyrethroid



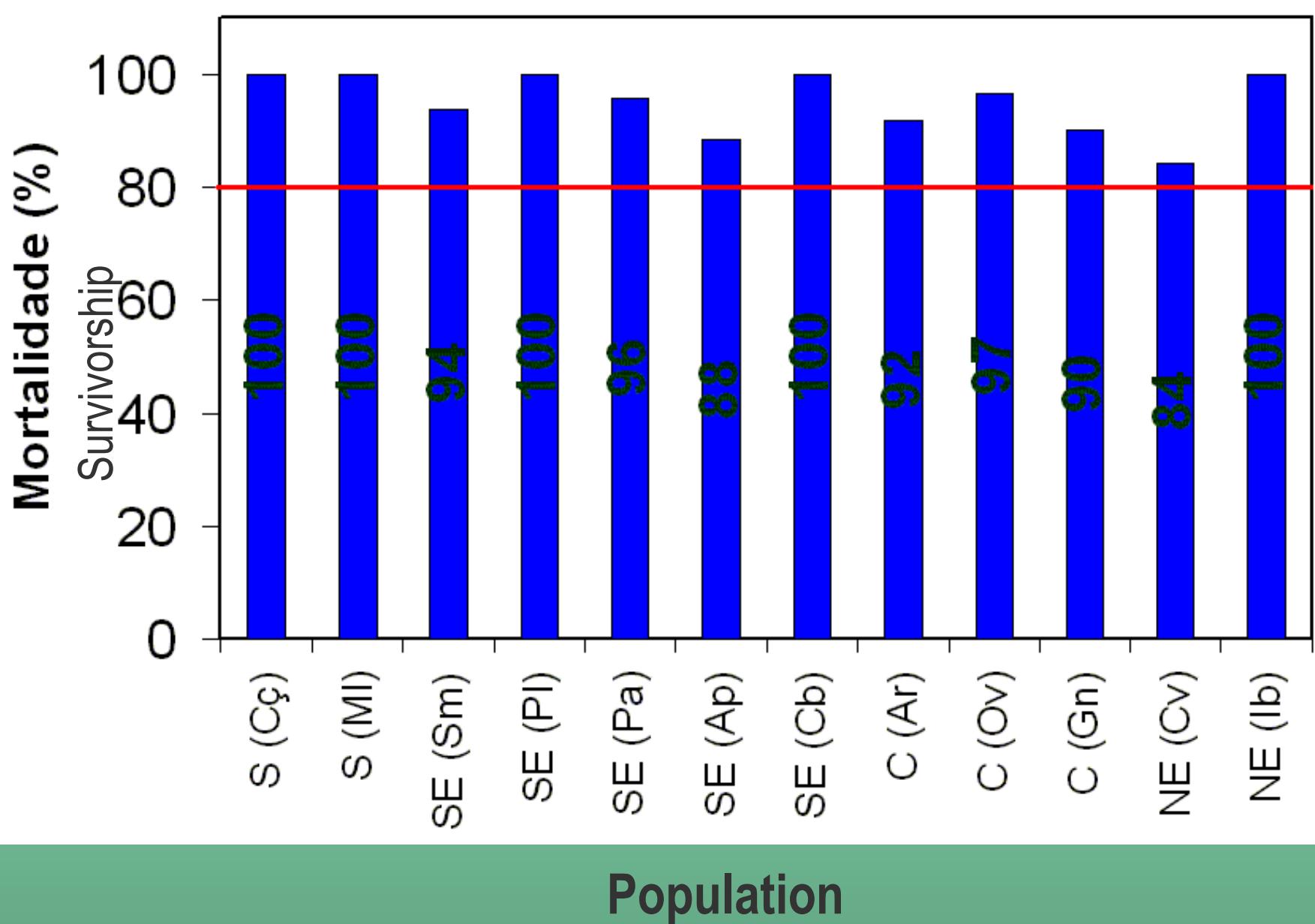
Naturalyte



IGR



Abamectin

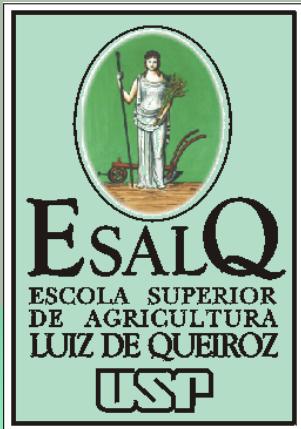


Ocurrence of *Tuta absoluta* in the main cultivation regions

Recommendation

Insecticides	Region			
	South	Southeast	Cerrados	Northeast
Avermectin	Green	Green	Green	Green
Cartap	Green	Green	Green	Light Blue
Other carbamates	Red	Red	Red	Red
Chlorfenapyr	Green	Green	Green	Green
Ecdisteroids	Red	Red	Red	Red
Fenthioate	Green	Green	Green	Green
Methamidophos	Green	Green	Green	Light Blue
Other OPs	Red	Red	Red	Red
Chitin inhibitors	Red	Red	Red	Red
Naturalyte	Green	Green	Green	Green
Oxadiazine	Green	Green	Light Blue	Light Blue
Pyrethroids	Red	Red	Red	Red

Green	Recommended Insecticides
Red	Not recommended
Light Blue	Bioassays still to be concluded



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COMITÊ BRASILEIRO DE AÇÃO A RESISTÊNCIA A INSETICIDAS

BASES FOR IMPLEMENTING AN INSECTICIDE RESISTANCE MANAGEMENT PROGRAM OF *Spodoptera frugiperda* IN CORN AND COTTON CROPS IN BRAZIL

Project Leader:
Prof. Celso Omoto
University of São Paulo - Brazil

OBJECTIVES

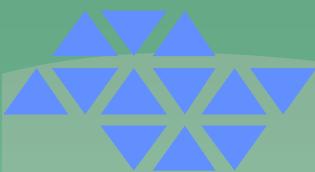
- To establish baseline susceptibility data of *S. frugiperda* populations to major insecticides;
- To compare the susceptibility to insecticides between populations of *S. frugiperda* collected from corn and cotton crops;
- To evaluate the resistance dynamics of *S. frugiperda* to some insecticides.

INSECTICIDES

Company	Insecticide
Bayer	thiodicarb
Dow	spinosad / methoxifenozone
Syngenta	chlorpyrifos emamectin lufenuron / lambda-cyhalothrin
Milênia	novaluron
Basf	teflubenzuron
Hokko	chlorfluazuron
Ihara	esfenvalerate + fenitrothion
Du Pont	indoxacarb
FMC	bifenthrina

Comments

- Resistance frequencies of *S. frugiperda* populations are still high to pyrethroids, OPs and chitin synthesis inhibitor insecticides, mainly in the regions with successive planting of corn/cotton crop;
- Rotational program has not been able to decrease level of resistance (grower level)
- Other tactics together with rotational program must be implemented
- A program must be implemented in a regional level



UNIVERSIDADE ESTADUAL PAULISTA

FACULDADE DE CIÊNCIAS AGRÁRIAS E VETERINÁRIAS

CÂMPUS DE JABOTICABAL

**Dispersion of *Spodoptera frugiperda*
(J. E. Smith, 1797) (Lepidoptera: Noctuidae)
in agroecosystems**

Objective

**To determine the dispersion distance of *S. frugiperda*
adults: data to be used mainly on the determination of
refugee in Bt Corn**

First Exploratory Experiment 2006

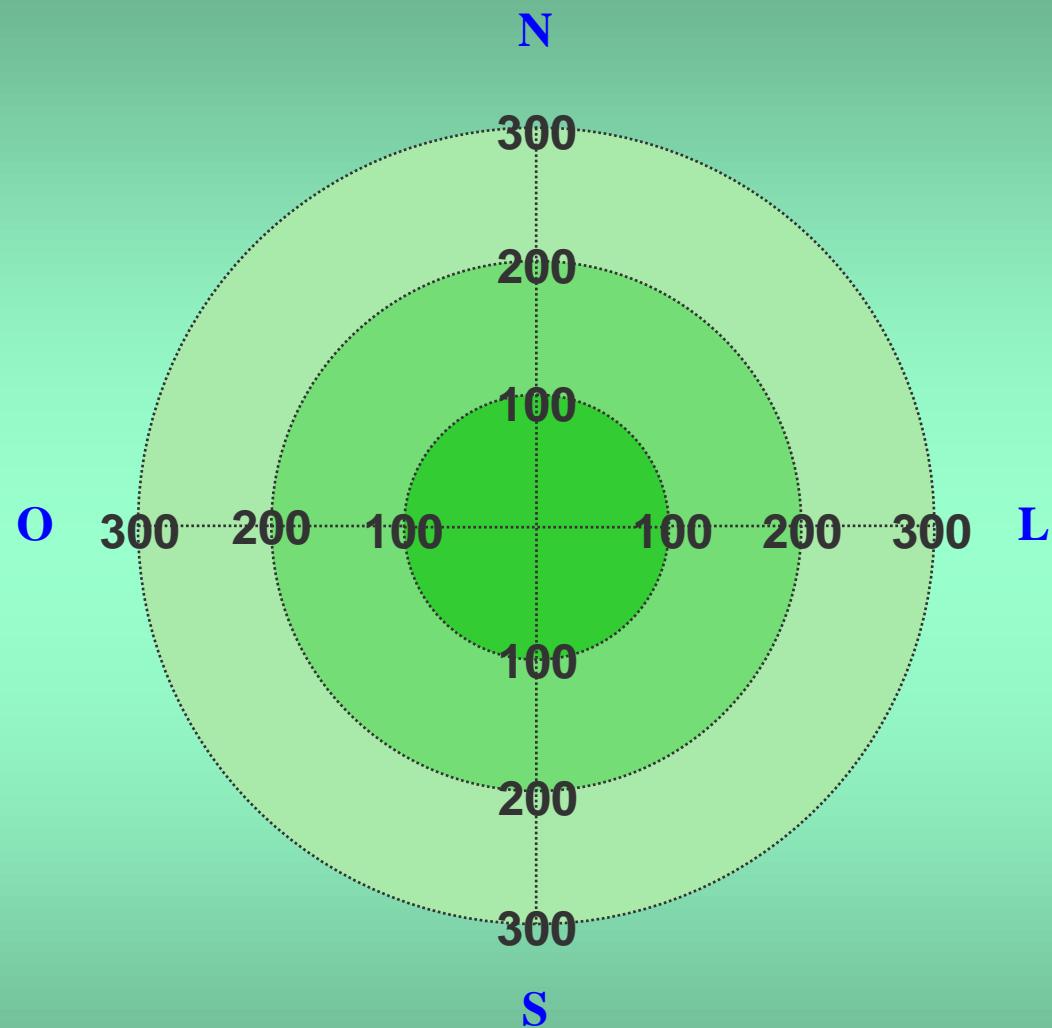
Crop: corn (Dekalb 390); close to flowering.

Adults marked with fluorescent powder and released at the central point of a Center Pivot

Number of adults released = 9000

Traps: light traps (12) kept for a 9 days period (January 14 to 22, 2006)

Details: traps distribution in the crop / center pivot



- 0,1% of adults were captured in the 9 days period in all distances
- Suggestion: to increase traps distance to 500, 1000, 1500 m

New Project: Apple leafroller, *Bonagota cranaodes* (Lepidoptera: Tortricidae)

IRAC-BR / AgroPEC / Growers

■ Participants

- AgroPEC tebufenozide
- Dow AgroSciences chlorpyrifos
- Dow AgroSciences spinosad
- Milenia novaluron
- Sipcam etofenprox
- Syngenta emamectin
- Growers Support (transportation to collect samples)

- Status Feb. 14, 2006

- tebufenozide database (AgroPEC)
- chlorpyrifos 4 concentrations
- spinosad 3 concentrations
- novaluron 5 concentrations
- etofenprox 6 concentrations
- emamectin 0 concentration

New Project: Stink bugs (Pentatomidae) in soybeans

IRAC-BR / EMBRAPA



IRAC-BR: financial support (part of project) and insect sample in the main regions

New Project: *Orthezia praelonga* (Homoptera: Ortheziidae) in Citrus

Project under evaluation

Challenges (as mentioned in the last meeting):

- ❖ More Projects being requested
- ❖ Basic studies needed
 - ❖ Funding new projects and basics studies !!!!
- ❖ More courses (needs more trained people)
- ❖ Participation in more events

Opportunities:

- ❖ Could IRAC-BR and IRAC Intl work on joint activities ?
 - ❖ IRAC-BR and IRAC International to participate in local events (banners, folders, etc...); Publications (IRM Book); local projects
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Thank you!