

DO YELLOWJACKET TRAPS REDUCE STINGING RISKS?

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BEE STING DEATH

SECOND KNOWN IN NORTH AMERICA:

ON MAY 12, 1814 TIMOTHY RYAN

DIED WITHIN ONE HOUR FROM

ANAPHYLAXIS TO BEE STING.

U.S. 2000 EST. 50 DEATHS/YR.

M. BADGER: EAGLE SCOUT PROJECT

Stinging Insects (especially *Vespula* and *Dolichovespula* spp.)

- Most important outdoor pest at Maine schools inducing highest per cent of pesticide treatments (Murray 2000).
- Second most frequently reported pest by NYS schools (Braband et al. 2002).
- Common hazard at late summer/early fall outdoor festivals.



Yellowjacket container traps

- Large numbers of yellowjackets can be captured.
- Is stinging risk reduced?
- Labor intensive
- Research comparing types of traps (Kovacs et al. 2005)
- Research comparing lures/baits (Wegner and Jordan 2005)

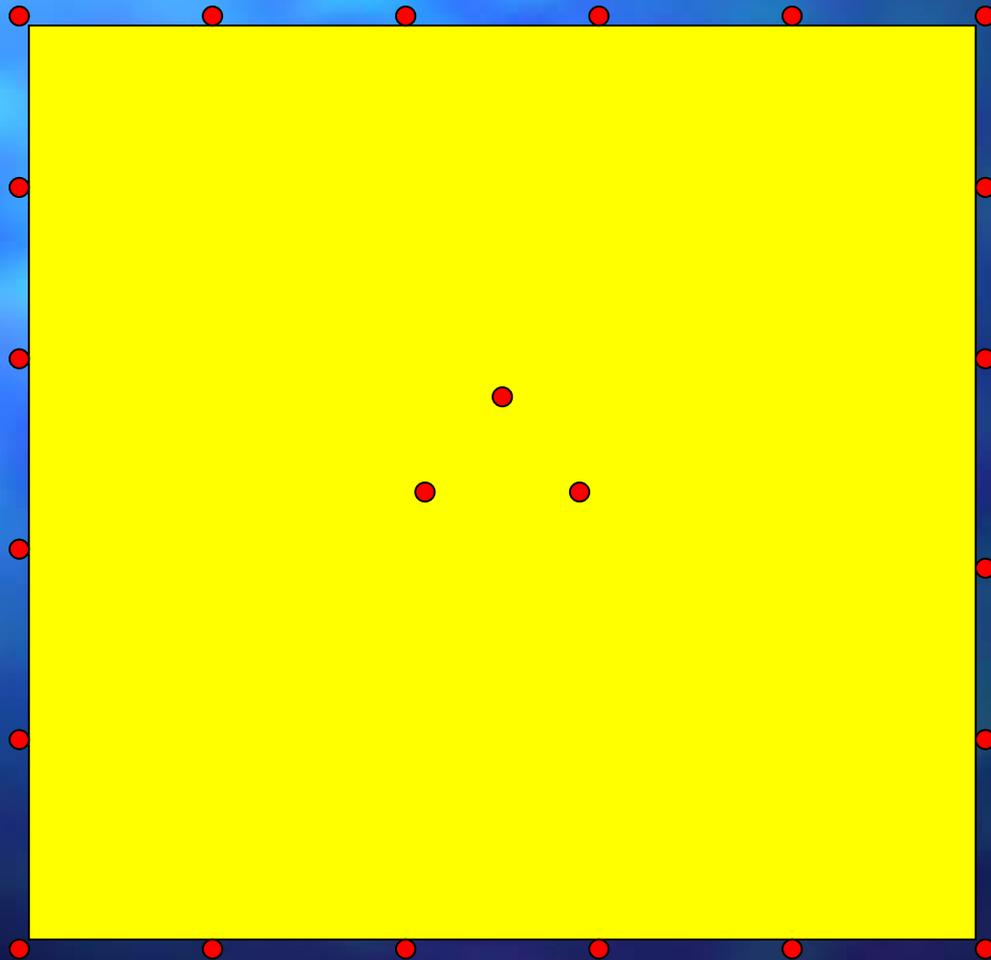
Experimental testing of stinging risk reduction

- Assumption: fewer yellowjackets, smaller risk
- Paired plots
- Pilot study: replication over time
- Expanded study: replication of time and space
- Integrated with applied work

Experimental approach vs. applied approach

- Experimental: control or account for major variables not testing
- Testing: peripheral trapping
- Applied: “real world”. Mish-mash of variables
- Field experiments: in between

Yellowjacket Trapping Plot Design







Pilot Study

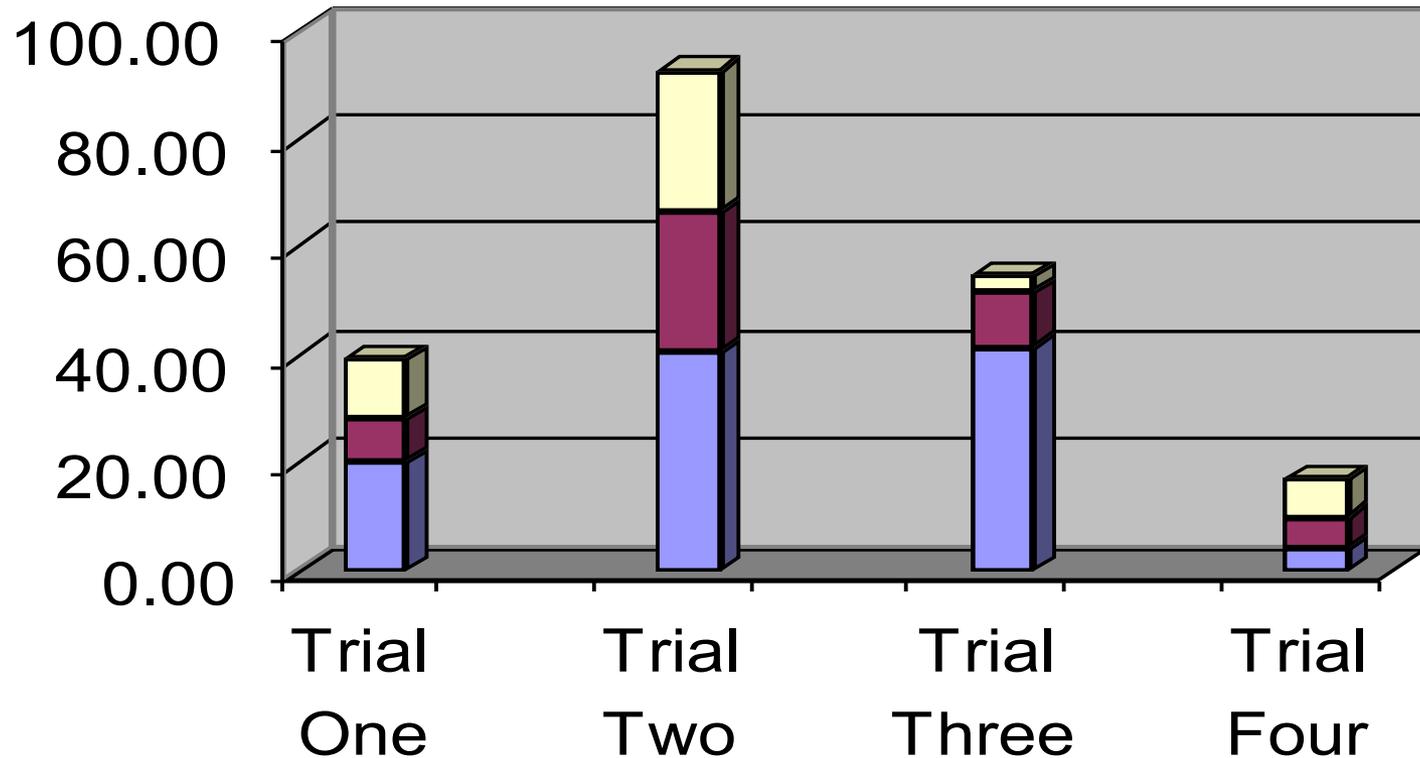
- One set of paired plots
- Two-week trials repeated over time
- August - October
- 2001: Geneva (4 trials)
- 2002: Geneva (5 trials)
- 2003: Canadaigua (4 trials)

Yellowjacket Trapping Study

- Yellowjackets (*Vespula* spp.)
- Bald-faced Hornet (*Dolichovespula maculata*)
- Paper Wasps (especially *Polistes dominulus*)
- European Hornet (*Vespa crabro*)
- Others (potpourii)

Yellowjackets Caught per Trap in Peripheral Trapping Trials, 2001.

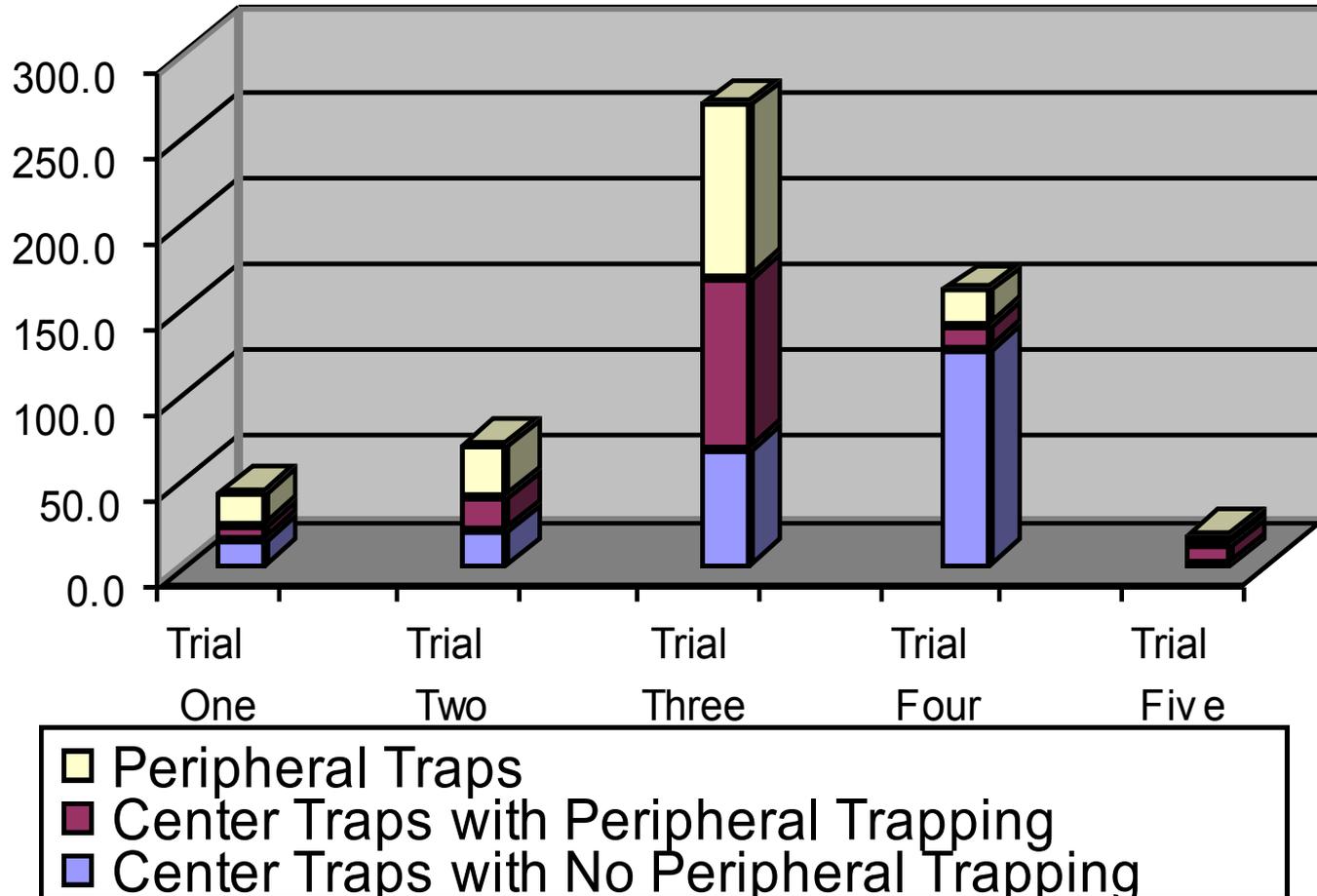
(Each trial lasted 2 weeks. Start dates: Trial One-8/23/01, Trial Two-9/14/01, Trial Three-9/27/01, Trial Four-10/12/01)



■ Peripheral Traps
■ Center Traps with Peripheral Trapping
■ Center Traps with No Peripheral Trapping

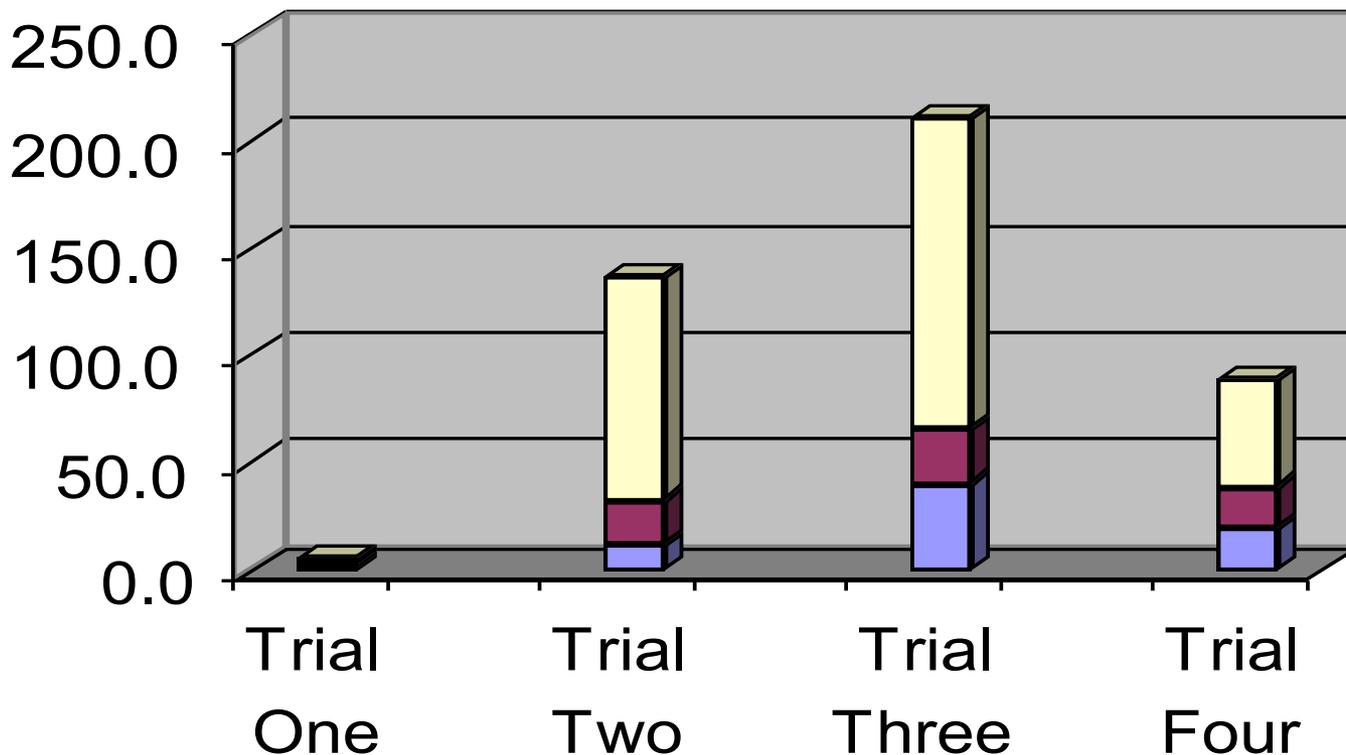
Yellowjackets Caught per Trap in Periphreal Trapping Trials, 2002

(Trial one 8/20-8/30, Trial Two 9/3-9/13, Trial Three 9/17-9/27, Trial Four 10/1-10/24, Trial Five 10/15-10/24)



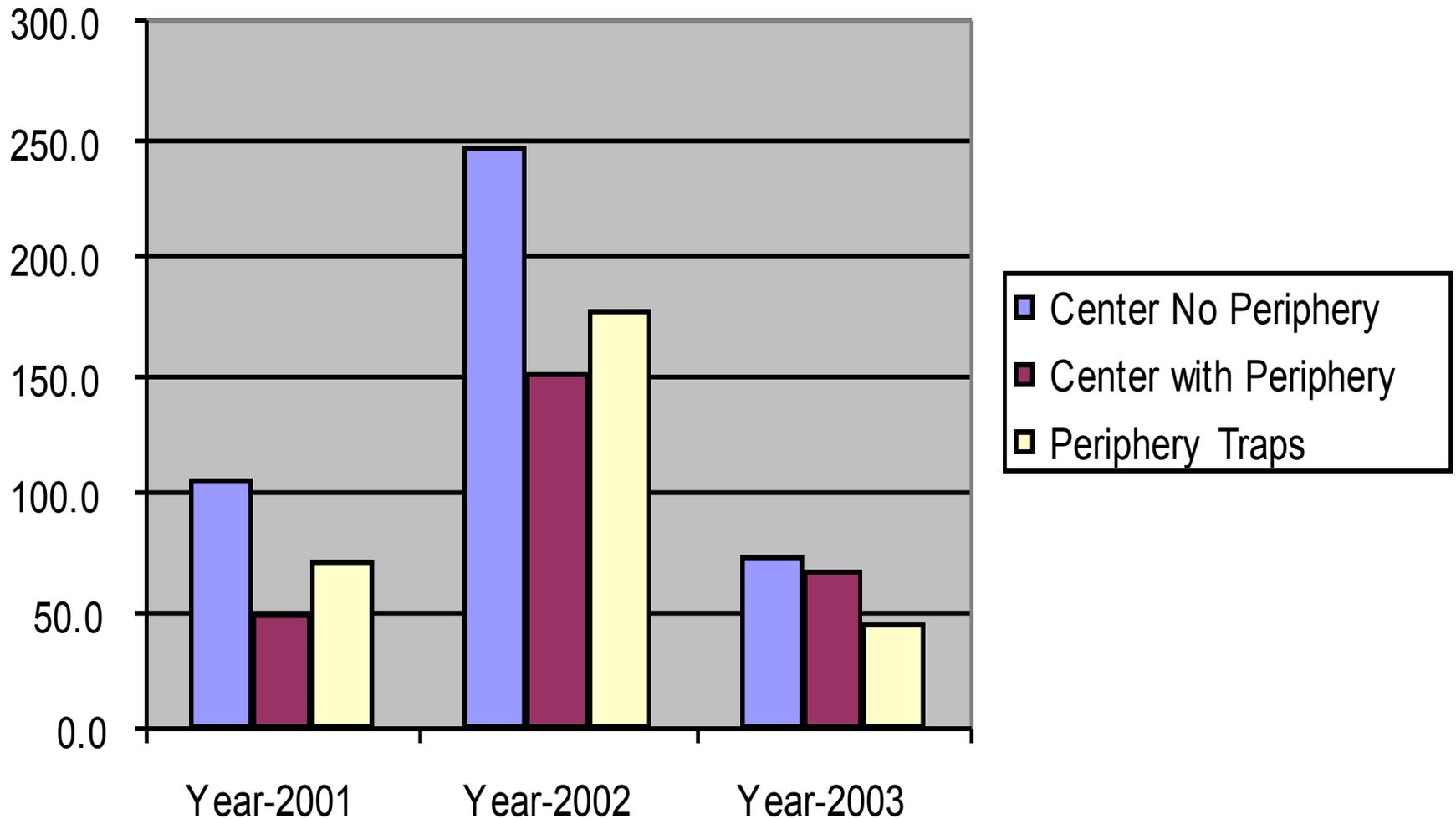
Yellowjackets Caught per Trap in Peripheral Trapping Trials, 2003.

(Trial One 8/12-8/22, Trial Two 8/26-9/5, Trial Three 9/9-9/23, Trial Four 9/26-10/7)

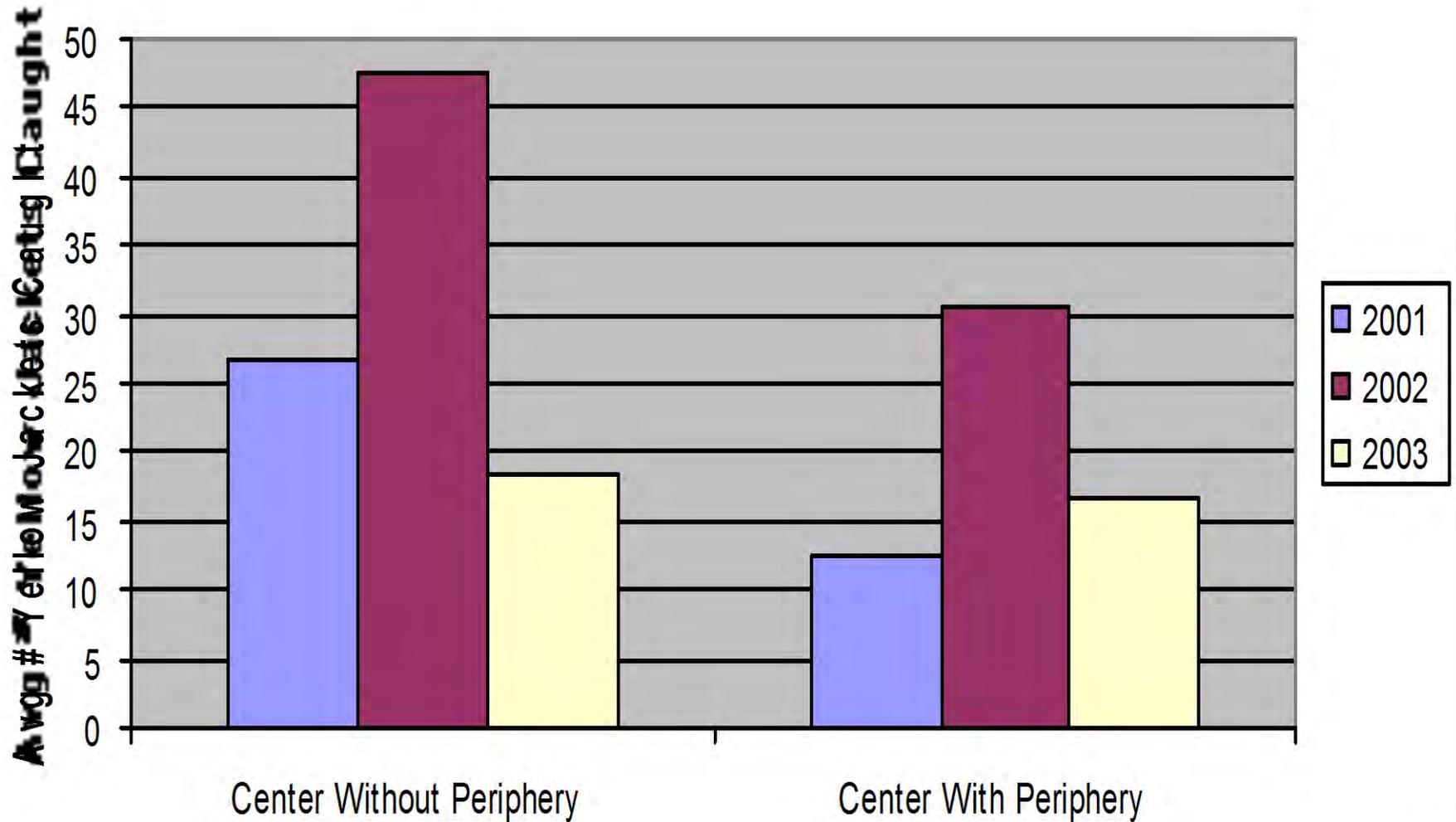


- Peripheral Traps
- Center Traps with Peripheral Trapping
- Center Traps with No Peripheral Trapping

Average Yellow Jackets per Trap



Mean Averages for Center Traps



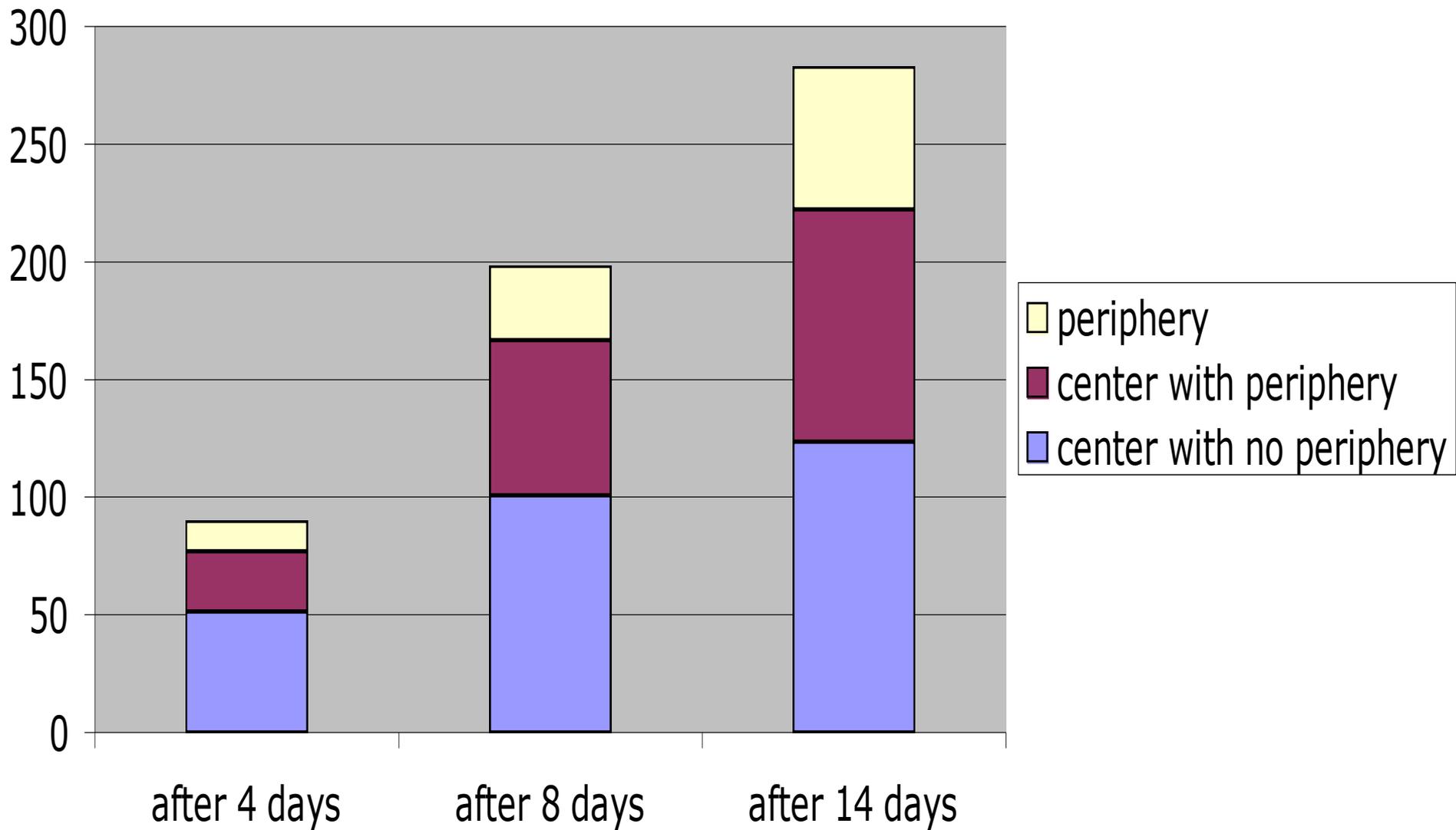
2006 Study

- Pest Management Foundation funding
- Four sets of paired plots
- Geneva (2 sets: Crittenden, Loomis)
- Canandaigua/Engels (1 set)
- Ithaca (1 set)
- Five trials for each set
- Preliminary analysis

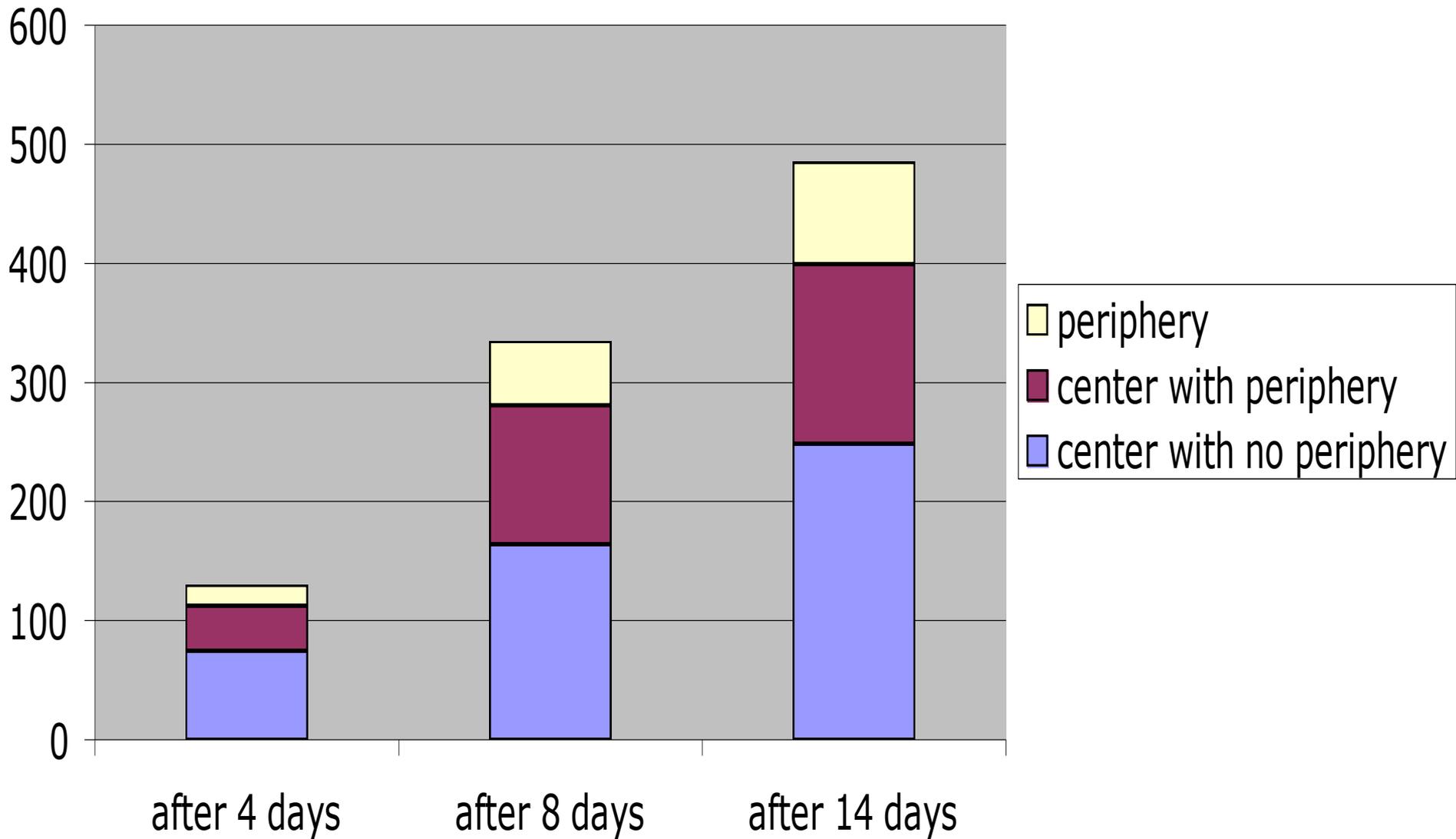
Yellowjackets captured, 2006

- *Vespula germanica* (German yellowjacket)
- *V. flavopilosa* (hybrid yellowjacket)
- *V. maculifrons* (eastern yellowjacket)
- *V. vidua*

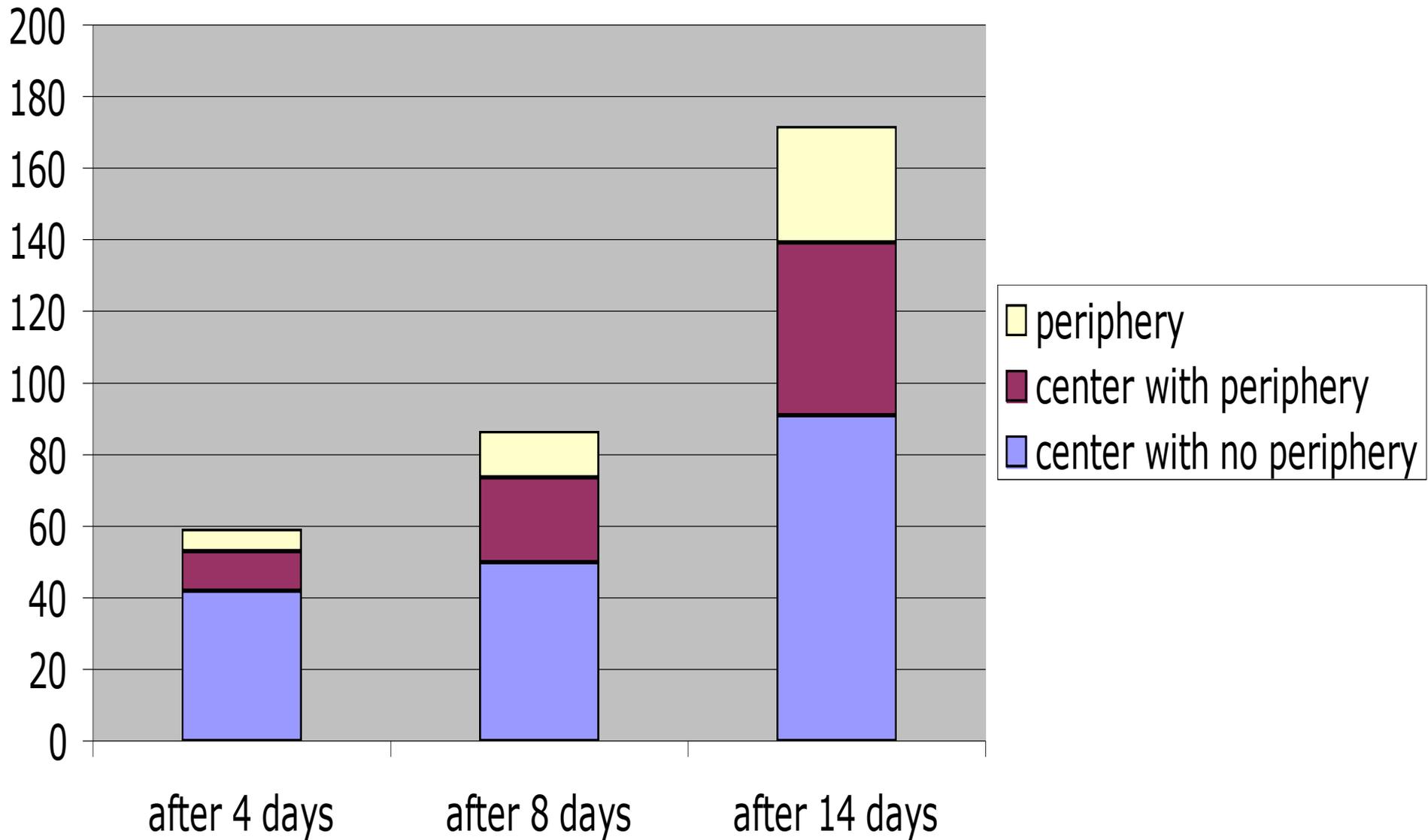
Capture Trend Averages - Crittendon 2006



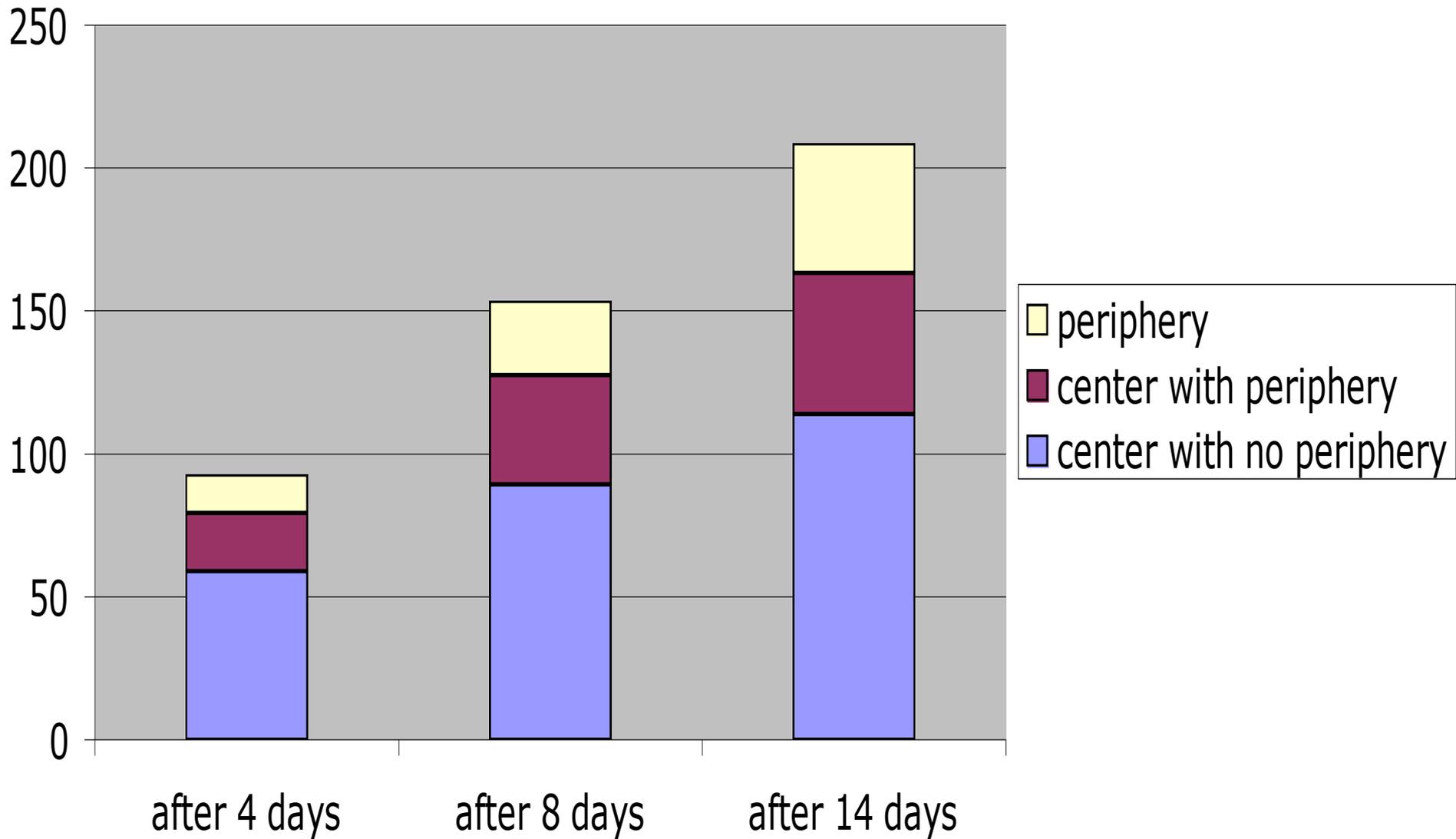
Capture Trend Averages - Loomis 2006

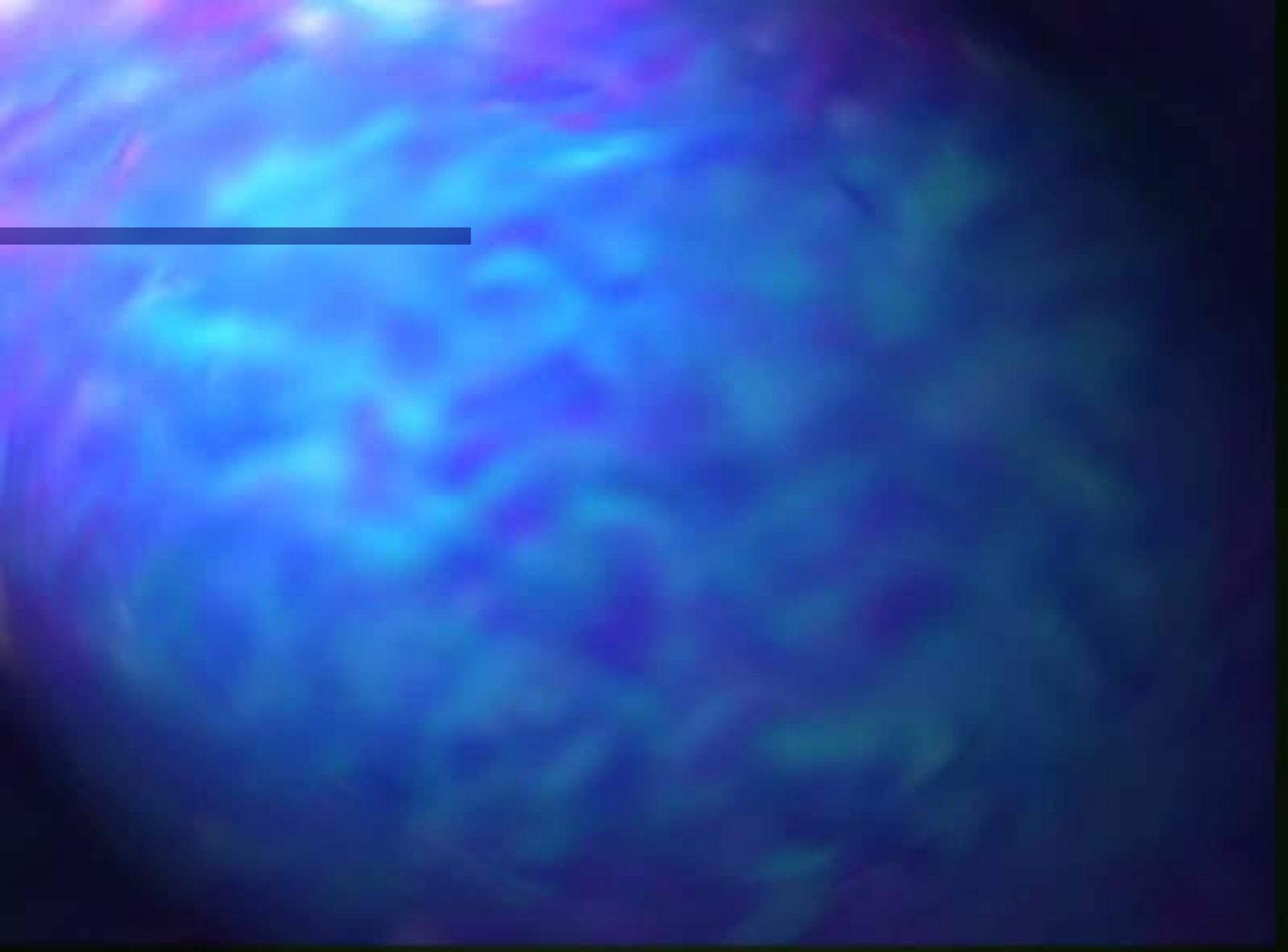


Capture Trend Averages - Engels 2006

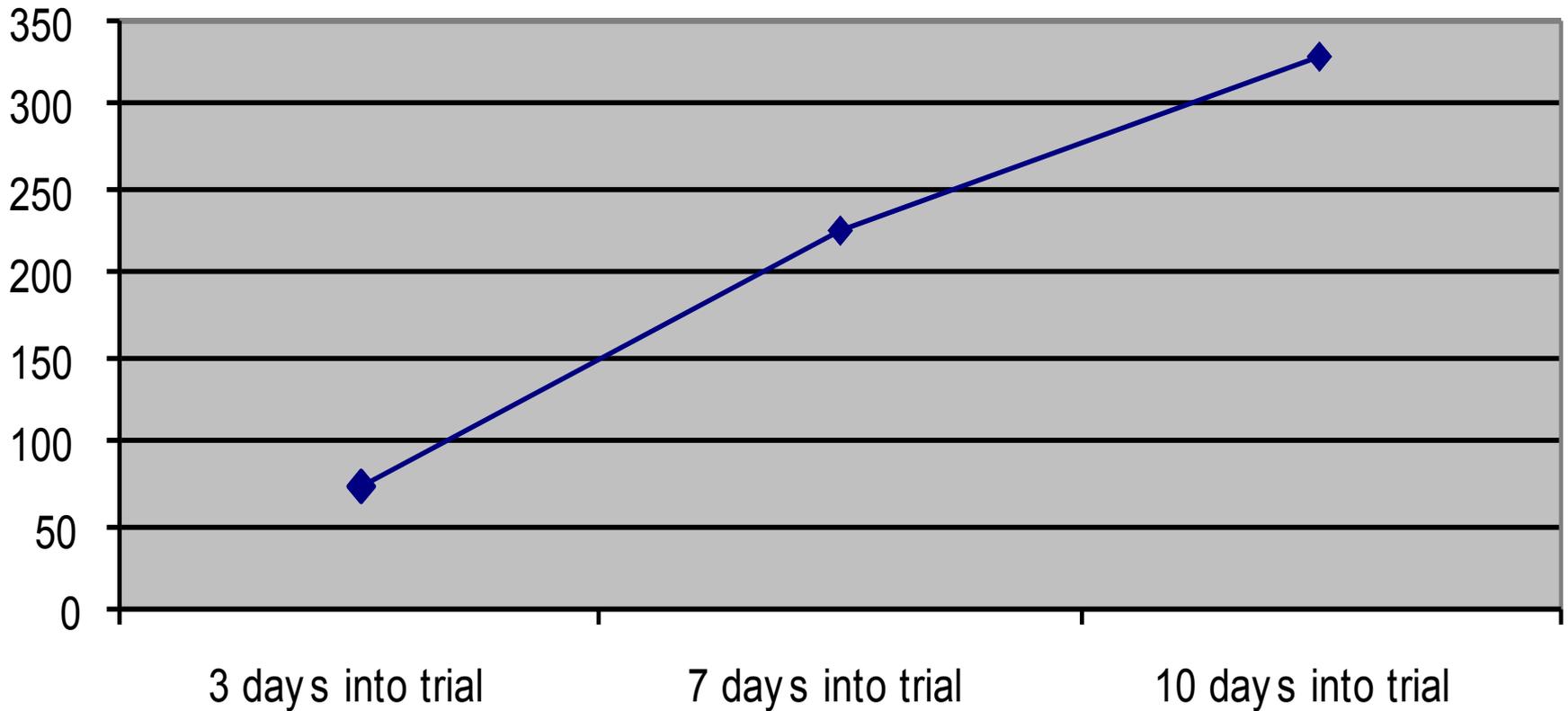


Capture Trend Averages - Ithaca 2006

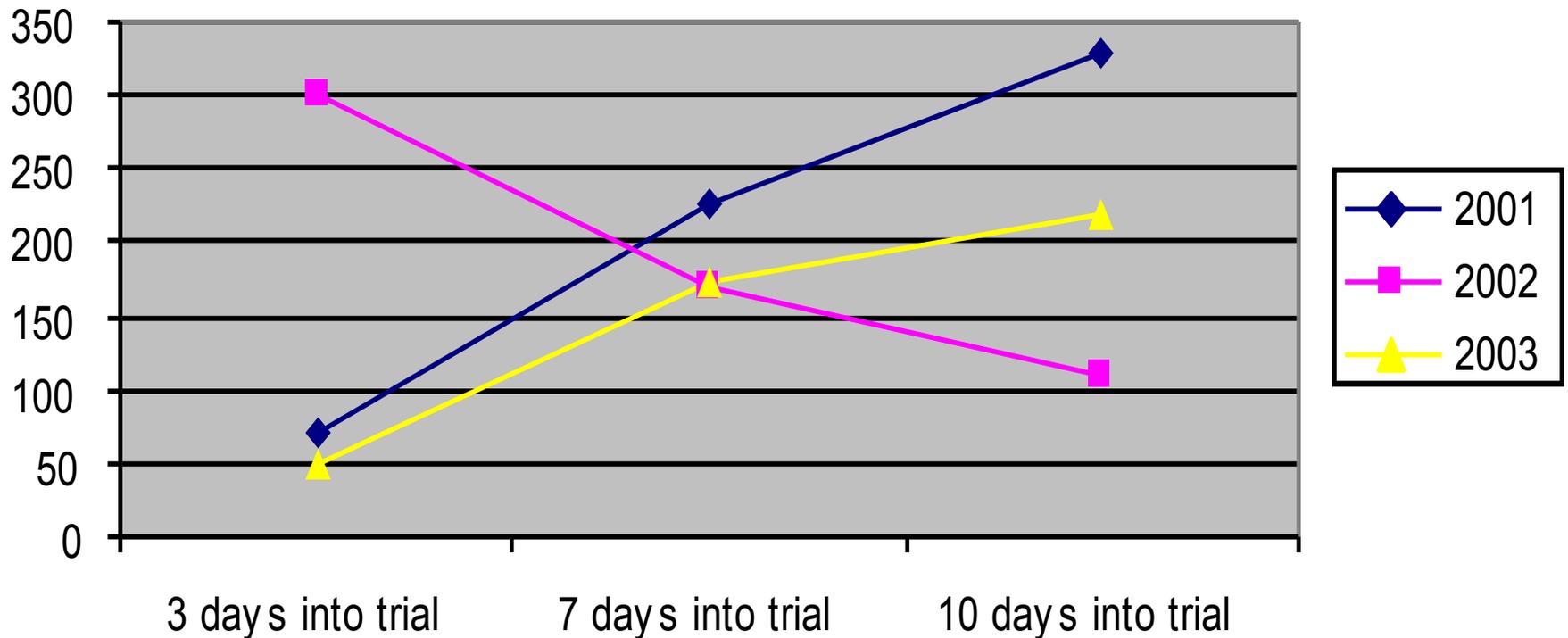




Total Number of Yellowjackets Caught in the Periphreal Trapping Trials Relative to the Start of the Trials -2001



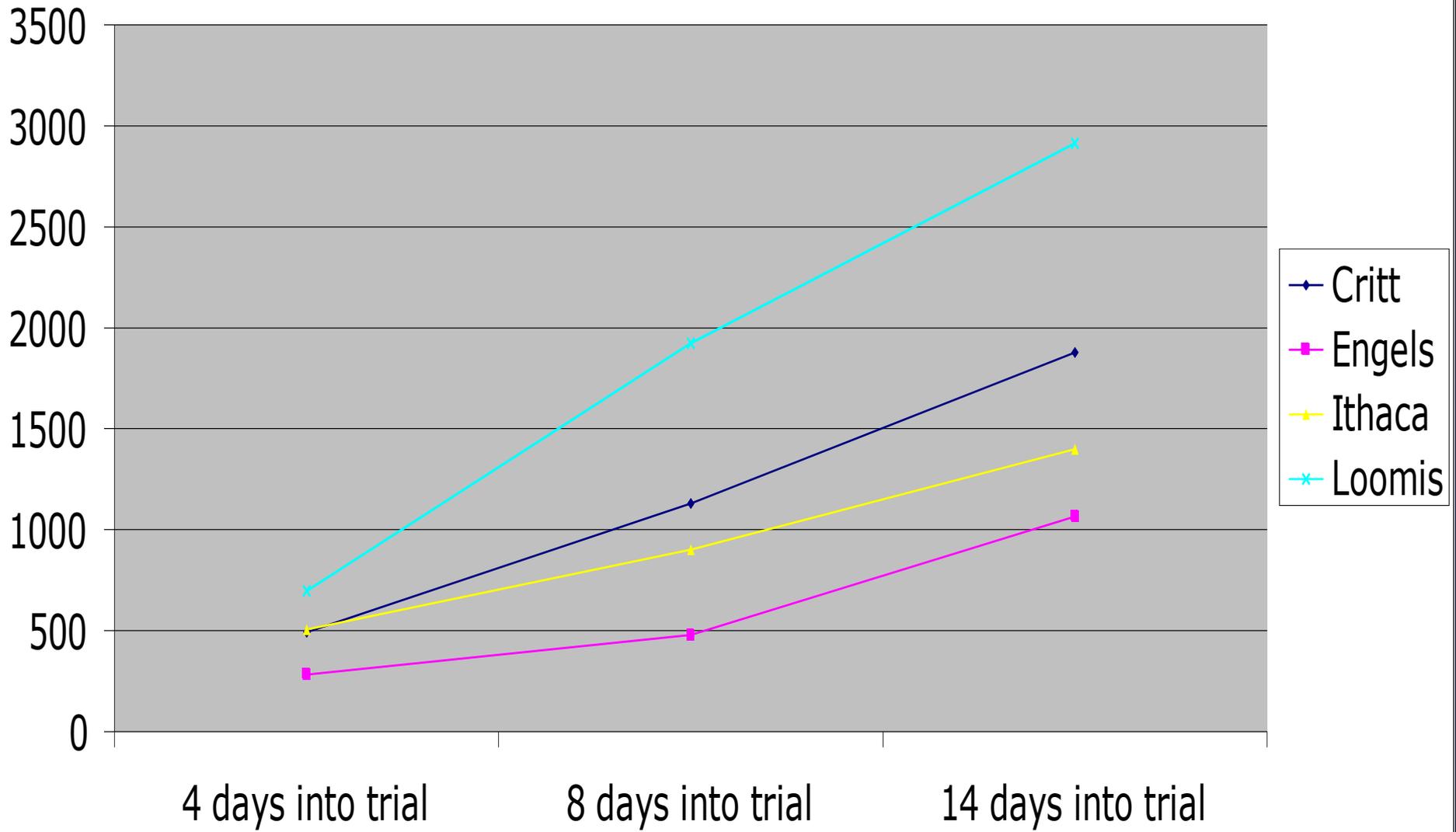
Total Number of Yellowjacket Caught in the Periphreal Trapping Trials Relative to the Start of the Trials over Three Year Period



2004 and 2005 studies

- Experimented with research design changes
- Trend for increased captures as progress through trial

Total Captures



Small scale study

- One set of paired plots (40 ft by 40 ft)
- Approximately 20 ft from periphery to center
- “Lawn” set-up

Small scale study

- Location of plot (vicinity to road) probably more important
- In peripheral trapped plot, consistently more yellowjackets in center than periphery
- No “protection” at this size
- No time trends (plots 100 ft apart)

Yellowjacket Trapping at Emerson Park, Cayuga Co., NY

(Bruce Natale, Cayuga Co. Planning Office)

YEAR	NUMBER OF STINGING INSECTS TRAPPED	FIRST AID FOR STINGS
1995	----	Numerous
1996	674	2 – 4
1997	467	2 – 4
1998	360	1 – 3
1999	298	0
2000	1835	4 - 6

Yellowjacket Trapping at Clothesline Art Festival, Rochester, NY

(Peter Castronovo, University of Rochester)

YEAR	NUMBER OF STINGING INSECTS TRAPPED	FIRST AID FOR STINGS
2001	----	Numerous
2002	1250	0
2003	1400	30

Yellowjacket Trapping at School Playgrounds 2000 and 2001

- Livonia CSD (Livingston Co., NY) and Bethlehem CSD (Albany Co., NY)
- Compared managed sites and unmanaged sites; Surveyed nurses and teachers
- 9884 stinging insects (98% yellowjackets)
- Reduced risk?

CONCLUSIONS

- Best use: already exists a strong attractant (concession stands)
- Not recommended if no attractant (school playgrounds)
- Distance from “protected” area probably important
- Festivals: start trapping one week before
- Traps need to be regularly serviced

Future Analysis

- Confirm and expand upon current analysis
- Relative impacts of variables: plot location, trap location, trial, weather
- Bald-faced hornets
- Paper wasps

Future Work?

- Optimum distance of peripheral traps from each other and “protected” site

Acknowledgements

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Yellowjacket identification: Carolyn Klass (Cornell University)