Bean Leaf Beetles And Bean Pod Mottle Virus In Wisconsin

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The Soybean Aphid

Aphis glycines Matsumura

Courtesy: D. Hogg

The Bean Leaf Beetle

Cerotoma trifurcata

BLB Distribution

National:

Southeast

Upper and Lower Midwest

West to Kansas and Nebraska

Wisconsin:

No Comprehensive Survey

Common Only In Southern Third

BLB INJURY

Early-Season Defoliation

Late-Season Defoliation

Pod Feeding

Courtesy M. E. Rice

BLB Management Options

Late Planting

Foliar Insecticides

Economic Injury Levels and Economic Thresholds (mostly from Iowa and Nebraska)

Bean Pod Mottle Virus

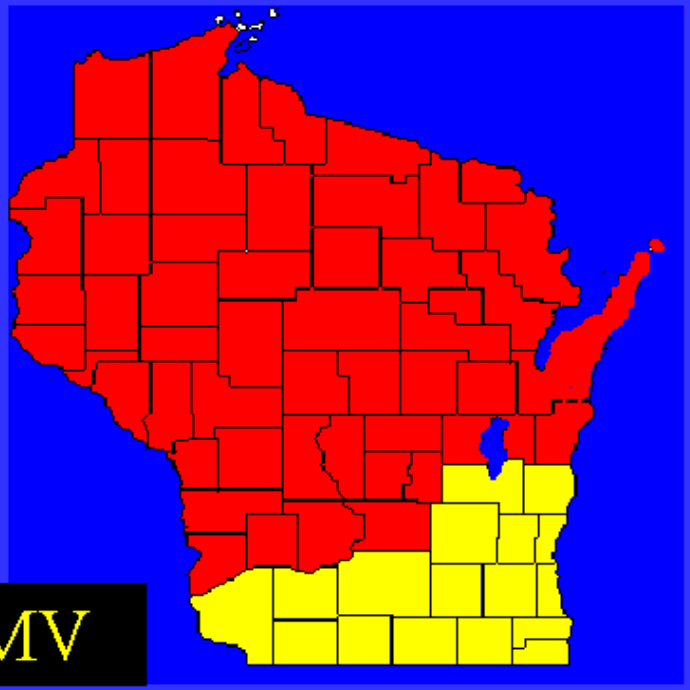
Foliar Symptoms

Bean Pod Mottle Virus

Seed Mottling

Relative Importance of Specific Soybean Viruses

AMV + SMV



SMV + BPMV

BPMV ELISA ASSAYS

Rock County Farm, Janesville (2001)

Leaf Samples (n = 720)

V5: 42% of Plants Infected

R2: 31% of Plants Infected

BPMV ELISA ASSAYS

Rock County Farm, Janesville (2001)

25 June – 3 August

63 Samples, 1-5 Beetles/Sample, 210 beetles

BLB Ground Whole in Buffer

59/63 Samples Were BPMV+

What Do We Need To Know About The Bean Leaf Beetle?

Phenology

Feeding & Foraging Behavior

Vector Biology

BLB Population Dynamics

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Sweep Samples

Sample Collection:

Two Fields:

#1: 100 Sweeps

#2: 180 Sweeps

Sampled 1 to 2 times per week

Sample Processing:

BLB Count

Teneral BLB

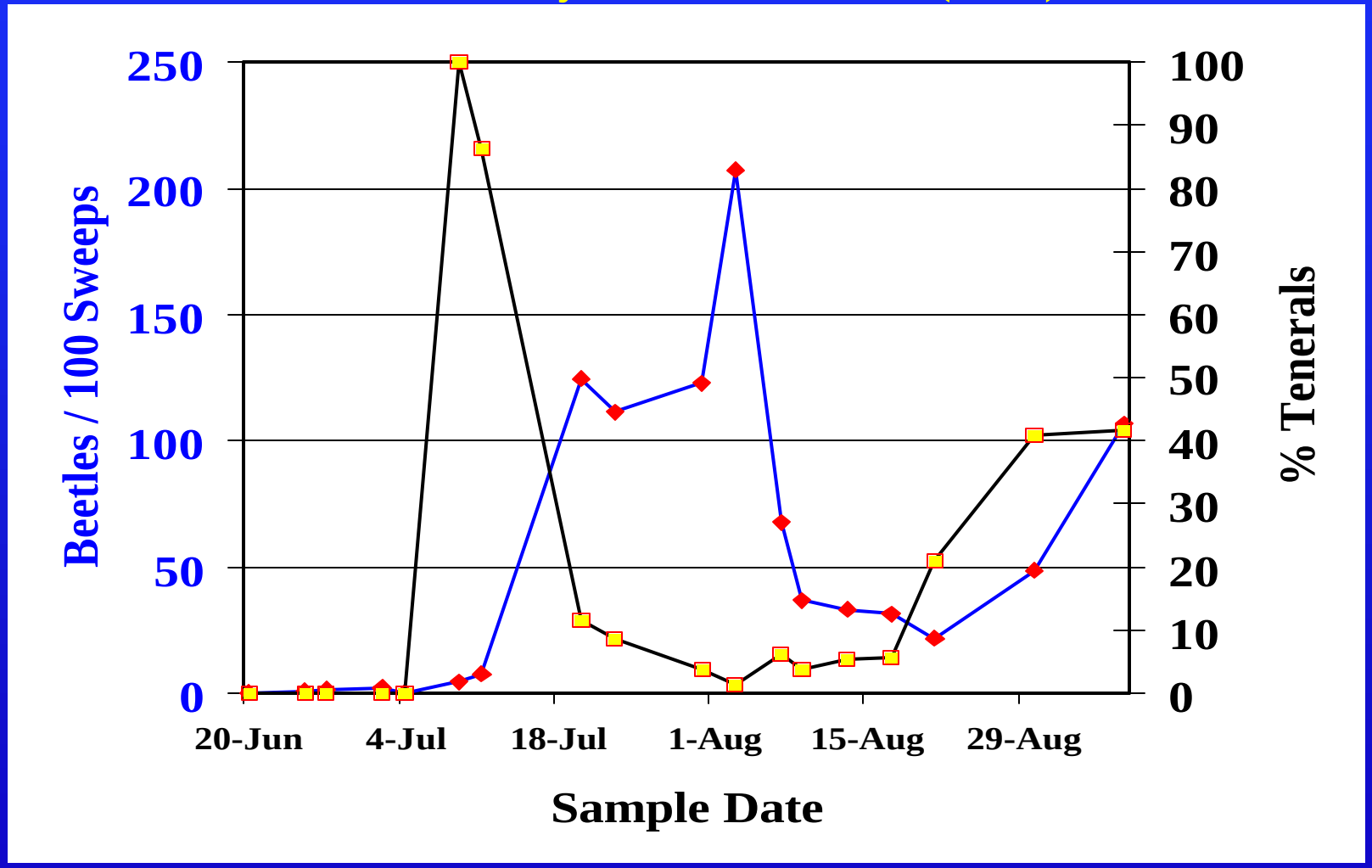
Sex Ratio

Dissections

- **Ovarian Stages**
- **Ectoparasitic Mites**
- **Parasitoids**

BLB Phenology

Rock County Farm, Janesville (2001)



Teneral BLB

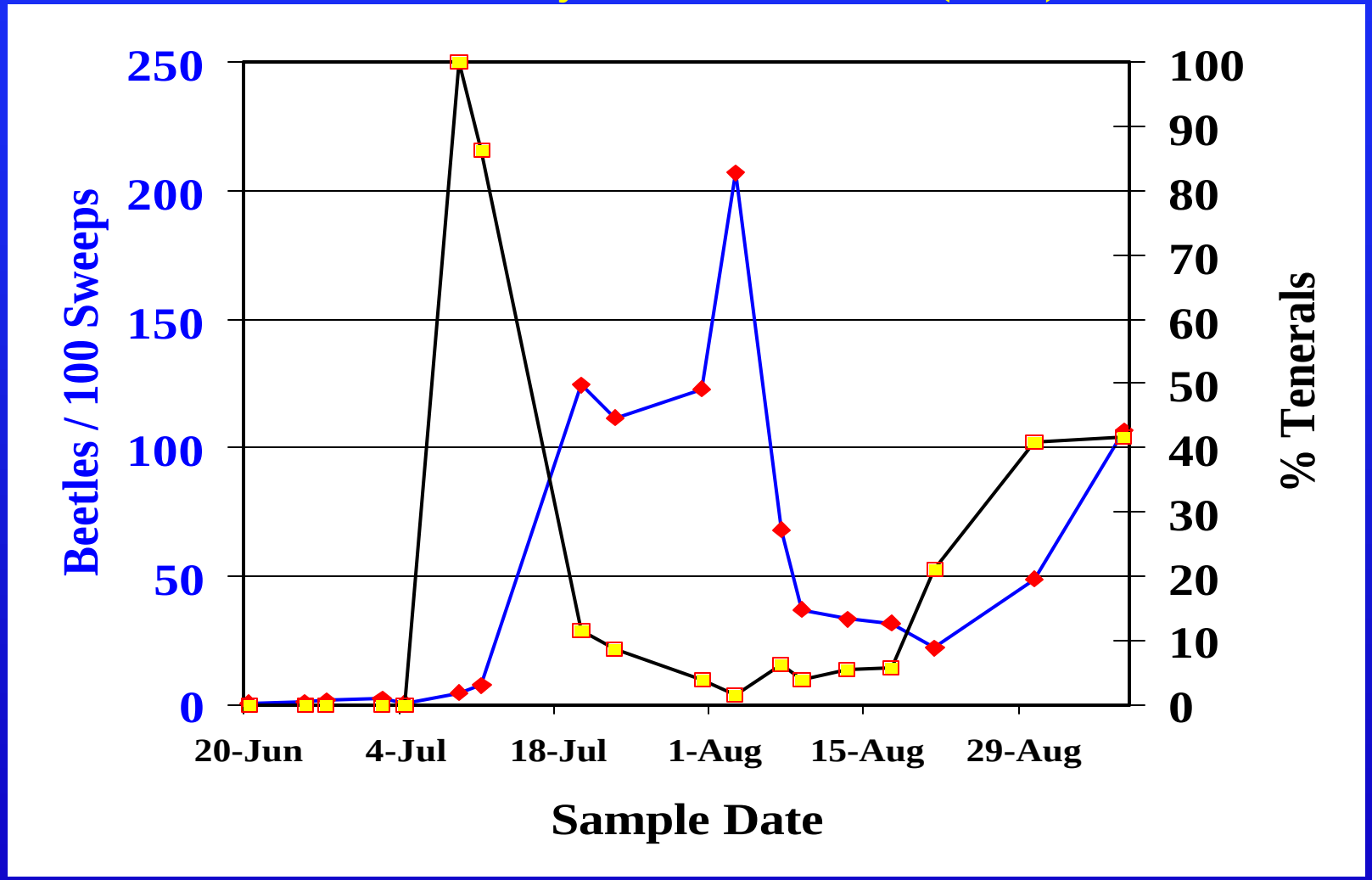
Soft Cuticle

Pale Coloration

Courtesy M. E. Rice

BLB Phenology

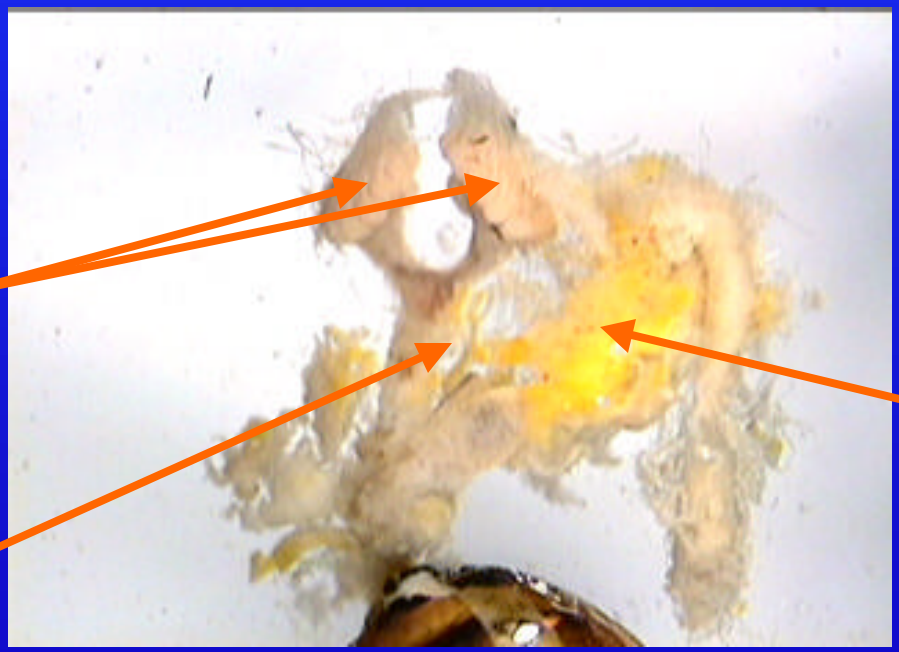
Rock County Farm, Janesville (2001)



Ovarian Stage 1

No Egg-sized Oocytes

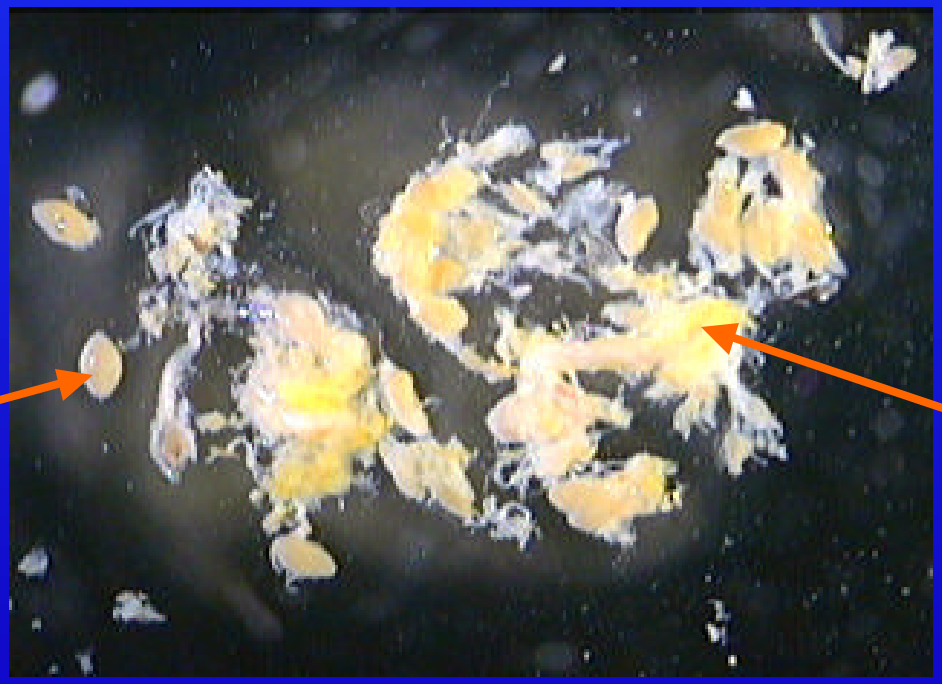
Body Filled With Fat



Ovarian Stage 2

White or Yellow Egg-sized Oocytes

Moderate Fat Content



Ovarian Stage 3

Fully-developed Eggs Present

Little Fat

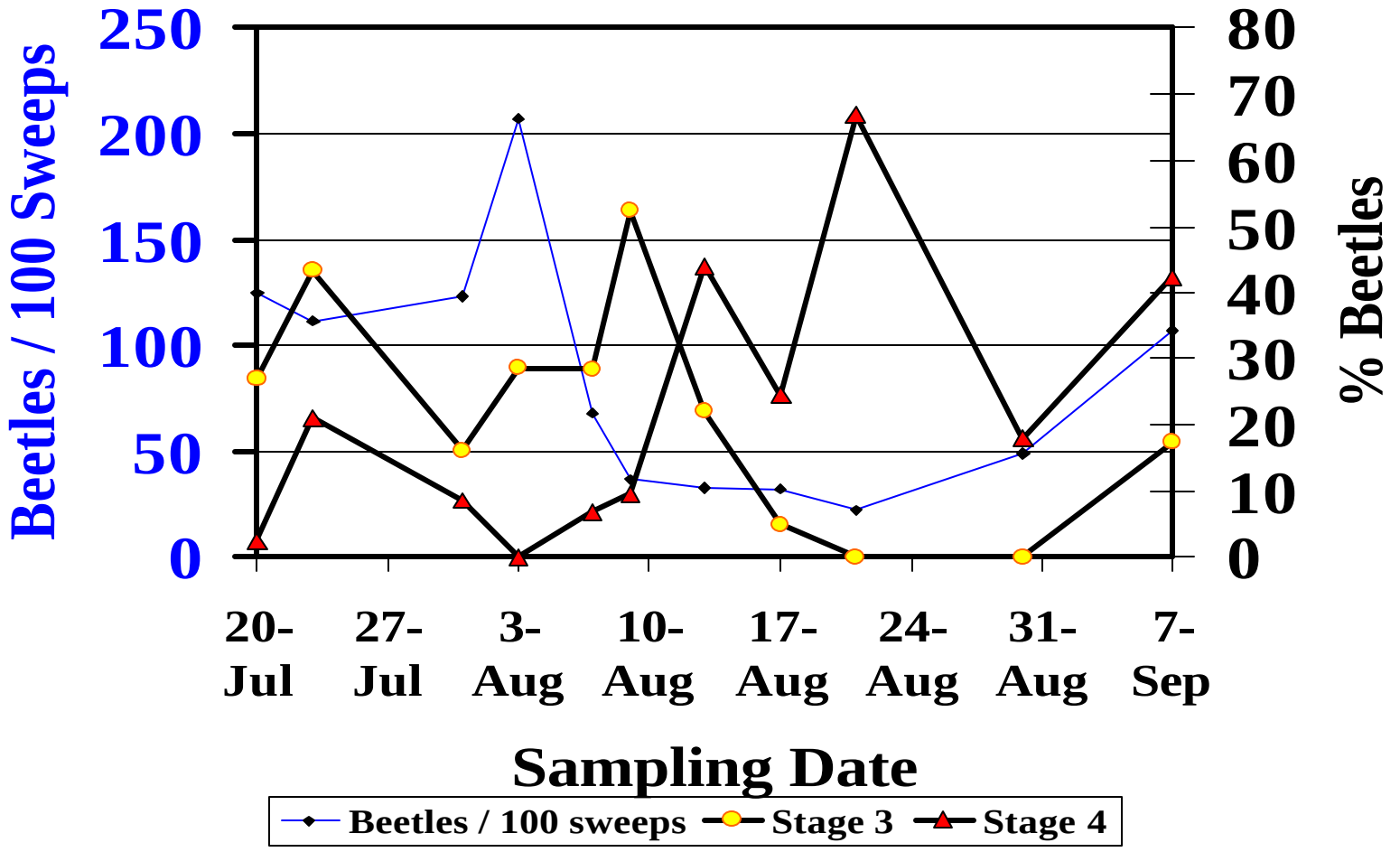
Ovarian Stage 4

Few or No Eggs Remaining

Almost No Fat

Phenology and Ovarian Development

Rock County Farm, Janesville (2001)



Population Dynamics of the Bean Leaf Beetle

Winter Conditions

Ectoparasitic Mites

Parasitoids

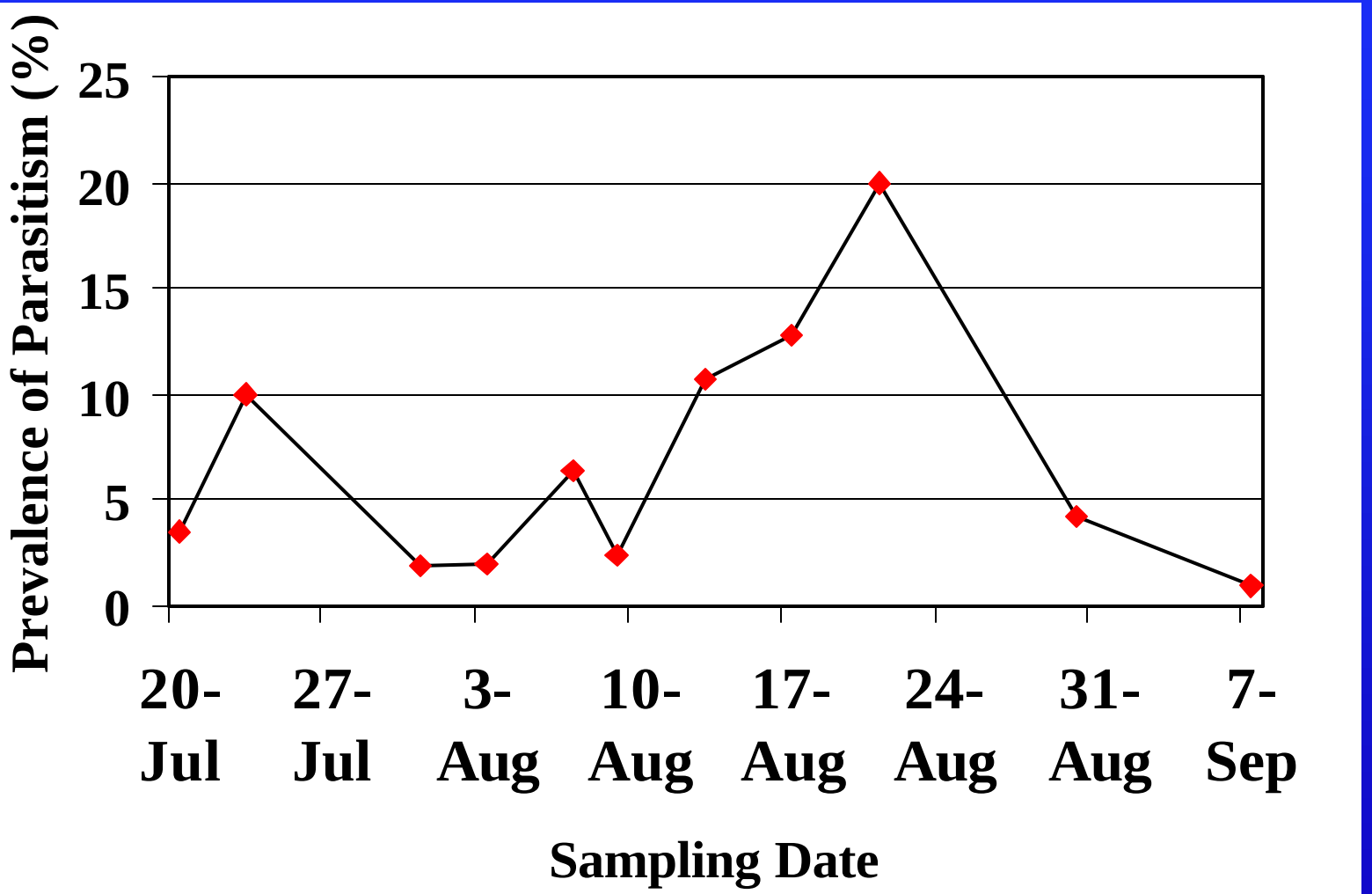
Ectoparasitic Mites of BLB

Trombidium sp.

Tachinid Parasitoid

Tachinid Parasitism of BLB

Rock County Farm, Janesville (2001)



Management of BPMV and BLB in Soybean

Planting Date?

Seed Treatments and Post-Emergence Insecticides?

Host Plant Resistance?

Potential Challenge For Wisconsin

2 + 2 = *5*

Synergism Between SMV and BPMV Complicates Management Options

Diversity of Soybean Viruses in Wisconsin

SMV

TSV **BPMV** **AMV**

CYMV **CMV**

A Complicated System!

Will Bean Leaf Beetle Populations Continue to Increase?

Increased Soybean Acreage

Weather Patterns

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