MITE AND LYGUS PROGRAM UPDATES

Spider Mites

Lygus Bug

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CSC RESEARCH PROGRAMS APPROACH

1) Gather Information
   - Industry practice
   - Efficacy of tools
   - Use patterns

2) Identify
   - Barriers to adoption of integrated pest management (IPM)
   - Trainable skills
   - Remaining research areas

3) Develop programs to address industry needs

SPIDER MITE PROGRAM

What is causing increased mite problems?

- New mite?
- Insecticide Resistance?
- Predatory mite efficacy?

Two-spotted spider mite (TSSM) adult male, female, egg

Lewis mite female

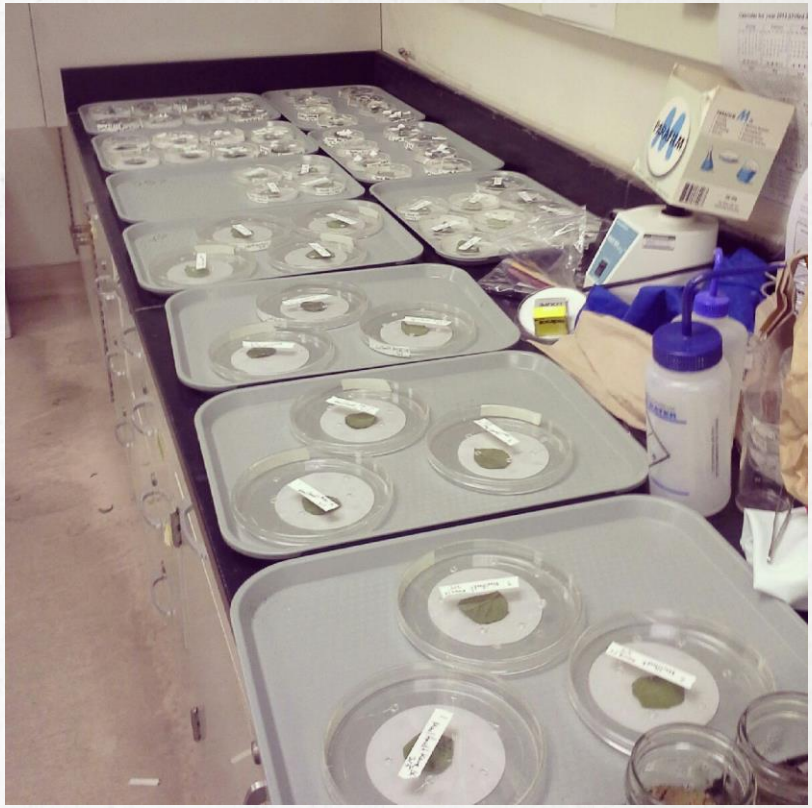
METHODS

Lab tests of pesticide efficacy

- Leaf dip method
- Field collected populations

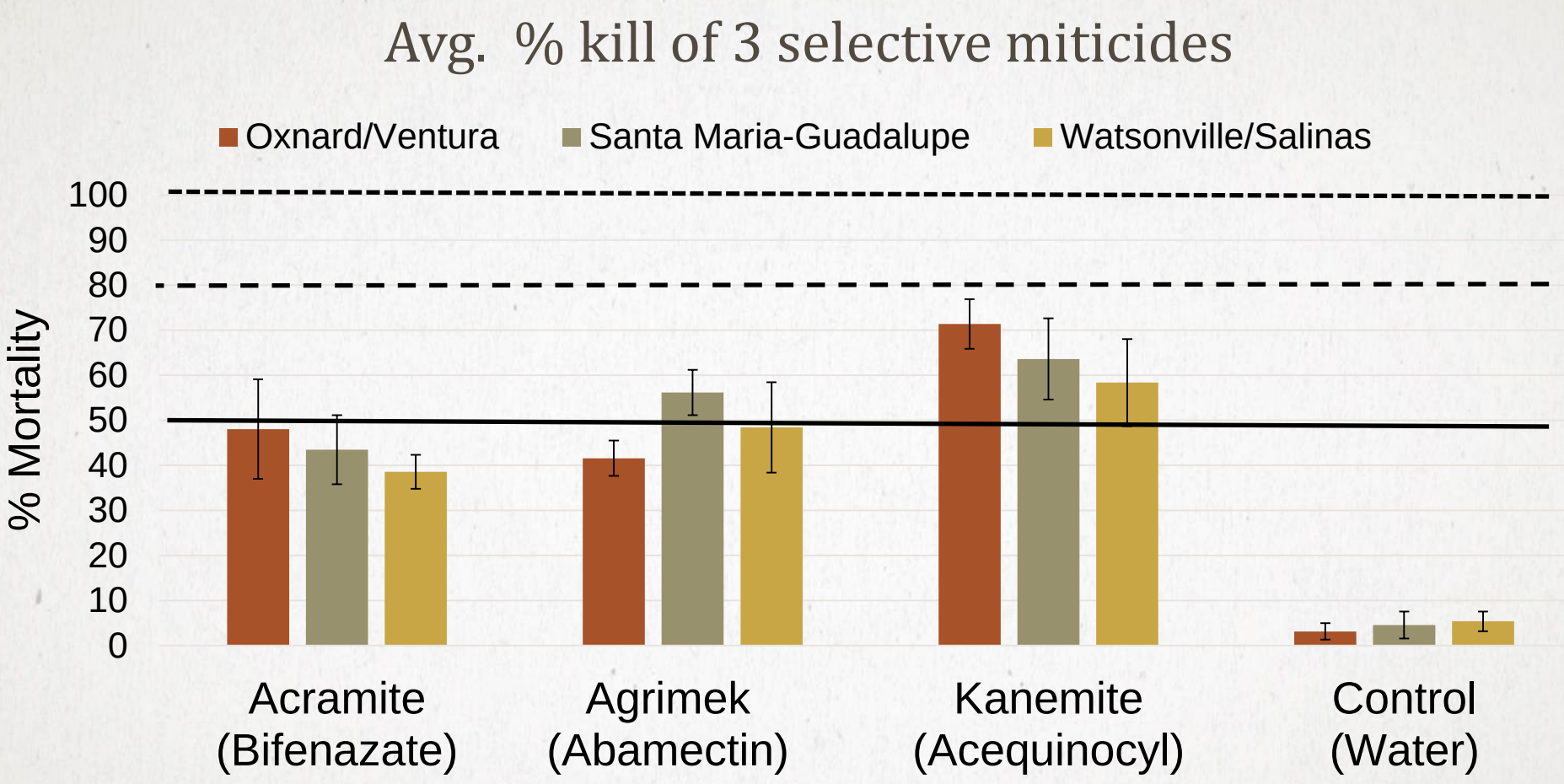
Field monitoring + PURs

- 10 randomized leaf samples per field
- Pest and predatory mites



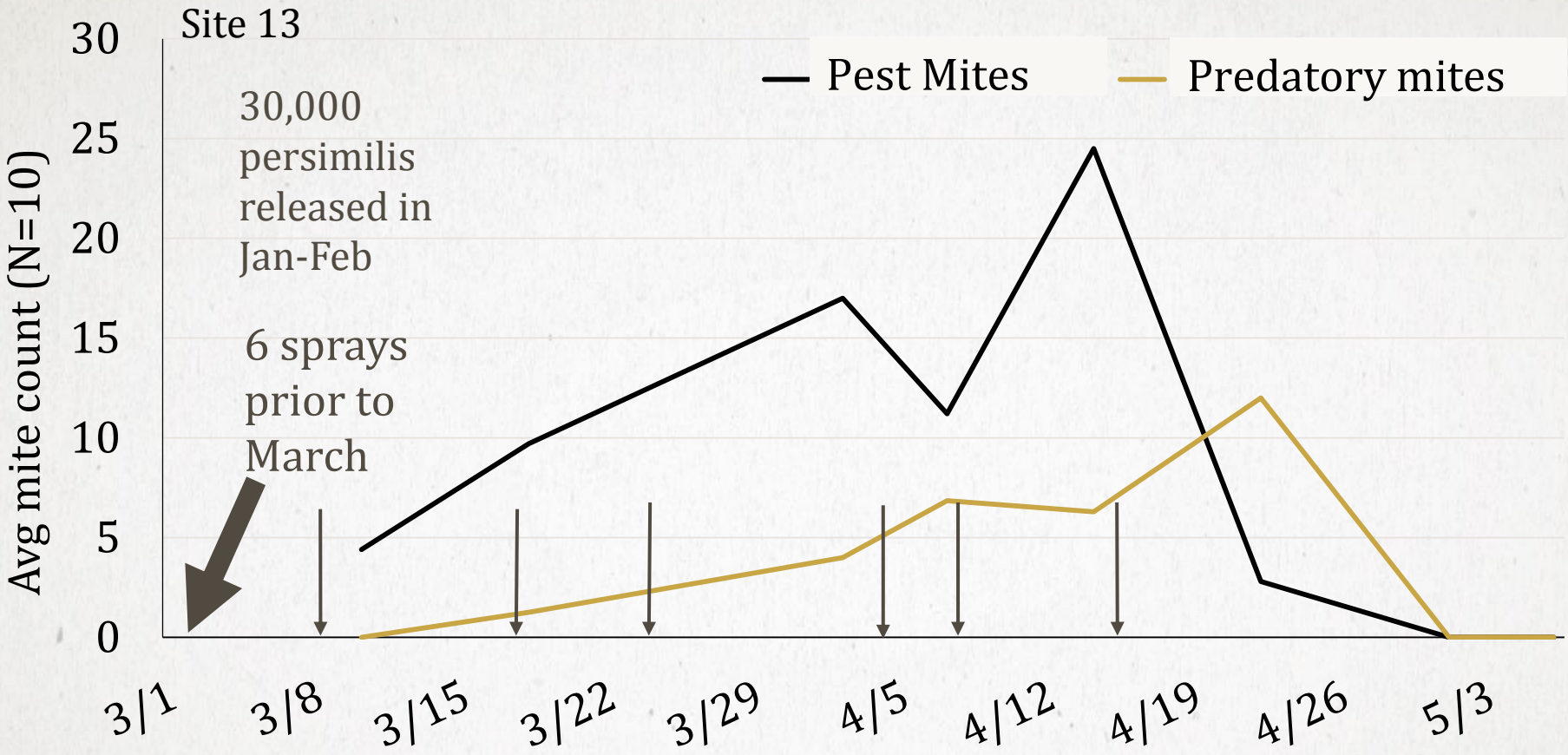
USDA facility

MITICIDE EFFICACY – LAB TEST



- Resistance has developed to key miticides.

MITICIDE *IN*EFFICACY IN THE FIELD



- Miticides did not provide control
- Where did the persimilis come from?

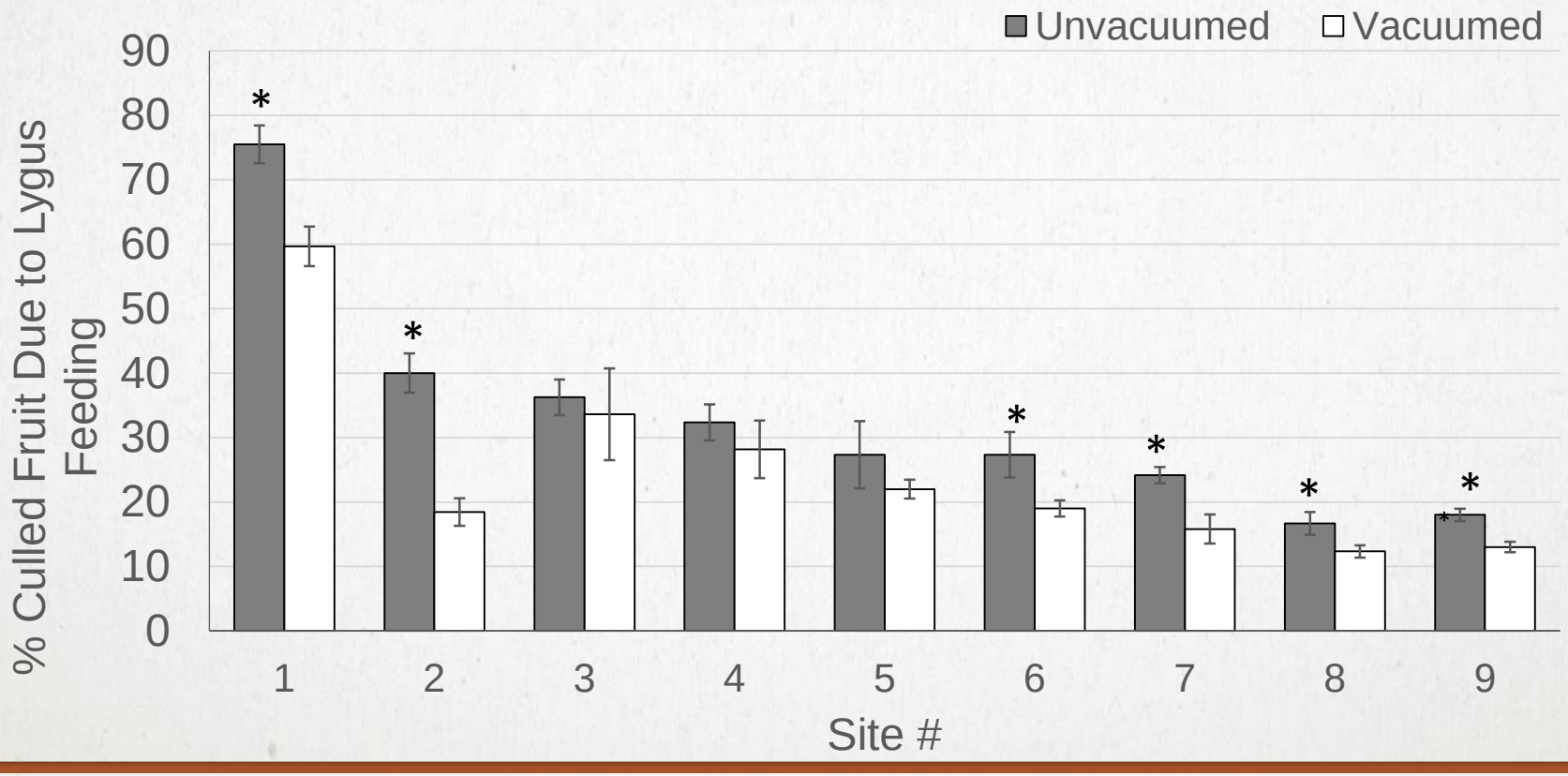
LYGUS BUG PROGRAM

- Mild, late Lygus year
- Synchronized & predictable populations

- May – Oxnard
- June-July hatches in SM, Watsonville-Salinas
- Likely causes:
  - Weather
  - Decrease in second year production
  - Increase in vacuum use, other cultural controls

IMPROVING OUR BUG VACUUMS

- Non-chemical tool
- Aids in control
- Increased yield on avg. 25.94±4.51%



IMPROVING OUR BUG VACUUMS

- Design has not been optimized

- 29.65±1.93 avg windspeed

<u>% pulled off plants:</u>

- 5.02% of large nymphs , 9.30% of adults

<u>Survival after vacuum:</u>

- 11.67% large nymphs and 22.85% adults survive

IMPROVING OUR BUG VACUUMS

- Designs to improve kill, decrease cost and improve best practices
- Single bed research vacuum
- 100% kill using this vacuum, higher percent pulled off of plants

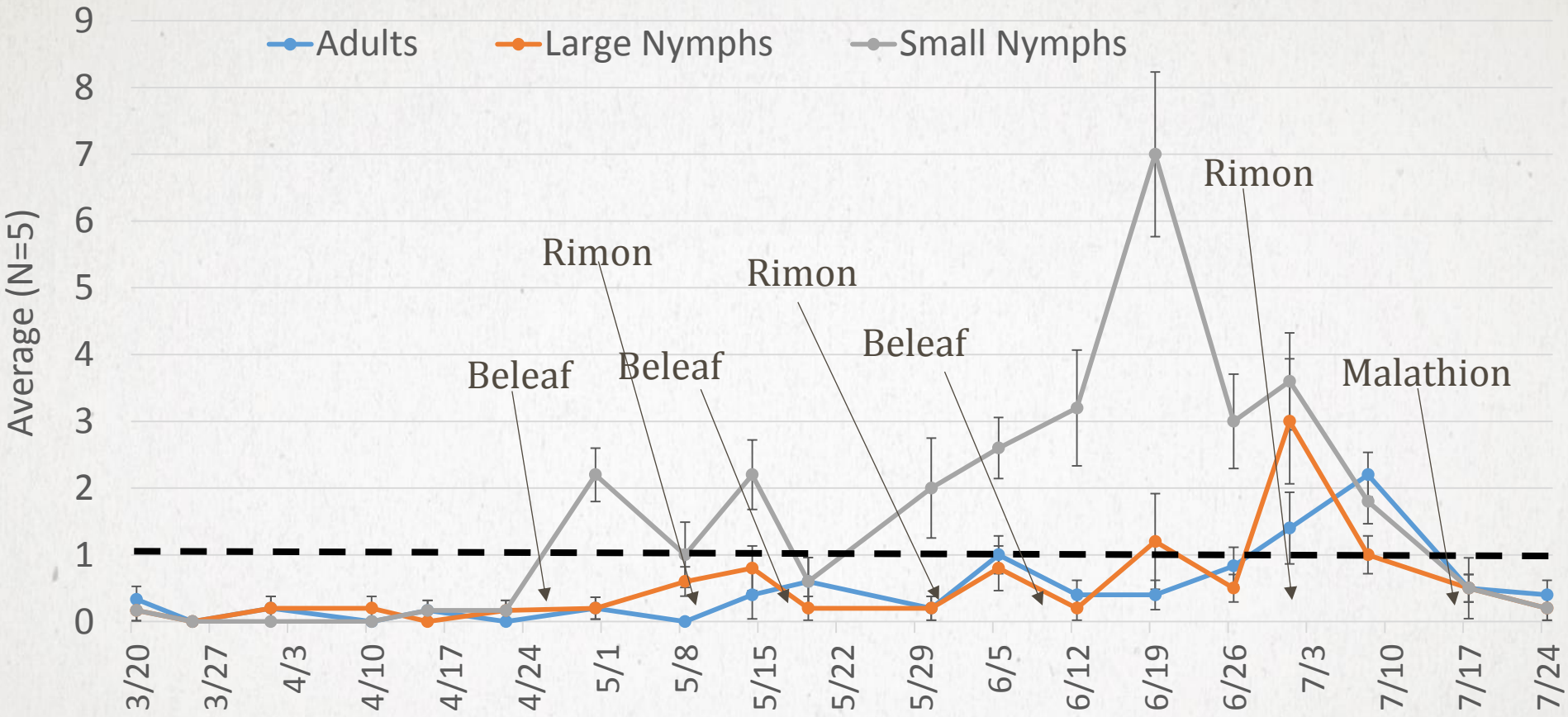
COMMERCIAL VACUUM EFFICACY

- Goal: pull more insects off the plants, with 100% kill.
  - 20 degree baffles

    Avg 29.9±3.0 mph
  - 20 degrees with holes

    Avg 46.9±1.1
  - Trade offs in designs to increase windspeed while maintaining kill.

SPRAY PROGRAMS ARE STILL A BLACK BOX



- Even recommended insecticide practices lose control.

NEXT STEPS

Mites

- Microsprinkler Mite Control Trials*
- Area-wide cropping pattern trials – role of other crops?

Lygus

- Continue vacuum improvement
- Identify issues with spray programs
- Integrate pesticide and vacuum programs
- Crop Destruct & Migration Studies*

California STRAWBERRY COMMISSION

MARK EDSALL
ALEX OROSCO
MARTIN MORONES
KYLE BLAUER
THANK YOU!

VIII North American Strawberry Symposium

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