

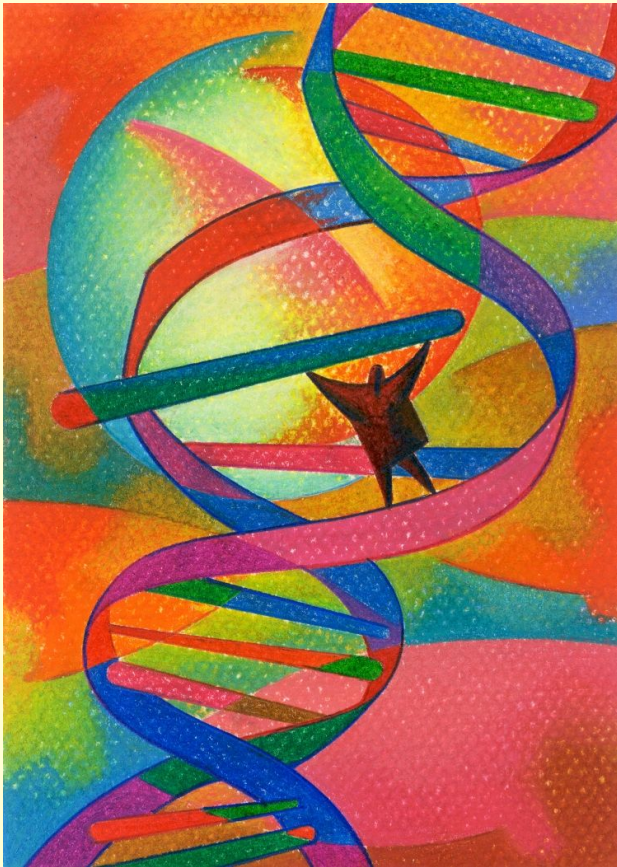


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Agricultural Research Service

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International
Sprout Growers Association
Vancouver, BC
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What's up with
genetically modified
alfalfa seed?





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GM crop facts:

Major crops: soybean, corn, cotton, canola, alfalfa

Minor crops: sugar beets, papaya, summer squash, poplar, potato, tomato, sweet pepper

Main traits: herbicide resistance, insect resistance

Genetically engineered crops covered 10% of the world's farm acreage in 2010

A total of 29 countries worldwide now plant GM crops, with the United States planting the most, at 165 million acres, Brazil with 63 million acres, and Argentina with 56 million.



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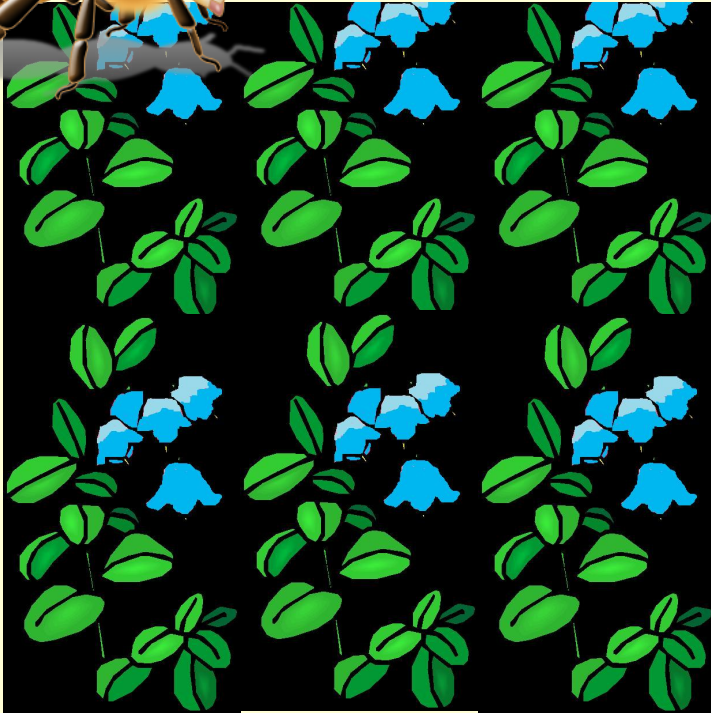
Round Up Ready Alfalfa

- Glyphosate-resistant varieties (RRA) were deregulated in the USA in 2005. In 2006, 5% of the fields seeded were RRA
- In March 2007 an injunction prohibiting further planting of GM alfalfa was passed, pending the completion of a USDA-APHIS Environmental Impact Statement (EIS). Seed was pulled from market, but hay fields remained in production.
- Focus of EIS- would producers for GM-sensitive markets be negatively impacted?



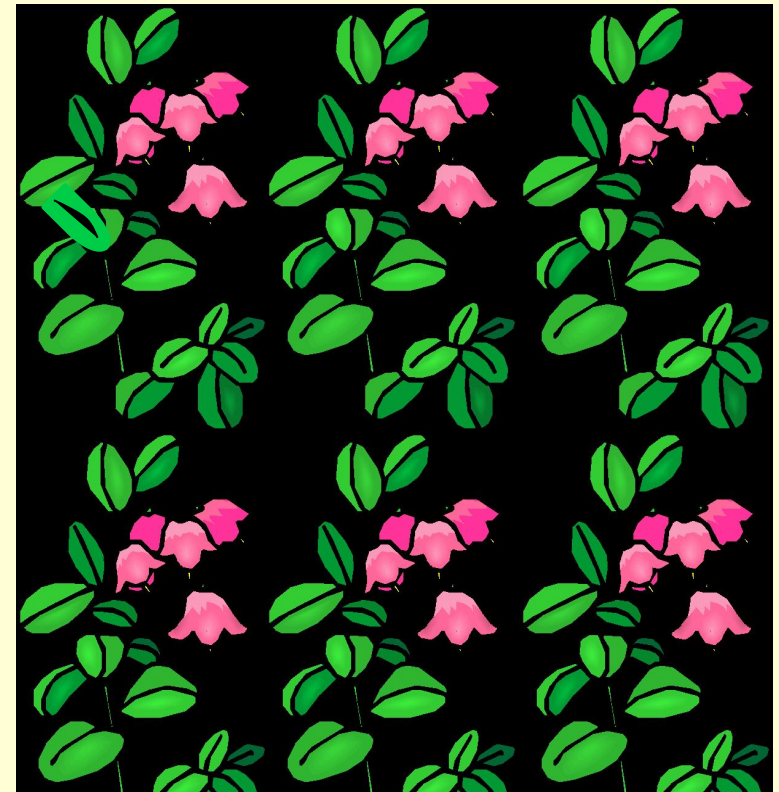
The possibility of transgene flow

Highly outcrossing Pollinated by bees

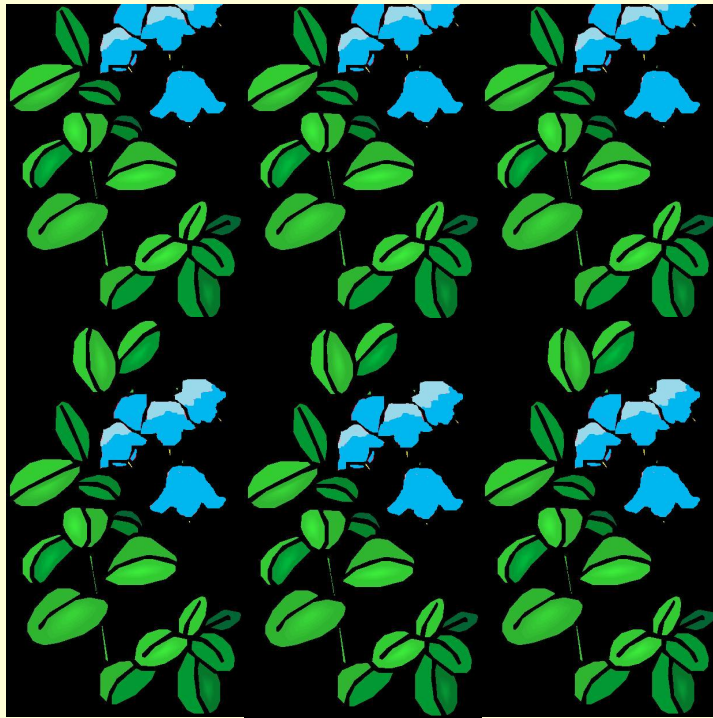


RRA field

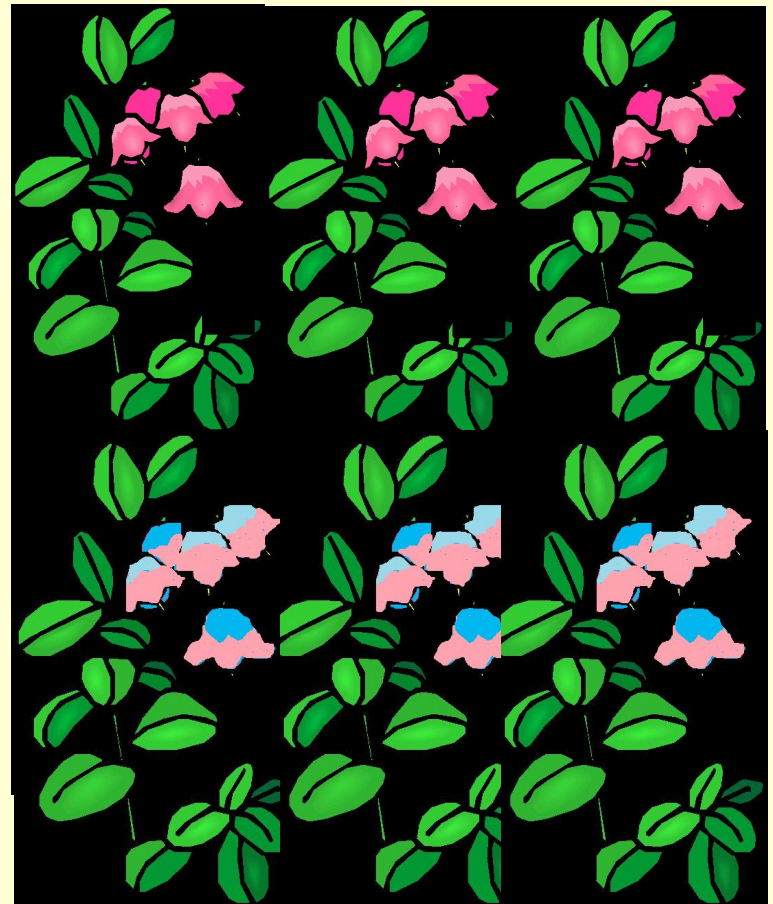
Conventional field



Adventitious Presence (AP)



low level unintentional
introduction of GM trait in
seed





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Industry Concerns

Since the first deregulation of GM alfalfa, industry has been developing coexistence strategies and testing conventional seed lots for adventitious presence (AP) of GM traits. Low level AP has been detected. Levels as high as 2% have been reported (nondetect level is .1%)

Industry has emphasized the need for further research to validate and refine Best Management Practices



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Fostering Coexistence

In January 2011, Sec. Vilsack granted non-regulated status to RRA

The Secretary also announced a set of immediate actions to support continued dialogue and constructive coexistence in U.S. agriculture:

- 2011 funding to support a baseline survey of transgenic roadside alfalfa
- Biotechnology Risk Assessment Grant (BRAG) of \$1.0 million to promote co-existence among GM and GM-sensitive alfalfa producers



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"Fostering coexistence: industry-driven field and landscape research on pollen flow in GE alfalfa"

2011 USDA/ARS-USDA/NIFA Biotechnology Risk Assessment Grant (BRAG)



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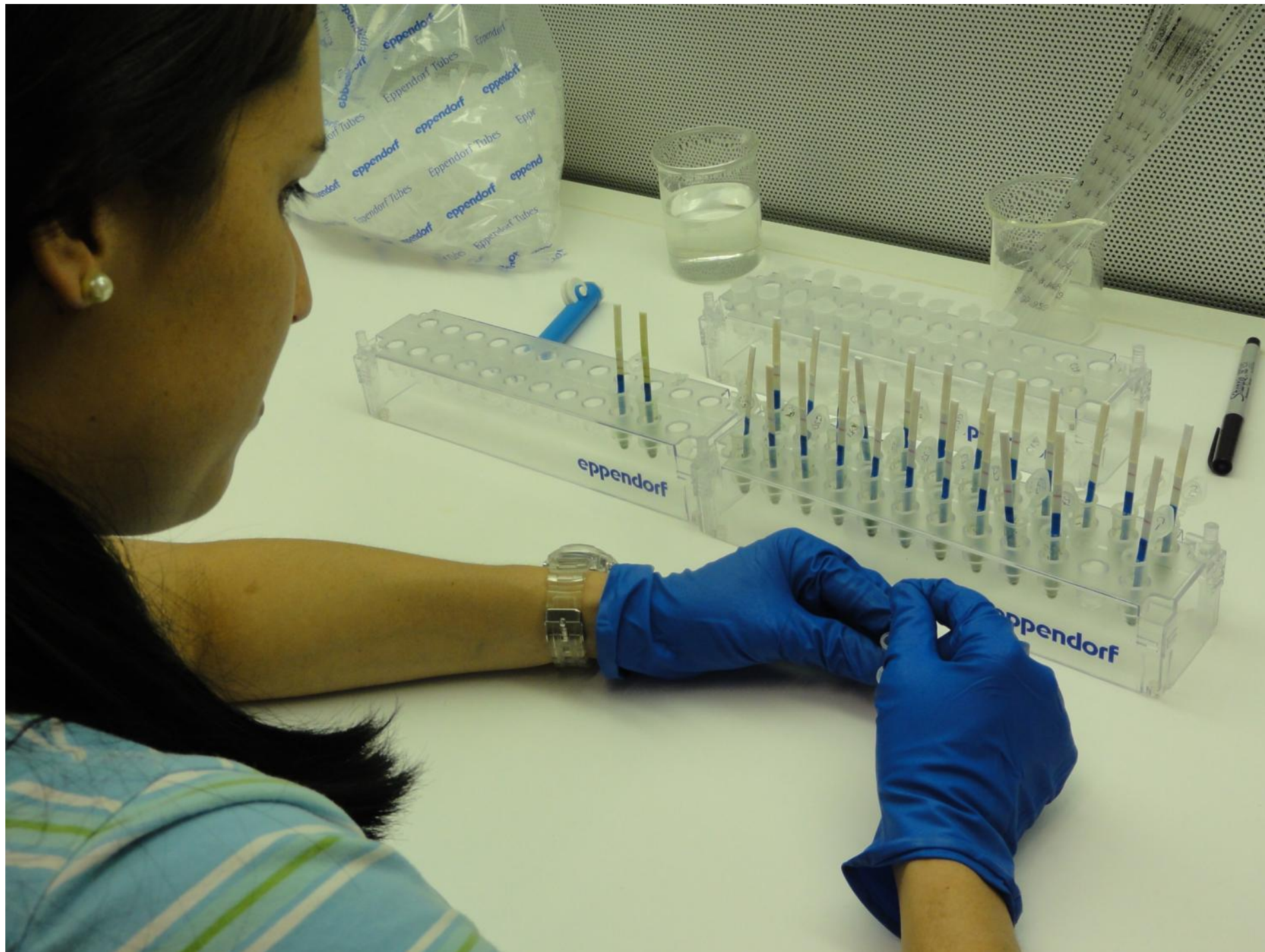
Survey Team leaving for Fresno

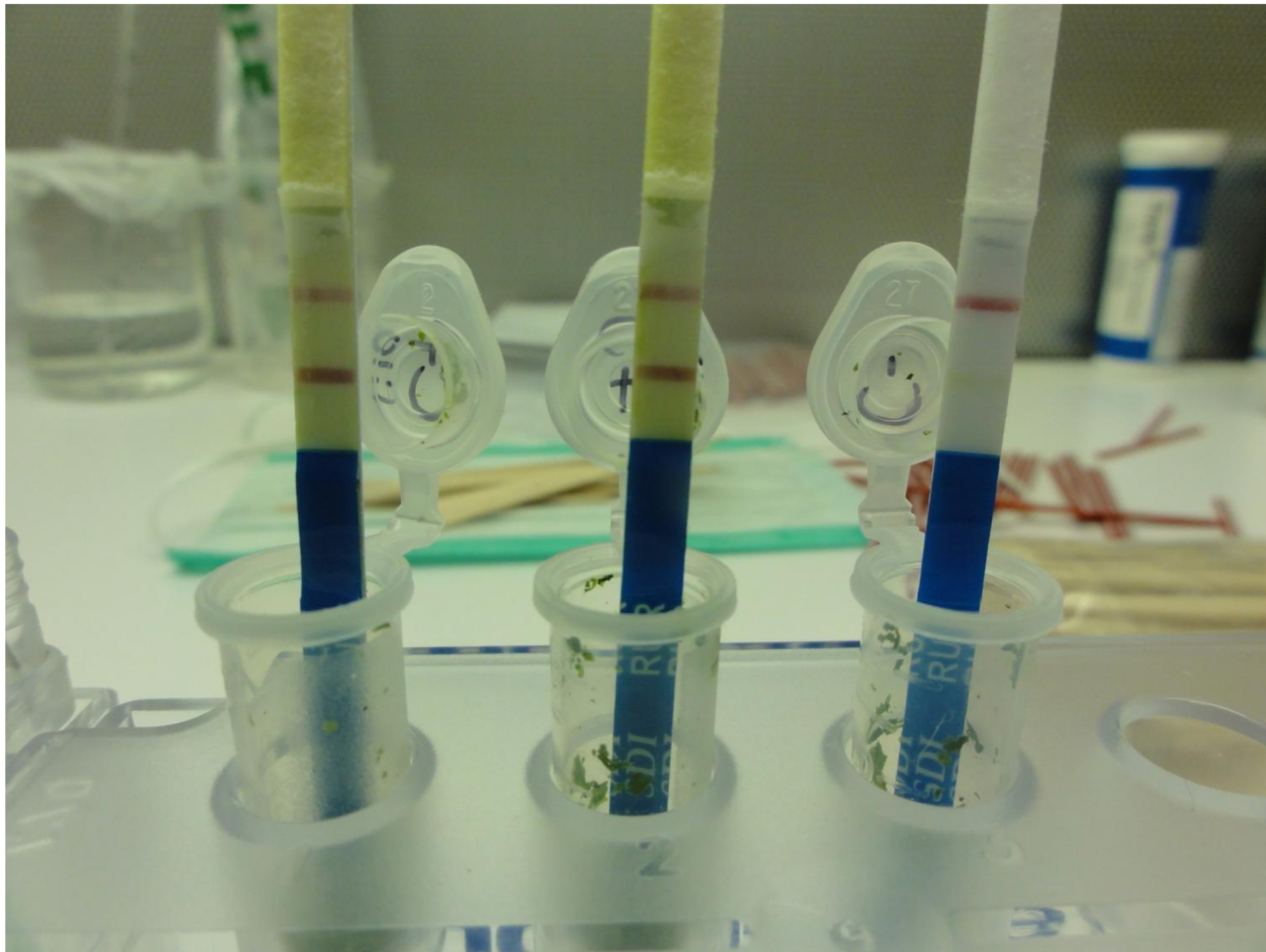


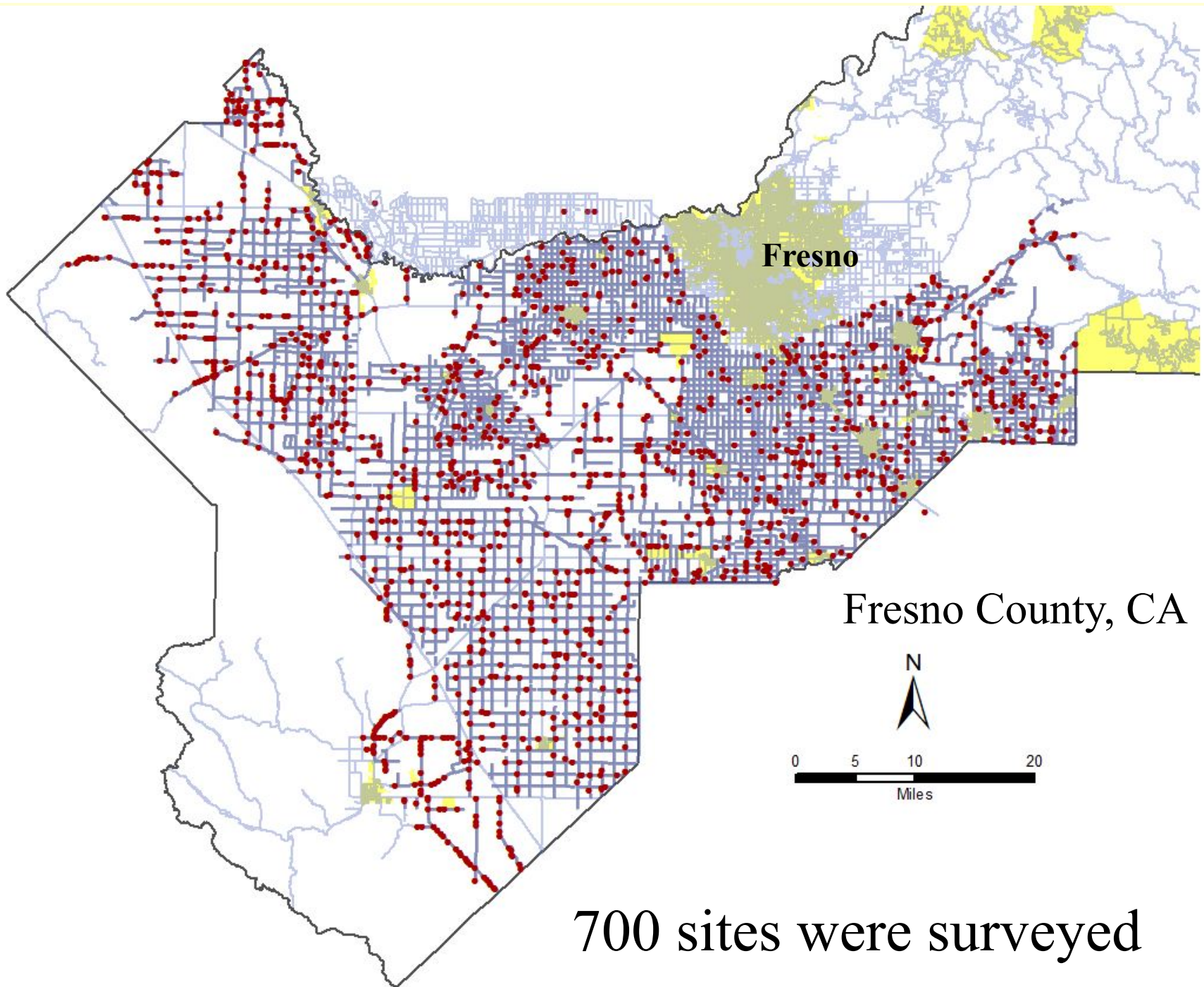




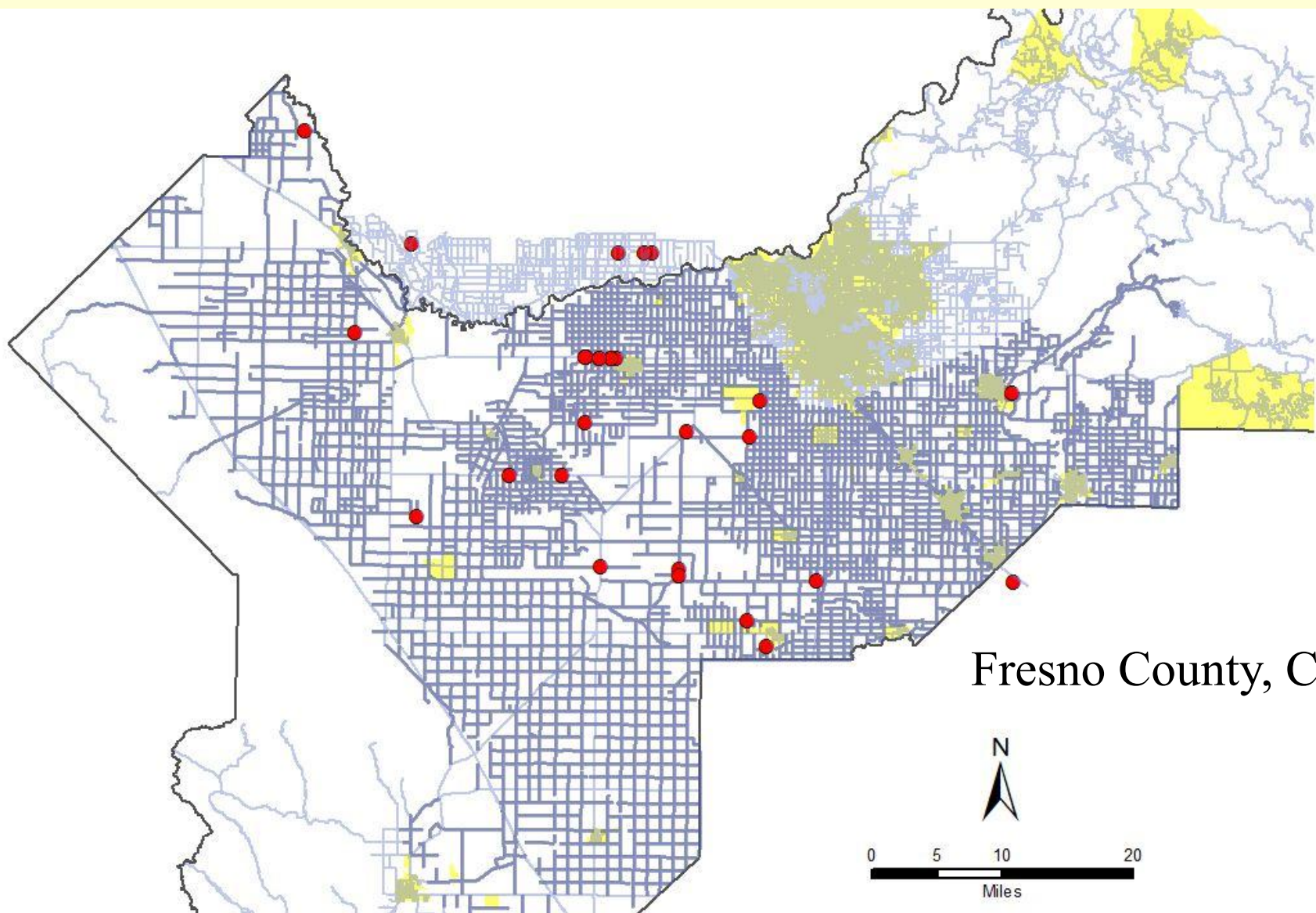








700 sites were surveyed

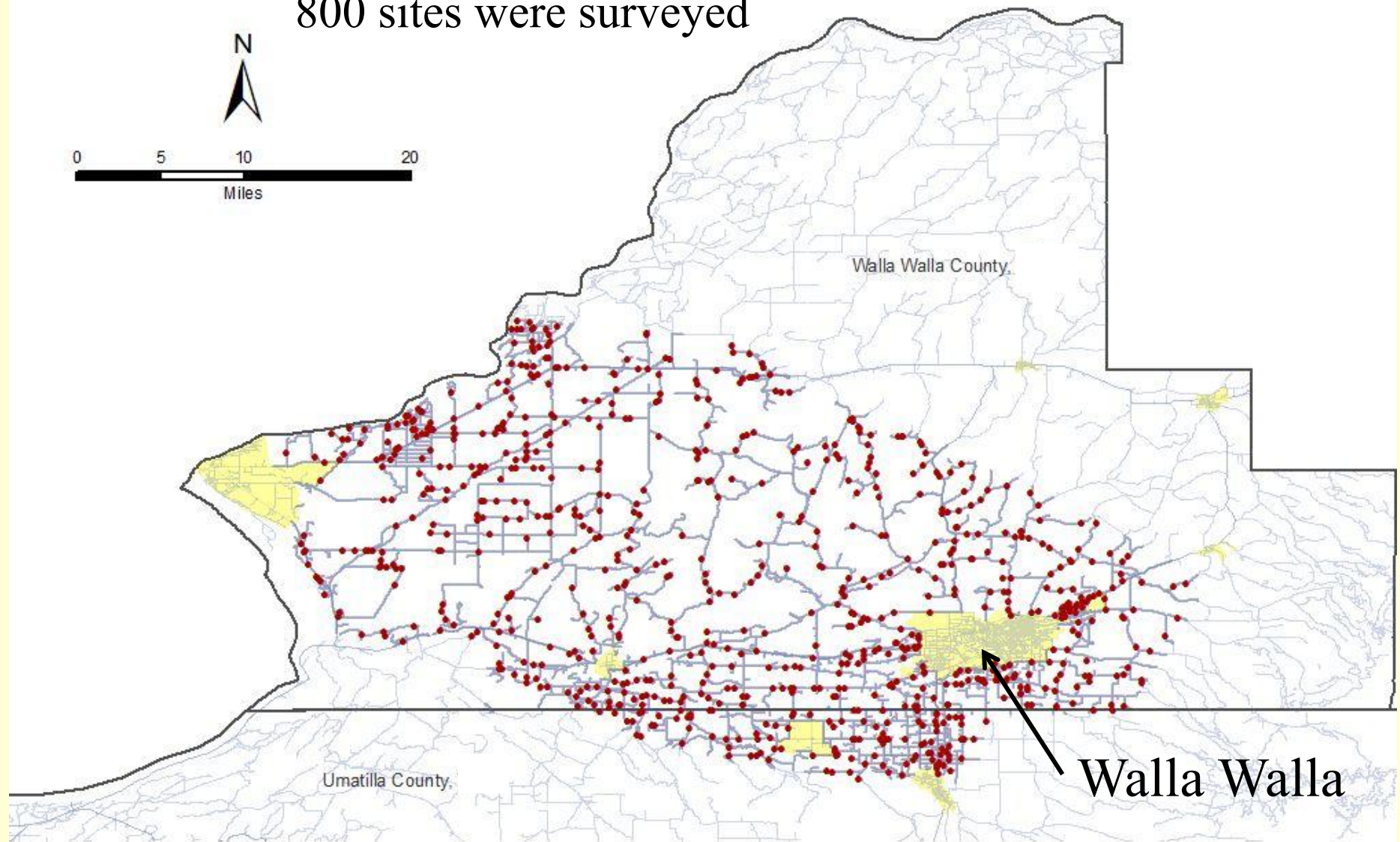


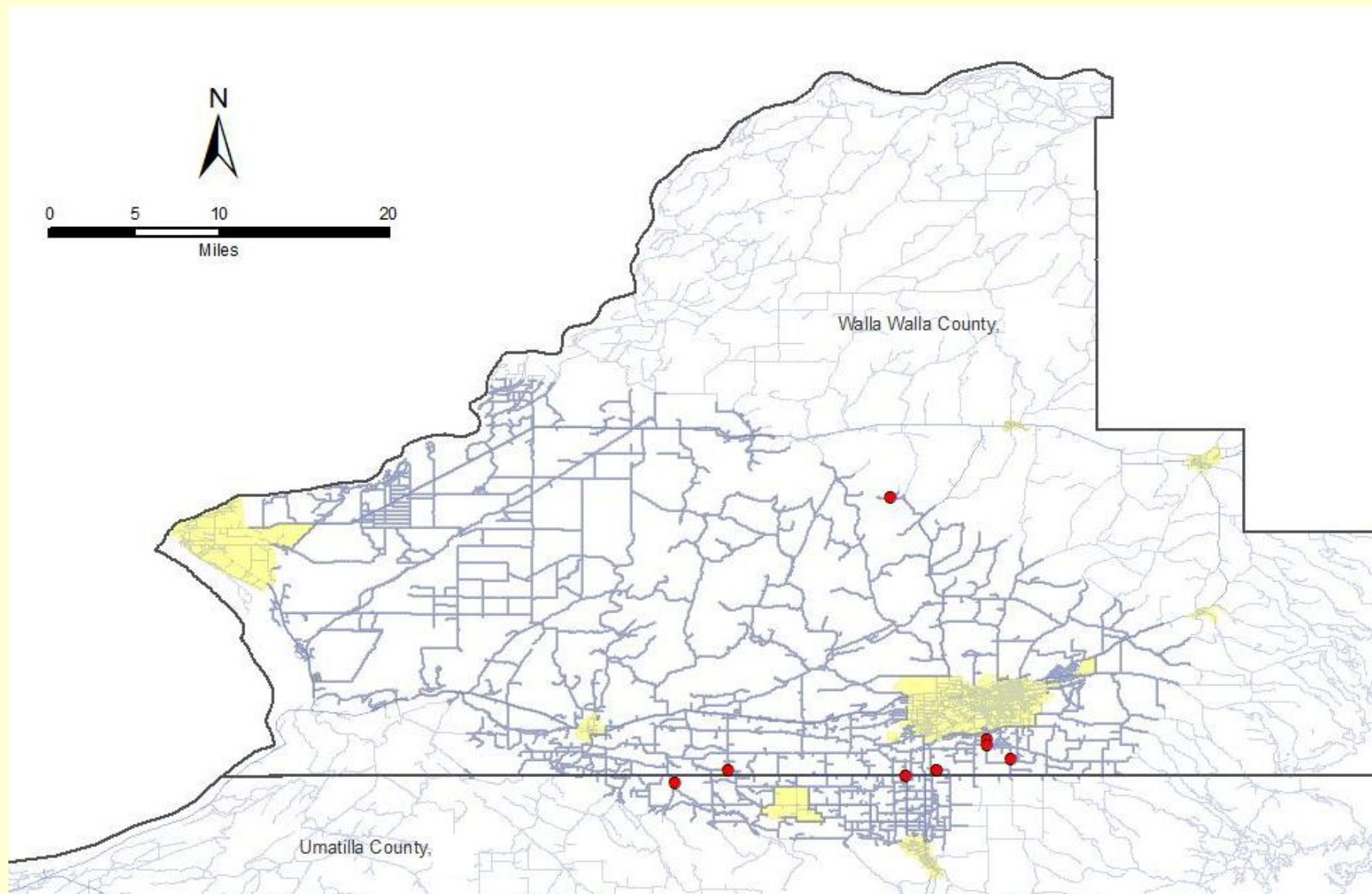
Fresno County, CA

172 sites had feral plants (24%)

26 sites had RRA -feral plants (15%)

800 sites were surveyed

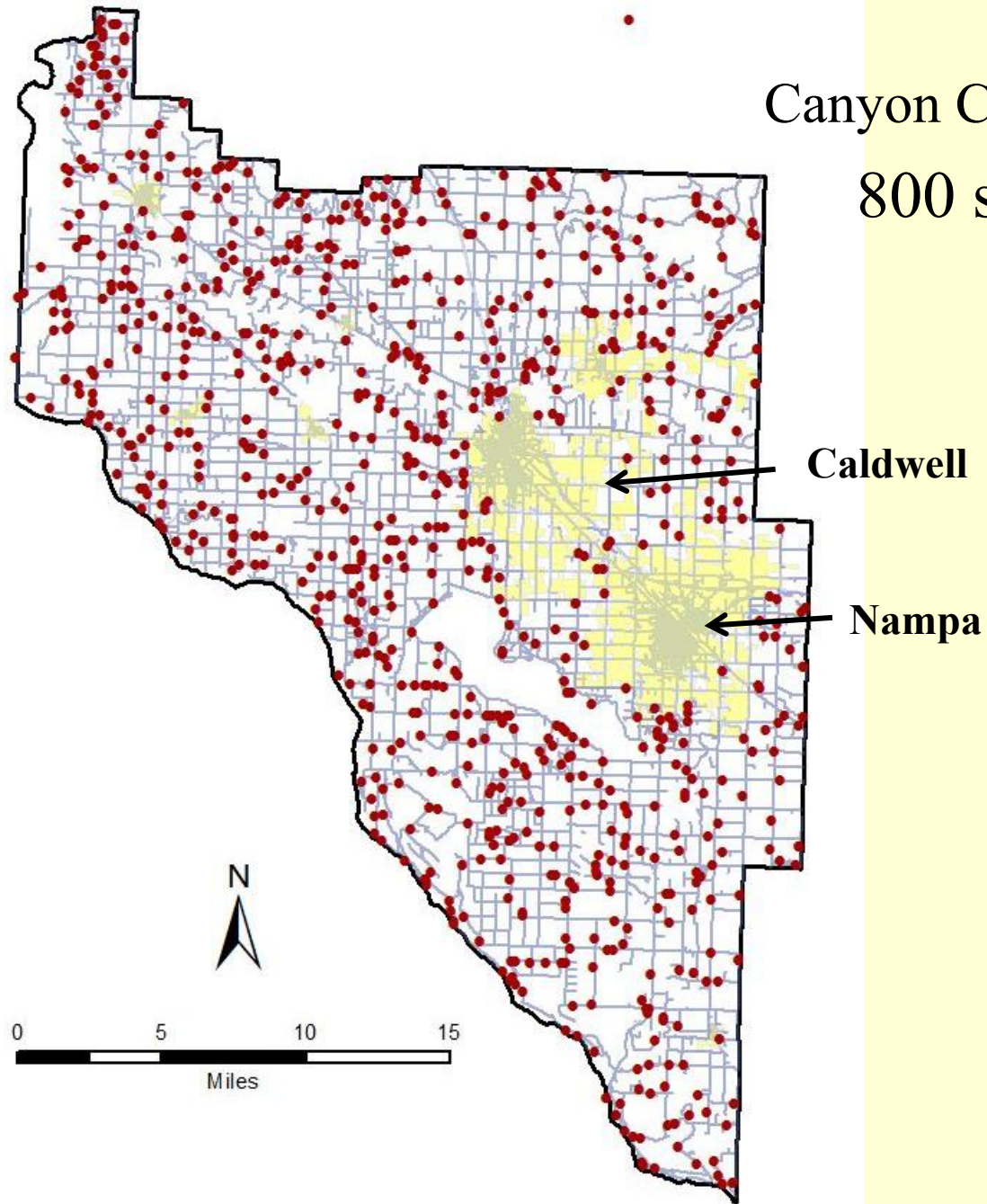


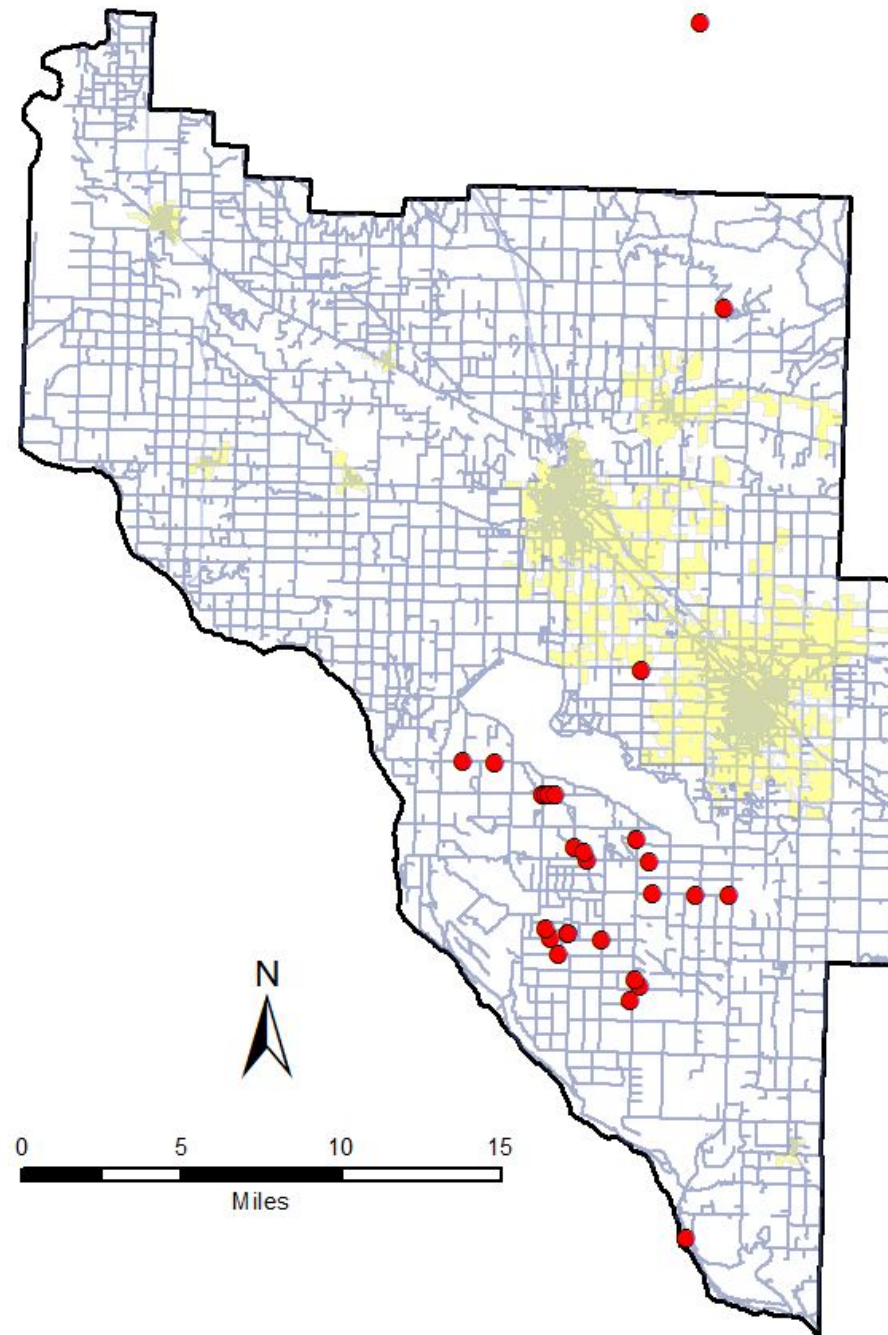


107 sites had feral plants (13%) 8 sites had feral-RRA plants (7%)

Canyon County, Idaho

800 sites were surveyed





Canyon County, Idaho

189 sites had feral
plants (24%)

29 sites had RRA-
feral plants (15%)



- Feral-RRA populations were detected suggesting RRA transgene can persist in the environment
- Frequency of feral plants and RRA transgene was similar in Fresno and Canyon, but lower in Walla Walla
- Seed-mediated gene flow may be significant since feral populations (including transgenic) were found along main arterial roads
- Although seed production locations had RRA-feral sites, sites were also located elsewhere, suggesting hay production may be source of feral and feral-RRA escapes



The next four years.....

- Assess adventitious presence in conventional seed lots
- Examine every step along the production pathway from initial planting to final seed distribution
- Evaluate potential impact of RRA-feral alfalfa reservoirs
- Determine if specific pollinators influence transgene flow



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Thanks for your attention!

QUESTIONS?

