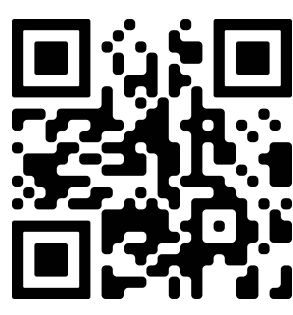


Arizona Pest Management Center: Advancing Integrated Pest Management (IPM) for Agriculture and Communities



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Agricultural IPM: Enhancing Crop Protection & Sustainability

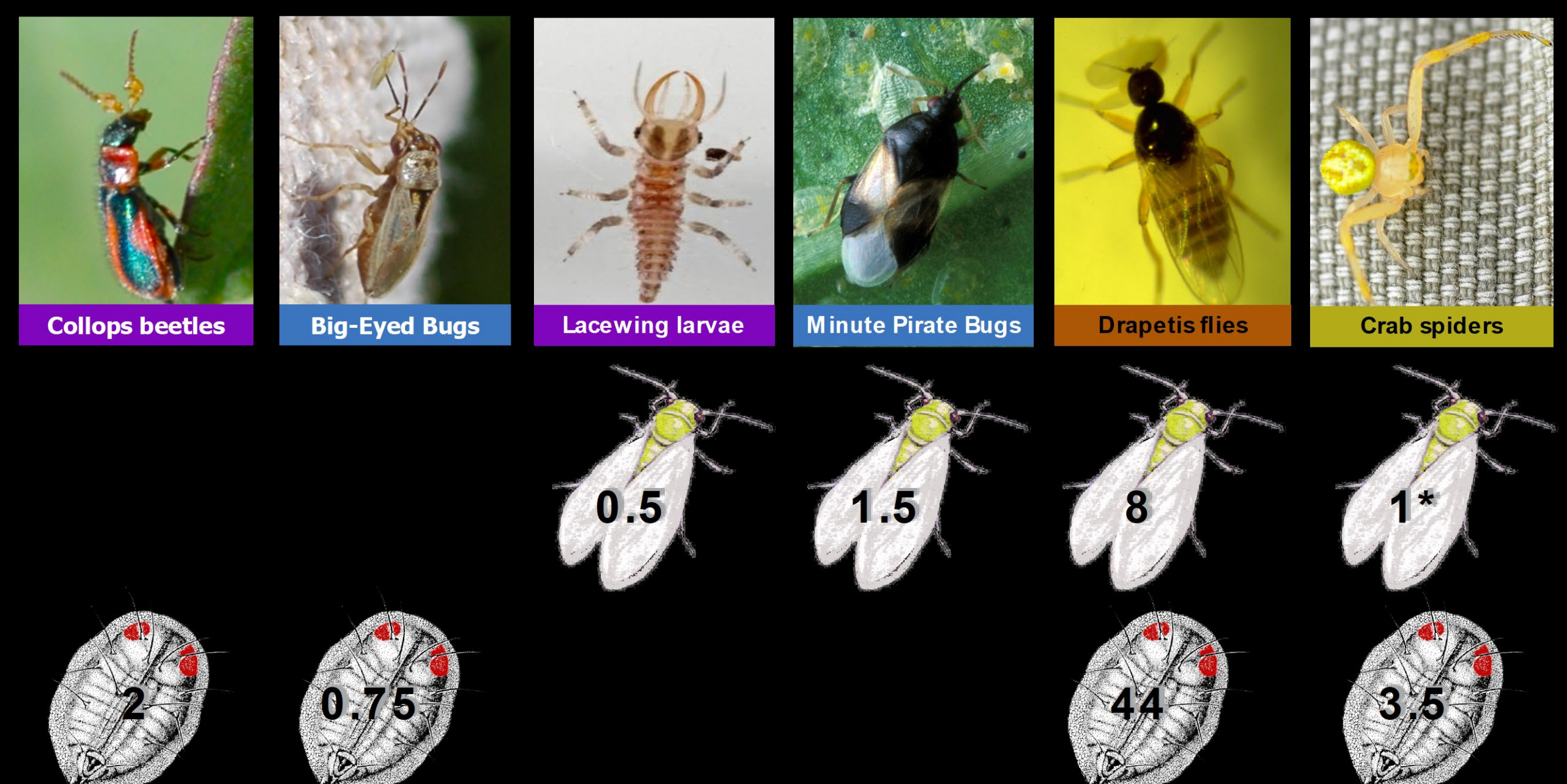
Advancing Agricultural IPM:

- Long-term measures of IPM practice in cotton and lettuce show dramatic reductions in pesticide use and the adoption of reduced risk strategies that sustain natural controls.
- Over 60% of insecticide use on lettuce (acres treated) is with selective, reduced-risk chemistries** that preserve natural enemies.
- Over 25–67% of cotton acreage** required no foliar sprays for arthropod pests, saving growers **\$600M** and preventing **40M lbs of insecticide active ingredient** use since 1996.
- Advanced **IPM strategies for cotton, lettuce, and specialty crops** through rigorous **data collection and grower education**.

Innovations in Pest Management:

- Developed **predator-based thresholds for whitefly control in cotton**, reducing reliance on insecticides. Field day participants showed an **84% increase in willingness to count predators** following training.
- Assessed **pesticide alternatives and their efficacy**, leading to adoption of **lower-risk chemistries**. Today **90% of sprayed acres in cotton** are with fully selective insecticides that are safe to non-target natural enemies like predators and pollinators.
- Supported **stakeholder engagement in EPA pesticide registration reviews**, influencing regulatory decisions. **90% of comments were considered by EPA** in registration review, **25% influenced outcomes**, addressing grower's concerns while mitigating risks to protect public health and the environment.

8 Inaction Thresholds Based on Predator to Prey Ratios



Inaction thresholds allow growers to defer a spray based on the presence of a sufficient level of key predators, even when whiteflies exceed threshold. If predators are low, a spray could be advanced prior to whitefly threshold level.

*Predator:Prey ratios, where 1 crab spider per 100 sweeps to 1 adult whitefly per leaf or 3.5 crab spiders per whitefly large nymph. Any 1 inaction threshold met permits deferral of sprays.



Dr. Peter Ellsworth schooling the next generation of agricultural leaders on the power of IPM and biological control.

Strategic Investment: Staffing & IPM Assessment

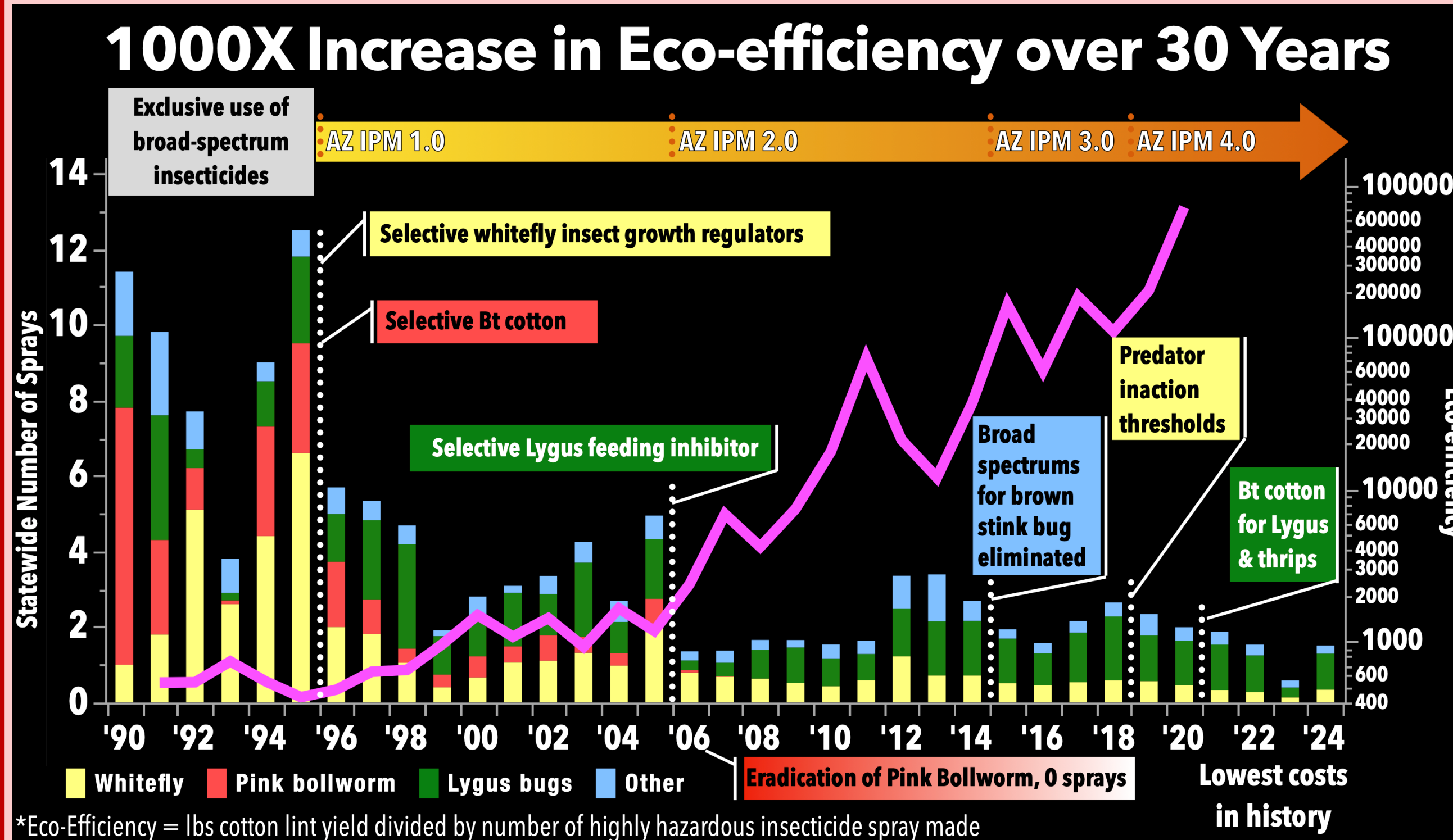
Organizing IPM Expertise

- Dedicated **IPM teams for agronomic crops, specialty crops, and public health** leveraged **USDA-CPPM-EIP funds** to maximize impact, each sharing a common, **50% EIP-funded Extension educator** (Assistants or Associates in Extension).
- ~10X leveraging of USDA-CPPM-EIP funds** to maximize impact, through >120 grants, gifts and contracts representing an **additional \$8,056,077 investment**.
- Established an **IPM Assessment Team** to measure **economic and environmental benefits**.
- Strengthened **collaboration across 16 of Arizona's 22 federally recognized tribes**, improving IPM outreach.

Impact at a Glance

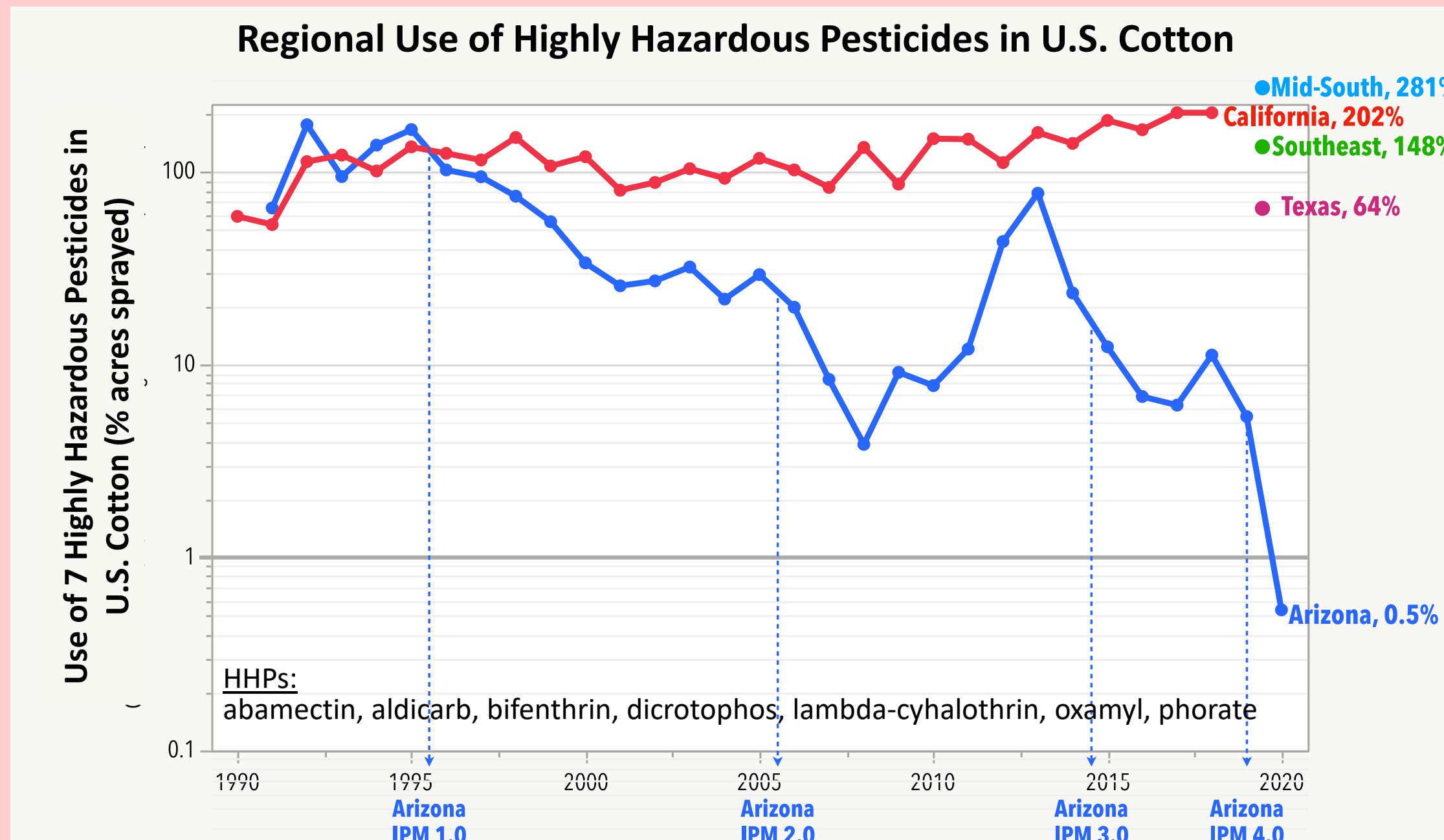
Environmental Benefits:

- Reduced reliance on **highly hazardous pesticides**, fostering sustainable agricultural practices, increasing eco-efficiency **1000X** in cotton.
- Promoted **conservation biological control** to enhance ecosystem resilience.



Economic & Public Health Gains

- Improved **profitability for growers** through cost-effective IPM strategies with **lowest cotton foliar insecticide costs in history (Figure 3)**.
- 89% of survey respondents** said their **economic returns have improved** by following vegetable IPM recommendations, including an estimated **\$480,000 – \$1,512,000 in annual savings for a typical fresh vegetable grower** (\$69 to \$189 per acre).
- Lowered **pesticide exposure risks in communities**, safeguarding **public health**, with **>100X reduction in usage of highly hazardous pesticides (HHP) in cotton**.



Over 25 years of innovation, Arizona has reduced its use of seven highly hazardous pesticides to less than 1% of cotton acres—meeting Better Cotton's sustainability standards.

Community IPM: Protecting Public Health & Tribal Engagement



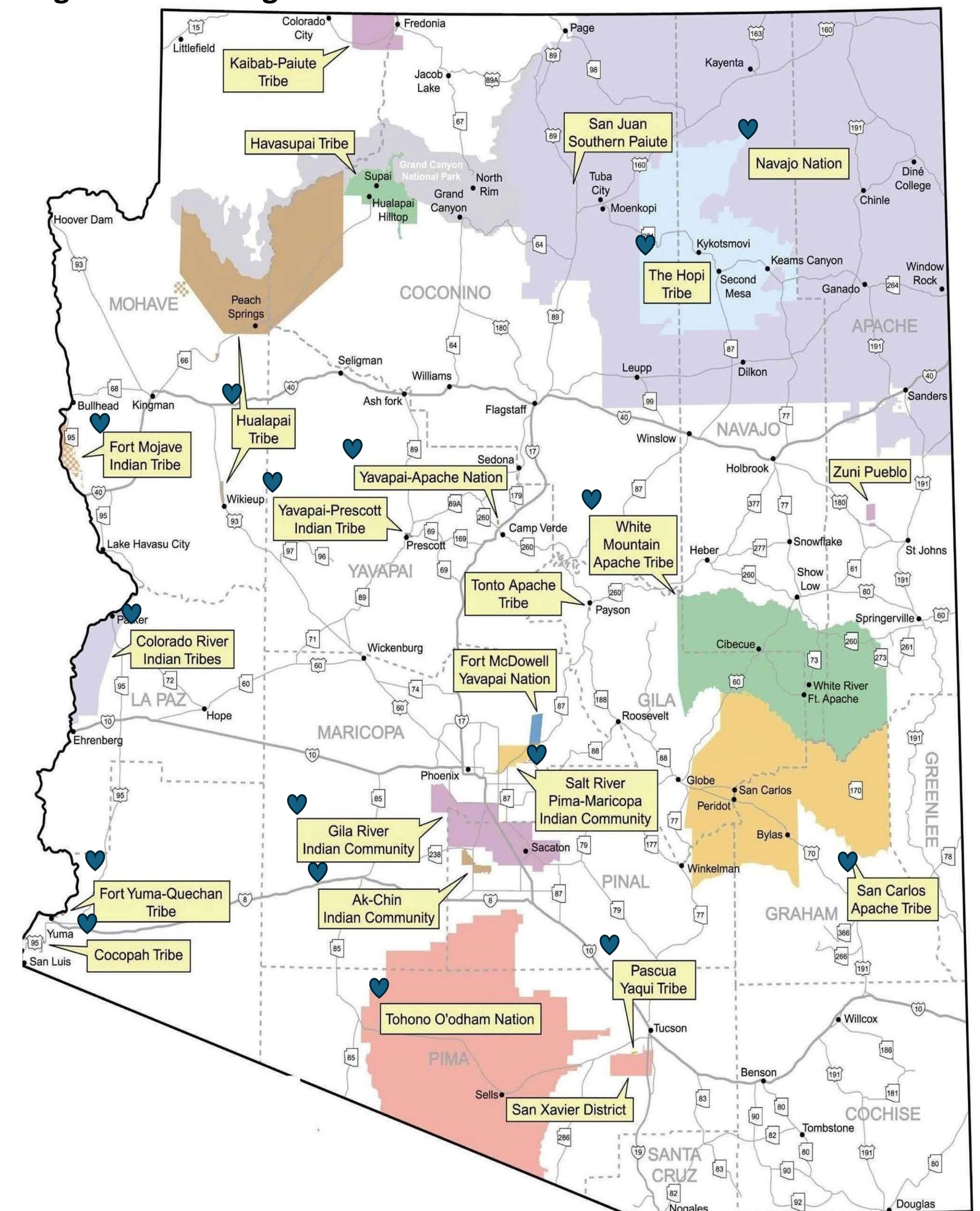
APMC staff member trains tribal pesticide users to reduce exposure.

Tribal Community IPM & Resilience Program:

- Implemented **IPM-based vector control in five tribal nations**, reducing mosquito-related costs by **over \$18,000 per season**.
- Expanded **food safety and pest management outreach**, increasing tribal participation by **400%**.
- Delivered **culturally tailored education**, enhancing **tribal food safety compliance and resilience**.

Public Health IPM Achievements:

- Educated nearly **250,000 people** on pest management and food safety.
- Increased participant knowledge by **53% on IPM practices** and **34% on food safety**.
- 81% of pest management professionals** trained said they would adopt advanced strategies for **bed bug and cockroach control**.



Arizona Tribal Lands Map highlighting partner tribes (blue hearts) collaborating with the University of Arizona Extension.

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