

GIPSA Biotechnology Lab Update



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Grain Advisory Committee
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United States Department of Agriculture

Update on Biotechnology Lab Activities



1. Support APHIS investigation of genetically engineered (GE) wheat
2. GIPSA's role in facilitating the market for detection of DDGS containing the trait MIR162
3. Development of Quantitative Rapid Test Kit Program for the detection of GE grains



GIPSA Biotechnology Lab Supports APHIS in GE Wheat Investigation



- Detection and quantification of trait
- Confirmation of DNA-based detection methods
- Multiplex and simplex PCR method verification
- Additional services including: varietal id, protein detection, and method optimization for tissue samples



Background on Event MIR162

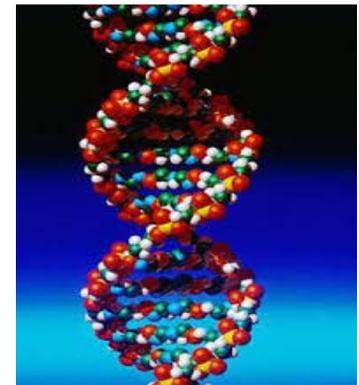
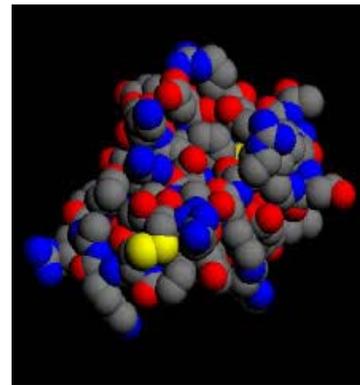


- Syngenta trait which contains VIP3A protein that is toxic to pests
- De-regulated for food and feed use in 2008
- GIPSA approved a rapid test kit for detection of the protein in corn in 2009
- Limit of detection for the two test kits commercially available are 1/400 and 1/1000 kernels



Challenges With Biotech Analysis of DDGS

- Highly processed matrix
- No reference materials
- No PCR method available
- No rapid test kit currently approved



GIPSA's Activities in Facilitating Analysis of DDGS

GIPSA's Biotechnology
Lab

Determine if Enviroligix
rapid test kit detects
MIR162 protein

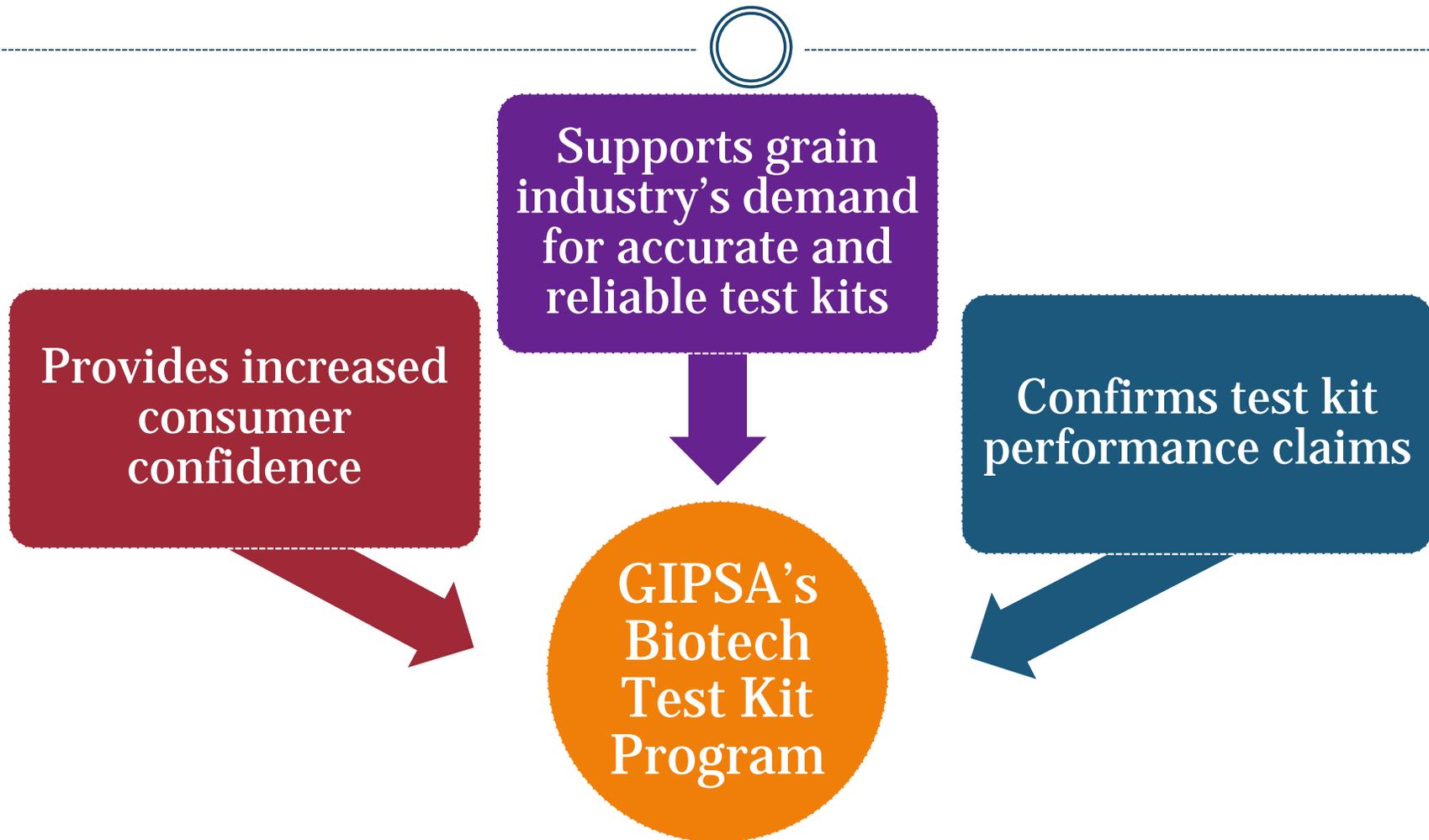
Determine if Romer
rapid test kit detects
MIR162 protein

Determine if PCR
method detects DNA

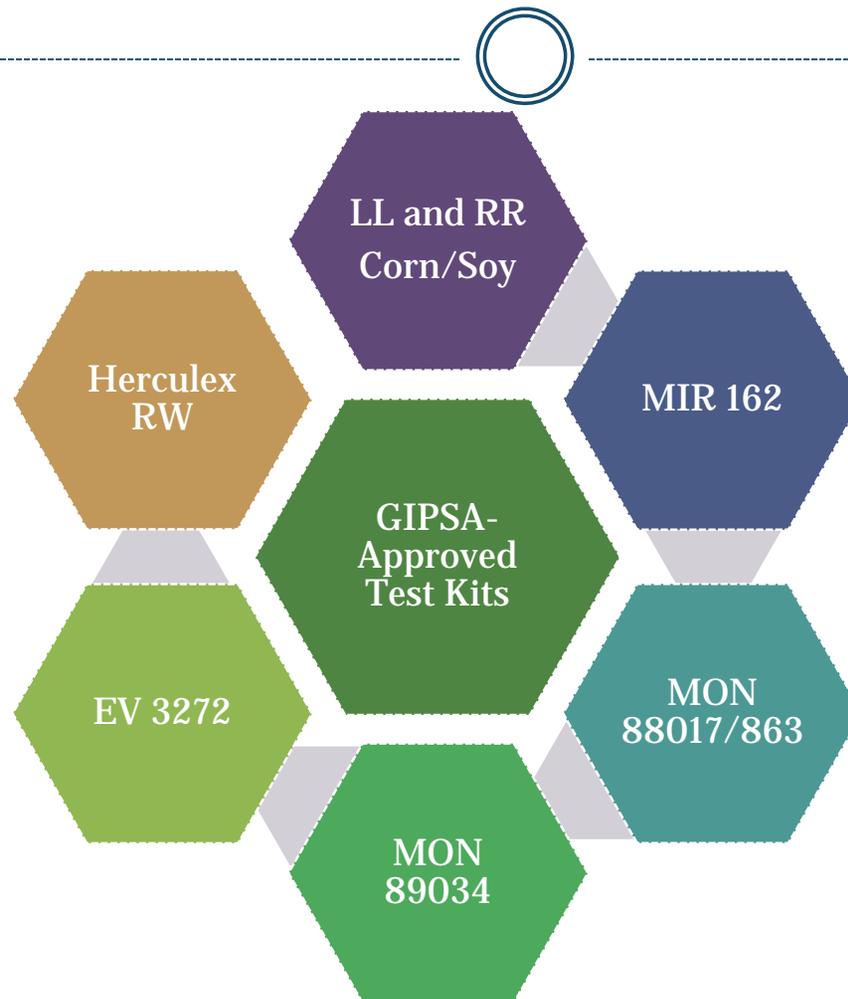
Technical Assistance to
DIIA and FAS



GIPSA's Biotech Rapid Test Kit Verification Program



Current GIPSA-Approved Rapid Test Kits



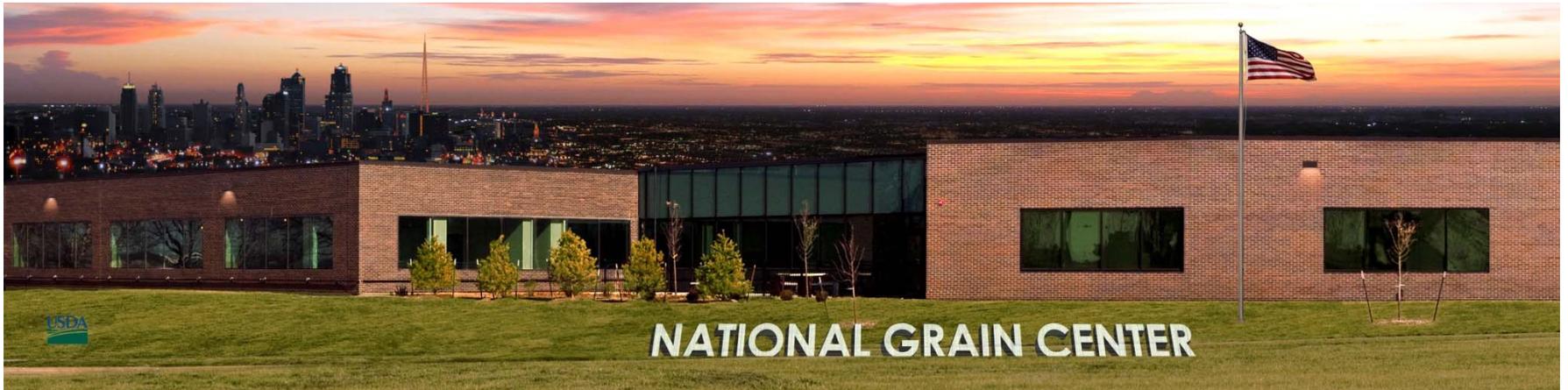
Development of Quantitative GE Rapid Test Kit Requirements



- ✓ Determine appropriate number of independent analyses, test lots, and individual samples
- ✓ Develop accuracy requirements for test kits against reference standards
- Design criteria for maximum RSD values and standard deviations
- Finalize directive and initiate program



Thank you!



United States Department of Agriculture