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# Corn Traits ELISA Testing

**ELISA** (Enzyme Linked Immunosorbant Assay) detects the protein produced from the introduced transgenic DNA through an antibody-antigen reaction. Corn borer, corn rootworm, Enlist™, and drought tolerance proteins can be detected with this method. Protein is extracted from individual seed or week-old seedling material to determine the presence or absence of the specified protein. An antibody that will react with the specified protein is coated on a 96 well plate and a conjugate enzyme is added in addition to the extracted protein. During an incubation period, the specified protein will adhere to the antibody on the plate and the conjugate enzyme will adhere to the specified protein. This 'sandwich' will remain after the plate is washed and a substrate that will react with the conjugated enzyme is added to show a color change for the presence of the specified protein.



Positive and negative controls are run on each plate to confirm correct conditions for a valid test. For an initial test, 90 seeds are routinely run, with additional seed if it does not pass the stated purity requirements. A 30 seed test is typical for conditioned or bagged lots.

## CORN PURITY AND HYBRID VERIFICATION - ELECTROPHORESIS

Isozyme Testing separates proteins based on 5–6 different isozymes in the corn genome that have the highest variation. Corn seed must be germinated in dark conditions, extracted and placed on starch gels that are 3/8 inch thick. After the protein is separated by size within the gel, it is sliced into thin slices and stained with enzymes in which the particular isozymes are visualized. Offtypes, female selfs, and variants present in the 96 seed sample are reported for genetic purity.

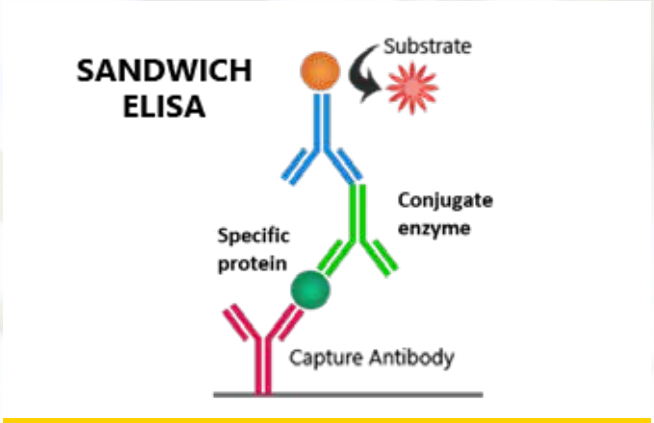


**FIG. 1.** Image from BosterBio.


**FIG. 2.**

**FIG. 3. ACP isozyme stain showing 2 different inbred patterns**