



Corn Pollen Viability



Pollen viability is a key for successful pollination; however pollen health can be negatively impacted by many factors. To successfully monitor and track pollen health, impedance flow cytometry is being utilized to enable the rapid and accurate determination of corn pollen viability, including from pollen that has been preserved.

PowerPollen® is enabling corn pollination on-demand, thereby improving seed production by optimizing the cross-pollination process with the use of preserved pollen. PowerPollen's® pollen preservation system relies on the Amphasys high throughput Ampha Z32 Pollen Analyzer to provide data-driven pollen quality monitoring. This process helps to drive increased productivity and reliability for seed production.

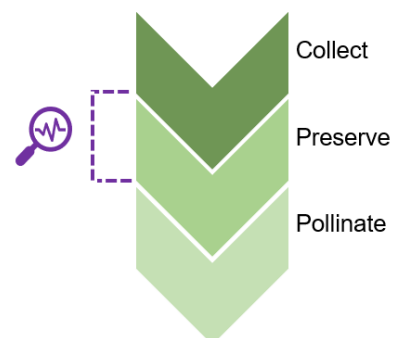
About PowerPollen®

PowerPollen®, a US based AgTech company has engineered an on-demand pollination solution that complements the natural process, reduces the cost of inputs, and mitigates adverse weather effects.

Measuring Pollen Quality Matters

The viability of freshly shedding pollen is negatively impacted by many environmental factors. To avoid putting low quality pollen into storage, PowerPollen® frequently monitors the viability of freshly shedding pollen using the Ampha Z32. This ensures only pollen of the highest viability is placed into preservation. The Ampha Z32 is used a second time to measure the viability of pollen once it is removed from preservation. Pollen quality monitoring enables PowerPollen® to:

- Monitor the viability of freshly shedding pollen
- Place high viability pollen into preservation
- Measure the viability of pollen post preservation
- Apply pollen on-demand to receptive females



CUSTOMER SUCCESS STORY



On-Demand Pollination Solution

PowerPollen® maximizes seed purity, yield and mitigates the risk of decreased crop output by providing seed producers with a pollen preservation tool which results in a higher return on investment.

Anywhere from 15 to 25 percent of global hybrid seed corn production is lost due to poor timing of cross pollination. Under normal conditions, pollen is shed within a day or two after silk emergence, allowing for full fertilization of the husk. However, when the male's optimum pollen release date is not synced with the female's optimum silk receptivity date, kernel formation is sacrificed. PowerPollen® technology enables seed producers to apply preserved pollen in perfect timing with the female's optimum receptivity.



Left image: Drought impacted seed production. Right image: Drought impacted seed production with one PowerPollen® application.

Dr. Todd Krone, CEO of PowerPollen® :

«We use the Ampha Z32 to check pollen quality before and during pollen collection and later for the pollination process. The Amphasys technology also enables us to rapidly develop and further improve our preservation methods.»



The Ampha Z32 Pollen Analyzer

Amphasys uses impedance flow cytometry (IFC) to rapidly characterize cells in suspension based on their electric properties. Impedance is measured in a microfluidic chip and results are displayed on a scatterplot. Software supported analysis allows to get precise statistics about the cell populations.

Compared to traditional pollen staining or germination protocols, which require sample incubation and tedious counting of cells under a microscope, the Ampha Z32 Pollen Analyzer offers:

- Simple sample preparation – no staining, media preparation or incubation is required
- Fast results – with measurements that take less than a minute
- One method for all species – this technology works with over 200 species



The Ampha Z32 Impedance Flow Cytometer set up in the Lab with the autosampler and a laptop showing measurement results.

Contact

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