

California Seed Association Fact Sheet Series



Q What is Seed Health Testing??

A It is a means by which seed samples are tested to determine if they are contaminated with seed borne or seed transmitted pathogens.

Background

Seed companies (especially vegetable seed companies) are keenly interested in the quality of their seed lots. Once produced, a seed lot is subjected to germination tests, physical purity tests, genetic purity tests, vigor tests and frequently, seed health tests. The protocols for these seed health tests have been developed over the last several decades and many have gone through extensive validations to ensure they are specific and robust. The vegetable seed industry is very dependent on these tests to help them determine whether or not the seed they intend to sell to growers throughout the world is likely to be free of known pathogens.

These pathogens can be bacteria, fungi, or viruses. There are devastating crop diseases found in each type of pathogen that are known to be seed transmitted. This means that seeds that are infected with the pathogen can pass that pathogen to the plant that develops from that seed. There is also what is known as seed borne pathogens – these are plant pathogens that are carried on the seed but usually do not infect the plant that develops from that seed. However, by being carried on the seed, the pathogen is given a route to infest agricultural areas that were not known to have that pathogen.

By testing seed lots for plant pathogens, companies can determine if their products are contaminated. They can then take actions to prevent that seed from reaching the market and possibly causing crop losses in production fields. They also can prevent the introduction of a pathogen into an area that it is not known to occur in. With some seed borne/transmitted pathogens, the seed can be treated by physical or chemical means to significantly reduce or even eliminate the pathogen in the seed lot. These treatments can help make a non-useable seed lot into a saleable one. A post treatment seed health test can show the effect of that treatment on the level of infection in the seed sample and thus, help the company make a risk management decision.

Seed health testing is not a “silver bullet.” These tests are only as good as the sample that is tested and no seed health test is 100% accurate. Depending on the quality of the sample, the accuracy of the test and the sample size, the seed lot can be given a high probability that it is not contaminated with the target pathogen. Testing seed for pathogens they may carry is just one tool that can and should be used to determine the overall quality of a seed lot.

More Information

California Seed Association (<http://www.calseed.org>)

American Seed Trade Association (<http://www.amseed.com>)

California Department of Food & Agriculture (<http://www.cdfa.ca.gov>)

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