

4-5-1999

Seedborne diseases of soybean 1999

X. B. Yang

Iowa State University, xbyang@iastate.edu

Follow this and additional works at: <http://lib.dr.iastate.edu/cropnews>



Part of the [Agricultural Science Commons](#), [Agriculture Commons](#), and the [Plant Pathology Commons](#)

Recommended Citation

Yang, X. B., "Seedborne diseases of soybean 1999" (1999). *Integrated Crop Management News*. 2144.
<http://lib.dr.iastate.edu/cropnews/2144>

The Iowa State University Digital Repository provides access to Integrated Crop Management News for historical purposes only. Users are hereby notified that the content may be inaccurate, out of date, incomplete and/or may not meet the needs and requirements of the user. Users should make their own assessment of the information and whether it is suitable for their intended purpose. For current information on integrated crop management from Iowa State University Extension and Outreach, please visit <https://crops.extension.iastate.edu/>.

Seedborne diseases of soybean 1999

Abstract

This year, many soybean growers would like to save their own seed to cut production costs due to the low soybean prices. Before using the bin-run seed, you should make sure the seed quality is good to avoid stand establishment problems that are caused by seedborne diseases. Several seedborne diseases were prevalent in the 1998 growing season and the use of pathogen-infected seed may have caused the stand establishment problems.

Keywords

Plant Pathology

Disciplines

Agricultural Science | Agriculture | Plant Pathology

INTEGRATED CROP MANAGEMENT

Seedborne diseases of soybean 1999

This year, many soybean growers would like to save their own seed to cut production costs due to the low soybean prices. Before using the bin-run seed, you should make sure the seed quality is good to avoid stand establishment problems that are caused by seedborne diseases.

Several seedborne diseases were prevalent in the 1998 growing season and the use of pathogen-infected seed may have caused the stand establishment problems.

Low-quality seed is characterized by low germination rate, which often is caused by a high level of infected seeds in a seedlot. Infected seed can be detected by seed testing. In the 1998 growing season, three pathogens were prevalent in some Iowa areas: *Phomopsis*, soybean mosaic virus, and bean pod mottle. Growers who did seed tests and reported finding these pathogens often ask what they should do. The following paragraphs outline recommendations for dealing with infected soybean seeds.

Phomopsis is a very common fungal pathogen in Iowa that causes seed-quality problems due to decay and also results in reduced germination. In most years, the pathogen does not cause much damage. When weather is favorable for *Phomopsis* to become established, seeds from severely infected soybean fields will have low quality. Last year was such a year as indicated by reports of seed testing and by Iowa State University data. In one field experiment, the infection rate was as high as 90 percent.



[1] **Seed damaged by insects and *Phomopsis*.**



[2] **Seed infected by *Phomopsis*.**

If you plant seed that has *Phomopsis* infection, a fungicide treatment can reduce disease risk. Rival, Vitavax, Thiram, and Agrosol FL provide good control of *Phomopsis* seed rot. However, if the infection level is too high, severe stand reduction occurs despite seed treatment. When you treat the seed, good seed coverage is critical. The quality of on-farm treatment can vary with the equipment used. Simple equipment for on-farm seed treatment is available at affordable prices. This equipment can be mounted directly and conveniently on a wagon or a truck box to dispense fungicides onto seeds during planting, an improvement compared with planter-box treatments. Some chemical representatives may have on-farm equipment that can treat large quantities of seed.

Viral diseases have been problems in some areas of Iowa for the last 2 years and they may be prevalent this year because of the mild winter. **Soybean mosaic virus (SMV)** has been common in some areas of southern Iowa. SMV is seedborne and is spread by aphids. Seeds from plants infected by SMV sometimes have a discolored (often black) or mottled seed coat. Depending on the color of the hilum, discoloration of soybean infected by SMV does not have to be dark. Be aware that a mottled seed coat is not always the result of SMV infection. Some physiological stresses also can cause seed coat discoloration, which complicates diagnosis.



Seed infected by soybean mosaic virus (left) and by bean pod mottle virus (right)..

[3]

Another viral disease is bean pod mottle virus. This disease is spread by the bean leaf beetle. The virus also can be seedborne and thus become established in your field by planting infected soybean seed. Infected seed has a dark gray discoloration for soybean seeds with a black hilum. Seed discoloration typically is not as dark as that caused by SMV. Infected plants stay green late in the fall.

Last year, bean leaf beetle was abundant, which explains the prevalence of **bean pod mottle virus**. The damage in soybean caused by this insect also can result in seed discoloration. Furthermore, insect damage often enhances infections by some fungal diseases, including Phomopsis seed decay.

Because of the mild winter this year, insect vectors of these soybean diseases may have a higher survival rate, which means a higher risk of viral diseases if infected soybean seeds are planted. Unfortunately, there are no chemicals to treat virus-infected seed and no control measures available in a growing season to reduce disease risk. The best approach is to avoid planting virus-infected seeds.

This article originally appeared on pages 23-24 of the IC-482 (4) -- April 5, 1999 issue.

Source URL:

<http://www.ipm.iastate.edu/ipm/icm//ipm/icm/1999/4-5-1999/seedsoy99.html>

Links:

[1] <http://www.ipm.iastate.edu/ipm/icm//iphomopsis.html>

[2] <http://www.ipm.iastate.edu/ipm/icm//iseedphom.html>

[3] <http://www.ipm.iastate.edu/ipm/icm//ismvbpd.html>

IOWA STATE UNIVERSITY
University Extension