

Nigrospora Ear and Cob Rot

Nigrospora ear and cob rot is a fungal disease caused by *Nigrospora oryzae*. The disease can occur throughout corn growing areas, although it is rarely seen. When the disease occurs, it often goes unnoticed until harvest. Although *N. oryzae* does not produce mycotoxins that are harmful to humans and livestock, like *Aspergillus*, *Fusarium* and *Gibberella* that cause other ear rots, it can cause considerable damage to ears, kernels, and cobs, reducing yield and quality.

Disease Development

The disease occurs late in the season and is an indirect result of any biotic (living) or abiotic (non-living) factor that might hinder good crop development. *N. oryzae* is a weak pathogen that attacks plants already damaged or killed prematurely by drought, frost, root injury, diseases and insects. Corn grown in soil with low fertility tends to be more susceptible to the disease because poor fertility may lead to premature plant death. Infection typically begins and becomes more severe at the base of the ear, although it can begin at the ear tip. The fungus survives year-to-year on corn residue.

Symptoms

Symptoms of Nigrospora ear and cob rot are seldom noticed before harvest. Notable symptoms include:

- Dark gray or black mold (fungal mycelia) on and between kernels (Figure 1)
- Small, black fungal spores on the surface of kernels, forming at the tip end of the ear (These spores can be removed easily by rubbing them with your finger) (Figure 2)
- Kernels that are slightly bleached and have white streaks extending from tips to crowns
- Infected ears that weigh less than healthy ears, are chaffy, and have kernels that are loose on the cob



Figure 1. Dark gray mycelia at base of ear. Photo courtesy of Gary Munkvold, Iowa State University.

- Kernels that can be easily pushed into infected cobs
- Cobs with a brown, tattered appearance at the shank
- Shredding of shanks, bases and cobs during mechanical harvesting and shelling (Figure 3)

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Management

Because *N. oryzae* attacks plants already weakened, management practices that promote general plant health may minimize the risk of the disease.

- Select corn products with good stalk strength and a solid disease package to help decrease the potential of plants being killed prematurely by foliar and stalk diseases.
- Reduce stress on plants by maintaining optimal fertility and effective insect pest management.
- Avoid following corn with corn, especially under conservation tillage. *N. oryzae* fungal spores can overwinter on residue and under favorable conditions, increase the potential for the disease to develop in continuous corn.
- Utilize proper drying and storage practices to help minimize further fungal growth in stored grain.

Sources

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Legal Statements

Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

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Figure 2. Nigrospora infected ear with black spores in pith. Photo courtesy of Don White, University of Illinois, retired.



Figure 3. Shredded cob. Photo courtesy of Don White, University of Illinois, retired.