There are many pathogens that cause ear rots. Identify which ones are associated with mycotoxin contamination!

With corn harvest approaching, excessive rain and high humidity raise concerns about ear rots, sprouting, and the risk of mycotoxin contamination. Mycotoxins are toxic compounds produced by fungal pathogens of maize (and other grain crops) that cause ear rots and decrease the quality of grain and silage. Contamination with mycotoxins occurs in the field when environmental conditions are favorable for disease development. At harvest, grain drying is critical to stop fungal growth and further mycotoxin contamination, however, since mycotoxins are highly stable, drying will not reduce the already existing mycotoxin levels in grain.

It is important to note that not all pathogens that cause ear rots produce mycotoxins. Before making any decision related to management of grain affected by ear rots and mycotoxins, you should correctly identify the type of ear rot(s) impacting your crop. There are many fungal species associated with ear rots, however, there are distinctive characteristics and scouting tips that you can use to identify the causal agent and to know if there is a risk for mycotoxin contamination.

The most common ear rots in Pennsylvania are:

- **Diplodia ear rot**: Caused by *Stenocarpella maydis* (*Diplodia maydis*) and *Stenocarpella macropora*. Signs of the disease include a gray to brown mold mat that starts to develop at the base, middle or tip of the ear, and black specks (pycnidia) on the husks, shanks, and kernels. The causal agent is capable of producing toxins called diplodiatoxins and chaetoglobosins that have been reported to cause intoxication in ruminants (diploodiaosis) in South Africa, Australia, Brazil and Argentina, however, there have been no reports of diploodiaosis in the United States.

- **Gibberella ear rot**: Caused by *Fusarium graminearum* and favored by cool and humid weather conditions. Symptoms include a reddish discoloration that begins at the tip of the ear, where a red to bright pink mold develops toward the base of the ear. The fungus may contaminate corn with the mycotoxins deoxynivalenol (also known as DON or Vomitoxin) and Zearalenone, that can cause feed refusal and reproductive problems in farm animals, respectively. There many online resources with useful tools for identification of Gibberella and sampling corn for DON.

- **Trichoderma ear rot**: Caused by *Trichoderma viride*, and favored by excessive rain. Signs include a dark green mold growth that covers most of the ear (on and between the kernels) and can also be observed on the husks. No mycotoxin issues have been associated with Trichoderma ear rot.

- **Fusarium ear rot**: Caused by many different *Fusarium* species. Signs include a brown discoloration or a white mold on scattered kernels. Affected kernels may also show a starburst pattern (white streaks radiating from the point where the silk was attached). Fusarium ear rot may lead to contamination with mycotoxins called fumonisins, that are highly toxic for horses and swine.

- **Penicillium ear rot**: Caused by several *Penicillium* species. Signs include a green-blue powdery mold between kernels near the tip of the ear. Different Penicillium species affecting different maize can produce mycotoxins, however, these are considered to be a greater problem in silage.

Once you have identified the type(s) of ear rots in your field, you should assess the severity and the extent of the damage. Scout before harvest and pay particular attention to areas in your field that have been exposed to the most severe weather conditions.
conditions. If the risk of mycotoxins is high, it is recommended to contact your crop insurance agent and take a proper sample for mycotoxin testing.

If your corn tests positive for mycotoxins, that does not mean you have to dispose of it right away. Depending on the levels of mycotoxins, there are maximum limits and recommendations that can guide you on what to do with the contaminated grain. There are also recommendations for next growing season that can help you reduce the risk of mycotoxins that include hybrid selection, insect protection, and residue management.

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