



## THE HISTORY OF DEOXYNIVALENOL



More than a century ago, plant pathologists in Europe and the United States associated wheat head blight with infections by *Fusarium graminearum* (*F. graminearum*), which produces deoxynivalenol (DON) and Nivalenol (NIV).

During World War II, consumption of over-wintered grain contaminated by *F. sporotrichioides* and related species caused alimentary toxic aleukia and deaths of hundreds of thousands of people in the former Soviet Union. During the 1970s in Japan, *F. graminearum* caused severe epidemics of akakabi-byo (red mold disease) on green wheat and other grains. People who ate products containing such contaminated grains typically developed nausea, vomiting, diarrhea, hemorrhaging, anemia, and other symptoms of trichothecene toxicosis. In 1972, Japanese scientists were successful in identifying DON and NIV in grain infected with *F. graminearum* (Desjardins, 2003). Japanese researchers named it “Rd-toxin” (Moorooka et al., 1972). Shortly thereafter, the same mycotoxin was isolated from maize associated with emesis in pigs and given the name vomitoxin (Vesonder et al., 1973).



# FUSARIUM GRAMINEARUM

## Remember:

- *F. graminearum* is a plant pathogen which causes fusarium head blight, a devastating disease on wheat and barley. The pathogen is responsible for billions of dollars in economic losses worldwide each year.
- *F. graminearum* infection causes shifts in the amino acid composition of wheat, resulting in shriveled kernels and contaminating the remaining grain with mycotoxins, mainly DON, which inhibits protein biosynthesis; and zearalenone



## Good to know:

In 5 minutes, the ROSA DONQ-WETS5 test enables grain and feed producers to quantitatively detect DON or vomitoxin. This Rapid One Step Assay is a quantitative lateral flow test that is read in the Charm EZ-M system or the ROSA-M Reader. Samples are extracted with water. The ROSA DONQ- WETS5 test has been validated by Charm for many different commodities.

## References:

1. Desjardins A.E., Trichothecenes: from Yellow Rain to Green Wheat. ASM News / Volume 69, Number 4, 2003.
2. Moorooka, N., Uratsuji, N., Yoshizawa, T., Yamamoto, H., 1972. Studies on the toxic substances in barley infected with Fusarium spp. J. Food Hyg. Soc. Jpn. 13, 368-375.
3. Vesonder, R.F., Ciegler, A., Jensen, A.H., 1973. Isolation of the emetic principle from Fusarium-infected corn. Appl. Microbiol. 26, 1008-1010.