

# Corn stalk rot survey – 2018: Northwest Minnesota

Cooperators: Personnel visited fields of cooperating producers in Marshall, Pennington, Polk, Red Lake and Roseau Counties.

**Purpose of Study:**

During a fall survey of 29 corn fields in Polk, Red Lake, Pennington, Marshall and Roseau counties in NW MN for European corn borer, personnel also indirectly assessed stalk rot using a “standard” push-test. Briefly, 20 random plants in each field were collected below the ear and pushed more than 30 degrees from vertical. Plants ‘failed’ this test by permanently bending or breaking and not returning upright, indicating presence of stalk rot.

This survey was not designed to differentiate between stalk quality issues caused by disease or other stressors but rather to assess standability of the 2018 corn crop.

**Results:**

Developing corn kernels place a very high demand on the plant for sugars. Stress reduces the rate of photosynthesis, thereby reducing the amount of sugar the plant is able to produce. Many different stresses can reduce the rate of photosynthesis: too much or too little moisture, nutrient imbalances, plant injury (ex.: hail, insects, diseases), excessive plant populations, and even long-periods of cloudy weather.

Hybrid genetics and/or high yield potential combined with stress during grain fill can increase the probability of stalk quality issues. Stalk quality tends to decrease the longer the crop remains in the field unharvested.

If the plant is unable to keep up with kernel sugar demand, the plant can rob sugars from stalk tissue, deteriorating stalk integrity and perhaps predisposing it to stalk rots.

In Northwest MN, the percentage of plants suffering from stalk rot ranged from a low of 5 percent (9 fields) to a high of 100 percent (1 field; Figures 1 and 2). Sixty-nine percent of the fields had stalk quality issues that might impact harvestability.

Crop stressors in 2018 included lower than average rainfall during much of the grain-fill period. According to the Midwest Regional Climate Center, from July 1 through August 31 northwestern Minnesota counties accumulated less than 75% of the 30-year normal precipitation.

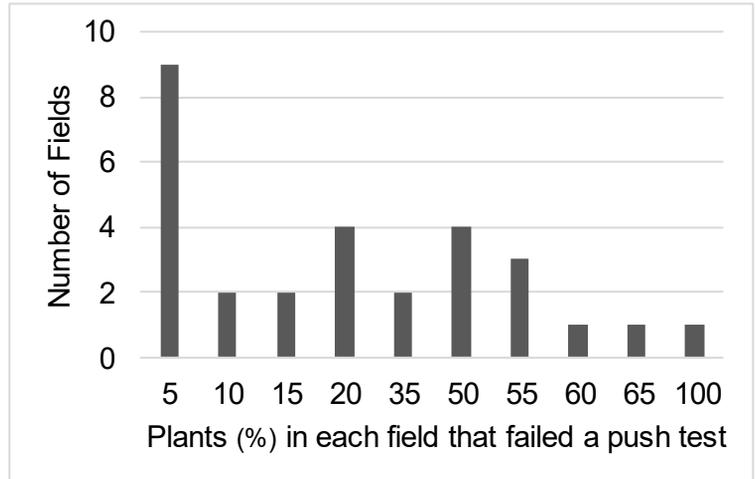


Fig. 1. The percentage of plants failing the push test and number of surveyed fields (2018).

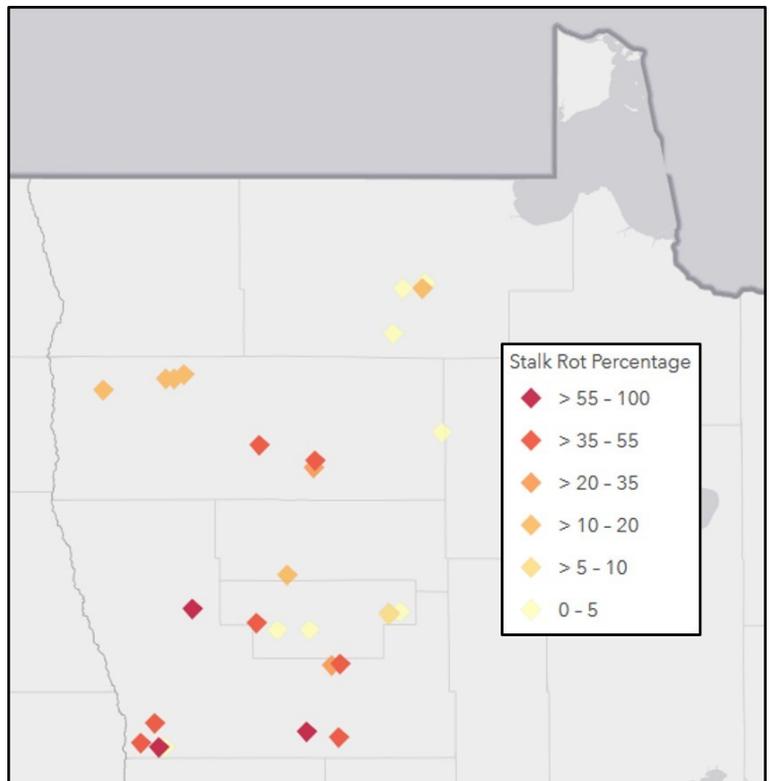


Figure 2. The location of fields surveyed and the stalk rot percentage in each field in 2018.