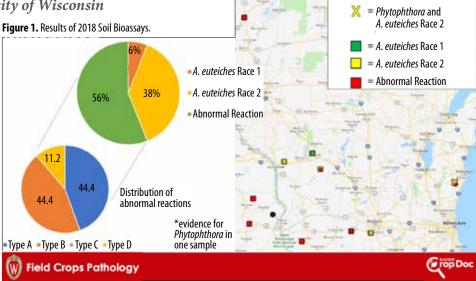
FORAGE RESEARCH UPDATES

WISCONSIN- New Races of Aphanomyces euteiches?

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urrently, there are two accepted races of A. euteiches causing alfalfa root rot in the Midwest, typically managed using resistant cultivars. However, recent observations indicate considered resistant to races 1 and 2 are not as effective as before. Previous research from 2008 by UW graduate student Amy Gibbs indicated a range of A. euteiches populations in 255 soil samples collected in WI and Southeast MN. Just 36% of samples



Inconclusive Test

were identified to contain A. euteiches races 1 or 2. Approximately 41% of the samples resulted in a reaction considered "abnormal" when using the conventional bioassay to identify what races of A. euteiches are present. Abnormal reactions can be one of four types: type A – susceptible reactions even on resistant cultivars; type B – resistant cultivars giving inconsistent reactions relative to each other; type C – reactions by race-1 resistant cultivar not different from susceptible or resistant cultivars; and type D – reactions by resistant cultivars scoring worse than susceptible cultivars. Follow-up work by graduate student Victoria Seitz led to the isolation of several individuals of A. euteiches that were highly aggressive on alfalfa cultivars considered highly resistant to A. euteiches race 1 and 2. Seitz concluded there likely was at least one new race of A. euteiches, and maybe more. In 2018 we conducted additional soil sampling and bioassays. Bioassays were carried out in a similar fashion as Gibbs performed from 2005-2008. Soil was collected from Northeast IA and WI, for a total of 17 samples tested. In 2018, ~6% of samples were identified to have A. euteiches race 1, 38% had race 2 (Figure 1). Abnormal reactions accounted for 56% of bioassay reactions. Of abnormal reactions, equal proportions of 44.4% were type A and B reactions, with no type C reactions and just 11.2% type D reactions. The results in 2018 are similar to Gibbs with a slight increase in abnormal reactions. Abnormal reactions are supporting evidence that additional races of A. euteiches likely exist in the Midwest. In order to manage emerging races of A. euteiches, alfalfa breeders will need to identify new resistant germplasm. Pathogen screening will need to be performed using newly identified isolates of A. euteiches.