

Progress Report for Research and Development in IPM - 1997

Title: Ability of a Rye Cover Crop to Suppress Yellow Nutsedge

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ABSTRACT

Cereal rye cover crops are widely documented to contain allelopathic chemicals which suppress weeds. Yellow nutsedge is a major weed problem in NY field corn which generally requires the use of restricted-use pesticides to control it. This study was designed to confirm an observation from a 1996 study, which suggested that rye cover crops might be highly effective at reducing yellow nutsedge interference in corn. A field study was begun in September 1997 in which a rye cover crop was established at two different dates. Soil samples were taken to establish existing yellow nutsedge levels in each plot of the field, which was observed in August to have a heavy infestation of nutsedge. In spring, nutsedge emergence in the treatments will be compared among the treatments: whole rye plants, rye roots, rye tops, a chemically inert mulch, and no mulch. In summer, soil samples will again be taken to compare nutsedge nutlet numbers with those from this fall. A simultaneous greenhouse study with similar treatments will enable further comparison of nutsedge growth with and without rye.

Technical report of work in progress

A field research trial on the ability of a rye cover crop to suppress yellow nutsedge was established at Field M of the Musgrave Research Farm in Aurora on September 2, 1997. The experimental design is split-split plot randomized complete block, with 6 replications. Main plots will be either untilled or tilled in spring, subplots were seeded with rye either on September 2 or October 2, 1997, and sub-subplots will be have either whole rye, rye tops, rye roots, poplar excelsior (inert) mulch, or no residue. This field was selected for its consistently high native yellow nutsedge population. Due to a determination that nutlet populations would not change after the entire field was first disked (killing standing nutsedge) on September 2, we did not take early and late fall soil samples to determine nutlet populations, but only one on November 20-23. Twenty 7/8" soil samples have been taken from each plot to quantify starting nutsedge nutlet population, though these samples have not yet been processed.

The greenhouse portion of this experiment will be established in mid-December. First, rye will be grown and then leached to be applied as one of the control treatments. Then, after the leached rye is available for surface application, pots of rye and nutsedge will be established and growing over Christmas break, with data to be gathered in January and February.

For a printed copy of the entire report, please contact the NYS IPM office at:

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