

NEW JERSEY GRAIN AND FORAGE JOURNAL

*A COMPILATION OF RESEARCH AND
EXTENSION PROJECTS IN CORN, SOYBEAN, SMALL
GRAIN AND FORAGE*

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PREFACE

This is the sixth edition of the New Jersey Grain and Forage Journal, an annual journal highlighting research and extension projects in field crops. Traditionally the publication has presented work conducted in New Jersey. This year articles from Delaware and Pennsylvania are included as a result of collaborative efforts by field and forage crop agents, specialists and researchers from the Mid-Atlantic region.

Grain and forage production represents the largest agricultural acreage in the Mid-Atlantic States, adding significantly to and supporting related industries. Not only does this support the local and regional economy, but also provides the benefits of open space to the residents of the region.

We would like to acknowledge and thank the New Jersey Soybean Board and Grain and Forage Producers' Association for their financial support. The Soybean Board allocates soybean checkoff funds for research and promotional activities that benefit the soybean industry. The Grain and Forage Producers' Association promotes research, marketing, legislation and education related to the grain and forage industry.

We hope that these results will be helpful to you as you plant and produce crops in the 2000 growing season and beyond. Your suggestions for research and educational projects are always welcome, as it is our desire to develop programs that serve you most important needs.

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Summary of the 1998 Field Scouting for the South Jersey Crop Improvement Association

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- Research Question** In 1998, twenty farmers enrolled 2,883 acres of corn, alfalfa and wheat in the South Jersey Crop Improvement Association (SJCIA) scouting program. The acreage enrolled included 2,423 acres of corn, 460 acres of alfalfa, and 75 acres wheat. Scouting programs offered full season scouting, summer scouting (alfalfa from 2nd cutting), and dairyman's special, which included 3 field visits on silage corn for stand counts, soil samples for nitrogen quick test, and moisture determination for silage maturity. About 80% of the corn acreage was in the dairyman's special.
- Literature Review** Field scouting has been offered by SJCIA for eleven years. 1998 was the second year that farmers were given the opportunity to select particular programs.
- Study Description** Fields were scouted in Mercer and Monmouth Counties, and counties south, with most acreage in Salem County. Field visits for alfalfa were always on a seven to ten day schedule, and full season scouting on corn was weekly from planting until silage harvest, or until the end of corn rootworm season on grain corn.
- Applied Questions** *What were the most important results from the field scouting?*
- Among insect pests, potato leafhopper was the most significant. Three out of 43 fields did not reach threshold, 7 fields reached threshold once, and the remaining 33 fields attained threshold 2 to 6 times. On the average, field scouts reported a field at threshold on one in four scouting visits to alfalfa fields. Reviewing past scouting records places 1998, along with 1997 and 1991, as one of the 3 worst years for potato leafhopper pressure in the past eleven years.
- Dry weather encouraged populations of two otherwise rare alfalfa pests. Spotted alfalfa aphids and two-spotted spider mites were locally abundant in late summer and early fall (each pest heavily infested 2 fields) and were most abundant

on moisture stressed alfalfa. It was difficult to ascertain the adverse effects the aphids and mites had on the already stressed plants.

Spring black stem, a fungal disease that attacks the lower portion of alfalfa stems, was prevalent in spring 1998 in fields with abundant moisture and infested with blue alfalfa aphids. Feeding stress from the aphids made the plants more susceptible to the fungus. Infected stems turned brown and growth was stunted. Sometimes the infection can be so severe as to kill the top-growth by girdling the stems, but dead stems were not observed.

What were the results of the nitrogen quick test sampling?

One hundred and fifty-six fields were sampled this year to determine soil nitrate-N concentrations and nitrogen (N) recommendations for field corn. Assuming that 155 lb/A N is normally applied to corn and that N costs approximately \$0.28 per pound, and those farmers followed our recommendations, our farmers saw savings of about \$45,000 compared to normal practices.

Recommendations

We encourage field scouting for any agricultural farming activity regardless of the commodity. Farmers are not always fully aware of pest and soil conditions in their fields or plantings. Field scouting does not always reduce fertilizer and pesticide use and in some situations may actually increase their use to better manage adverse soil and pest conditions.

Specific recommendations include:

1. Either spray or harvest alfalfa early when leafhoppers attain threshold levels.
2. Cut alfalfa cleanly so as not to leave protected, matted down patches of alfalfa in the field to harbor leafhoppers.
3. Have a nitrogen quick-test sample taken from any cornfield that has been receiving manure or bio-solids.

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