Agronomic Division — 2000 Annual Report
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helping to address nutrient management and environmental issues

Thousands of citizens across North Carolina continue to use analytical and advisory services provided by the Agronomic Division to enhance agricultural productivity and environmental quality. With increased emphasis on improving nutrient management and developing new technologies, NCDA&CS support of agronomic services, education, and research is more important than ever. Highlights from the past year' s activities follow.

SERVICE

In fiscal year 1999-2000, our laboratories processed more than 356,000 soil, nematode, plant tissue, waste, and solution samples — despite the unprecedented flooding in eastern North Carolina during the fall of 1999. Our workload included chemical analyses of a record number of plant tissue and waste samples along with the second all-time highest number of nematode assays. We conducted nematode assays for about 400 diagnostic samples from the Plant Disease and Insect Clinic at North Carolina State University (NCSU) and 225 regulatory samples for the Plant Industry Division. More than 55,600 agronomic advisory reports were issued.

Specialists in each section of the division provided farmers, homeowners and industry leaders with technical advice and recommendations for efficient crop fertilization, bio-solid land applications and effective nematode management. Within the Field Services section, 14 regional agronomists stationed throughout the state conducted on-site assessments for growers; assisted with land management and plant growth problems; and counseled producers on taking representative samples, interpreting reports, and implementing nutrient management plans. Direct consultations and phone contacts totaled more than 17,000.

Regional agronomists responded to hundreds of requests regarding environmental issues— primarily waste management plan revisions or clarifications, regulatory updates, river basin oversight reviews, and participation in local advisory committees. Technical expertise and service were provided for several regional and statewide environmental projects in cooperation with the N.C. Department of Environment and Natural Resources (DENR) Division of Air Quality; N.C. DENR Division of Soil and Water Conservation; N.C. DENR Division of Water Quality; N.C. Dept. of Transportation (Roadside Environmental Unit); NCSU, including its Neuse River Crop Management Project; and USDA Natural Resource Conservation Service. Twelve Agronomic Division staff members also served as volunteers and assisted with NCDA&CS farm inspections to review claims of flood damage to crop land, farm equipment, buildings, etc. in eastern counties following Hurricane Floyd.

The soil testing and waste analysis laboratories continued to operate under N.C. DENR Division of Water Quality' s wastewater certification program and are qualified to provide testing for animal waste permit compliance. A new Perkin Elmer 3300DV ICP (inductively coupled plasmaspectrometer)

instrument was acquired for more efficient and timely analyses of essential elements and selected heavy metals in plant, waste, and solution samples. Crop codes have been revised as needed to update nutrient recommendations.

EDUCATION

Agronomic Division specialists and regional agronomists reach thousands of growers, homeowners, and agricultural professionals through a wide range of educational activities. In fiscal year 1999-2000, 28 tours of agronomic laboratory facilities were conducted for students, farmers, master gardeners, agribusiness groups, and 31 scientific visitors from out of state. Virtual tours of the division' s services and facilities are also provided via the Internet. Throughout the year, agronomic information is disseminated at farm shows, at field days, during training conferences, and through mass media. Outreach this year included 20 news releases, 4 technical publications, and 27 technical exhibits.

Last summer and fall, educational efforts focused on a series of personal success stories telling how regional agronomists have helped specific growers. In addition, a series of educational meetings was conducted with more than 100 agricultural consultants, fertilizer dealers, and key farmers on how to prepare and ship soil samples, including introduction of a new shipping box to facilitate sample receiving operations. Two posters—*History of Soil Testing in North Carolina* and *Soil Test Methodologies of Dr. Adolph Mehlich*—were presented at the national American Society of Agronomy annual meeting in Minnesota. In-house technical training has also been emphasized through special sessions for our chemistry technicians and regional agronomists.

Safeguarding environmental quality continues to be a top priority for the division as we have continued to work with NCSU and N.C. DENR Division of Water Quality to provide operator field training for waste water systems and related bio-solid management. This training is part of the state' s efforts to clean up our rivers and to more aggressively protect the environment. Regional agronomists also cooperated with the Plant Food Association of North Carolina to conduct two training schools for operators of fertilizer spreader trucks.

RESEARCH

Our staff routinely conducts collaborative studies with university personnel, farmers and industry specialists. In fiscal year 1999-2000, regional agronomists conducted a total of 74 research and demonstration projects in fields throughout the state. These projects are designed primarily to optimize fertilizer rates, waste utilization, cotton tissue sampling, and use of organic material as nutrient sources. During the same period, our laboratories processed more than 2,700 soil samples, about 1,200 plant/waste/solution samples and almost 400 nematode assays for cooperative research.

The plant/waste/solution lab has conducted a major study to compare leaf and petiole tissue analyses needed to update nutrient management strategies for cotton. The soil testing lab has been evaluating new robotic pH measurement instrumentation. The nematode assay lab has developed a new micro-bioassay procedure for soybean cyst nematode race screening tests and has installed an automatic watering system to increase reliability of our greenhouse bioassays. Data are also being collected for samples

from flooded field sites, studies of changing nematode populations under various treatments, evaluation of GPS (global positioning system) sampling techniques, and new waste management technologies. Information obtained from these projects will help improve agronomic services and nutrient recommendations for all of our clientele.