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Nitrogen Nutrition of Cotton:

Practical Issues

**Proceedings
of
First Annual Workshop
for
Practicing Agronomists**

**Nitrogen Nutrition
of Cotton:
Practical Issues**

Edited by
W.N. Miley and D.M. Oosterhuis

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PREFACE

For several years prior to 1990, national officers of the American Society of Agronomy (ASA) had discussed the desirability of tailoring informational programs more to the needs and interests of practicing agronomists, including agricultural consultants. Needs for such programs have also been discussed by many agronomic division representatives who recognize that presentations in specific disciplines are often too technical and too compartmentalized for needs of practicing agronomists.

In 1989, Edward Runge, ASA president, appointed Wilbur Frye, past president of the ASA Southern Branch, to lead in organizing such a program as part of the 1990 ASA Southern Branch annual meeting in Little Rock, Arkansas. Dr. Frye appointed a chairman who helped him select a program committee. Upon request, James Ladlie, president of the National Alliance of Independent Crop Consultants, asked for and received the agreement of his organization's board of directors to help sponsor the workshop. He also appointed a member of the Alliance to help plan the program.

The program committee met once in Memphis in June, 1989 and decided to conduct a one-day workshop in conjunction with the 1990 ASA Southern Branch meeting. Considering the large number of agricultural consultants in the mid-South and the interests of many of these in cotton, the committee selected "Cotton Nitrogen Nutrition -- Practical Issues" as the program topic. The committee invited several commercial companies to help finance a continental breakfast and refreshments during the conference. The five companies who graciously responded are shown in the following list of sponsors and contributors.

We, as members of the program committee and of the society, thank the authors who prepared, presented and supplied typed copies of their papers. Thanks are also expressed to John Mortvedt, past president of the Soil Science Society of America, and to W.L. Hargrove, president of the ASA Southern Branch, for their helpful advice and assistance. We also appreciate the valuable contribution of Woody Miley and Derrick Oosterhuis for editing and typesetting the papers. In addition, ASA is commended for agreeing to publish and distribute these proceedings. Similar workshops for practicing agronomists are planned for the 1991 Southern Branch ASA meeting and also as part of the 1990 National ASA meetings.

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The society and the organizing committee gratefully acknowledge the contribution and participation by all involved.

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WELCOME TO THE FIRST ASA PRACTICING AGRONOMIST WORKSHOP

Edward C.A. Runge

Past President

American Society of Agronomy

Department of Agronomy

Texas A&M University

College Station, Texas

I am very pleased to welcome you to the First American Society of Agronomy (ASA) Practicing Agronomist Workshop for the Southern Region of the United States. The workshop grew out of efforts by several ASA leaders, including yours truly, as Past President of ASA, Dr. John Mortvedt, Past President of SSSA, Dr. Wilbur Frye, Past President of Southern Branch ASA, and others to develop Society programs to better serve the agronomy practitioners and consultants. Dr. Woody Miley, Extension Soils Specialist, University of Arkansas Cooperative Extension Service, Little Rock, chaired the planning committee that organized the workshop. The workshop was sponsored jointly by the Southern Branch ASA, National Alliance on Independent Crop Consultants, Potash and Phosphate Institute, American Society of Agronomy and various commercial sponsors. Commercial sponsors included A&L Agricultural Laboratories, Arcadian Corporation, Cargill, IMC, and Mississippi Chemical Corporation.

Let me digress a minute. What do you tell people when they ask you what you do? I enjoy answering the question and I usually say "We are Agronomists, we are the Engineers of the Plant World. We make plants grow better!" We can be very proud of our accomplishments. We have helped a lot of people obtain a better life, but our research is only beneficial if it is transferred to the producers of our commodities. That is where you, the practicing agronomists, come in.

In my lifetime much has improved in U.S. agriculture. I would like to review these changes with you by summarizing research accomplishments by eras. The first era that improved agriculture was the MECHANICAL

ERA. I remember when my father purchased his first tractor. The back-breaking labor has pretty well disappeared from US agriculture. The next era was the PLANT BREEDING ERA. This era actually began many years ago but wasn't recognized as important in improving agriculture until the advent of hybrid corn. However, the PLANT BREEDING ERA needed to wait for the FERTILITY ERA before the true genetic potential of the plant could be expressed. The FERTILITY ERA really was emphasized after World War I, and again after World War II, when the ammonium nitrate plants were no longer needed for explosives. The HERBICIDE-INSECTICIDE-FUNGICIDE ERA started after World War II. I remember the first time 2,4-D was used to kill broadleaf weeds in our corn fields. It was a vast improvement over hand weeding! It seemed mysterious that you could kill weeds with such small amounts of chemicals. These eras are still with us and make major contributions to U.S. agriculture. The new eras that are now upon us are the BIOTECH AND INFORMATION ERAS. These eras promise great advancements within the next few years. All these eras have reduced labor on the farm and have increased the purchase of off-farm inputs.

Many of you are concerned about what sustainable agriculture means for us. All of us are interested in food quality, water quality and a quality environment. We want to be a part of achieving such an objective. Somehow or other we have hidden our achievements too well from the public. In fact, we have always considered ourselves environmentalists. The public is not aware that our highly productive and technological agriculture is subject to major disruption if over-regulated, particularly if over-regulated for the wrong reasons. If we eliminate chemicals, fertilizers, etc., we will have to increase labor and management on our farms. However, even if those infusions of labor and management can be made available, we would still have major decreases in yield and total production. This should be a major concern for us and the general public.

We need to enhance the prestige of agronomic, agricultural, and environmental professionals, i.e., all of you. Prestige comes by having high standards and ethics, good credentials, and excellent education; by making the latest knowledge available so it can be applied; and by influencing policy makers to recognize those professionals with this expertise. I am pleased that the American Society of Agronomy has made great strides in this area. We have established a division A-8 for the Practicing Professional Agronomist. We are in the process of hiring a Director for Professional Services at the ASA Headquarters for the support and development of needed educational programs. We are also working with other societies to develop a Registry for Environmental and Agricultural Professionals. We feel these actions will better serve U.S. agriculture

and also enhance the reputation and prestige of the practicing professional.

Let's not be insulted when people ask us if agriculture is sustainable. Let us not feel threatened when individuals in our society want their food produced organically. That is their choice in a free society. We need to increase our self-confidence by making the latest information available so that our advice is valued and our profession is highly recognized. Hopefully the American Society of Agronomy will continue to lead the way in accomplishing these goals.

Again, my thanks to Woody Miley, Wilbur Frye and the planning committee for arranging this workshop on Nitrogen Nutrition of Cotton. Have a good Workshop!