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LETTERS

Effect of Anhydrous NH_3 On Soil Microflora

DEAR SIR:

In the April 29th issue of *AG & FOOD*, page 206, appears an item on liquid fertilizers which may be very misleading. R. W. Simmons of Bellingham, Wash., states that California citrus growers are using a certain type of fertilizer "to help restore the soil microflora killed off in recent years by too enthusiastic injection of anhydrous ammonia." This statement surprised me. I consulted W. B. Andrews, agronomist at the Mississippi Agricultural Experiment Station, who is one of the outstanding experts on the use of anhydrous ammonia for fertilizer purposes, about the implications of Mr. Simmons' statement. His comments follow:

"I have no research on the effect of anhydrous ammonia on the microflora. However, there are a few things which we know. First, anhydrous ammonia is a partial sterilant.

"Where we applied 100 pounds of nitrogen per acre as anhydrous ammonia in 42-inch rows on a sandy loam soil a cross section of about 16 square inches of soil was made alkaline by ammonia; which, no doubt, at least partially sterilized this cross section.

"The 16-inch cross section is one ninth of the top six inches, and probably not more than one fiftieth of the root zone. As you know, if this small volume of soil could be completely sterilized its effect on all of the soil would not be measurable.

"In the zone of application where the ammonia is concentrated germinating seeds are killed. Young plants are killed if all their roots grow into this zone. Plants feed in the less concentrated zone.

"In the course of four to six weeks ammonia is nitrified, and the nitrates leach out of this zone. Nitrification is carried on by microorganisms which must have been present throughout, or they invaded the affected soil. Other microorganisms would also invade this area if killed off.

"The rapidity with which microorganisms multiply is such that within 24 hours any considered deficiency of them should be made up when conditions are again favorable to them. In this connection it should be kept in mind that anhydrous ammonia does not affect a solid cross section of the soil; it forms a diffused pattern. No doubt, many localized spots within this zone are not affected.

"It appears to me that an assumption

that anhydrous ammonia adversely affects the supply of microorganisms in the soil is absurd."

VINCENT SAUCHELLI
Director, Agricultural Research
Davison Chemical Corp.

Liked April Issues

DEAR SIR:

Our sincere thanks for the April 15 and April 29 issues of the *JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY*.

As we have been in the food supplement business in one form or another for the past 15 years, it has been necessary for us to keep informed and up to date on various phases pertaining to our work.

Needless to say we have subscribed to and have had many magazines and books sent to us in regard to soil, minerals, vitamins, and so forth. We are glad to tell you that we think *AG AND FOOD* the most complete, factual, and up-to-date data we have ever received.

Your article on the importance of amino acids, in your April 29 issue, was of particular interest to us, as we have recently added to our food supplement products, amino acids in a liquid sea weed base.

We have representatives and managers in various states. I am anxious that our key people receive the April 15 and particularly the April 29 issues, as I feel sure when they read same, they will be anxious to subscribe.

AG AND FOOD is very timely—it meets a great need and I am sure your publication will be most successful.

D. B. MACNEILL
General Manager
Nutritional Industries of America

Favorite with Farm Directors

DEAR SIR:

The *JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY* is a masterpiece. It should rapidly become a favorite with radio farm directors. Surely no other group needs to know more about what chemical research is doing to aid him than the American farmer. He depends on research, and information such as contained in *AG AND FOOD*, to show him how to produce more for less.

Congratulations to the AMERICAN CHEMICAL SOCIETY, and the editorial staff of the *JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY*.

ROBERT S. WEBSTER
Radio Farm Director
James Broadcasting Co., Inc.