

Assuring the accuracy of soil tests

NEWARK, DE — A soil test is useful only if it's accurate. And the key to accuracy is quality control in the laboratory which analyzes the sample. This ensures that the numbers generated give reproducible results which

correlate with research. Without this assurance, fertilizer recommendations based on the test are meaningless.

A recent sample exchange among mid-Atlantic area soil laboratories shows that University

of Delaware Agricultural Experiment Station soil test results agree closely with those from university labs in Maryland, New Jersey and Virginia. This should reassure farmers who use these labs. Scientists at all four labs belong to a regional soil test work group established in 1975. Soil specialists from Pennsylvania, West Virginia, North Carolina and South Carolina also belong to the group.

Once a year the labs analyze

identical soil samples and compare results to check accuracy. Several commercial labs in the area participate as well.

Besides reporting results of a soil analysis, as part of this quality control process each laboratory also submits a set of fertilizer recommendations based on that analysis for common crops grown in the region. Members of the group then compare testing procedures and discuss the reasons for their recommendations.

"When we differ," says Dr. J. Thomas Sims, head of the University of Delaware soil laboratory, "we try to find out why." Soil variability and problems in soil sampling are the main reasons test results differ. Fertilizer recommendations—even those based upon identical results—may vary because of different concepts of plant nutrient needs and attitudes on the economics of fertilizer use. There are far fewer differences now than in 1975, and group members continue to work toward greater uniformity.

In the days of cheap fertilizer it was common to advise farmers to apply potassium and phosphorus on even high testing coastal plain soils, as a kind of yield insurance. Since then, Sims says research at the Delaware Agricultural Experiment Station and elsewhere

has demonstrated that this practice is often unnecessary.

Soil test interpretations may also differ, depending on how a crop is grown. Thus, though phosphorus can often be omitted on corn, in certain situations such as no-till it may be useful as a starter fertilizer to stimulate early seedling growth—especially in cold soils. Phosphorus may also help achieve high corn yields under irrigation.

"This year," Sims says, "all our Delaware recommendations are for specific crop yield goals, based on soil texture and whether the crop will be irrigated."

Because fertilizer is one of the most costly production inputs, the soil scientist suggests that, once farmers receive their soil test reports, they consider having these interpreted by more than one source—just as they would get another opinion before deciding on a course of medical treatment.

Membership in the mid-Atlantic soil test work group is a great help to the University of Delaware soil testing program, Sims says. It provides a means of group members to share much relevant information which can be applied to local crops and soil conditions, thus stretching research dollars at each participating institution. This kind of cooperation is possible because of similarities among many of the region's coastal plain soils.

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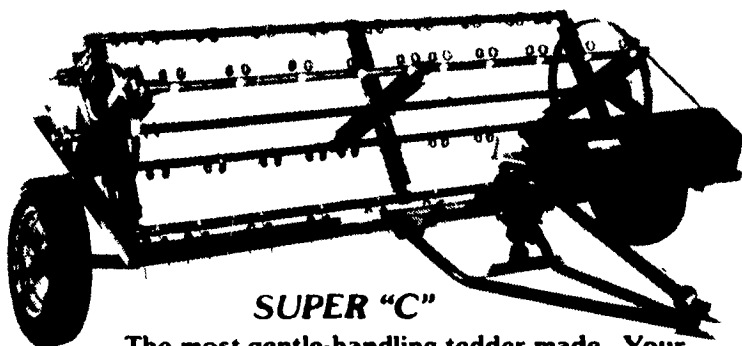


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