

world can be brought to bear upon the fertilizer-use problem of a given region.

Carefully controlled field experiments with fertilizers, conducted on the major soils and crops of the region, are another essential part of this second step. The objective of these field experiments is to evaluate the nutrient-supplying power of the soils in relation to the needs of the crops and the timing of these needs. This information must be obtained for the growing conditions of the area. The effects of liming, crop residue management, use of barnyard manures, and other soil management practices common to the area should be studied as they relate to the nutrient-supplying power of the soil. The results of these field experiments should be correlated with plant and soil analyses in order to develop the basis for advisory services to growers.

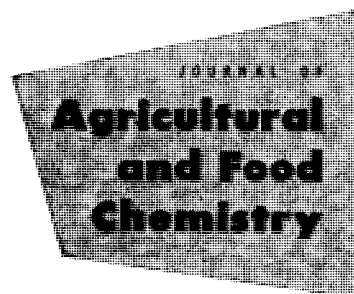
The amount of effort necessary for this type of research will depend on the complexity of the soil and cropping patterns in the region. This type of research is generally a continuing activity, with new problems becoming important with changes in cropping and fertilizer practices. Careful study of farmer experiences with fertilizers on the different soils and crops of the region can be useful in this stage of the program.

The third step toward achieving an adequate and balanced nutrient supply for the crops in a region is the development of educational and advisory services. The farmers and fertilizer dealers of the region need to recognize the differences and relationships among the soils of the region, and to be aware of the results of field experiments with fertilizers. Advisory services, staffed by people familiar with the soils, crops, and research results of the area, and utilizing soil and plant tissue tests where necessary, should be established.

A final necessary step is for the fertilizer industry to make available to farmers the materials and mixtures suggested by the research and advisory programs.

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