THE USE OF PHOSPHORUS FOR CROP PRODUCTION IN THE UNITED STATES

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The present world-wide conflict has increased tremendously the demands for agricultural products in the United States. The maximum production of these products involves a host of different factors, one of which is phosphatic fertilizers. In order to determine the most effective use of phosphorus, it is necessary to consider the kinds of phosphatic fertilizers, the present need for various crops, the response of crops to phosphorus in different regions of the United States, and transportation facilities for shipment of fertilizers.

Since our task is one of crop production, the question arises as to which crops should receive the most attention. It is difficult to place them in their proper order, but it may be assumed that food crops are the most important. Feed, fiber, and oil crops must also be given special emphasis. All must be produced in vast quantities.

Some of the most important food crops are corn, cereals, potatoes, beans, peas, peanuts, and vegetables. Feed crops, excluding those mentioned under food crops, include pastures, hays, and crops used as concentrates. Fiber and oil crops include soybeans, peanuts, cotton, flax, hemp, etc. No attempt is made to list all crops but those mentioned will serve to indicate crops which are essential to the war effort.

SUPPLY OF PHOSPHATIC FERTILIZERS

In 1941, the consumption of phosphorus as 18% superphosphate was approximately 5,085,000 tons. Approximately 93% of this amount was used in the Podzolic, Prairie Earths, and Red and Yellow Earths soil regions. The distribution in the eastern half of the United States was about 57% for the North and 43% for the South. Phosphorus consumption was increased in 1942, and it appears that about 7,000,000 tons will be available for use in 1943. Additional expansion of the phosphate industry is anticipated for 1944, and a tentative goal of 9,000,000 tons is urged. If 9,000,000 tons of 18% superphosphate are produced in 1944, there will be enough phosphorus available so that about 87 pounds per acre of 18% superphosphate could be applied to all the land on which the principal cultivated crops are grown. This is less than half the amount that would be used in the South if farmers would adhere to the experiment station recommendations, and it will be considerably less than the amount recommended for crops in the

FACTORS AFFECTING THE EFFICIENT USE OF PHOSPHORUS

The efficient use of phosphorus by plants is increased in many cases by fixation in difficultly available forms in the soil, and by a deficiency of plant food elements. Control of these factors is important and can be partially accomplished by placement of the fertilizers and by careful study of other nutrient levels by means of tissue and soil tests, or by observation of plant nutrient deficiencies.