6-1982

Fertilization of Double-Crop Soybeans

Grant W. Thomas
University of Kentucky

COOPERATIVE EXTENSION SERVICE

University of Kentucky, College of Agriculture
Lexington, Kentucky 40546

Department of Agronomy

Soil Science News & Views

Vol. 3, No. 5, June 1982

FERTILIZATION OF DOUBLE-CROP SOYBEANS

G. W. Thomas

The improvement of minimum-and no-tillage methods has helped increase the double-cropped acreage of soybeans in Kentucky to about 700,000 acres. Similar increases have been observed in our neighboring states. Most double-cropped soybeans in Kentucky follow winter wheat harvested for grain. Thus, they are at a disadvantage if the wheat leaves the soybean crop with a nutrient-deficient soil.

Generally speaking, wheat is a rather demanding crop for nutrients. Therefore, for best wheat yields one should have a soil that either tests between medium and high in phosphorus and potassium, or has been fertilized according to the soil test results. If this practice is followed, the wheat yields will not be limited by a lack of soil fertility.

Unlike wheat, soybeans do not show a strong response to applied nutrients. They do, however, show a strong response to very low levels of phosphorus & potassium and to low pH, and this response is one of disappointingly low yields. It makes sense, then, to make sure that soils in which soybeans are to be grown test at least medium in phosphorus and potassium and have a pH of 6.

The most economical way to handle the fertility requirements of both wheat and soybean crops in a double-cropping system is to fertilize for top yields on wheat and forget the soybeans unless some unusual problem arises. Using this system saves time, money and bother. With wheat harvested for grain and either properly fertilized or with an adequate soil test level to start with, the soybeans will be assured a season of good nutrition also. The enclosed table of data from Drs. Wells and Bitzer shows this effect clearly. Both P and K were at a high soil test level when the wheat was planted and there was no measurable response to potassium fertilizer. Thus, a high soil test for wheat provided plenty of potassium for the soybeans.

To summarize, in a wheat-soybean double-cropped system, use recommended levels of fertilization and lime, based on soil test, for the wheat. Then, when soybean planting time arrives you can forget the cost and time it takes to fertilize.

Effect of rate and time of potassium application on the yield of double-cropped soybeans after wheat on Lowell silt loam.

lbs K_2O/acre			Soybean Yield,
Fall	Spring	Total	bu/acre
0	0	0	45.7
60	0	60	41.9
0	60	60	44.1
120	0	120	45.5
0	120	120	38.9
60	60	120	41.1