THE AVAILABILITY OF THE POTASH OF THE SOIL AS MEASURED BY 
POT EXPERIMENTS WITH CORN

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Five grains of corn were selected and weighed nearly the same in all lots, and planted in each pot. 

Five-kilogram portions of a soil known to be deficient in 
potash, and hereafter called the basal soil, were weighed into 
2-gallon pots. In two series builder's sand was used as the 
basal soil, while in two later series the basal soil was Lufkin 
fine sandy loam. All pots in the same series received the same 
basal soil. To each pot of this soil were added 1 gram of 
ammonium nitrate, 1 gram of dicalcium phosphate, and a 
quantity of the soil to be studied calculated to contain 500 mg 
of total potash. All treatments were made in triplicate. 

In each series, one set of three pots of the basal soil received 
potassium sulfate containing 0.25 gram of potash. Sufficient 
water was added after thorough mixing of the soil to bring 
the water content of the soil to 50% of its water-holding 
capacity. 

During the period of rapid growth, the pots were weighed 
analyzed for total potash, and for potash removed by the corn 
expressed as percentage of total potash, and for potash re-

METHOD OF PROCEDURE 

Five-kilogram portions of a soil known to be deficient in 
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During the period of rapid growth, the pots were weighed 
and the crop was harvested by cutting the stalks at the ground, 
dried, and weighed. The stand of corn was thinned to three 
stalks per pot after the seedlings had made a fair growth. 

The soils used were analyzed for total potash, Lawrence Smith method (1), for acid-soluble 
digested with hydrochloric acid of 1.112 sp. gr. (2) active potash by extraction with 0.2 N nitric acid 
and for potash removed by the corn expressed as per-

RESULTS AND DISCUSSION 

Details of the four experiments are given in 

In series 142 the weight of the dried corn 
grown with 14 of the soils was greater 
grown with the addition of the potassium, 
but the crop fertilized with the potassium 
contained 1.97% potash, while none of the 
grown with the soils tested contained more 
0.80%. The quantity of potash removed by the 
soils tested is nearly twice as much as the 
quantity removed from any of the soils. Data 
for each experiment and the three other experiments 
the weight of the crop is not a good measure 
availability of the potash.

The corn removed 58.4% of the potas-

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