The design of this machine is not original or new; no detailed published account of others existing, however. Part of the design and supervision of construction was done by Mr. R. J. Morris of the Engineering Research Shop, N. C. State College. Labor cost was $160.00, and cost of materials $45.00. A limited supply of complete engineering drawings is available and will be sent on request to those interested in building a similar apparatus. Application to be made to the undersigned.-C. H. VAN BAVEL, Agronomy Department, N. C. State College, Raleigh, N. C.

WATER CONSUMPTION BY PLANTS AS INFLUENCED BY SOIL FERTILITY

The effect of soil fertility upon the water consumption of plants is not recognized by some agronomists and soil workers, though several researchers have previously upon this relation. The purpose of this report is to present the findings of this station which illustrate the effect of fertility upon the water consumption of several field crops.

Briggs and Shantz (1) in 1913 gave an extensive review of previous literature concerning water requirement (weight of water absorbed by the plant to the water produced) of crops which included the results of numerous investigators regarding the effect of fertility on consumption. These results, almost without exception, showed that the addition of fertilizer decreased the water requirement crops studied. Kiesselbach (2) found that the water requirement of corn was lowered by the addition of fertilizers supplied as animal manure or mineral fertilizers. Thorn and Holtz (3) found that addition of N, P, or K to an infertile soil decreased the water requirement of oats over that of oats grown on the unfertilized soil. Addition of Ca appeared to have no effect on the water requirement. Powers (4) and Powers and Lewis (5) reported that the addition of commercial fertilizers to a soil as well as crop rotation lowered the water requirement of various irrigated crops in Oregon. Sprague and Graber (6) have shown...