The topic proposed embraces some vital questions, and it is one which should certainly be of great interest and importance to every agronomist who has to do with field experiments. The elimination or control of the variable factors, so essential in experimentation of any sort, becomes unusually difficult in field experiments where we have to deal with so many uncontrollable conditions. One of the most serious of these factors is that of plot variation, due to soil differences, and this is a difficulty that we are bound to meet whether