What are Demonstration Plots?

The purpose of demonstration plots is to allow visual observation of differences between two or more treatments. However, demonstration plots, such as strip tests, may have a serious problem with field variability, which can make the results misleading. A statistical approach is a more meaningful way to compare treatments.

Replication is a key part of statistical methods because it addresses variability within a treatment due to other factors. However, farmers may not be willing to replicate treatments in a strip plot trial, with the same treatments applied to all farms. Thus, each farm is a replicate.

A second concern in the validity of demonstration plots is biasing results by placing a favorite treatment on a preferred block of land. This can be avoided by randomly allocating treatment positions in the field by some independent means (e.g. drawing numbers from a hat). Randomization of treatments within a field is an extremely important factor contributing to the final reliability of the results.

Example of a demonstration plot design – Here three treatments are compared. However, with no replication, there is no assessment of natural variability and differences between treatments cannot be validated statistically.

Example of a demonstration plot design – Here three treatments are compared. However, with no randomization, there is no assessment of natural variability and differences between treatments cannot be validated statistically.

Both replication and randomization are necessary for treatments to be analyzed statistically in order to determine whether or not differences between treatment means are real.

Source: 2002 On-Farm Cropping Trials Northwest and West Central Minnesota

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