

Tips on Trials

Feb. 2007



- Don't try to do more trials than you can manage well and report adequately. Your records are as important as what you do in the field. One excellent trial gets more notice than 5 ho-hum ones.
- When you are planning a trial, decide whether you want to evaluate the effect of a single *practice* (e.g., rotary hoeing vs. none) or two or more *systems* (e.g., ridge-till under two systems of weed management). In the first case, you want both treatments to be the same except for the practice in question. That could mean, in a trial of deep-banded fertilizer, that you have to apply extra nitrogen to all plots in order to focus solely on the effect of P and K. In the second case, you want a realistic version of each system. For example, if you would not ordinarily rotary hoe twice in ridge-till-with-herbicides, don't hoe that treatment just because you're out there hoeing another treatment in the neighboring strips!
- Report one trial on one, current-year reporting form. Don't try to double up!
- Report equipment **sizes** and number of **passes**. This is needed to calculate labor cost on a standard basis. Omitting this information assures you will get a follow-up call. ☹
- In any given trial, try to use the same treatment/replication identification code for tissue samples, soil nitrate samples, stalk nitrate samples, and reported yields.
- It's asking for trouble to try to do two experiments in one trial. Or a second trial on top of strip cropping. It gets almost impossible to hold the other factors constant. Trials that evaluate different levels of several factors are do-able (for example, \pm manure *and* \pm starter), but they need to be carefully designed.
- **Randomize** treatments in *each replication*! Also, if you randomize subtreatments (e.g. \pm starter) within wider, "main treatment" strips (e.g. manured strips and unmanured ones), report this. It makes a difference in the way results are analyzed.
- **Border rows** are very important, especially where one treatment might have a competitive advantage over another. Corn roots pull nitrogen from at least one row over. The same problem can occur in manure trials, especially where manure spreaders are used. Use your creativity to try to make this work with your equipment.
- Use old-style combine monitors with caution. Always load out at the same rpm and slope (as close to level as possible). Be alert for moisture and temperature changes. If your scale weighs to the closest 10 pounds, and you're weighing loads of several hundred pounds (three decimal places), you really have 3-1=2 significant digits. Heavier loads therefore have better overall precision, other things being equal.

- Report **your price** for proprietary products. This is needed for the economic analysis. Please give the complete name of products (e.g., *Assure II*, not just Assure).
- Fertilizer “**analysis**” on the form means **percent** NPK, reported with minus signs: (18-46-0). Fertilizer “**nutrients**” means **lbs per acre** of NPK, reported with plus signs (18+46+0). Using this convention will save questions.
- “UNITS: ___ PER ___” is asking for you to specify something like “pounds” per “acre,” or “parts” per “million.” “Units” is not asking for actual rates, but it usually follows the request for a rate.
- On the recording form, report *all* inputs or operations that differ among the treatments of the trial, whether you think they are important or not. The public (and history) can decide how important they are.
- Also report all inputs or operations that are the same over all treatments if they contribute to the treatments. Examples include a preplant N or manure application over both treatments in a nitrogen rate trial, or a preplant herbicide over all treatments in an evaluation of rotary hoeing.

- Report separate operations separately. Giving dates helps. In the example at right, follow-up was required for clarification.

AT PLANTING
 TREATMENT #1 ANALYSIS (NPK AS %): 9-23-30
 LBS/ACRE OF
 PRODUCT (e.g., 100 lbs/acre of 0-0-60): _____
 OR
 NUTRIENT (LBS/ACRE OF NITROGEN, PHOSPHATE (P₂O₅)
 & POTASH (K₂O) APPLIED): 18/N 46/P₂O₅ 60/K₂O
 TREATMENT #2 ANALYSIS (NPK AS %): same?
 LBS/ACRE OF
 PRODUCT (e.g., 100 lbs/acre of 0-0-60): _____

(The confused note is circled.)

- Don’t confuse “TREATMENT #1” with, for example, *cultivation #1*. In the example here, follow-up was required for clarification.

HOW CLOSE TO THE ROW? 6" FIRST, 9" SECOND
 DATES – TREATMENT #1: 6-12 FIRST CULT
 TREATMENT #2: 6-21 SECOND CULT

- “PLOT WIDTH” is not the width of the whole field trial. “ROWS HARVESTED” may be less than the plot, or strip width. This information is necessary to analyze yields and weed counts.
- Rounding numbers: Do the math to two decimal places so you can report to one decimal place. 174.44 → 174.4, and 174.45 → 174.5
- Everything on the *Field Trial Recording Form* except yield information can be filled in before harvest. It’s against human nature, but starting the form earlier in the year will make your reporting job *much* easier in the fall.