INITIAL SITUATION: I am interested in studying two factors, irrigation technique (3 levels) and variety of corn (3 varieties).

1. I have been given 81 small plots of land to design an experiment. Let's say it is a 9×9 arrangement of plots. What design would you recommend?

2. It turns out that there is a fertility gradient going across the columns of plots (N/S). Now, what do I do?

3. Oops. There is also a problem which the weed level going across the rows (E/W).

4. Double Oops. I found out that I actually only have a 6×9 arrangement of plots.

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Let us regroup, and say for the moment, that we are back to Stage 1, but with the 6×9 **arrangement of plots. But, we have found a different set of problems.**

5. It turns out that I can not apply irrigation to each plot individually. Based on the plot arrangement, I have to apply it to a set of 9 plots at a time. Now, what would you recommend?

6. Now, it also happens that we have two separate farms working on this. Each farm is responsible for 3 of the rows of plots. What now?

7. I forgot to mention that the plots had been used for a previous experiment where, within each row, the 9 plots represented 3 plots for the previous experiment. The previous experiment involved fertilizer, and there may be some residual effect from that experiment.

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In order to say money and reduce repairs, the irrigation systems have been switched to a center pivot systems which can cover a square set of 9 plots at one time. So, let us go back to Stage 1 and try again.

8. How would I adjust for the irrigation system changes?

9. Now, how would the fact that I have two different farms working on the project effect my design?

10. Big jump. We still have the problem with the previous experiment, but it is also true that there is also the E/W weed problem. Now, what do I do?

11. What if I worry about the N/S fertility gradient on top of all this?