Agriculture and Statistics
Research Advances in Agricultural Statistics (NCR-170)

Impact Nugget:
NCR-170 has educated large numbers of current and future researchers from many disciplines on the application of the latest developments in mixed model analysis of variance and spatial statistics.

Issue:
Statisticians who consult and conduct research in Agricultural Experiment Station environments enable land grant institutions to perform their agricultural research missions more effectively and efficiently than otherwise possible. However, most stations have at most one or two professional statisticians who are not, and cannot be expected to be, experts in every area of statistics. NCR-170 brings statisticians together to cooperatively determine the best, most current approaches to common statistical problems, therefore guiding future directions of sound statistical practice. As a result, NCR-170 members can provide more effective assistance to agricultural researchers who address national research priorities than would otherwise be possible.

What has the project done so far?
- NCR-170 produced a Mixed Model Analysis of Variance Workshop and presented it at national meetings of several major subject matter societies. Several times, NCR-170 members repeated the workshop at the request of the sponsoring society and reached attendance limits each time. NCR-170 members have also presented the workshop at both regional and local meetings.
- NCR-170 produced a Spatial Statistics Workshop and made its first presentation to a subject matter audience in late April 2005, immediately following the 17th Annual Conference on Applied Statistics in Agriculture at Kansas State University.
- NCR-170 serves as a resource for its members and a sounding board for new ideas in their applied statistical research. This networking is especially critical for project members who are the only statisticians at their institution.
- NCR-170 members have developed numerous presentations and publications directly related to their participation in the project.

Impact:
- Through its workshops for subject matter audiences, NCR-170 has educated large numbers of researchers in many disciplines on the latest developments in mixed model analysis of variance application (e.g., NCR-170 presented the Mixed Model Workshop to the animal science societies' annual meetings three times with 100 attendees the first two times and 50 last year).
- NCR-170 enables its members to provide more effective statistical advice and assistance to scientists at their home institutions. The project provides members with supporting material for educating the next generation of scientists in the use of the latest statistical methods, especially in the areas of mixed models and spatial statistics.

Research Needs for Future Impacts:
- Continue research on the application of spatial statistics to agricultural problems, especially in the area of precision agriculture which has both spatial and mixed model components.
- NCR-170 members are designing a technical program for the 2005 annual meeting to help project members select another area of statistics on which to focus their research and educational outreach activities.

Cooperators: Land grant universities in AR, GA, ID, IL, IN, IA, KY, MD, MI, NE, OH, SD, UT, VT, WI, as well as Pioneer Hi-Bred International and USDA-ARS

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