

procedure generally does not balance out potential carryover effects. For example, treatment A may immediately precede treatment B never or more than once. A systemic method is available for balancing the first order residual effects. Even though this is not overly complicated, it is time-consuming if an experiment requires a large size of square or multiple squares. Therefore, we have developed an Excel spreadsheet-based program, the Balanced Latin Square Designer, to facilitate the generation of Latin squares balanced for carryover effects. The source codes for the modules have been written in Visual Basic for Application as an Excel XP add-in. The program allows a user to input the number of treatments that is equal to the number of animals and periods in a square. A user may also input the number of squares. Then, the program will automatically generate Latin squares. For an even number of treatments, each treatment immediately precedes and follows every other treatment exactly once in the square. For Latin squares with an odd number of treatments, the first order residual effects can only be balanced if they are replicated an even number of times, and the spreadsheet program allows for that. The program also displays a table for an experimental schedule sorted by period and animal. The Balanced Latin Square Designer allows animal scientists to quickly and accurately generate Latin squares balanced for the first order carryover effects. This program reduces the amount of time required to prepare Latin square experiments.

**Key Words:** animal experiment, carryover effect, Latin square design

**M207 A spreadsheet program for making a balanced Latin square design.** B. G. Kim\* and H. H. Stein, *University of Illinois, Urbana.*

The Latin square design is often employed in animal experiments to minimize the number of animals required to detect statistical differences. In this design, each treatment is assigned once to each row and each column, and the sequences of rows and columns are randomized. This