

EXST7015 : Daily Design Question 20

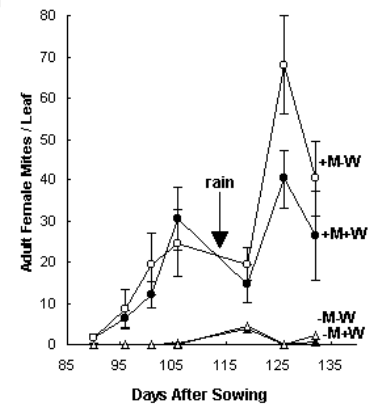
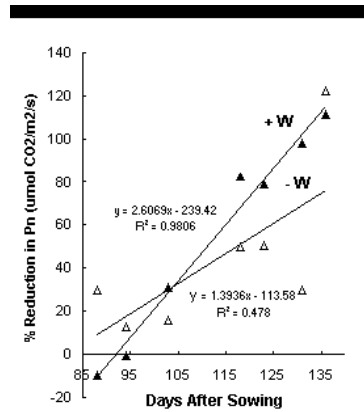
Carefully read the description of the experiment below. Be prepared to answer the questions that follow the design description as a class quiz.

In a paper (Spider mite feeding damage and water stress on photosynthesis of cotton leaves. A. A. Reddall, V. O. Sadras and L. J. Wilson.) three authors examine the effects of mites and water deficit on leaf photosynthesis of field grown cotton. A modified description is given below.

The field trial was set up with two mite treatments (1) no mites (-M) or (2) plants artificially infested with mites (+M). These were combined with two water treatments (+W, -W) in all possible combinations (-M-W, -M+W, +M-W, +M+W). Each treatment combination was replicated four times.

Two central rows of the +M subplots were artificially infested with mites using glasshouse grown, mite infested cotton seedlings. +W treatments were irrigated each time a soil water deficit of 50-60 mm was reached and -W received no irrigation after sowing. Leaf photosynthesis was measured using an LI-6400 portable photosynthesis system. Measurements were made on the fourth main-stem node leaf from the terminal, which is the main area of mite infestation in cotton.

After about three months the authors measured photosynthesis and mite infestation rates (see graph). For our purpose the variable of interest will be the number of adult female mites after 135 days.



Questions:

What is the treatment arrangement for this experiment?

- (a) single factor (b) factorial (c) nested

What is the experimental design for this experiment?

- (a) CRD (b) RBD (c) LSD (e) Split-plot (d) Repeated Measures

Does it seem to you that the treatments are fixed or random?

- (a) fixed (b) random

What is the experimental unit for this experiment?

- (a) mites (b) cotton plant (c) row (d) irrigation (e) field trial

What is the sampling unit for this experiment?

- (a) mites (b) cotton plant (c) row (d) irrigation (e) field trial

What is the dependent variable for this experiment?

- (a) mites (b) cotton plant (c) row (d) irrigation (e) field trial

If the design is RBD, what are the blocks?

- (a) mites (b) cotton plant (c) row (d) irrigation (e) field trial

How many degrees of freedom are available for testing the treatments?

Enter the correct value here: _____