EXST7015 : Daily Design Question 24

Carefully read the description of the experiment below. The experiment is patterned after: Development of Effective Chemical Controls For Aphid Vectors of Viruses on Citrus Barbara A. Cutrer, J. Victor French, and Santiago Villarreal Subtropical Plant Science, 50: 63-66.1998

An experiment was designed to test 4 chemical treatments (plus an untreated control) for Aphid control. Twenty trees in an orange grove were selected as single-tree plots and the 5 treatments (4 chemicals and a control) were randomly assigned each to 4 trees. Prior to treatment a number of Aphid infected branches (3 or 4) were located and marked with tape on each tree. The "mean number of Aphids per leaf" was determined for each marked branch. The trees were then treated and the mean number of Aphids for each branch was again determined at 1, 3, 7 and 14 days. Reestablishment of Aphids was examined again at 30 days. We are interested here only in the pattern of mean Aphid number at 1, 3, 7 and 14 days.

Chemical efficacy against *Aphis spiraecola* Patch and *A. gossypii* Glover on 'Marrs' orange, applied May 15, 1997 at Texas A & M Kingsville Citrus Ctr, South Res Farm, Weslaco, TX.

Treatment[y]	Rate: lb ai/100 gal	Pre-count	+1	+3	+7	+14	+30
Oxydemeton-methyl	0.25	8.12a[x]	0.19b	0.00b	0.00b	0.00a	0.00b
Oxydemeton-methyl	0.375	6.33a	2.76ab	1.5 lb	0.93b	0.00a	0.00b
Pyridaben	0.125	6.07a	1.58b	0.59b	0.58b	0.00a	0.00b
Imidacloprid	0.053	6.67a	0.27b	0.40b	0.04b	0.1la	0.00b
Control	0.000	7.84a	4.45a	5.36a	3.14a	0.60a	1.36a

Mean Number of Live Aphids/Leaf — Day of measurement after study initiation

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) tree   (b) branch   (c) chemical   (d) Aphids   (e) Orange grove   (f) days

What is the sampling unit for this experiment?

   (a) tree   (b) branch   (c) chemical   (d) Aphids   (e) Orange grove   (f) days

What is the dependent variable for this experiment?

   (a) tree   (b) branch   (c) chemical   (d) Aphids   (e) Orange grove   (f) days

If the design is RBD, what are the blocks?

   (a) tree   (b) branch   (c) chemical   (d) Aphids   (e) Orange grove   (f) days

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

   Enter the correct value here: _____