

**EXST7015**

**Daily Design 29**

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

A study was performed to determine the “natural” wood preferences of subterranean termites (Isoptera) in a field feeding experiment. The experiment was done in a 2,000 m<sup>2</sup> garden area of the Universidade Federal Rural do Rio de Janeiro at two subterranean termite infestation spots. Pieces of wood were cut from heartwood or sapwood of 8-year-old trees of *Pinus sp.* and three species of Eucalyptus: *E. pellita* (red mahogany), *E. urophylla* (Timor mountain gum), and *E. robusta* (swamp mahogany).

The experiment consisted of sixty stakes of each forest species (240 stakes in all), each 2.5 cm long by 3.0 cm width and 2.5 cm thick. The stakes were submerged in water for 4 different immersion periods of 0, 24, 48 and 72 hours. Stakes were installed in groups of four (one of each wood species) at 0.5 m intervals with 4-stake groupings arranged completely at random. The stakes were driven vertically into the soil with approximately 1/5 of the total length protruding above ground. Five replicate stake groupings of each of the 4 water immersion periods were removed from the soil at 30, 45 and 60 days (80 stakes each exposure period). Stakes were inspected for infestation by subterranean termites. Preference of subterranean termites was determined as the percentage of termite-damaged stakes for each wood species for each of the different water immersion periods at each field exposure period.

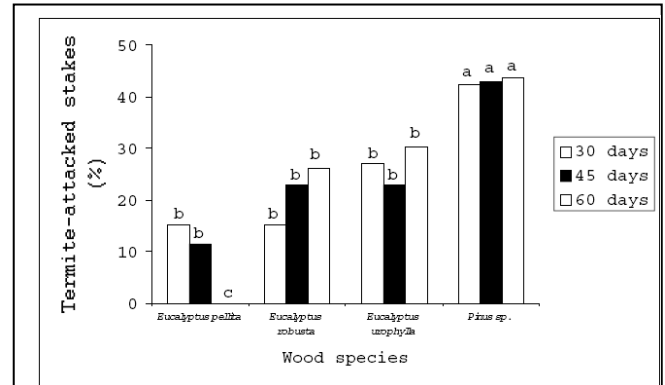


Figure 1. Percentage of stakes of each wood species attacked by termites at 30, 45, and 60 day exposure periods. Averages within the same exposure period with the same letter are not significantly different as gauged by Tukey’s test ( $P \leq 0.05$ ).

**Note: Total stakes = 4 wood species x 4 emersion times x 3 exposure periods x 5 replicates = 240.**

Answer choices:	(A) wood species	(B) a stake	(C) exposure periods
	(D) emersion times	(E) a stake group	(F) Percent damage

Name \_\_\_\_\_ Quiz Number \_\_\_\_ Date \_\_\_\_ / \_\_\_\_ / 2012

Circle the appropriate letter for each question.

- 1) What is the experimental unit for this experiment?      A      B      C      D      E      F
- 2) What is the sampling unit for this experiment?      A      B      C      D      E      F
- 3) What is the dependent variable for this experiment?      A      B      C      D      E      F
- 4) What is the treatment variable for this experiment?      A      B      C      D      E      F
- 5) If the design is RBD, what are the blocks?      A      B      C      D      E      F      NA
- 6) Does it seem more likely that the treatments are fixed or random?      (A) fixed      (B) random
- 7) What is the treatment arrangement for this experiment?      (A) single factor      (B) factorial      (C) nested
- 8) What is the experimental design?      (A) CRD      (B) RBD      (C) LSD      (D) Split-plot      (E) Repeated Measures
- 9) The treatment degrees of freedom are \_\_\_\_\_ .
- 10) The degrees of freedom for the error used for testing treatments are \_\_\_\_\_ .