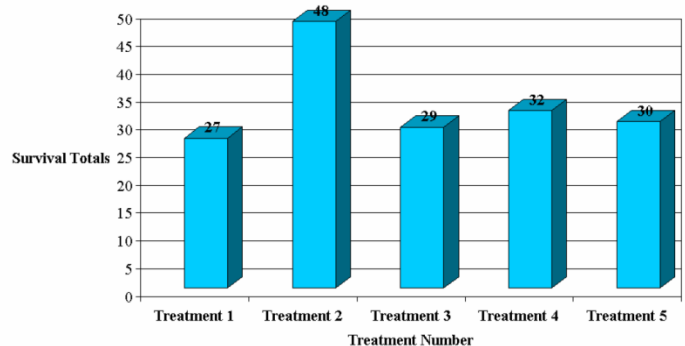


Carefully read the description of the experiment below. Be prepared to answer the questions that follow the design description as a class quiz.

Forestry production is limited in the Bolivian high plains. High altitude, low rainfall, and a variable climate all contribute to cause extremely high mortality rates among tree species. The purpose of this study was to examine whether microcatchment systems can improve tree establishment rates in the Bolivian high plains. Five different types of microcatchment systems were used: (1) Control. no microcatchment system (trees placed directly into the ground without any protection), (2) pit planting method (a simple 30-cm hole dug in the ground with one hole per seedling), (3) trench system (dug to a depth of 30 cm along a contour), (4) widened trench basin (trench depth still 30 cm and laid out along the contour but wider, approximately 60 cm) (5) slanted trench system (similar to number 4 with an additional trench dug 30 cm deeper inside to provide further water collection and protection).

The five microcatchment systems were planted in ten groupings along on a hillside with groupings spaced ten meters down slope from each other to provide for an adequate water catchment area. In each grouping 5 randomly selected sites were marked and the five microcatchments were randomly assigned to one of the sites in each grouping. Two tree species, one native (*Polylepsis tarapacana*) and one introduced (*Cupressus macrocarpa*), were planted in each of the treatments at the beginning of the rainy season. Three replicates of each tree species were spaced 1.5 meters (5 feet) apart from each other. The variable of interest was the percent survival for each microcatchment combination in each grouping. The data was analyzed for each tree species separately and for both species combined. We will consider percent survival of both species combined (6 trees) to be the variable of interest, so the 5 microcatchments in 10 groups provides a total of 50 sites, each with only a single value for the percent survival. Results for the two species combined are shown in the graph.



Answer choices:	(A) microcatchment type	(B) grouping	(C) tree species
	(D) Sites within groups	(E) percent survival	(F) hillside

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 _____ .