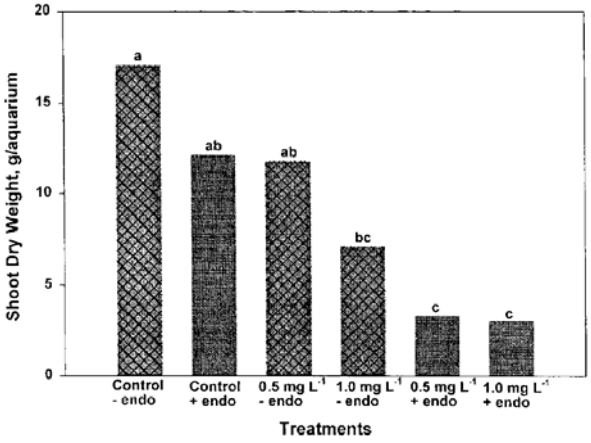
EXST7015 **Daily Design 14**

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

Endophytes are organisms that live within another organism without causing apparent harm. The endophytes in this study are fungi living in an invasive aquatic plant called Eurasian water milfoil.

A greenhouse study was conducted to test effects of stress induced by simulated chemical runoff on endophyte-infected and endophyte-free Eurasian water milfoil. Simulated chemical runoff stress was induced by applying low rates of the herbicide endothall for a 24-hour exposure time. Applications included no endothall (0 mg/L), 0.5 mg/L and 1.0 mg/L applied to both endophyte-infected and endophyte-free Eurasian water milfoil plants.



Eighteen 55 L aquaria were filled with a water based culture solution recommended for aquatic plant growth.

Lake sediment collected from Brown's Lake was amended with ammonium chloride (0.5 g/L) and Esmigran (1.7 g/L). Five plastic cups (0.95 L), each filled three-fourths with lake sediment and a 20-cm apical cutting from either endophyte-infected or endophyte-free Eurasian water milfoil, were placed in each aquarium (1 plant per cup, 5 cups per aquarium). Plants were then allowed to grow 28 days by which time they had formed surface canopies.

Each treatment was replicated three times in randomly assigned test aquarium (18 in all). After the 24-hour exposure to endothall, the aquaria were drained and refilled with nutrient solution. The plants were allowed to respond to the simulated chemical runoff applications for 4 weeks, sufficient to determine if Eurasian water milfoil would recover from the chemical treatments. The shoots were harvested from each cup and oven-dried at 60^{C}. Plant biomass, measured as shoot dry weight in grams for each individual cup, was the variable of interest.

Answer choices:	**(A) endothall**	**(B) aquaria**	**(C) endophyte (infected or free)**
	(D) plastic cups	**(E) biomass**	**(F) Brown's Lake**

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 _____ .