

EXST7015

Daily Design 1

Please let me know if you need any software. Carefully read the description of the experiment below. Be prepared to answer the questions that follow the design description as a class quiz.

In one part of a larger study an investigator raised 64 pigs in the manner described below. The design is modified from the original, but is consistent with the table presented. There were 32 pens available that were randomly assigned to one of the two sexes and one of two dietary supplements. The diet supplements were either no Chromium picolinate (CrP) added or 200 ppb CrP added to a standard corn-soybean meal diet. Note that there were four combinations of sex and diet (male at 0 ppb CrP, female at 0 ppb CrP, male at 200 ppb CrP, female at 200 ppb CrP). For each combination of sex and diet there were eight pens and two pigs randomly assigned to each pen.



At the end of the experiment the final weight was recorded for each pen and daily weight gain calculated as a single value for each of the 32 pens [(final pen weight – initial pen weight) / days]. At the end of the experiment the variable of interest was the mean weight gain for each treatment.

Table 4. Least squares means of chromium picolinate × sex effects on growth performance in pigs.

Variables & Treatments	Treatments				SEM	P-Value
	0 ppb CrP		200 ppb CrP			
Supplement →						
Sex →	Barrows	Gilts	Barrows	Gilts		
Final wt, kg ^b	111.8	103.9	110.6	102.9	1.0	0.90
Daily gain, g/day	895.5	810.4	884.0	802.0	11.4	0.90
Feed intake, g/day	2749.7	2460.6	2748.1	2421.8	33.5	0.59
Gain/Feed	0.33	0.33	0.32	0.33	0.004	0.48

a. Pen means (n = 32).

b. Represents the final average pen weight measured at the farm.

Note: Barrows are male swine and Gilts are female swine.

Answer choices:	(A) pigs	(B) sexes	(C) dietary supplements
	(D) pens	(E) investigators	(F) final weights

Name _____ Quiz Number _____ Date _____ / _____ / 2012

Circle the appropriate letter for each question below.

- 1) What is the experimental unit for this experiment? A B C D E F G
- 2) What is the sampling unit for this experiment? A B C D E F G
- 3) What is the dependent variable for this experiment? A B C D E F G
- 4) What is the treatment variable for this experiment? A B C D E F G
- 5) If the design is RBD, what are the blocks? A B C D E F G 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 for this experiment? (A) CRD (B) RBD (C) LSD (D) Split-plot (E) Repeated measures
- 9) The degrees of freedom for testing treatment are _____ .
- 10) The degrees of freedom for the error used for testing treatments are _____ .