Extra Credit Assignment and Land Application Example Questions
(5 points on Exam 4)

Due: 8/04/2009 before end of class NAME _____

(Please **Print**)

On my honor, I have neither given nor received unauthorized aid on this assignment.
Signature _____

PROBLEMS: SHOW YOUR WORK! PLEASE WRITE CLEARLY. USE EXTRA SHEETS IF NECESSARY. SHOW UNITS IN YOUR WORK! (conversion factors in lecture notes)

IF YOU WRITE DOWN ONLY YOUR ANSWER AND DO NOT SHOW HOW YOU GOT IT, WE CAN NOT GIVE YOU CREDIT FOR YOUR ANSWER!

1. You are going to purchase Cockadoodle Doo organic fertilizer to apply to your lawn. (Yes, this product is really sold on the market.) Your lawn is one acre in size. The Cockadoodle Doo has an analysis of 4.0 - 2.0 - 3.0 (remember what these mean when listed on a bag of fertilizer). It is sold in 40 and 20 lb bags. You have had your soil tested, and you have been told that you need to apply 100 lb N/ac-yr, 40 lb P_2O_5/ac-yr, and 60 lb K_2O/ac-yr.

a. How many pounds of Cockadoodle Doo should you apply in lb/ac-yr to meet the **N** requirement?

b. How many pounds of Cockadoodle Doo should you apply in lb/ac-yr to meet the **P_2O_5** or phosphate requirement?

c. How many pounds of Cockadoodle Doo should you apply in lb/ac-yr to meet the **K_2O** or potash requirement?

d. How many 40 lb bags should you apply to your lawn so that you do not exceed any of the nutrient requirements?

2. A catsup and barbeque sauce processing plant has screened solids (tomato peels?) from its wastewater treatment plant that it would like to provide to farmers in the area to apply to their crops. They have sent a sample of the residue to a commercial laboratory for analysis. After receiving the results and doing some calculations, they have determined that the screened solids contain 70 lb N/ton, 22 lb P/ton, and 8.3 lb K/ton. The crops that the farmers are growing require 140 lb N/ac-yr, 100 lb P_2O_5/ac-yr, and 100 lb K_2O/ac-yr.

a. How many ton/ac-yr of screened solids should the farmers apply to their crops to meet the **N** requirement?

b. How many ton/ac-yr of screened solids should the farmers apply to their crops to meet the **P_2O_5** or phosphate requirement?

c. How many ton/ac-yr of screened solids should the farmers apply to their crops to meet the **K_2O** or potash requirement?

3. A fresh vegetable packing plant produces 50,000 gallons/day (365 days per year) of wash water. It contains 20 mg N/L, 10 mg P/L, and 16.6 mg K/L. They want to apply the effluent to cropland at a rate which will supply 260 lb N/ac-yr, 100 lb P_2O_5/ac-yr and 200 lb K_2O/ac-yr.

a. How many inches/year of effluent should they apply to meet the **N** requirement?

b. How many inches/year of effluent should they apply to meet the **K_2O** or potash requirement?