## **Horticulture 300: Crop Production Recitation Feb 9, 2012**

Organic Fertilizer & Cover Crop Calculator Exercises

A version of the OSU Organic Fertilizer & Cover Crop Calculator has been set up with realistic guaranteed analyses and costs for fertilizers and cover crops. Use the calculator to answer the following questions.

- 1. Tom grows 30 acres of organic vegetables and just got a visit from his friend Jim who sells organic fertilizers. Jim told him about a new blended organic fertilizer with 7% total N,  $3\% P_2 O_5$  and  $3\% K_2 O$ . It is 95% dry matter and costs \$800/ton.
  - a. In one field he needs plant-available nitrogen (PAN) only, would you recommend he buy this new fertilizer for that field, why or why not?
  - b. In another field he needs PAN, P and K in about the same portions this fertilizer contains, would you recommend he buy it for that field, why or why not?
- 2. Tom is planting 1 acre of organic cucumbers. After looking at his soil test results and the fertilizer guide he calculates that he needs 100 lbs of PAN, 50 lbs of P<sub>2</sub>O<sub>5</sub> and 50 lbs of K<sub>2</sub>O. What is the cheapest fertilizer program that meets or exceeds these requirements and how much does it cost (include the cost of application)? List the application rates, nutrients provided and total cost of the programs you compare.

- 3. In mid-September Tom seeded cereal rye (30 lbs/ac) and common vetch (50 lbs/ac) cover crop into last year's lettuce field. He did not need to irrigate at establishment, and got a thick stand. In late April he cut four 2' x 2' quadrats to ground level. The cover crop foliage weighed 8.5 lbs and lab analysis showed that it had 2.9% total N and 18% dry matter. Complete the "Your Costs" spreadsheet using the following information from Tom's farm:
  - Seed costs: cereal rye = \$0.30/lb, common vetch = \$0.70/lb, inoculant = \$2/ac.
  - Labor = \$10/hr, fuel = \$4/gal
  - Tractor used for all operations has 70 hp
  - Seeder is a tractor-driven spin spreader with a 30' broadcast width and operated at 4 mph
  - Seed is incorporated with 12' harrow operated at 4 mph
  - Cover crop is killed with a 10' flail mower operated at 3 mph
  - Cover crop is disced twice with a 12' disc operated at 4 mph

## Question 3 continued

a.	How much dry matter, total N and PAN did the cover crop produce?
b.	How much did the PAN from cover crops cost and how does this compare to other N sources?
c.	What was the biggest cost associated with his cover crop, seed and inoculant or establishment and incorporation costs?
d.	How much did the PAN from cover crops cost if only the seed and inoculant cost is taken into account, and how does this compare to other N sources?
e.	If labor costs increase 20% and he had to irrigate the cover crop to get it established what are the biggest costs of cover cropping, seed and inoculant or establishment and incorporation?
f.	Tom decided to plant this area to cucumbers requiring the fertilizer rates from question 2. Revise your fertilizer recommendation taking cover crops into account. List fertilizer rates, nutrients provided and total cost of the programs you compare.
g.	How much money is saved by including cover crop N contributions in the fertilizer program?