There are 15 questions plus a bonus question, each of which requires a short answer. Please be concise. Best wishes for your success!

10 pts. 1. A field in west central Indiana was in soybeans in 2004 and will be in corn in 2005. When and how should the field be (or have been) scouted in order to determine the need for a soil-applied insecticide to be applied at planting to achieve economic control of corn rootworm larvae in the 2005 corn crop which is planned for this field? Please explain this timing and approach to scouting.

b) Under these conditions, what is the appropriate economic threshold above which an at-plant soil insecticide should be applied to control corn rootworm larvae in the 2005 corn crop?

6 pts. 2. Please note the following as they pertain to Corn growth:

a) Kernel moisture content (percent of weight) when the milk line is 1/2 way between the crown and the tip of a kernel.

b) Visible indicator that Corn has reached the R3 growth stage.

c) Visible indicator that Corn has reached the R5 growth stage.
3. Compare the drought tolerance of soybean yield to that of corn yield and provide two reasons for the greater yield stability of the most drought-tolerant crop.

4. Briefly discuss the suitability of the U.S. Midwestern (e.g. Indiana, Illinois, Iowa) climate for corn production. Please be thorough and include the advantages and disadvantages of this region's climate as they affect corn production.

5. a) What is the optimum seeding date for Soft Red Winter Wheat in the Midwestern U.S.? (Note: Your answer should apply equally well to any location in the Soft Wheat area.)
b) What is the range of Hessian Fly Free Dates for Indiana (northern to southern).

6. a) What is the optimum established stand density for Soft Red Winter Wheat in Indiana?

   ________________ plants / square foot

b) You intend to seed wheat at a rate of 33 seeds per square foot in order to establish 30 plants per square foot.

   If the drill row width is 7 inches and the drill is properly calibrated it should deliver 33 seeds per ______ inches of row distance. Please show your work for full credit.

c) Estimate the potential yield (bushels per acre) for a crop of wheat which, (when assessed after jointing has begun) has an average of 2 productive stems (1 main stem plus 1 tiller) per each of 30 plants per square foot. Please show your work for full credit.

7. The following pertain to a proposed crop of Indiana wheat;
Yield goal = 90 bushels per acre

Previous crop = 60 bushels of soybeans per acre

**18 pounds of N are to be applied per acre at seeding** with the balance of N to be applied as a topdressing in the Spring.

a) What **Spring topdressed** N rate is appropriate to recommend ?

_______ Lbs. N / Acre

b) What maintenance P2O5 rate should be applied ?

_______ Lbs. P2O5 / Acre

c) What maintenance K2O should be applied ?

_______ Lbs. K2O / Acre

6 pts. 8. At what wheat developmental stage should topdress N be applied in the Spring ? Why at this stage ? Please be specific and provide at least two reasons.

3 pts. 9. Describe a typical weed control program for Soft Red Winter Wheat produced in Indiana. Please be thorough and explain your answer.

6 pts. 10. Note the appropriate maintenance P2O5 and K2O rates for a 60 bushel per acre soybean yield. (Please show your work).

_______ Lbs. P2O5 / Acre

_______ Lbs. K2O / Acre

11. Compare a Maturity Group II vs. a Maturity Group III indeterminate soybean variety with respect to each of the following (assume both are planted on the same
day at the same location in central Indiana, in the same row width and at the same population).

3 pts. a) Flowering date of Maturity Group II vs that of Maturity Group III.

3 pts. b) Mature plant height of Maturity Group II vs that of Maturity Group III.

4 pts. 12. Assume a hoop with diameter 28 inches has been used to estimate stand counts in a drilled soybean field. The average plant density in the area surrounded by the hoop was 19. What is the estimated stand density for this field? (Please show your work).

7 pts. 13. Is there a greater average yield advantage for drill-row (e.g. 7 inch row width) vs. wide row (e.g. 30 inch) soybeans in northern Indiana or in southern Indiana? Why? Please assume that properly adapted soybean varieties are planted in a timely fashion for full season growth in both locations.

14. Note a quantifiable characteristic which uniquely indicates that a soybean plant is at each of the following;

2 pts. a) R 1 growth stage?

2 pts. b) R 3 growth stage?

2 pts. c) R 4 growth stage?
2 pts. d) R 5 growth stage?

2 pts. e) R 7 growth stage?

8 pts. 15. a) What is the approximate recommended established population for Indiana Soybeans in drill row spacing (e.g. 6 inch row width?)

___________________ plants per foot of row.

___________________ plants per acre.

b) What is the approximate recommended established population for Indiana Soybeans in wide row spacing (e.g. 30 inch row width?)

___________________ plants per foot of row.

___________________ plants per acre.

5 pts. BONUS. Please draw a soybean plant at V2 and label the lowest node with leaf margins still touching

HAVE A BLESSED AND MERRY CHRISTMAS!
CONGRATULATIONS TO THE GRADUATES!