AAE 320 Farming Systems Management

Exam # 1 Review

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Exam #1: Friday October 9, 2020

Available as Word Document 8:00 AM to 11:59 PM on Canvas page as assignment, on Main class page for download and emailed to you

Submit answers as Word Document on Canvas by 11:59

- Add clear scans/photos for potential partial credit for quantitative problems
- Type answer “N = 100”, but if correct answer is N = 90, will look at work to see if earn partial credit: if right method, but made an algebraic mistake, will still do ok
Exam #1

- Three types of Problems/Questions
  - 1. Quantitative Questions (math problems to work out)
    - Think breaks, problem sets, examples
    - Essentially an extend problem set
    - Examples in class to pre-recorded lectures
  - 2. Context questions on Quantitative Questions
    - Give short written answers
    - Terms used in problems: cover crop, cow-calf operation, heifer vs cow, seed treatment, types of fertilizer, input substitution, ...
3. Non-Quantitative Questions

- Write a short paragraph or two or 3-4 sentences
- The space provided will guide you on how much to write
- Questions about the materials and issues we discussed in class
- Readings, videos, small groups, assignment sheets, ...
- Expect questions asking for answers that are longer than on older exams: you have more time & access to more information
How to Study/Prepare

- You will not need to memorize how to solve different types of problems and certain facts about things.
- Review how the material is organized and what is located where: what topics are covered where/when.
- If you have all day, you can likely figure things out.
  - I give you 16 hours, not expecting you to use all 16.
- If you do not, you will want to know how to do them already or where to look without lots of time searching.
- I tend to make the exams long but not hard.
Topics Covered

- Introduction
  - Overview of Wisconsin Agriculture
    - 2 part video, PowerPoint, Discussion Assignment #1
  - U.S. Food System
    - 1 video, PowerPoint, Discussion Assignment #2
- Production Economics
  - Quantitative Topics
  - Non-Quantitative Topics
Production Economics

- Partial Budget Analysis
  - 1 video and PowerPoint
  - Think Break #1
  - Problem Set #1

- Partial Budget Examples
  - 1 video, PowerPoint, and PowerPoint with answers
Production Economics

- Single Input Production Economics
  - Focus on optimal input use when choosing 1 input
    - Production function, marginal product, average product
    - VMP = r identifies the optimal input use
    - Table form or using Calculus
  - 3-part video and PowerPoint
  - Think Breaks #2 to #5
  - Problem Set #2

- Single Input Production Examples
  - PowerPoint and PowerPoint with answers
Production Economics

- **Multiple Input Production Economics**
  - Focus on optimal input use when choosing 2 inputs
    - Equal margin principle: \( MRTS = \frac{MPx}{Mpy} = -\frac{\Delta Y}{\Delta X} = \frac{r_x}{r_y} \)
    - Isoquants, Tradeoff curves, input substitution,
    - Table form or using Calculus: how to find optimal inputs
  - 3-part video and PowerPoint
  - Think Breaks #6 to #8
  - Problem Set #3

- **Multiple Input Production Examples**
  - PowerPoint and PowerPoint with answers
Minor Topics covered along the way

Linear Interpolation
- When using tabular approach to find the optimal input use
- Way to create a new “row” to match price or price ratio
- Both the 1-input case and the 2-input case

Units conversion
- Used in calculus set up: read the production function input and output inputs carefully and compare to the price units
Production Economics
Non-Quantitative Topics

- Nitrogen in Agriculture
  - 4 videos/reading, class discussion
  - Discussion Assignment sheet #3
  - Follow-up class lecture with PowerPoint

- The More-On Principle
  - Video, kind of additional follow-up to N in ag

- Economics of Cost
  - 3 videos, plus class time
Final Comments

- Treat it like a work project: get it done and move on
  - It is Friday night and the weather has been beautiful
- Contact me with questions or problems/crisis that arise
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- Email: pdmitchell@wisc.edu