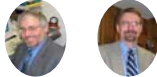


Super-sized Crop Farms: What Does it Take? Economies of Size and Trends in Agriculture

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What motivates farmers?

- Farming: profit or lifestyle?
 - Profit (economics) will drive the broad trends
- We believe that crop farming will go the way of poultry, swine, and dairy (bimodal)
- Review first . . . then discussion
- One part of a bigger picture
 - What to do with wealth
 - What to do with human capital (personal skills)
 - How does personal happiness fit in?

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Economies of size: the driving force

- Per-unit costs fall as a firm gets bigger
 - Essentially about spreading fixed costs
 - May mean higher prices instead

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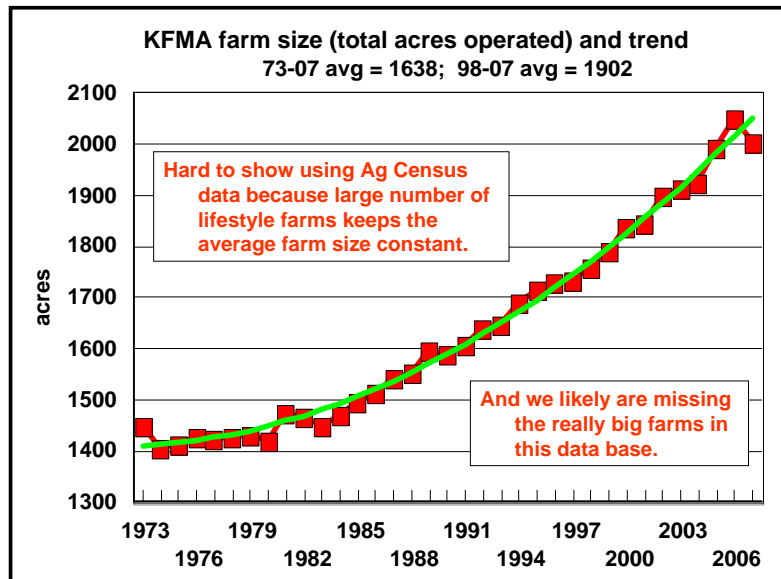
Is EOS for real?

- Is there a benefit to targeting growth and size?
- Or, is growth an accident of good management (plowing profits back into the farm or business)?
- Yet, we should keep asking, Would we really observe the degree of consolidation we do if it only were “plowing back profits?”

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Is EOS for real?

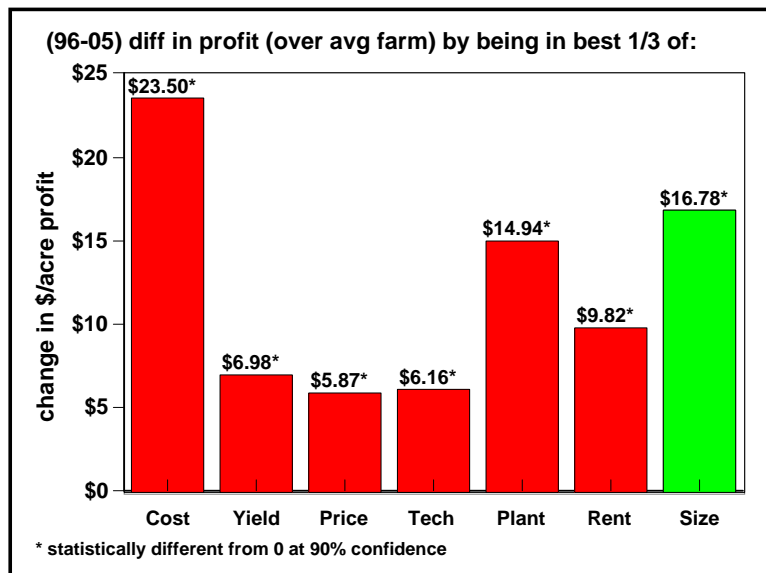
- Hard to distinguish effect of good management and other factors from the effect of size
- Statistical regression is one way to do it
 - After you correct or adjust for the impact of other factors, is there still a positive impact on profit associated with size?



Farm size has been increasing at an increasing rate for COMMERCIAL farms

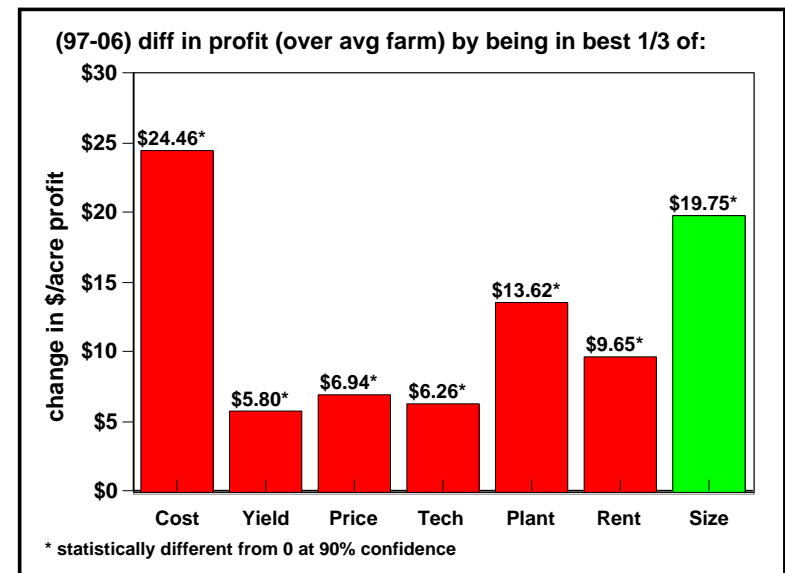
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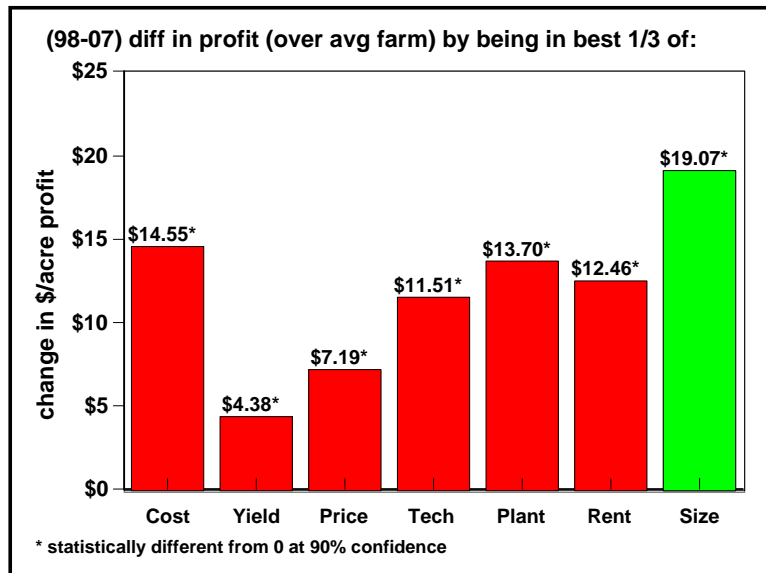
A size effect remains – evidence that EOS is for real

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EOS becoming more important, absolutely and relatively

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EOS becoming more important still -- relative to always-big "Cost"

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Why are large farms more profitable?

- Lower cost is the obvious benefit, but other benefits arise from the research
- Larger farms (according to this study):
 - Have much lower costs
 - Get somewhat higher yields
 - Get slightly higher prices
 - Farm more intensively
 - Are much faster adopters of technology, for example, less-tillage

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Large farms are not only more profitable

- The disparity between large and smaller farms has been growing over time.
- Will the traditional **one-family** family farm soon be a thing of the past?
 - The family farm will go on but it will be an extended family
- Farming will become increasingly bimodal

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No right to profit from size

- Being large does not ensure profitability
 - Inherited, but poorly managed (inattentive to size and growth issues), farms are an example. Though it might take years, such farms eventually disappear.
- A poor-managing heir would be better off:
 - Investing his/her wealth & time elsewhere
 - Renting the land portion to a good manager



Changing EOS features across farm size

- **Labor first**
 - Labor is fixed and it pays to be fully employed
- **Machinery second**
 - Bigger machines require less investment per unit of capacity, thus are lower cost
 - Bigger farms use machinery more intensively and so can justify newer machinery, which brings with it the gains to new technologies

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Changing EOS features across farm size

- **Other things third**
 - Management can be spread over still more acres
 - e.g., marketing, hybrid selection, technology evaluation, assessing FSA or crop insurance opportunities
 - Quantity price discounts or premiums
 - Crop sales
 - Machinery and crop input purchases
 - Larger loans mean lower interest rates

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Changing EOS features across farm size

- **Less direct things fourth**
 - Large geographical spread
 - Less yield and profit risk
 - Quicker reliable inferences from farm level data
 - More opportunities to rent additional land
 - Business image: landlords favor large farms
 - Or is it youth, longevity, profitability, technological advancement, and community viability?

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EOS implications: labor

- **Show young people they can start in farming as an employee, just like what happens in every other business**
 - Will happen as wages climb
- **Show established owner-operators how they can transform to employee/partner types without losing face, and without sacrificing wealth and happiness**
- **Successful farms will overcome labor issues**

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EOS implications: equity

- It takes so much to get started today!
- Internal profits (reinvest profits)
- Vertical accumulation
 - Family wealth across generations
 - Diverging goals of heirs and forebears
- Horizontal accumulation
 - Family or non-family contemporaneous equity
 - Minority shareholders have poor protection
- Successful farms will overcome the equity hurdles

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EOS implications: debt

- Capital is equity OR debt
- Debt often is the least-cost capital source
- If equity growth is internal:
 - Farms using debt have an advantage for EOS
- Recommendations to “pay down debt” are a vestige of traditional life-cycle thinking
- Successful farms will consider
 - Divorcing the business from the individual
 - Targeting a debt-to-assets ratio rather than a debt level (think of agri-businesses)

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Trends . . .

1. Increasing consolidation
2. Rapid technological change
3. Greater connections to the non-ag world
4. Increased computer work and paper work
5. More reliance on people with specialized skills
 - Trends go hand in hand with economies of size and rapidly growing farms

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Will consolidation in *crop production* speed up?

- Farm machinery:
 - More like a fixed investment in factory facilities
 - Sophisticated, expensive, for round-the-clock use
- People:
 - Skills required are becoming more specialized
 - often requiring different people (like other businesses)
 - Management becomes fixed cost
 - Business continuity means a management team
 - even larger fixed cost
- Remember, we never saw the rapid consolidation in poultry, swine, and dairy coming either

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Implications of consolidation

- Fewer companies, not fewer choices
 - Product differentiation is a natural outcome
 - Few brands but many classes and features
 - Few grain buyers but many marketing packages
 - Few bankers but many loan/interest rate packages
- Transactional (market) price less informative
 - Must improve people skills
 - Farm managers will need to establish interpersonal relationships with other farm managers, so that reliable information on product prices, features, and availability can be gained through communication and consensus.
 - Think of partners, not competitors!

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2. Technology

- Early adopters get the profits
 - Bid into cash rents and land values
 - Higher rents mean higher costs and non-adopters find themselves going broke in the face of rents they perceive as “too high”
- Speed of adoption depends on:
 - A) magnitude of expected profitability
 - B) degree of confidence in the expected profit
 - C) size of investment



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Technology: how to get an edge

- Invest in the “duh” technologies quickly
 - You don’t have a choice
- Invest in the slow moving technologies
 - The profits will last for years
- Invest in technologies that DO NOT save labor
 - Most people do not; hence the gains last for years

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3. More connections with non-ag

- More opportunities for non-farmers to invest on-farm, e.g., landowners, equity partners
- More opportunities for farmers to sell services or farm attributes to non-farmers, e.g., recreation, wind rights, water
- Increase need for analytical abilities and people/communication skills

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4. More paperwork (computer work?)

- A. Improved accrual accounting
- B. Better capital asset management
 - land and machinery
- C. Improved production data mgmt & analysis
 - precision ag / on-farm research
- D. Better day-to-day decisions on complex issues

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Getting an edge with more paperwork

- Office work must be valued
- The world runs on computers
 - Get yours running and keep it that way
 - Businesses underestimate cost of support
- The world runs on spreadsheets!
 - You or someone you're close to better understand

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5. Need folks with specialized skills

- Financial management
 - Agricultural economics and accounting
- Production management
 - Agronomy and animal science
- Machinery understanding and management
 - Agricultural engineering
- Spatial data management
 - Geography
- Computer specialists
- Legal counsel
- Production ag is becoming a **people world**

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Rapid Growth in Crop Farms

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Rapid Growth

- If we are right . . .
 - Some of you may actively seek rapid growth
 - Some of you will be offered opportunities for rapid growth that you'll have to consider
 - All will benefit from an understanding of rapid growth, to aid decisions no matter what you decide to do
 - Biggest issue is learning to think differently!

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Rapid Growth

- Be absolutely sure that someone is in charge of keeping track of the economics and allocates the necessary time to do so!
- Someone has to be sure to keep electronics and computers working.
- If you're going to expand rapidly, hire extra people whether it looks like they will pay or not. Initially, don't think like "but what will I have this guy do in the off season?"

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Rapid Growth

- Do all major planning in the off season
 - On farm research layout and analyses
 - Hybrid selection
 - Machinery decisions
 - Rental arrangement negotiations
 - Time to understand fields/farms interested in
 - Field size, shape, and location matters
 - Financial planning and loan applications
 - Don't "go to Florida," but rather use this time for detailed in-depth analyses and planning
 - Do the planning WITH the relevant employees



Rapid Growth – Data

- Automate data collection (less hands-on)
 - Precision ag
 - Monitor from a distance (grain bins, irrigation)
 - Effective software or spreadsheets?
- Automate controllers, e.g., for fertilizer and seeding (precision ag)
 - Requires less time communicating this in-season
- We're not particularly optimistic about integrating economic and agronomic data in software – maybe just hire more office help

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Rapid Growth – Logistics

- Progression of field operations?
- Big machines – a lot of time not running
 - Think of moving from field to field
 - Do pickups have hitches?
- Maps for all involved?
 - Employees, custom operators, etc.
- In-field efficiency
 - Row and section shutoffs?
 - Field size and shape matters
 - Winter analyses will guide your decisions here

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Rapid Growth – Communication

- Embrace the new ways
 - email, cell phones, text messaging, web
 - Maybe business band radios even though old?
 - Wireless internet on the tractor?
- Email each other on the farm
 - Saves repeating the story over and over when folks cannot always be together
 - Eliminates errors
- Email business associates for same reasons
- Have other growing farms in your email list!

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Rapid Growth – Investors & Landlords

- Newsletters?
- Website?
 - Password protected perhaps (for specific folks)
 - Lots of pictures
- Stay flexible
 - Many landlords will better appreciate a hardcopy letter or a personal visit (know your landlord!)

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Rapid Growth – Keeping up

- Crop production absolutely cannot suffer!
 - Simultaneously do production tasks
 - If you get behind, hire it done, but be sure possible arrangements have been made
- Do not pinch pennies and over-analyze in-season
 - Trust that the few bad seat-of-the-pants instinctual decisions made to keep things moving won't negate the careful planning done in the off-season
 - Applies also to opportunities that arise then

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Rapid Growth – How Get There?

- **Low tech**
 - Hire many low-paid immigrants
 - Typical of livestock, where jobs clearly defined
 - Typical of past crop farms with simple machines
- **High tech**
 - Hire fewer, higher-paid, more manager types
 - Partnering relationships with high-paid folks
 - More typical of today's crop farms

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Rapid Growth – How Get There?

- **Higher-than market rents**
- **Excellent reporting to banks, investors, employees, and landlords**
- **Pay high wages (think of perks and partnering)**
- **Social issues**
 - Emphasize that employees are good citizens and often better off than before
 - Talk about acres or dollars per person involved
 - Often you're all just employees
- **Support your community like businesses in town**
- **Only go there if you love people!**

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Questions ???



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