



Future of Agriculture Economies of Size and Trends in Agriculture

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Presented at KARL Agriculture's Future Seminar
Hutchinson, KS. January 12-14, 2011



Not a “futurism” discussion . . .

- **Futurism**
 - About cool things way in the future
 - Fun to talk about
 - Daydreaming, the mind wanders and wonders
 - Can hear about it and forget it
- **Nearby future**
 - Our lifetimes (and what happens at our death)
 - Often painful realities upon us
 - May have to make decisions today
 - Probably won't go away
 - Consider that which is statistically probable
 - That which is driven by economic forces

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What motivates farmers?

- **Farming: profit or lifestyle?**
 - Profit (economics) will drive the broad trends
- **About what will make *some* farms profitable in the future**
 - The ones that will be around in commercial ag
- **One part of a bigger picture**
 - What to do with wealth
 - What to do with human capital (personal skills)
 - Ultimately, it's about **HAPPINESS**

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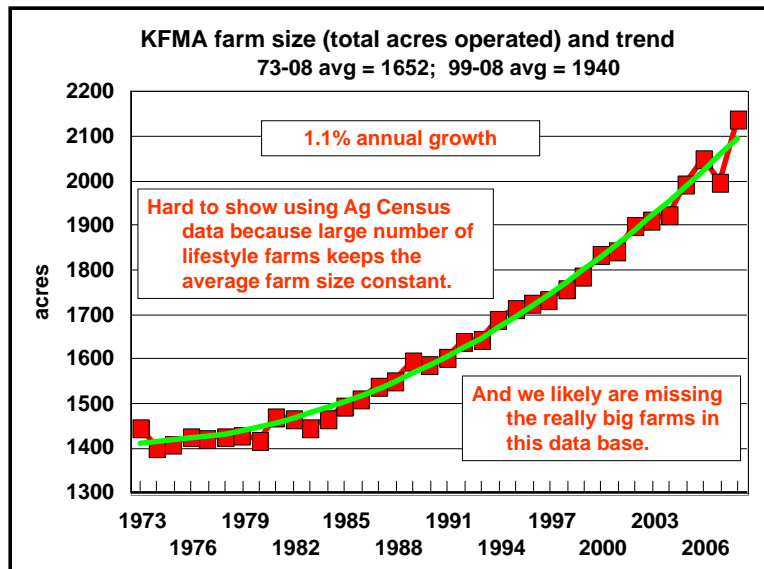
Economies of size: the driving force

- **Per-unit costs fall as a firm gets larger, typically due to:**
 - A technology or activity that has
 - great economic benefit, but which happens to have also a large investment or fixed cost
- **But, does it even exist in farming?**
 - Isn't it merely an accident of good management, with owner-managers merely plowing their profits back into their businesses, causing us to observe a correlation between profits and size?

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Is EOS for real?

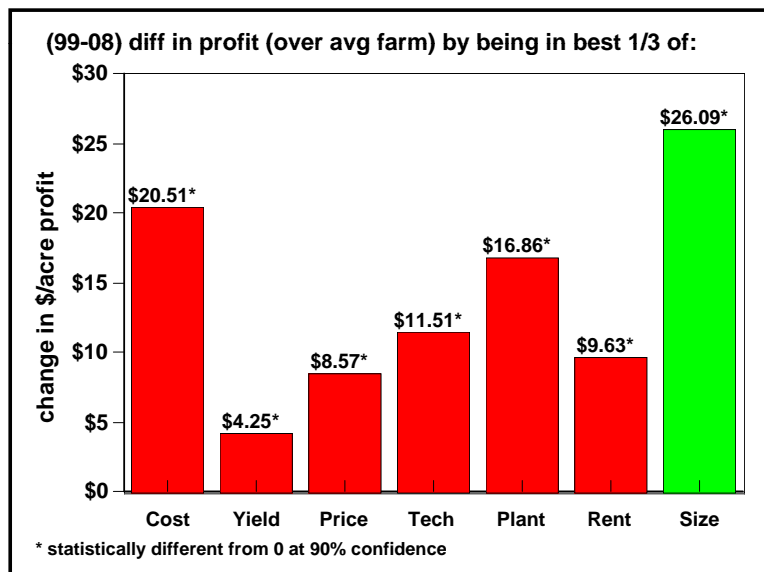
- Hard to distinguish effect of good management and other factors from the effect of size
- Statistical regression is one way to do it
 - After you correct or adjust for the impact of other factors, is there still a positive impact on profit associated with size?



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

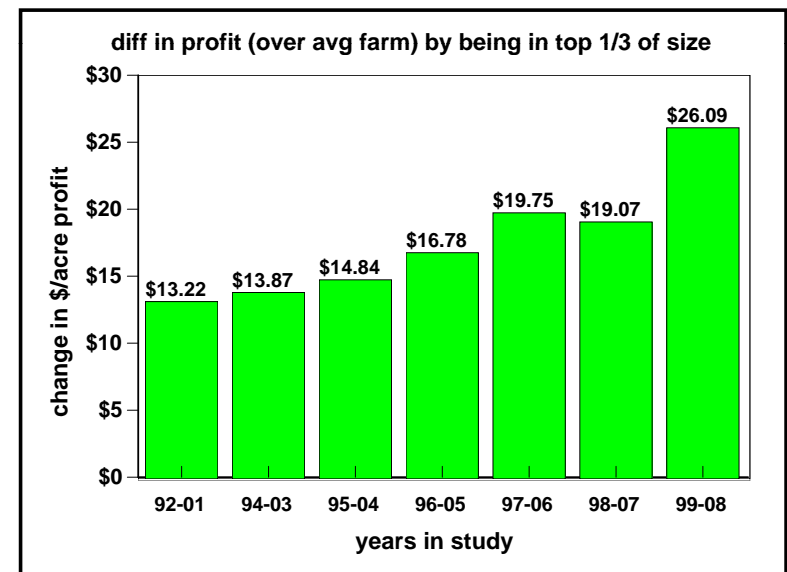
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A size effect remains – evidence that EOS is for real

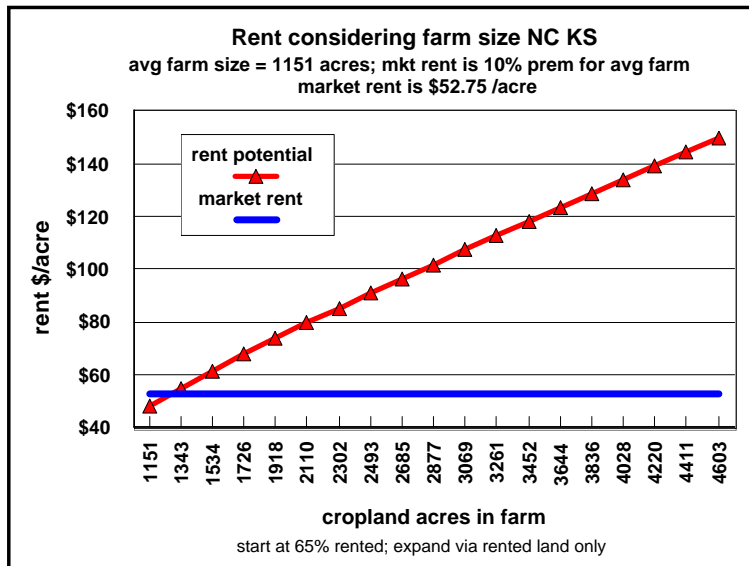
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...and this size effect has been increasing over time.

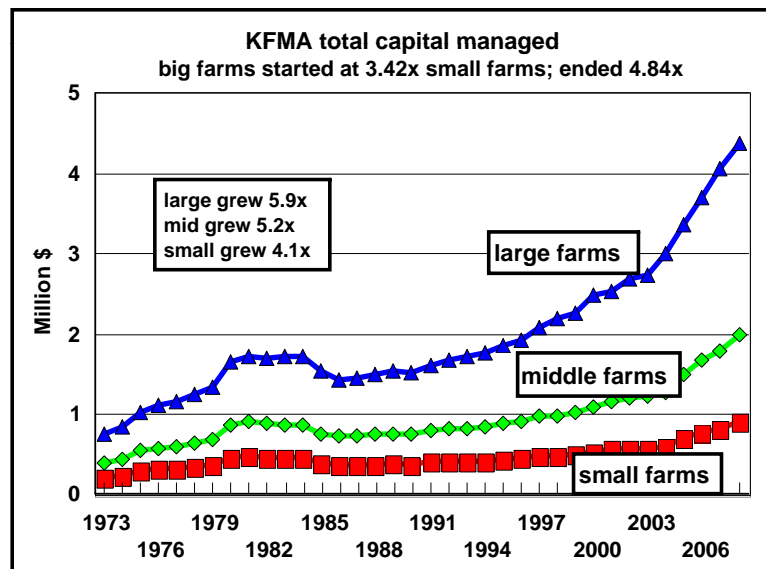
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Economies of size analysis for typical NC KS farm in 2008

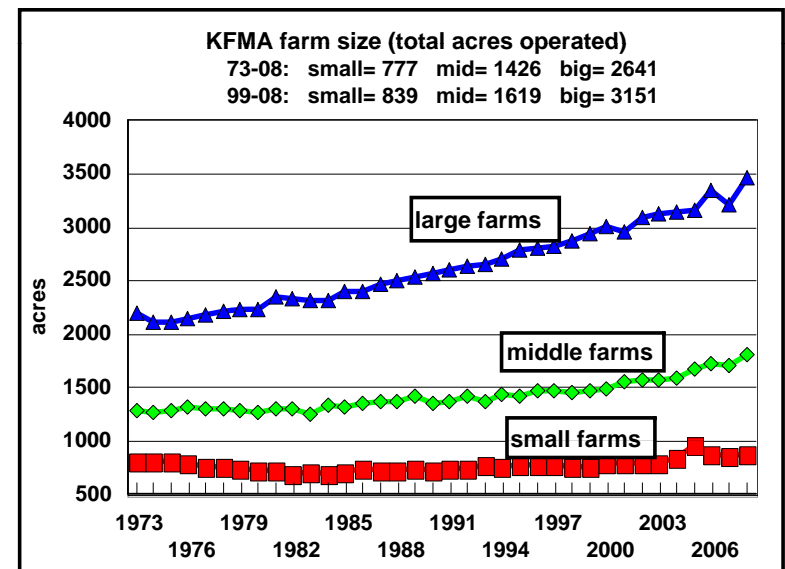


Effect of economies of size is much greater than we would imagine!

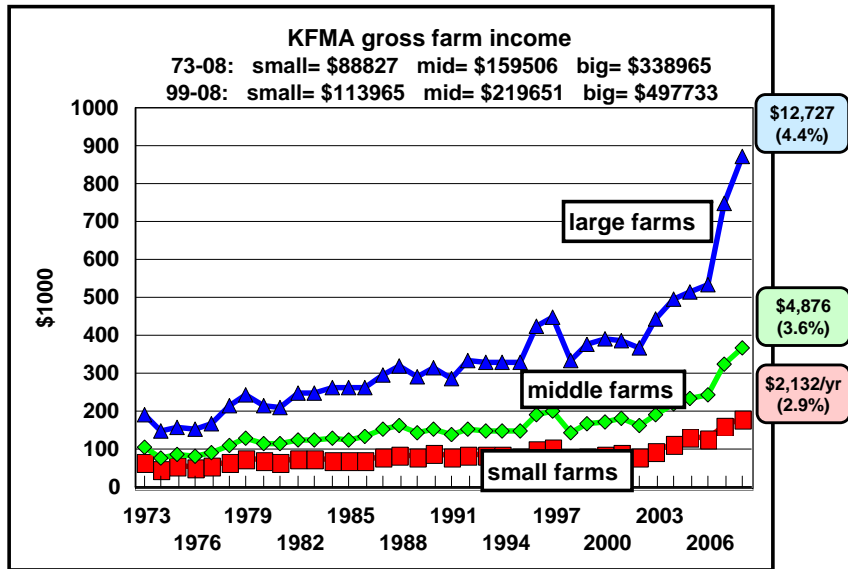
Another way at looking at farm size...



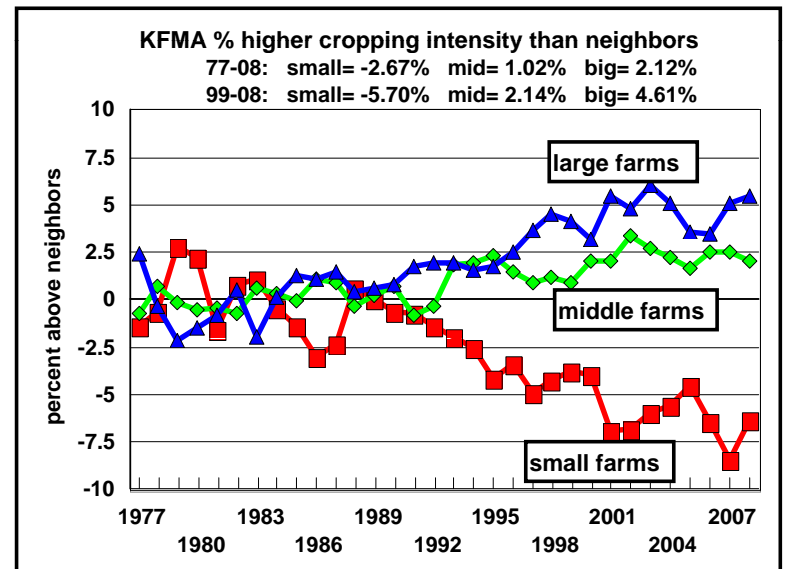
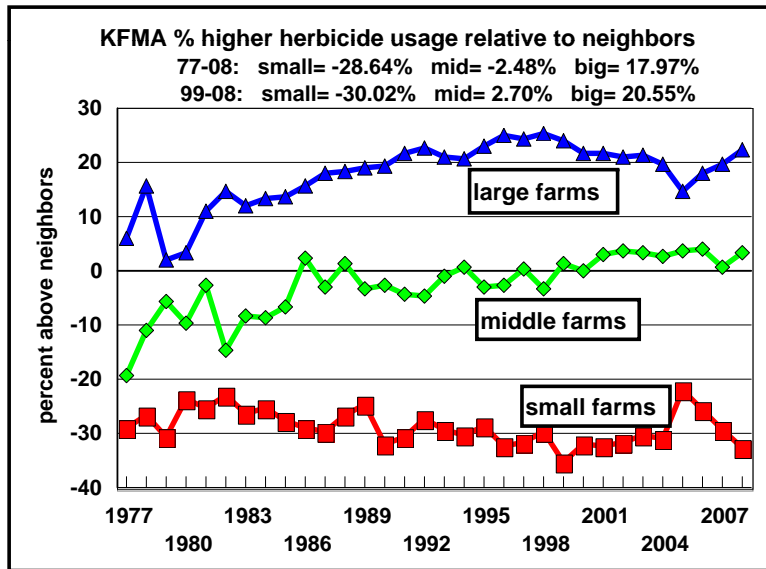
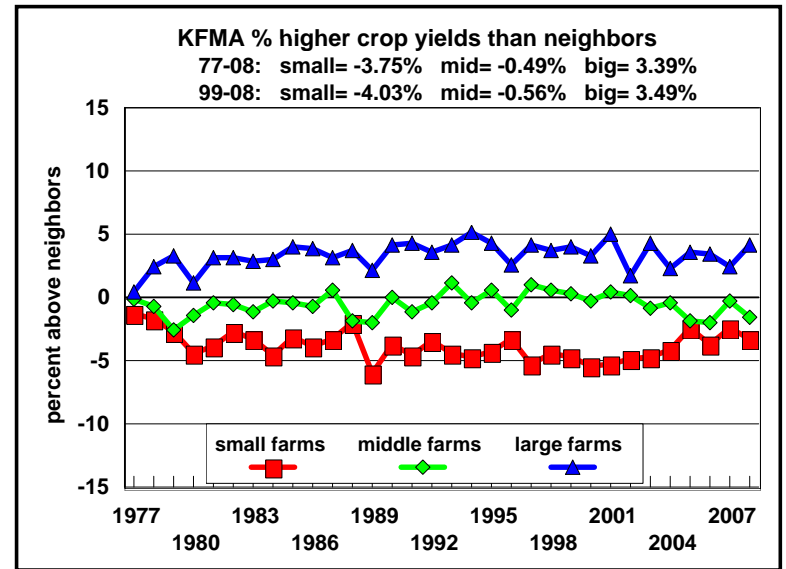
A portion of growth in \$ values is inflation



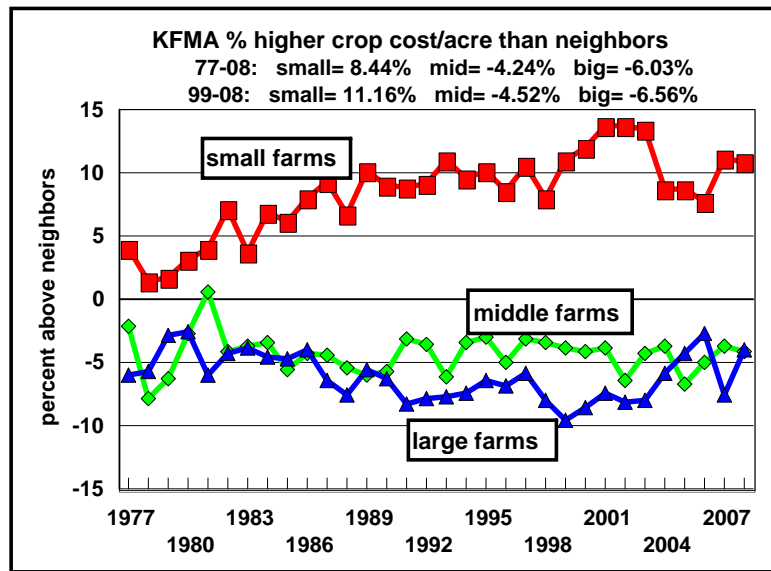
Sorted on capital managed



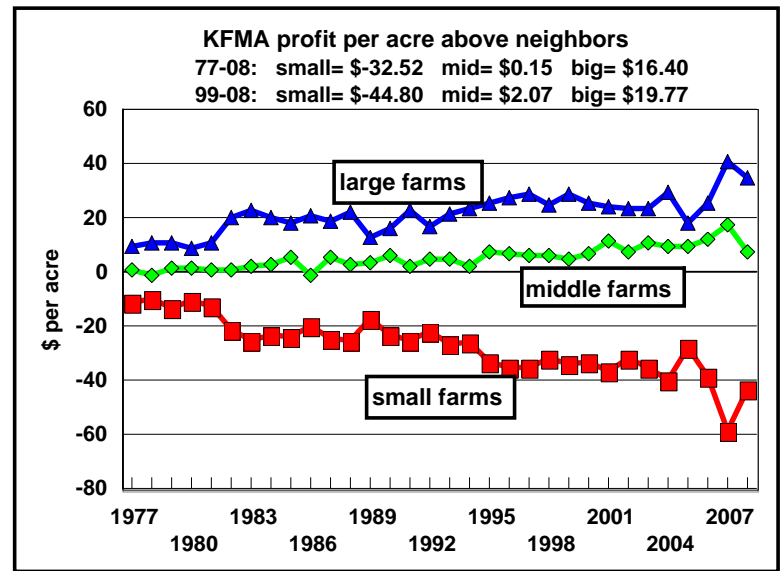
Even the "big" farms aren't all that big!



Big and small really departing from each other in last 20 years



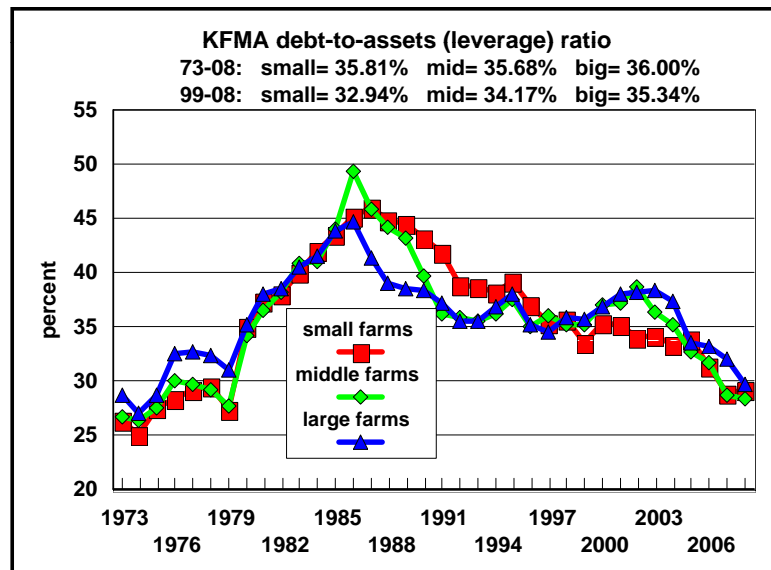
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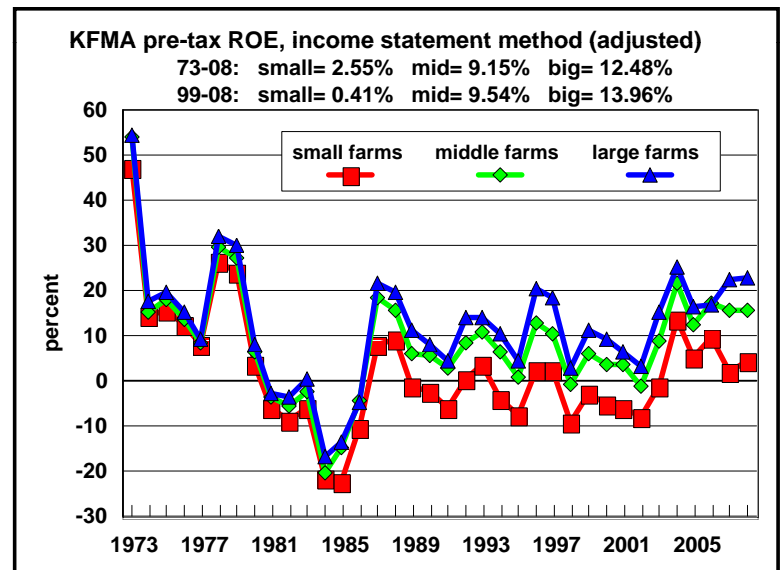
The characteristic differences across farm sizes result in profit differences

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Surprisingly, debt on the bigger farms has not been much of a constraint



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The characteristic differences across farm sizes result in profit differences

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Why are large farms more profitable?

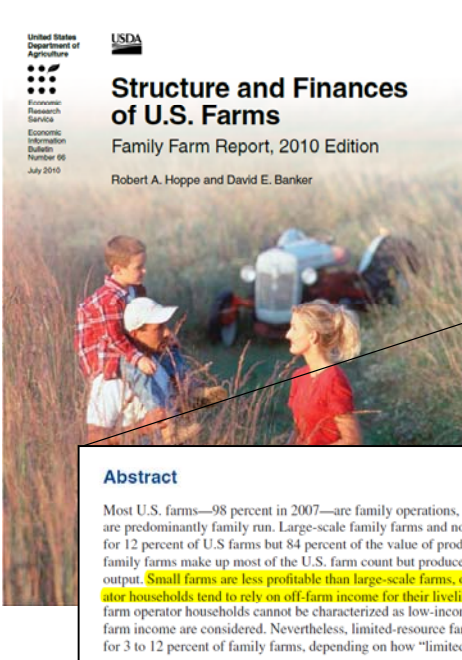
- Lower cost is the obvious benefit, but other benefits arise from the research
- Larger farms:
 - Have much lower costs
 - Get somewhat higher yields
 - Get slightly higher prices
 - Farm more intensively
 - Are much faster adopters of technology, for example, less-tillage

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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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United States Department of Agriculture
USDA
Economic Research Service
Economic Information Bulletin
Number 66
July 2010

Structure and Finances of U.S. Farms

Family Farm Report, 2010 Edition
 Robert A. Hoppe and David E. Banker

USDA
 United States Department of Agriculture
 Economic Research Service
 A Report from the Economic Research Service
 www.ers.usda.gov

Structure and Finances of U.S. Farms

Family Farm Report, 2010 Edition
 Robert A. Hoppe, rhoppe@ers.usda.gov
 David E. Banker, dbanker@ers.usda.gov

Abstract
 Most U.S. farms—98 percent in 2007—are family operations, and even the largest farms are predominantly family run. Large-scale family farms and nonfamily farms account for 12 percent of U.S. farms but 84 percent of the value of production. In contrast, small family farms make up most of the U.S. farm count but produce a modest share of farm output. Small farms are less profitable than large-scale farms, on average, and their operator households tend to rely on off-farm income for their livelihood. Generally speaking, farm operator households cannot be characterized as low-income when both farm and off-farm income are considered. Nevertheless, limited-resource farms still exist and account for 3 to 12 percent of family farms, depending on how “limited-resource” is defined.

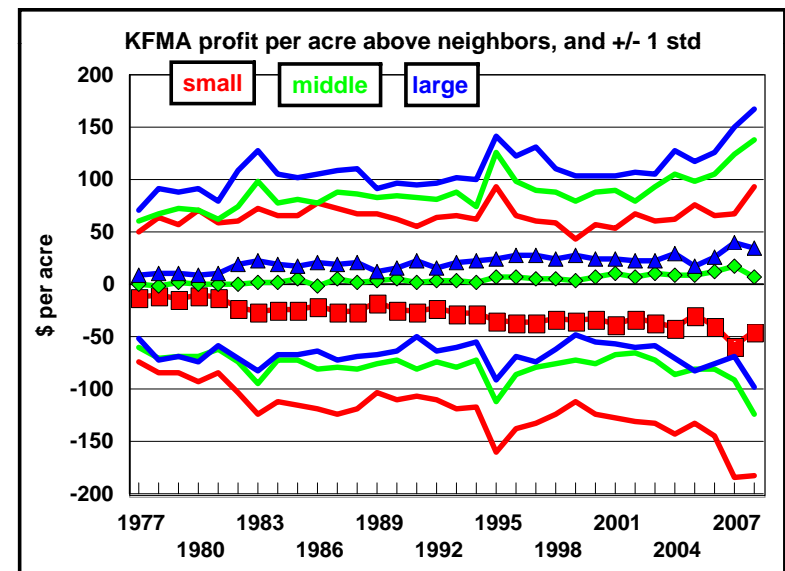
Keywords: Contracting, family farms, farm business, farm financial performance, farm operator household income, farm operators, farm structure, farm type, Government payments, limited-resource farms, metropolitan farming, million-dollar farms, small farms, farms.

Acknowledgments
 Thank Kevin Blawie of the U.S. Department of Agriculture (USDA), National Statistics Service, Jeffrey Gilgoff of Louisiana State University, University of Kentucky, and William D. McLeod of USDA, Research Service (ERS) for their review and helpful comments. We also thank editing and layout comments from Jennifer of the ERS Information System. Finally, we thank Susan DeGeorge for the design and layout of the report.

Competition between America's Smaller Family Farms, 2010 Edition (EIB-47)

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More important to be good than to be big ...



... so don't use inadequate size as an excuse to be unprofitable

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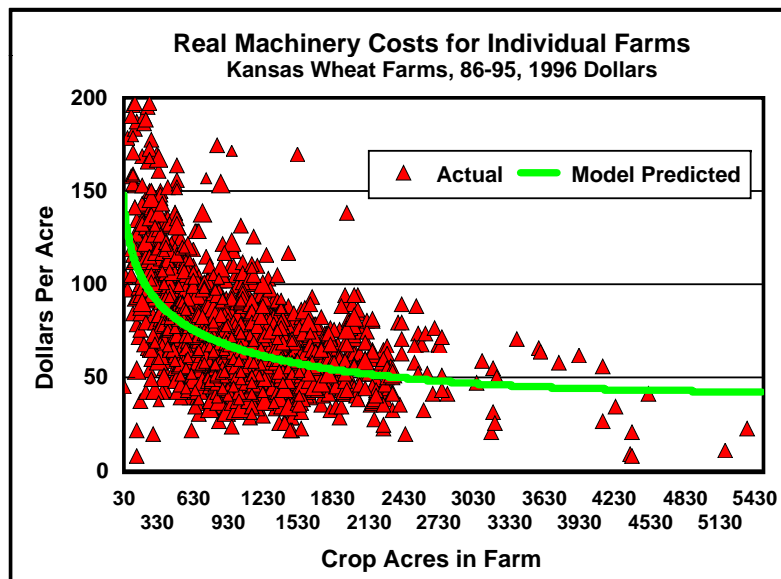
No right to profit from size

- 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 elsewhere
 - Renting the land portion to a good manager

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Do EOS turn to diseconomies at sufficiently large size?

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You be the judge! But where are the 10,000 acre farms and what might their machinery costs be?

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Do EOS turn to diseconomies at sufficiently large size?

- Government payment limitations?
 - Business structure
 - Willingness to share ownership and management
- Large farms often are targeted for...
 - environmental concerns (EPA)
 - crop insurance audits
 - terrorism?
- Can management handle size and growth?

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What about niche farming? Do we really need to get on the EOS bandwagon?

- Targeting a niche is a risky game plan
- Perceived niches not immune to EOS
 - “Remember, every niche is a commodity in the making.” Vincent Amanor-Boadu
- Becoming a large commercial farm also is a risky plan
- Recognize your comparative advantage

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Capturing EOS without growth

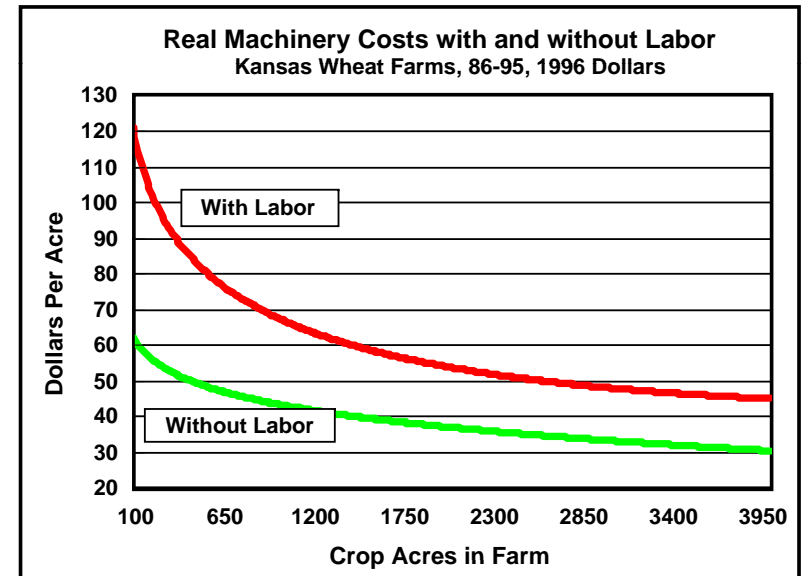
- Formal and informal business arrangements to capture EOS
 - Machinery partnerships among farms
 - MachineryLink and other rental services
 - Custom farming services
 - Input buying groups
- Here to stay....?
 - Transaction & timeliness costs may be too high
 - Possibly transitional only – ultimately one partner likely will emerge as dominant (but important transition)
 - Custom operators will give preference to size
- Successful farms will become
 - Astute assessors of costs for asset ownership and use
 - Astute price negotiators (to retain the related EOS)

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Changing EOS features across farm size

- Labor first
 - Labor is fixed and it pays to be fully employed
- Machinery second
 - Bigger machines are less expensive per unit of capacity

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Constant PER ACRE labor for larger farms means they want to adopt labor saving technologies so they can get the other size gains w/o adding labor

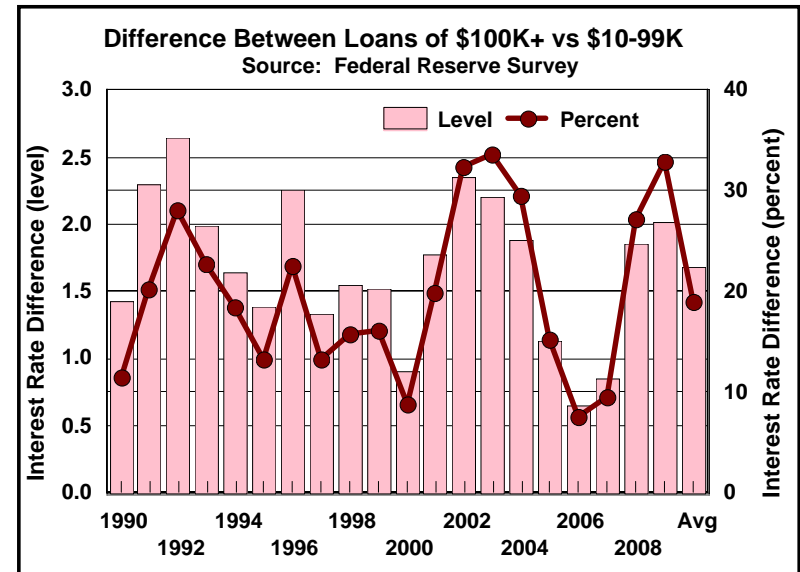
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Changing EOS features across farm size

- Other things third

- Management can be spread over still more acres
 - e.g., marketing, hybrid selection, technology evaluation, assessing FSA, CSP, 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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Bigger loans have 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

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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
 - #5 and #4 first since often get shortchanged

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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**

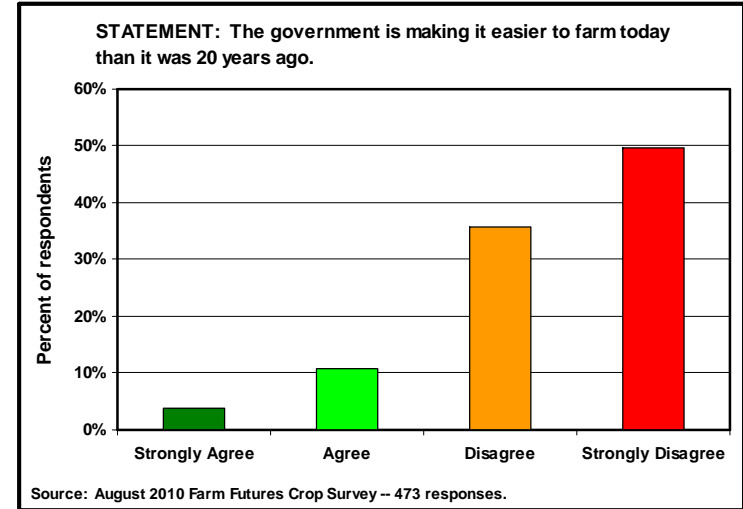
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Folks with specialized skills

- Recognize the need
- Do specialized consultants exist
 - Are they worth their pay?
- In house?
 - Should I get trained?
 - Should an employee get trained?
 - Formal degree program, workshop, or what?
 - Should I hire ready-made folks?
- Another EOS advantage of larger farms?

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4. More paperwork -- actually more computer work



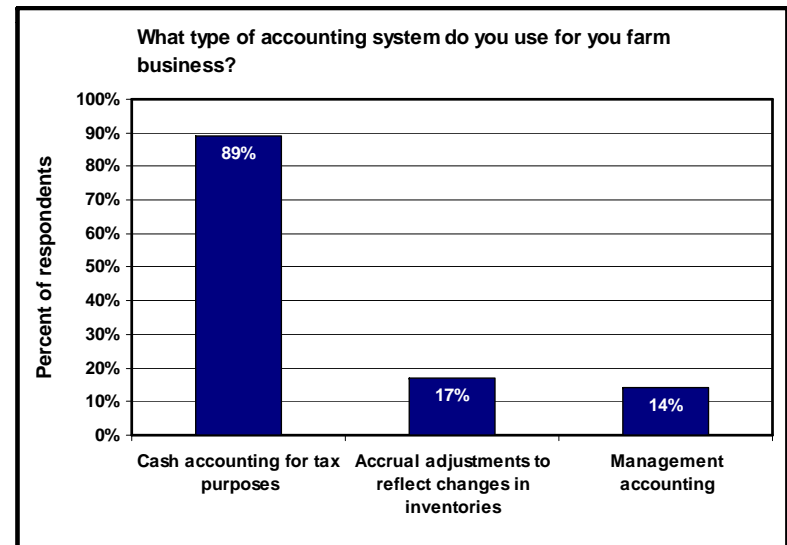
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A. Improved accrual accounting

- Called by different names but allows a farm business to know at any moment in time it's net worth
- Much more than cash accounting
 - Tracks inventory & capital item values
- More frequent than end-of-year
- Forward looking as for upcoming harvest

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Most farmers simply use cash accounting...



Source: August 2010 Farm Futures Crop Survey (~420 respondents)

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B. Better capital asset management

- Much of farm's assets are land & machinery
 - Land's value much more than agriculture
 - Machines are high dollar items
- But, knowing when to own capital assets and when to hire services is equally important
 - Is owning or leasing better? (land vs. machinery)

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C. Improved production data management and analysis

- What do you do with reams of yield monitor or individual animal data?
- Do you know the profitability of individual fields and farms?
- Do you have the ability to perform and interpret on-farm research?

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D. Better day-to-day decisions on complex issues

- Crop insurance is an example
 - Many policies and choices
 - Talking to neighbors won't cut it
- Land rental agreements is another example
 - Land rents can deviate by:
 - Soil fertility
 - Field size & shape and access
 - Market volatility can complicate things
- Need to be able to objectively and numerically analyze decisions
 - "Management by numbers"

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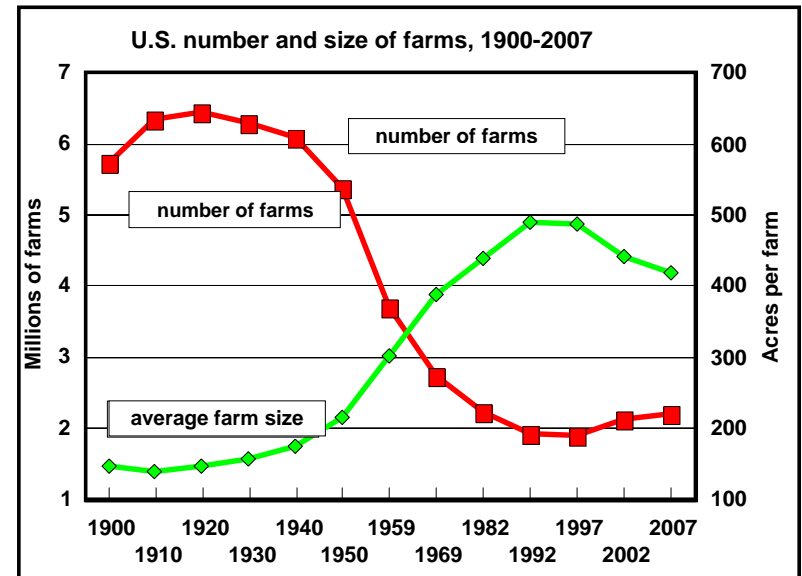
Getting an edge with more paperwork

- 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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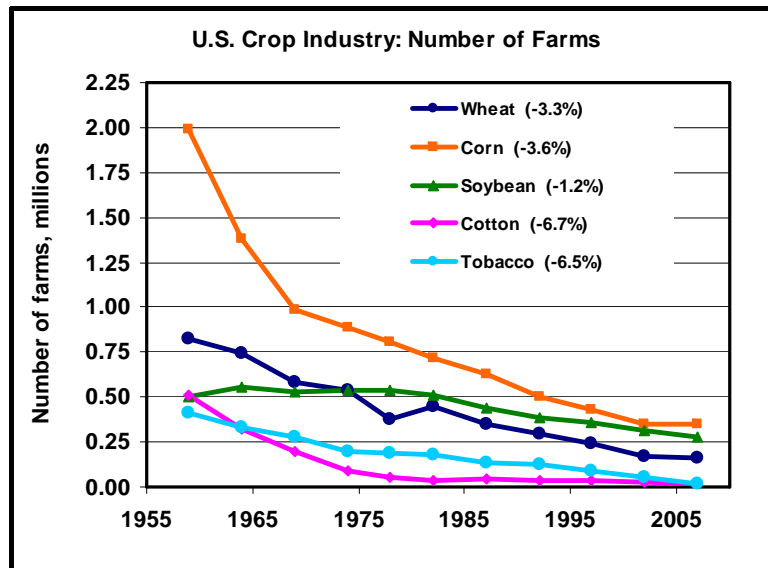
1. Consolidation

- The same or more business conducted by fewer firms
 - Cars started with Ford, numerous by 1940's, consolidated by 1970's
 - Many dry goods retailers, now Walmart
 - Currently mostly JD, CNH, and AGCO in the U.S.
 - Fewer packers, cattle feeders, dairies, swine operations, and crop farms
 - But also fewer lenders, machinery dealerships, grain elevators, and crop/livestock input providers
 - Driven by economies of size



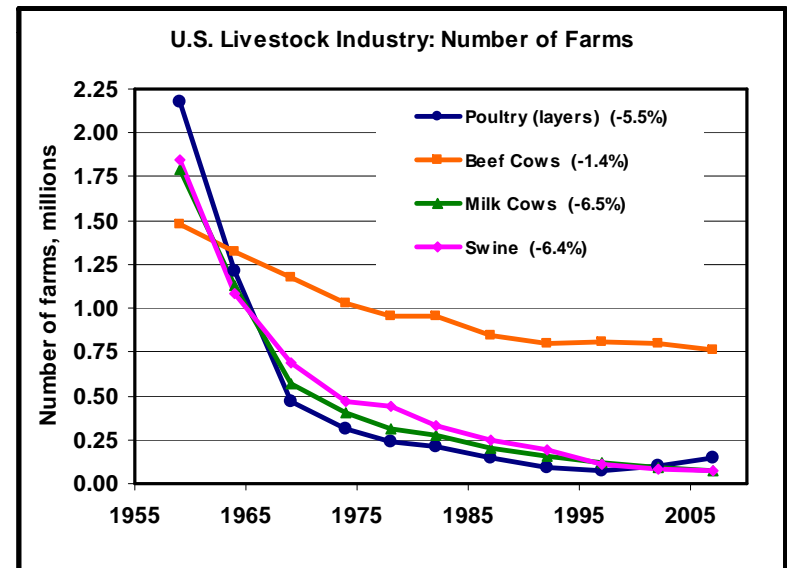
Source: Census of Agriculture

Trends in crop farm numbers . . .



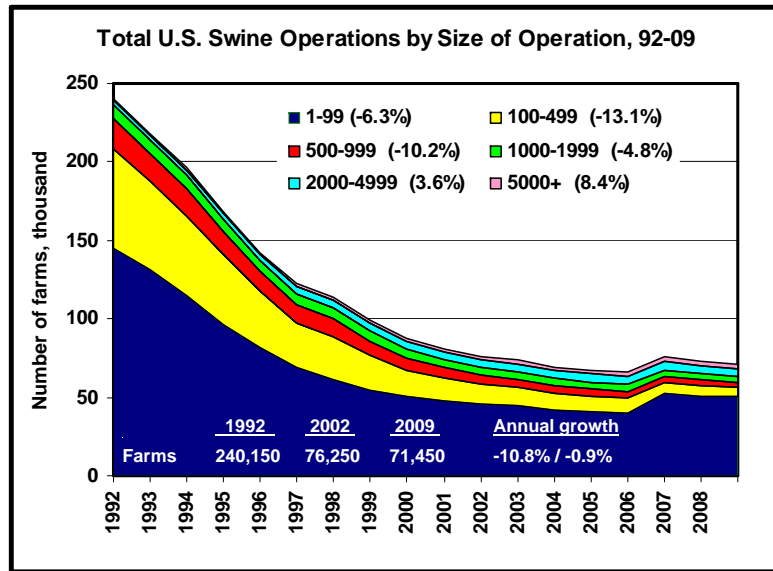
Source: Census of Agriculture

Trends in livestock farm numbers . . .



Source: Census of Agriculture

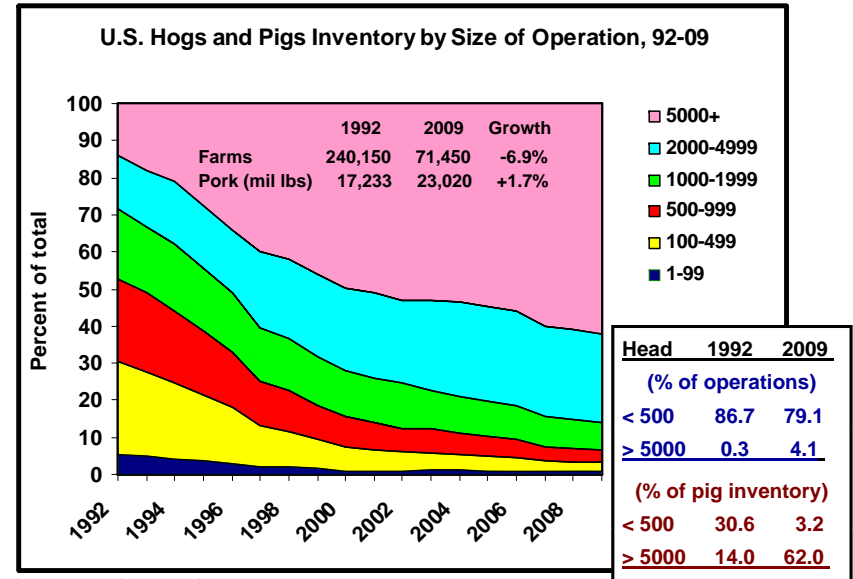
Rapid change in swine industry during 90's...



Source: USDA NASS

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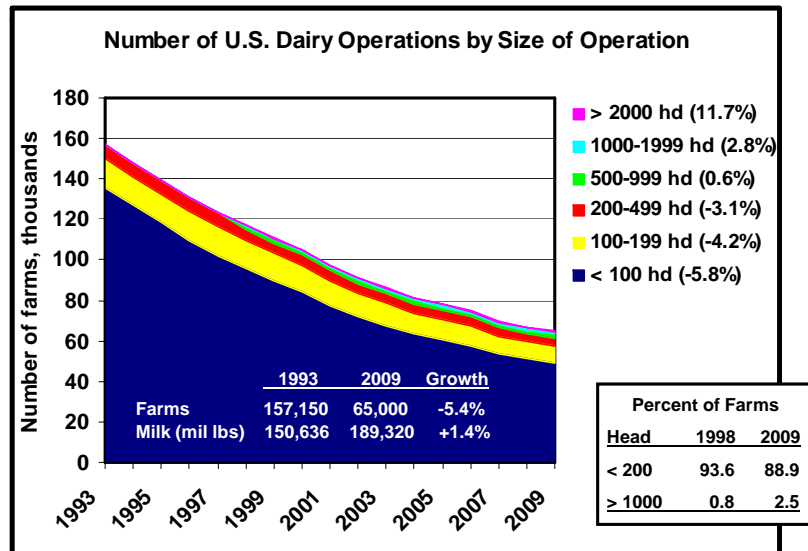
But, pork production has not decreased...



Source: USDA NASS

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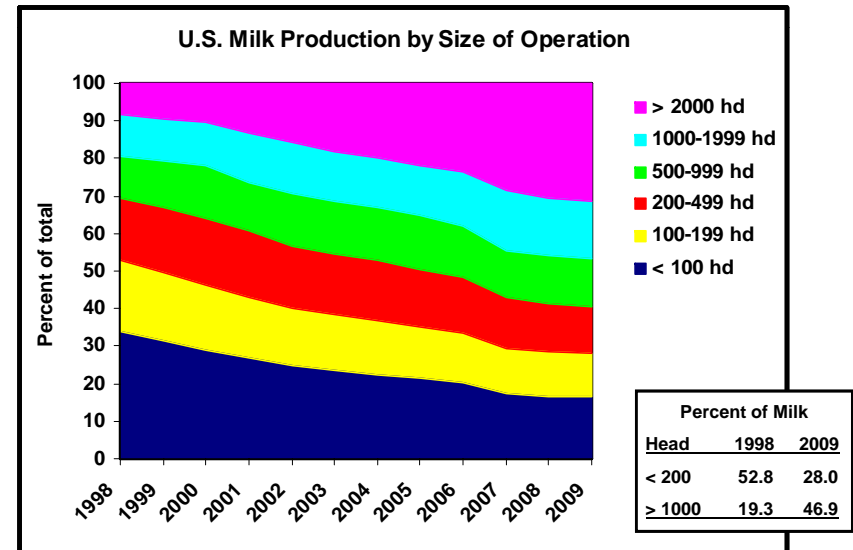
Dairy industry looking similar to the swine industry



Source: USDA NASS

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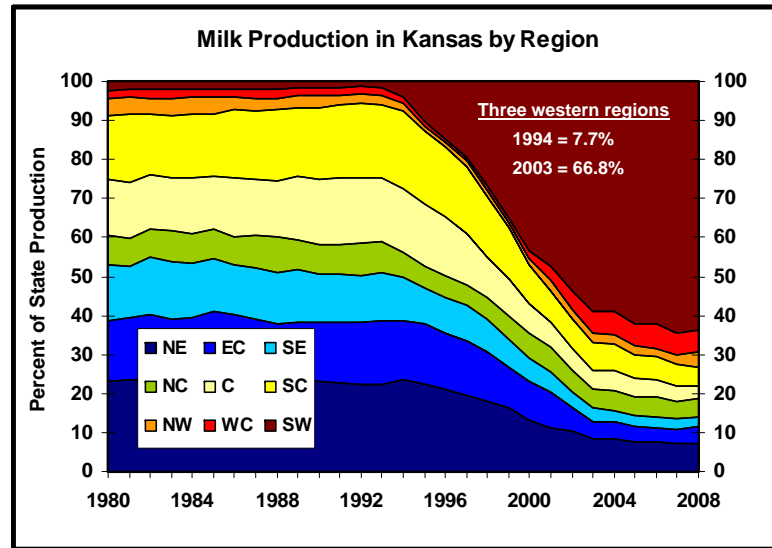
Consolidation in dairy is happening...



Source: USDA NASS

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Consolidation impacts “local” production . . .



Source: USDA NASS

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Concentration of U.S. animal agriculture in 2009 (production from approximately 10% of operations)

	Size of operation (hd)	Percent of operations	% of I, M, or P*
Beef cows	100+	9.7%	54.6% (I)
1000+ head Feedlots**	24,000+	8.5%	61.6% (M)
Dairy	200+	11.1%	72.0% (P)
Swine	2,000+	11.5%	86.0% (I)

* I = Inventory, M = Marketings, P = Production

** Feedlots with 1000+ head represent 2.6% of all feedlots and account for 84.7% of marketings

Source: USDA NASS and K-State

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Consolidation in production agriculture

- Farms have been consolidating for decades
- But, rapid consolidation is more extreme
 - Poultry in the 1960s
 - Cattle feeding in the 1970s
 - Swine in the 1990s
 - Dairy in the 2000s
- Will crop production be next?

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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
 - Some operators have really been making large investments in managing, partnering, employing, financing
 - They're ready or nearly ready for rapid expansion!
- Remember, we never saw the rapid consolidation in poultry, swine, and dairy coming either

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What does rapid consolidation in crop production mean?

- Dramatic reductions in per-unit costs of production
- Intergenerational wealth transfer coupled with debt will not keep up with the growing demand for capital
- Driving force will be bottoms-up
 - Outside investors will seek good returns from hands-off investment rather than from vertical integration
 - Land will be the first investment of choice, followed later by machinery and crop inputs
- Increase in farming profits
 - An *extra* increase in ag rents
 - An *extra* increase in land values
 - Remember that land is the residual claimant
- Need to understand land returns will be critical

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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
 - Farm managers need to establish relationships with other farm managers to understand price
- Must improve PEOPLE (and analytical) skills
 - Think of partners, not competitors!

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2. Technology

- Definition: the application of science to industrial or commercial objectives
- More narrowly, agricultural technologies are those machines or processes that impact production agriculture, typically by
 - lowering cost, or
 - increasing revenue
- Requires investment
 - so the natural question is, Will it pay?

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Technology: Will it pay?

1. How much is the investment?
2. What is the expected return on investment? (How fast is the payback)
3. How confident am I that this will happen?

Answering these three questions will often go a long ways in explaining why a technology is, or is not, adopted (and how fast it is adopted).

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If a profit materializes . . .

- I'd like to apply the technology to more units of production (often, acres)
- So I bid up rent or land values
 - Just a bit if I'm the only one using the technology
 - A whole bunch if many are using the technology
- It takes only a few viable adopters in an area to dramatically drive up rents

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• Early adopters

- Adopt to become more profitable
- See the technology as a great opportunity
- Bid up rents and land values

• Later adopters

- Adopt just to survive
- Sometimes wish things would go back to the way they were
- Sometimes recognize the potential but are too small to justify the investment
- Higher rents mean higher costs and non-adopters find themselves going broke in the face of rents they perceive as “too high”

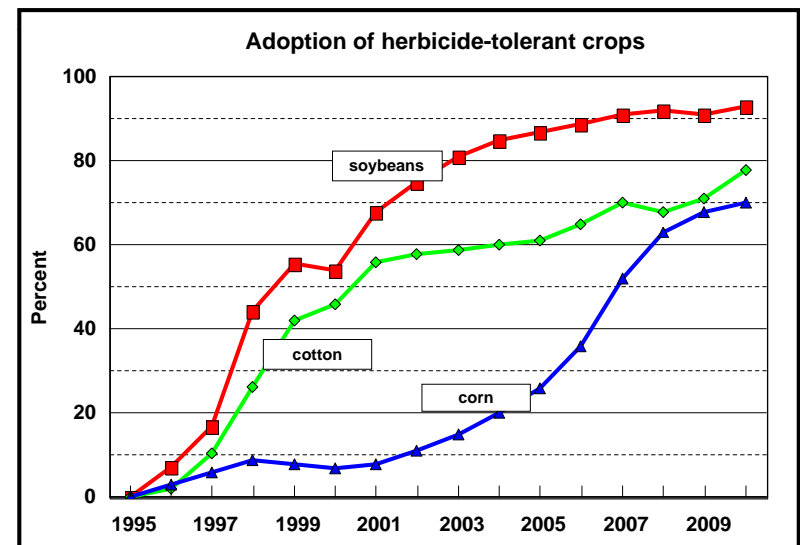
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Technology: speed of adoption

- Big and obvious gains probably non-existent
- Small, obvious, gains along with small investment implies fast adoption
 - “belly-button” or “duh” technologies
 - Roundup-Ready soybeans

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Some technologies are fairly obvious . . .



Source: USDA/ERS

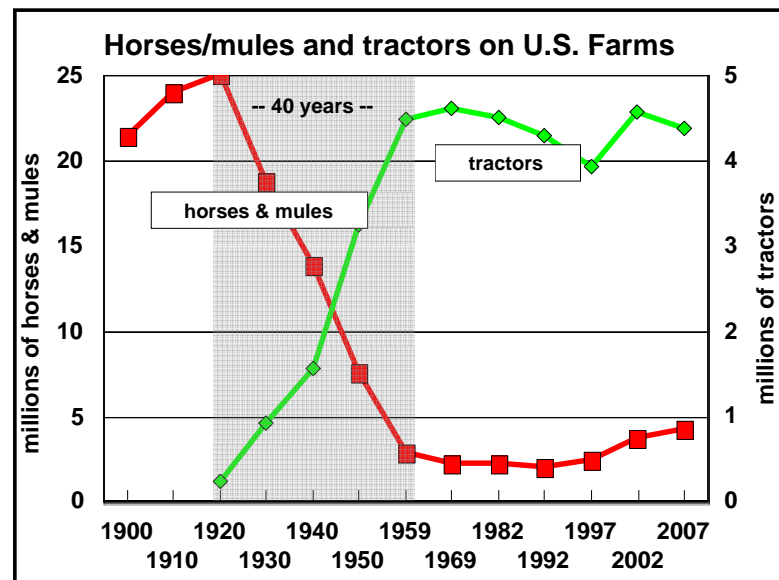
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Other “duh” technologies (most farms)

- Lightbars (GPS guidance)
 - Gains against overlap and marker alternatives are easy to assess
 - Do take a little more investment so less adopted by small farms
- Tractor cabs
 - Hard to measure gain in \$ but know it’s there
- GPS-assisted steering
 - Larger investment than lightbars but still easy to measure advantage
 - Aspects like tractor cabs (reduces stress)
- Section / individual row controllers

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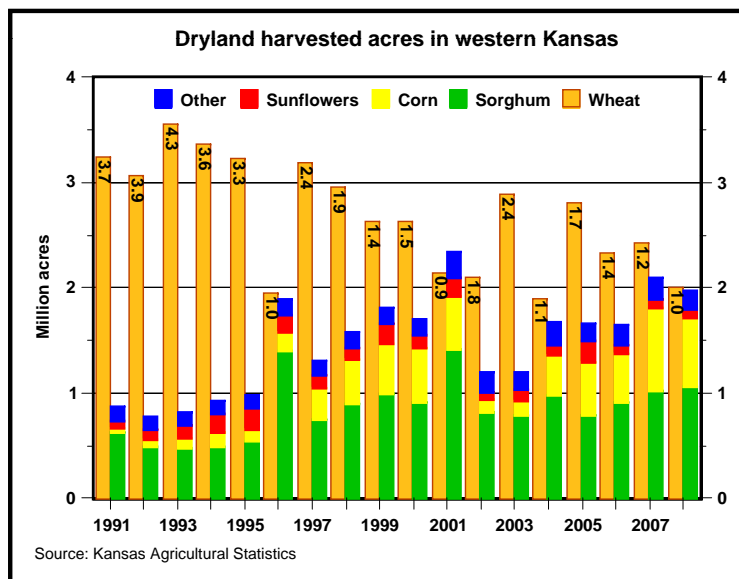
Some technologies aren’t so obvious . . .



Source: U.S. Census of Agriculture

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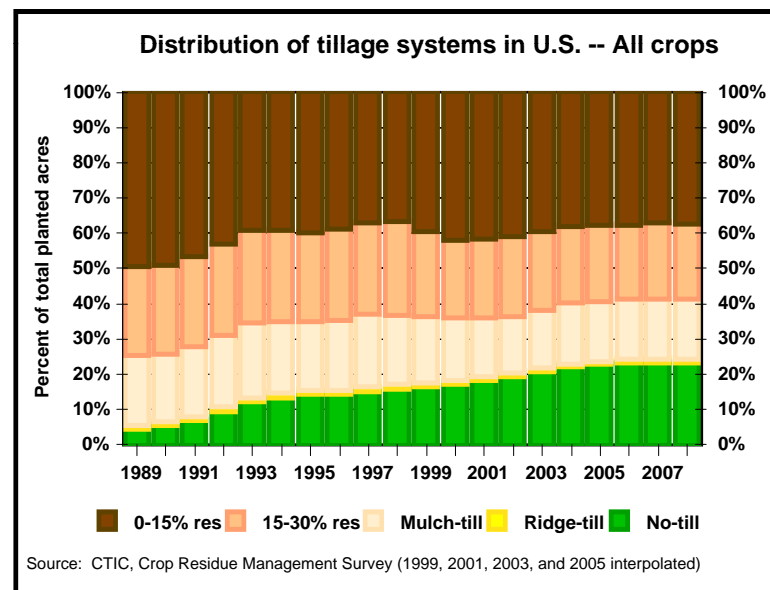
Unexpected factors drive technology adoption...



Source: Kansas Agricultural Statistics

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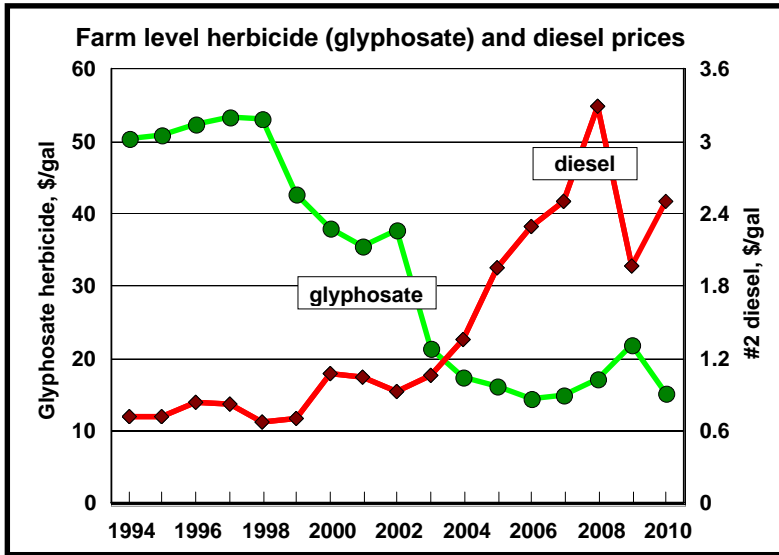
Some technologies aren’t so obvious . . .



Source: CTIC, Crop Residue Management Survey (1999, 2001, 2003, and 2005 interpolated)

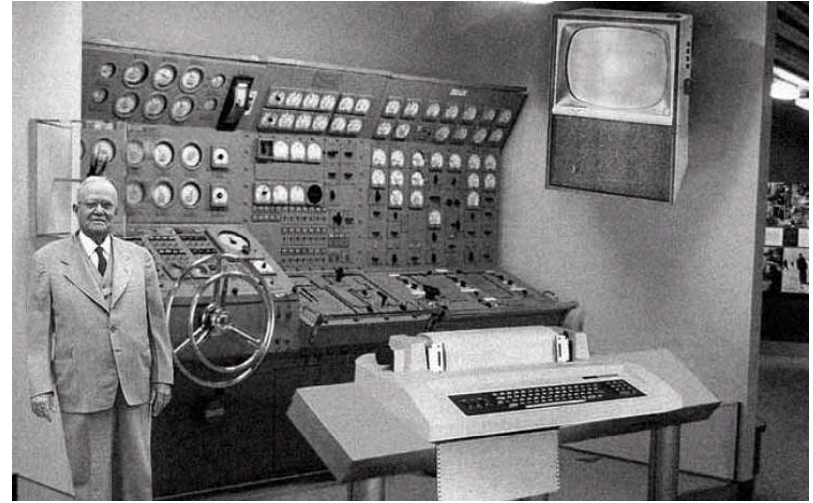
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Did falling relative herbicide costs hasten adoption?



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But, predicting technologies isn't particularly easy . . .

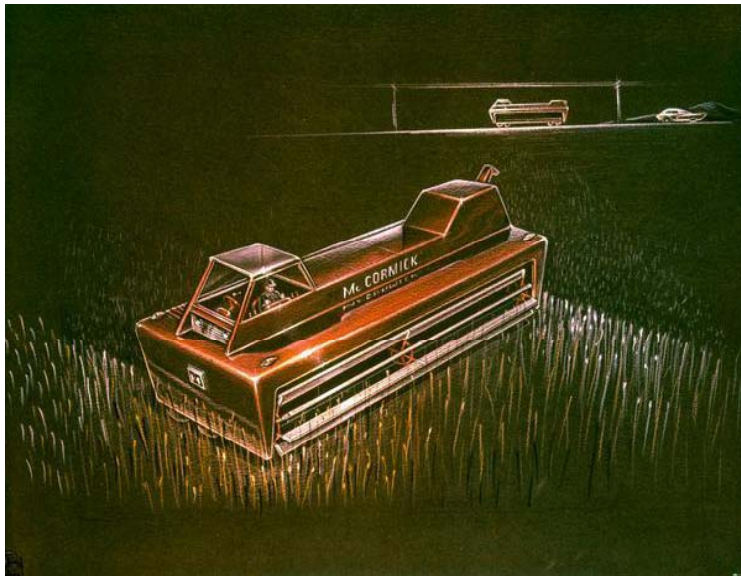


Scientists from the RAND Corporation have created this model to illustrate how a "home computer" could look in the year 2004. However the needed technology will not be economically feasible for the average home. Also the scientists readily admit that the computer will require not yet invented technology to actually work, but 50 years from now scientific progress is expected to solve these problems. With teletype interface and the Fortran language, the computer will be easy to use.

Popular Science, 1954

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But, predicting technologies isn't particularly easy . . .



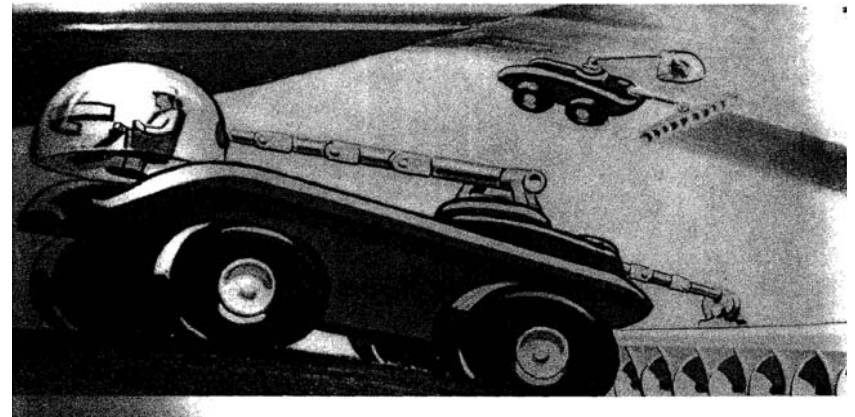
Future McCormick harvester (turns for road travel), 1960s?

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Yet, folks in the past were quite insightful conceptually (think of desire to "study" implement workings and how autoguidance allows it today)

TRACTORS THAT DON'T LOOK LIKE TRACTORS. Another look at what tomorrow's tractors will look like came from the Ford study. The artist's conception shows an air-conditioned bubble-type cab that can be moved back over the equipment to check any problems.

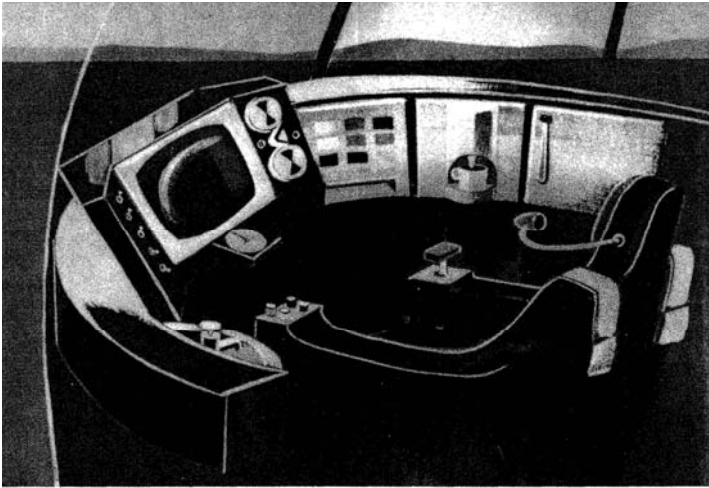
Courtesy, Ford Tractor Co.



What 2000 will look like from vantage point of 1960s

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Still more historical insight



COMFORTABLE CAB. Predictions from Ford also indicate tractors of the future will be distant cousins of today's farm vehicles and their cabs will be just as advanced. This illustration depicts the cab of a tractor projected for the year 2000. Starting at the driver's right, and moving left, are a refrigerator, coffee maker, food warmer, a television set which is connected either to the farmer's headquarters or to other vehicles, there's even a sink. All controls are within arm's length of the driver so he can perform his jobs quickly and easily. This illustration is from "Agriculture 2000," a study conducted by Ford Motor Company's U. S. Tractor and Implement Operations to project the look of agriculture at the turn of the century.

Courtesy, Ford Tractor Co.

What 2000 will look like from vantage point of 1960s

77

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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But how do I know?

- Think SCIENCE
 - No magic
 - Stay away from foo-foo dust
- Think MARKETS
 - If the returns sound too good to be true they probably are
- Think ENGINEERING
 - What will the technology actually do?
 - What is a technology's opportunity?
 - After all, costs often fall

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Land Grant Institutions

- Provide a nice check
 - Kept many from using the myriad silage/hay preservatives in the 1970s
 - But, don't carry that mantra too far. After all, some preservatives actually worked!
- Sometimes too slow
 - Focus on high confidence in their statistical tests
 - Business decisions often made at much lower confidence levels
- But, their science is good, so ask them about the science behind a technology you're considering

80

Technology and farm size

- Large farms adopt technology more quickly
 - Because of investment (economies of size)
- If technologies come out ever faster, then farms will get larger ever faster
- Rapid growth in farm size may become the norm
- End result (like it or not): consolidation

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Scale-neutral technologies?

- Roundup-ready soybeans?
- Robotic milkers?
 - A robot station is rated at 60 cows
 - Will there be multi-unit discounts?
 - Can a person check the attention list of several robots?
- Farm machinery?
 - There are engineering limits to machine width causing price per foot to eventually go up
 - Will there be multi-unit discounts?
 - Multi-unit tracking and servicing?

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3. More connections with non-ag

- More opportunities for farmers to sell services to non-farmers (e.g., lease hunting)
- More opportunities for farmers to invest off-farm (e.g., ethanol, or the latest value added)
- More opportunities for non-farmers to invest on-farm (e.g., landowners)
 - Most important for growth
- Increase need for analytical abilities and people/communication skills

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Land plays an especially interesting role in connecting ag and non-ag worlds

Understanding this connection is critical to successful farm management

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Land is Unique

- Most fixed of farming assets
 - Residual claimant
 - Capitalizes government subsidies
- Often is taxed
 - Favorably or unfavorably
- Has non-ag benefits that may be pecuniary
- Has non-pecuniary benefits
- A long term investment involving long term expectations – history is a guide

85

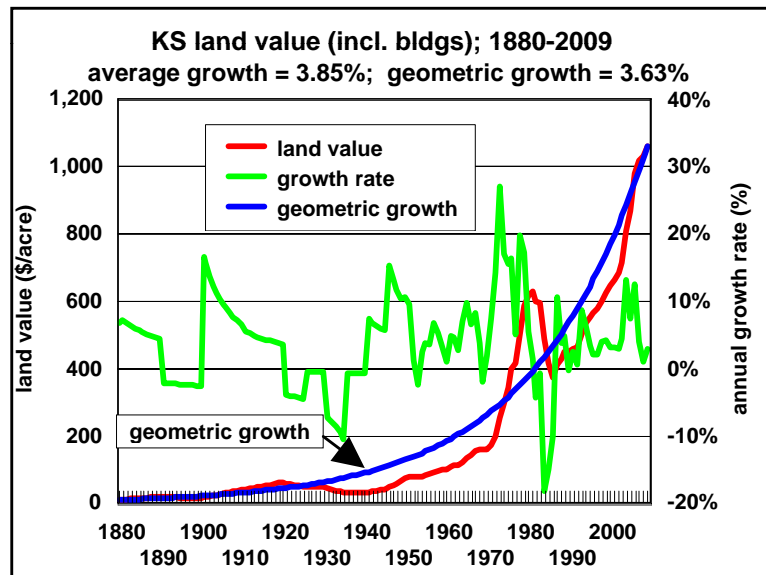
Factors/issues impacting land values

(alphabetical order)

- Farm profitability
- Farm size
- Government programs
- Input costs (e.g., fuel and fertilizer)
- Interest rates
- Outside investors (i.e., stock market money)
- Recreation uses (e.g., hunting)
- Renewable fuels (ethanol and bio-diesel)
- Section 1031 tax exchanges
- Technology (e.g., no-till, precision ag, bio-tech, DNA)
- Urban sprawl
- Weather (i.e., drought, flood)

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Historical perspective

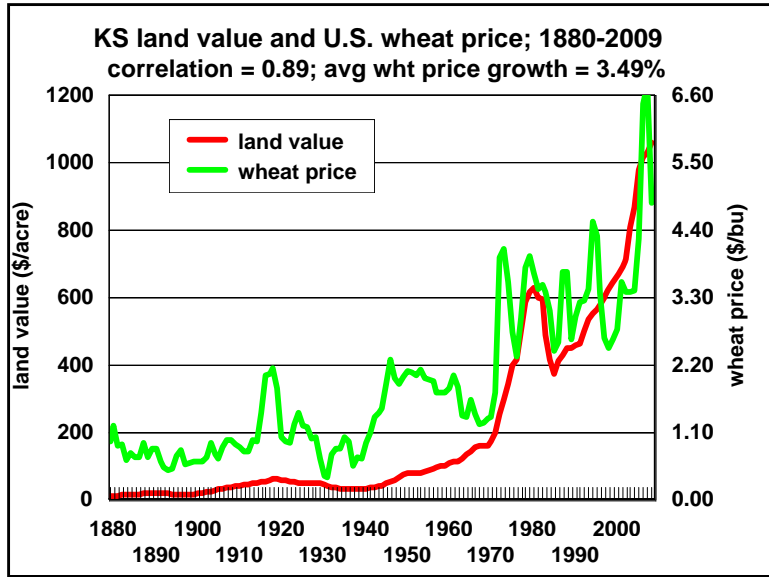


1879 starting land value for Kansas was \$10.30

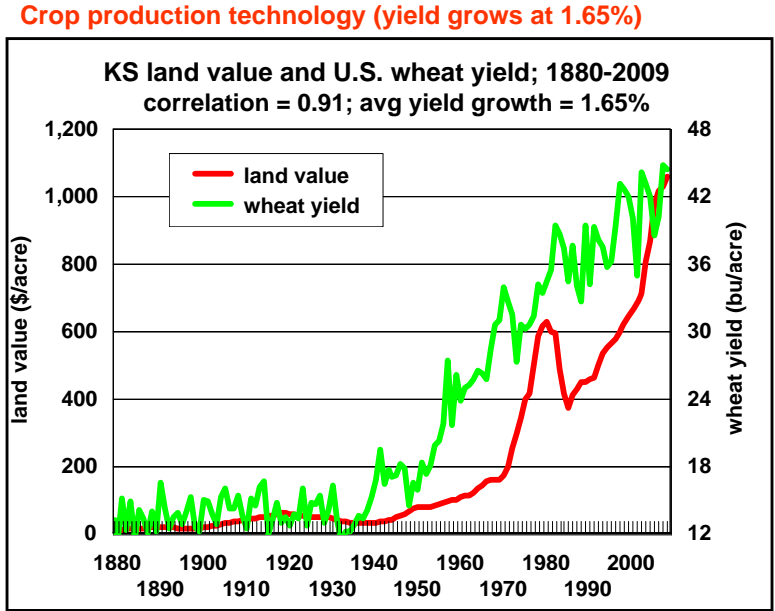
87

What drives land prices in the long run?

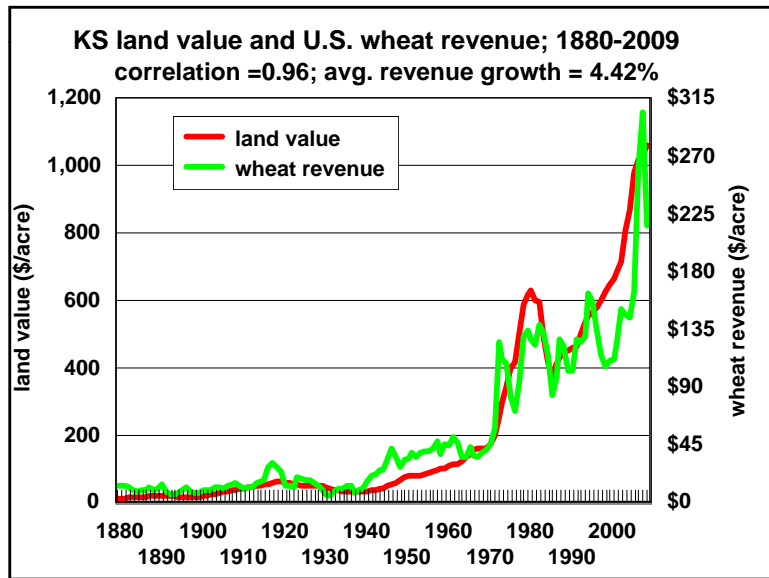
88



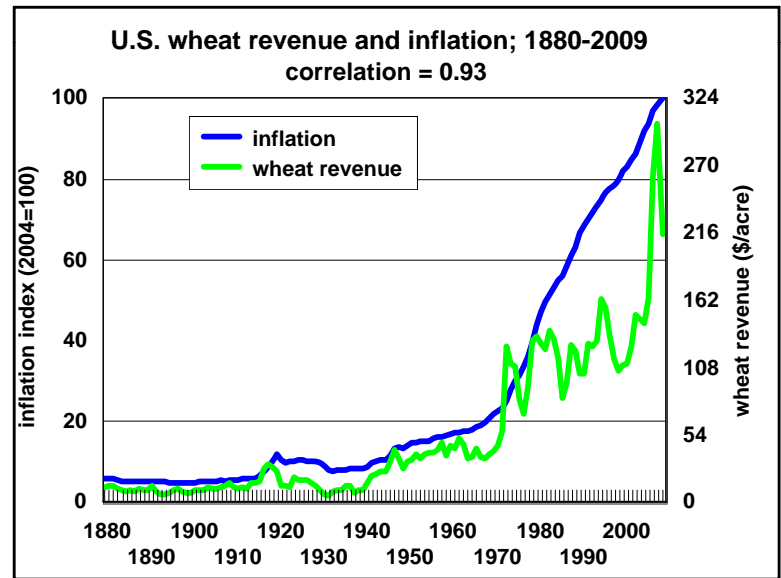
89



90

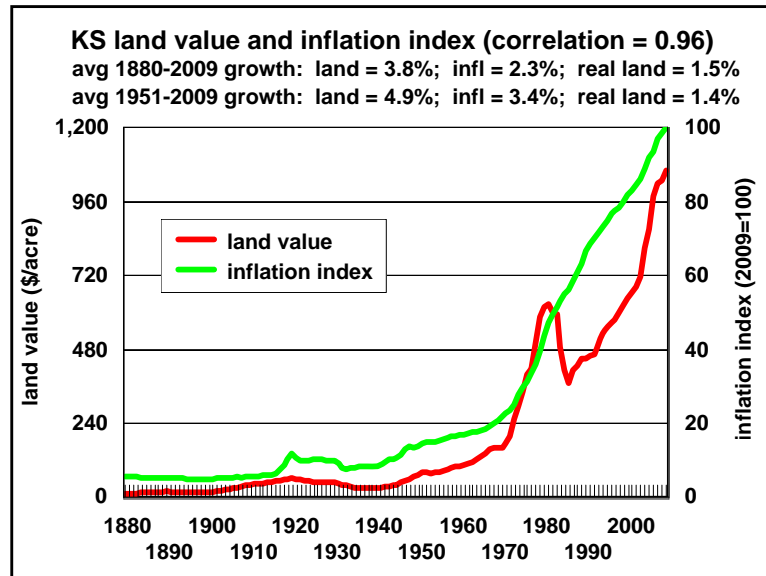


91



92

Just add real growth (technology) to inflation?



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Returns to Land

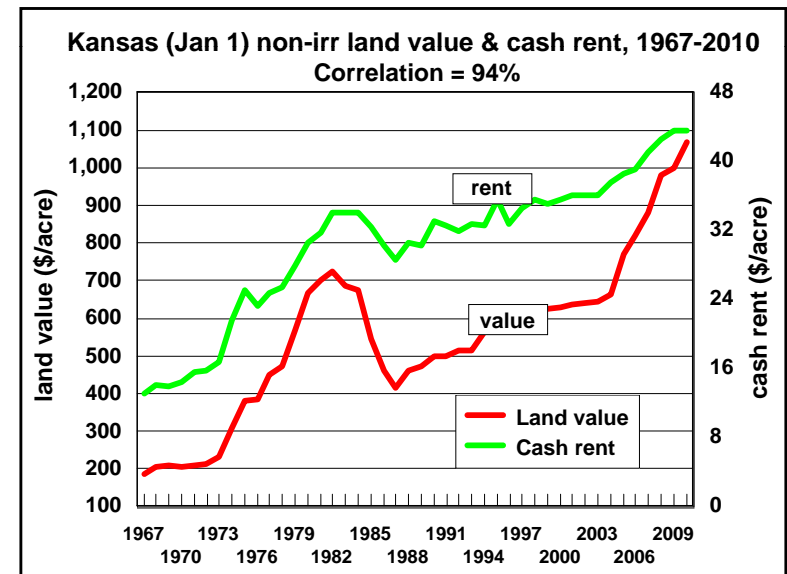
- Land
 - Cash returns: rents or rent-equivalents on owned land
 - Non-cash returns: capital gains (growth)
- Stock market
 - Cash returns: dividends
 - Non-cash returns: capital gains (growth)
- Typically, neither land nor stock investments “cash flow”

94

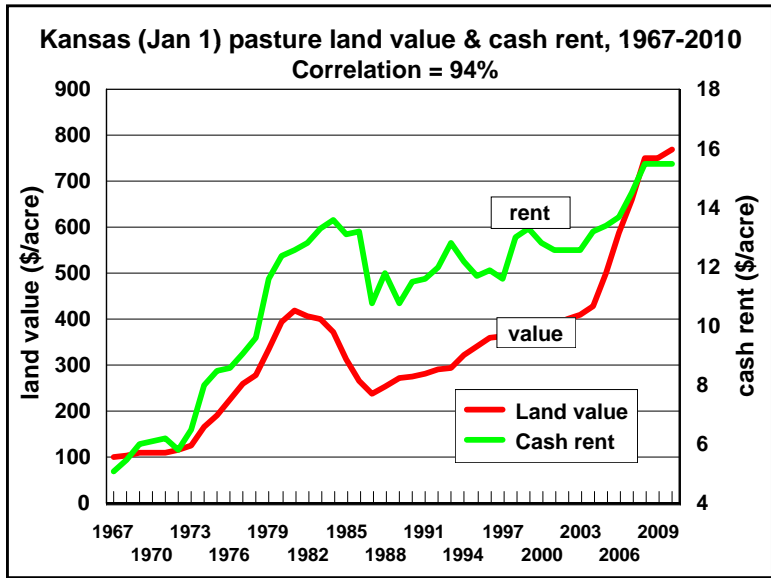
Cash-flowing land

- Total return (profit) = rent + capital gain
- Cash flow is not the same as profitability
- Cash flowing a land purchase
 - Does rent cover a 100% loan? Almost never!
 - Does rent cover a 25% loan? Almost always!
- Land doesn't cash flow when purchased
 - i.e, rents don't cover loan payments
 - rents grow, loan payments don't
 - land eventually cash flows

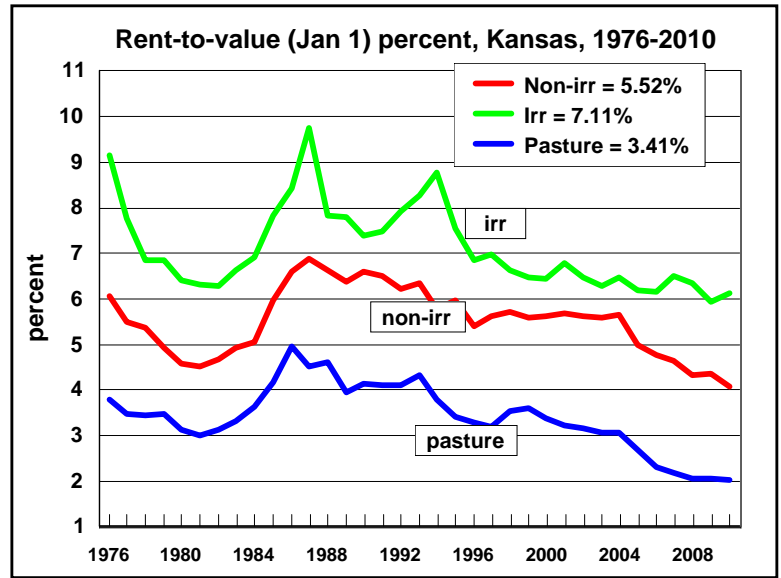
95



96



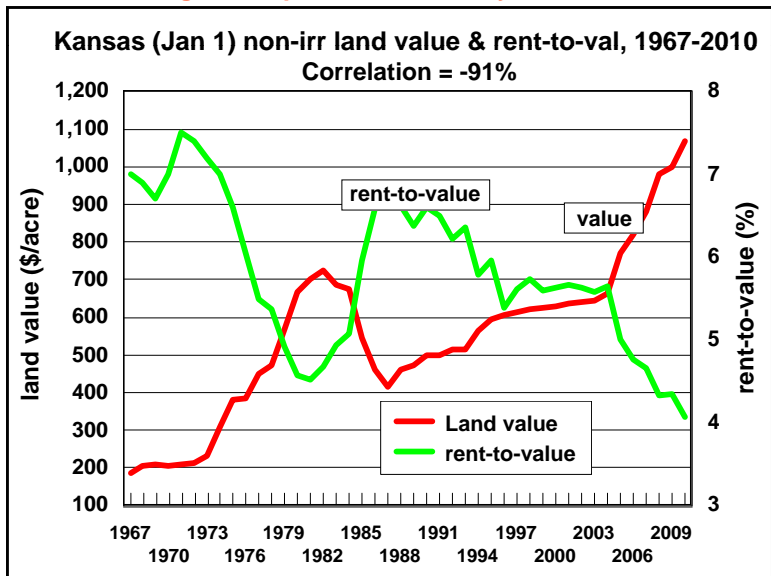
97



Downtrend hints at something else going on besides ag profits . . .

98

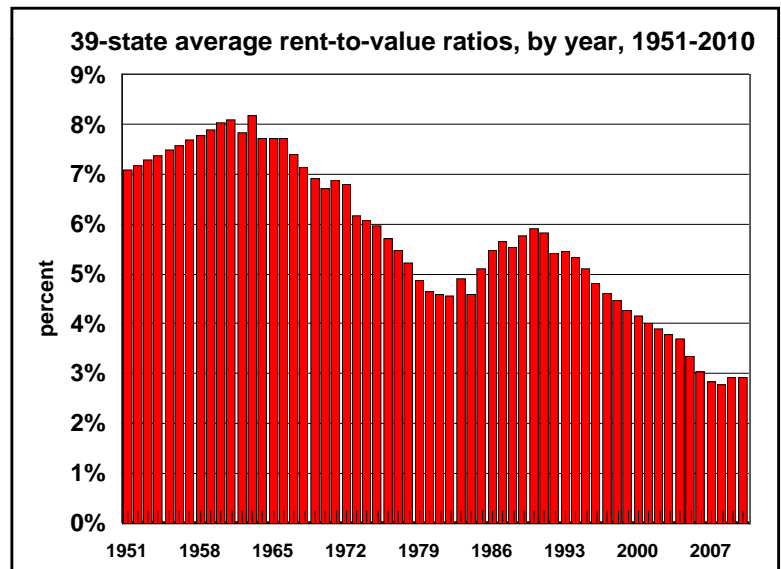
Are we seeing a land price bubble today?



Just how important is rent-to-value as an indicator of smart investing?

99

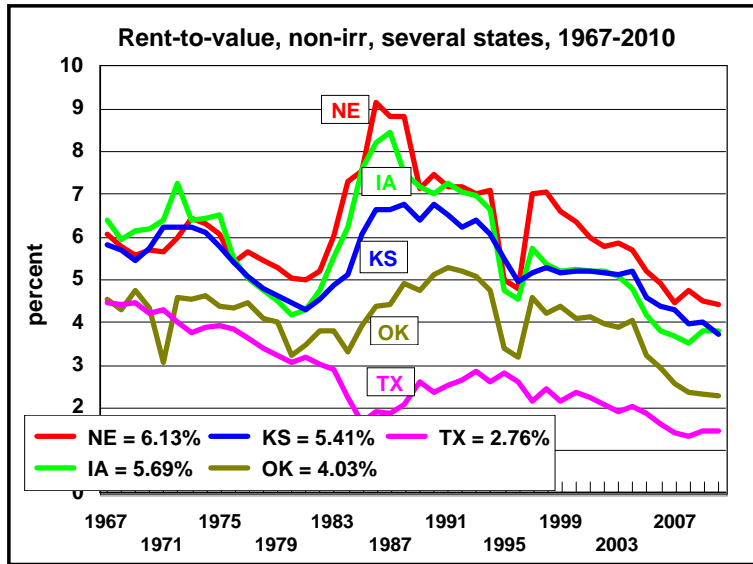
Have investors been grossly unwise for decades?



Is RTV really a reliable indicator of land price bubbles?

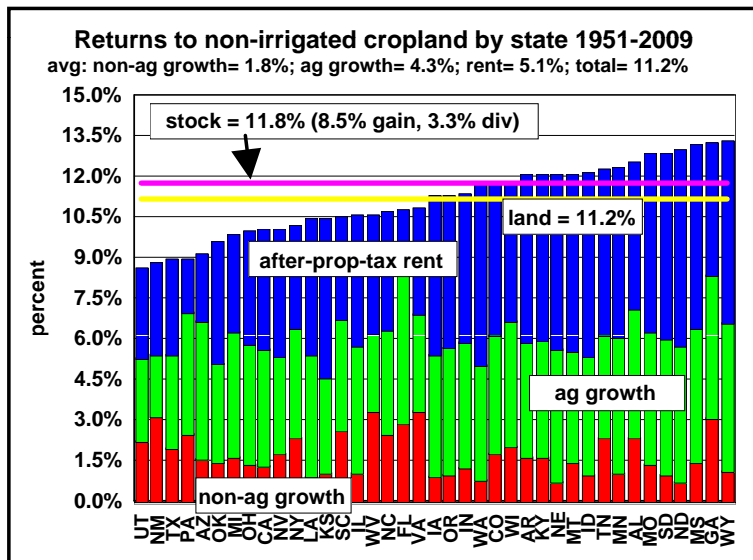
100

Still another reason that RTV may be an incomplete indicator



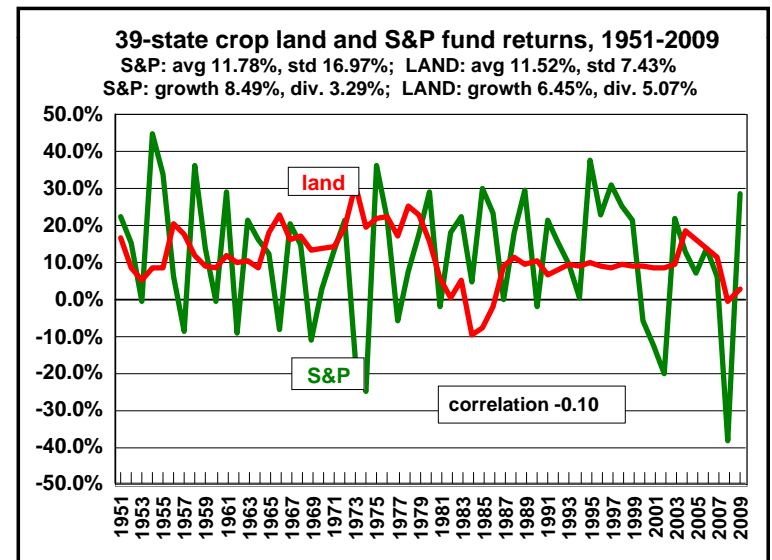
About 10 years ago we began to incorporate non-agricultural aspects into agricultural land values

We separated land returns into various components



39 states ranked by total returns to land

... a sidebar: comparing stock and land returns in terms of risk



Non-ag growth is:

- True non-ag growth
 - Recreation, hunting, homesites, 1031 exchanges
 - Subject to the broader economic forces
 - Unemployment rate, taxation issues, competing investments
- Speculation
 - A portion of true non-ag growth is speculation on future trends about such non-ag things
 - Speculation among ag buyers (farmers and investors) about future ag trends
- Not easy to sort out the two!
 - Especially when looking forward

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Merely a sidebar, and we're not sure where to put this, but . . .

We just have to say a few words about government payments

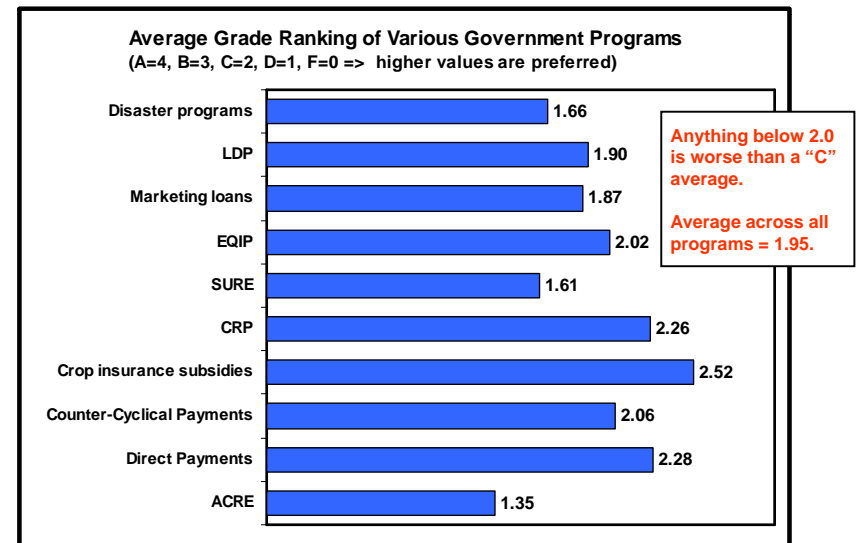
106

Direct government payments

- Have been swamped by:
 - Farm profitability
 - Economies of size
- Are a legalistic nuisance for large and growing farms
 - Large farms *without* payments pay higher rent than smaller ones *with* government payments
 - 73% of 469 respondents to a Farm Futures survey said “if they cut payments it won’t be worth it to participate.”
- Detract from efficiency as farms organize into grossly inappropriate entities
 - Provincially and increasingly hamper outside investment and moving farms into the modern financial world
- Exist only so that rural legislators can continue to “bring home the pork”
 - Do they wish to hamper agricultural modernization?

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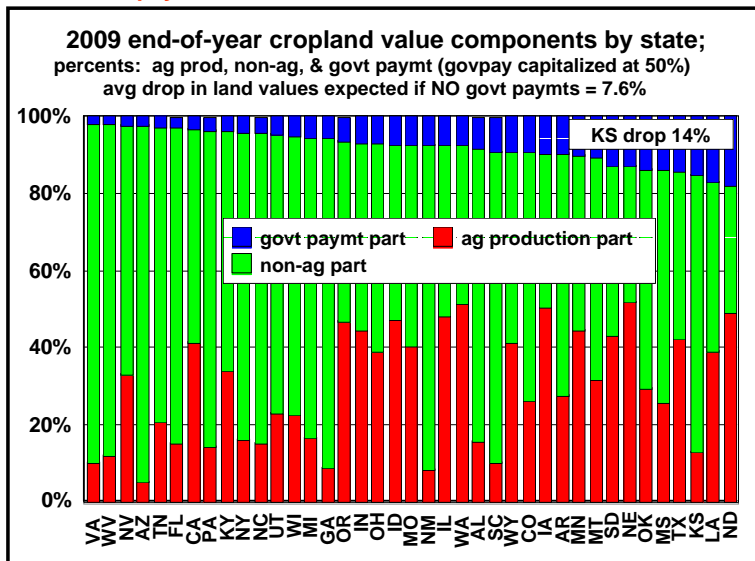
Producer's “grading” of government payments



Source: August 2010 Farm Futures Crop Survey (~440 respondents)

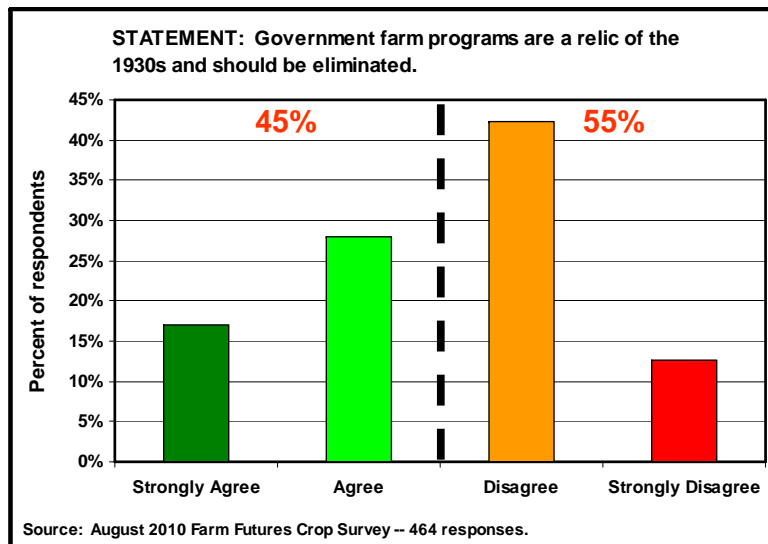
108

Are direct payments from USDA still needed?



Land values would hardly miss a beat if government payments disappeared

Polarization with respect to farm programs?



If pork must go on . . .

- **A case might be made for:**
 - Fostering ag innovation and technology by absorbing risk at the national level, i.e., subsidized crop insurance
 - Targeting specific taxpayer-desired outcomes
 - Environmental issues, e.g., CSP
 - Recreational things, e.g., greenbelts, hunting, birding
 - Rural development
- **If so, there should be absolutely NO reason:**
 - for direct payments, or
 - to set payment limits by person

The BIG Question(s):

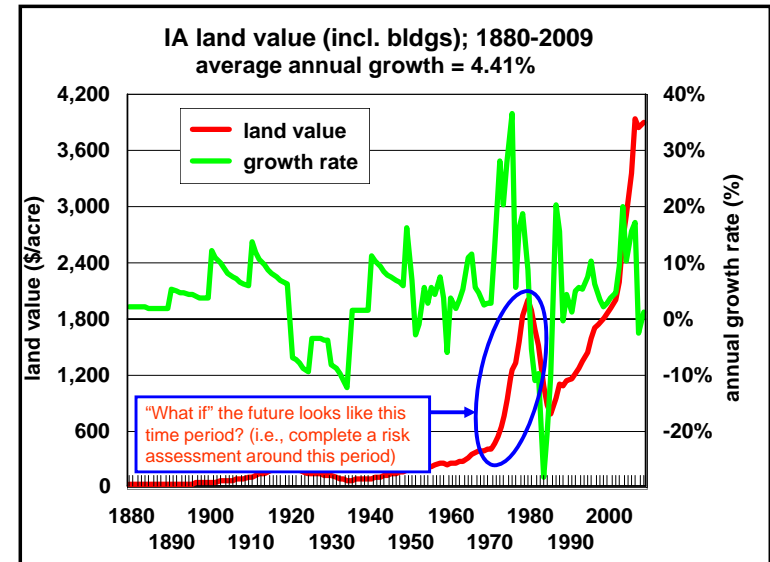
**Are we in a bubble?
 Are we on the verge of a 1980s repeat?**

Are we approaching the 1980s?

- Most economists will say NO, pointing to:
 - Much lower interest rates today
 - Much lower leverage today
 - Much lower inflation today
 - Growing world demand, especially China
- A few economists will say YES, pointing to:
 - China is unpredictable
 - Interest rates will soon rise
 - Lenders will get caught up (e.g., housing bubble)
 - Economists never see a bubble from the inside
- We ask the more direct question, What happens if we see land value and growth rates like the 1970s-1980s?

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Historical perspective



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Our analysis

- Today's expected growth rates from the vantage points of 1971, 1976, 1981, & avg
- Market value of IA land pegged to 4.5% rent
- 20-year horizon
- 0.5% of market property tax rate
- Interest rate of 6.5%
- Income tax rate of 35%
- A \$1000 investment
- Report value path and pre-income-tax ROE
 - For different leverage rates
 - For different rates of above-market purchasing

Results of analysis...

Summary of Results -- Impact on 20-year pre-income tax ROE

Impact of leverage rate on investment value -- buy at market				
Start year "looks like"...				
Leverage	1971	1976	1981	Avg of 3
25%	13.91%	7.91%	2.13%	9.29%
50%	15.40%	6.76%	-10.29%	9.00%
75%	18.80%	1.90%	Broke	8.10%

Impact of overpay on investment value -- leverage 50%				
Start year "looks like"...				
Overpay	1971	1976	1981	Avg of 3
0%	15.40%	6.76%	-10.29%	9.00%
25%	12.39%	1.41%	Broke	4.61%
50%	9.58%	-6.43%	Broke	-0.56%

Summary

- Consolidation is here to stay: embrace it!
- Profits go to technologies' early adopters
- Be careful about value-added investment
 - Maybe do the reverse
- Be ready for more paperwork and computers
- Acquire specialized skills in-house or with consultants

- Develop better people skills – they'll be needed

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Summary

- Farm size and growth especially important
- Traditional one-family mid-sized farms:
 - A number likely will remain as one-generation farms
 - A large number will “become” small part-time farms
 - A number of operators will select another career
 - A few operators will become employees of large farms
 - A few will become large commercial farms
- Successful farms of the future will
 - Have increased equity requirements
 - Will not view debt as something to reduce
 - Think of labor as an investment in human capital
 - Will target growth rather than an optimal size
 - Will become corporate thinkers
- About what *will* be not what *should* be

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Summary

- Wealth and Time/Skills
- Know your comparative advantage
- It's all about happiness – enjoy what you do!

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MAST

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