



## Where is Commercial Ag Going?

Risk and Profit 2005 Conference  
August 11-12, 2005, K-State Alumni Center, Manhattan, KS

Kevin C. Dhuyvetter, K-State Ag. Economist  
Terry L. Kastens, K-State Ag. Economist  
kcd@ksu.edu – 785-532-3527  
tkastens@ksu.edu – 785-532-5866

www.agmanager.info

Juliano Stella 

### Not a futurism discussion . . .

- **Farming: profit or lifestyle?**
  - Conflicting or synergistic?
  
- **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)



## **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

3

## **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)?**
  - Walmart: size, or a good retailing idea??
  - Why don't we observe numerous small packing plants?
  - Why don't we observe many small farms with a common investor?

4

## Is EOS for real?

- **EOS doesn't mean you have to be big to be low cost**
  - Many small farms have low costs
  - But, it's harder to be low cost if you are small
    - EOS is an “on average” phenomenon
- **Little evidence of big, high cost, farms**
  - They've gone broke

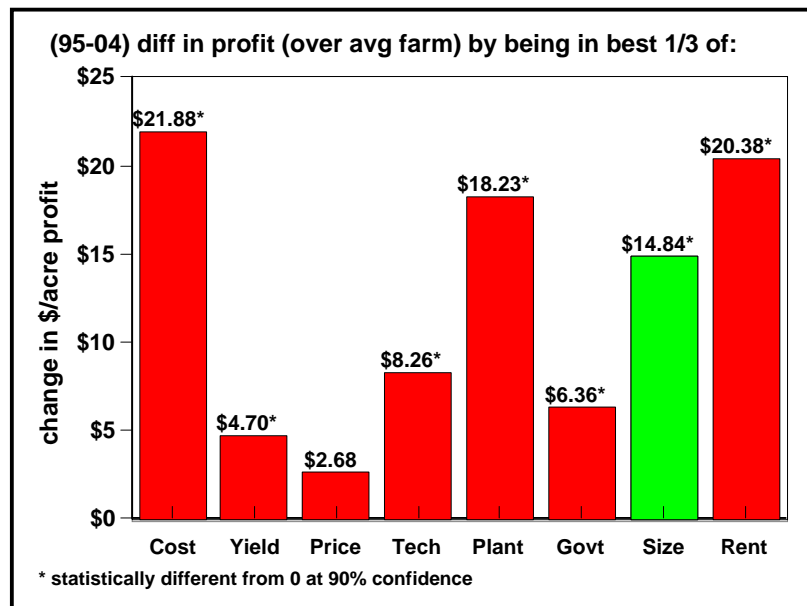
5

## Is EOS for real?

- **Hard to distinguish effect of good management and other factors from 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?



6



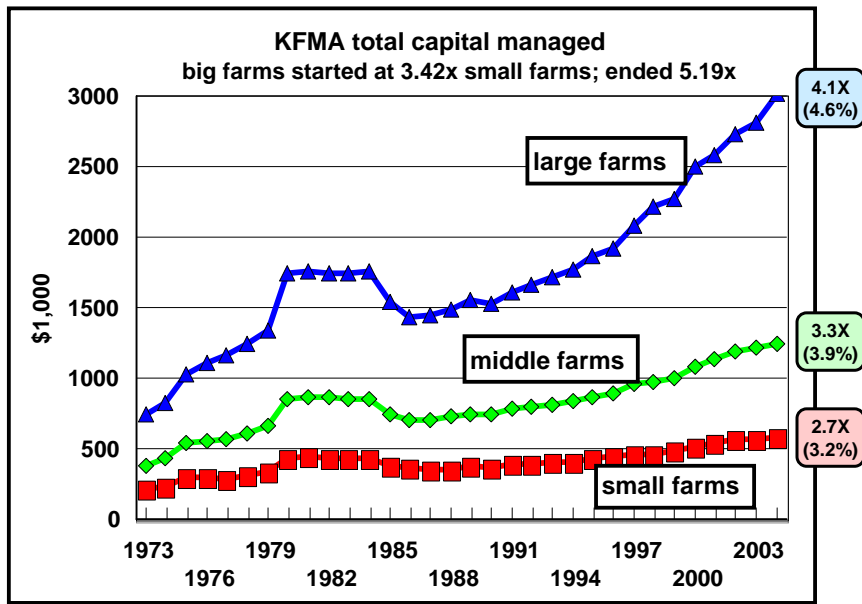
A size effect remains – evidence that EOS is for real

7

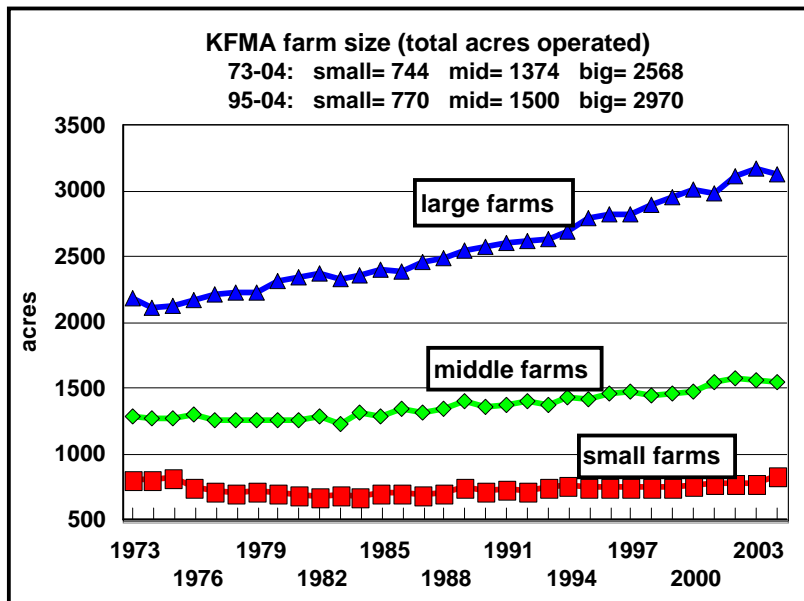
## Why are large farms more profitable?

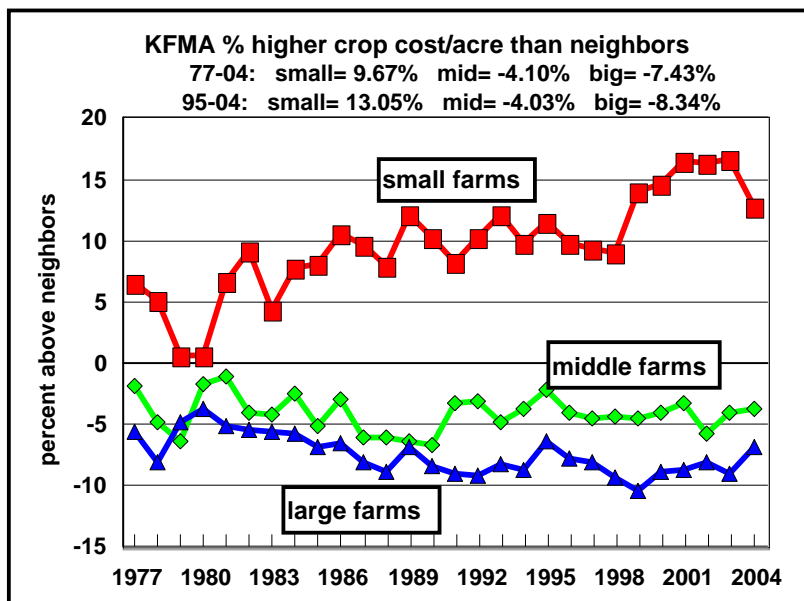
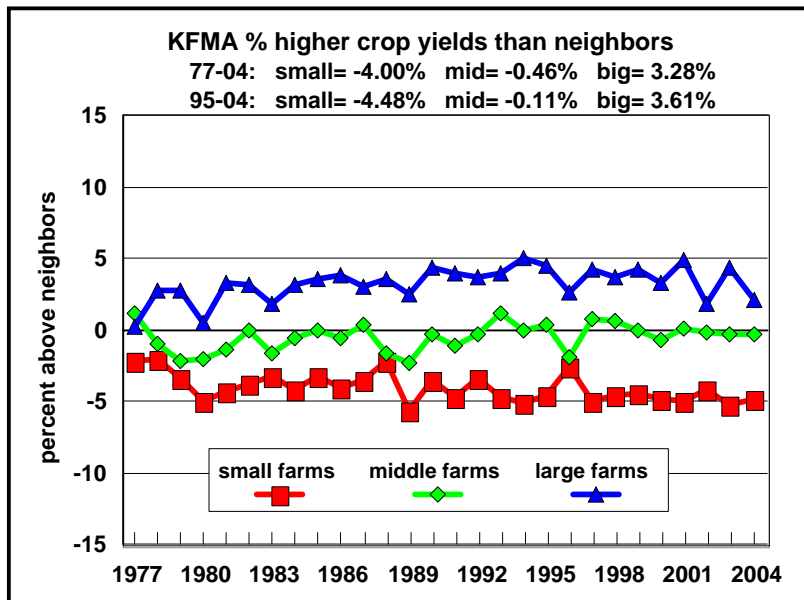
- Lower cost is the obvious benefit, but other benefits arise from the research
- Larger farms:
  - Have much lower costs
  - Get somewhat higher yields
  - Get slightly higher prices
  - Farm more intensively
  - Are much faster adopters of technology, for example, less-tillage

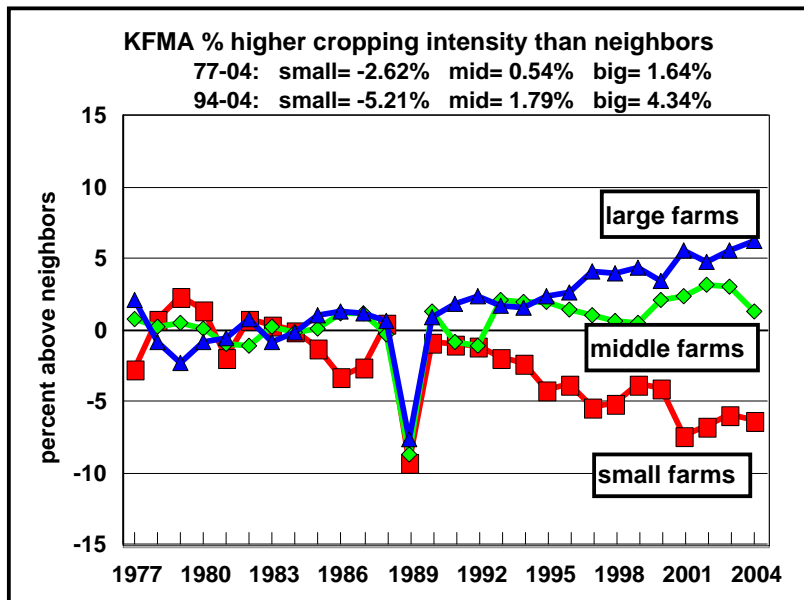
8



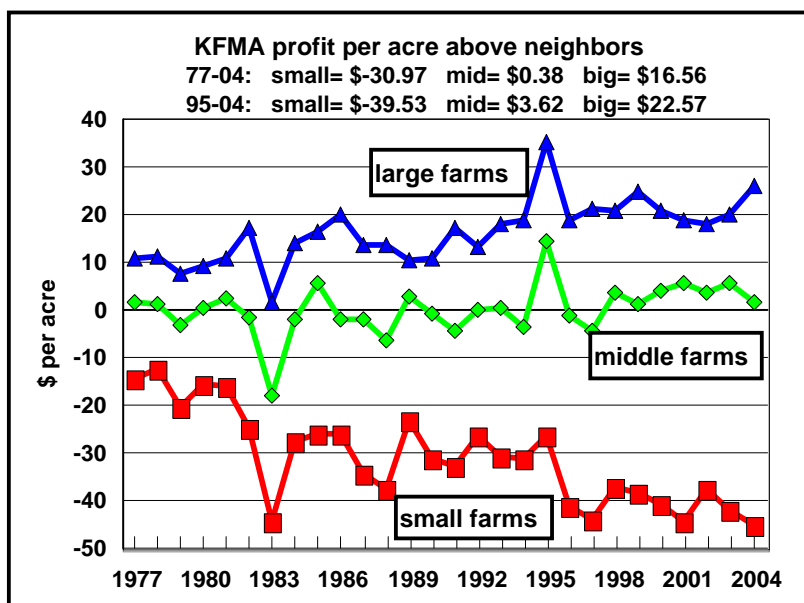
A portion of growth in \$ values is inflation







Big and small really departing from each other in last 15 years



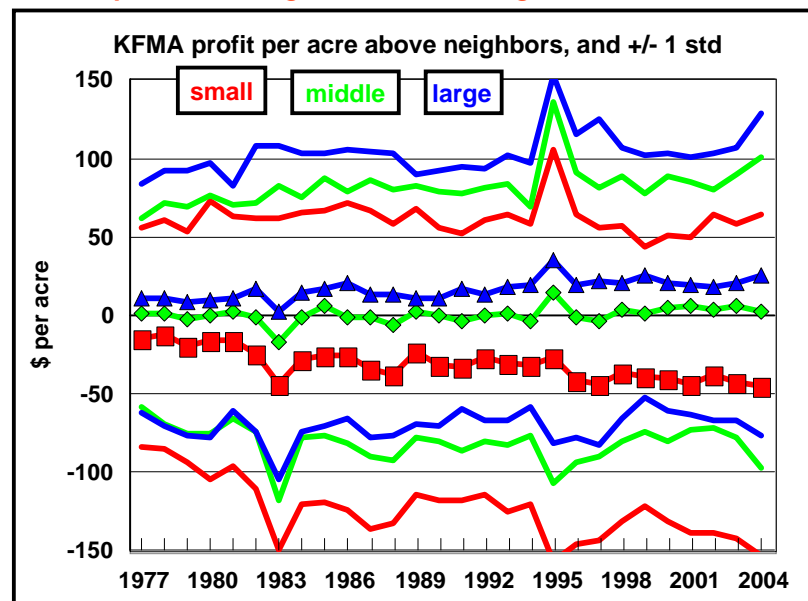
The characteristic differences across farm sizes result in profit differences

## 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

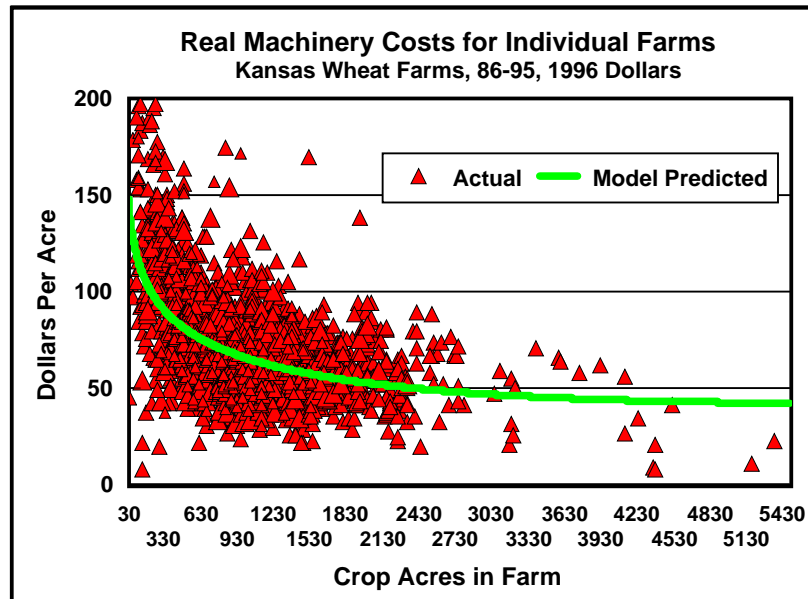
15

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



16

**Do EOS turn to diseconomies at sufficiently large size?**



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

## **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?**

19

## **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**



20

## 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

21

## Changing EOS features across farm size

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

22

## 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?

23

## EOS implications: equity

- **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**

24

## **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)

25

## **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)

26

## 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

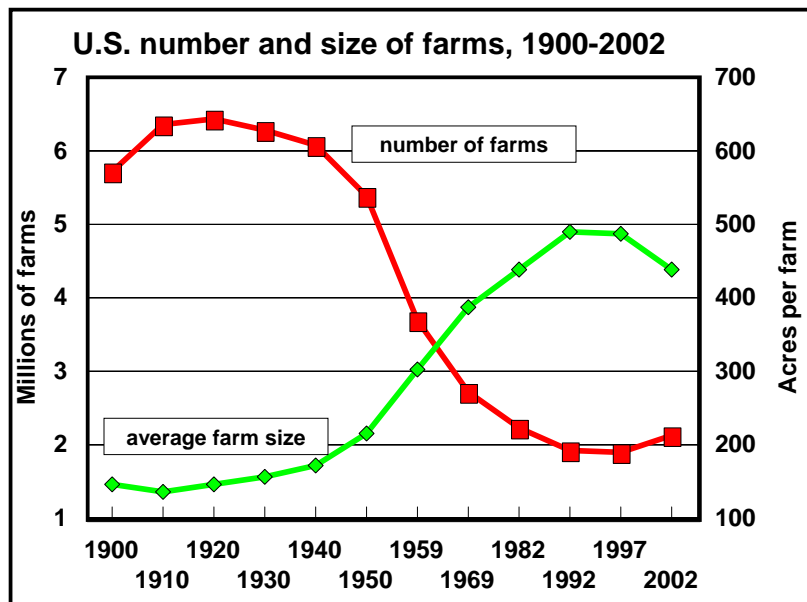
27

## 1. Consolidation

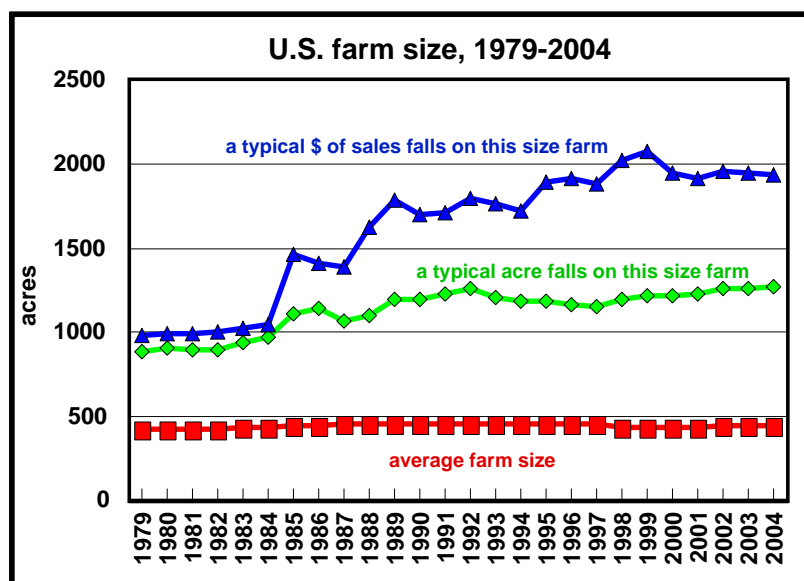
- The same or more business conducted by fewer firms
  - Cars started with Ford, numerous by 1940's, consolidated by 1970's
  - Many dry goods retailers, now Walmart
  - Now nearly only Deere and CNH (maybe AGCO)
  - Fewer packers, cattle feeders, dairies, swine operations, and crop farms
  - But also fewer lenders, machinery dealerships, grain elevators, and crop/livestock input providers
- Driven by economies of size



28

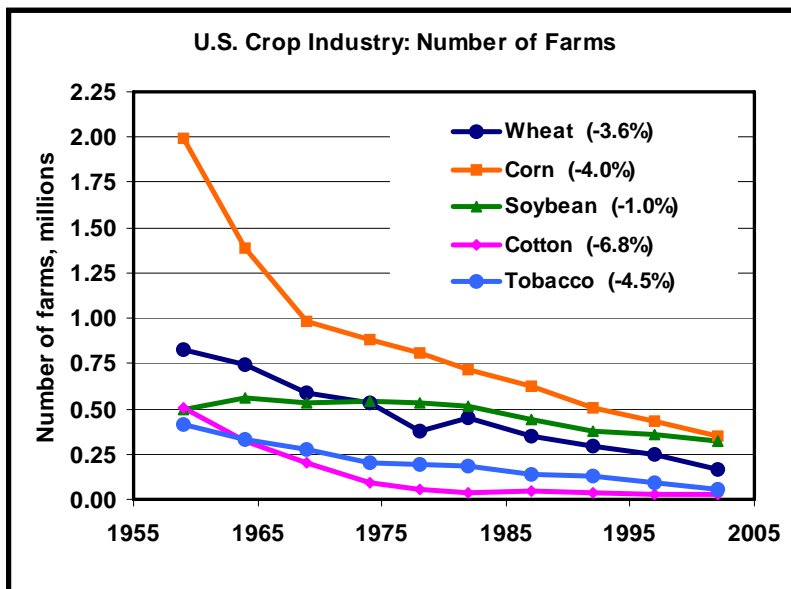


Source: Census of Agriculture



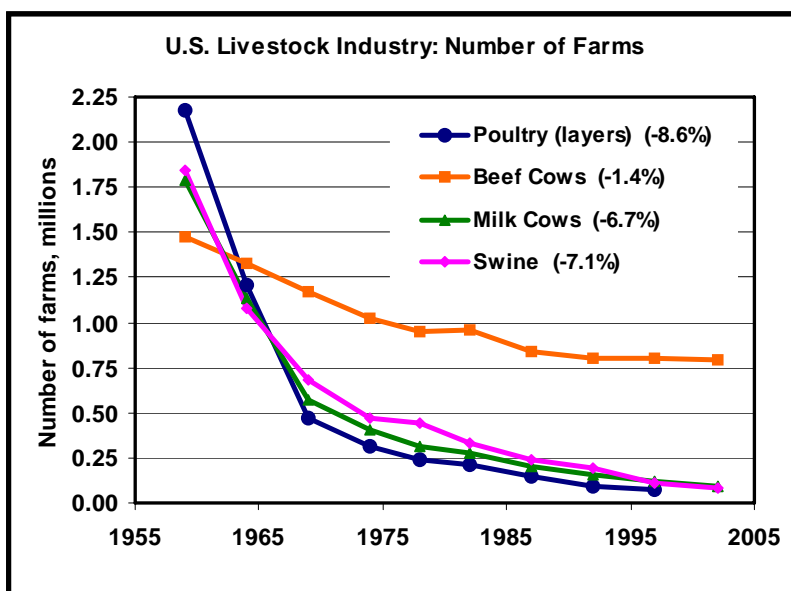
Based on KSU calculations from ERS / Census of Agriculture data

### Trends in crop farm numbers . . .



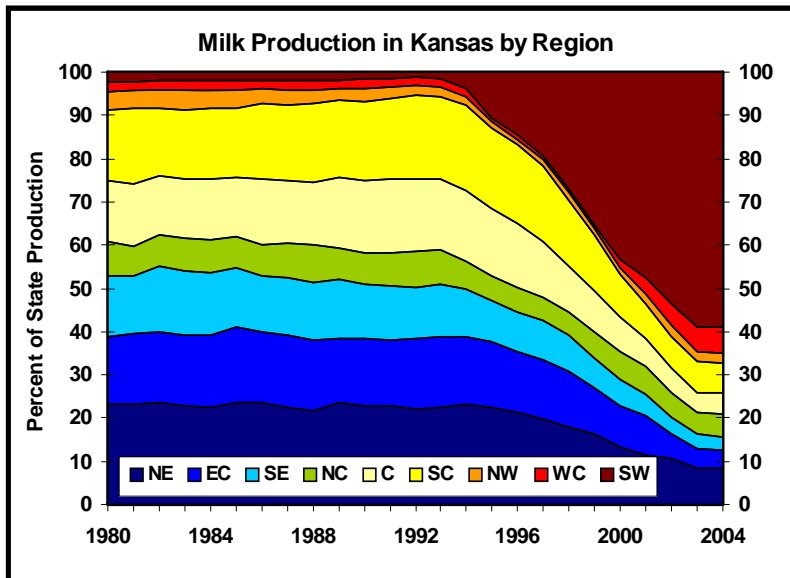
Source: Census of Agriculture

### Trends in livestock farm numbers . . .



Source: Census of Agriculture

## Consolidation impacts “local” production . . .



Source: USDA NASS

33

## Rapid consolidation in crop production?

- **We don't know!**
  - But we really wouldn't have known for poultry, swine, and dairy either
- **No dramatic supply-increasing technologies come to mind**

34

## 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.

35

## 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

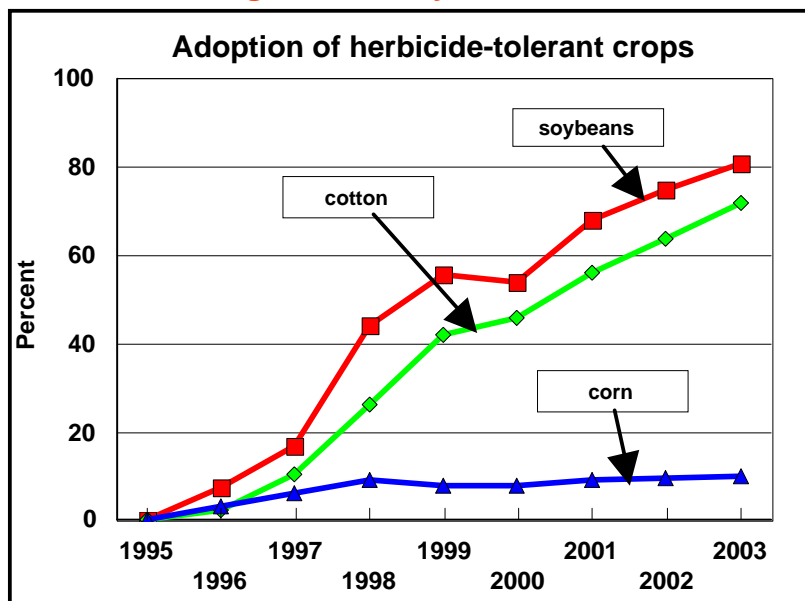
36

## 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

37

## Some technologies are fairly obvious . . .



Through 2002 from USDA/ERS; 2002-03 soybeans from Soybean Digest; 2002-03 corn and cotton are a KSU extrapolation

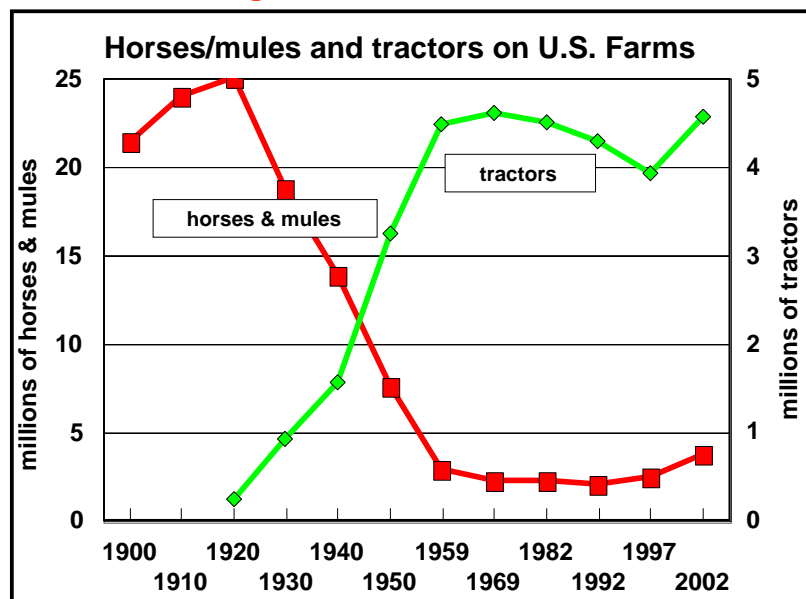
38

## Other “duh” technologies

- 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)

39

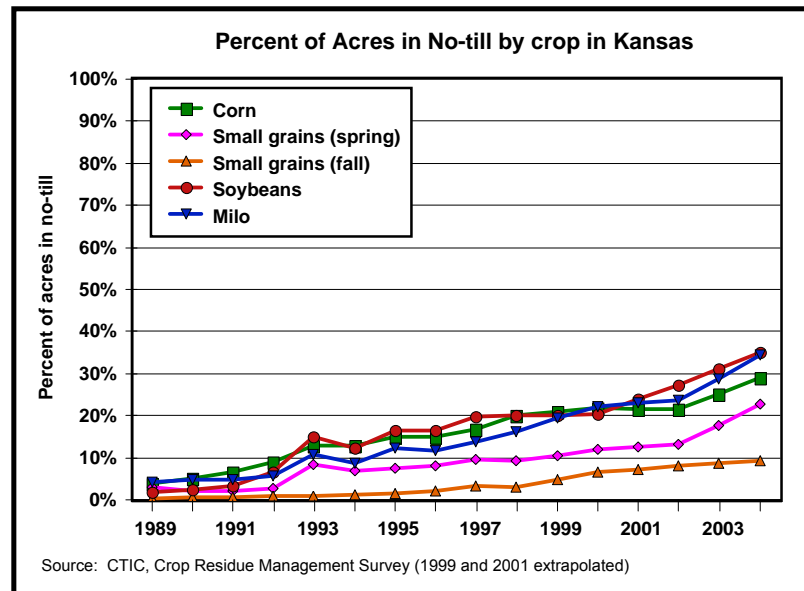
## Some technologies aren't so obvious . . .



Source: U.S. Census of Agriculture

40

## Some technologies aren't so obvious . . .



41

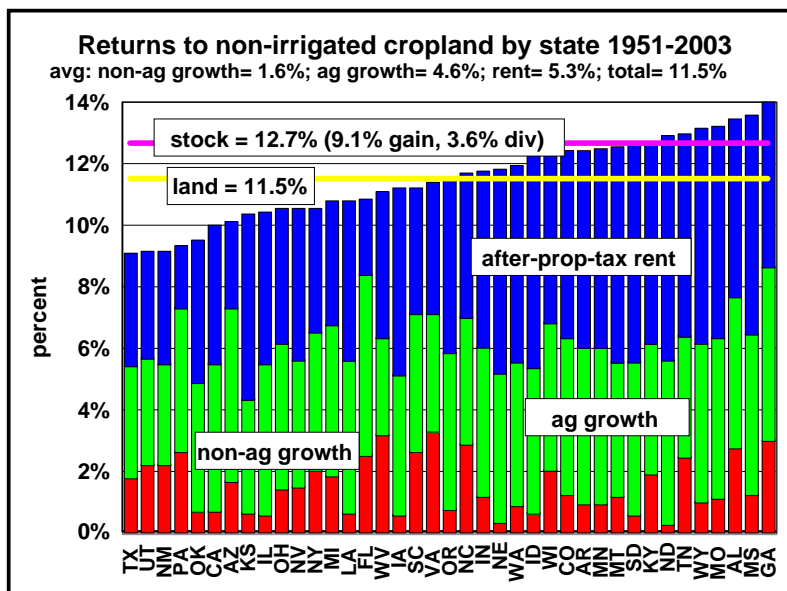
## Technology: how to get an edge

- 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
- Must look beyond the neighbors
  - Not many specialized machines around
  - Consider the web for contacts

42

### 3. More connections with non-ag

- More opportunities for farmers to invest off-farm (e.g., ethanol)
- More opportunities for non-farmers to invest on-farm (e.g., landowners)
- More opportunities for farmers to sell services to non-farmers (e.g., lease hunting)



39 states ranked by total returns to land

## **Agricultural Market Value of Agricultural Land**

- Based on the idea of an ag cap rate
- Used average after-property-tax RTV 1951-72
  - Early on while ag still is dominant
  - Before wild inflation of the 1970's
- Alabama ag cap rate = 8.03%
- Kansas ag cap rate = 6.64%
- 39-state average cap rate = 6.56%

45

## **Agricultural Market Value of Agricultural Land using Alabama as an example**

- Jan. 1, 2004 crop land value = \$1800 /acre
- Cash rent for 2004 = \$35.00 /acre
- 2004 property tax = \$3.12 /acre
- 2004 after-property-tax rent = \$31.88 /acre
- $\$31.88 / 0.0803 = \$397$  /acre
  
- $AMVP = \$397 / \$1800 = 0.221 = 22.1\%$

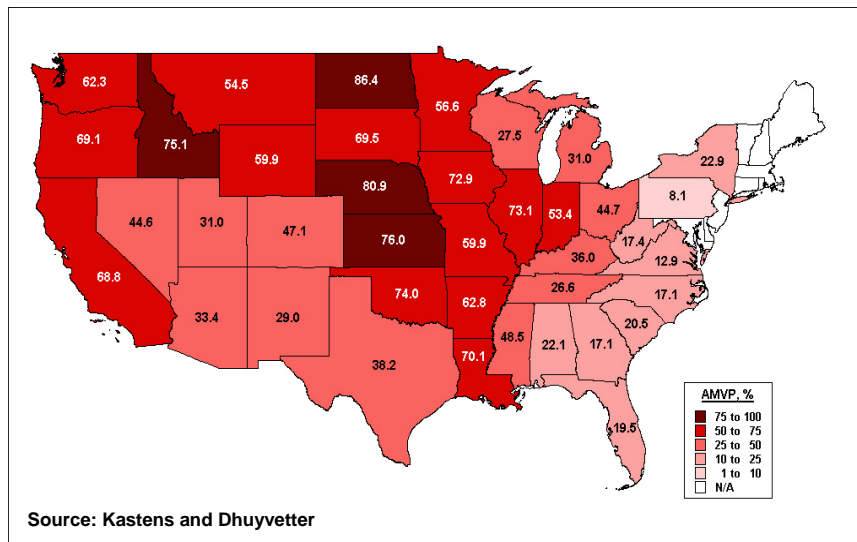
46

## Agricultural Market Value of Agricultural Land using KS non-irrigated cropland as an example

- Jan. 1, 2004 land value = **\$705 /acre**
- Cash rent for 2004 = **\$37.50 /acre**
- 2004 property tax = **\$4.17 /acre**
- 2004 after-property-tax rent = **\$33.33 /acre**
- $\$33.33 / 0.0664 =$  **\$502 /acre**
  
- **AMVP (non-irr) =  $\$502 / \$705 = 0.712 = 71.2\%$**

47

## Portion of Land Value Attributed to Agricultural (production and government payments)



48

#### **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**

49

#### **Day-to-day decisions improved**

- **Crop insurance is an example**
  - Many policies and choices
  - Talking to neighbors won't cut it
- **Land rental agreements is another example**
  - New rotation and tillage programs complicate
  - Talking to neighbors won't cut it
- **Need to be able to objectively and numerically analyze decisions**
  - “Management by numbers”

50

## **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**

51

## **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?

52

## 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

53

## 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

54

# *Questions ???*



[www.agmanager.info](http://www.agmanager.info)