Issues Behind Farm Legislation:

Farm Income & Energy

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Production Agriculture’s Share of U.S. National GDP

Source: Dept of Commerce, Bureau of Economic Analysis
Sources of Farm Gross Cash Income...

$ Billion

Government Payments
(8% share since 1999)

Other Farm-Related

Livestock

Crops

Source: USDA’s Agricultural Resource Management Study and other data.
Net Cash Income:
Government Payments Are a Larger Share

Government Payments
(29% share since 1999)

Non-Govt Sources

Source: USDA’s Agricultural Resource Management Study and other data.
Govt Farm Payments since 1980

$ billion

1980-1985
$8.8B

1980-1998
$10 B

1998-2005
~$18.7B

*Includes only CCC spending--largely commodity and conservation programs.

Source: CBO Estimate of Budget Authority, May 1, 2002.
Govt Payments Vary by Crop: 2000-04 average

- Rice: $421.41
- Peanuts: $314.43
- Upland Cotton: $206.60
- Corn: $65.85
- Wheat: $46.80
- Soybeans: $30.38

Source: USDA, FSA for payment data; USDA, NASS for acreage data.
What are the Comparative Advantages of the U.S. Agr Sector Relative to its Major Competitors?

1. Abundant, fertile land
2. Cutting-edge technology
   - Plant and animal genetics
   - Pesticides and Fertilizers
   - Farm machinery
   - Management techniques
   Perhaps the Most dynamic
3. Highly skilled agr managers
4. Marketing Infrastructure
Adoption of Bt /Herbicide-Resistant Technology Has Been Rapid

Biotech Plantings as Percent of Total Plantings

Soybeans
- 87%
Cotton
- 79%
Corn
- 52%

Source: USDA, National Agricultural Statistical Service, Acreage.
Technological Advances Have Spurred Productivity Growth

Labor is freed up to work on more acres or off-farm

What is the Result of This Productivity Growth?

• Greater concentration as more efficient (read larger) farms acquire less efficient farms.

• Those more efficient farms can….
  ▶ Gain easier access to financial resources.
  ▶ Spread fixed costs over a larger number of acres.
  ▶ More readily adopt new technologies.
  ▶ Focus more intently on marketing and financial strategies.
Farm Numbers Are Declining, While Acreage per Farm is Rising

Million farms

Acres per farms

6.8 million (1935)

1.9 million (1992)

Source: USDA, Census of Agriculture.
The Largest Sales Class is growing, while other classes decline...

311,000 farms (15%) with 89% of sales in 2002.

Source: USDA Agricultural Census.
And, Off-Farm Income Is Important to Many Types of Farms

Off-farm economic opportunities in rural areas matter!!

Energy & the Agr Sector
Direct Energy Costs: Fuel & Power Generation

• Operating farm machinery
  • Mostly diesel

• Operating farm/family vehicles
  • Mostly gasoline

• Operating smaller equipment
  ➔ Power generation
  ➔ Grain & fruit drying, tobacco curing
  ➔ Irrigation pumps
  ➔ Heating/Cooling: pig & poultry brooders, greenhouses
  ➔ Waste treatment; crop flamers, etc.
  • Varies: natural gas, LPG, propane, electricity
Indirect Energy Costs: Fertilizers, Chemicals, & Marketing Costs

• Natural Gas accounts for 75 to 90% of total cash cost of ammonia production
  ➤ Ammonia is building block for nitrogenous fertilizers:
  • Urea
  • Ammonium nitrate
  • Ammonium phosphate

• Farm chemicals often have petro-chemical base

• Marketing costs increase with fuel prices (usually passed back to producers)
  ➤ Transportation from farm to end user
  ➤ Elevators
  ➤ Processors
Chemicals/Fertilizers are Important Farm Costs, Fuels less so...

*Includes all crop custom work, transportation and marketing costs, insurance, leasing of machinery and equipment, miscellaneous business expenses, utilities.

Energy Costs as a Share of COP Vary by Crop

- Oilseed & grain
- Vegetables
- Fruit & tree nuts
- Green-house & nursery
- Cotton
- Livestock Activities

Source: Ag Census, 2002.
Major Fuel Prices

Source: U.S. Dept of Energy, EIA; and USDA, NASS.
Natural Gas & Anhydrous Ammonia Prices

$ per 1,000 cu. ft.

Anhydrous Ammonia
$/ton

NG Consumer
$/mcf

NG Wellhead
$/mcf

Source: U.S. Dept of Energy, EIA; and USDA, NASS.

Lbs per acre

- Soybean
- Peanuts
- Sunflower
- Wheat
- Snap beans*
- Sorghum
- Cotton
- Peaches
- Tobacco
- Rice
- Corn
- Sweet corn*
- Grapefruit
- Oranges
- Grapes
- Tomatoes*
- Potatoes

*For processing. Source: The Fertilizer Inst.; and NASS, USDA; latest data for all crops is from 1998 or 1999.
U.S. Area Planted by Crop in 2004

*For processing. Source: USDA, NASS. 2005 for major crops; 1999 for fruits and vegetables.
Total Nitrogen Fertilizer Use by Crop**

For processing.  **Total usage is indicative only; it is constructed from 1998//99 application rate multiplied by 2004 acreage.
U.S. Ethanol Production

A 7.5 bil gal RFS:

...use 3 billion bushels of corn,
25% of USDA’s U.S. corn production
Projection for 2012

...compared with USDA’s baseline of 14%

Current: 3.4 billion gallons in 2004

Renewable Fuels Standard:
7.5 billion gallons of biofuels by 2012

Source: American Coalition for Ethanol; www.ethanol.org.

Fossil Fuels 80.0%

Nuclear 11.3%

Other 8.7%

Renewables

Hydro 3.9%

Geothermal & Solar 0.5%

Biofuels 0.4%

Wind 0.2%

Other alcohol 3.7%

Source: DOE, EIA; American Coalition for Ethanol; National Biodiesel Board.
Policy points

• Keeping populations in rural areas is an issue as technology-driven economies of scale suggest increasing concentration, ...and fewer farms for rural communities.

• Off-farm income opportunities, i.e., rural development, is increasingly important.

• Rising Natural gas costs => energy & fertilizer
  ▸ Short-term: likely to alter crop & activity mix
  ▸ Long-term: may drive resources away from inefficient sectors... how will agriculture fare?

• Are there energy opportunities for rural economies?
  ▸ Biofuels; wind power; anaerobic digesters; others?