



Impacts to the Iowa Rural Economy of an Expanding Ethanol Industry

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Why Ethanol?

Reduces dependence on oil imports - provides 3% of mobile-source fuels

- Increases employment and local economic activity
- Provides alternative market for commodities - will use 13% of 2005 corn crop
- Reduces greenhouse gases and air pollution
- Avoids MTBE water pollution
- Mobile-source transition fuel in long run sense
- Dynamic technological and economic industry



Ethanol Industry Expansion

- Ethanol demand more than doubled since 2000 and will exceed 4 billion gallons in 2005
- Market adjusting to 30 new plants in last 3 years for total of 84 plants; another 15 plants on-line by mid-2006; 65-80 on drawing board
- Energy Bill Renewable Fuels Standard for 7.5 billion gallons in 2012 will be lower bound (ANWR)

Source: FC Stone

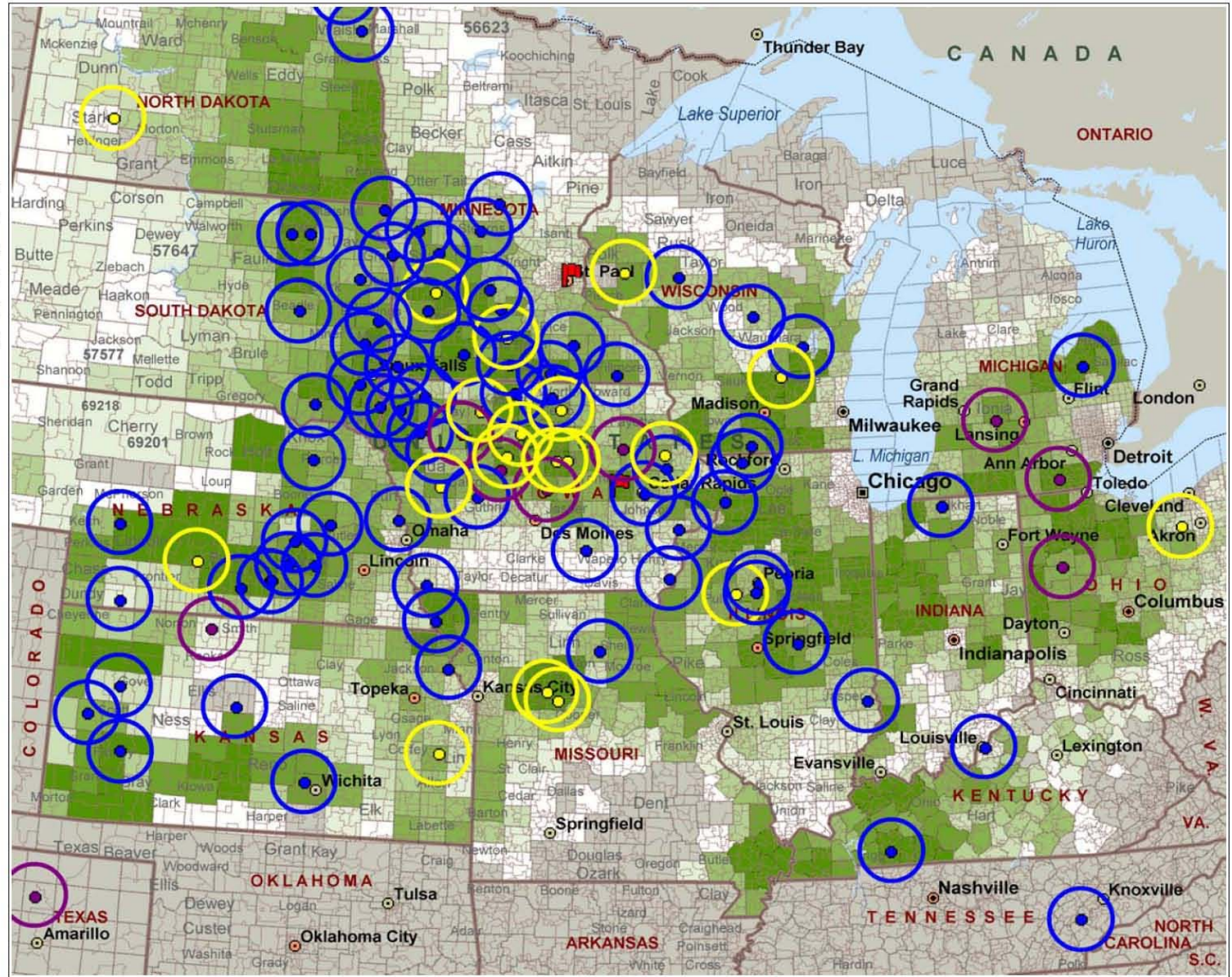
Plants with 30 mile radius

F7 by ZIP Code

- Constructing
- Nonoperational
- Operating
- Proposed

2003 IA Corn Production

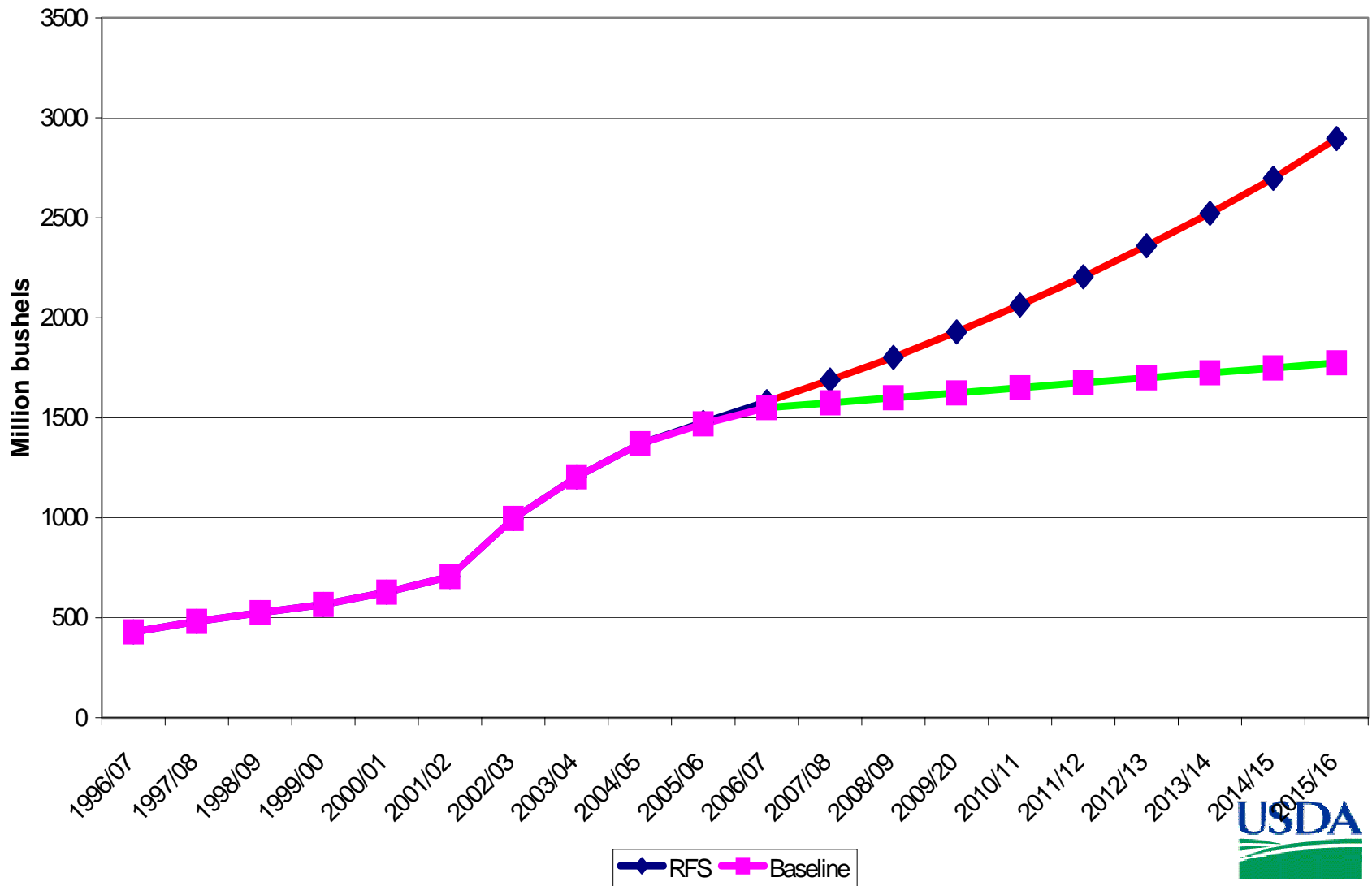
- 28,000,000 to 50,500,000
- 25,700,000 to 27,999,999
- 22,500,000 to 25,699,999
- 19,500,000 to 22,499,999
- 17,000,000 to 19,499,999
- 13,500,000 to 16,999,999
- 7,500,000 to 13,499,999
- 2,800,000 to 7,499,999



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Projected Corn Use for Ethanol: Baseline and Renewable Fuels Standard (RFS)

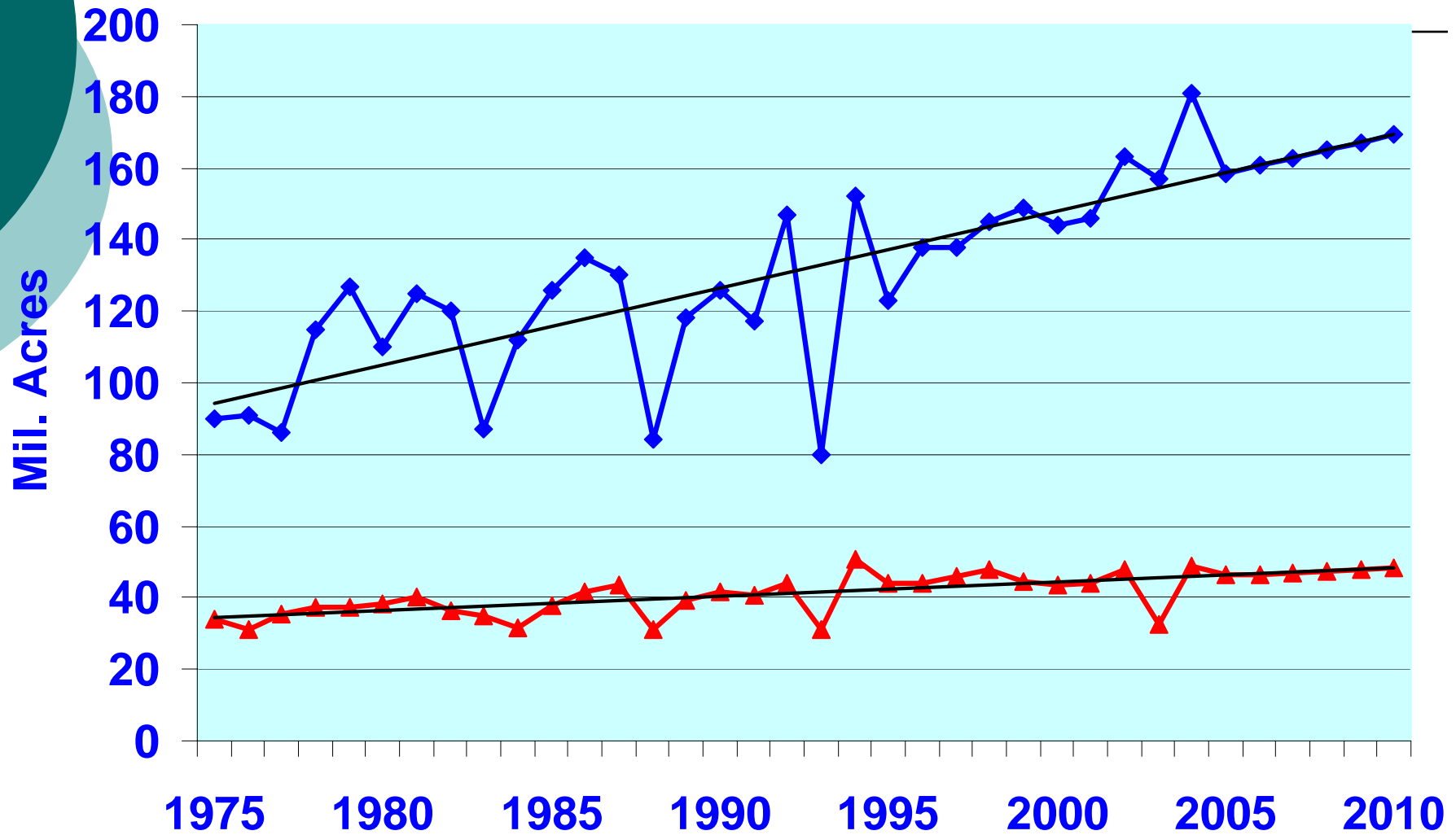




Potential Role of Ag Biotech in Ethanol Expansion

- Improving feedstock yields
- Improving feedstock traits
 - Pioneer, Monsanto, Syngenta
- Improving bio-refining process
 - ICM/Genencor & Broin/Novozymes
 - Chemical products – wide range
- Reducing potential environmental damages

Iowa Corn & Soybean Yield Per Acre Projected to 2010





What are the economic impacts of the ethanol industry on Iowa?

- Sales or gross revenue
- Income
- Jobs
- Rural economic growth
- Industry adjustment and structure

Table 2a. Economic Impacts Associated with 615 Million Gallons of Current Iowa Dry-Milling Ethanol Production

	Total Sales	Income	Jobs
Agriculture	503,008,586	6,370,833	297
Mining	365,049	43,097	2
Utilities	10,237,536	1,781,235	23
Construction	1,427,240	631,960	18
Manufacturing	1,094,509,919	25,573,477	583
Transportation & warehousing	31,401,236	11,395,310	267
Retail trade	5,337,461	2,340,168	122
Information services	2,010,446	605,183	15
Finance, insurance & real estate	13,023,714	2,877,765	108
Professional and technical services	12,152,191	6,180,783	217
Other services	10,427,386	3,135,970	181
Government	6,318,637	656,294	15
Total	1,690,219,399	61,592,075	1,847

Table 2b. Economic Impacts Associated with 445 Million Gallons of Iowa Wet-Milling Ethanol Production

	Total Sales	Income	Jobs
Agriculture	331,836,138	4,222,776	184
Mining	917,509	95,520	5
Utilities	29,603,190	5,257,063	68
Construction	4,064,677	1,810,696	51
Manufacturing	799,027,456	41,150,924	746
Transportation & warehousing	50,907,024	17,636,068	404
Retail trade	8,243,282	3,626,756	138
Information services	3,792,148	1,192,982	30
Finance, insurance & real estate	20,665,282	4,959,403	162
Professional and technical services	22,031,528	11,348,414	296
Other services	26,909,292	7,675,259	293
Government	11,252,970	1,547,496	36
Total	1,309,250,497	100,523,356	2,414

Table 2c. Economic Impacts Associated with 535 Million Gallons of Planned Iowa Dry-Milling Ethanol Production

	Total Sales	Income	Jobs
Agriculture	541,335,190	4,201,096	222
Mining	460,482	51,705	3
Utilities	15,572,628	2,932,469	38
Construction	3,457,000	1,534,280	43
Manufacturing	944,343,539	18,067,227	406
Transportation & warehousing	30,652,889	10,757,758	255
Retail trade	5,637,631	2,479,689	129
Information services	2,792,213	888,669	23
Finance, insurance & real estate	17,078,802	4,090,311	113
Professional and technical services	16,327,582	8,404,718	182
Other services	13,474,220	4,539,922	155
Government	8,047,308	1,167,704	27
Total	1,599,179,484	59,115,547	1,594

Table 2d. Economic Impacts Associated with 1.6 Billion Gallons of Current and Planned Iowa Ethanol Production

	Total Sales (\$ millions)	Income (\$ millions)	Jobs
Current Dry-Milling Production	1,690	62	1,847
Current Wet-Milling Production	1,309	100	2,414
Planned Dry-Milling Production	1,599	59	1,594
Total Current & Planned Production	4,599	221	5,855



Summary Impacts of Expanded Ethanol Industry in Iowa

- Significant number of rural-based, good paying jobs
- Price premium to farmers within 30-mile radius
- Impact traditional markets – soybean acres, livestock, and corn exports will impact handling and processing capital
- Demand for lock and dam renovation



Local impacts of ethanol industry expansion

- Development of new rural infrastructure
- Production coming on-line may replace smaller, less efficient units
- Ethanol production may shift from community-based to industry-based with local rents accruing to industry
- Larger scale plants and firms, horizontal and vertical integration, financing
- Mature industry, more stable prices, and competitive fuel extender



Biofuels and Rural Policy Issues

- Renewable Fuels Standard
- Federal excise tax credits, tax credits for new facilities, procurement of bio-based products, small bio-refinery grants
- State tax credits, grants and loans, mandates, infrastructure
- Local tax abatement



Conclusions

- Promoting rural economic vitality
 - Dependence on agriculture
 - Growing (livestock) value added
 - VA constraining rural age structure
- Public support for low cost energy - need for level playing field
- Public support for farmers and rural America
- Biorefineries may achieve our public objectives with less distortions and move the bioeconomy to the generation outputs



Thank You!

Any Questions?