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U.S. Fuel Ethanol Industry: Trends and Future Development

Presented to National Summit on Ag and Food Truck Transport for the Future

By Greg Krissek

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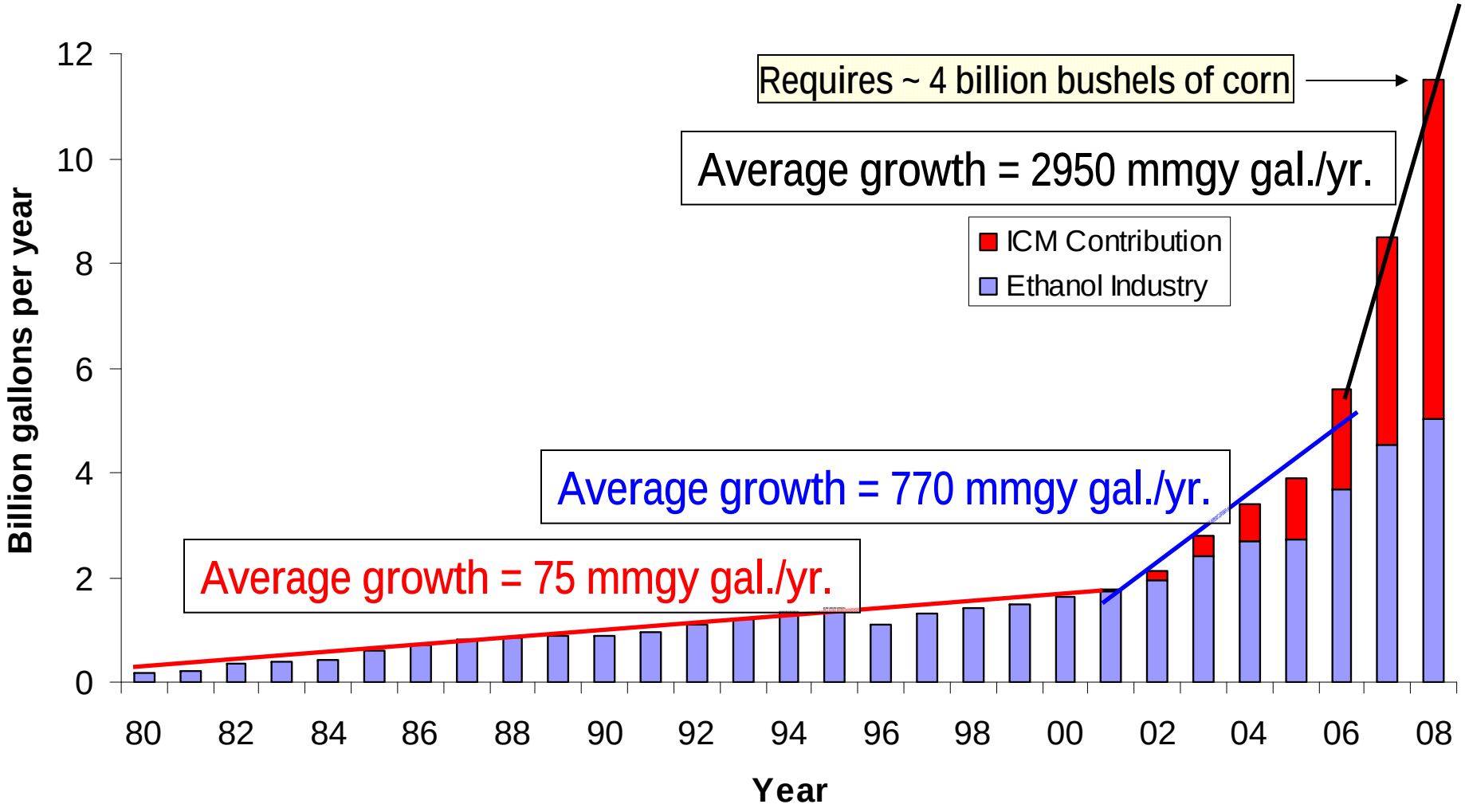
The Trend in Ethanol Plant Sizing

- Sizes increasing
  - In the 1980s, sizes ranged from 20,000 gallons per year to 7 million gallons per year (MGY)
  - In the 1990s, 20-30 MGY plants became standard
  - Today, 100 MGY is becoming the standard

Ethanol Production Growth in the U.S.

Projections through 2008



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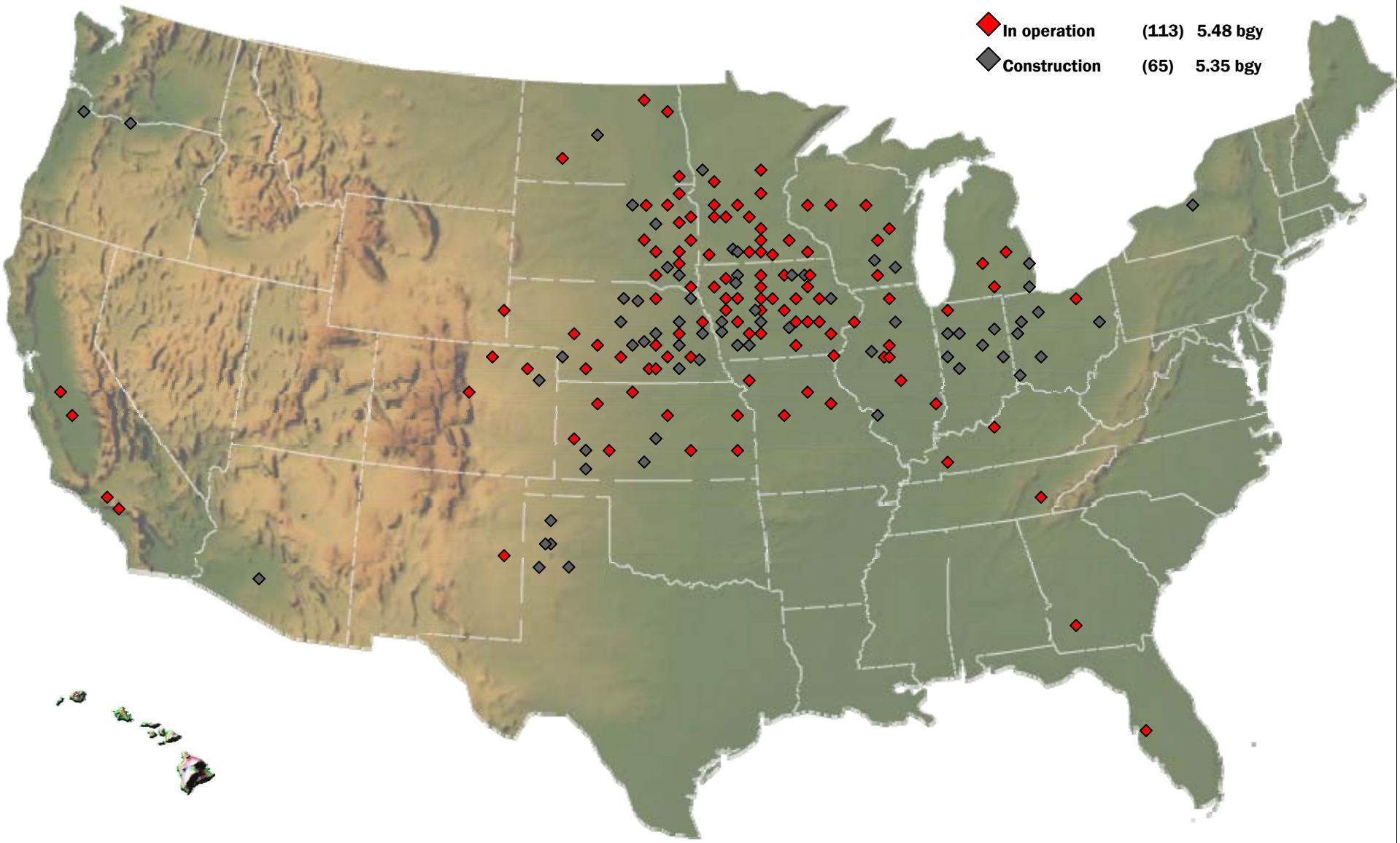
NCGA
www.ncga.com

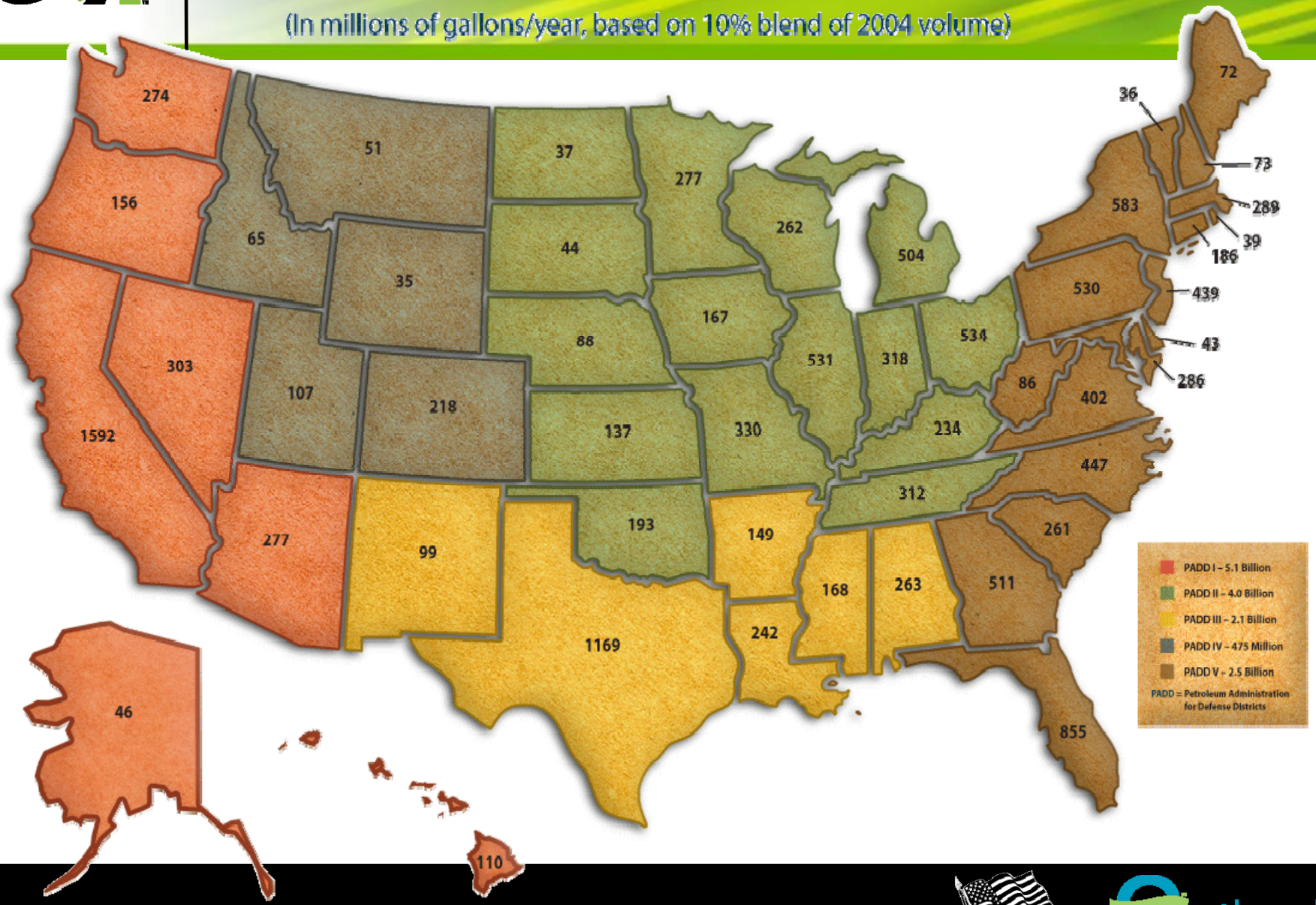
U.S. Ethanol Plants

As of January 2007



Ethanol Volume Potential

(In millions of gallons/year, based on 10% blend of 2004 volume)



American Coalition for Ethanol

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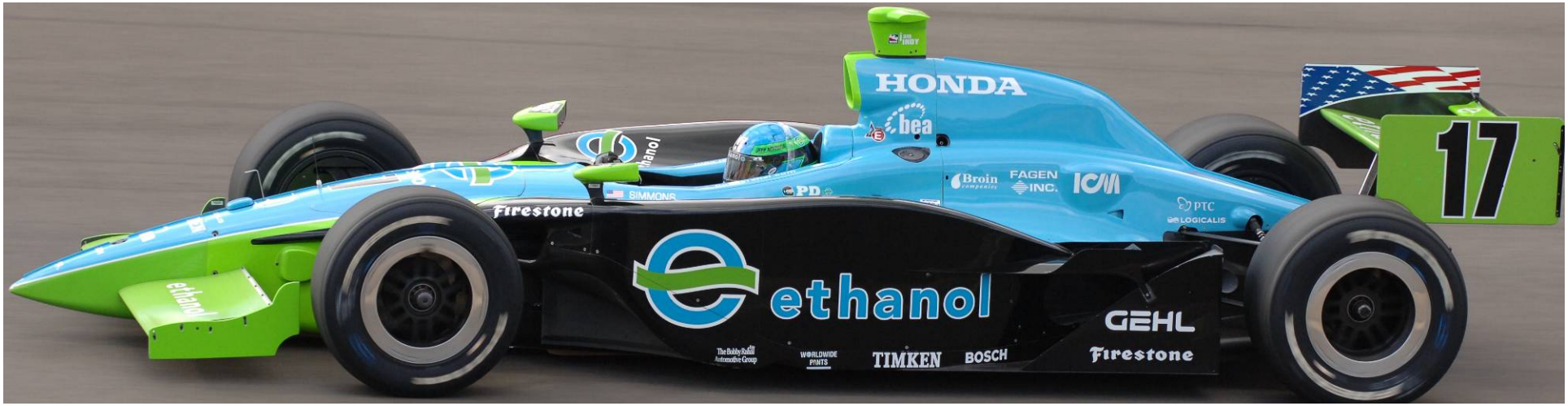
Educate the Consumer

- Ethanol Promotion and Information Council
  - EPIC was formed in the U.S. to help raise consumer awareness and demand for ethanol



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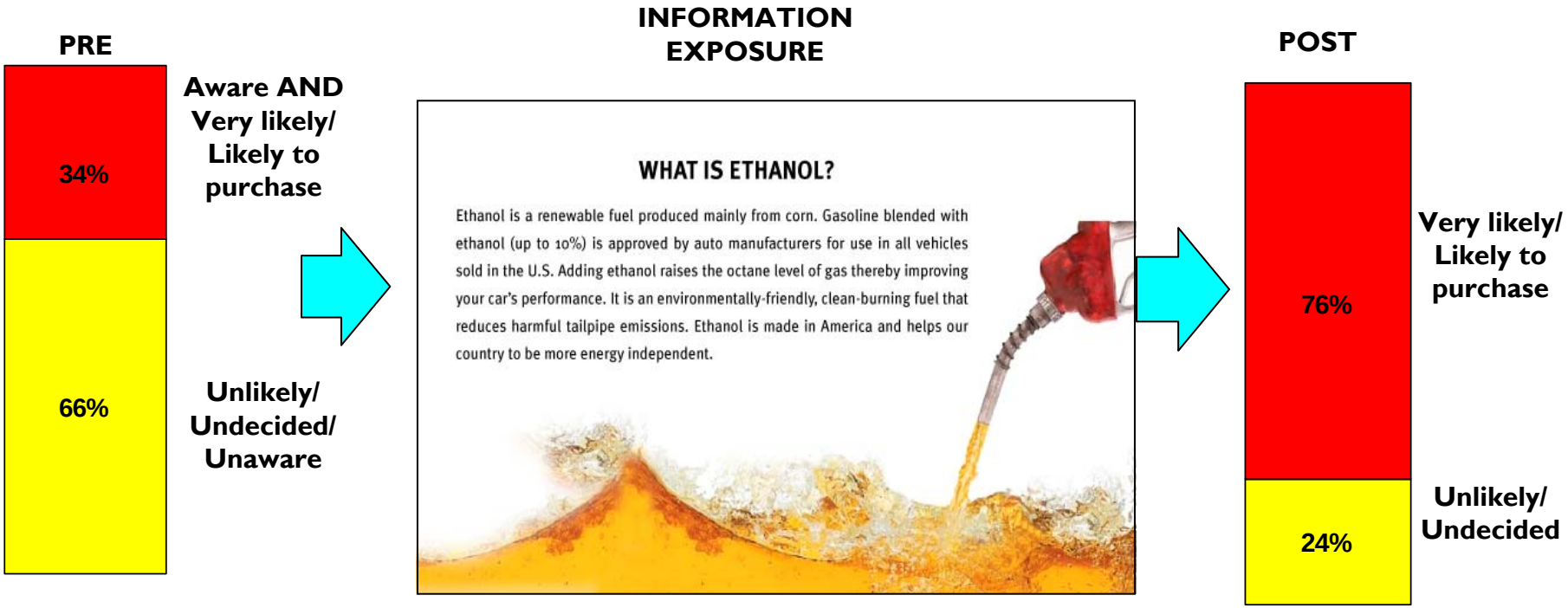
Creating Demand for Ethanol

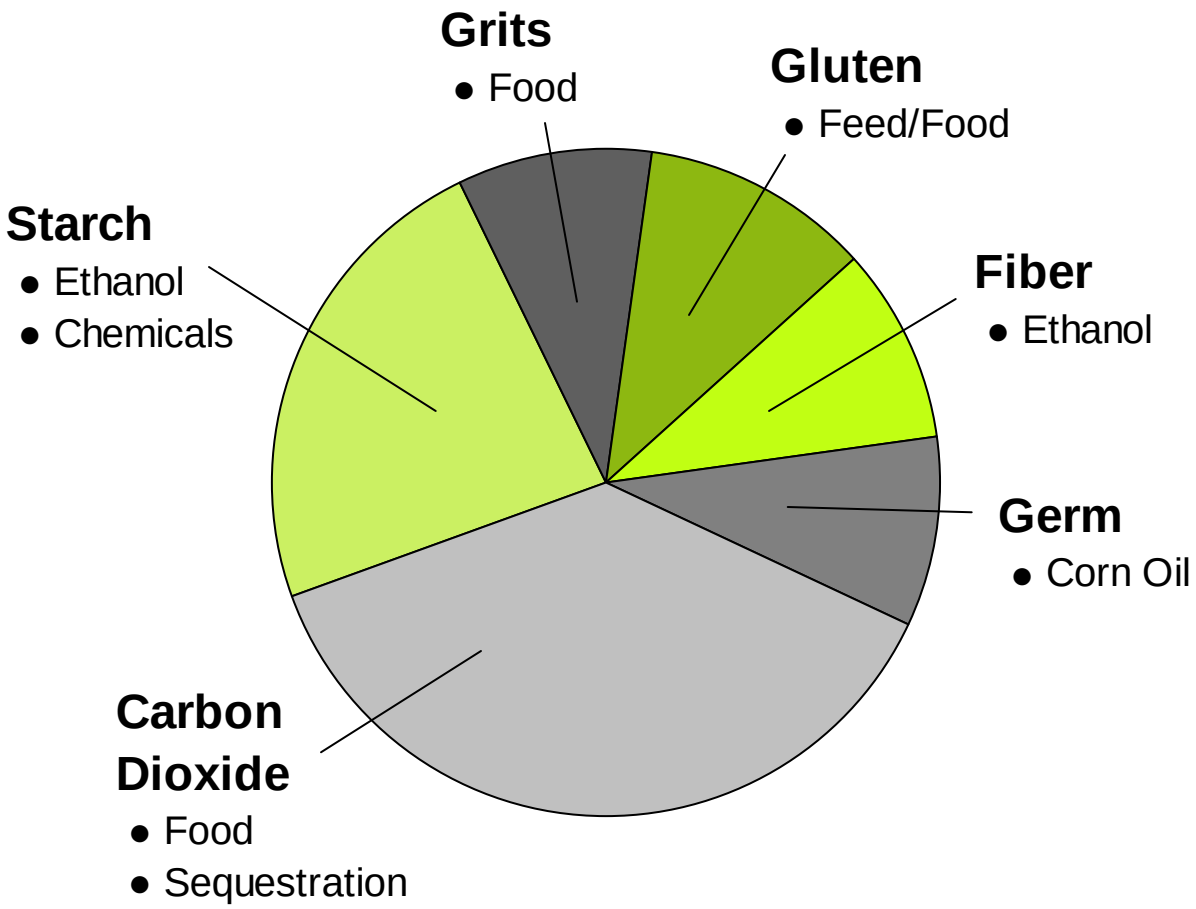


Research showed 1 in 3 consumers consider themselves aware of ethanol and likely to purchase. After exposure to the benefits, 3 in 4 would choose ethanol.

Grain and Cellulose R&D Facility (Lifeline Foods – St. Joseph, MO)

- Goal—Demonstrate new technology for grain-fed plants
- Pilot plant investigates both forms of ethanol production from cellulose
  - Sugar platform – converting corn fiber to ethanol
  - Thermal platform – converting corn fiber to ethanol

Process Optimization



Exploring New Feedstocks

- Cassava
- Wheat
- Sugar/ Molasses
- Barley
- Sorghum
- Cellulose

Cellulose is Key

- Some experts say that the U.S. has enough excess cellulose to replace all imported petroleum products
  - Corn stover
  - Wheat straw
  - Wood waste
  - Energy crops
  - MSW (municipal solid waste)

How do we transport products?

- Infrastructure and transportation assets will be a key component
  - Gasoline terminals
  - Ethanol by truck, rail and barge
  - Distiller's grains by truck, rail and barge

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An example 100 MGY plant

- If 75% into national markets (rail) and 25% into regional markets (truck) for ethanol and distiller's grains
  - Corn Supply
    - 118 Trucks per day
  - Ethanol
    - 7.3 Railcars per day
    - 9 Trucks per day
  - Distiller's grains
    - 7.5 Railcars per day
    - 24 Trucks per day(WDG)

If you extend the example out to 3 billions gallons new production

- If 75% into national markets (rail) and 25% into regional markets (truck) for ethanol and distiller's grains
  - Corn
    - 3,540 Trucks per day
  - Ethanol
    - 219 Railcars per day
    - 262.5 Trucks per day
  - Distiller's grains
    - 227.5 Railcars per day
    - 720 Trucks per day(WDG)

For more information

Contact:

Greg Krissek

310 N. First Street
Colwich, KS 67030
USA

Phone: (316) 977-6598

Email: gkrissek@icminc.com