Next-Generation Biofuels for the Chesapeake Bay Region

October 14, 2008

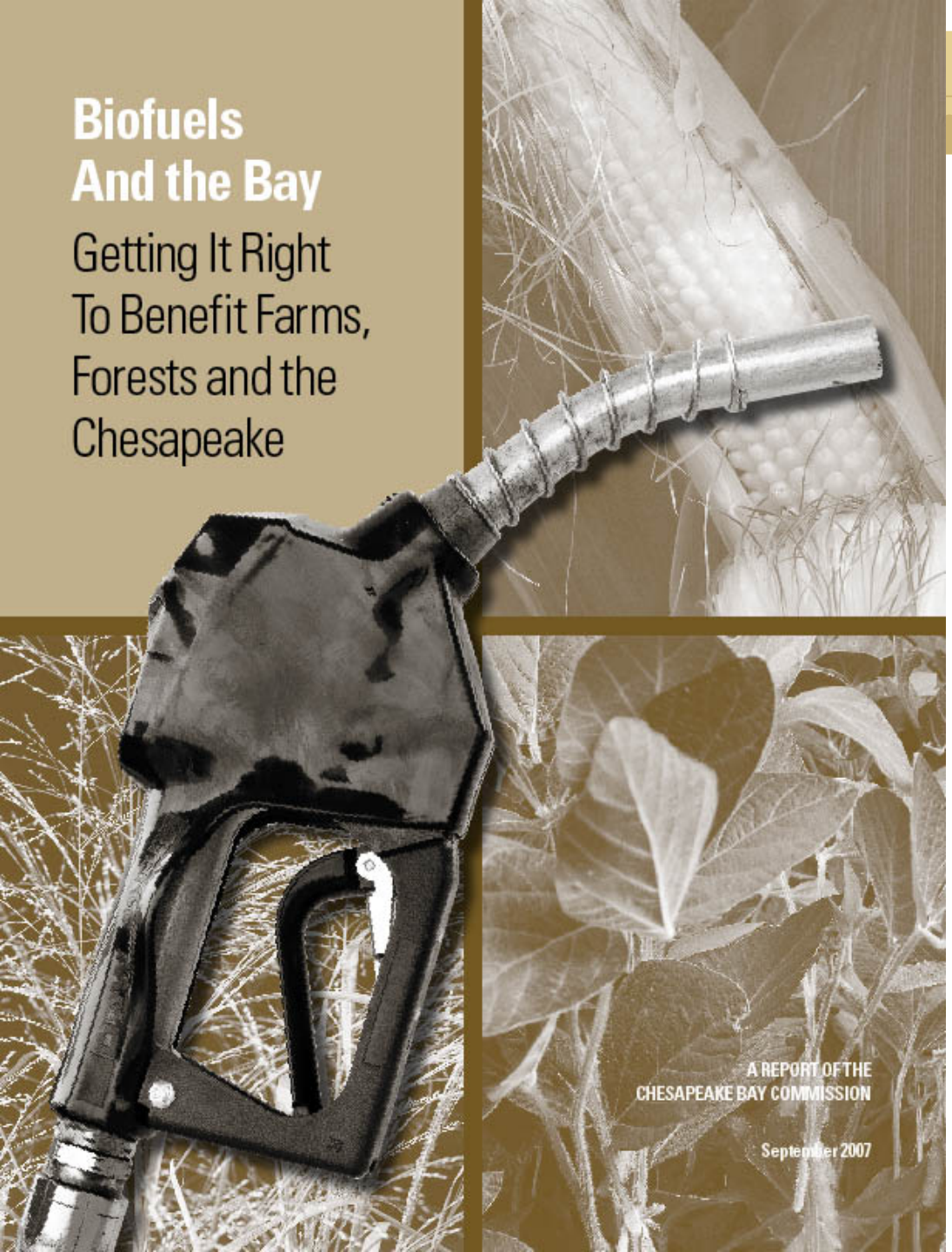
Virginia Commission on Energy & the Environment

Chesapeake Bay Commission

Chesapeake Bay Commission

- Created in 1980
- 21 members
- MD – VA – PA
- Partner in the EPA Bay Program
- Member: Chesapeake Executive Council
- Signatory to 3 Agreements
- Policy Leader; Emerging Issues

"Policy for the Bay"



CHESAPEAKE BAY COMMISSION
EST. 1980
MARYLAND • PENNSYLVANIA • VIRGINIA

A Report of the Chesapeake Bay Commission

September 2007

What are the Feedstocks of Biofuels?

- Natural Oils: animal fat, yellow grease, restaurant waste, algae, and oilseed crops like soy and palm oil.

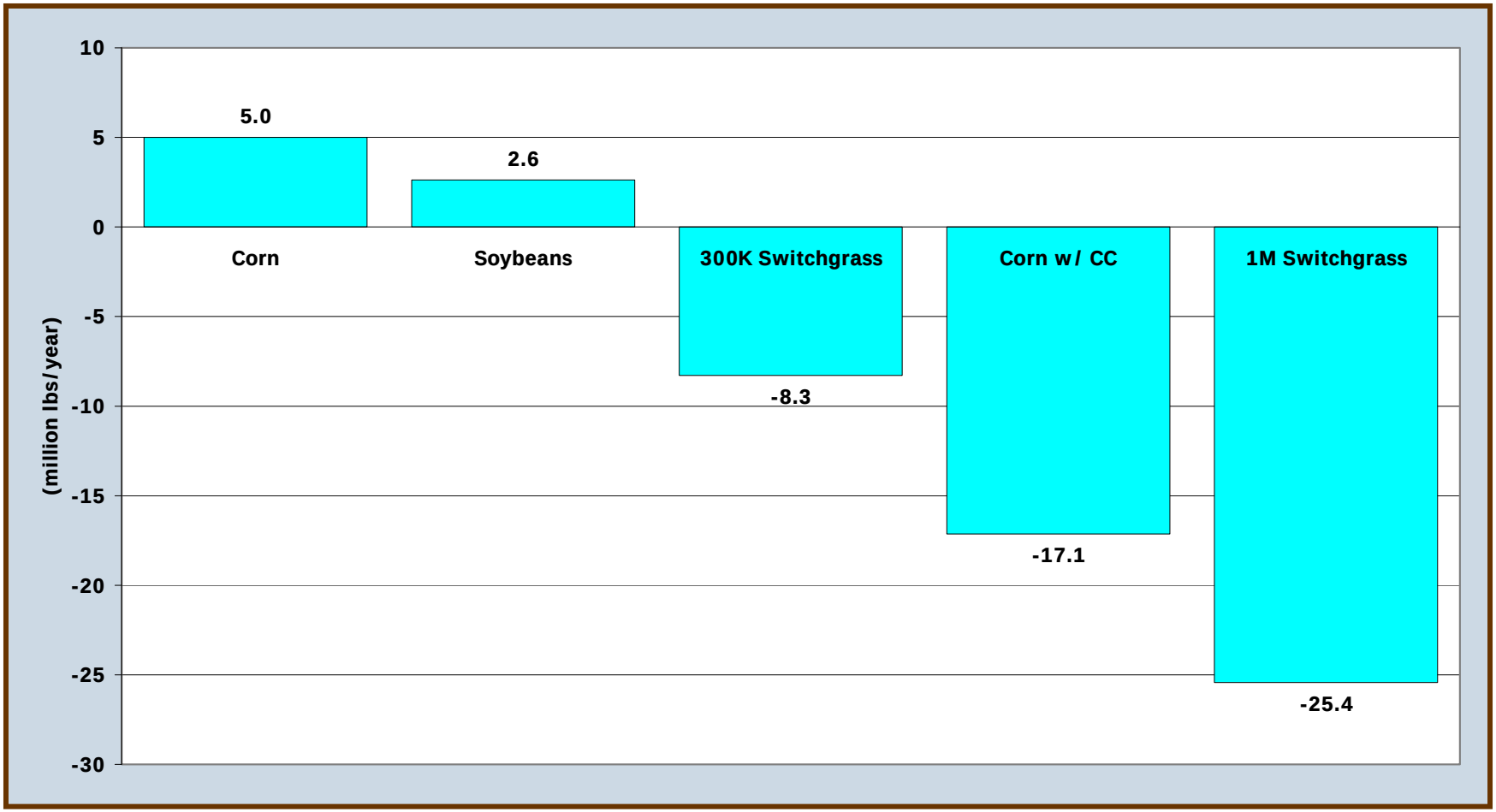
- Sugars/Starches: corn, sorghum, sugar cane and beets, hulless barley.

- Cellulosic Biomass: perennial grasses, woody biomass, corn stover, wheat and rice straw.

Bottom-line Findings

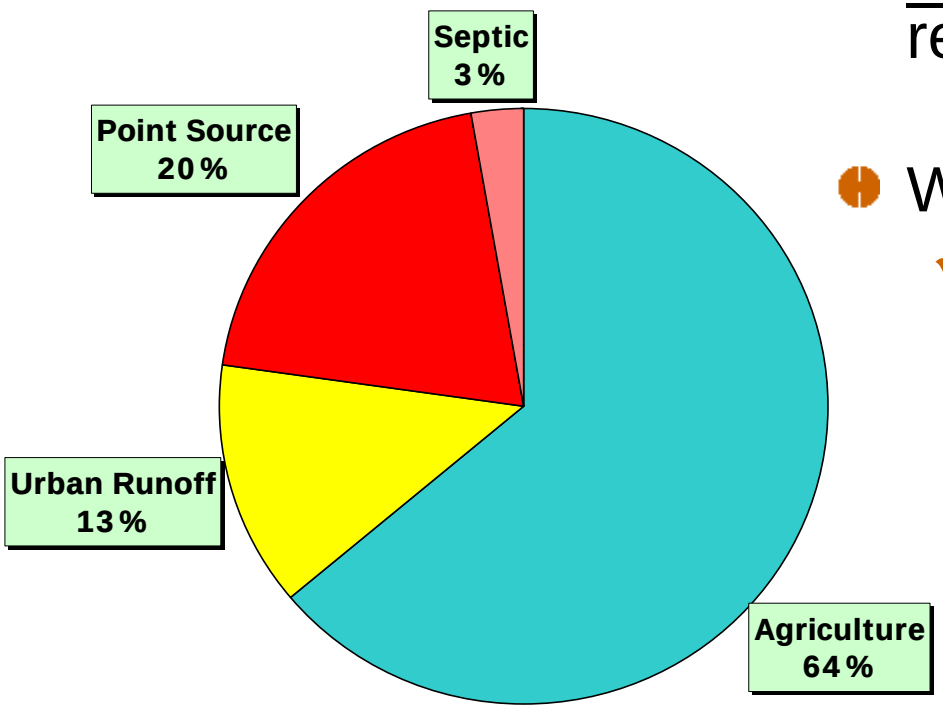
Impacts of Alternative Biofuels Scenarios

Watershed Delivered Load, Million lbs. N per year



Agricultural Tributary Strategy Goals

Bay-wide Tributary Strategy Commitments for Achieving Nutrient Reductions



- Relying on Agriculture to achieve two-thirds of the needed nutrient reductions.
- Why?
  - ✓ 5 out of 6 smart investments for short term achievements in nutrient and sediment reductions for the Bay are agricultural practices

(CBC Report: Cost Effective Strategies for the Bay)

What is the "Bottom-line" for Biofuels and Water Quality?

- **Handled right**, biofuels can be a source of substantial permanent new income for farmers and foresters, can help reduce greenhouse gases, and can reduce nutrient pollution to the Bay.
- **Handled wrong**, biofuels can bring economic uncertainty, do little for greenhouse gases, increase the cost of animal feed, and exacerbate nutrient pollution.

Recommendations to 2007 Executive Council:

HERE & NOW…and INTO THE FUTURE

- Create long-term, sustainable funding programs for Ag BMP's in every watershed state.
- Provide adequate delivery mechanisms through technical assistance and outreach.

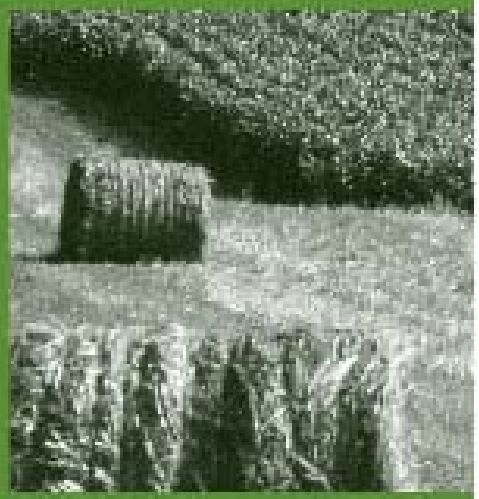
IN 2008 ✓

- Position the Chesapeake region as a national leader in an emerging cellulosic biofuel industry.
- Identify dedicated funds to research and develop the needed technology.
- Hold Cellulosic Biofuels Summit.

Next-Generation Biofuels

Taking the Policy Lead for the Nation

September 2008



pennsylvania
STATE OF INNOVATION

Project Co-champions

Cellulosic Biofuels

Expert Advisory Panel

* 22-members
* Watershed-wide
* Substantive Knowledge
* Policy Direction

Baseline Assumptions

1. Sustainability: The proper focus for biofuels in the region is economic and environmental sustainability.
2. Regional Factors Affecting Production.
3. Current Generation Biofuels.
4. Next-Generation Biofuels.
5. Environmental Issues.
6. Land Use Changes.

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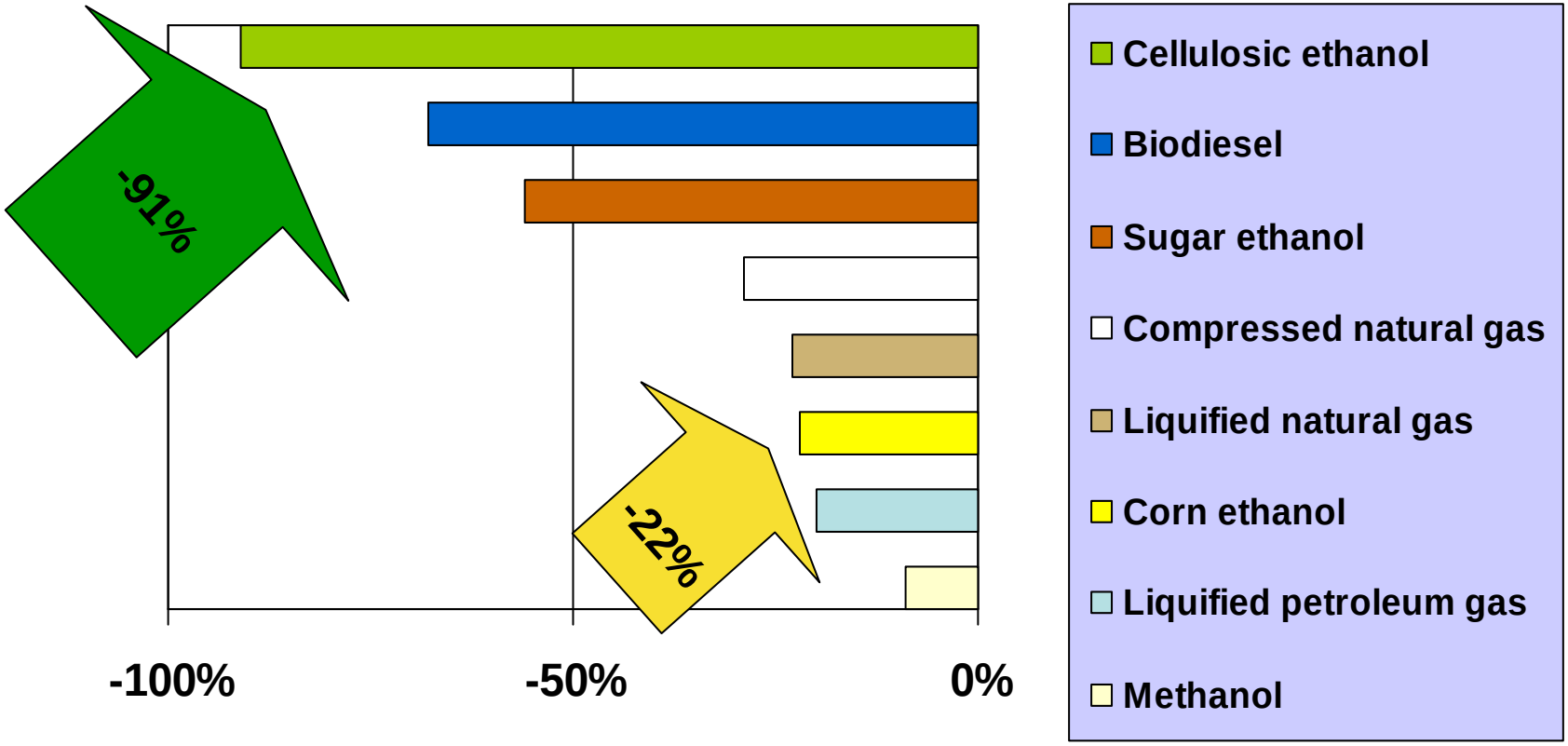
What we learned…

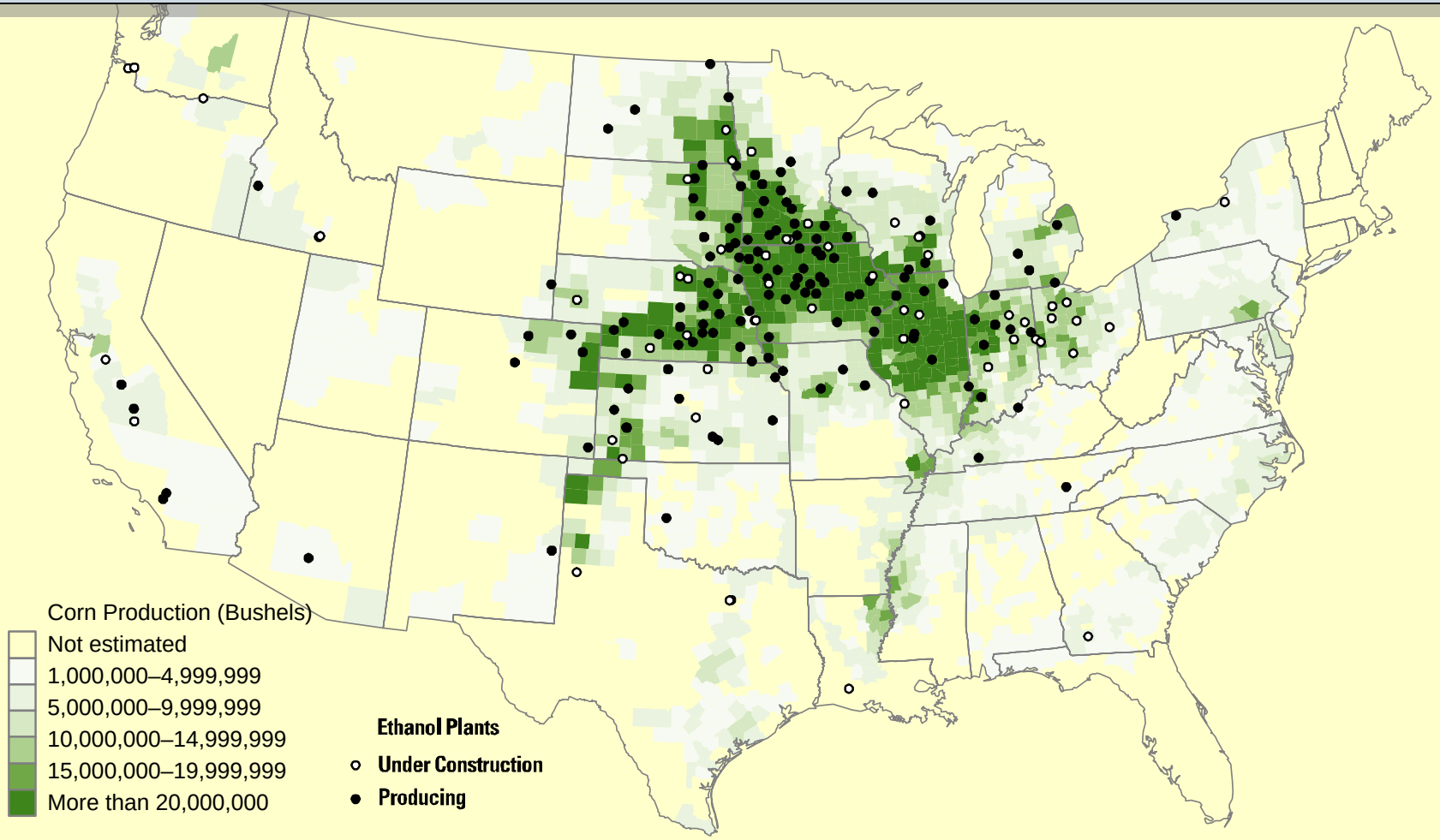
Comparing Fuels: Greenhouse gas emissions



Estimated change in greenhouse gas emissions if petroleum fuel is replaced by one of these alternatives.

Choosing Our Future

The Chesapeake Region is the least invested in ethanol of any corn-growing region in the nation.



SOURCE: U.S. Department of Agriculture, National Agricultural Statistics Service, 2007

Policy Recommendations

Focus action in three major subject areas:

I. Feedstocks: Assuring a reliable and accessible supply of large amounts of biomass grown in the Chesapeake region.

II. Natural Resource Protection: Determining the types of biomass used, where they are grown, and the best management practices needed.

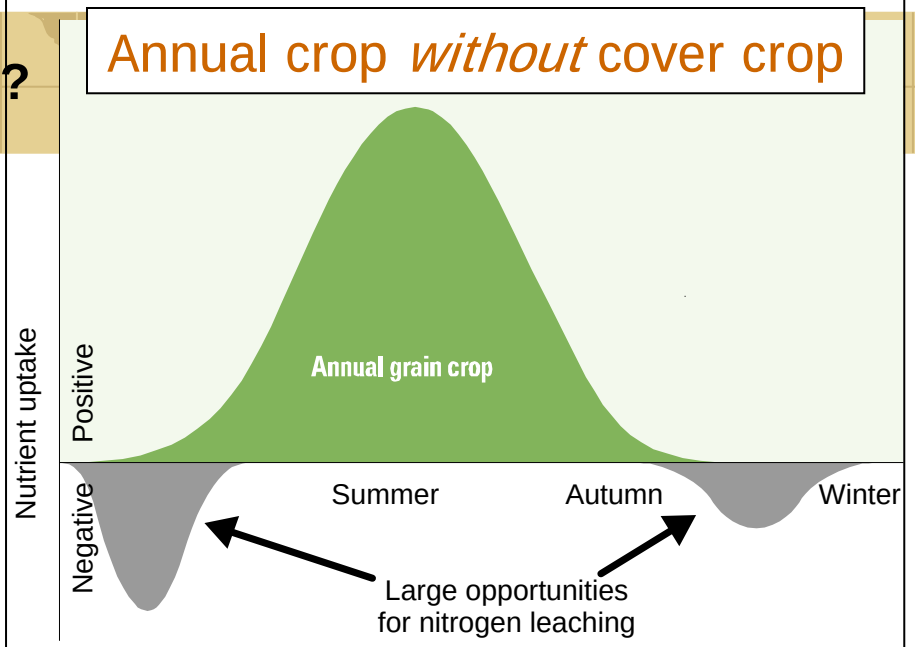
III. Marketing and Infrastructure: Harnessing the region's opportunities for production capacity, distribution of feedstocks and biofuels, and marketing of biofuels and their co-products.

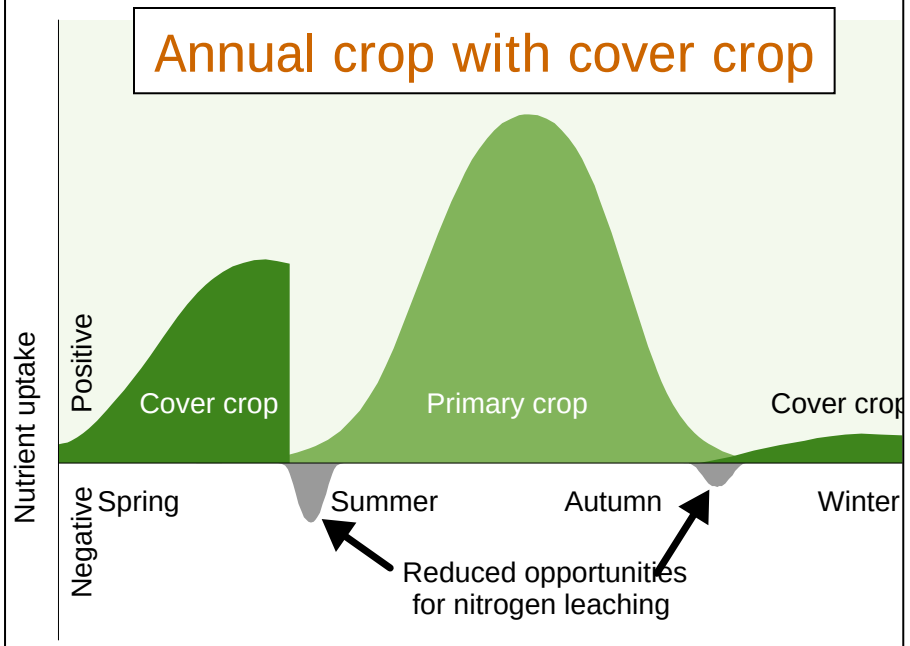
I. Feedstocks

- Coordinate regional input on USDA programs that promote sustainable feedstock production and harvest.
- Encourage local or on-farm use of biomass.
- Encourge winter biofuel crops as first-generation feedstocks (or “generation 1.5”).
- Target production incentives that provide multiple benefits
- Ensure nursery and seed industry has adequate supplies of feestocks. higher blends of biofuels.

Why Winter Cover Crops?

Maximizing the Potential of Biomass Production and Uptake of Nutrients.





SOURCE: Andrew H. Heggenstaller, Iowa State University

II. Natural Resource Protection

- Establish best management practices for planting and harvesting of biofuel crops, including crop residues and forest biomass.
- Discourage use of non-invasive feedstocks and develop strict protocols for those that become potentially invasive.
- Encourage sustainable biofuel production on abandoned or underutilized land.

III. Marketing and Infrastructure

- Make creative use of economic development programs to support development of feedstocks and refining facilities.
- Focus facility support on small-scale, first-stage operations.
- Coordinate regional action to secure funding from the Farm Bill and the Federal Energy Acts.
- Establish a regional strategy to encourage greater use of higher blends of biofuels.

To become the policy leader in Next-Generation Biofuels the Bay watershed states must all lead.

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