

Report describes ways to reduce greenhouse emissions

By Kate Campbell

There are at least seven potential ways agriculture can help reduce greenhouse gas emissions and support efforts to reverse the effects of climate change. This conclusion is among dozens of findings in a technical advisory report that scans opportunities in the California economy.

Presented to the state Air Resources Board (ARB) earlier this year, the report addresses how to implement the Global Warming Solutions Act of 2006 (AB 32) approved by the California Legislature and Gov. Arnold Schwarzenegger. The ARB shares responsibility for implementing the legislation with a number of other state agencies.

The board is currently preparing a policy framework—known as a scoping plan—to achieve actual greenhouse gas reductions from all of the state's economic sectors. The draft version of that plan will be released for public comment in June.

The section outlining the role California agriculture might play in helping stem global climate change is part of this larger collection of recommendations offered by the 20-member Economic and Technology Advancement Advisory Committee,



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whose members represent an economic cross-section of the state.

Cynthia Cory, California Farm Bureau Federation environmental af-

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fairs director, was appointed by the Schwarzenegger administration to serve on the advisory committee. She researched and coordinated the recommendations in the report's agricultural section.

With input and help from agricultural, academic and environmental experts, Cory identified areas and technologies that could offer promise in the near future for reducing greenhouse gas emissions while also citing longer-term efforts.

"In every case, these recommendations will not come to fruition without a significant amount of research and incentives," Cory said. "These are based on our best crystal-ball estimates, so in some cases the stars might line up and in others they might never come together.

"But, in the areas we've prioritized, we believe there's merit for looking into potential greenhouse gas emission reductions."

The report's findings and recommendations for agriculture include:

- Manure-to-energy facilities using digesters could generate up to 350 megawatts of new, renewable energy.
- Agricultural biomass utilization could turn a portion of the nearly 21 million tons of agricultural byproducts into sustainable energy production and alternative fuels. Right now very little of this resource is being used and is treated as waste.
- A concerted biofuels development program could help supply a significant amount of renewable fuels in the short term. This would help bridge the gap while advanced technologies for biomass conversion are being developed and proven.
- Soil carbon sequestration offers great promise, although Cory says little is known about the sequestration potential of California's 400 agricultural crops. What is known, however, is that

soil is a major reservoir for carbon and nitrogen and contains twice as much carbon as plants and the air.

- Riparian restoration and farmscape sequestration is one way to store carbon on agricultural lands by re-establishing natural woody vegetation on rangeland, field edges and marginal farmland and riparian areas that have been cleared.

- Fertilizer use and water management efficiency is another possible avenue to reduce nitrous oxide (N₂O) emissions from managed soils due to the high probability of releasing greenhouse gas emissions during fertilization.

- Enteric fermentation could reduce methane emissions from cattle by 30 percent through more efficient feeding practices, feed modifications and breeding developments.

To launch these greenhouse gas-reduction efforts by the 2012 deadline for the first phase of implementation, Cory said research needs must first be prioritized. Then easy-to-understand guides to implementing, monitoring and verifying improvements must be developed.

“Once the science is complete, the next step would include developing a way for farmers to receive carbon credits or monetary incentives,” Cory said. “Implementing these programs would also require grower outreach and edu-

cation, as well as a high degree of cooperation with regulatory agencies in developing needed infrastructure.

“All these barriers can be overcome, but that will require robust, multi-agency and industry-wide cooperation.”

The overall report recommends 55 economic and technology advancement policies for a cleaner and more competitive California economy. The goal is to reduce greenhouse gas emissions from the current level of 14 tons of carbon dioxide equivalent per person down to 10 tons per person by 2020. The ultimate goal is to reduce emissions by 80 percent by 2050.

The report, presented to the ARB in February, is the first to present a comprehensive set of recommendations, incentives and investments for cleaner transportation and energy technology across California’s economy. Those sectors include finance; transportation; industrial, commercial and residential energy use; electricity and natural gas; agriculture; forestry; and water.

To accelerate the transition to a cleaner and more competitive economy, the report proposes the development of a California Carbon Trust if revenues are available from sales of carbon allowances.

The proposed trust would direct in-

vestments in the research and development of promising and high-potential technologies, finance technology pilot projects, and achieve greenhouse gas and air pollution reductions in disadvantaged communities and throughout the state of California.

The report also notes that adopting strategic policies will help California capture larger percentages of the growing pool of nationwide Cleantech investment. Total U.S. investment in Cleantech industries was more than \$3.7 billion in 2007 with nearly half

flowing to California.

“Reducing our greenhouse gas emissions presents an unprecedented economic opportunity to harness California’s renowned technological ingenuity and can-do spirit,” said Mary Nichols, chairman of the California Air Resources Board, the lead agency implementing AB 32.

For an online copy of the report, go to www.arb.ca.gov/cc/etaac/etaac.htm.

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