



# National Sustainable Agriculture Coalition

June 11, 2009

BCAP EIS  
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Re: Amended Notice of Intent to Prepare an Environmental Impact Statement for the Biomass Crop Assistance Program, Federal Register, Vol. 74 at pp. 22510-22511 (May 13, 2009).

To Whom It May Concern:

On behalf of the National Sustainable Agriculture Coalition (NSAC), I am submitting these comments on the scope of a Programmatic Environmental Impact Statement (PEIS) for the Biomass Crop Assistance Program (BCAP). NSAC represents over 40 family farm, rural development, conservation and environmental organizations from around the U.S. that share a commitment to federal policy that promotes sustainable agriculture production systems, family-based farms and ranches, and healthy, vibrant rural communities. Throughout its twenty year history, NSAC has been a leader in the development and implementation of farm bill programs that have enabled many U.S. farmers and ranchers to provide food and fiber in farming systems that reduce potential adverse impacts on the nation's natural resources.

## **National Sustainable Agriculture Coalition Comments on Scope of a BCAP Programmatic Environmental Impact Statement**

**1. The overall scope of the BCAP PEIS must be guided by congressional intent for BCAP, including the statutory language and the 2008 Farm Bill Managers' Statement.**

The Managers' Statement for the 2008 Farm Bill gives the direction to the USDA that *the primary focus of the BCAP will be promoting cultivation of perennial bioenergy crops and annual bioenergy crops that show exceptional promise for producing highly energy-efficient bioenergy or biofuels, that preserve natural resources, and that are not primarily grown for food or animal feed.*<sup>1</sup> Therefore, the PEIS must include an assessment of perennial and annual bioenergy crops, excluding those prohibited by statute, to determine which crops have promise for commercial development over the lifetime of the 2008 Farm Bill and can also significantly increase the conservation performance of agricultural in the region in order to preserve natural resources.

A prime example for perennial crops is switchgrass which has been grown in demonstration plots at Illinois State University and other land grant universities. As a perennial, its establishment on erodible land that is marginally suited for row crop production could result in significant decreases in soil erosion and water pollution. The crop could also be managed to avoid adverse impacts on nesting birds and other wildlife. In addition, switchgrass can also be used incidentally for livestock feeding.

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<sup>1</sup> H.R. Rep. No. 110-627, 110<sup>th</sup> Congress, 2d Session at 919 (hereinafter 2008 Farm Bill Conference Report).

A prime example for annual crops is camelina, an oil crop with yields about 2x the oil of soy. Camelina has been grown for years in Montana and a number of land-grant colleges around the country, including Oregon State, Montana State and Idaho State have conducted research and field trials on camelina. It can be incorporated into northern Plains wheat-fallow rotations to add a crop that can increase the wheat productivity. Camelina also contains sufficient concentration of omega-3 fatty acids that make camelina meal, a by-product of camelina crushing for oil, a good candidate for livestock feed. Camelina is an ideal candidate for BCAP project funding whose primary purpose should be to help farmers establish new crops which can provide feedstock for biofuels while also improving the conservation performance of their agricultural operations.

This recommendation is not that BCAP be targeted *exclusively* to crops to be used for bioenergy production. As discussed above, both camelina and switchgrass can be used for other purposes. Camelina meal is a byproduct that of oil extraction that can be used for livestock feeding, which can help support livestock farmers. Farmers can alternate the use of switchgrass fields between switchgrass for biofuel and switchgrass for grazing, which may result in higher incomes for farmers and an additional tool for managing the production system.

Note also that NSAC is not recommending that all BCAP funding be directed to bioenergy crop production. In some regions, the development of forest-based energy feedstock may be more appropriate. And there may be non-fuel biomass crop feedstocks that can achieve improvement of the conservation performance of agricultural systems in a region.

## **2. NSAC recommends that the following alternatives be included in the BCAP PEIS:**

**(a) BCAP implementation that allows only projects that involve mixed stands of native perennial crops or forest projects that increase the diversity of tree species in existing forests, with additional uses for crop such as rotational grazing;**

**(b) BCAP implementation that would also allow for annual biomass crops that are incorporated into resource conserving crop rotations;**

**(c) BCAP implementation targeted to organic farming systems; and**

**(d) BCAP implementation with projects for a wide range of production levels.**

*Comments on Alternative (a): BCAP projects limited to mixed native plantings.*

In many regions of the U.S., mixed native perennial stands may well provide both high economic performance and high environmental performance as biomass feedstocks for energy production. Implementation of BCAP targeted to these systems is a viable alternative for the BCAP. Recently published research involving a 10-year study by Dave Tilman and colleagues showed that 16 native prairie species on average yielded 238 percent more biomass than land planted to a single species. Greater diversity increased carbon sequestration, provided more stable annual yields, and significantly reduced the need for pesticides, herbicides and fertilizer applications, especially nitrogen.<sup>2</sup> Prairie hay can be burned or gasified and research is underway on producing cellulosic ethanol from grass mixtures. In addition, mixed prairies provide high quality livestock grazing, which can be used for extra income for farmers and ranchers and as an additional management tool.

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<sup>2</sup> Tilman, D., J. Hill, & C. Lehman (2006) *Carbon-negative biofuels from low-input high-diversity grassland biomass*. 314 SCIENCE 1598-1600.

A recent article in the Land Stewardship Newsletter examines the costs and time to establish mixed prairie on previously cultivated land. Establishment on row cropped land is easiest, with more perennial weed control needed initially in former pastureland. Although initial establishment costs run from \$300 to \$400 an acre, subsequent costs for maintenance are much lower with little need for replanting and, with good management, little need for inputs such as fertilizer. Some economic return from the prairie may be available within 3 years.<sup>3</sup>

The Tallgrass Prairie Center in Iowa is currently researching the effects of harvest frequency on prairie plots. Their work indicates that the multiple uses in rotation may result in the best economic return for farmers, with a prairie harvested for biomass one year and grazed the next. These multiple use prairies could be managed to make them more hospitable for prairie wildlife.

Taken together, this information indicates that mixed perennial prairie and grasslands grow well on relatively infertile soil and could be established on marginal crop land. Farmers with high quality cropland will likely not be induced to participate in BCAP without very high payments. A priority for BCAP projects that convert marginal land in row crops to native perennial systems may provide significant amounts of biomass with relatively low impacts, easily meet the GHG emission threshold of the RFS as row crop land is converted to perennial cropland, and overall exact relatively low costs to the program.

#### ***Comments on Alternative (b): BCAP Projects with Annual Crops in Resource Conserving Crop Rotations***

NSAC recommends that the highest priority for BCAP be projects with mixed native perennials but the BCAP PEIS should also consider projects for annual biomass crops. We recommend that these projects be limited to annuals incorporated into existing row crop acreage to establish a resource conserving crop rotation. Resource conserving crop rotations are defined in the Conservation Stewardship Program as a crop rotation that includes at least one resource conserving crop as defined by the USDA Secretary; reduces erosion; improves soil fertility and tilth; interrupts pest cycles; and in applicable areas, reduces depletion of soil moisture or otherwise reduces the need for irrigation.<sup>4</sup> Incorporation of a crop such as camellina or a biodiesel producing legume could provide feedstock for bioenergy, while also improving the overall conservation performance of BCAP acreage formerly planted in a monoculture annual crop or a simple crop rotation.

Therefore, NSAC recommends that BCAP PEIS should assess the relative environmental impacts of producing biomass annual crops as part resource conserving crop rotations in comparison to production of biomass crops in continuous, monoculture production systems.

#### ***Comments on Alternative (c): BCAP Projects with Organic Farming Systems***

The original impetus and a continued focus for organic farming systems is improvements to soil quality and soil health arising from increased retention and incorporation of organic material. With the advent of research on global warming, a growing body of scientific research indicates that organic farming systems also have the benefit of carbon sequestration. Organic systems have also been demonstrated to retain more water, increasing the ability to withstand drought and to release water more slowly during storm events which can alleviate flooding. Additional environmental benefits arise with the decrease in synthetic fertilizer and pesticide use. These benefits include not only the increased environmental

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<sup>3</sup> Brian DeVore, *Plugging into the Prairie*, THE LAND STEWARDSHIP LETTER (SUMMER 2008) posted on the web at <http://www.landstewardshipproject.org/isl/lspv26n2.pdf>.

<sup>4</sup> Food, Conservation, and Energy Act of 2008, § Section 2301.

performance of organic farming operations but also benefits arising from a decreased impacts related to the productions of these inputs.<sup>5</sup>

The choice of production system for bioenergy crops will have profound environmental impacts. Organic farming systems, with their reduced use of toxic pesticides and emphasis on carbon sequestration for increase soil health and structure should be assessed within the BCAP PEIS.

***Comments on Alternative (c): BCAP implementation with projects for a wide range of production levels.***

The BCAP program should not be used to fund only a few large agricultural projects involving large-scale monoculture production. Instead, it should be used to help solve the chicken and egg quandary facing bioenergy development. Bioenergy companies do not want to risk building a commercial bioenergy plant without assurance that there is a consistent and adequate supply of biomass. In turn, farmers, seed producers, custom harvesters and others do not want to try out a new crop in a new agricultural production system without assurance of a market for the new crop. In selecting BCAP projects, USDA should select an array of projects that focus on linking demonstration scale bioenergy plants with farmers willing to incorporate new bioenergy crops into existing systems, especially those that will also achieve both conservation and economic benefits from the addition of crops.

The BCAP PEIS should compare environmental impacts from biorefineries at different scales of production, including demonstration plants and smaller plants that may be used to provide community level or regional biomass energy.

**3. NSAC recommends that BCAP PEIS address the following environmental concerns:**

**(a) the impacts on soil quality, water quality, water availability, wildlife (including loss of wildlife habitat), air quality, greenhouse gas emissions (including GHG emissions related to land conversion), net energy balance, and other environmental impacts related to the establishment and harvest of the BCAP project crops.**

It is critically important that the BCAP require a high standard of conservation and environmental performance for crop production and harvest on BCAP acreage. The nation's agricultural resources have been targeted by the 2008 Farm Bill, the Renewable Fuel Standard (RFS) of the Energy Independence & Security Act of 2007, federal tax credits, and numerous state incentives as the base for producing an increasing percentage of the nation's liquid transportation fuel. In addition, agricultural feedstocks such as switchgrass are envisioned as biomass for energy from burning and gasification operations. If agricultural feedstocks become a significant source of energy for the U.S., the pressure on our agricultural production resources, including soil and water quality, will intensify greatly. This significantly increases the need for agricultural production with a higher level of conservation performance than farm bill commodity program conservation compliance, the "norm" we have currently for our nation's agricultural conservation performance.

Congress also clearly recognized the importance of the conservation component of BCAP, with the inclusion in the BCAP statute of "the impact on soil, water, and related resources" among the selection criteria for participation in the program. The 2008 Farm Bill report includes the congressional intent that wildlife-related concerns also be included in the BCAP "related resources" of concern. Further, the BCAP contracts must include "the implementation of (as determined by the Secretary) of a conservation plan or

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<sup>5</sup> See, e.g., Tim J. LaSalle & Paul Hepperly, *Regenerative Organic Farming: A Solution to Global Warming* (Rodale Institute)(2008)(available at [http://www.rodaleinstitute.org/files/Rodale\\_Research\\_Paper-07\\_30\\_08.pdf](http://www.rodaleinstitute.org/files/Rodale_Research_Paper-07_30_08.pdf)).

a forest stewardship plan or equivalent plan.” The Managers’ summary also emphasizes that BCAP contracts include resource conservation requirements. Clearly, an environmental assessment of BCAP should focus on the impacts flagged for consideration by Congress.

NSAC recommends that in undertaking environmental review for BCAP, the Farm Service Agency (FSA) work closely with NRCS. The work of NRCS includes developing conservation measures for crop production and harvesting and other aspects of crop production to minimize environmental and conservation impacts.

The assessment of BCAP alternatives on GHG emissions is also important. In addition to the clear farm bill legislative requirements for conservation measures in BCAP, the program should also be evaluated for its impacts on GHGs because of its relation to the Renewable Fuel Standard (RFS) of the Energy Independence & Security Act of 2007 and to pending climate change legislation. The RFS is a major driver for the production of agricultural feedstocks for ethanol, biodiesel and other biofuels to be blended into gas and biodiesel. The RFS requires that renewable fuels must now be produced from renewable biomass harvested from land “cleared or cultivated” prior to December 17, 2007, the enactment date of the EISA. The RFS also requires that advanced biofuels must meet a threshold of 50% of the lifecycle greenhouse gas (GHG) levels for gasoline and diesel fuel in 2005; biomass-based biodiesel must also meet this 50% lifecycle GHG level; and cellulosic biofuel produced from cellulose, hemicellulose or lignin must meet a 60 % lifecycle GHG threshold. The term ‘lifecycle greenhouse gas emissions’ means the aggregate quantity of greenhouse gas emissions (including direct emissions and significant indirect emissions such as significant emissions from land use changes), as determined by the EPA Administrator, related to the full fuel lifecycle.

If a bioenergy facility intends to make biodiesel or ethanol eligible for the tax incentives provided by meeting the RFS requirements, the conservation standards for agricultural feedstock production in a BCAP project associated with that facility will have to meet both the restrictions on breaking out new land for cultivation and the RFS life cycle GHG levels thresholds. It is important that BCAP be structured so that priority is given to systems which can minimize GHG emissions or increase longterm sequestration of carbon. The BCAP PEIS should include the evaluation of GHG emissions from differing agricultural systems.

**(b) the environmental and economic impacts related to BCAP provisions for collection, harvest, storage and transportation.**

NSAC is very concerned that the financial incentive for collection, harvest, storage and transportation includes incentives to remove crop residues. Recent research by a team of USDA Agricultural Research Service scientists led by Wally Wilhelm, a scientist with the Agroecosystems Management Research Unit, Lincoln, NE has raised concerns about the use of crop residues for biomass. Research by this group indicated that the corn stover needed to replenish soil organic matter was greater than that required to control either water or wind erosion in the ten counties (in nine of the top eleven corn production states in the U.S.) investigated. This outcome emphasizes the need to further evaluate the validity of widely circulated estimates of U.S. cropland capacity to sustainably supply feedstock for the emerging cellulosic ethanol industry.

The team concluded that there is a critical need to gather additional high-quality replicated field data from multiple locations to confirm their calculations and to expand the computations to a broader range of cropping systems before major decisions are made about the percent of stover that can be designated for biomass energy production. In addition, they state that an extensive effort is needed to expand development of existing crops, discover and develop unconventional crops, and create and deploy advanced cropping systems that exploit the potential of all crops so that biomass production can be

expanded to provide a sustainable supply of cellulosic feedstock without reducing soil organic matter, thus undermining the productive capacity of the soil.<sup>6</sup>

The BCAP PEIS should address the critical environmental issue of soil quality and include this criterion in the environmental assessment of alternative requirements and criteria for implementing BCAP. Funding should not be provided for crop residue collection, unless there is research in the region establishing maximum levels of residue removal without degrading soil quality. Ideally, these payments should be limited to farmers participating in BCAP projects.

NSAC believes that participants in this portion of the BCAP should be required to meet sustainability standards, including an NRCS-approved conservation plan for soil, water, air and wildlife, or a Forest Stewardship plan to ensure harvest levels and practices are sustainable and protect soil, water, air and wildlife. We are dismayed that on June 11, the Farm Service Agency announced a Notice of Funding Availability for this portion of BCAP with only commodity program conservation compliance required – the bare minimum requirement for addressing only soil erosion. The BCAP PEIS should take a comprehensive look at the environmental impacts of funding collection, harvest, storage and transportations of agricultural residues.

**(c) consideration of the environmental impacts of the conversion facilities for biomass processing for projects that involve the siting of new biomass conversion facilities.**

For some projects, the BCAP funding to farmers or foresters to establish bioenergy or biomass crops or trees could determine whether a biomass conversion facility is sited in a community. The BCAP PEIS should provide an assessment of the environmental impacts for an array of biomass conversion facilities in order to provide comprehensive information on the potential consequences of funding projects for various scales of biomass conversion facility.

**(d) the environmental implications of funding BCAP projects involving the establishment of genetically engineered crops.**

Much of the current research and development focus on agrofuels is targeted at a new generation of agrofuel crops. These crops include grassy perennials and woody plants as well as new annual crops that may produce high levels of oils suitable as biodiesel or that can serve as feedstock for the production of cellulosic ethanol. Many ecologists and agronomists have raised red flags about some of the species being targeted for this new generation of agrofuel crops because they have been deemed to be invasive species in U.S. ecosystems. They have urged that the potential adverse effects of these invasive species on environmentally sensitive ecosystems must be assessed and weighed before they are given widespread introduction.<sup>7</sup>

One example is *Sorghum halepense*, an introduced forage grass that is now an invasive weed in 16 of the 48 states in which it occurs. Another grassy plant, *Miscanthus spp.*, has been identified as a prime candidate for agrofuel feedstock. Recently, the energy company BP announced the establishment of a \$500 million research program under which the University of Illinois will collaborate with the University of California at Berkeley and the Lawrence Berkeley National Laboratory in forming a new Energy

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<sup>6</sup> W. W. Wilhelm, Jane M. F. Johnson, Douglas L. Karlen & David T. Lightle, *Corn Stover to Sustain Soil Organic Carbon Further Constrains Biomass Supply*, 99 *Agronomy Journal* 165-1667 (2007). This research in the paper contributes to the USDA-ARS Renewable Energy Assessment Project (REAP) goals and was funded by the USDA-ARS and USDA-NRCS agencies.

<sup>7</sup> S. Raghu et al., *Adding Biofuels to the Invasive Species Fire?* 313 *Science* 1742 (2006).

Biosciences Institute. About 340 acres of farmland at UI's Urbana campus will be devoted to the study and production of feedstock for biofuel production, featuring hybrid *Miscanthus* and other grassy perennials as fuel sources. *Miscanthus* is an invasive plant. Even sterile hybrids grow rapidly and can propagate vegetatively from rhizomes. The plant can grow up to 13 feet tall in dense stands of woody vegetation that resemble bamboo stands.

Genetic engineering for many bioenergy crops is targeted at increasing characteristics such as rapid vegetative growth, tolerance for a wide array of ecological conditions and other features associated with invasive weed and tree species. NSAC recommends that the BCAP PEIS address the environmental impacts of introducing GE crops and trees through BCAP, including associate economic costs for controlling GE crops if they "escape" from agricultural systems and invade local ecosystems.

#### **4. The BCAP PEIS should assess economic and social factors related to the environmental impacts of a program.**

The National Environmental Policy Act provides for consideration of economic and social factors related to the environmental impacts of a project or program. SAC has recommended to USDA give a high priority to BCAP projects involving bioenergy conversion facilities that provide an opportunity for local ownership, particularly ownership by the farmers providing agricultural feedstock. This assessment should consider the environmental and public health impacts associated with greater regional energy self-sufficiency and the retention of wealth at the local and regional level. The history of energy production includes numerous examples of communities "mined" for local resources and left with wrecked ecosystems, public health hazards and little else. USDA and other federal and state agencies have promoted bioenergy as a part of a long-term rural development strategy. This strategy could result improvements to public health and even improve the environment of rural communities. But these benefits will result only if publicly funded incentives are targeted to projects that account for impacts on human health and wellbeing. Therefore, we recommend that the BCAP PEIS address these impacts.

#### **5. NSAC concern over the framework of the "Preliminary Program Alternatives Summary" provided by Geo-Marine, Inc. at BCAP PEIS listening sessions.**

NSAC has obtained a copy of the "Preliminary Program Alternatives Summary" provided to participants at public listening sessions for the BCAP PEIS organized by Geo-Marine, Inc. We have the following comment on the alternatives provided in this Summary.

The Summary puts alternatives for BCAP implementation into the categories of "Alternative A: Targeted Implementation of BCAP" and "Alternative B: Broad Implementation of BCAP". First, for some of the alternative points of implementation, the designation of "broad" or "targeted" makes no sense. Second, there is no rationale for assuming that BCAP must be implemented either as including all the points in Alternative A or all the points in Alternative B. For example, the issue of whether GHG emissions of a biofuel will be considered in selecting BCAP projects is an entirely separate issue from that of whether BCAP will be implemented to include only large scale biomass conversion facilities. There is no reason why BCAP could not be implemented to require that biofuels in a BCAP project meet the GHG emission requirements of advanced biofuels (in Alternative A) and to target small and pilot conversion facilities (in Alternative B).

Instead of an all-or-nothing Alternative A approach or Alternative B approach, the BCAP PEIS should address the alternatives for the individual points of implementation separately with the potential environmental impacts for each point considered separately. For example, the BCAP PEIS would do an environmental assessment of funding large commercial biomass facilities versus a BCAP focus on small and pilot biomass conversion facilities and an environmental assessment of including in BCAP only

large-scale facilities or a range of scales of biomass conversion facilities. ***It will be up to USDA to consider this environmental information for each point separately and then select a mix of features for the proposed regulation implementing BCAP.***

NSAC appreciates this opportunity to comment on the scope of the BCAP PEIS. We look forward to commenting on the draft PEIS which we understand is scheduled for release in July. In closing, overall, we urge USDA to implement BCAP with effective conservation measures to help ensure that bioenergy production from our agricultural systems is not done at the costs of degrading soil quality, water quality, wildlife habitat and other natural resources or the environmental and economic wellbeing of rural communities.

Sincerely,

*Martha L. Noble*

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