

**BCAP:
Biomass
Crop
Assistance
Program**

**Energy
Feedstocks
From
Farmers &
Foresters**

February 2013



**A Report by the
U.S. Department of
Agriculture
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INFORMATION

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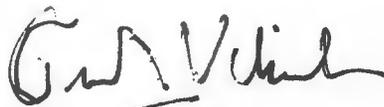
Dear Chairwoman Stabenow, Chairman Lucas and Esteemed Committee Members:

I am pleased to report on the achievements of American farmers, ranchers, and foresters on establishing next-generation energy feedstocks using the Biomass Crop Assistance Program (BCAP).

Through cooperative partnerships with biomass conversion facilities or groups of producers, the Farm Service Agency's (FSA) county offices have enrolled more than 50,000 acres to establish and produce dedicated, nonfood energy crops. BCAP also provided assistance for the testing of delivery logistics of more than 58,000 dry tons of herbaceous residues collected and harvested in crop years 2010 and 2011 for delivery to conversion facilities.

With BCAP, the Department of Agriculture (USDA) has established five types of dedicated energy crops on marginal lands throughout the United States. As a result, measurable positive energy feedstock developments are underway on a local, regional, and national scale, with conservation plans to enhance soil and water quality for enrolled acreage developed concurrently with the technical assistance from FSA's cooperative partner, the Natural Resources Conservation Service. The USDA commitment to 11 different geographically distinct project areas, covering 188 counties among 12 States, has helped to expand biofuels' success beyond just the Midwest into more regions of the United States and into more types of feedstocks, enhancing on-farm crop diversity and expanding market opportunities for American agriculture.

This report outlines how BCAP has assisted farmers and ranchers with managing the risks associated with nontraditional crops never previously produced at a scale never previously achieved. This report also highlights some of the important challenges that remain when moving forward with establishing a dedicated energy crop marketplace in rural America. For more program information and project area specifics, please visit FSA's Web site at <http://www.fsa.usda.gov/>. USDA looks forward to continuing its success and service to America's farmers, ranchers, and foresters who are growing and expanding the domestic bioenergy feedstocks needed to improve the domestic energy security of the United States.



Thomas J. Vilsack
Secretary

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Introduction

There are no short-term solutions to high petroleum prices. This was recognized during one such period of high prices when the leadership of the 110th Congress (2007-2009) began the long-term investments needed to address domestic energy security, enacting a series of measures to provide more consumer choice beyond one single source of vehicle fuels, and to provide more capital-affordable options to conventional carbon-intensive electricity generation.

One measure, included as part of the Energy Independence and Security Act of 2007, established the Renewable Fuels Standard II (RFS2). The RFS2, a revision of an earlier standard enacted in 2005, established targets of 36 billion gallons of liquid biofuels by the year 2022 as part of the 140 billion gallon national vehicle fuel pool, of which no greater than 15 billion gallons could be met using biofuels derived from corn starch.

Because of the RFS2, more than 14 billion gallons of corn starch ethanol now have been introduced into the national fuel pool as of 2012, with more on the way. Ethanol derived from corn starch, however, had a 30-year head start, with half of today's volumes achieved by 2007, using alcohol distillation principles used for centuries and a crop cultivated by humankind for a millennium. In short, while it has taken more than 20 years to introduce more than 10 billion gallons of liquid biofuels into the marketplace, the RFS2 requires an additional 20 billion gallons more in just 10 years, but made without using corn starch.

To create those biofuels feedstocks, the 110th Congress also enacted a complementary measure to the RFS2 as part of the Food, Conservation, and Energy Act of 2008 (the 2008 Farm Bill) - the Biomass Crop Assistance Program (BCAP). BCAP assists farmers, ranchers, and forest landowners with the establishment, maintenance, and harvest of non-food, non-feed biomass dedicated for energy production. BCAP was designed to expand bioenergy feedstocks beyond existing cash crops by encouraging both the establishment of new supplies of biomass as well as the collection of existing but irretrievable biomass.

Although the 112th Congress (2011-2013) saw the end of the volumetric ethanol excise tax credit, reductions of BCAP funding by 96 percent, and calls to terminate the RFS2, the circumstances of high petroleum prices and its effect on the American consumer continue to occur. This report explores the achievements of BCAP in its efforts to address RFS2 goals of providing consumers with more choices at the pump, and complementing state-level renewable electricity standards by establishing non-food, non-feed crops dedicated to energy.

Billion Ton Update

Throughout the past decade, several comprehensive reports have been published that have estimated the potential biomass available in the United States for energy purposes. The most recent report published by the U.S. Department of Energy in August 2011, known as the Billion Ton Update, estimated that domestic biomass resources could be sustainably increased from 473 million dry tons annually to nearly 1.1 billion - 1.6 billion dry tons for energy by 2030 using a combination of dedicated energy crops, agricultural residues, and forest residues.

Before the enactment of BCAP, no program existed at the national or state level that could incentivize producers to begin growing or retrieving biomass economically at the volumes identified in the Department of Energy study. Most Federal investments to date have focused primarily on basic research, laboratory, pilot, or pre-commercial-scale testing and development of conversion technologies, or the commercial construction of facilities. Other related Federal investments have included studies on infrastructure upgrades, such as pipelines, tanks, and dispensers, or analyses of financial risk mitigation tools that could be made available from both the private and public sectors. Evaluations also have occurred on sustainability standards, carbon lifecycle measurements, and crop behavior traits. By comparison, however, with the exception of research-scale plots, little investment has occurred in actually growing and retrieving the energy crops in the field, involving experienced farm and forest producers, within the context of behavior, weather, and competing markets. Many energy crops are perennial, taking several seasons to mature for harvest and the experience of trial and error. Unlike conventional crops, most energy crops have no major trade associations, nascent academic infrastructure, no widely shared best practices, nor plentiful data to create crop insurance, business plans, or calculate farm loans. Such in-the-field investments of applying the science in real-world conditions, of growing the energy crops at scale, must occur in tandem with all other investments to ensure that sufficient quantities of biomass will be affordably available in time for when it is needed. Above all, the energy crop cannot be economical only for the end-use facility; the crop also must be familiar to and profitable for the farmer, rancher, or forester.

Context

With approximately 209 ethanol facilities throughout the United States, the past decade nevertheless saw some conventional ethanol facilities constructed, operational, but then closed, or others never achieving sufficient financing to reach fruition beyond the blueprint stage. Despite the fate of those few facilities, the feedstock proposed to be used - corn - continued to be grown regardless because of its characteristics as a fungible commodity with many mature end-use markets. Now, with the great success of existing corn-starch ethanol facilities in addressing domestic energy security, interest has increased in exploring more types of feedstocks that do not have mature end-use markets, but that instead are dedicated primarily for energy use, i.e. "dedicated energy crops". Yet, the very nature of dedicated energy crops not having multiple end-use markets, at least at the outset, has resulted in a classic chicken-or-egg dilemma. An end-use next-generation biofuels facility must have an experienced group of producers who can provide an affordable, tested, mature crop so that an uninterrupted supply chain of feedstock is available; conversely, farmers and forest landowners considering an investment in growing such feedstock must have assurance that an end-use facility will exist to purchase that feedstock at a fair price. BCAP is designed to serve as a catalyst for jump-starting this dedicated energy crop marketplace by reducing the financial risk for farmers, ranchers, and forest landowners who become the entrepreneurial first-movers in establishing, maintaining, and harvesting these new dedicated energy crops.

Program Design

BCAP employs three incentives for biomass. For new supplies, there is an incentive for establishing and an incentive for maintaining the biomass. To retrieve existing or completed supplies outside of an economically feasible distance, there is an incentive for mitigating the cost of collecting and delivering the biomass.

To grow new biomass, BCAP provides up to 75 percent of the cost of establishing a perennial crop. To maintain the crop as it matures, BCAP provides an annual payment for up to 5 years for herbaceous crops, or up to 15 years for woody crops, regardless of whether the crop is annual or perennial. Exempt from eligibility are crops that are “eligible for payment under Title I” of the Farm Bill (i.e., conventional food or feed crops, such as corn, wheat, soybeans, cotton, rice, sugar) and invasive species.

To retrieve existing or completed biomass, BCAP provides a matching payment of \$1.00 for every \$1.00 per dry ton provided by biomass conversion facilities for the materials, up to \$45 dollars per dry ton. These matching payments are made for the collection, harvest, storage, transportation, and delivery of biomass to an approved end-use facility that converts the biomass into heat, power, bio-based products or liquid biofuels. Again exempt from eligibility is biomass “eligible for payment under Title I” of the Farm Bill, although it may be a residue of Title I crops if separated from the higher-value commodity in the field (i.e. not after delivery to the end-use facility as a processing by-product). Also exempt from eligibility is animal-related biomass (greases, fats, or manures), food waste, yard waste, or algae. Matching payments may go toward the removal of an invasive species, however, if performed in accordance with an approved conservation plan that protects against the inadvertent spread of the species during the collection, transport, and delivery.

To qualify for an establishment or maintenance incentive, the crops must be grown within a BCAP Project Area formally designated by FSA and, by statute, within an economically reasonable distance of the end-use facility, and thus may not require a matching payment. Conversely, to qualify for matching payment, existing or completed biomass need not be within a BCAP Project Area; eligible biomass located outside of a BCAP Project Area may not need or qualify for a matching payment if FSA determines that the biomass can be retrieved or delivered economically absent the payment. Also, eligible biomass may not qualify for matching payments for BCAP purposes if USDA determines that, within those distinct localities, that the otherwise eligible biomass is used for products in existing markets. Eligible materials that can be used for existing markets may differ according to region and may qualify for matching payments if no other market exists for that product in that region.

Major Findings

End-Use Facilities Must Have Relationships with the Feedstock Producers. Many end-use facilities, most notably start-ups, focus primarily on proving the affordability of the conversion science at commercial scale, or securing the capital necessary to construct the end-use facility. Facilities not yet constructed typically contribute to hesitation among feedstock producers, who must consider the capital, time, input, maintenance, or storage investments critical to prepare for growing biomass where the end-use market - and perhaps the only end-use market - is uncertain. Unless end-use facilities intend to engage with only one or a few major landowners, most facilities will need aggregated networks of farmers, ranchers, and forest landowners who have undergone sufficient education to understand the unique attributes of a new crop and its associated production and management methods. Absent mature trade or academic associations, producers also will need knowledge on pest and disease identification, or treatment, monitoring, or reporting responsibilities, as well as new annual developments in each. Farmers, ranchers, and forest landowners also will need to be familiar with conservation or stewardship practices that will assist in soil and water quality preservation, pesticide use, and management, or other relevant issues for specific feedstocks and locations. One notable benefit of BCAP is the enhanced confidence provided to farmers working with USDA offices when

exploring whether to invest in unfamiliar energy feedstocks proposed by end-use facilities. Yet, even with the financial support provided by BCAP, the end-use facility still must focus on establishing trustworthy relationships with feedstock producers if an energy crop never before grown can be established in time and in the volumes necessary for successful facility operation. For biofuels manufacturers, it is not simply “if you build it, the farmer will come.”

Most Feedstock Producers are Small Businesses that Require Financial Certainty. Public investment in energy technologies entails risk, striking the right balance between what public stakeholders will tolerate and what private lenders will not. Even with a record of success, a single misstep in public financial assistance can risk policy stasis that may take years from which to recover. Results cannot be perfect at the outset; growing unconventional crops in large volume is a complex equation of economics, education, behavior, weather, markets, and time¹. Most importantly for farmers, ranchers, and forest landowners, it is about financial certainty and following through on that commitment. Like Federal transportation and transit projects, financial certainty is necessary for subcontracting requirements and construction seasons. Similar commitments are critical for public financial assistance to dedicated energy crops, which are cyclical and must meet growing season specific to key geographic regions that vary throughout the United States. Most producers are reluctant to consider 5-year contracts with only 3-month funding availability periods that expire each fiscal year due to shifts in Federal funding.

Because the Farm Bill is revisited by policymakers generally once every 5 years, and federal regulations can require a minimum of one-third year to promulgate, one final opportunity remains this decade to begin the long-term investments necessary in jump-starting the energy biomass volumes outlined in the Billion Ton Update to meet our domestic energy goals. Alternatively, the issue can be deferred until the 2018 Farm Bill, in preparation for the 2020 crop year, yet beginning next-generation energy crops from the same point as today.

¹ *Feasibility of Camelina as a Biofuels Feedstock in Washington*, Washington State University, February 2012. <http://impact.wsu.edu/marshfiles/camelinareport2-14-12final.pdf>



Program Background

History Summary

BCAP was authorized in June 2008 in Section 9001 of the 2008 Farm Bill. Pursuant to the Presidential Directive issued on May 5, 2009 (74 FR 21531–21532), on June 11, 2009 (74 FR 27767– 27772), upon approval by the Office of Management and Budget (OMB), the Commodity Credit Corporation (CCC) published a BCAP notice of funds availability (NOFA) which, as required by Congress, provided the availability of matching payments to eligible biomass owners for deliveries of feedstocks to biomass conversion facilities. On February 6, 2010 (75 FR 6264–6288), CCC terminated the BCAP NOFA and published the BCAP proposed rule. The proposed rule received more than 24,000 public comments, of which 1,760 submissions were unique and included 3,613 distinct comments. CCC published a final BCAP rule on October 27, 2010 (75 FR 66202–66243), implementing BCAP as authorized by the Food, Conservation, and Energy Act of 2008 (the 2008 Farm Bill, Pub. L. 110–246).

The BCAP NOFA

BCAP matching payments were a mandatory authority provided by Congress in Section 9001 of P.L. 110-246 (the 2008 Farm Bill), which required:

“The Secretary shall make a payment for the delivery of eligible material to a biomass conversion facility to a person with the right to collect or harvest eligible material...at a rate of \$1 for each \$1 per ton provided by the biomass conversion facility in an amount equal to not more than \$45 per ton.”

“The Secretary shall use the funds, facilities and authorities of the Commodity Credit Corporation, including the use of such sums as are necessary, to carry out this section.”

“The term ‘biomass conversion facility’ means a facility that converts or proposes to convert renewable biomass into heat, power, biobased products or advanced biofuels.”

“The term ‘eligible material’ means renewable biomass”

“The term ‘renewable biomass’ means...(B) any organic matter that is available on a renewable or recurring basis from non-Federal land... including.... (i) (III) trees; and...(ii)(II) wood waste and wood residues.”

The mandatory nature of the statute, its broad definition of eligible material, and absence of specific objectives (such as increasing energy use above a historic baseline, requiring new supplies of biomass, or defining distinct biomass categories) affected the initial incarnation of BCAP matching payments, providing little statutory latitude for administration beyond the disbursement of funds to eligible recipients. Before enactment into law, the Congressional Budget Office (CBO) review of the broad statutory scope of BCAP provisions assumed \$70 million in total outlays over ten years, a significantly lower estimate than most mainstream assumptions of the value of wood-to-energy market in the United States. Later funding adjustments instituted by Congress provided the discretionary authority necessary for FSA to administer clarifications

to conditions not anticipated by the statute. Initial demand, however, exceeded CBO projections, with approximately \$245 million in outlays on more than 4,600 contracts implemented during the BCAP NOFA for the delivery of over 6 million dry tons of biomass to more than 450 qualified biomass conversion facilities. Due to the broad nature of the statute during the NOFA, approximately 94 percent of the matching payments were for the delivery of woody biomass (as opposed to herbaceous biomass):

1. Statute required the existence of an existing biomass conversion facility (BCF). Because few commercial-scale facilities exist that convert herbaceous biomass into heat, power, or non-corn starch biofuels, the vast majority of existing end-use facilities were those that convert wood into energy.
2. The broad statutory definition of “eligible material” to qualify for matching payments included any organic matter on non-Federal land, including trees, wood waste, and wood residues. Generally, herbaceous crops first must be established and are non-existent in sufficient cost-efficient volumes for existing end-use facilities. Woody resources, however, have completed the growth stage and are abundant year-round in the United States.

Findings with First Incarnation of Matching Payments

Because of the novel nature of BCAP in creating an emerging biomass marketplace, and the 6-month month brevity of the NOFA, insufficient data was generated to estimate biomass consumption in excess of conventional baselines, although the incentives provided assistance to rural forestry communities during the challenging 2009-2010 economic period.² The nascent wood-to-energy marketplace involved a level of unavoidable uncertainty at the outset of the program. Information generated from public experience with the NOFA, however, helped to shape the proposed and final BCAP regulation on where incentives were successful or required additional clarifications that had not been anticipated adequately by statutory authors.

For example, during the rulemaking process, woody stakeholders sought qualifications on matching payments for woody biomass so that key implications could be avoided, such as disruptions to existing wood markets. The final regulation now provides that eligible materials may not qualify for matching payments if USDA determines that in those distinct localities that the materials are used for pre-existing markets. Implementing these qualifications will be complex, however; processes will require careful development and consultation with the U.S. Forest Service and affiliated state agencies before administration at the field level.

In addition, proposed rule comments and the NOFA experience provided information for the development of the final BCAP regulation as to materials not initially anticipated by Congress.³ While eligible materials remain the same, qualification for matching payments is based up on the sequence of collection, harvest, storage, transportation, and delivery. The eligible material must be collected or harvested directly from the land before transport and delivery, not “collected or harvested” after transport and delivery, nor “collected or harvested” by separating from a

² Ecosystem Workforce Program, Working Paper Number 32, Fall 2011, University of Oregon, http://ewp.uoregon.edu/sites/ewp.uoregon.edu/files/WP_32.pdf

³ The Biomass Crop Assistance Program (BCAP): Some Implications for the Forest Industry, Resources for the Future, March 2010 <http://www.rff.org/rff/documents/RFF-DP-10-22.pdf>

higher value material for use as heat, power, bio-based products, or biofuels. This disallows windfalls or undue financial gains for using waste products already economically delivered and used in facilities.

The prohibition on related party transactions or arm's length transaction prohibitions was replaced with the requirement that eligible material must be purchased at fair market prices based on verifiable local records, regardless of the relationship between buyer and seller. This provision allows BCAP participation for start-up or vertically integrated operations, but prevents efforts to defeat the purpose of BCAP by inflating biomass prices to gain higher matching payments.

Also, biomass qualifying for matching payment must be certified to have been collected and harvested only with an approved conservation, forest stewardship, or similar plan to protect soil and water quality and preserve land productivity into the future. Harvesting must occur with an approved harvest plan. All crop collection, harvesting, and transportation must be in accordance with invasive plant species protections.

Woody eligible materials collected or harvested must come directly from the land and, if outside BCAP Project Areas, must be a byproduct of preventative treatments that remove or reduce hazardous fuels, to reduce or contain disease or insect infestation, or to restore ecosystem health.

Because growing and retrieving energy crops is a new marketplace, BCAP has required a range of original processes to be implemented, including new training, original software, and necessary internal controls, resulting in a period of delays greater than initially anticipated. Although many of these early hurdles to initial implementation have been cleared, USDA continues to identify what is effective and efficient while anticipating what can be improved so that programmatic delays for participants can be reduced.

Recommended Improvements to Matching Payments

BCAP Project Areas are designed to establish and expand new supplies of biomass, and are required by statute to be located within a geographically feasible distance from the end-use facility. Because the biomass is within an economically feasible distance, matching payments should not be needed. Moreover, because the biomass is a new supply that has been intentionally established for the purpose of energy, no previously existing markets will exist for that particular biomass supply; thus, some of the qualifications for matching payments on biomass outside project areas will not apply within project areas.

The U.S. Department of Energy's Billion Ton Update identifies future residue supplies collected or harvested directly from the land, depending on pricing, land conditions, and yields, could range from 27 to 180 million dry tons from agriculture residues and from 44 to 59 million dry tons for forest biomass residues, until 2030⁴. Such materials, if not already having a market niche, may be otherwise uneconomical or unavailable to retrieve. BCAP matching payments therefore can achieve two goals - a primary goal of collecting uneconomically retrievable materials for energy, and a secondary public policy benefit, particularly in instances of woody biomass, of the eradication of disease or invasive species, the removal of forest fire threats, or restoring ecosystem health through the removal of foreign, non-native, or nuisance species that

⁴ U.S. Billion Ton Update, Department of Energy, August 2011, page 148

have impeded or inhibited native or commercial growth.

Achieving these objectives in an administratively manageable fashion may necessitate a more systemic enrollment period of periodic, rather than constant availability of matching payments, where regions of landowners compete nationally for selection, similar to general signups of Conservation Reserve Program enrollments. The landscape-scale conditions to be created in key geographic areas by the removal of qualifying eligible biomass during the funding period first would be announced (i.e. removal of trees infected by bark beetle, removal of forest fire fuels in high-risk areas). Landowners submitting bids that met the announced landscape-scale goals would be evaluated, similar to the CRP Environmental Benefits Index process, with applications accepted demonstrating the most feasible likelihood of retrieving biomass for energy generation while achieving the secondary purpose. Joint Federal-state cost-shared efforts targeting areas of highest need could be approached similar to the Conservation Reserve Enhancement Program (CREP).

Environmental Compliance

The National Environmental Policy Act (NEPA) established national policy promoting the protection of the environment and established procedural requirements that all Federal government agencies are to prepare an environmental review of the impacts of Federal, state, or local projects that accept Federal funding.

FSA conducted a series of public meetings described in the Federal Register notice published on May 13, 2009 (74 FR 22510–22511), to collect public input needed to prepare a Programmatic Environmental Impact Statement (PEIS) for BCAP. Specifically, CCC published in the Federal Register four specific NEPA related notices on BCAP. A Notice of Intent (NOI) to prepare the PEIS was published on October 1, 2008 (73 FR 57047–57048), to solicit public input on program implementation alternatives; approximately 100 comments were received. CCC published an amended NOI on May 13, 2009, that identified the alternatives to be analyzed and announced six public scoping meetings beginning May 29, 2009, and ending June 11, 2009. CCC published a notice of availability of the draft PEIS on August 10, 2009 (74 FR 39915), with a 30-day public comment period; more than 600 comments were received. CCC completed a final PEIS on June 25, 2010 (75 FR 36386–36387), examining broadscale socio-economic and environmental impacts of program implementation of BCAP, as well as specific impacts associated with planting perennial switchgrass, forage sorghum, hybrid poplar, and willow as energy feedstocks.

On October 27, 2010, CCC published a Record of Decision on the PEIS that determined to implement the selected alternative, Alternative 2 as most consistent with the intent and language of the 2008 Farm Bill. A detailed comparison among the Alternatives can be found at 75 FR 65995–66007. Overall, the total economic impact from implementation of Alternative 2 was determined to be positive with an estimated \$88.5 billion in economic activity throughout the program and the creation of nearly 700,000 jobs by 2023.

The matching payments component of BCAP was determined not to be a major Federal action significantly affecting the quality of the human environment per the NEPA definition since (1) the program was mandatory subject to a final construction and implementation of the statutory terms and the interim allocation of funds while final determinations were made, and (2) the materials collected during the matching payments period were used in the marketplace

for similar or identical purposes. NOFA data indicated that approximately 80 percent of the qualified end-use facilities were collecting renewable biomass materials prior to the NOFA; only a small number of the qualified end-use facilities (BCFs) were new, or restarted production from an off-line state, with some redirection of existing materials from pulp and paper manufacturers to wood pellet mills.

FSA determined that BCAP proposals using feedstocks not addressed in the BCAP PEIS may need additional review given the potential impact of their establishment has not been previously analyzed. For example, feedstocks not addressed in the BCAP PEIS, such as miscanthus, arundo donax, or algae, will require a site-specific Environmental Assessment (EA) to be in compliance with NEPA. If the findings of the EA are inconclusive, an EIS will be necessary. For example:

- For Project Areas 2,3,4,5: In May 2011, FSA issued a “Mitigated Finding of No Significant Impact and a Final Environmental Assessment” for the establishment of a species of sterile giant miscanthus as a dedicated energy crop in proposed areas in Arkansas, Missouri, Ohio, and Pennsylvania.
- For Project Area 11: In May 2012, FSA issued a “Mitigated Finding of No Significant Impact and a Final Environmental Assessment” for the establishment of a species of sterile giant miscanthus and switchgrass as a dedicated energy crop in a proposed area of North Carolina.

In the future, should it be determined that growing interest is trending toward certain feedstocks, FSA may evaluate the feasibility of conducting a PEIS that incorporates additional species for evaluation based on location with the United States should it be determined to lessen the need among applicants to pursue individual EAs on similar feedstocks in similar regions. In 2011, more than half of the 41 applicants were notified that, in accordance with the NEPA, their BCAP Project Area proposal required the completion of an EA prior to further consideration or review by FSA. In 2012, less than 25 percent of the applications required an EA prior to further consideration or review.

Establishment and Annual Payments in Project Areas

Upon publication of the BCAP final regulation on October 27, 2010, FSA began accepting applications on a continuous basis, until enacted funding reductions warranted a formal first round Request for Proposals (RFP) in April 2011 and a specific deadline for submissions. FSA received more than 40 BCAP Project Area proposals requesting more than \$1 billion for varying 5 to 15 year contract periods to enroll more than 1.5 million acres in more than 21 States to dedicated energy crops. From that pool, USDA announced nine BCAP Project Areas in FY 2011, reserving \$85 million for more than 330,000 acres targeted in 10 States.

The second round RFP was issued in March 2012 and garnered a response of 13 proposals requesting 76,600 acres with combined project cost estimates of \$80.56 million in 15 States. From that pool, USDA announced two new BCAP Project Areas and expanded an existing project area in FY 2012, reserving \$9.6 million for more than 9,000 acres targeted in three states.

Among the proposals, the crops proposed for consideration included the following:

- Yellow horned fruit trees; jatropha, pongamia; switchgrass, giant miscanthus; giant reed (*Arundo donax*); shrub willow; hybrid poplar; camelina; pennycress; cottonwood varieties; short rotation eucalyptus; algae; sweet sorghum; fiber sorghum; energy cane; livestock manure; and warm season grasses.

Findings with BCAP Project Areas

FSA determined that three key findings influenced whether BCAP awardees were successful in reaching their targeted acreage goals: (1) if the project required an extremely low number of landowners to educate or enroll; (2) if the end-use facility, whether proposed or existing, had established strong relationships with feedstock producers; and (3) if annual funding was finalized in sufficient time so that an RFP, application submission period, application review period, environmental assessment, and producer enrollment period could occur before the end of each fiscal year.

For actors in the biofuels industry pursuing the manufacture of fuels derived from unconventional crops, the importance of having relationships with farmers, ranchers, or foresters providing the feedstock cannot be overemphasized. FSA reserved funds for some BCAP awardees that, despite having ambitious outreach campaign claims, proved not to have conducted sufficient producer outreach and education, resulting in limited BCAP dollars set aside that went unused due to the project sponsor's overestimation of acreage enrollment goals and producer response. Future conditions for funding will tie further to capacity and progress for successful outreach and education of producers so that the appropriate level of due diligence has been conducted and the most efficient assignment of funding is ensured.

The rate of successful acreage signups may be illustrated best with the following chart:

| Enrolled % of Targeted Acreage | Farmer-owned Cooperative | Number Of Landowners | Period From Application Submission to FSA Final Award | Producer Enrollment Period | Length of Contract | Type of Crop | BCAP Areas |
|--------------------------------|--------------------------|------------------------|---|----------------------------|--------------------|-------------------------------|----------------------------------|
| 100% of 7,002 target | NO | 1 (1 county) | 1.5 months | 40 days | 11 Years | Hybrid Poplar | Area 9 OR (Zechem) |
| 99% of 6,588 target (6,549) | YES | Multiple (8 counties) | 4.5 months | 3 months | 5 Years | Giant Miscanthus | Area 2 AR (MFA Oil) |
| 98% of 20,000 target (19,732) | YES | Multiple (39 counties) | 5.5 months | 4.5 months | 5 Years | Grasses | Area 1 KS, MO (Show-Me) |
| 92% of 3,400 target (3,120) | YES | Multiple (9 counties) | 4.5 months | 3 months | 5 Years | Giant Miscanthus | Area 3 MO (MFA Oil) |
| 80% of 3,850 target (3,061) | YES | Multiple (7 counties) | 4.5 months | 3 months | 5 Years | Giant Miscanthus | Area 4 MO (MFA Oil) |
| 68% of 5,344 target (3,616) | YES | Multiple (7 counties) | 4.5 months | 3 months | 5 Years | Giant Miscanthus | Area 5 OH, PA (Aloterra) |
| 59% of 1,000 target (590) | NO | Multiple (6 counties) | 1.5 months | 40 days | 5 Years | Camelina | Area 6 OR (Beaver Biomass) |
| 35% of 3,500 target (1,200) | NO | Multiple (9 counties) | 2.5 months | 90 days | 11 years | Shrub Willow | Area 10 NY (Reenergy) |
| 22% of 4,300 target (942) | NO | Multiple (11 counties) | 2.5 months | 90 days | 5 years | Switchgrass, Giant Miscanthus | Area 11 NC (Chemtex) |
| 19% of 20,000 target (3,780) | NO | Multiple (6 counties) | 1.5 months | 40 days | 5 Years | Grasses | Area 7 KS, OK (Abengoa) |
| 5% of 50,000 target (2,375) | NO | Multiple (90 counties) | 1.5 months | 40 days + 1 week extension | 5 Years | Camelina | Area 8 CA WA MT (AltAir) |

- Grayscale: Due to the period of "such sums as necessary under the Commodity Credit Corporation," applications for areas 1,2,3,4,5 could be accepted on a rolling basis, enabling greater time for USDA review, approval, and the education and enrollment of feedstock producers by the BCAP project sponsor.

Other Project Area Considerations

Costs Per Acre

Most proposed energy crops at the outset will have higher initial start-up costs on a per acre basis compared to conventional cash crops⁵. Variables that can influence early start-up costs include crop or species varieties, land type (particularly when targeting idle or marginal lands), and initial yield base and yield growth. Other cost factors include achieving eventual economies of scale, the initial limited availability of plant stock, the higher costs of initial establishment labor, or differing establishment standards or techniques. Cost estimates can be difficult to anticipate for these new markets.

FSA understands the importance of avoiding market distortions that could result from providing an overly high support for establishment costs per acre. BCAP program goals, however, acknowledge a higher cost per acre at start-up than the average commodity acre. Measuring BCAP establishment costs against per-acre costs of conventional cash crops can provide an inaccurate projection of eventual energy crop establishment costs over time. Standardizing or capping establishment costs is premature and not technology neutral as it may inadvertently deter the participation or establishment of otherwise promising and ultimately feasible approaches.

To date, BCAP per-acre establishment costs typically ranged from approximately \$200 (grasses), to \$800 (miscanthus), to more than \$1,000 per acre (trees). According to one BCAP participant, its crop began at \$1,400 per acre planted by hand; BCAP assistance lowered the per acre crop costs to \$750 per acre, allowing for machinery planting and greater acreage establishments, resulting in greater economies of scale; future projections by the applicant estimate that in 3 years, costs could reach as low as \$250 per acre without BCAP assistance.⁶

BCAP Annual Rental Payment Reductions

The BCAP annual rental payment is based on the weighted average soil rental rate. The soil rental rate on typical cropland and marginal pastureland (MPL) ranged between \$40 to \$100 per acre without incentives and when the lands are non-irrigated. The maximum BCAP incentive rate provided was 50 percent above the weighted average soil rental rate.

Annual rental payments are subject to payment reductions during the years in which the producer harvests and sells feedstock. These payment reductions often reduce the annual rental payment to zero in harvest years.

With an annual crop harvest, or short rotation woody crops with a harvest occurring every 3 years, BCAP provides support in non-harvest years (namely establishment years one and two) when no revenue from harvest or collection is garnered by the producer.

The annual rental payment is designed both to incentivize the startup of never-before-grown

⁵ “[Switching to Perennial Energy Crops under Uncertainty and Costly Irreversibility](#),” (with Feng Song and Scott Swinton), *American Journal of Agricultural Economics*, 93(3), 2011, 768-783

⁶ House Agriculture Subcommittee on Conservation, Energy, and Forestry, Hearing 2012 Farm Bill: Energy and Forestry Programs May 18, 2012,

<http://agriculture.house.gov/sites/republicans.agriculture.house.gov/files/documents/Taylor120518.pdf>

crops at scale and to be reduced gradually. The gradual reduction allows producers time to expand toward self-supported production and develop independent links to the market, rather than indefinite links to Federal assistance.

Payment reductions are based on the intended use of the collected or harvested crop. The following chart provides the basis of reduction according to use (with the percentage reduction based on the value of the collected or harvested material):

| REDUCTION PERCENT | FINAL CONVERSION PRODUCT |
|-------------------|---|
| 1 percent | If the eligible crop is delivered to a BCF for conversion to cellulosic biofuels as defined by the national Renewable Fuel Standard (40 CFR 80.1401). |
| 10 percent | If the eligible crop is delivered to a BCF for conversion to advanced biofuel, as defined by the BCAP final rule (7 CFR Part 1450). |
| 25 percent | If the eligible crop is delivered to a BCF for conversion to heat, power, or biobased products, as defined by the BCAP final rule (7 CFR Part 1450). |
| 100 percent | If the eligible crop is used for a purpose other than conversion to heat, power, biobased product, or advanced biofuels, as defined by the BCAP final rule (7 CFR Part 1450). |

To date, there is no evidence that these specific percentage reductions in the final year influenced the decision of BCAP applicants on crop selection or the type of energy intended to be created by the proposed crop.

BCAP Funding History

During its 4-year operational period, the range of funding provided for BCAP varied significantly, creating significant challenges in program management, most notably when balancing the unconventional planting seasons of nonstandard energy crops within fiscal year funding expirations.

Section 9001 of the 2008 Farm Bill (Pub. L. 110-246) provided “such sums as necessary” through the CCC for BCAP. In FY 2009, \$25 million was apportioned for BCAP matching payments. In November 2009, an additional \$517 million was apportioned for matching payments in FY 2010, of which \$245 million was expended. In contrast to the 2-year statutory authority, that apportionment prohibited funds for biomass contracts having a period of performance beyond March 31, 2010, i.e. 4 months maximum.

On July 19, 2010, Congress enacted a limitation on BCAP expenditures from “such sums as necessary” to \$552 million for FY 2010 and \$432 million for FY 2011. On December 16, 2010, the \$432 million for FY 2011 was sustained by Congress by the enactment of a “continuing resolution” until April 15, 2011, at which time funding the \$432 million was lowered further to \$112 million for FY 2011.

On May 31, 2011, the House of Representatives proposed the termination of BCAP funding for FY 2012. Due to incomplete legislative action by the end of the fiscal year, borrowing authority from CCC expired on September 30, 2011. On November 17, 2011, Congress finalized funding for BCAP at \$17 million for FY 2012, and the apportionment became available in February 2012.

Per the 2008 Farm Bill, programmatic authority for BCAP expired on September 30, 2012. The American Taxpayer Relief Act of 2012 transitioned BCAP from mandatory to discretionary authority, authorizing to be appropriated \$20 million for FY 2013 and extending programmatic authority until September 30, 2013.

BCAP Awards Cycle

Upon publication of the BCAP final regulation on October 27, 2010, FSA began accepting applications on a continuous basis. Five BCAP Project Area applications were received by March 2011. On April 15, 2011, upon enactment of the BCAP funding reduction of 75 percent, FSA announced April 20, 2011 a deadline for BCAP applications of May 27, 2011. More than 40 applications were submitted on that date, requesting \$1 billion to enroll more than 1.5 million acres in the program.

On May 5, 2011, FSA announced BCAP Project Area 1. On June 15, FSA announced BCAP Project Areas 2, 3, 4 and 5. Producers were provided between 4 and 5 months to evaluate enrollments into 5-year (herbaceous) or 11-year (woody) contracts before funding availability expired by September 30, 2011.

On June 27, 2011, FSA completed the internal evaluations of applications submitted on May 27, 2011, and announced Project Areas 6, 7, 8, and 9 on July 26, 2011, with signups beginning on August 4, 2011. Stemming from the funding limitation enacted in April 2011, eligible producers received 30-35 days to evaluate enrollments into 5-year or 11-year contracts prior to the signup deadline, which was extended to one week before the end of the fiscal year.

On November 17, 2011, Congress finalized BCAP funding at \$17 million for FY 2012, a 96-percent reduction from the previous November. The apportionment became available in February 2012. On March 22, 2012, FSA announced the deadline for BCAP applications would be April 23, 2012. More than 13 proposals requesting \$80 million to enroll 76,000 acres were received. On June 13, 2012, FSA announced BCAP Project Areas 10 and 11, and expanded Project Area 2. Producers received 90 days to evaluate enrolling into 5-year (herbaceous) or 11-year (woody) contracts before funding expired by the end of the fiscal year.

Funding Effects

Retrieving existing biomass (matching payments)

Initial variability in BCAP funding began with in the unanticipated demand for BCAP enrollments that ensued upon the commencement of the NOFA. Demand for BCAP matching payments did not correspond with the initial projections of CBO which, when estimating BCAP at \$70 million over 10 years, significantly underestimated the total demand for wood used for energy in the United States vis-a-vis most conventional assumptions, particularly in the context of the mandatory nature of the statute, its broad definition of eligible material.

Upon conclusion of the NOFA in February 2010, many BCAP program participants expressed concerns that funding termination at a critical period in the economy was unanticipated and disruptive to their capital investments in response to the program. Notwithstanding variability in BCAP funding levels enacted in the period following February 2010, FSA was assiduous in successive funding obligations so that further disruptions to BCAP participants could be avoided.

Also unanticipated by legislative authors is the differing response to the matching payment incentive depending on biomass type. While the availability and harvest opportunities for broad-definition woody biomass is generally daily throughout the year, annual herbaceous crop residues typically can be retrieved only once a year during the brief window after harvest and before the next planting season; perennial herbaceous crops are available only after several years of maintenance until maturity. The types of equipment available for retrieving woody biomass are relatively extensive; equipment for harvesting unconventional herbaceous energy crops can vary by comparison. Also, the number of facilities available to process woody biomass into energy is extensive compared to herbaceous. Moreover, the processing required to convert woody biomass into forms suitable for energy use is far less complex compared to similar technologies for herbaceous biomass at present.

Matching payment expenditures on the retrieval of herbaceous biomass, therefore, were of limited scope compared with biomass originating from wood. In the future, any uniform approaches in the administration of matching payments will need to be revisited as it must address the differing characteristics of herbaceous compared with woody biomass, such as lower fungibility, a greater rate of weather-related deterioration, and lower frequency of retrieval by the producer per unit of time – characteristics that also significantly affect the financial disbursement levels and rate for matching payments.

Growing new biomass (establishment and annual payments)

BCAP Project Areas involve biomass cultivation cycles, multi-year efforts that require enrollment periods less tied to a single annual Federal fiscal cycle. In fact, BCAP shares many characteristics with Federal transportation, transit, and public works projects that have distinct seasons within which construction can be performed and contracts can be let. Similarly, depending on geographic location, new energy crops have distinct establishment and harvesting seasons that may require “fitting within” other conventional cash crop cycles.

Because most energy crops are perennial, requiring several seasons to mature before harvest, unpredictable funding streams with disruptions as brief as only one month can result in missing an entire feedstock establishment windows for a year, and delaying the scheduled harvest an additional year into the future as well.

BCAP funding variability appears to have contributed directly to inhibiting several qualified applicants from program participation, including small start-ups to well financed corporations, further narrowing the pool of candidates meriting further consideration for award. Limited funding timeframes also appeared to dissuade potential candidates from the necessary NEPA environmental analysis required to complete proposal review. Funding variability also contributed to limited timeframes for BCAP Project Area sponsors to educate landowners on growing nonconventional crops, contributing to lower enrollments and missed acreage targets.

USDA is committed to ensuring that the Federal funds are administered wisely. In any challenging budgetary environment, opportunities must exist that will enable all policymakers to exercise annual discretion in limiting financial exposure should awardees fail to appropriately manage unanticipated cost increases. A funding mechanism whereby the payout schedule and amounts are consistently available, however, independent of the annual appropriations cycle, and similar to that provided to conventional Title I crops within the Farm Bill, will contribute to increasing numbers of strong applicants, and provide greater certainty for individual awardees to sufficiently educate producers to enter into multiyear contracting commitments while accommodating new planting season schedules that may be characteristic of new types of biomass crops.

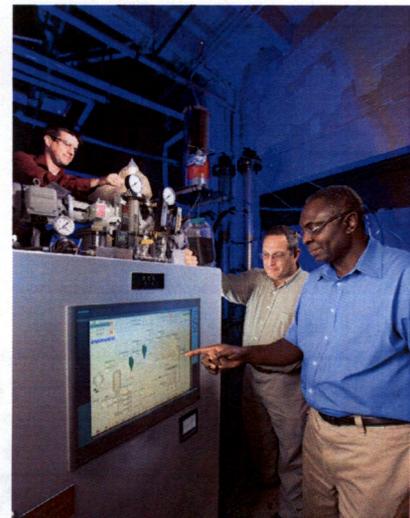
Recommendations for Future Study

Data collected by FSA for this report can be used to further understand the practical application of research, strengthening the national goal of growing and retrieving more biomass feedstocks as a path to energy diversity. Additional research that could inform future BCAP operations include the following:

- Research and development of energy feedstock insurance programs;
- Analysis of incentive structures to promote the collection and delivery of otherwise uneconomically retrievable food waste, yard waste, and animal waste and byproducts (such as fats, oils, grease, and manure);
- Analysis of economic and market trends in the development of biomass markets vis-à-vis similar trends in conventional crop and livestock markets, including energy feedstock pricing, market and pricing transparency, contracts, and competition;
- Social aspects of relationship building between growers and facilities; and
- Transportation efficiencies.

Additional Recommendation

The underlying BCAP statute provides no authority for FSA to provide technical assistance. FSA received \$2 million in Section 11 funds to complete a Memorandum of Understanding (MOU) with the National Resources and Conservation Service (NRCS) and the Forest Service, to assist woody biomass applicants with local market determinations and forest stewardship plan requirements and conservation plans.



Project Area Best Practice Data

Project Sponsor and Project Areas

BCAP Project Areas are proposed on a voluntary basis. A project sponsor may be a facility that converts biomass into heat, power, advanced biofuels, or biobased products, or a group of producers. When FSA announces an RFP, project sponsors may submit their proposals to either the State's FSA office or via www.grants.gov.

RFPs for BCAP Project Areas were announced twice during FY 2011 and once during FY 2012. In total, 59 proposals were submitted requesting an estimated \$1.2 billion and targeting more than 1.7 million acres. Sponsors were predominantly biomass conversion facilities partnering with plant stock distributors, groups of producers, state programs, schools and university extension services, community groups, and private landowners.

Proposals from FY 2011 and FY 2012 were geographically received from the following regions:

| | West (# proposals) | Southwest (# proposals) | Midwest (# proposals) | South (# proposals) | Northeast (# proposals) |
|--------------|-----------------------|----------------------------|--------------------------|------------------------|----------------------------|
| FY 2011 | 7 | 6 | 19 | 13 | 1 |
| FY 2012 | 1 | 1 | 6 | 4 | 1 |
| TOTAL | 8 | 7 | 25 | 17 | 2 |

The first announcement in FY 2011 occurred in December 2010, following the publication of the BCAP final rule in October 2010. The announcement allowed applications to be accepted on a continuous basis with no deadline. The response was the submission of five proposals requesting the enrollment of 100,000 acres in four states, seeking nearly \$80 million.

In response to enacted budget reductions, the second RFP was announced on April 23, 2011, and provided a submission period of 30 days. The response was the submission of 41 proposals requesting the enrollment of approximately 1.5 million acres in 22 states and seeking approximately \$1 billion.

The third RFP was announced on March 22, 2012, and provided a submission period of 30 days. The response was the submission of 13 proposals requesting the enrollment of 76,600 acres in 15 states and seeking \$80 million.

In FY 2011, USDA announced nine BCAP project areas, reserving \$85 million to enroll more than 330,000 acres in 10 States. In FY 2012, USDA announced two new BCAP project areas and expanded an existing project area, reserving \$9.6 million to enroll more than 9,000 acres in three states.

| Project Area | Acres of FY2011 Target Achieved | Sign Up Start & End Dates FY 2011 | Sign Up Start & End Dates FY 2012 and Acres Achieved | Crop & Conversion Product |
|---|--|--|---|--|
| Project Area 1: 39 counties KS & MO | 19,732 acres | May – Sept. | | Native Grasses Fuel Pellets |
| Project Area 2: 8 counties AR | 6,549 acres | June – Sept. | June – Sept. 1,200 acres | Miscanthus Fuel Pellets |
| Project Area 3: 9 counties MO | 3,120 acres | June – Sept. | | Miscanthus Fuel Pellets |
| Project Area 4: 7 counties MO | 3,009 acres | June – Sept. | | Miscanthus Fuel Pellets |
| Project Area 5: 7 counties OH & PA | 3,616 acres | June – Sept. | | Miscanthus Fuel Pellets |
| Project Area 6: 6 counties OR | 590 acres | August – Sept. | | Camelina Biodiesel |
| Project Area 7: 6 counties KS & OK | 3,780 acres | August – Sept. | | Native Grasses Bioethanol |
| Project Area 8: 90 counties CA, WA & MT | 2,375 acres | August – Sept. | | Camelina Jet Fuel Drop-In |
| Project Area 9: 1 county OR | 7,002 acres | August – Sept. | | Hybrid Poplar Biobased Products & Biofuels |
| Project Area 10: 9 counties NY | N/A | N/A | June – Sept. 1,200 acres | Shrub willow Heat & Power |
| Project Area 11: 11 counties NC | N/A | N/A | June – Sept. 942 acres | Miscanthus & Switchgrass Bioethanol |
| 12 States / 188 Counties NOTE: 4 counties in MO & 1 county in WA overlap in project areas. | 49,773 acres | 5 months to 1.5 months | 3 months 3,342 acres | 6 crops* / 6 output types |

*The number of crops includes two varieties of giant miscanthus. Native warm season grasses include switchgrass.

Project Area Best Practice Data

Herbaceous Crops

Herbaceous crops are contracted for up to 5 years with producers eligible for up to 75 percent of establishment costs for a perennial crop. Once the project area is selected, project sponsors work with FSA to determine the basic terms for a producer's contract within the project area. These basic terms include the negotiation of items such as whether an incentive will be added to a weighted average soil rental rate, the range of establishment practices that will be eligible, and the rate of reimbursement.

Nine of the 11 BCAP Project Areas were dedicated to establishing herbaceous crops. The total BCAP contracted acreage for herbaceous crops was 44,933 acres (as of September 2012), of which 2,965 acres (7 percent) were annual crops. A total of \$18.9 million for herbaceous annual payments have been obligated to date, with producers collecting payments totaling \$880,590. These are advance payments of the 50 percent of the first year annual rental payment. This advance is offered to producers on an optional basis to allow extra support.

The entire annual rental payment for the life of the contract (5 years or 15 years) is obligated when the contract is executed. For example, if a producer has 100 acres of switchgrass and a weighted soil rental rate of \$50 per acre, BCAP obligates the entire \$25,000 to be paid out to the producer over the course of 5 years.

For annual payments, the rate is based on the weighted average soil rental rate, whereby FSA conducts a tract-by-tract review of the soils in the contract acreage to arrive at the appropriate per acre rate. The rate ranged from \$40 to \$100, not including any incentives.

The incentives ranged from 20 percent to 50 percent above the weighted average soil rental rate. Four of the nine herbaceous project areas have incentive rates. Incentive rates were the highest in project areas proposing an annual crop, camelina. Although annual crops are not eligible for establishment assistance, the annual payment reduction for collection and harvest still applies. Therefore, with an annual payment reduction, and no establishment costs, providing an incentive rate for the annual crop provided for greater equity among all BCAP crops.

The following table provides a synopsis of the BCAP annual rental obligations and payments to date for herbaceous (perennial and annual) crops in BCAP Project Areas:

BCAP Annual Rental Payments and Obligations
Active Contracts as of June 2012*

| Project Area | State Name | County Name | Crop | Obligations | Payments as of June 2012 | Acreage Enrolled |
|--------------|------------|-------------|-----------------------|---------------------|--------------------------|------------------|
| PA 1: | | | | | | |
| 1 | Kansas | Douglas | Native Grass & Forbs | \$242,477 | \$21,432 | 647.1 |
| 1 | Kansas | Franklin | Native Grass & Forbs | \$10,534 | | 33.0 |
| 1 | Kansas | Jefferson | Native Grass & Forbs | \$170,189 | \$5,240 | 409.4 |
| 1 | Kansas | Johnson | Native Grass & Forbs | \$89,930 | | 264.3 |
| 1 | Kansas | Leavenworth | Native Grass & Forbs | \$185,298 | \$2,031 | 447.1 |
| 1 | Kansas | Linn | Native Grass & Forbs | \$493,557 | \$9,934 | 1,294.6 |
| 1 | Kansas | Miami | Native Grass & Forbs | \$35,194 | | 108.2 |
| 1 | Missouri | Benton | Native Grass & Forbs | \$6,425 | | 11.8 |
| 1 | Missouri | Boone | Native Grass & Forbs | \$162,684 | | 262.1 |
| 1 | Missouri | Caldwell | Native Grass & Forbs | \$475,283 | \$27,518 | 732.3 |
| 1 | Missouri | Callaway | Native Grass & Forbs | \$424,390 | \$34,936 | 693.6 |
| 1 | Missouri | Carroll | Native Grass & Forbs | \$213,667 | | 294.7 |
| 1 | Missouri | Cass | Native Grass & Forbs | \$127,306 | | 289.6 |
| 1 | Missouri | Chariton | Native Grass & Forbs | \$96,521 | \$9,075 | 155.6 |
| 1 | Missouri | Clay | Native Grass & Forbs | \$249,195 | \$14,550 | 363.1 |
| 1 | Missouri | Cooper | Native Grass & Forbs | \$347,369 | \$33,861 | 598.3 |
| 1 | Missouri | Daviess | Native Grass & Forbs | \$1,655,043 | \$48,455 | 2,252.4 |
| 1 | Missouri | Harrison | Native Grass & Forbs | \$3,782,468 | \$117,398 | 5,015.7 |
| 1 | Missouri | Henry | Native Grass & Forbs | \$456,635 | | 974.2 |
| 1 | Missouri | Howard | Native Grass & Forbs | \$40,696 | | 60.7 |
| 1 | Missouri | Jackson | Native Grass & Forbs | \$110,187 | | 222.7 |
| 1 | Missouri | Johnson | Native Grass & Forbs | \$660,305 | \$42,324 | 1,583.5 |
| 1 | Missouri | Lafayette | Native Grass & Forbs | \$81,264 | | 130.2 |
| 1 | Missouri | Linn | Native Grass & Forbs | \$63,792 | \$2,022 | 110.3 |
| 1 | Missouri | Livingston | Native Grass & Forbs | \$13,608 | | 16.8 |
| 1 | Missouri | Macon | Native Grass & Forbs | \$95,905 | | 147.7 |
| 1 | Missouri | Moniteau | Native Grass & Forbs | \$25,896 | | 49.0 |
| 1 | Missouri | Pettis | Native Grass & Forbs | \$675,627 | | 1,191.7 |
| 1 | Missouri | Platte | Native Grass & Forbs | \$47,406 | \$4,740 | 71.6 |
| 1 | Missouri | Ray | Native Grass & Forbs | \$491,091 | | 743.4 |
| 1 | Missouri | St. Clair | Native Grass & Forbs | \$127,624 | \$12,762 | 319.1 |
| 1 | Missouri | Saline | Native Grass & Forbs | \$176,362 | | 238.2 |
| Total | | | | \$11,833,927 | \$386,278 | 19,732.0 |
| PA 2: | | | | | | |
| 2 | Arkansas | Clay | Giant Miscanthus crop | \$285,302 | \$27,306 | 1,028.7 |
| 2 | Arkansas | Craighead | Giant Miscanthus crop | \$605,872 | \$60,593 | 1,480.8 |
| 2 | Arkansas | Greene | Giant Miscanthus crop | \$453,600 | \$23,618 | 1,356.7 |
| 2 | Arkansas | Jackson | Giant Miscanthus crop | \$213,864 | \$12,702 | 564.8 |
| 2 | Arkansas | Lawrence | Giant Miscanthus crop | \$515,453 | \$42,714 | 1,698.4 |
| 2 | Arkansas | Poinsett | Giant Miscanthus crop | \$99,505 | \$9,950 | 281.1 |
| 2 | Arkansas | Randolph | Giant Miscanthus crop | \$51,568 | | 138.4 |
| Total | | | | \$2,225,163 | \$176,883 | 6,548.9 |
| PA 3: | | | | | | |
| 3 | Missouri | Audrain | Giant Miscanthus crop | \$195,026 | \$19,504 | 392.5 |
| 3 | Missouri | Boone | Giant Miscanthus crop | \$193,603 | \$6,048 | 384.5 |

| Project Area | State Name | County Name | Crop | Obligations | Payments as of June 2012 | Acreage Enrolled |
|--------------|-----------------|--------------------|-----------------------|--------------------|--------------------------|---------------------|
| 3 | Missouri | Callaway | Giant Miscanthus crop | \$91,770 | \$7,802 | 178.5 |
| 3 | Missouri | Cole | Giant Miscanthus crop | \$87,294 | \$8,728 | 200.2 |
| 3 | Missouri | Cooper | Giant Miscanthus crop | \$443,567 | \$44,359 | 916.5 |
| 3 | Missouri | Howard | Giant Miscanthus crop | \$89,933 | \$8,993 | 168.8 |
| 3 | Missouri | Moniteau | Giant Miscanthus crop | \$74,197 | \$1,605 | 155.6 |
| 3 | Missouri | Randolph | Giant Miscanthus crop | \$399,708 | \$33,856 | 723.2 |
| Total | | | | \$1,575,097 | \$130,895 | 3,119.8 |
| PA 4: | | | | | | |
| 4 | Missouri | Barry | Giant Miscanthus crop | \$43,378 | \$1,196 | 178.1 |
| 4 | Missouri | Barton | Giant Miscanthus crop | \$3,803 | \$380 | 12.0 |
| 4 | Missouri | Dade | Giant Miscanthus crop | \$244,804 | \$18,037 | 832.1 |
| 4 | Missouri | Jasper | Giant Miscanthus crop | \$253,155 | \$25,315 | 737.9 |
| 4 | Missouri | Lawrence | Giant Miscanthus crop | \$229,479 | \$17,944 | 869.3 |
| 4 | Missouri | Newton | Giant Miscanthus crop | \$118,569 | \$11,857 | 339.7 |
| 4 | Missouri | Stone | Giant Miscanthus crop | \$9,970 | | 40.2 |
| Total | | | | \$903,158 | \$74,729 | 3,009.3 |
| PA 5: | | | | | | |
| 5 | Ohio | Ashtabula | Giant Miscanthus crop | \$379,890 | \$48,643 | 2,603.3 |
| 5 | Ohio | Geauga | Giant Miscanthus crop | \$51,308 | \$5,132 | 173.6 |
| 5 | Ohio | Lake | Giant Miscanthus crop | \$26,613 | \$4,765 | 124.4 |
| 5 | Ohio | Trumbull | Giant Miscanthus crop | \$15,015 | \$1,501 | 69.1 |
| 5 | Pennsylvania | Crawford | Giant Miscanthus crop | \$51,787 | \$5,183 | 352.5 |
| 5 | Pennsylvania | Erie | Giant Miscanthus crop | \$70,890 | \$7,090 | 264.9 |
| 5 | Pennsylvania | Mercer | Giant Miscanthus crop | \$5,151 | | 28.2 |
| Total | | | | \$600,653 | \$72,314 | 3,616.0 |
| PA 6: | | | | | | |
| 6 | Oregon | Umatilla | Camelina | \$43,560 | | 220.0 |
| 6 | Oregon | Wasco | Camelina | \$189,107 | | 370.0 |
| Total | | | | \$232,667 | | 590.0 |
| PA 7: | | | | | | |
| 7 | Kansas | Morton | Native Grass & Forbs | \$42,314 | | 266.8 |
| 7 | Kansas | Stevens | Native Grass & Forbs | \$497,994 | | 3,198.4 |
| 7 | Oklahoma | Texas | Native Grass & Forbs | \$52,664 | \$2,782 | 314.6 |
| Total | | | | \$592,972 | \$2,782 | 3,779.8 |
| PA 8: | | | | | | |
| 8 | California | Kern | Camelina | \$505,800 | | 880.0 |
| 8 | California | Tulare | Camelina | \$341,009 | \$25,768 | 967.4 |
| 8 | Montana | Blaine | Camelina | \$61,454 | \$6,146 | 248.3 |
| 8 | Montana | Chouteau | Camelina | \$26,623 | | 79.0 |
| 8 | Montana | Phillips | Camelina | \$47,946 | \$4,795 | 200.4 |
| Total | | | | \$982,831 | \$36,709 | 2,375.1 |
| Total | 9 States | 71 counties | 3 Crops | \$1,894,469 | \$880,590 | 42,771 acres |

*Signup contract acreage for project area 11 (switchgrass and giant miscanthus) and expansion of project area 2 were not available by county.

For establishment payments, the cost for herbaceous perennials ranged from \$150 to \$803 per acre. To date, a total of \$18.2 million for herbaceous establishment has been obligated.

In some cases, the BCAP share for establishment payments did not reach the 75 percent maximum allowable cost reimbursement but was closer to 50 to 60 percent. Mostly in the case of native grasses, expired CRP acres had the proper seed mixes and contracted into BCAP without the need to reestablish or receive establishment payments.

The following table provides a synopsis of the BCAP establishment obligations and payments to date for herbaceous perennials in BCAP Project Areas:

**BCAP Establishment Costs for Herbaceous
Active Contracts as of June 2012***

| Project Area | State Name | County Name | Crop | Obligations | Payments as of June 2012 | Acreage Enrolled |
|--------------|------------|-------------|----------------------|-------------|--------------------------|------------------|
| PA I: | | | | | | |
| I | Kansas | Douglas | Native Grass & Forbs | \$75,958 | \$41,552 | 647.1 |
| I | Kansas | Franklin | Native Grass & Forbs | \$4,643 | | 33.0 |
| I | Kansas | Jefferson | Native Grass & Forbs | \$44,663 | \$5,566 | 409.4 |
| I | Kansas | Johnson | Native Grass & Forbs | \$29,413 | \$9,411 | 264.3 |
| I | Kansas | Leavenworth | Native Grass & Forbs | \$57,253 | \$7,938 | 447.1 |
| I | Kansas | Linn | Native Grass & Forbs | \$198,428 | \$17,994 | 1,294.6 |
| I | Kansas | Miami | Native Grass & Forbs | \$12,869 | \$3,441 | 108.2 |
| I | Missouri | Benton | Native Grass & Forbs | | | 11.8 |
| I | Missouri | Boone | Native Grass & Forbs | \$38,766 | | 262.1 |
| I | Missouri | Caldwell | Native Grass & Forbs | \$122,527 | \$21,007 | 732.3 |
| I | Missouri | Callaway | Native Grass & Forbs | \$114,145 | \$964 | 693.6 |
| I | Missouri | Carroll | Native Grass & Forbs | \$59,944 | \$32,552 | 294.7 |
| I | Missouri | Cass | Native Grass & Forbs | \$33,557 | \$12,509 | 289.6 |
| I | Missouri | Chariton | Native Grass & Forbs | \$30,050 | | 155.6 |
| I | Missouri | Clay | Native Grass & Forbs | \$63,458 | \$19,550 | 363.1 |
| I | Missouri | Cooper | Native Grass & Forbs | \$98,014 | \$16,388 | 598.3 |
| I | Missouri | Daviess | Native Grass & Forbs | \$290,862 | \$19,567 | 2,252.4 |
| I | Missouri | Harrison | Native Grass & Forbs | \$1,024,515 | \$58,882 | 5,015.7 |
| I | Missouri | Henry | Native Grass & Forbs | \$137,729 | | 974.2 |
| I | Missouri | Howard | Native Grass & Forbs | \$11,931 | | 60.7 |
| I | Missouri | Jackson | Native Grass & Forbs | \$36,108 | | 222.7 |
| I | Missouri | Johnson | Native Grass & Forbs | \$173,010 | \$15,253 | 1,583.5 |
| I | Missouri | Lafayette | Native Grass & Forbs | \$15,284 | | 130.2 |
| I | Missouri | Linn | Native Grass & Forbs | \$10 | | 110.3 |
| I | Missouri | Livingston | Native Grass & Forbs | \$3,254 | | 16.8 |
| I | Missouri | Macon | Native Grass & Forbs | \$29,002 | | 147.7 |
| I | Missouri | Moniteau | Native Grass & Forbs | \$3,049 | | 49.0 |
| I | Missouri | Pettis | Native Grass & Forbs | \$155,036 | \$1,876 | 1,191.7 |
| I | Missouri | Platte | Native Grass & Forbs | \$5,942 | \$5,942 | 71.6 |

| Project Area | State Name | County Name | Crop | Obligations | Payments as of June 2012 | Acreage Enrolled |
|--------------|--------------|-------------|-----------------------|--------------------|--------------------------|------------------|
| 1 | Missouri | Ray | Native Grass & Forbs | \$122,162 | \$61,986 | 743.4 |
| 1 | Missouri | St. Clair | Native Grass & Forbs | \$49,831 | | 319.1 |
| 1 | Missouri | Saline | Native Grass & Forbs | \$38,647 | | 238.2 |
| Total | | | | \$3,080,060 | \$352,378 | 19,732.0 |
| PA 2: | | | | | | |
| 2 | Arkansas | Clay | Giant Miscanthus crop | \$825,534 | \$564,516 | 1,028.7 |
| 2 | Arkansas | Craighead | Giant Miscanthus crop | \$1,188,348 | \$863,908 | 1,480.8 |
| 2 | Arkansas | Greene | Giant Miscanthus crop | \$1,088,753 | \$671,647 | 1,356.7 |
| 2 | Arkansas | Jackson | Giant Miscanthus crop | \$453,255 | \$184,481 | 564.8 |
| 2 | Arkansas | Lawrence | Giant Miscanthus crop | \$1,342,248 | \$1,187,038 | 1,698.4 |
| 2 | Arkansas | Poinsett | Giant Miscanthus crop | \$179,920 | \$16,748 | 281.1 |
| 2 | Arkansas | Randolph | Giant Miscanthus crop | \$111,066 | \$76,500 | 138.4 |
| Total | | | | \$5,189,124 | \$3,564,838 | 6,548.9 |
| PA 3: | | | | | | |
| 3 | Missouri | Audrain | Giant Miscanthus crop | \$314,984 | \$216,847 | 392.5 |
| 3 | Missouri | Boone | Giant Miscanthus crop | \$308,562 | \$212,531 | 384.5 |
| 3 | Missouri | Callaway | Giant Miscanthus crop | \$143,247 | \$84,018 | 178.5 |
| 3 | Missouri | Cole | Giant Miscanthus crop | \$160,660 | \$110,659 | 200.2 |
| 3 | Missouri | Cooper | Giant Miscanthus crop | \$735,490 | \$530,197 | 916.5 |
| 3 | Missouri | Howard | Giant Miscanthus crop | \$135,462 | \$93,305 | 168.8 |
| 3 | Missouri | Moniteau | Giant Miscanthus crop | \$124,869 | \$86,008 | 155.6 |
| 3 | Missouri | Randolph | Giant Miscanthus crop | \$580,373 | \$399,754 | 723.2 |
| Total | | | | \$2,503,647 | \$1,733,319 | 3,119.8 |
| PA 4: | | | | | | |
| 4 | Missouri | Barry | Giant Miscanthus crop | \$142,924 | \$98,445 | 178.1 |
| 4 | Missouri | Barton | Giant Miscanthus crop | \$9,630 | | 12.0 |
| 4 | Missouri | Dade | Giant Miscanthus crop | \$709,571 | \$440,294 | 832.1 |
| 4 | Missouri | Jasper | Giant Miscanthus crop | \$592,668 | \$376,923 | 737.9 |
| 4 | Missouri | Lawrence | Giant Miscanthus crop | \$697,615 | \$538,245 | 869.3 |
| 4 | Missouri | Newton | Giant Miscanthus crop | \$272,607 | \$187,770 | 339.7 |
| 4 | Missouri | Stone | Giant Miscanthus crop | \$32,260 | \$22,220 | 40.2 |
| Total | | | | \$2,457,275 | \$1,663,897 | 3,009.3 |
| PA 5: | | | | | | |
| 5 | Ohio | Ashtabula | Giant Miscanthus crop | \$2,086,984 | \$1,384,032 | 2,603.3 |
| 5 | Ohio | Geauga | Giant Miscanthus crop | \$139,313 | \$95,956 | 173.6 |
| 5 | Ohio | Lake | Giant Miscanthus crop | \$55,934 | \$38,526 | 124.4 |
| 5 | Ohio | Trumbull | Giant Miscanthus crop | \$55,452 | \$38,195 | 69.1 |
| 5 | Pennsylvania | Crawford | Giant Miscanthus crop | \$282,881 | | 352.5 |
| 5 | Pennsylvania | Erie | Giant Miscanthus crop | \$212,581 | \$146,423 | 264.9 |
| 5 | Pennsylvania | Mercer | Giant Miscanthus crop | \$22,631 | \$15,588 | 28.2 |
| Total | | | | \$2,855,776 | \$1,718,720 | 3,616.0 |

| Project Area | State Name | County Name | Crop | Obligations | Payments as of June 2012 | Acreage Enrolled |
|--------------|-----------------|--------------------|----------------------|---------------------|--------------------------|---------------------|
| PA 7: | | | | | | |
| 7 | Kansas | Morton | Native Grass & Forbs | \$30,384 | | 266.8 |
| 7 | Kansas | Stevens | Native Grass & Forbs | \$395,399 | | 3,198.4 |
| 7 | Oklahoma | Texas | Native Grass & Forbs | \$38,206 | | 314.6 |
| Total | | | | \$463,989 | | 3,779.8 |
| Total | 7 States | 64 counties | 2 Crops | \$16,549,871 | \$9,033,152 | 39,806 acres |

*Signup contract acreage for Project Area 11 (switch grass and giant miscanthus) and expansion of Project Area 2 were not available by county.

Drought & Crop Reestablishment for Herbaceous

To date, there are no privately or publicly available risk management tools to insure against crop failure of dedicated energy crops. The 2008 Farm Bill authorized the USDA Risk Management Agency (RMA) to enter into contracts to conduct research toward the development of insurance for dedicated energy crops. The completed study concluded that to date, camelina is the only commercially grown dedicated energy crop currently feasible for insurance, and a pilot program has been improved and launched.

Other USDA analyses have concluded, however, that in general, most energy crop markets remain in their infancy, not yet grown at a scale sufficient to sustain a crop insurance program, and thus having limited data on production, acreage, value, or yield that would otherwise allow for actuarial development.

Because of these circumstances, it is FSA policy to provide reestablishment assistance to eligible BCAP Project Area crops that have failed, provided that the producer is not at fault, and should sufficient funding be available for reestablishment. Due to the unprecedented severe drought conditions of 2012, in which more than half of the counties of the United States were declared Secretarial disaster areas, the sterile giant miscanthus crops established for Project Areas 2, 3, 4, and 5 were determined to have reached a 43 percent failure rate due to extreme drought. Project Area sponsors contacted FSA to request reestablishment assistance. Despite limited funds, circumstances allowed FSA to provide financing on a limited basis that allowed for the reestablishment of 6,950 acres of failed miscanthus.

Woody Crops

One of the first nine project areas established in FY 2011 was dedicated to the establishment of a woody perennial crop, hybrid poplar. Hybrid poplar is a short rotation woody crop that is ready for harvest and collection once every 3 years. Such woody materials typically have a very high BTU value for energy purposes.

In general, the establishment of woody crops follows a different methodology than herbaceous crops in that the establishment can be done in strips and staggered over a period of time. For example, for the 7,002 acres of hybrid poplar allotments in Project Area 9, the conservation plans and sustainable methodology chosen were to establish 778 acres of hybrid poplar each year over the course of 9 years. As establishments occur by the third year, the previous acreage becomes available for harvest and collection. This staggered establishment plan ensures a continuous feedstock supply for the end-use facility in the project area and provides the project sponsor with greater options in determining the appropriate length of a BCAP contract. For example, the enrolled hybrid poplar in the BCAP Project Area will only keep each 778-acre parcel of land on the contract for a period of 3 years. This allows the project sponsor (the conversion facility) the opportunity to secure a greater volume of long-term feedstock supply over the course of 11 years.

The entire annual rental payment for the life of the contract (11 years) is obligated when the contract is executed. For example, if a producer has 100 acres of hybrid poplar and a weighted soil rental rate of \$350 per acre, BCAP obligates the entire \$525,000, which will be paid out to the producer over the course of 11 years.

Like herbaceous crops, the annual rental payment for woody perennials is based on the weighted average soil rental rate, whereby FSA conducts tract-by-tract reviews of the soils of the contract acreage to determine the appropriate rate. The range of the rental rate is \$40 to \$100, not including the incentives. However, if there is an irrigated rental rate, the BCAP annual payment may be substantially higher than the typical rate, sometimes as much as three times higher.

The incentive for the weighted soil rental rates in BCAP Project Areas ranged from 20 percent to 50 percent. Unlike the hybrid poplar in Project Area 9, which had no incentive rate, an incentive was offered at 25 percent above the soil rental rate for shrub willow in Project Area 10, selected in FY 2012. Incentive rates provided greater equity of support among BCAP crop diversity.

The following table provides a synopsis of the BCAP annual rental obligations and payments to date for woody perennials in BCAP Project Areas:

**BCAP Annual Rental Payments and Obligations
Active Contracts as of June 2012***

| Project Area | State Name | County Name | Crop | Obligations | Payments as of June 2012 | Acreage Enrolled |
|---------------------|-------------------|--------------------|---------------|--------------------|---------------------------------|-------------------------|
| PA 9: | | | | | | |
| 9 | Oregon | Morrow | Hybrid Poplar | \$9,293,988 | | 7,002.0 |
| Total | | | | \$9,293,988 | | 7,002.0 |

*Signup contract acreage for Project Area 10 (shrub willow) was not available by county.

Woody crops, as perennials, always receive establishment support except in the case where there is an already established stand. The cost per acre for the woody crops is from \$741 to \$1,360, depending upon the irrigation requirements and environmental conditions. To date, a total of \$10.5 million for woody establishment cost share has been obligated.

BCAP establishment payments for woody biomass nearly reached the 75-percent maximum allowable reimbursement. In no cases were existing stands of hybrid poplar enrolled, but the signup for FY 2012 of shrub willow included 33 percent of the enrolled 1,200 acres which were existing stands. Allowing enrollment of existing stands locks in those stands to the targeted end-use facility and discourages their sale to overseas markets.

The following table provides a synopsis of the BCAP establishment costs to date for woody perennials in BCAP Project Areas:

**BCAP Establishment Costs
Active Contracts as of June 2012***

| Project Area | State Name | County Name | Crop | Obligations | Payments as of June 2012 | Acreage Enrolled |
|---------------------|-------------------|--------------------|---------------|--------------------|---------------------------------|-------------------------|
| PA 9: | | | | | | |
| 9 | Oregon | Morrow | Hybrid Poplar | \$9,526,230 | | 7,002 |
| Total | | | | \$9,526,230 | | 7,002 |

*Signup contract acreage for Project Area 10 (shrub willow) was not available by county.

Project Area Best Practice Data

Producer Acreage

FSA entered into approximately 1,000 contracts among the eleven project areas. These contracts are often held by more than one party, with each party receiving a certain percentage share of the payment. The signing producer on the offered acreage must be an owner or an operator of contract acreage within a BCAP Project Area.

To enroll, a producer interested in offering land must first visit the FSA county service center or county office. FSA reviews the land offered by assessing maps of the acreage, reviewing the land's soils, and determining basic land eligibility.

In addition, the producer must have a production agreement with the facility intended to receive the biomass at the time the offer is made to FSA. Approved BCAP Project Areas that have performed an environmental assessment as required by NEPA have a Mitigation and Monitoring Plan (MMP) that signifies they are in compliance and have accepted the requirement to consult with their project sponsor. The production agreement also provides clarification that the feedstock producer is working with the project sponsor to ensure compliance with the MMP. Project sponsors are also provided the option of agreeing to be a certified Section 1619 cooperator, allowing the project sponsor the ability to review producer land attributes related to the MMP for purposes of compliance.

Once a producer's land meets basic eligibility, FSA provides the offered land records to the technical service provider, the USDA Natural Resources Conservation Service (NRCS). NRCS outlines the crop establishment and production standards, reviews the offered land, and then delineates the required practices that each producer must exercise to be in compliance with their conservation plan and MMP. Once the BCAP Project Area is designated, NRCS also works with the project sponsor and FSA State offices to develop the standards for establishing the specified energy crop.

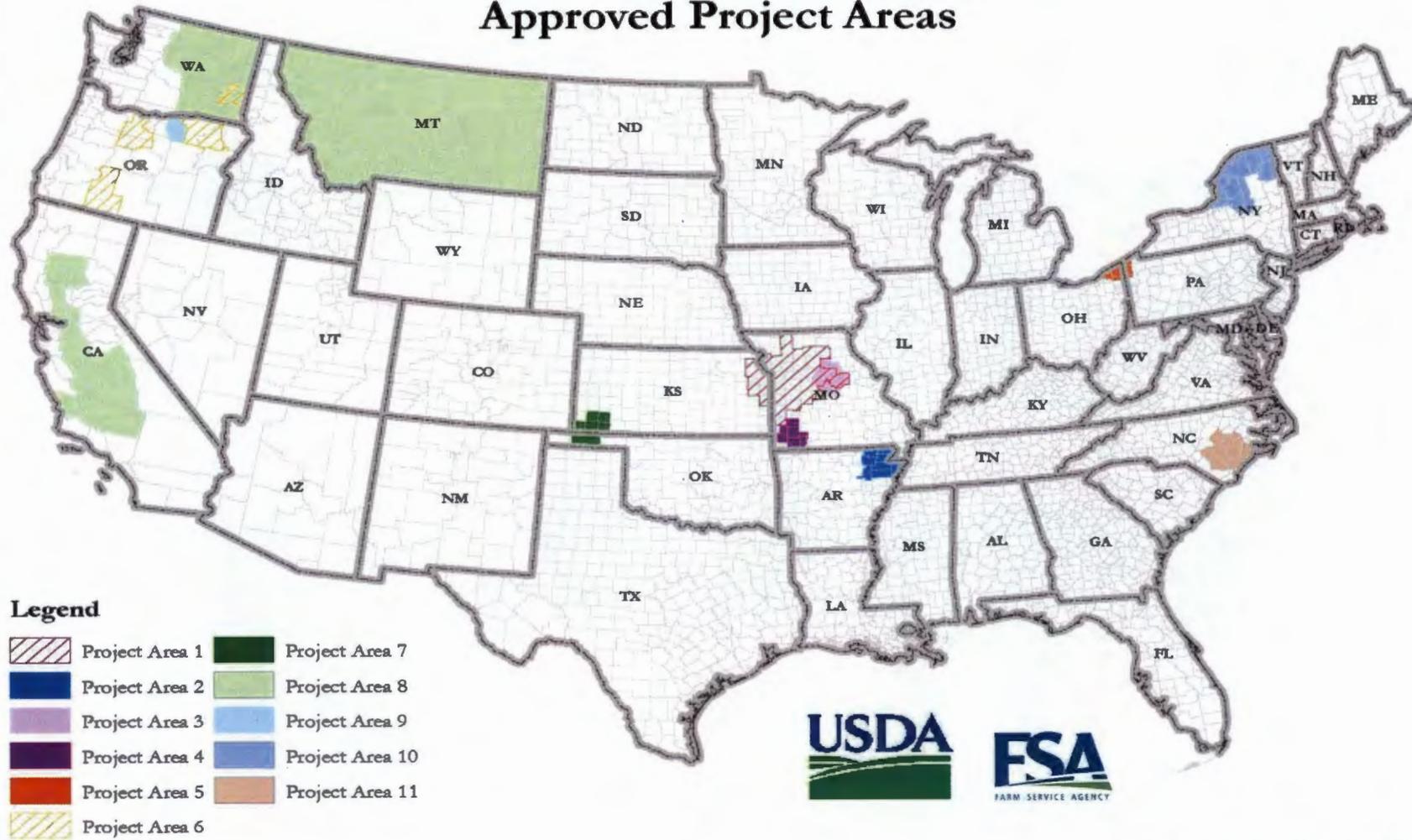
After NRCS has completed the conservation plan and finds the land to be suitable for establishing the energy crop, the contract terms are presented to the producer. If the producer elects to accept the terms and sign the contract, then the contract is sent to the FSA county committee for approval, and the enrollment of the land commences. Not all of the land offered reaches enrollment. In some cases, only portions of the land will meet all of the requirements. For example, in offers where a 25-foot buffer was required around the energy crops, the offered land would subtract the buffer acreage from the contract agreement. In addition, not all practices are BCAP reimbursable establishment costs, such as conservation practices, but nevertheless may be required by the MMP.

The following chart provides an overview of the nine project areas and the typical contract acreage that is enrolled:

| BCAP Average Soil Rental Rates and Contract Size | | | | |
|---|--|----------------------------|--|--------------------------------------|
| Active Contracts as of June 2012* | | | | |
| Project Area | Soil Type | Number of Contracts | Weighted Average Soil Rental Rate | Average Contract Size (Acres) |
| 1 (MO & KS) | Cropland | 411 | \$124.31 | 44.9 |
| | Mixed Crop and Marginal Pasture Land (MPL) | 28 | \$81.14 | 39.7 |
| 1 (MO & KS) | Non-Crop Agland | 6 | \$75.32 | 30.3 |
| | All Soils: | 445 | \$121.42 | 44.3 |
| 2 (AR) | Cropland | 116 | \$69.44 | 54.2 |
| 2 (AR) | Mixed Crop and MPL | 4 | \$64.86 | 64.8 |
| | All Soils: | 120 | \$69.26 | 54.6 |
| 3 (MO) | Cropland | 72 | \$100.97 | 43.3 |
| 4 (MO) | Cropland | 64 | \$60.02 | 47.0 |
| 5 (OH & PA) | Cropland | 121 | \$40.79 | 29.9 |
| 6 (OR) | Cropland | 4 | \$78.87 | 147.5 |
| 7 (OK & KS) | Cropland | 38 | \$31.38 | 99.5 |
| 8 (MT, WA, CA) | Cropland | 15 | \$82.76 | 158.3 |
| 9 (OR) | Cropland | 1 | \$362.00 | 2,334.0 |
| TOTALS | | 880 | N/A | N/A |

*Signup contract acreage for project areas 10 (shrub willow) and project area 11 (switchgrass and miscanthus) were not yet available.

Biomass Crop Assistance Program Approved Project Areas



Map created by DAFF/CEPD/CAB June 19, 2012

Matching Payments Data

Eligible Material Data

The BCAP matching payments were available at three separate times throughout the course of the program's implementation.

The first opportunity for matching payments was provided in June 2009 under the NOFA. The NOFA required the end-use facilities (or "biomass conversion facilities") first to apply to FSA for qualification. Upon qualification, the suppliers of biomass to the facility (the owners of eligible biomass, or "eligible material owners") then made an application through the applicable FSA county office for the matching payment of \$1.00-to-\$1.00 up to \$45 per dry ton. The first facility was qualified on August 20, 2009, and the first matching payment was issued August 31, 2009. During this first phase, applications for matching payments ran through September 30, 2009. A total of \$23.6 million was obligated from the OMB-approved apportionment of \$25 million. A total of 86 facilities were qualified.

The second opportunity for matching payments was provided during the NOFA in November 2009 when OMB approved a new apportionment of \$535 million. Approximately \$245 million in matching payments were earned on approximately 4,600 contracts. Deliveries were predominantly woody biomass made to more than 450 qualified biomass conversion facilities. The facilities fit into the following categories, but were predominantly dedicated to heat and power generation:

| Facility Type: | Number: | Percentage: |
|---|------------|--------------|
| Schools and colleges | 31 | 7% |
| Utilities (power & energy; rural electric cooperatives) | 66 | 14% |
| Pulp, paper & forest products (combined heat & power) | 206 | 46% |
| Pellet/briquette producers (forestry residues) | 86 | 19% |
| Ethanol | 1 | Less than 1% |
| State Government | 3 | Less than 1% |
| Food production (combined heat & power) | 14 | 3% |
| Miscellaneous (Cement companies, hospitals, Salt refinery, Ethanol, Mills, Farm Green House Operations, and Manufacturing combined heat & power, etc.) | 46 | 10% |
| TOTAL | 453 | 100% |

Upon the publication of the BCAP proposed regulation on February 6, 2010, the NOFA was terminated. Because BCAP was a new program that required new controls for new practices not yet in existence, in December 2009, within 3 months of commencing matching payments, FSA requested the Office of Inspector General (OIG) to review matching payment implementation and report on recommendations for incorporation into the final regulation. OIG review began in February 2010. By FSA design, early findings by OIG were reported to FSA before publication of and for incorporation into the final rule that occurred

October 27, 2010. An OIG Fast report was released first in December 2010⁷ and later in February 3, 2011⁸. A later full audit report was released May 2012. All OIG reports provide the recommendations requested by FSA to improve the matching payments portion of BCAP. Recommendations not already incorporated into the final BCAP rule or not yet adopted are due to matching payments to date not resuming in full.

The third opportunity for matching payments occurred in December 2010 after the BCAP final rule was published. Due to funding reductions, matching payments were limited to only herbaceous materials. A total of three facilities were qualified; more than 100 producers delivered approximately 40,000 dry tons of corn stover from crop year 2010, and 29,000 dry tons were delivered from crop year 2011.

| BCAP Matching Payments (Web-based) | | | |
|---|---------------|--------------------|--------------------|
| <i>as of June 2012*</i> | | | |
| State | County | Obligations | Payments |
| Iowa | Boone | \$26,717 | \$25,260 |
| Iowa | Buena Vista | \$77,239 | \$76,732 |
| Iowa | Clay | \$90,320 | \$84,781 |
| Iowa | Dickinson | \$13,950 | \$9,960 |
| Iowa | Emmet | \$280,492 | \$155,525 |
| Iowa | Hamilton | \$46,405 | \$42,794 |
| Iowa | Kossuth | \$220,400 | \$133,082 |
| Iowa | O'Brien | \$31,729 | \$29,190 |
| Iowa | Palo Alto | \$1,471,002 | \$872,373 |
| Iowa | Pocahontas | \$246,441 | \$243,241 |
| Iowa | Story | \$18,186 | \$17,052 |
| Totals: | | \$2,522,880 | \$1,689,990 |

*Matching payment tonnage for crop year 2011 was not yet available.

Due to continued funding reductions, on September 15, 2011, CCC published an interim BCAP rule (76 FR 56549-56951) establishing prioritization of establishment and annual payments within BCAP Project Areas, with matching payments to be funded only if sufficient funding remained available after funding successful project area applicants. Future funding for BCAP could change these funding priorities.

⁷ OIG Fast Report 03601-28-KC (1), *Recommendations for Improving Basic CHST Program Administration: Biomass Crop Assistance Program Controls Over Collection, Harvest, Storage, and Transportation Matching Payments Program*, December 2010

⁸ OIG Fast Report 03601-28-KC (2), *Recommendations for Preventing or Detecting Schemes or Devices: Biomass Crop Assistance Program Controls over Collection, Harvest, Storage, and Transportation Matching Payments Program*, February 3, 2011

Conclusion

Summary

The final BCAP resulted in the establishment of a wide diversity of dedicated energy crops, including two varieties of giant miscanthus, native grasses such as switchgrass, two short rotation woody crops of hybrid poplar and shrub willow, and an annual crop, camelina. The final BCAP also supported the collection and harvest of more than 58,000 dry tons of herbaceous residues (corn stover) for logistics testing related to energy conversion.

A total of 53,115 acres were enrolled in eleven BCAP Project Areas. These project areas span across 188 counties in 12 states. FSA invested a total of \$62.6 million in project areas and \$2.6 million in herbaceous crop materials since the publication of the final BCAP regulation.

Demand for BCAP assistance exceeded available funding. Project sponsors submitted 59 proposals over 2 fiscal years targeting establishment of more than 1.7 million acres of a wide variety of crops—some never before been grown in the United States at the proposed scales. The estimated investment of these proposals is \$1.2 billion to support crop establishment and production over the course of 5 years to 15 years.

Through BCAP, and its application of science into practice, FSA has generated significant new information previously unknown to bioenergy stakeholders about the scientific, economic, logistic, and social aspects of energy crop generation and retrieval needed for biomass-to-bioenergy ventures.

Project sponsors learned that BTU value per acre, and the potential to maximize that value, depend heavily on how the producer is able to manage risks and land. These management challenges are often directly linked to education, support, relationships, and above all, trial and error.

Outreach and education by BCAP project sponsors are essential to achieving targeted acreage signups. Establishment costs of bioenergy feedstocks generally are higher than the conventional cash crops at the outset, underscoring the premise of BCAP assistance. Risk management includes assurances to farmers and foresters of off-take agreements from the end-use facility and that compensating for lack of crop insurance takes a combined effort of rental rate incentives, adjusted contract terms for liquidated damages, and meeting the producer in the middle with establishment reimbursements. The middle man, or broker, has significant influence on market pricing, whether brokering the harvested material or the initial plant establishment stock. Introducing new crops takes time and timing that corresponds with the seasons. Also, the timing of announcing when USDA begins to accept applications, the evaluation of those applications, and when enrollments may commence, are crucial to producer decisionmaking and meeting project sponsor objectives.

Future Program Goals

BCAP was designed as a long-term effort, an expansion of the biomass markets for energy in rural America. There are no perfect answers in the pursuit of energy independence, nor any single fuel or feedstock that offers affordability, reliability, transportability, and sensitivity to the environment in equal ways. As the best course of action for energy independence is evaluated, however, action cannot be delayed until the perfect solution is identified. Actions taken today must be accompanied by rigorous concurrent debate in preparation for the second and third generation of alternative fuel infrastructure.

The Conservation Reserve Program, created in the 1985 Farm Bill, recently celebrated its 27th year of operation. Not without its challenges when first created, with only 2 million acres of enrollment during its first year, CRP today is a sophisticated and successful program, an inherent part of rural America that not only captures the value of private land beyond that of just crop production, but also the external benefit of achieving enormous gains in conservation and stewardship, wetlands restoration, wildlife recovery, soil and water quality improvements, and even economic development from tourism, hunting, and fishing. CRP has improved economic opportunities for farmers, ranchers, foresters, and their communities and has spurred enormous increases in the conservation of natural resources.

The potential for BCAP to achieve the same transformational aspects seen with CRP in rural America is considerable, occupying the space between both production and conservation agriculture, while providing options for underutilized land, diversity from monocrop cultures, alternatives to tobacco, reduced inputs, energy feedstock choices beyond seed and feed, reductions in conventional carbon-intensive energy use, and more capital-affordable renewable energy options for non-intermittent electricity generation. BCAP has assisted farmers, ranchers, and foresters with managing the risks associated with non-traditional crop production, providing new job and economic opportunities for years to come.

About the FSA's Conservation and Environmental Programs Division (CEPD)

The USDA's FSA's CEPD serves the nation's agricultural producers, providing assistance and opportunities for producers to voluntarily invest in safeguarding environmentally sensitive lands and non-food energy crops.

The Division implements numerous programs including BCAP and the Conservation Reserve Program (CRP). Participation in both programs is voluntary.

The BCAP, which was established by Section 9001 of the 2008 Farm Bill (Pub. L. 110-246), amends Title IX of the Farm Security and Rural Investment Act of 2002 by adding Section 9011 authorizing BCAP. The program uses contracts with agricultural and forest producers to enroll lands that are suitable for certain, non-food energy crop production, and according to a conservation plan. Contract terms range from up to 5 years for herbaceous crops and up to 15 years for woody crops.

Eligible material owners also can enter into a BCAP contract for the delivery of certain materials for conversion to bioenergy. Material owners are eligible for matching payments up to 2 years.

CRP was established by the Food Security Act of 1985 and began enrolling cropland in 1986. The program uses contracts with agricultural producers and landowners to enroll highly erodible and environmentally sensitive cropland and pasture. Contract terms range from 10 to 15 years in length. Enrolled land is planted to grasses, trees, and other cover.

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