

# **RECOMMENDATIONS FROM THE NATIONAL WORKING GROUP ON COVER CROPS AND SOIL HEALTH**

## **Executive Summary**

*June 16, 2015*

### **Overview**

The National Working Group on Cover Crops and Soil Health was formed on an ad hoc basis following the National Conference on Cover Crops and Soil Health. That conference, held in February of 2014, was an invitation-only meeting of 300 industry and government leaders, farmers, researchers, educators, and NGO representatives. It was an action-oriented conference aimed at identifying barriers to further adoption of cover crop and soil health practices and proposing solutions for further growth, with a goal of 20 million acres of cover crops nationally by 2020.

The working group, consisting of 19 leaders from various agriculture, conservation, and farm organizations, has been following up on the recommendations from the conference and refining them into a set of action steps that can be pursued in the public and private sectors. Attached are some of the preliminary recommendations pertaining to USDA agencies and programs.

### **Summary of proposed action items**

1. Offer a new request for applications within NIFA's existing AFRI funding to support eight multi-state projects on cover crops and soil health, each funded at about \$2.5 million. A total investment of \$20 million could be made as a one-time investment or spread over two AFRI grant cycles, but the end goal should be developing regionally-adapted approaches meeting site-specific farmer needs while addressing broader public concerns, such as Gulf Hypoxia.
2. Develop a strong public-private partnership to provide improved cover crop cultivars. Relevant agencies for involvement are ARS (primarily through National Plant Germplasm System), NRCS (through Plant Materials Centers), and NIFA (through plant breeding grant support). The American Seed Trade Association has expressed strong interest in engaging in such a partnership with relevant USDA agencies and staff.
3. Further integrate cover crops and soil health into targeted intramural research programs within ARS, including the Long Term Agroecosystem Research (LTAR) trials that have recently been established. Development of improved soil health testing protocols is also needed to better understand how to monitor the progress from practices such as cover crops.
4. Support establishment of a National Consortium on Cover Crops and Soil Health, to be funded by a mix of private foundation support and USDA Foundation for Food and Agriculture Research.

5. Collect and report on cover crop acreage annually through the Farm Service Agency as part of their annual crop data reporting effort.
6. Decouple crop insurance eligibility from cover crop management practices, in keeping with the way other crop management practices are handled.
7. Incentivize the use of cover crops through the federal crop program. This is based on national SARE/CTIC data that has shown statistically significant increases in corn and soybean yields following cover crops for three consecutive years. Use of cover crops may help farmers mitigate production risk. Implementation of this recommendation will likely require a larger data collection and analysis effort by USDA related to cover crop yield impacts.
8. Seek strategic opportunities to further support cover crops within existing NRCS programs, including efforts to positively adjust ranking factors for cover crops in EQIP, and exploration of opportunities to integrate cover crops with buffer strips and no-till for land coming out of CRP.
9. For landowners taking ground out of CRP, offer an incentive payment to implement a set of conservation practices on that land which minimizes erosion and protects water quality. Specifically, create a “practice standard” that combines a “triple strategy” of cover crops, buffer strips of native species planted on the contour, and no-till to provide equivalent conservation benefits as seen from CRP. New research data and technology supports the opportunity to combine these practices, including through integration of crop and livestock production.
10. In relevant programs and agencies at USDA, give attention to the particular needs of moisture-limited farming and ranching areas pertaining to improved soil health. Specific needs include: (1) conducting research to develop an understanding of which cover crops, tillage approaches, crop rotations, and rangeland practices can best contribute to soil health; (2) adjusting crop insurance to give farmers in the West a chance to innovate with their cropping system practices, and (3) adapting NRCS incentive programs to meet regionally-specific needs in the West for building soil health.

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## Introduction

On February 18, 2014, more than 6000 people gathered at over 200 locations across the U.S. to discuss a key question: What are the largest barriers to adoption of cover crops and improved soil health, and how do we overcome these barriers? The focal point for this effort was a convening of 300 agricultural leaders and innovators invited to Omaha, Nebraska to address various facets of this question. Their work on February 18 continued for a second day on February 19, when they broke into smaller working sessions on the following topics:

1. Scaling up seed supply and development of new cover crop cultivars
2. Broadening industry involvement with seeding and other cover crop services
3. Strategies for terminating cover crops and planting cash crops into cover crops
4. Need for new types of equipment related to cover crops and soil health
5. Integration of cover crops with other soil health practices
6. Policy barriers and incentives
7. Research and on-farm testing
8. Education, extension and outreach

The Omaha conference participants also spent some time broken into geographic sessions (such as Great Plains, Southeast and Gulf Coast, etc.) to identify uniquely regional issues. Graduate students involved in cover crop research served as note-takers in each of these sessions, compiling a large amount of comment material from participants.

Input was also gathered from the other 200 plus locations via a web-based interface. Farmers and farm advisors gathered at NRCS and extension office locations across the country on February 18, 2014, to not only watch a live-stream feed of the Omaha opening sessions, but also to participate in facilitated discussions about cover crop and soil health barriers and opportunities. Facilitators at the majority of these sites typed in comments from the farmers and farm advisors in their sessions through the conference website, and those materials were reviewed as part of the input gathering process.

Many of the comments that came out of the Omaha conference and the “satellite” locations across the country were fairly general in nature, for example, “we need more research funding” or “better cover crop varieties are needed” or “something must be done about crop insurance rules on cover crops.” In order to turn those general comments and concerns into actionable recommendations, the National Working Group on Cover Crops and Soil Health was formed. This group included experts on cover crops and soil health and leaders and representatives of some major national agriculture and conservation organizations, including:

- American Soybean Association
- National Association of Conservation Districts
- Soil and Water Conservation Society
- Agriculture Retailers Association
- Conservation Technology Information Center
- National Wildlife Federation
- American Society of Agronomy

The 19-member working group was also selected to represent a cross-section of the agriculture sector, with farmers and representatives of industry, university, agency (state and federal), non-profit organizations included among the group (the full list of working group members is on page 16 of this report). The working group met monthly for over a year via conference calls and periodically in person to develop and refine the set of recommendations included in this report.

While the recommendations in this report are primarily geared towards the USDA agencies, there are some recommendations that pertain to industry and other facets of our agriculture sector, such as the need to initiate a coordinated national effort on cover crop cultivar improvement.

It is the hope of the working group that the leadership of USDA and relevant agencies within USDA (particularly NIFA, ARS, NRCS, FSA, and RMA) will take into account the extensive effort and thought behind these recommendations and will seriously evaluate the opportunity to implement these recommendations in the near future.

Bundled with this report is a “Common Vision Statement on Cover Crops and Soil Health.” This one-page statement grew out of a round-table discussion that the working group held with representatives of a number of DC-based agriculture, conservation, and environmental organizations on July 10, 2014. During that roundtable discussion there was consensus that a strong statement would be helpful on the need for increased federal attention to cover crops and soil health. Remarkably, 42 diverse national agriculture, conservation, and environmental organizations as well as multi-national agriculture corporations signed onto this statement. The statement was provided on October 17, 2014, to USDA leadership on behalf of the 42 co-signatory organizations with a joint cover letter from the American Soybean Association, National Sustainable Agriculture Coalition, and the National Association of Conservation Districts. This strong endorsement from such a wide range of major organizations and companies indicates the time is right to act on the attached recommendations.

## Creation of a “Mini-CAP” Grant Program on Cover Crops and Soil Health

### Proposed Action

Add a topic area within a relevant AFRI grant request for applications, specifically to fund a group of “mini-CAP” multi-state projects on cover crops and soil health (CAP refers to Coordinated Agriculture Projects of several million dollars in size, with smaller CAP projects referred to as mini-CAPs). To achieve a critical mass of activity in this area, both from a regional and national standpoint, plan to fund eight regional projects of approximately \$2.5 million each. This could be handled as a one-time high priority RFA within AFRI for \$20 million or spread over two years at \$10 million/year, with four regional projects funded each year. The goal should be to fund eight or more distinct agricultural regions of the U.S.\*

### Rationale

The use of cover crops and related soil health practices is rapidly expanding in the U.S., with producers and their public and private sector advisors all working to get more information and understanding of the use of these approaches. A survey by the Conservation Technology Information Center, funded by USDA-NIFA-SARE, has shown that cover crop adoption is increasing by more than 30% per year in the last few years among surveyed producers who are using cover crops. The importance of cover crops and soil health was emphasized to USDA leadership in a “Common vision statement on cover crops and soil health” that was released on October 17, 2014, in a statement co-signed more than 40 national agriculture, conservation, and environmental organizations.

Despite rapidly growing interest and adoption of cover crops and other soil health practices, more research and education efforts are needed to answer the many questions that producers and their advisors have about these practices. In an effort to foster truly interdisciplinary work on these practices and work that is organized across state lines, it would be of value to have multi-state projects funded on a regional basis, using the format of the mini-CAP competitions that NIFA has successfully been offering in recent years.

It is expected that solid and productive partnerships will be built for these mini-CAP from among land-grant universities, non-profit organizations, and relevant agency partners. These projects should integrate research, education, and extension and involve producers in advisory committees on the projects. It is likely that the outcomes of these projects can provide significant contributions to the transformational efforts underway to improve soil health across the country, using practices such as cover crops to preserve and enhance our soil resources while protecting water quality and meeting other environmental and production goals for agriculture.

*\*If the proposed National Consortium on Cover Crops and Soil Health is funded through foundation sources, with research focused on the U.S. Heartland (Mississippi River Basin and Great Lakes Basin), it may be appropriate to target the proposed AFRI mini-cap projects on other regions of the U.S. These multi-state AFRI projects could then be connected to the national consortium effort, providing a fuller spectrum of regionally-specific research across the country.*

## **Proposed Partnership Between ARS, NRCS, NIFA, and Private Sector to Develop Improved Cover Crop Germplasm**

### **1) ARS role**

a) Encourage ARS National Plant Germplasm System (NPGS) curators to identify appropriate accessions (genetic lines) of plant species that are currently or potentially valuable as cover crop species. Make “starter” amounts of those accessions available for seed increase by NRCS Plant Materials Centers. Minimal cost to this action item.

b) Engage ARS breeders/geneticists in crossing promising accessions to uncover new traits and share initial cultivar selections with appropriate ARS agronomists for further field testing. Move materials into private sector for further refinement and seed scale up and marketing. Low to moderate costs depending on number of scientists engaged.

c) Expand role of ARS soil scientists in understanding impact of various cover crop species on soil health and nutrient management, and potential for genetic variation within cover crop species for promoting mycorrhiza and other beneficial organisms. Low to moderate costs depending on number of scientists engaged.

### **2) NRCS role**

a) Organize NRCS Plant Materials Centers to scale up seed of existing NPGS accessions for field testing. Plant at multiple dates and evaluate early vigor, winter survival, and soil conservation potential. For selected species/cultivars, evaluate root depth and soil health parameters. Set up a distribution system to share increased seed of promising cultivars with public and private sector scientists for further testing and evaluation. Low to moderate cost depending on number of locations involved and degree of evaluation and testing.

b) Involve NRCS technical staff, particularly NRCS state agronomists, in regular updates to NRCS field staff on advances in cover crop cultivars and traits of importance for selected cropping systems. Help move farmers away from generic “variety not stated” cover crop seed to higher quality cultivars appropriate to local soil health and conservation needs. Low cost (education focused).

### **3) NIFA role**

a) Through the cooperative extension system, promote consistent and technically sound information on where and when to use particular cover crop species and cultivars, including use of existing SARE informational materials. Minimal cost.

b) For at least a 2-3 year period, provide targeted grants on cover crop cultivar improvement and testing and comparative impact of cover crop species, cultivars, and mixes on soil health. No new dollars from USDA, at least initially, instead do a modest reallocation within AFRI and SARE and look for foundation funding to support this effort.

### **4) Private sector role**

a) Take currently available and relevant cover crop germplasm provided by ARS NPGS curators and begin initial crosses with these genetic lines to uncover new gene combinations that contribute to improved cultivars. Move promising material into fast track scale up for distribution.

b) Work with NRCS Plant Materials Centers to help evaluate their data and determine genetic lines that can be scaled up for varietal distribution (without further breeding) or that provide potential as parents for crosses and variety improvement programs.

c) Supply locally-adapted, improved cover crop cultivars to farmers.

## **Integrating Cover Crops and Soil Health into ARS Intramural Research Programs**

### **Background**

Interest in cover crops and soil health is stronger than ever, as evidenced by the Common Vision Statement on Cover Crops and Soil Health that was co-signed by 42 national agriculture, conservation, and environmental organizations and several major agriculture corporations. The statement was submitted to USDA leadership on October 17, 2014, and among other goals, recommended that USDA devote increased effort on research related to cover crops and soil health.

While the Agriculture Research Service (ARS) has been one of the key agencies fostering work on cover crops and soil health, there is a need and opportunity to do even more in this area. The individual research projects on cover crops and soil health that exist within ARS are helpful, but a more integrated and targeted approach would assist in meeting rapidly emerging needs for soil management and evaluation tools that could be used on farms and ranches across the country.

The recent establishment of the Long Term Agroecosystem Research (LTAR) Network by ARS is an admirable and significant step towards long-term systems research that can help us understand key sustainability challenges and needs in agriculture. While a few of the LTAR sites are already incorporating cover crops and/or other soil health practices, there is a real opportunity to expand the use of cover crops and assessment of soil health throughout all or nearly all of these LTAR locations. Such a comprehensive data set from across the U.S. would be of great scientific and public value in better documenting the ability of cover crops and soil health improvements to help with crop productivity, nutrient management, and other ecosystem services.

### **Proposed Actions**

1. Integrate cover crops and other soil health improvement practices into most if not all of the Long Term Agroecosystem Research (LTAR) projects supported by ARS across the country.
2. Develop improved soil health testing protocols and measurement methods, including but not limited to simple tests that can be used directly by farmers or farm advisors to evaluate progress towards healthier soils.
3. Increase research that helps us understand the relationship between soil biology and plant health, ranging from row crops to forage and rangeland species.

### **Rationale**

Cover crop use is rising rapidly, with 10.3 million acres of cover crops planted in 2012 according to the latest Census of Agriculture. A national cover crop survey funded by the USDA Sustainable Agriculture Research and Education (SARE) program documented that cover crop users were increasing their cover crop acreage by 30% per year from 2010-2013. The NRCS national soil health campaign and complementary outreach efforts in the university and private sector are stimulating great interest and many questions on soil health improvement practices, including optimum management of cover crops. This interest is driven by both crop production and resiliency gains and by the many ecosystem service benefits of cover crops, such as helping with erosion and sediment loss, nutrient management, carbon sequestration, habitat and food sources for wildlife and pollinators, and overall biodiversity.

## **Establishment of a National Consortium Effort on Cover Crops and Soil Health**

### **Background**

In February of 2014, a National Conference on Cover Crops and Soil Health was held with an invited audience of 300 agriculture and conservation leaders and innovators in Omaha, NE. This conference was intended to address opportunities and barriers with cover crops and soil health and was sponsored by the Howard G. Buffett Foundation and the USDA Sustainable Agriculture Research and Education program, with extensive involvement from NRCS. In conjunction with the conference, a virtual National Forum on Cover Crops and Soil Health involved over 6000 farmers and others from across the country who gathered at over 200 locations to hear the conference opening session and provide their input on local cover crop and soil health issues.

To refine and more fully develop the ideas coming out of the national conference and national forum, a National Working Group on Cover Crops and Soil Health was formed following the conference. The Working Group has met monthly (in person or by phone) for over a year to develop a set of recommendations, and it became evident that there is a need for a nationally coordinated effort related to research, education, and adoption efforts. The Working Group was planned to be an ad hoc council with a limited lifespan and will be disbanded in the summer of 2015, but there is a need to continue and expand a large-scale partnership effort to address specific research, education, and adoption needs related to cover crops and soil health practices.

### **Proposed Action**

USDA should support the creation of a National Consortium on Cover Crops and Soil Health, to be funded by private foundation funds and matched by funding from the USDA Foundation for Food and Agriculture Research.

### **Rationale**

There are a number of individual and smaller group projects recently launched or currently underway on cover crops and soil health, but no current effort to integrate the overall research and education efforts. There is also a need to specifically address targeted research needs related to nitrogen, phosphorous, carbon, soil erosion, wildlife, and pollinators as they pertain to cover crops and soil health. A comprehensive, systems-oriented research and education consortium effort will drive adoption of cover crop and soil health practices more efficiently and successfully than the fragmented approach currently underway. A coordinated consortium effort will complement the new NRCS Soil Health Initiative very well, particularly as it relates to the NRCS Mississippi River Basin Initiative and other water quality and soil conservation efforts regionally and nationally.

While cover crops and soil health practices have been used on an increasing number of farms (10.3 million acres of cover crops nationally in 2012 according to the Census of Agriculture), there is a real need to go further and faster with adoption efforts. Supporting increased adoptions requires targeted research and education efforts that are coordinated with other ongoing work to achieve the desired adoption targets. An example of what is possible can be found in Maryland, where over 50% of the corn and soybean fields now have cover crops grown on them. A national consortium effort can deliver an additional 5 million acres of cover crops within 5 years on corn and soybean farms in the Mississippi River Basin and Great Lakes Basin. A focused research and adoption effort in those major watersheds, combined with national education and outreach, should help us reach 20 million acres on which cover crops and soil health practices are used by 2020, representing a doubling of the acreage documented in 2012.

## **Capturing Cover Crop Data and Connecting it to Crop Insurance**

### **Background**

The 2012-13 SARE/CTIC survey of farmers using cover crops surprised many people because of the increases in yield found following cover crops in a severe drought (the survey was funded by the USDA Sustainable Agriculture Research and Education program and carried out by the Conservation Technology Information Center). The survey collected yield data from over 200 farmers who had fields with and without cover crops that were otherwise using comparable management. That set of farmers showed corn yields rising by 9.6% and soybean yields by 11.6% percent. Moreover, in the hardest hit drought states, the yields increased even more following cover crops.

Farmers with several years of experience using cover crops will consistently report that they feel cover crops help make their cropping system more resilient, improving crop performance and yield during times of weather extremes. In part this has to do with increased soil organic matter and rainfall infiltration, but improvements in soil health also contribute. However, it is difficult to factor this information into a crop insurance database due to the lack of large-scale data.

At the same time there is a lack of annually gathered data on cover crop acreage. The 2012 Census of Agriculture was the first large-scale collection of cover crop acreage data, and it showed 10.3 million acres of cover crops. However, that was a snapshot, and does not capture the dynamic annual changes underway with cover crop adoption and use.

### **Proposed Actions**

1. Support efforts by FSA to collect cover crop acreage data from farmers on a field-by-field basis during the annual crop reporting process.
2. Use the FSA cover crop acreage data in conjunction with USDA collected field-level yield data (from RMA or FSA) to determine impacts of cover crops on commodity crop yields. Such data should be evaluated by USDA for potential implications related to federal crop insurance premiums.

### **Rationale**

More systematic data collection and reporting on cover crops is needed for several reasons. Agricultural businesses, including companies selling cover crop seed, are asking for this information to better project future demand for seed (which takes time to increase the supply) and determine where to base their research trials. University and government programs need this information to better design education, outreach, and incentive programs. Large-scale sets of data are also needed on cover crops to evaluate whether they should be factored into crop insurance premium rates and/or payout rates.

USDA was asked to undertake more systematic efforts on cover crop data collection and risk management in the Common Vision Statement on Cover Crops and Soil Health that was co-signed by 42 national agriculture, conservation, and environmental organizations and submitted to USDA leadership on October 17, 2014.

## **Decoupling Cover Crop Termination from Federal Crop Insurance Eligibility**

### **Background**

During the first half of 2013, a USDA multi-agency task force worked to revise and clarify policies on federal crop insurance pertaining to the use of cover crops. Part of the challenge was to develop consistency in how cover crops were defined between NRCS, RMA, and FSA. That effort led to a new set of cover crop termination guidelines published by NRCS in June of 2013 and used by RMA in providing guidance to crop insurance agents and farmers on when cover crops should be terminated to retain federal crop insurance eligibility. Farmers were given increased flexibility for using cover crops in that they could terminate their cover crops based on the date of planting their cash crops, rather than terminating by a particular calendar date.

While the policy efforts described above were a positive step forward, there is still considerable concern among cover crop users and farm advisors about the restrictions placed on cover crop use for farmers wanting to maintain federal crop insurance eligibility. Farmers are showing great innovation in how they utilize cover crops with many regional and local differences in how cover crops are fit into the cropping system. Weather conditions also play a big role in how cover crops are being managed by farmers, making it difficult to write federal guidelines on cover crop termination that fit all situations. There is also considerable confusion in the farming community about whether use of cover crops will prevent involvement in the federal crop insurance program, creating a significant barrier to adoption of cover crops.

### **Proposed Action**

USDA should sunset the current requirement that farmers **MUST** follow NRCS termination guidelines for cover crops in order to retain federal crop insurance eligibility for commodity crops. We recommend this change occur in the next 12-18 months, effectively decoupling cover crop management practices from eligibility for federal crop insurance. Put simply, eligibility for federal crop insurance should not be tied to how cover crops are managed.<sup>1</sup>

### **Rationale**

Cover crop management practices were restricted for crop insurance considerations upon the assumption that cover crops would or could reduce cash crop yields. However, an increasing amount of data, including from the national USDA-SARE funded cover crop survey, is showing that farmers on average have received modest yield increases from using cover crops. While it is true that individual fields may show varying yield responses to using cover crops, and in some cases have a yield reduction, this is no different than any other management practice. Improper application rates or timing of fertilizers, herbicides, insecticides, and fungicides can all impact whether yield increases or decreases are obtained; likewise with variety selection, tillage methods, planting approach, harvest timing, etc. None of these other management practices affect eligibility for federal crop insurance with the exception of planting date of a commodity crop. It should be acknowledged that farmers can manage cover crops satisfactorily in the same way they manage fertilizers, pesticides, tillage, and variety choices. A clear USDA policy that farmers have discretion in how they use cover crops, just like other crop management practices, will remove a key barrier to cover crop adoption on millions of additional acres.

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<sup>1</sup> *The only exception would be continuing to define a cover crop harvested for seed as a “first crop” in an annual cropping system under RMA definitions.*

## **Incentivizing Cover Crop Use through Federal Crop Insurance**

### **Background**

Following the more recent Farm Bill, federal crop insurance has become the primary way that federal financial support is delivered to commodity crop producers in the U.S. As a result, it is also the policy tool that has the potential to impact the largest amount of acres in the U.S. in terms of crop management practices that can provide public benefit.

Federal crop insurance premiums and payouts are based on actuarially sound data sets that reflect crop yields from large numbers of farms over multiple years. When sufficient evidence exists that a particular management approach provides a yield benefit, there is flexibility given to the USDA Risk Management Agency (RMA) to provide either a discounted insurance premium or a higher payout (in the event of crop yield loss) for using that practice. The most notable recent example was the use of GMO varieties. Farmers using GMO varieties were presumed to be likely to have higher yields and therefore the practice was incentivized through federal crop insurance (this incentive was discontinued after GMO adoption became so prevalent that it became considered a standard crop management practice).

### **Proposed Action**

Create a joint effort between RMA and FSA to collect appropriate cover crop use data and evaluate their combined data sets for cover crop yield impacts. If a yield increase is seen from use of cover crops for a particular commodity, farmers should receive a discount in crop insurance premiums for those using cover crops and related soil health practices like no-till. Effective analysis of actual farm yield impacts from use of cover crops will depend upon FSA systematically recording which fields had cover crops used, and matching that data with commodity crop yields for those fields. This approach could provide thousands of data points on adjacent or nearby fields where cover crops are used or not used, providing a sufficiently large data set to meet RMA actuarial requirements for crop yields.

### **Rationale**

Until recently, it was unclear whether cover crops would consistently provide a yield benefit, yield loss, or be neutral to yield. Some of the earliest university research on cover crop use showed variable yield responses to using cover crops. As cover crops have become much more widely adopted (USDA Census of Agriculture reported 10.3 million acres of cover crops planted in 2012), an increasing amount of evidence is showing yield benefits from cover crop use in the majority of farm situations. The largest scale efforts to evaluate crop yield response to cover crops have been USDA-SARE funded surveys conducted by the Conservation Technology Information Center (CTIC). In the first two years of survey data collection, corn and soybean farmers reported on average that they had yield increases ranging from 3-10%, depending on crop, location, and year. These numbers are based on yields reported by approximately 200 farmers in 2012 and 500 in 2013. Farmers with several years of experience using cover crops will consistently report that they feel cover crops help make their cropping system more resilient, improving crop performance and yield during times of weather extremes. This has to do in part with increased soil organic matter and rainfall infiltration, but improvements in soil health and deeper rooting of cash crops also contribute. However, it is difficult to factor this information into a crop insurance database due to the lack of large-scale data.

## **Enhancing Opportunities to Support Cover Crops through EQIP**

### **Background**

The NRCS Environmental Quality Incentives Program (EQIP) has proven to be effective at incentivizing a wide range of conservation practices for both crop and livestock producers. Over the last decade, an increasing number of farmers and landowners have applied to EQIP to receive incentive payments for implementing use of cover crops, often in combination with other conservation practices on the farm. However, some confusion exists in the farming community about where to get support for cover crops and whether farmers can receive assistance just for planting cover crops or if it needs to be part of a package of other practices.

### **Proposed Actions**

The optimal path for elevating the awareness of farmers and landowners about the opportunity to use EQIP for cover crops would be to make it an EQIP national initiative or at least offer it as a special initiative in several states. However, it is understood that this approach could take time to put in place, so two intermediate steps are recommended:

- 1) In promoting the EQIP program to farmers and landowners, make it clearer that planting of cover crops is a key practice for which they can request financial incentives.
- 2) Adjust the ranking factors within EQIP pertaining to cover crops, at least in high priority areas for water quality, such as the Mississippi River Basin and Lake Erie Basin. While this is more of an internal mechanism that will not be readily apparent to farmers and landowners, it will increase the success rate of applications for the cover crop practice.

### **Rationale**

Momentum for cover crops is stronger than ever, as evidenced by the Common Vision Statement on Cover Crops and Soil Health that was co-signed by 42 national agriculture, conservation, and environmental organizations and submitted to USDA leadership on October 17, 2014. Cover crops are integral to improvements in soil health on many farms and thus to the overall success of the NRCS soil health campaign. Where special sign-up opportunities have been offered for cover crops, such as those offered in 2013 through the Minnesota NRCS EQIP program or the Iowa State Department of Agriculture in 2013, demand has been very strong.

Adoption rates of cover crops, while rising at a significant rate, could be accelerated. The Maryland success story of farmers having over half their corn and soybean acres planted to a winter cover crop is due to a combination of education and incentive payments. Cover crops can be one of the most effective ways to reduce nutrient losses from crop fields, reducing nitrogen in the Mississippi River Basin affecting Gulf Hypoxia, and the amount of phosphorous affecting lakes both small and large (with algal blooms in Lake Erie being a notable example).

Cover crops also provide many other ecosystem service benefits, such as helping with erosion and sediment loss, wildlife and pollinator habitat and food sources, carbon sequestration, and overall biodiversity. Just as importantly, cover crops have real economic value for farmers and landowners, both through direct yield improvements and also in improving the productivity and value of the farmland over the long term through increased organic matter and better soil health.

## **A Triple-Strategy Conservation Approach for Fields coming out of CRP**

### **Background**

Vegetative buffer strips have been promoted by NRCS for a number of years, particularly in riparian areas. Recent research, including by an interdisciplinary team at Iowa State University, has found that contour strips of perennial herbaceous species (grasses and forbs) have a significant conservation benefit, compared to no-till or conventional practices. Their research has shown that sediment loss, and movement of pesticides and nutrients from fields, is significantly reduced by using buffer strips occupying 10% of the landscape compared to no-till alone. The researchers feel that even a smaller amount of land, such as 5%, could be effective in providing a number of conservation benefits in the agricultural landscape.

<http://www.nrem.iastate.edu/research/STRIPs/research/index.php>

### **Proposed Approach**

Target CRP acres in perennial cover that are coming out of contract and otherwise going back into row crop production. Provide incentive payment to leave about 5% of perennial cover in place as strips on a contour basis. Exact spacing and width of strips can be based on slope, location, and cropping system, but in a typical corn-soybean system in the Midwest, an example would be strips 15 feet wide at 300 foot intervals on the contour across the landscape. This approach allows 95% of a CRP field to be put back into production, but that conversion should be with the caveat that the ground be kept in no-till; the normal transition time to no-till from conventional is avoided because the CRP ground has already been no-till with established soil aggregate structure, root channels and other macropores, etc. Include cover crops in the cropping system and allow grazing or haying on the cover crops and the perennial buffer strips so there is an economic benefit.

### **Rationale**

The proposed approach combines some of our best conservation approaches: perennial grass buffer strips, no-till management, and cover crops. It gives increased conservation benefit over any of the above three practices used alone, reducing not only topsoil loss but also decreasing offsite movement of sediment, pesticides and fertilizers. Since the perennial cover is already established on CRP ground, NRCS does not need to pay for establishment of the grasses and forbs and the landowner does not have to wait two or three years to get good establishment of a buffer.

Several developments are making this strip and cover approach timely. Significant erodible farmland is coming out of CRP contracts and going back into row crop production. The proposed approach maximizes continued conservation benefits on that erosive ground, rather than allowing it to simply go back to conventional tillage with the likelihood of significant soil loss. Cover crops are more available and better understood than at any previous point, including for use in grazing systems. New use of GPS on planters, sprayers, and large fertilizer rigs is making it much easier to use large-scale equipment alongside conservation buffers. For example, individual nozzles can automatically shut off as the spray boom swings over a buffer strip based on pre-loaded field map information.

## **Addressing the Unique Needs of Moisture-Limited Farms and Ranches in the West**

### **Background**

The impact of soil health on the productivity of farmland, pasture, and rangeland is magnified in the American West due to the infrequency of rainfall, periodic and often prolonged droughts, and the overall lack of moisture for plant growth. Both researcher and producer experiences have clearly shown the benefits of improved soil health for moisture management in cropland and rangeland. In particular, increased organic matter, improved soil structure, and plant biodiversity have contributed to higher rainfall infiltration, moisture retention, and a more effectively functioning soil microbial community. What is not yet fully understood is how to best improve soil health on Western farms and ranches, whether through cover crops or other practices.

### **Proposed Approach**

In relevant programs and agencies at USDA, give attention to the particular needs of moisture-limited farming and ranching areas pertaining to improved soil health. Specific needs include: (1) conducting research to develop an understanding of which cover crops, tillage approaches, crop rotations, and rangeland practices can best contribute to soil health; (2) adjusting crop insurance to give farmers in the West a chance to innovate with their cropping system practices, and (3) adapting NRCS incentive programs to meet regionally-specific needs in the West for building soil health.

### **Rationale**

Western farmers and ranchers face not only a lack of moisture overall, but the challenge of varying microclimates based on elevation and landscape position, and often greatly varied soil conditions that confound the effort to have uniform ag policy standards or practices. This creates a need to give these farmers and ranchers maximum flexibility to innovate and adapt practices for each unique microclimate and soil type they are working with. Being overly restrictive with crop insurance or management practices related to adoption of conservation approaches can prevent effective implementation of appropriate practices, and in some cases discourages farmers and ranchers from even considering participation in relevant USDA programs. Likewise research, extension, and technical support from agency and university personnel needs to reflect the highly varied conditions faced by these farmers and ranchers.

Given the huge water challenges facing the West, including competing demands for irrigation water and severe droughts, the need is urgent to find solutions through research and other means for these farmers and ranchers. Improving and maintaining the health of soils in the West is critical to creating resilient farming and ranching systems that can be productive under low-moisture conditions. The health of soils is likely to be just as important as efficient irrigation techniques and plant and animal genetics for achieving profitability and sustainability for Western farmers and ranchers.

## WORKING GROUP MEMBERS

### *Farmer representatives*

Dan DeSutter (IN)

Clay Mitchell (IA), Co-founder and Managing Director, Fall Line Capital

Steve Groff (PA), Founding Partner, Cover Crop Solutions

Ray Gaesser (IA), 2015 Board Chairman of the American Soybean Association

### *Industry representatives*

Nancy Delong, Sustainability Coordinator, Dupont-Pioneer (IA)

Gary Farrell, Past-Chairman, Agricultural Retailers Association, and CEO, Ag Enterprise Supply (WA)

### *NGO representatives*

Karen Scanlon, Executive Director, Conservation Technology Information Center (IN)

Jim Gulliford, Executive Director, Soil and Water Conservation Society (IA)

Jeremy Peters, CEO, National Association of Conservation Districts (DC) *(during the early months of the working group, NACD was represented by then CEO, John Larson)*

Ryan Stockwell, Agriculture Manager, National Wildlife Federation (WI)

### *University representatives*

Bill Curran, Professor of Weed Science, Pennsylvania State University

Rob Myers, Regional Director of Extension Program, North Central Region SARE, University of Missouri

### *At large representatives*

Howard W. Buffett, trustee, Howard G. Buffett Foundation (NE)

Alan Weber, Vice-President, MARC-IV Consulting (MO)

Mike Plumer, Illinois Council on Best Management Practices

### *State agency representative*

Cindy Lair, Program Manager, Board on Conservation, Colorado Department of Agriculture

### *Federal agency advisors*

Newell Kitchen, Soil Scientist, Agricultural Research Service (MO) and former president, American Society of Agronomy

Wayne Honeycutt, Deputy Chief of Science and Technology, NRCS (DC)

Bianca Mobius-Clune, Director, National Soil Health Division, NRCS (DC)

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## A COMMON VISION FOR COVER CROPS AND SOIL HEALTH

Cover crops and soil health have been capturing the attention and involvement of farmers and organizations all across the U.S. These practices represent a systems-based approach to enhancing crop production and profitability, protection of soil and water resources, and land stewardship. Cover crops benefit our livestock sector by providing grazing and haying opportunities, and soil health is as applicable to pastures and rangeland as it is to row crop production. Cover crops also provide habitat and forage for wild pollinators and honeybees. Through use of cover crops, farmers are capturing sunlight and retaining nutrients at times of the year when commodity crops are not in the field, covering the soil and creating living roots that help build healthier soils.

Many initiatives and projects are underway across the country addressing cover crops and soil health, and momentum is strong. The recent National Conference on Cover Crops and Soil Health (sponsored by the Howard G. Buffett Foundation and USDA-SARE program) involved 300 agricultural leaders and innovators from across the country, joined by over 6000 participants in a virtual forum at 200 plus sites across the U.S. That action-oriented conference developed many ideas on catalyzing progress with cover crops and soil health, ideas that are being pursued by the National Working Group on Cover Crops and Soil Health.\*

The Natural Resources Conservation Service (NRCS) has a national soil health campaign underway, involving education and training, technical assistance, and practice implementation. The National Association of Conservation Districts is working closely with NRCS in implementing the campaign and recently teamed up with the Indiana Department of Agriculture and Dow AgroSciences to hold a national Soil Health Forum. Two other major efforts on soil health include the Soil Renaissance and the Soil Health Partnership. The Samuel Roberts Noble Foundation and the Farm Foundation, joined by additional organizations, lead the Soil Renaissance. Likewise, the Soil Health Partnership also involves several key partners, including the National Corn Growers Association, Monsanto, and as science advisors The Nature Conservancy. The Conservation Technology Information Center has conducted national surveys on cover crop use, supported by SARE, documenting yield benefits of cover crops and growing adoption of this practice. A number of other organizations have also been very active in the cover crops and soil health area, including many of the organizations co-signing this letter.

The numerous organizations and individuals involved in this effort are very hopeful that the momentum around cover crops and soil health can be maintained and even strengthened. We have the opportunity to go much further with adoption of cover crops and soil health practices. For example, in Maryland more than two-thirds of corn and soybean farmers now use cover crops. Nationwide, the 2012 Ag Census reported 10.3 million acres of cover crops, but that figure can and should increase considerably, perhaps reaching 20 million acres or more by 2020.

Implementation of these conservation practices is paying off for thousands of farmers and for our country, in the form of increased crop yields, better resilience to weather extremes, less soil erosion, improved nutrient management, greater carbon sequestration, and enhanced cropping system diversity. Ultimately, support and innovation from decision makers in both the public and private sector is needed to ensure that this great opportunity to transform American farming reaches its full potential, benefiting as many farmers, communities, and families as possible. To this end, **we recommend that USDA seek to broadly support cover crops and soil health, including through a comprehensive strategic plan with clear, outcome-based goals for research, education, extension, data collection, financial and technical assistance, credit, risk management, and other relevant policies and programs.**

*\* The National Working Group on Cover Crops and Soil Health held a roundtable discussion with representatives of a dozen national agriculture and conservation organizations in Washington, DC, on July 10, 2014. During the roundtable discussion there was strong interest in development of a joint statement on cover crops and soil health, leading to development of the above statement with input from many of these groups, for co-signature support by relevant organizations.*

**List of national organizations that have agreed to be listed as co-signers of the  
Common Vision Statement on Cover Crops and Soil Health (October 16th, 2014)**

Agriculture Retailers Association  
American Farm Bureau Federation  
American Farmland Trust  
American Grassfed Association  
American Seed Trade Association  
American Society of Agronomy  
American Soybean Association  
Audubon  
Case IH  
Conservation Technology Information Center  
Crop Science Society of America  
Dupont-Pioneer  
Environmental Defense Fund  
Farm Foundation  
Holistic Management International  
Howard G. Buffett Foundation  
Monsanto  
National Association of Conservation Districts  
National Association of State Conservation Agencies  
National Barley Growers Association  
National Bison Association  
National Center for Appropriate Technology  
National Corn Growers Association  
National Farmers Union  
National Milk Producers Federation  
National Sunflower Association  
National Sustainable Agriculture Coalition  
National Wheat Growers Association  
National Wildlife Federation  
Natural Resources Defense Council  
Rural and Agricultural Council of America  
Samuel Roberts Noble Foundation  
Society for Range Management  
Soil and Water Conservation Society  
Soil Science Society of America  
Syngenta  
The Nature Conservancy  
U.S. Canola Association  
U.S. Dry Bean Council  
U.S.A. Dry Pea and Lentil Council  
World Wildlife Fund  
25 x '25 Alliance