

State & Local Soil Health Strategies

Building Soil Health Policy from the Ground Up



Ray Weil, University of Maryland



The Izaak Walton League of America

The Izaak Walton League of America is one of America's oldest conservation organizations. Founded in 1922 by 54 anglers, the League has worked to conserve our nation's rivers, lakes, and wetlands for nearly a century. The League has over 210 local chapters and more than 40,000 members across the country.

The League has been at the forefront of successful efforts to protect critical areas, from the Upper Mississippi River Wildlife and Fish Refuge, Boundary Waters Canoe Area, and Jackson Hole National Monument, to Everglades National Park. The League's 1954 'Walton Soil Plan' presaged the 1956 Soil Bank Act, and the 1985 Conservation Reserve Program.

Today the League's Agriculture Program is focused on efforts to reduce the impact of crop and livestock production on America's water resources. That includes advocating for conservation programs and funding in the federal Farm Bill, and supporting state-level efforts to stem pollution from agricultural sources.

We educate policy-makers and others on the value of healthy soils for reducing soil erosion and polluted runoff, improving water quality, storing carbon in the soil, boosting farm profitability, and strengthening rural communities. To learn more about the Izaak Walton League of America, visit us at www.iwla.org.



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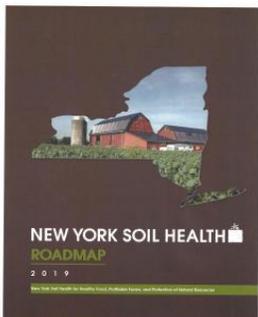
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Introduction

State and local governments are taking an increasing interest in promoting soil health, and it's no wonder. Regenerating healthy soil through practices that restore the balance of beneficial bacteria, fungi, and soil organic matter helps the soil hold substantially more water.

For example, a typical degraded Midwest soil with 1% organic matter may hold less than 1" of rain before becoming saturated, at which point additional rain runs off, carrying chemicals, sediment and manure into nearby streams. The same soil restored to 5% soil organic matter may hold 3.5" of rain before becoming saturated. Less runoff means less pollution in nearby streams and wetlands, and reduced downstream flooding.

Healthy soil requires fewer chemical nutrients and pesticides and provides more consistent yields. That contributes to financial health among farmers, which bolsters rural communities. Healthy soils secure and store large amounts of carbon, helping mitigate climate change while helping insulate farmers from the effects of a changing climate.

Increasingly, state and local policy-makers are exploring options to boost soil health, and that interest is reflected in a growing number of state and local policy initiatives related to soil health.

The purpose of this report is to highlight some of the themes of recent state policy initiatives related to soil health, and to identify specific examples of these proposals. Some have been enacted, some have been proposed, and others are still being contemplated.

We do not expect to catalog every state initiative related to soil health, let alone every local initiative. There are organizations that are working to track state initiatives.

In particular, the Soil Health Institute has captured many academic, state agency, and legislative soil health initiatives on its web site: <http://bit.ly/SHIcatalog>.

We do hope to inspire and inform state and local policy-makers with some of the many options to promote healthy soils, in hopes more will take a leadership role. We also provide specific examples they can draw from.

Healthy soils provide many benefits for the public and for farmers and ranchers. That makes it important for public officials at every level to learn much more about soil health and take action to adopt policies that help farmers and ranchers restore healthy soils.

State Soil Health Strategies

The multiple benefits provided by healthy soils – improved water quality, reduced soil erosion, financial and productivity gains for farmers, storage of carbon in the soil – justify the development of state-based strategies to promote healthy soils. That can be accomplished in several ways. A governor or state agency can initiate the development of a state strategy, as then-Governor Jerry Brown did in California in 2015.

Legislators can initiate the development of a state strategy, as they did in Nebraska in 2019. Institutions, including universities or private organizations, can collaborate to develop a state strategy, as Cornell University did in New York in 2019. At a county or local level, a conservation district, county board, watershed council, or private group could initiate a soil health strategy.

A proposal to develop a soil health strategy provides an opportunity to educate policy-makers and the public about the benefits of healthy soils, and to raise the profile of the issues. It should also be useful in gathering

input to guide the strategy, bringing together appropriate state-specific research, and obtaining buy-in from agricultural groups and other constituencies. If the effort succeeds in creating a state strategy, that could provide momentum to leverage existing funds or provide new funding to implement the strategy.

California Healthy Soils Initiative was launched by then-Governor Jerry Brown in his 2015 inaugural address, and was recognized and funded by the legislature in 2016 with enactment of Senate Bill 859. The initiative includes 7 state agencies addressing different aspects of healthy soils on the state's public lands, private farms and ranches, and in programs ranging from composting and water management to carbon storage for greenhouse gas mitigation. The California initiative is a comprehensive approach to implementing a soil health strategy. See: <http://bit.ly/CAinitiative>

New York Soil Health Roadmap (2019) "identifies key policy, research and education efforts to overcome barriers to adoption of soil health practices by farmers." The Roadmap was developed by New York Soil Health, an initiative coordinated by Cornell University. The *Roadmap* also "identifies strategies for integrating soil health goals with state priorities focused on environmental issues such as climate change and water quality."

Find the *Roadmap* at: <http://bit.ly/NYsoilhealth>

Hawaii Carbon Farming Task Force. In 2017, Hawaii enacted HB 1578, which created a Carbon Farming Task Force to identify agriculture or aquaculture activities and best practices that provide soil health and carbon sequestration benefits and could be used to establish a carbon farming certification. The 13-member Task Force is to make recommendations to the legislature including proposed legislation. The Task Force has until December, 2022, to provide a preliminary report to the legislature. See: <http://bit.ly/HItaskforce>

Nebraska Healthy Soils Task Force. Legislative Bill 243 (2019) was enacted to create a Healthy Soils Task Force appointed by the Governor to "develop a comprehensive healthy soils initiative for the State of Nebraska," develop a comprehensive action plan to carry out the initiative, and develop a timeline to improve soil health in Nebras-



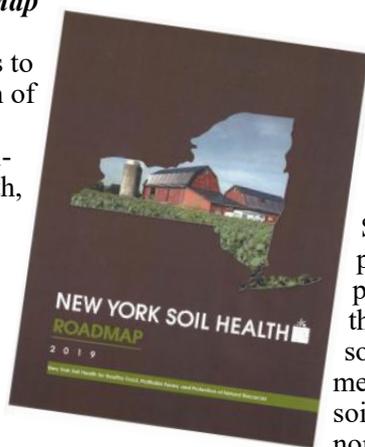
ka within five years of the completion of the action plan. The legislation gives the Task Force until January, 2021 to complete its work. The new law includes components of the action plan, including consideration of outreach and financial incentives needed. The bill passed on a 43-0 vote in April, 2019. <http://bit.ly/NEtaskforce>

Promote Agency Leadership

State agencies often have broad authority to create programs that address agriculture and environmental problems, and sometimes they have funding to pursue them. State departments of agriculture, natural resources, environmental quality, or economic development may already have general authority to promote soil health based on the broad environmental and economic benefits that result, and they should use it. Adding specific language to a state agency's authorizing statutes can clarify that authority, prod the agency to take action, and provide an opportunity to educate state lawmakers and agency staff.

Creating a soil health program or initiative at an agency can provide an opportunity to appropriate funds for the specific purpose. Even without a specific appropriation of funds, giving an agency authority to implement a healthy soils program can allow the agency to utilize other available funds, or to seek grants or other funding, to support program initiatives.

This approach will likely work best where it is done with the active support and participation of the agency involved, since the enthusiasm of department leadership can be critical to the success of any initiative. Providing a structure that includes advice from knowledgeable farmers and soil health experts can ensure the results are useful for farmers and ranchers, and are based on the most recent research and on-farm experience.



Maryland Healthy Soils Program. Maryland House Bill 1063 was enacted in 2017, establishing the Maryland Healthy Soils Program to increase biological activity and carbon sequestration in the state’s soils by promoting practices based on emerging soil science. It requires the Maryland Department of Agriculture (MDA) to provide farmers with education, technical assistance and, subject to available funding, financial incentives to implement farm management practices that contribute to healthy soils. The bill did not include additional funding, but the Department has implemented the new law with existing resources, building on the Department’s support of Maryland’s soil conservation districts. The Department collaborated with the Healthy Soils Consortium to identify practices that are most effective in improving soil health and building soil carbon stocks. MDA will create a menu of Maryland-specific practices, determine metrics and tools to quantify soil carbon, and provide incentives to encourage climate friendly soil practices. The Department is also examining existing programs to find ways to promote soil health co-benefits. The bill was passed by overwhelming votes in the Senate and House of Delegates. See: <http://bit.ly/MDhealthysoils>



New Mexico Healthy Soil Initiative
 A community collective & state-level program supporting farmers and ranchers in the quest to improve soil health
[Learn more](#)



New Mexico Healthy Soil Program. New Mexico HB 204, enacted in 2019, creates the Healthy Soil Program in the state Department of Agriculture “to promote and support farming and ranching systems and other forms of land management that increase soil organic matter, aggregate stability, microbiology and water retention to improve the health, yield and profitability of the soils of the state.” The new program includes a healthy soil assessment and education program, and a grants program. The assessment and education program provides for education and outreach to farmers, a baseline soil health assessment, development of a network of soil health champions, and public education. Grants may help cooperative extension,

soil and water conservation districts, Tribal, Pueblo, and local governments provide technical assistance to producers and landowners. The legislature provided \$375,000 to implement the bill and for research on soil health monitoring. See: <http://bit.ly/NMhealthysoil>

Connecticut Regenerative Agriculture Program. Connecticut Committee Bill 6647 (2019) would require the Commissioner of Agriculture to establish a regenerative agriculture program, adopt rules to define “regenerative agriculture,” and provide state standards for minimum carbon and water content that would apply to grants awarded by the Commissioner to encourage regenerative agriculture. As of April, 2019, the bill remained in committee. See <http://bit.ly/CTagriculture>

Massachusetts Healthy Soils Program. Massachusetts bill S.438 (2019) would establish a healthy soils program that would optimize climate benefits by providing loans, grants, research, technical assistance, educational material, and outreach to farmers whose management practices will contribute to healthy soils and result in net long-term on-farm greenhouse gas benefits. The



John Kelley, USDA NRCS

bill would establish a Massachusetts Healthy Soils Program Fund, and provide funding for the program. The bill would also incorporate soil health concepts into several other sections of statute, and includes definitions for “healthy soils” and “healthy soils practices”. As of April, 2019, the bill remained in committee.

<http://bit.ly/MAhealthysouls>

Iowa Soil Health Monitoring. Iowa HF 102 (2019) would establish a statewide soil resource health and recovery monitoring system to collect data on soil health parameters like nutrient retention capacity, structure, stability, erosion, water retention, and habitat for earthworms and soil microbes. The system would be housed in the state Department of Agriculture and Land Stewardship, in cooperation with Iowa State University. The Department and University would submit a report to the legislature every two years on the state of Iowa’s soils, including recommendations to sustain and improve soil resources and proposed legislation or rules changes. As of April, 2019, the bill remained in committee.

<http://bit.ly/IAMonitoring>

Provide Practice Incentives

A number of states provide support for farmers who adopt targeted conservation practices, including buffer strips and cover crops. Many of the programs fund a share of the cost of implementing the practice, typically on a reimbursable basis once the practice has been installed. These programs are most effective where they involve farmers in designing the program, and where financial incentives are paired with technical assistance to ensure the best chance of successfully implementing the practices. Requiring (and providing financial support

for) annual soil testing for soil organic matter and other key soil health metrics can ensure that farmers track and see the changes in soil health that result from the practices.

Research and on-farm experience are showing that soil regeneration comes fastest when multiple conservation farming practices are combined, including no till, multi-species cover crops, diverse rotations, integrated pest management, and incorporating livestock in rotational grazing strategies. That argues for structuring incentives to promote the adoption of multiple soil health practices. In addition to the traditional cost-share approach, states are experimenting with new ways to structure incentives.

Maryland Agricultural Water Quality Cost-Share Program provides grants to farmers to offset seed, labor, and equipment costs associated with conservation practices, especially planting cover crops. Cost-share rates vary from year to year, but in recent years farmers have received up to \$75 an acre to plant cover crops. Participating farmers can also receive attractive field signs to help educate the public on ways agriculture is protecting the Chesapeake Bay. The program is a major factor in cover crops being planted on more than half of eligible Maryland cropland, rates higher than any other state. Funding is provided by the Chesapeake Bay Restoration Fund and the Chesapeake and Atlantic Coastal Bays Trust Fund. Maryland provided \$34 million in cost-share grants to farmers in FY 2017. <http://bit.ly/MDcostshare>

Iowa Cover Crop Cost Share. The Iowa Department of Agriculture and Land Stewardship provides cost-share for farmers who adopt no-till, strip till, nitrogen inhibitor, or cover crop practices. \$3.8 million in funding from the Iowa Water Quality Initiative was provided in fiscal year 2017, but demand for the cost-share far exceeds available funding. Farmers can receive \$25 per acre for first-time users of cover crops, or \$15 per acre for returning users. <http://bit.ly/IAcostshare>

Iowa Crop Insurance Discount. In November, 2017, the Iowa Department of Agriculture and Land Stewardship (IDALS) announced a new \$5 per acre discount on crop insurance for farmers who plant cover crops. The discount was championed by Bill Northey, then Iowa’s Commissioner of Agriculture (and currently USDA Undersecretary for Farm Production and Conservation.) IDALS worked with the U.S. Department of Agriculture Risk Management Agency to establish a



Ron Nichols, NRCS



3-year demonstration project aimed at expanding the use of cover crops in Iowa. Through the project, IDALS funds the \$5 per acre discount on federal crop insurance for farmers who plant cover crops. Funds come from the Iowa Water Quality Initiative. The discount is provided through the crop insurance companies that service federally subsidized crop insurance policies in Iowa. It is



not available to farmers who are receiving cost-share for planting cover crops through the USDA suite of conservation programs or Iowa's own state cost-share program. The discount (or lack of one) shows up on a line of the crop insurance invoice that farmers pay, which has helped stimulate interest in cover crops from farmers who view the invoice and see there is a discount they are not getting. IDALS reports that 700 farmers enrolled nearly 170,000 acres of cover crops in the program in the first year of the demonstration project. <http://bit.ly/IAdiscount>

Cover Crop Payments. Nebraska LB 729 (2019) would provide incentives for farmers to plant cover crops of \$20 per acre for single-species cover crops, or \$45 per acre for multi-species cover crops. The funds would be made available in target watersheds, focusing first on watersheds with high nitrate runoff, and for farms within 2.5 miles of a waterway. The bill does not provide a specific funding source, but identifies federal, state, and local grants and other funds designated for the purpose. As of April, 2019, the bill remained in committee. <http://bit.ly/NEpayments>

Fund Soil Health Programs

Providing technical assistance, outreach, incentives, and research all cost money. States can and do use general tax revenue to provide for soil health programs, but they have also considered other sources of revenue. Some local conservation districts have taxing authority, but most must rely on state appropriations, grants, and other revenue.

States implementing strategies to address climate change might use fees collected for carbon emission permits to provide funding for practices that store carbon in the soil. Some states dealing with water pollution problems from agricultural sources have imposed fees on commercial fertilizer or pesticide sales to provide funding for conservation practices that will address the problems. Here are some examples of alternative funding strategies.

Greenhouse Gas Proceeds. Nine states participate in the Regional Greenhouse Gas Initiative (RGGI), a cap and invest program for electric utility greenhouse gas emissions in the northeast and mid-Atlantic. Most of the permits needed by electric utilities for power plant emissions are sold at auction on a regional basis, and the proceeds are returned to each state. States have flexibility in use of the funds, but the vast majority of the proceeds have funded energy efficiency and renewable energy programs designed to reduce emissions, and programs that benefit energy consumers. Many of these same states are now negotiating a Transportation and Climate Initiative (TCI), which would provide a regional approach to reducing greenhouse gas emissions from the transportation sector. Soil health practices store carbon in the soil in the form of soil organic matter, so soil health programs could be a natural use of RGGI or TCI proceeds at the state level.



Jeremy Singer, USDA ARS



Fertilizer and Pesticide Fees. Wisconsin has a fertilizer tonnage fee charged for commercial fertilizers, currently 62¢ per ton. The proceeds support agrichemical management, fertilizer research, outreach, nutrient and pest management, and agricultural chemical cleanup. Iowa created a Groundwater Protection Fund in 1987 which receives money from pesticide dealer license fees, pesticide registration fees, and a fee for fertilizer sales based on the percentage of nitrogen in the product, using 75¢ per ton of 82% nitrogen fertilizer as the base. Nebraska has a state buffer strip program funded by proceeds from fees assessed on registered pesticides.

Property Tax Exemption. Iowa House Study Bill 78 (2019) would provide a 50% property tax exemption for cropland planted to cover crops. The exemption would be applied on an annual basis to the cropland planted to cover crops that year, and landowners could apply for the exemption every year. The Department of Agriculture and Land Stewardship would have authority to inspect property to ensure compliance with the law. In Iowa, property taxes fund schools and other local government entities. The bill remained in committee as of April, 2019. See <http://bit.ly/IApropertytax>



Gary Wilson, NRCS

Soil Health on Public Lands

State and local governments own and manage nearly 200 million of acres of land. Some, including state school land that was reserved for the benefit of public schools when states were established, are held by public agencies primarily to produce income and are rented out to farmers and ranchers. Others, such as wildlife management areas, parks, and green space, serve multiple purposes but part or all of the land may be rented to farmers or ranchers. Other lands include highway and road rights of way and land held for agricultural research or other purposes.

State and local governments and the taxpayers that support them have a strong interest in managing these public lands in ways that maximize public benefits and increase the value of the land. Soil health practices can reduce polluted runoff, store carbon, provide wildlife habitat, reduce erosion, and build resilient soils. Long term, regenerating healthy soils should also make the land more valuable and easier to maintain, because healthier soils require fewer inputs of nutrients and are more resistant to weeds, pests, and drought.

State and local agencies should incorporate soil health into land management plans for parks, wildlife management areas, forests, rights-of-way, and landscaped areas. Public agencies that own and manage land that is leased out for farm and ranch purposes can establish rules, preferences, and incentives for the use of soil health practices on the land they control. In addition to providing soil health benefits to the public, they can serve as demonstration sites to teach farmers, ranchers, landowners and others about the benefits of soil health practices.



California Healthy Soils Initiative. Through this initiative (see page 2), California’s Department of General Services is committed to improving soil health by demonstrating best practices in building soil organic matter in urban landscaping on state land, including the park grounds surrounding the State Capitol in Sacramento.

State Land Rented for Agricultural Purposes. Illinois HB 2819 (2019) was introduced to allow the Illinois Department of Natural Resources to require the establishment of soil health practices on state-owned land used for agricultural purposes. A synopsis and text of the proposed legislation are at: <http://bit.ly/ILlandrent>

Update Conservation District Laws

The U.S. has nearly 3,000 conservation districts that work directly with farmers, ranchers, and other landowners to conserve soil, water, woodlands, and wildlife. They are organized under state law, typically cover a single county, and go by a variety of names (soil & water conservation district, soil conservation district, natural resource district, land conservation department, etc.). Conservation Districts can provide vital ‘boots on the ground’ to help farmers understand and adopt practices that rebuild healthy soils.

Many conservation districts trace their origin to a 1936 U.S. Department of Agriculture publication, *A Standard State Soil Conservation Districts Law*, and to a plea from President Franklin Roosevelt in 1937 to every governor asking states to pass legislation enabling local landowners to form soil conservation districts. President Roosevelt saw local conservation districts as a way to help farmers adopt soil conservation practices. The need to change farming practices was highlighted by the drought of the 1930’s and huge dust storms that swept soil from the Great Plains as far as New York and Washington, DC.

Those state laws have evolved, and in many states conservation districts have responsibilities that extend beyond soil erosion. Soil health strategies can deliver reduced soil erosion, so conservation districts should already have authority to promote healthy soil practices. Yet most state statutes governing conservation districts have not been updated to include the term “soil health” or to reflect the growing body of soil health science.

Legislation to update state law to include “soil health” as an authorized purpose or responsibility of a state’s conservation districts can serve as a tool to educate legislators, elected conservation district supervisors, district staff, and others about the benefits and practice of soil health. If enacted, legislation can clarify the authority of districts and give local advocates a ‘hook’ to enlist conservation districts in support of soil health initiatives.

Conservation District Authority. Illinois Senate Bill 1980 (2019) would amend the state’s Soil and Water Conservation Districts Act to add “soil health” to the declared purpose of the state’s 97 soil and water conservation districts. It includes a definition of “soil health”, and would allow districts to initiate and conduct soil health activities. Those powers include surveys, investigations, research, development of comprehensive plans, entering into agreements with other entities, and making machinery and equipment available to landowners or farmers within the district. As of April, 2019, the legislation had passed the state Senate on a 56-0 vote and was pending in the House of Representatives. <http://bit.ly/ILdistrict>



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Sponsor Local Initiatives

A growing number of local conservation districts are taking the initiative to promote soil health. As conservation district board members and staff gain an appreciation for the benefits of healthy soils, they are working to educate local farmers and provide support for soil health initiatives. Here are a few of many examples.

Illinois STAR. The Champaign County, Illinois, Soil and Water Conservation District created *Saving Tomorrow's Agriculture Resources* (STAR) as a free tool to help farmers and landowners assess their nutrient and soil loss practices at a field level. The STAR evaluation assigns points for each nutrient management, cropping, tillage, and soil conservation activity on each field. Each field earns one to five stars based on the points awarded, allowing farmers to see how their conservation system compares to other farmers and to best management practices. The District gives farmers and landowners a menu of strategies they can use to boost their STAR rating. Soil and water conservation districts in other Illinois counties and other states are adapting the STAR tool to their soils and circumstances. <http://bit.ly/ILstar>

Connecticut RC&D Soil Health Initiative. The Connecticut Resource Conservation & Development District has a long-running series of workshops on soil health, in partnership with the USDA Natural Resources Conservation Service. Held twice a year, the workshops include hands-on demonstrations, a soil pit, and a rainfall simulator. Conservation districts in other states host similar soil health workshops, featuring soil health experts, presentations from farmers, and tours of working farms using soil health practices. See more at: <http://bit.ly/CTinitiative>

South Jersey RC&D Roller Crimper. South Jersey Resource Conservation & Development Council serving southern New Jersey acquired a roller-crimper which it loans out to area farmers who want to try it out as a method of terminating cover crops. Cover crops have typically been terminated using chemicals such as glyphosate, but that poses a problem for organic growers and substantial costs for other growers. Roller-crimpers, invented by the Rodale Institute (below), can be used as an alternative to (or in addition to) chemical burn-down. Agencies, organizations, or cooperatives could acquire and rent out or loan roller-crimpers to farmers to encourage the use of cover crops, as many have done with seed drills to encourage adoption of no-till farming. <http://bit.ly/CTinitiative>



State and Local Action

The urgency of the problems that we face -- water pollution, climate change, soil loss and degradation, and our capacity to feed future generations -- makes it vital that we use every tool available at the federal, state, and local level to put in place strategies to regenerate healthy soils. A growing number of state and local leaders are finding creative ways to promote healthy soils, delivering conservation benefits for their community and economic benefits for farmers.

As state and local entities develop soil health initiatives, they should look for opportunities to leverage federal funds such as Farm Bill conservation programs or Environmental Protection Agency Section 319 funds. For more information on national, state and local strategies to rebuild healthy soils, visit www.iwla.org/agriculture, <http://SoilHealthInstitute.org>, or contact:

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