

This document has been prepared as part of the implementation project of Legal Pathways to Deep Decarbonization (Michael B. Gerrard and John C. Dernbach, eds. Environmental Law Institute [2019]) (LPDD). For background information on the project, see <https://lpdd.org>

AN ACT RELATING TO [AGRICULTURE]; CREATING THE HEALTHY SOIL PROGRAM.

BE IT ENACTED BY THE LEGISLATURE OF [STATE]:

SECTION 1. SHORT TITLE.

This act may be cited as the “Healthy Soil Act”.

SECTION 2. LEGISLATIVE FINDINGS AND DECLARATION.

- A. It is the purpose of this Act to facilitate the use of agricultural management practices to reduce emissions of nitrous oxide, a potent greenhouse gas.
- B. The legislature finds that emissions of nitrous oxide amount to approximately 5 percent of total U.S. greenhouse gas emissions annually, and that agricultural soil management accounts for nearly 75 percent of annual U.S. nitrous oxide emissions.
- C. The legislature finds that certain agricultural management practices have been shown to reduce nitrous oxide emissions when implemented appropriately and consistently.
- D. The legislature finds that changes in agricultural management practices can have a diverse array of impacts, and owners and operators should not fall out of compliance with other state and federal nitrogen management rules when implementing agricultural techniques in accordance with this Act.
- E. The legislature finds and declares that developing educational programs and financial incentives in accordance with this Act will encourage farmers to implement changes to reduce nitrous oxide emissions associated with agricultural production.

SECTION 3. DEFINITIONS.

As used in the Healthy Soil Act:

- A. “advisory group” means the healthy soil advisory group created in this Act;

- B. “champion” means a land manager that is declared a soil health champion due to the land manager’s excellence in applying and promoting soil health principles;¹
- C. “department” means the [state department of agriculture];²
- D. “district” means a soil [and water] conservation district created pursuant to the [state soil and water conservation district laws];
- E. “eligible entity” means a local governmental entity with proven land management capacity to support healthy soil and includes an Indian nation, tribe or pueblo, a land grant or an acequia;
- F. “fund” means the health soil program fund established under this Act;
- G. “greenhouse gas benefits” means greenhouse gas emissions source reduction [or carbon sequestration];³
- H. “healthy soil” means soil that enhances its continuing capacity to function as a biological system, increases its organic matter and carbon content and improves its structure and water- and nutrient-holding capacity, resulting in net, long-term greenhouse gas benefits;
- I. “incentives” means the grant program, loan program, certification program, and other similar program implemented by the healthy soil program;
- J. “land” means farm land within the state subject to this division as identified by the department by rule.
- K. “on-farm demonstration projects” means projects that incorporate farm management practices that result in greenhouse gas benefits across all farming types with the intent to establish or promote healthy soils;
- L. “program” means the healthy soil program created in this Act;
- M. “soil health principle” means a principle that promotes soil health and includes:

¹ As modeled by the Soil Health Champions Network of the National Association of Conservation Districts. *See* <https://www.nacdnet.org/get-involved/soil-health-champions-network/>.

² States have typically sought to establish a healthy soil program under the purview of the state’s department of agriculture. States may also choose to involve other departments, commissions, or agencies overseeing environmental protection, natural resources, soil and water conservation, etc.

³ While the primary purpose of this document is to establish management standards for the reduction of nitrous oxide through healthy soil programs, states often cite carbon sequestration as another goal of healthy soil programs.

1. using the right source of fertilizer at the right rate, time, and place;
 2. keeping soil covered;
 3. minimizing soil disturbance on cropland and minimizing external inputs;
 4. maximizing biodiversity;
 5. maintaining a living root; or
 6. integrating animals into land management, including grazing animals, birds, beneficial insects or keystone species, such as earthworms;
- N. “secretary” means the secretary of the [state department of agriculture];
- O. “supported method” means a method that is based upon soil health principles and is scientifically supported to promote healthy soil and includes:⁴
1. planting cover crops, perennials, hedgerows, native grasses and other native vegetation;
 2. multi-cropping;
 3. adopting no-till or conservation tillage;
 4. supplying nutrients in plant-available forms;⁵
 5. band placement of fertilizer;⁶
 6. integrated crop livestock systems;
 7. mulching;
 8. compost application;
 9. soil microbial stimulation and inoculation;

⁴ This lists some of the general “4R” best practices, but not all, as most 4R best practices are site specific.

⁵ International Fertilizer Industry Association (IFA), The Global “4R” Nutrient Stewardship Framework, at [http://www.ipni.net/ipniweb/portal/4r.nsf/0/BAB4157B488871A385257DF100739D94/\\$FILE/The%20Global%204R%20Nutrient%20Stewardship%20Framework.pdf](http://www.ipni.net/ipniweb/portal/4r.nsf/0/BAB4157B488871A385257DF100739D94/$FILE/The%20Global%204R%20Nutrient%20Stewardship%20Framework.pdf).

⁶ *Id.* Roots of annual crops explore soil progressively over the season. Placement needs to ensure nutrients are intercepted as needed. An example is the band placement of phosphate fertilizer for maize, ensuring sufficient nutrition of the young seedling, increasing yields substantially even though amounts applied and taken up are small.

10. targeted irrigation, such as use of subsurface drip or micro-sprinklers;⁷
 11. on-site wetland and riparian restoration;
 12. applying enhanced efficiency fertilizers such as controlled-release fertilizers and nitrification inhibitors; or
 13. other methods based upon soil health principles and scientifically supported to promote healthy soil as determined by the department.
- P. “technical assistance” means assistance provided to a farmer to achieve the purpose of the Healthy Soil Act and includes outreach, education, financial assistance or assistance with project planning, project design, grant applications, project implementation or project reporting;
- Q. “technical assistance provider” means a local, state, federal, tribal, educational, nonprofit or nongovernmental entity with demonstrated technical expertise in designing and implementing agricultural management practices that contribute to healthy soils and includes a district, the [state university], the United States Natural Resources Conservation Service, the United States Forest Service, the United States Bureau of Land Management, the [state land office], the [state natural resources department] or the [state forestry division]; and
- R. “university board” means the board of [regents/trustees/governors] of [state university];⁸

SECTION 4. HEALTHY SOIL PROGRAM.

- A. The “healthy soil program” is created in the department. The department shall administer the program.
- B. The purpose of the program is to promote and support farming systems and other forms of land management that increase soil organic matter, carbon content, aggregate stability, microbiology and water retention to improve the health, yield and profitability of the soils of the state and result in net on-farm greenhouse gas benefits, including a reduction in nitrous oxide emissions.
- C. The department shall implement the program and may provide assistance and incentives such as, but not limited to, research, technical assistance, educational

⁷ Univ. of Ca. Sustainable Ag. Research & Educ. Program, https://ucanr.edu/sites/Nutrient_Management_Solutions/Nitrous_Oxide_and_California_Agriculture/. Targeted irrigation strategies, such as subsurface drip and micro-sprinkler systems, can reduce N₂O emissions as compared to flood or furrow irrigation.

⁸ States may choose to involve local universities in administering the healthy soil program.

materials and outreach, on-farm demonstration projects, loans, grants, and certifications, which further the goals of the program.

- D. The department shall collaborate with, and encourage collaboration among, producers, land managers, landowners, state and federal agencies, technical assistance providers, relevant district and municipal stakeholders, and academic and research institutions, in administering the program.
- E. The department shall conduct outreach to producers and land managers to promote the program and other federal, state or local grant opportunities that support and promote healthy soils.
- F. The department shall quantify greenhouse gas emissions reductions in accordance with the quantification methods determined by the advisory board.⁹
- G. The department may adopt rules to carry out the Healthy Soil Act, including rules to modify the list of supported methods.

SECTION 5. HEALTHY SOIL ADVISORY GROUP.¹⁰

- A. The department shall convene a healthy soil advisory group to advise and assist with the effective implementation of the program.
- B. Activities of the advisory group shall include the following:¹¹
 - 1. Research, review, and comment on data on the impact that agriculture has on the environment, and data upon which proposed policies and regulatory programs are based to ensure that environmental impacts of agricultural activities are accurately portrayed.
 - 2. Identify incentives that may be provided to encourage agricultural practices environmental benefits.
 - 3. Recommend to the secretary and appropriate state agencies based on the data analyzed pursuant to paragraph (1) and incentives identified pursuant to paragraph (2) the practices and policies to advance the goals of this Act.

⁹ California refers to greenhouse gas emissions reduction quantification methods designated by its State Air Resources Board. *See* California Food and Agricultural Code, Section 569(b), https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB859.

¹⁰ Other names for this advisory group may include panel, committee, task force, and board.

¹¹ Activities of the advisory group may be specified in the statute. *See* California Food and Agricultural Code, Section 568(a), https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB859.

4. Assist government agencies to incorporate policies and practices into regulatory programs.
 5. Periodically review and, as appropriate, propose recommended updates to the list of supported methods for regulatory adoption by the department.
 6. Review proposed supported methods submitted by members of the public including farmer organizations, the fertilizer industry, and environmental nongovernmental organizations.
- C. The advisory group shall consist of [five] members, each having a term of [three] years, as appointed by [the secretary].¹²
 - D. Members of the advisory group shall be qualified and knowledgeable regarding healthy soils and may include soil health specialists, climate change specialists, environmental scientists, producers, or champions or representatives of nongovernmental organizations.
 - E. The advisory group may establish ad hoc committees, which may include professionals, scientists, or representatives of nongovernmental entities, to assist it in performing its functions.
 - F. Members of the advisory group shall serve without compensation, but are entitled to receive reimbursements for reasonable expenses necessary for the performance of their duties, including per diem and mileage for travel expenses.¹³

SECTION 6. ASSESSMENT AND EDUCATION PROGRAM.¹⁴

- A. The program shall implement a healthy soil assessment and education program.
- B. In administering the healthy soil assessment and education program, the department shall:
 1. work through districts, technical assistance providers or eligible entities to:
 - a) encourage farmers and land managers to undertake voluntary soil health measurements;

¹² States choosing to have more than one department overseeing the program would likely share the appointment authority among the various departments. Staggered terms may be specified in the statute. *See* California Food and Agricultural Code, Section 568(b), https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB859.

¹³ *See* Hawaii H.B. No. 1578 at https://www.capitol.hawaii.gov/session2017/bills/HB1578_CD1_.htm.

¹⁴ *See* State of New Mexico, 54th Legislature, First Session, 2019, House Bill 204, §4, at <https://www.nmlegis.gov/Sessions/19%20Regular/bills/house/HB0204.pdf>

- b) raise awareness about desirable soil health characteristics;
 - c) facilitate on-site, producer-led workshops and training sessions to promote and engender soil health stewardship; and
 - d) complete a baseline soil health assessment by testing the carbon content, water infiltration rate, microbiology and aggregate stability of soils, in addition to monitoring soil cover or bare ground percentage;
2. establish a statewide network of champions to promote soil health stewardship, offer guidance to producers and land managers and encourage teamwork;
 3. create a program to provide ongoing training in soil health stewardship and workshop facilitation for champions, districts and eligible entities;
 4. in collaboration with technical assistance providers, sponsor soil health workshops and training sessions at research centers and learning sites throughout the state; and
 5. educate students and the general public about the importance of soil health stewardship.

SECTION 7. GRANT PROGRAM.¹⁵

- A. The program shall implement a healthy soil grant program.
- B. Under the grant program, the department shall award grants to districts and eligible entities to provide technical assistance to farmers, producers and land managers in advancing soil health principles and implementing supported methods that result in net on-farm greenhouse gas benefits.
- C. In administering the grant program, the department shall:
 1. develop a user-friendly grant program application and application and reporting processes;
 2. develop criteria for the award of grants; and
 3. ensure that grant funds are only used to advance soil health and soil health stewardship.

¹⁵ See State of New Mexico, 54th Legislature, First Session, 2019, House Bill 204, §4, at <https://www.nmlegis.gov/Sessions/19%20Regular/bills/house/HB0204.pdf>

- D. In awarding a grant under the grant program, the department shall consider the following:
 - 1. the amount of greenhouse gas emissions reductions that may result from the project, seeking to maximize the total reduction in greenhouse gas emissions per dollar awarded; and
 - 2. project readiness and any permitting that the proposed project may require.

SECTION 8. LOAN PROGRAM.¹⁶

- A. The program shall implement a healthy soil loan program.
- B. Under the loan program, the department shall provide loans to farmers, producers and land managers advancing health principles and implementing supported methods that result in net on-farm greenhouse gas benefits.
- C. In administering the loan program, the department shall:
 - 1. develop a user-friendly loan program application and application and reporting processes;
 - 2. enter into a loan agreement and related documents between the borrower and department specifying the terms and conditions of an approved loan;
 - 3. develop criteria for the approval of loans;
 - 4. establish additional requirements that it determines to be necessary or useful to achieve the revolving loan program's objectives, including, but not limited to, ensuring repayment ability; and
 - 5. ensure that loans are only used to advance soil health and soil health stewardship.
- D. In approving a loan under the loan program, the department shall consider the following:
 - 1. the amount of greenhouse gas emissions reductions that may result from the project; and
 - 2. the applicant's ability to repay the loan, approving only those loan applicants that have demonstrated repayment ability.

¹⁶ See California Public Resources Code §42997.
https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB859.

SECTION 9. CERTIFICATION PROGRAM.¹⁷

- A. The program shall implement a healthy soil certification program.
- B. The department shall certify land as having healthy soil if an applicant for certification demonstrates one of the following eligibility criteria over a three-year period:
 - 1. topsoil on the applicant’s land increased in each successive year;
 - 2. the applicant’s soil management methods are reducing greenhouse gas emissions in each successive year; or
 - 3. soil on the applicant’s land contains an increasing percentage of organic material in each successive year.
- C. The department shall conduct over a three-year period the following tests on the land of an applicant for certification under this section:
 - 1. a total soil carbon test;
 - 2. nitrogen tests at three soil levels from an amalgamation of eight sample points within a specified plot of land;
 - 3. a test for the presence or absence of inorganic carbon;
 - 4. a test of soil for water infiltration times;
 - 5. a test for bulk soil density;
 - 6. a test for the percentage of bare ground cover within a specified plot of land; and
 - 7. a test for diversity of ground cover within a specified plot of land.
- D. Upon determination by the department that an applicant demonstrated compliance with one or more of the eligibility criteria of this section over a three-year period, the department shall certify the applicant’s land as [healthy soil].¹⁸ Upon certification, the department shall authorize the applicant to use the seal of the [state] Healthy Soils Program in the marketing and sale of products produced on the land certified as [healthy soil].

¹⁷ See Vermont S.43, at <https://legislature.vermont.gov/Documents/2018/Docs/BILLS/S-0043/S-0043%20As%20Introduced.pdf>

¹⁸ Vermont’s certification is for “regenerative” land. See Vermont S.43 at <https://legislature.vermont.gov/Documents/2018/Docs/BILLS/S-0043/S-0043%20As%20Introduced.pdf>

- E. An applicant for certification under this section shall pay to the department a fee of \$[500.00] for each year that the department conducts the standard testing required under this section. The secretary shall deposit fees collected under this subsection in the healthy soil program fund.
- F. Land certified under this section shall remain certified until:
 - 1. the tested land no longer meets at least one of the eligibility criteria of this section twice in any three-year period; or
 - 2. the participant chooses to withdraw from the certification program.

SECTION 10. VERIFICATION AND REPORT.¹⁹

- A. The department shall maintain a public list of all incentive recipients, and other pertinent information, including total state dollars spent or borrowed, and total greenhouse gas emissions reductions impact.²⁰
- B. The department shall require that all incentive recipients allow information about their projects to be made available to the public, and allow the department access to the property, with reasonable notice, to monitor the impacts of the project.
- C. The department shall determine methods in consultation with the advisory group for estimating, measuring, and verifying outcomes under the program.
 - 1. Small commercial farm and field businesses shall be subject to lesser scrutiny regarding estimation, measurement, and verification.
 - 2. After the first year of the program, large commercial farm and field businesses shall be subject to greater scrutiny regarding estimation, measurement, and verification, which must include ongoing monitoring and recording of energy, fertilizer, pesticides, and soil sampling.
 - 3. The department shall consider how other models, including those used or created by federal agencies, can be combined with data from such sources as utility reports, equipment specifications, and other available data to determine emissions reduction benefits.
 - 4. The department shall also consider how technical assistance may be made available to small commercial farm and field businesses for the purpose of estimation, measurement, and verification.

¹⁹ State of Washington, H-1773.1, House Bill 2095, 66th Legislature, 2019 Regular Session, <http://lawfilesextra.wa.gov/biennium/2019-20/Pdf/Bills/House%20Bills/2095.pdf>

²⁰ *Id.*

- D. The department shall [biennially] report to the legislature on the performance of the program. The report shall document:²¹
1. the non-state funds that were used under the program,
 2. the total state funds spent on each incentive program, assessment and education program, and administration under the program;
 3. the total greenhouse gas emission reductions impact of all activities funded under the program to date and expected over the life of each project .

SECTION 11. GREENHOUSE GAS EMISSIONS INVENTORY.²²

- A. The [department of environmental quality/ conservation/ air pollution division/ air pollution control board]²³ shall perform the following:
1. No later than [December 30, 2021], complete a standardized greenhouse gas emissions inventory for natural and working lands.
 2. No later than [December 30, 2021], complete a standardized accounting framework for forests that supports statewide greenhouse gas emissions reduction goals, which shall include a statewide baseline projection of business-as-usual emissions and carbon sequestration and shall consider state, regional, and project scales of accounting based on forest type and other ecological indicators.

SECTION 12. [OPTIONAL] MANDATORY ELEMENTS AND ENFORCEMENT

- A. Owners and operators of land within the state subject to [the Healthy Soil Act/this division] shall, beginning [five years from the effective date], implement supported methods on the land. Compliance with this requirement shall be demonstrated on an annual basis under procedures established by the department. Owners and operators shall demonstrate compliance by either:
1. obtaining and maintaining certification for such land under Section 9 for the duration of the annual compliance period, or

²¹ *Id.*

²² California SB-859 Public Resources: greenhouse gas emissions and biomass (2015-2016), §8, at https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB859.

²³ California has designated its State Air Resources Board to perform the greenhouse gas emissions inventory. States should designate whichever agency or unit within an agency is otherwise responsible for and has the greatest expertise in compiling the state's greenhouse gas emissions inventory.

2. documenting complete and adequate application of supported methods during the annual compliance period under criteria established by the department.
- B. Within [180 days] of the date of enactment, the department shall promulgate regulations specifying the supported methods owners and operators of land can implement to comply with the law.
1. These regulations should be based on rigorous scientific support for reducing nitrous oxide emissions in consultation with the healthy soils advisory group. The healthy soils advisory group shall solicit and review input and recommendations from the public.
 2. The department shall also identify acceptable procedures for documenting and verifying appropriate application of supported methods for owners and operators not participating in the certification program.
- C. The department may enforce this section. A violation of the requirements of this section may be enjoined pursuant to [state injunction provision] and is subject to the penalties set forth in [state penalty provisions].
- D. Every day or any portion thereof on which a violation occurs is a separate offense.
- E. The department may, in consultation with the advisory group, establish any other rules, regulations, orders, measures, or compliance mechanisms under this Act, violation of which is subject to enforcement under this section.

SECTION 13. FUNDS.

- A. The healthy soil program fund is hereby established and shall be administered by the department.
- B. The fund shall consist of:
1. fees collected under this Act, including testing fees;
 2. other gifts, donations, and bequests, public or private, dedicated for deposit into the fund; and
 3. funds that may be appropriated by the legislature.
- C. Monies in the fund may be used for:²⁴

²⁴ The state may choose to earmark a specific portion of the fund for a specific activity, i.e. 20% of funds to be awarded in grants, 10% of funds to be spent on technical assistance, etc. *See, e.g.*, State of Washington, H-1773.1, House Bill 2095, 66th Legislature, 2019 Regular Session, at <http://lawfilesexternal.wa.gov/biennium/2019-20/Pdf/Bills/House%20Bills/2095.pdf>.

1. the assessment and education program;
2. incentive programs, including the grant program, loan program, and certification program;
3. greenhouse gas emissions inventory;
4. program promotion and outreach;
5. department staffing support;
6. capacity building for the districts and other eligible entities;
7. travel reimbursement and per diem; and
8. other expenditures as determined by the department to be necessary to support the overall effective administration of the program.

SECTION 14. APPROPRIATION.

- A. [_____ dollars (\$_____)] is appropriated from the general fund to the department to administer the healthy soil program pursuant to the Healthy Soil Act. Any unexpended or unencumbered balance remaining at the end of a fiscal year shall not revert to the general fund.