H.B. NO. ⁸⁹⁹ H.D. 1 S.D. 1

C.D. 1

A BILL FOR AN ACT

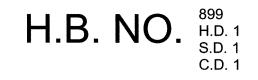
RELATING TO INTEGRATED STRATEGIES FOR STATEWIDE FOOD AND ENERGY CROP PRODUCTION.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

1 SECTION 1. The legislature finds that with growing 2 concerns over Hawaii's dependence on fossil fuels to satisfy its 3 agriculture and energy needs, it is increasingly in the State's 4 best interest to address these problems through integrated 5 strategies that are cost competitive. One solution to Hawaii's 6 dependence on fossil fuels for fertilizer and energy is the 7 utilization of charcoal produced locally from biomass as a 8 permanent soil additive.

9 The Hawaiian Islands, particularly the older islands such 10 as Kauai, have heavily-leached soils with very low nutrient 11 content and almost no potassium or phosphorus available for 12 potential uptake by vegetation or agricultural crops. 13 Agricultural crop yields for use as food and clean energy 14 feedstocks are strongly dependent on sufficient levels of 15 available nutrients for plant uptake. Thus, a major determinant of a successful and sustainable agricultural venture in Hawaii 16 will be achieving an adequate, sustainable fertilizer regime. 17

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1 The use of biomass-derived charcoal as a tropical soil 2 additive has been verified by modern science as a carbon 3 negative process and used for agricultural purposes since 4 ancient times by indigenous communities in other tropical 5 regions around the world. Activities like charcoal formation 6 are carbon negative in that carbon in the form of carbon dioxide 7 or methane gas (greenhouse gases) can be permanently sequestered 8 in the manufactured charcoal. This is significant because the 9 combustion of fossil fuels for activities like transportation 10 and electricity generation has led to unnaturally elevated 11 concentrations of carbon dioxide and other greenhouse gases 12 being released into the atmosphere. These gases persist in the 13 atmosphere, trapping warm air that would otherwise have 14 dispersed beyond the earth's atmosphere into space, 15 unfortunately causing human-induced global warming. Formal 16 economic models estimate that if we do not act now to counter 17 human-accelerated global warming, the negative cost to global ecosystems, society, and our economy will likely be substantial. 18 19 It is possible that through the production process of 20 biomass-derived charcoal for soil nutrient enhancement purposes, 21 positive net energy may be produced to satisfy community 22 electrical needs while at the same time reducing carbon dioxide HB899 CD1 HMS 2007-4166



levels in the atmosphere. This process has the potential to not 1 only assist in reducing Hawaii's dependence on petroleum-based 2 products, but also decrease the absolute quantities of 3 4 fertilizer that need to be applied to agricultural lands for 5 crop production. This suggests that runoff from agricultural lands may in turn contain lower levels of nutrients that in high 6 7 concentrations are known to have significant negative impacts on 8 freshwater and marine ecosystems. Additionally, large 9 quantities of carbon can potentially be sequestered through the 10 production of charcoal soil enhancements, thereby permanently sequestering carbon-based greenhouse gases being emitted into 11 the atmosphere and contributing to human-induced global warming. 12 13 Therefore, comprehensive agricultural management strategies 14 would not only lead to long-term economic stability of Hawaii's 15 agrarian-based industries, but also facilitate positive 16 stewardship of state lands by reducing levels of contaminated 17 sediments in statewide waterways and surrounding ocean waters, 18 as well as greenhouse gases building up in the atmosphere causing accelerated global warming. 19

20 Further, integrated agricultural management strategies
21 build partnerships between local communities and state and
22 federal agencies and strengthen the overall economy as well as
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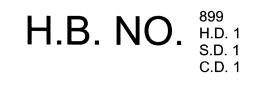
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1 statewide environmental protection efforts. State funds 2 appropriated for the research and development of a pilot project 3 and associated community outreach technologies have the 4 potential to obtain matching federal funds from existing 5 programs such as the Environmental Protection Agency, United 6 States Department of Agriculture, United States Department of 7 Energy, Farm Service Agency, and National Science Foundation. Investments from private industry may also be available due to 8 9 the economic viability of taking these newly-emerging 10 technologies quickly to market.

11 The purpose of this Act is to appropriate funds during 12 phase 1 to develop and demonstrate ecologically-sustainable 13 strategies to amend soil fertility for the production of clean 14 energy feedstocks and food crops and to create public engagement 15 mechanisms and tools to educate the public about sustainable 16 agriculture issues faced by the state and move towards 17 stakeholder consensus.

18 SECTION 2. During phase 1, scientists with the University 19 of Hawaii center for conservation research and training shall 20 conduct research and development, as well as monitor the 21 ecological impact of strategies being researched and tested. 22 This work shall identify and test charcoal additive strategies





1	consistent with integrated watershed management practices to
2	establish the best means to improve the nutrient levels in
3	soils, lessen the State's dependence on imported fossil fuels,
4	sequester carbon in the atmosphere, and mitigate existing
5	problems, such as nutrient flows into waterways.
6	The phase 1 integrated research of potential soil nutrients
7	enhancement strategies and mechanisms conducted by stakeholders
8	shall include but not be limited to:
9	(1) Physical, chemical, and biological soil
10	characteristics;
11	(2) Carbon sequestration in relation to global warming;
12	(3) Software and web-based stakeholder engagement tools;
13	(4) Existing and future agricultural land uses;
14	(5) Relevant community organizations and functions; and
15	(6) Relevant state and federal institutional functions.
16	SECTION 3. There is appropriated out of the general
17	revenues of the State of Hawaii the sum of \$450,000 or so much
18	thereof as may be necessary for fiscal year 2007-2008 for the
19	University of Hawaii center for conservation research and
20	training during phase 1 to develop the best strategies
21	consistent with comprehensive agricultural management practices
22	to facilitate sustainable production of crops through long-term
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enhancement of soil quality using ecologically-responsible
 means.
 The sum appropriated shall be expended by the University of
 Hawaii center for conservation research and training for the
 purposes of this Act.

6 SECTION 4. This Act shall take effect on July 1, 2007.



Report Title:

Integrated Strategies for Statewide Food and Energy Crop Production

Description:

Appropriates funds for the Center for Conservation Research and Training at UH to develop best practices consistent with comprehensive agricultural management strategies to facilitate sustainable production of crops through long-term enhancement of soil quality using ecologically responsible means. (HB899 CD1)

