

## California Department of Food and Agriculture Dairy Marketing Branch

### REQUEST FOR PROPOSALS EVALUATION OF ALTERNATIVE MANURE MANAGEMENT PRACTICES *Release Date - May 3, 2017*

The California Department of Food and Agriculture's (CDFA) Dairy Marketing Branch (DMB) provides competitive grant funding for research, demonstration, technical education, and outreach projects that advance the environmental performance of California's dairy sector (Food and Agricultural Code Division 21, Part 3, Chapter 2, Section 61805(d)). CDFA DMB is releasing this Request for Proposals (RFP) for the specific research need outlined below.

#### BACKGROUND

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California has approximately 1,400 dairy farms producing milk for consumers in California, the nation and the globe. The California Air Resources Board (ARB) recently adopted the Short-Lived Climate Pollutant Strategy (SLCP) to reduce emissions of black carbon, methane and other SLCPs, including emissions of manure methane from California dairies. Recent legislation (SB 1383, Lara 2016) requires implementation of the SLCP strategy by January 1, 2018. The strategy includes a 40% methane emission reduction from 2013 levels by 2030. ARB estimates that 20% of methane emissions in 2013 come from dairy enteric fermentation and 25% from dairy manure and 10% from non-dairy cattle.

Management practices exist to reduce methane emitted by anaerobically stored manure. These practices include capture and conversion of methane to energy (fuel and electricity) by systems commonly known as anaerobic digesters. However, other non-digester practices exist which, instead of capturing and converting methane to energy, avoid the production of methane in the first place. These alternative practices can generally be characterized as those that avoid or reduce methane production by reducing the amount of manure stored under wet anaerobic conditions, those that reduce the amount of time manure is stored anaerobically, and/or those that reduce the amount of volatile solids in anaerobic storage. These practices include but are not limited to mechanical manure solids/liquids separation combined with rapid drying, conversion to pasture-based operation, collecting manure with scrape systems that rapidly dry the collected manure, or conversion to dry lot manure management systems<sup>1</sup>. There are gaps in our scientific understanding of the potential for these alternative practices to reduce manure methane emissions and the impact of these practices, positive or negative, on emissions of other environmentally significant compounds, including ammonia, nitrous and nitric oxides, nitrate, volatile organic compounds, hydrogen sulfide and fine particulate matter.

CDFA is developing a new incentive program to address methane emissions from dairies in addition to its existing Dairy Digester Research and Development Program (DDRDP). In 2016, CDFA was appropriated funding from California Climate Investments for non-digester practices. With those funds, CDFA is developing the Alternative Manure Management Program (AMMP) to incentivize practices including but not limited to those practices listed above. Legislation also requires that CDFA consider a project's adverse impacts, specifically criteria pollutants, toxic air contaminants, hazardous air pollutants, ground and surface water impacts and truck traffic and odor (SB 859, 2016). There is a need to understand existing methane and other air quality emissions on dairies that are considering the use of AMMP practices. The goals of this project are to:

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<sup>1</sup> For more info see: Kaffka, Stephen; et al. 2016. Evaluation of Dairy Manure Management Practices for Greenhouse Gas Emissions Mitigation in California; Final Technical Report to the State of California Air Resources Board. 127pp.; CARB SLCP Strategy: Appendix D: Research Related to Mitigation Measures <https://www.arb.ca.gov/cc/shortlived/meetings/11282016/appendixd.pdf>

- a) Identify an appropriate methodology or model for estimating baseline emissions on selected individual dairies that receive AMMP funding,
- b) Identify appropriate methodology for measuring actual baseline emissions on selected individual dairies that receive AMMP funding,
- c) Estimate pre-project emissions on several dairies (4 to 6 sites depending on funding availability) using a model or methodology proposed by the awarded research team, based on the results of (a) and approved by the CDFA Ad Hoc Advisory Committee,
- d) Measure pre-project emissions on several dairies (4 to 6 sites depending on funding availability) using a methodology proposed by the awarded team, based on the results of (b) and approved by the CDFA Ad Hoc Advisory Committee.
- e) Prepare a final report of results comparing estimated and measured emissions pre- and post-installation of AMMP-funded technologies, assessing performance of the estimation methods and making recommendations to improve or calibrate models and methodologies as needed.

It is anticipated that following (or during) completion of this project, CDFA, in partnership with Dairy Cares, will consider making additional funding available for a separate project to measure emissions post-installation of AMMP-funded projects. Development of any such project will be informed, in part, by successful completion of the initial stages of this project. Research findings and progress will be provided to the Ad-hoc Advisory Committee for feedback, comments and suggestions.

## PROJECT IMPLEMENTATION TIMELINE

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Task 1	December, 2017
Task 2	November 2017 – November, 2018

REPORTING - Draft Final Report delivered to CDFA no later than February, 2019. Final Report delivered to CDFA no later than March 31, 2019. Timing of reports may be revised depending on timing of AMMP installation.

## RESEARCH PRIORITY

CDFA in partnership with the Dairy Cares is releasing this RFP. CDFA invites research proposals that address the three specific areas defined below.

1. **Literature review of modeling tools for agricultural/dairy GHG's, especially methane, and other nitrogen and carbon cycle-related emissions.** Several modeling tools exist for modeling GHG and other emissions on dairies. Review these tools for their applicability to California dairies and understand if these tools can effectively model changes in emissions of GHG and other relevant emissions. Discuss the strengths and weaknesses of available models, their utility, accuracy and data input needs and other relevant information.
2. **Baseline emission measurements on CDFA AMMP-funded dairies.** Selection of dairies that will receive funding for AMMP practices will be completed on or around November 2017. Project leaders will first develop a conceptual and practical approach to evaluate baseline emissions from manure management at the dairies prior to implementation of the AMMP-funded practices. Constituents to be estimated/modeled and measured should include methane, ammonia, hydrogen sulfide, nitrous and nitric oxides, volatile organic compounds, particulate matter and other relevant air constituents. Plan for comprehensive evaluation of at least 4 to 6 (the actual number of funded projects will be determined based on information received in proposals and final amount of award) AMMP-funded projects. Successful projects need not measure every constituent, but will be evaluated on their ability to provide a high amount of confidence in results by providing measurement validation wherever possible, including quantification of margins of error.

The proposed methodologies for conducting these measurements and modeling on the dairies with AMMP-funded management practices will be submitted to CDFA and the Ad Hoc Advisory

Committee for review and approval. Include this as a separate task in your work plan (estimate 2 to 3 months) before commencing field work.

## **FUNDING AMOUNTS**

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Funding up to \$400,000 is available for this project. Proposals leveraging other sources of funding are encouraged and are welcomed.

## **ELIGIBLE RESEARCH INSTITUTIONS**

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Academic research institutions, governmental agencies and non-governmental organizations (NGO's) are eligible to apply for these funds.

## **SOLICITATION TIMELINE**

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<b>Release RFP .....</b>	<b>May 3, 2017</b>
<b>Proposals due.....</b>	<b>5:00 pm PST, May 22, 2017</b>
<b>Award notification.....</b>	<b>May 31, 2017</b>
<b>Project start date.....</b>	<b>June 30, 2017</b>

## **RESEARCH TEAM QUALIFICATIONS**

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CDFA strongly encourages applications to include a diverse, collaborative team of scientists including but not limited to scientists in the fields of air and water quality with specific expertise in monitoring dairy emissions, greenhouse gas mitigation and modeling, and manure management practices on dairies in California.

## **PREPARING YOUR PROPOSAL**

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**Be sure to thoroughly read and adhere to all submittal requirements or your proposal will not be accepted.**

Full proposals must include Sections A through I as described below. Sections A through G must be submitted in Microsoft Word format (doc/docx), single spaced using one inch margins and 12 point Times New Roman font. Section H: Budget Template must be submitted in Microsoft Excel format (xls/xlsx) using the provided template. Budgets that do not use the provided template will not be accepted. Section I: Appendices may be submitted in Microsoft Word format (doc/docx) or Adobe format (pdf). Complete proposals must not exceed 20 pages, excluding resumes. Proposals that do not meet the specified formatting requirements or exceed 20 pages will not be accepted.

If you have questions about formatting or submitting your proposal, please contact staff at (916) 900-5154. To ensure fair competition, CDFA staff is unable to provide guidance on the development of proposals. CDFA will conduct a webinar on May 10, 2017 to explain this RFP further and answer questions. Answers will be provided on CDFA DMB web site so all may benefit from responses.

## **FORMATTING INSTRUCTIONS**

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**Proposals which do not adhere to the formatting guidelines will be removed from consideration.**

Use 8 ½ x 11-inch letter-size paper, portrait formatting in Microsoft Word. Do not use logo or letterhead. Only use black font. Use 1-inch margins on all sides. For consistency and uniformity, use Times New Roman.

After the summary title, list and identify each project leader, cooperator, supporter, name; title; company or organization name; department or section name; full address including street, city, state and zip; telephone number; and email address, in the format examples as follows:

Project Leader  
Full Name and Credentials  
Title  
Department  
University Name  
Building  
Street Address  
City, State Zip  
(Area Code) Telephone number  
E-mail Address

## **SEND PROPOSALS TO**

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**Submit an electronic version of your full proposal to: [casey.cady@cdfa.ca.gov](mailto:casey.cady@cdfa.ca.gov)**

**Proposals are due on May 22, 2017, 5:00 pm PDT. Proposals** that are incomplete, late, do not comply with formatting requirements or exceed 20 pages will be returned and eliminated from consideration. **Full proposals must be submitted via e-mail**; mailed and faxed copies will not be accepted. CDFA staff will reply with a confirmation e-mail when full proposals are received; contact CDFA staff by calling (916) 900-5154 if you have not received a confirmation e-mail within two business days of your submission. CDFA is not responsible for incomplete e-mail transmissions.

## **PROPOSAL REVIEW AND EVALUATION**

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This is a competitive grant application process. Proposals will undergo a technical review to evaluate the merits of the proposal. Proposals will also undergo an administrative review to determine whether eligibility and application requirements, as set forth in this RFP have been met. Applications deemed ineligible or not meeting application requirements will be disqualified.

CDFA may reject any proposal if it is conditional, incomplete or contains irregularities. CDFA may waive an immaterial deviation in the proposal. Waiver of an immaterial deviation shall in no way modify the Request for Proposal documents or excuse the proponent from full compliance with the grant requirements, if the proponent is awarded the grant.

A technical advisory group made up of industry and agency staff will evaluate the proposals and a final score will be developed. Authority for final funding approval lies with the California Department of Food and Agriculture.

## **AWARD NOTIFICATION**

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You will be notified by CDFA whether or not your project was selected for funding. If your project is selected for funding, work on the project cannot begin until the grant agreement goes into effect. Interim and annual reports are required to assess project accomplishments, problems, and plans for the next work period. Grant payments are subject to receipt and acceptance of deliverables as defined in the Scope of Work.

## **OTHER FUNDING SOURCES**

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Activities funded under the CDFA cannot duplicate activities funded by another grant program(s). If the proposed project has been or will be submitted to or funded by another grant program, identify the grant program(s), the entity administering the program(s), and the amount(s) of grant funds requested/awarded. Describe how the activities supported by the funding will differ from and/or supplement the other grant program(s) rather than duplicate those funding efforts.

## PROPOSAL SECTIONS

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### A. Cover Page

1. **Project Title.**  
Provide a unique and concise name for the proposed project.
2. **Project Leader(s).**  
Specify each project leader's name, title, affiliation, mailing address, telephone number, and email address. *\*A two page resume, a list of recent publications, and a description of current research/outreach activities must be included for each project leader under Section I: Appendices.*
3. **Cooperator(s).**  
Specify each cooperator's name, title, affiliation, mailing address, telephone number, and email address. *\*A letter from each cooperator must be included under Section I: Appendices describing their role in the project, estimated time commitment, and a statement of agreement to participate in the project. Do not include a cooperator's name on the proposal unless a support letter is included with the proposal at the time of submission.*
4. **CDFA Funding Request Amount/Other Funding.**  
Provide funding request amount (\$) from CDFA and amount committed from extra-mural or in-kind sources for each year of the project. Specify organizations that have committed funding to this project including funding amounts, contact names, addresses, and telephone numbers.
5. **Agreement Manager.**  
Specify the person who will manage the grant on behalf of the recipient (i.e. UC Regents, Office of Sponsored Research, etc.). Include the organization/entity, grant manager name, phone number, email address, and mailing address.

### B. Executive Summary (not to exceed two pages)

1. **Problem.**  
Simply and concisely define how your project addresses the problem defined in the research priorities.
2. **Objectives, Approach, and Evaluation.**  
State specific project objectives, describe the approach that will be employed, and identify criteria that will be used to evaluate the project's success.
3. **Audience.**  
Specify those who will use and benefit from the project findings or products.

### C. Justification

1. **Mission and Research Priorities.**  
Explain how the project will address the Research Priority provided above. Project must address all aspects of stated priority.
2. **Impact.**  
Explain agronomic, economic, environmental or other implications on a local, regional, and statewide basis.
3. **Long-Term Solutions.**  
Indicate the project's potential for measurable progress toward long-term solution(s) to the specific problem(s) addressed in the proposal.
4. **Related Research.**  
Describe previously conducted, related research and/or education efforts.
5. **Contribution to Knowledge Base.**  
Explain the project's contribution to current knowledge and specify new information to be generated by the project.

### D. Objectives

1. Provide a clear, concise, and complete statement of each specific research objective(s).

**E. Work Plans and Methods** (for multi-year projects, include a work plan for each year)

**1. Work Plan.**

Organize the work plan into project Tasks 1-3 as outlined above. Break into sub-tasks, which are units of work designed to achieve the specific project objectives. Each task should be numerically identified with a descriptive title and should include a detailed description of the activities and methods. Describe interim and final deliverables and completion dates.

**2. Methods**

Provide a conceptual model of potential dairy experimental approach. Summarize the methods to be employed, indicating data to be gathered, parameters to be measured, sampling scheme, experimental design, and methods of analysis to be used. It is understood that details of dairy sites will be known once they are selected for inclusion in this project.

**A. Project Management and Evaluation**

**1. Management.**

Describe the role of project leaders and cooperators and briefly explain how the various participants' work will be coordinated.

**2. Evaluation.**

Provide a method for assessing the progress and success of the project, including cost/benefit analysis of adoption of new technologies, as well as barriers to adoption, where applicable. Provide specific plans for the evaluating the success of the project.

**B. Budget Narrative**

Provide a detailed narrative of your proposed budget. Assume a start date of June 30, 2017 and explain all of the following:

- a. Personnel Expenses. Provide classification level, percent of time based on full time salary/wages, benefits, employment period, and name of individual to be hired, if available. For University of California and other public agencies and universities, specify if other funds come from existing staff salary, are extra-mural, or are in-kind. If funds are from staff salary, specify the amount on a percentage of full time equivalent-basis.
- b. Operating Expenses. Itemize and justify all of the following operating expenses:
  - *Supplies:* Itemize and justify all supplies to be purchased.
  - *Equipment:* Itemize and justify all equipment purchases. During the grant period, titles to equipment purchased with CDFA funds will vest with the State. CDFA will only authorize expenditure for equipment (equipment with a life expectancy greater than one year and a per-unit cost of \$5000 or more) on a pro-rated basis. After the grant period, CDFA may transfer ownership or allow the grantor to purchase such equipment. The grantor must maintain inventory records for such equipment.
  - *Travel:* Itemize the number of trips, estimated mileage, destination(s), and identify who will be traveling. CDFA will reimburse travel expenses at the rates specified by the California Department of Personnel Administration. Only travel expenses to and from the project site(s) or to conduct outreach activities within California will be covered.
  - *Professional/Consultant Services:* Identify and explain any and all work or services to be sub-granted. Sub-granting will only be allowed with the expressed written permission of CDFA.
  - *Other Expenses:* Identify and explain any additional expenses not covered by the above categories.
- c. Other Funding Sources. List and explain all other organizations providing funding for this project.

**C. Budget Template**

Prepare a budget table for the project using the attached Project Proposal Budget Template Excel spreadsheet. The template uses formulas to automatically generate totals as numbers are entered into the fields; do not alter the formatting or formulas in the un-shaded cells. The budget is to be based on California fiscal year basis, starting July 1 of each year and ending on June 30. Funds will need to be included in FY 2016/17. **Budgets submitted without using the template will not be accepted.**

a. Personnel Expenses.

- *Salary:* For each individual working on the project, list the name, percent time based on full-time salary, and their role in the project in the salary section.
- *Benefits:* Percentage of benefits (fringe) to be paid may be listed in the benefits section.  
*Indirect Costs (IDC):* A maximum of 10 percent of Modified Total Direct Cost (MTDC) is allowable for indirect costs for institutions not affiliated with the University of California (UC). Included in the calculation are personnel costs and operating costs less any equipment purchase. Grants with the University of California and the California State Colleges will follow the MTDC Modified Total Direct Cost calculation in the State and University Proposal and Administration Manual. For funding that originates with CDFA, UC has agreed to start an IDC of 10% for 2016/17; the rate will increase by 5% at the beginning of each subsequent fiscal year. The rates will be applied to the modified total cost. For example: 10% through June 30, 2017; 15% through June 30, 2018; 20% through June 30, 2019 and 25% through June 30, 2020. CDFA and UC will negotiate a rate beyond June 30, 2020

b. Operating Expenses. Enter the total amount requested for each year for all of the following operating expense categories. *\*All expenses must be itemized and justified in Section G: Budget Narrative.*

- *Supplies*
- *Equipment*
- *Travel*
- *Professional/Consultant Services – limited to 49% of total project budget*
- *Other Expenses*

c. Other Funding Sources. List each additional organization contributing funding to the proposed project. Specify funding to be contributed each year.

**OTHER FUNDING SOURCES**

Activities funded under this program cannot duplicate activities funded by another grant program(s).

If the proposed project has been or will be submitted to or funded by another grant program, identify the grant program(s), the entity administering the program(s), and the amount(s) of grant funds requested/awarded. Describe how the activities supported by CDFA funding will differ from and/or supplement the other grant program(s) rather than duplicate those funding efforts.

**I. Appendices** (not included in the 20-page maximum)

**1. Project Leaders.**

Include a two-page resume and list of recent publications. Also include a description of current research/outreach activities; provide information on all current, planned, pending, and recent projects, whether or not there is a specific time commitment and how it will impact the proposed project.

**2. Cooperators.**

Describe cooperator’s role in the project, estimated time commitment.