

Project Title: Regional Dairy Farmer-to-Farmer AMMP Project Tours and Awareness Outreach					
Grant Recipient: California Dairy Research Foundation	Grant PI: Denise Mullinax				
Grant Agreement No.: 19-030-000-SO					
Project Term : Jan 1, 2020 – March 31, 2022					
Submitted By: Kevin Comerford	Date Submitted: 3/31/2022				

Demonstration Project Type

Advancing Practices Farmer-to-Farmer (APFF)

□ New Technologies and Practices (NTP)

Project Location (address or geographic coordinates of actual project implementation site(s)):

Dairies in Sonoma, San Joaquin, Stanislaus, Merced, Kings and Tulare counties were used for videography.

Alternative Manure Management Practice(s) Demonstrated:

- Compost Bedded Pack Barn
- Solids Separation (windrow drying or composting)
- Solids Separation (open solar drying)
- Scrape/Vacuum Conversion (pull-type tanker with windrow drying or composting)
- Scrape/Vacuum Conversion (self-propelled tanker with windrow drying or composting)
- Scrape/Vacuum Conversion (pull-type tanker with open solar drying)
- Scrape/Vacuum Conversion (self-propelled tanker with open solar drying)

Estimated Greenhouse Gas Reductions (*if applicable; indicate total MTCO*₂*e reduction over 5 years*): *N/A*



PROJECT SUMMARY

Project Purpose

Multiple alternate manure management practice projects have been installed on dairy operations through CDFA's Alternative Manure Management Program (AMMP) since 2017. Continued dairy producer adoption of methane emission strategies is paramount to achieving the 40% reduction goal.

Dairy size, physical layout and infrastructure, housing and manure collection and storage capabilities impact manure management options and associated methane emissions. Modifying existing facilities and/or management is expensive and, in some instances, almost impossible. Dairy farmers must understand the benefits and challenges changes to manure management will have on resource allocation (labor, equipment, land), operational changes, economic opportunities or costs and whole-farm environmental impacts and benefits.

To evaluate methane reduction options for applicability to individual dairy farms, dairy farmers must understand the consequences of selecting specific practices within their operation. Significant funding has contributed to on-farm implementation of identified methane emission reduction practices. The objectives of this project were three-fold: 1) create environments for farmer-to-farmer AMMP practice focused learning, 2) identify existing barriers to adoption of AMMP practices and 3) recommend strategies for improving future adoption of AMMP practices.

Educational materials developed for this project provide operationally technical information for dairy operators and included: producer experience highlight videos (pull-tanker and self-driven vacuums; sloped screen and screw press separators; and compost bedded pack barns), brief videos on primary AMMP practices (manure management quick pics) and quick-facts, one-page AMMP practice topic sheets. An <u>AMMP practice specific webpage</u> was created for all materials developed. Additionally, social media, newsletter articles, dairy trade associations and dairy trade magazines further amplified information.

Farmer-to-farmer information sharing is key to producer knowledge base and comfort. This exchange provides an opportunity for producers to learn about AMMP practices AND ask questions of other producers who have adopted specific practices. It encourages in-depth analysis and potential adaptation to individual farm needs.

Educational materials developed for this project exceeded expectations. The participation of AMMP recipients and quality of materials developed were exceptional. The ability to extend information virtually and amplify messages through social media was impressive. Access metrics for website were noteworthy.

Project Approach

This project was approved Fall, 2019. The original objectives were modified to reflect the reality of accessing facilities and delivering quality products during a pandemic. Project revisions (10/28/20 and 3/21/21) reflected necessary modifications to complete the project while practicing health and safety measures for the project team and cooperating producers, dairy trade



organization staff and allied industry. Alignment of initial and revised project components is presented in Table 1.

Table 1. Initial and revised project objectives to accommodate health and safety needs during COVID19				
Objective	Initial description Revised description			
1	4 regional dairy tour extravaganzas (RTEs)	3 webinars		
2	3 topic-based practice highlight videos	3 topic-based practice highlight videos		
3	4 producer experience highlight videos	4 producer experience highlight videos		
4	up to 12 quick-facts sheets	up to 12 quick-facts sheets		
5	1 AMMP topic specific webpage	1 AMMP topic specific webpage		
6	Evaluate success of outreach plan through surveys of RTEs participants	Evaluate success of outreach plan through surveys of webinar participants		

Objective 1: Moderated webinars highlighted components of producer experience videos (see Objective 3) and provided farmer-to-farmer question and answer opportunities. Host participants (those who allowed us to interview them prior to the webinar and make a producer highlight video) were present to answer questions and engage in conversation. The project team prepared essential questions prior to the webinar for host producers to answer. Additionally, webinar participants were able to provide comments in the chat or use the question and answer feature in Zoom to ask questions and get them answered. Embedded poll questions identified awareness of AMMP and use of chat allowed producers to answer open ended questions during webinars including identifying barriers to AMMP application or practice adoption.

Objective 2: Practice based highlight videos (manure management quick pics) were created and introduce viewers to concise specific AMMP. The project team developed informative scripts and paired photos to script to create brief, informative videos specific to primary practice categories.

Objective 3: Producer experience highlight videos were created. The interview questions were scripted based on the AMMP practice implemented and knowledge of producer experiences during AMMP application and implementation process. Key focus areas included why the particular practice was selected, site-specific considerations including general economic factors, and specific implementation experience. Each producer was asked to provide tips to others considering application to AMMP.

Objective 4: Quick-facts summarized information taken from AMMP applications submitted between 2017 and 2019 with additional information gained from producer interviews. These documents were posted on the AMMP specific webpage and publicized through the California



Dairy Quality Assurance Program and University of California Cooperative Extension Dairy newsletters and amplified in dairy trade organization newsletters and social media information sharing.

Objective 5: The AMMP practice topic-specific webpage contains all educational information developed as part of this project. The page is hosted on the California Dairy Quality Assurance Program (CDQAP) website (<u>https://cdqap.org/ammp-outreach-project/</u>).

Objective 6: Pre/post webinar survey questionnaires were used to determine success of webinars. Two additional surveys were created and deployed to gather information from dairy producers and consultants/ Technical Service Providers. The surveys identified barriers to adoption of AMMP practices, interest in AMMP practices, existing knowledge of AMMP practices and capability to adopt AMMP practices.

Project Outcomes

All six of the proposed project objectives were completed and the outcomes meet or exceed stated objectives. The revised project description based on the development and delivery of these objectives enabled producers, consultants, and other interested parties to obtain factual information about AMMP practices, exchange knowledge and experience of AMMP processes and practices, and identify key barriers to adoption of AMMP practices. Potential areas of improvement in AMMP processes were identified.

Table 2 summarizes the outcome of each project objective relative to the approved revised project description. Detailed descriptions are provided in "Outreach Activities and Outcomes." Outreach products and materials are highlighted in "Project Pictures or Products."

Table 2. Revised project objectives and outcomes of objectives				
Objective	Revised description Project outcome			
1	3 webinars	3 webinars		
2	3 topic-based practice highlight videos	4 topic-based practice highlight videos		
3	4 producer experience highlight videos	5 producer experience highlight videos		
4	up to 12 quick-facts sheets	7 quick-facts sheets		
5	1 AMMP topic specific webpage	1 AMMP topic specific webpage		
6	Evaluate success of outreach plan through surveys of webinar	3 surveys: webinar participants, Technical Service Providers/consultants,		



In each of the three webinars, participants received updated information about program eligibility, the process for applying to AMMP, and important issues to consider when applying to and implementing AMMP practices. The webinars provided first-hand information from other producers and Technical Service Providers and an opportunity to ask questions of producers and consultants who had real-world experience with AMMP.

The project collected and distilled producer and facility specific experiences and information on AMMP practices and established a centralized online resource for producers, Technical Service Providers, consultants, and other interested parties to obtain information about AMMP practices that has been vetted by a trusted source. The topic-based practice quick pics videos, producer experience highlight videos, and quick-fact sheets have been shared with webinar participants, distributed to industry partners and highlighted at dairy meeting presentations (see "Outreach Activities and Outcomes" section below.) These materials are curated on the AMMP topic specific webpage.

Lessons Learned and Future Expectations

One of the primary lessons learned by the project team centered on how to develop a creative response to the pandemic that enabled achieving the same – or equivalent – outcomes as those originally proposed. The development and delivery of the webinars demonstrated that adaptation to a different format for outreach was effective.

The engagement and trust of producers whose operations and experiences were featured was essential to achieve quality video content. This project would not have been possible without established relationships between project staff, industry partners, and producers. For the webinars, it was important that the project staff be incredibly prepared with materials and for potential technological problems. For each webinar, four or more people were prepared to lead the webinar if internet connectivity was a problem. The team created questions and discussion items to have ready if there were pauses or gaps in webinar attendees' questions or participation. The format and material delivered was tailored for maximum audience engagement. To achieve this, the project staff focused on addressing the questions webinar participants raised and offered insight on how adoption of AMMP practices could be done successfully throughout the stages of the implementation process. Knowledge of host producer specific experience was utilized to provide additional engagement through questions and conversation.

A second lesson learned from the project involves the importance of developing a robust and appropriate pedagogical framework across all project activities. The project staff drew on their competencies in extension education and university education to ensure that materials and activities were in-line with clear learning objectives. These learning objectives guided the development of the webinar scripts and outreach materials, which were then reviewed and revised to ensure that every product was appropriate, engaging and consistent with objectives. This required substantial preparation time. In adapting this project to pandemic needs the project staff learned how to translate this pedagogical framework into both an interactive online environment in the webinars, as well as an asynchronous online environment that enables ongoing delivery of information about AMMP. The project required adapting lessons learned from the classroom



during the pandemic to make the webinars and materials as effective as possible. This entailed developing a short presentation that covered key issues, sharing video clips of the practice to highlight a key concept, moving to an interactive question and answer session, then providing additional pre-prepared information on slides as it became relevant. This enabled the webinar format to be dynamic and interactive and maintain the interest and participation of attendees. Some webinar attendees provided unsolicited feedback post webinar complimenting the team on an engaging, informative, and educational experience. Webinar reach was beyond California and the United States.

A number of positive experiences occurred during the project. Information and materials from the project have received good exposure during the webinars and continue to receive significant exposure on the project website. (Metrics for engagement are provided in the section "Outreach Activities and Outcomes" below.) The development of the webinars, videos, fact-sheets, and other materials available on the project website also enable these materials to reach a wider audience and have a longer lifespan than information exchanged on farm tours. The project team also benefitted substantially from the range of expertise of its members. This enables establishing a continuum of knowledge that includes social science, animal science, extension professionals, and communications, each of which have particular strengths and roles for the project's objectives and communicating with producers.

There were, however, a few negative experiences as well. Throughout the project producers were justifiably focused on their own responses to the pandemic, including protecting the health and safety of themselves, their families, and their employees. This constrained the availability of project team members to access some dairies and demonstration sites and limited participation as hosts in webinars. The project required finding producers who were willing to make time and share information for no direct benefit to themselves; this was ambitious under normal conditions and was especially onerous due to the pandemic.

Additionally, AMMP was not funded for one year during this project, which made it difficult to get producers, Technical Service Providers, consultants, or others excited about the program when funding was not available. A recurring theme from both producers and consultants who participated in webinars was that they felt there was uncertainty or ambiguity in program priorities, future funding, and the direction of the program. This signals a need for annual or bi-annual updates on the program from CDFA to reduce the perception or existence of uncertainties. Producers also expressed that preparing an application for AMMP requires significant time and requires detailed information that must be obtained from other sources; establishing a longer application timeline for AMMP funding calls or announcing ahead of time when the funding call would come would enable producers who are not already engaged, planning to apply, or have worked with experienced consultants or Technical Service Providers to more easily participate in the program. Reconciling inflation that occurs during the lag time between when bids are obtained for projects and when projects begin is important for AMMP practice adoption. The current changing climate of supply chain disruptions has adversely impacted dairy operations and vendors responsible for providing supplies and equipment to the projects.

Installation of an AMMP practice requires modification of existing manure collection and storage. Additional emphasis on research to further manage and utilize manure post AMMP practices manure streams is essential to enhance further adoption of practices. Dairies in the Central Valley



(c.91% of California's dairy herd) have multiple considerations when managing their manure. In addition to their existing regulatory requirements by both the Central Valley Regional Water Quality Control Board and the San Joaquin Air Pollution Control District (for those in the San Joaquin Valley), they must manage Sustainable Ground Water Management Act needs to balance their water supply and work collaboratively with others to ameliorate nitrate concentrations of groundwater if they reside in Priority One or Priority Two Nitrate Management Zones. These additional environmental challenges must be considered when managing or changing management of manure.

Following the end of this project term, the project staff have several plans for continuing data collection and outreach. We will share out AMMP deadline for application submission regularly during the open window for applications. We will continue to update and revise the project webpage with information about AMMP from CDFA and from other sources. The aim is for the project webpage to curate up-to-date information of trusted and current information about AMMP and AMMP practices. Findings from this project will also be integrated with results from the CDRF funded manure characterization grant, with information from both projects being shared at the upcoming California Dairy Sustainability Summit. Project staff are also engaged with dairy organizations in the Pacific Northwest as they examine manure treatment technologies and are working with the Dairy Research, Inc. and Newtrient on analysis of and developments in manure treatment technologies. The process used to share information with producers on AMMP practices (webinars and all videos created during the project) will be shared at the American Dairy Science Association's Annual meeting in June, 2022 (accepted abstract). Project staff will write an academic article for a peer-reviewed journal on producer and consultant views on barriers and opportunities for adoption of AMMP practices and the implications of these barriers and opportunities for dairy methane mitigation programs in California. Finally, project staff will work on formalizing recommendations for farmer outreach, education, and engagement in online environments that can be used by UC ANR academics, consultants, researchers, and others.



DATA COLLECTION AND RESULTS

Materials and Methods

Three forms of data on producers and Technical Service Providers/consultant engagement were collected during the project. 1) Polls during each webinar were used to assess participants' level of existing familiarity and interest of the AMMP practice. 2) A web-based survey of consultants and Technical Service Providers was conducted to gain insight into this population's engagement with AMMP and what they see as the barriers to adoption and options for improving program operations. 3) A mailed survey (with web-based option) of California dairy producers was conducted to assess their level of engagement with AMMP, their level of interest in the program, and key issues and concerns that may constrain or enable increased producer engagement with AMMP.

Registration questions prior to each webinar asked attendees how they had been involved with AMMP. A poll was conducted near the end of each webinar asked the producers in attendance how interested they were in adopting the webinar featured AMMP practice. Questions from this poll are provided in Appendix 1. While the data collected during these polls are limited to the webinar attendees, these polls provided validation of the webinar's approach and evidence on producers' interest in AMMP when exiting the webinar. They are also likely indicative of the broader population of producers' interest in AMMP.

For the survey of consultants and Technical Service Providers, names were first collected of consultants, Technical Service Providers, or others who had assisted with past AMMP applications, are registered Technical Service Providers on relevant practices, were known to industry partners, or who registered for project webinars. Questions from the survey of consultants and Technical Service Providers are included in the Appendix 2. Survey invitations were mailed to 42 individuals. Eleven responses were received. While this is a relatively small number of responses, the respondents were involved with 59 AMMP applications, 34 of which were funded. This represents just under 40% of all AMMP projects to date, making this survey an important source of insight into how consultants and Technical Service Providers characterize AMMP and their views on how it could be improved. The mailed questionnaire for producers was initiated in January 2022 following the new call for AMMP applications. As of March 18, 58 responses to the survey were received. Questions from the survey of producers are included in the Appendix 3.

Responses to questions on the survey take three different formats: 1) selection of one answer from a provided list, 2) ranking of categories, and 3) selection of as many answers as desired from a provided list. The first question format is summarized as the percent of responses to each potential answer. The second question format is summarized as the average of all rankings divided by the number of respondents. The third format is summarized as the percentage of respondents who selected each potential answer.

Results and Discussion

This section provides a narrative discussion of findings from the webinar polls and survey of consultants and Technical Service Providers.



The polls conducted during registration for and at the end of the three webinars demonstrated that most webinar attendees were already aware of AMMP to some degree: only 7% of attendees did not know about the AMMP program before the webinar invitation. The largest proportion of webinar attendees (43%) were those who were aware of AMMP, but who had not yet applied or helped others apply. This suggests that the most significant motivation for attending the webinars was to learn about AMMP practices and the AMMP application process and gain knowledge on applying to AMMP in later funding rounds. Another 21% of webinar attendees replied that they had previously applied to AMMP but did not receive funding. For this group, attendance at the webinar was likely motivated by a desire to learn about funded projects, improving future applications, and acquiring knowledge from other producers about key aspects of successful proposals. Finally, 29% of webinar attendees had previously applied for and received AMMP funds. This group consisted primarily of consultants and Technical Service Providers, but included several producers as well who likely attended the webinar as an opportunity to receive updates on the AMMP practice featured in the webinar and potentially share their experience with other producers and. Post webinar polling identified that 10% of dairy producers were either in the process of adopting or were unlikely to adopt practices specifically discussed in webinars. The remaining 80% of participants were considering adopting AMMP practices.

Several important themes are present in data collected from the survey of consultants and Technical Service Providers. Consultants were asked to provide the number of facilities for which they helped complete an AMMP application. Table 3 provides a summary of these responses. These figures provide context for consultants' responses to survey questions discussed below.

Table 3. Consultant Survey: Please provide the number of facilities to which you provided assistance and the outcome of that application			
Response Percent of faciliti			
Helped complete an entire application - Submitted, Awarded	34%		
Helped complete an entire application - Submitted, Not Awarded	29%		
Helped complete an application, but was not submitted	37%		

Consultants and technical providers were asked to rank what they believed were the most substantial barriers, motivations, and concerns for completing AMMP applications. The three leading barriers to completing an application identified by consultants were getting in touch with producers, getting quotes from vendors and contractors, and permitting and/or project readiness concerns (Table 4). Points in the application review process are awarded to shovel ready projects (all permits obtained). Consultants replied that the primary motivation for producers to apply for AMMP were –in order of rank– money for implementation, improved manure management, and that there was no cost share required for the program (Table 5). Finally, consultants noted that the three most substantial concerns among producers applying for the program were the amount of paperwork/detail needed to complete the application, that the program was competitive, difficult to get, and that the application was difficult and required expertise (Table 6).



Table 4. Consultant Survey: Please rank the barriers to completing an application or assisting dairy producers with the AMMP (1 = most significant barrier, 8 = least significant barrier)			
Barrier	Average Rank		
Getting in touch with producers	2.0		
Getting quotes from contractors	3.0		
Permitting and/or project readiness concerns	3.3		
Application criteria score likely low	4.0		
Getting financial statements for application	5.0		
Too much demand for dairies for my available time	5.7		
Insufficient training for advisors on completing application	6.3		
Responsiveness of CDFA staff to application questions6.7			

Table 5. Consultant Survey: Please rank what you think motivates dairy producers to apply to the AMMP (1 = most significant barrier, 7 = least significant barrier) Motivation Average Rank Money for implementation 1.7 Improved manure management 2.3 No cost share required 2.7 Improved bedding management 4.0 Improved nutrient management 4.7 Reduce methane emissions 6.0 Build for potential expansion 6.7



Table 6. Consultant Survey: Please assess the level of concern that dairy producers have had when applying to the AMMP (1 = significant concern, 2 = slight concern, 3 = no concern)		
Concern	Average	
Amount of paperwork/detail needed to complete the application	1.3	
Competitive, difficult to get	1.3	
Difficult application requiring expertise	1.7	
Financial letter needed from bank	2.0	
Knowledge of facility management needed to complete the application	2.3	
They don't want to apply to government programs	2.3	

Consultants were asked to state how aware they think dairy producers who previously applied for AMMP were about the application process and requirements to complete the AMMP application. Notably, none of the consultants who responded believed that producers were "very aware" of either the AMMP application process and requirements or the time requirements of the AMMP application process. 67% of consultants responded that producers in past application windows were "somewhat aware" of the application process and requirements and 33% responded that producers were "not aware." Consultants were also asked how aware they think dairy producers who previously applied for AMMP were about the time requirements to complete the AMMP application. Again, none of the consultants stated that producers they had worked with were "very aware" of time requirements. Only 33% replied that producers were "somewhat aware," and 67% replied that producers were "not aware." Responses to both of these questions may suggest producers may benefit from more clarity and description of the AMMP application process, and especially the time required for the application program announcements. This may also suggest that the application process and time required to complete the application is more onerous than producers expect, and that streamlining the application process, lengthening the application window, or publishing the application window well in advance of the application deadline could attract more applications from producers. Development of an example timeline to guide producers through the various required documents would be beneficial. It could highlight the need to procure all permits with agencies (this takes time), as well as other essential components of the application packet. The three comments consultants provided to the free response question on the survey "What advice would you give to dairy producers looking to participate in the AMMP?" reflect this point:

"Start project conception and bid process early. Begin working with a TSP ASAP. The earlier the better! Last minute fall throughs have cost applications to not be submitted or not perform well in review."

"Plan ahead, have site plans, preliminary budgets, and project components and preliminary bids prior to the application window."



"I would inform them about the reporting requirements and the administrative duties that are needed for a successful project. I would have them sign up for NRCS EQIP to help offset the costs and I would encourage them to work with their dairy rep (Clover, Straus, Organic Valley, etc.) to see if the company can provide financial and/or administrative assistance. It's a good program if you have a need for the types of projects that the program encourages. I would begin the project development during the windows when the AMMP application period is closed. It is going to take time to pull together all the details."

Consultants were also asked to assess producers' level of concern about projects that had been successfully funded (Table 7). Four leading concerns (above the mean for this question) were identified. The two most significant concerns, which were unanimously identified as a "significant concern" among all respondents, was out-of-pocket costs to install the project and the actual versus estimated cost of the project. The lag time between obtaining project bids (good for 30 days) and actual implementation (more than 9 months later) was sufficiently great and allowed for inflation and competition for supplies (from fire stricken areas) to stress construction needs (supplies and labor). The next most significant concerns were unanticipated infrastructure needs (e.g. additional pipelines, concrete and electricity) and costs associated with the operation and maintenance of equipment.

Table 7. Consultant Survey: For those facilities that were funded, please assess the level of concern among dairy producers about implementing AMMP funded projects (1 = significant concern, 2 = slight concern, 3 = no concern)

Concern	Average
Out-of-pocket cost to install project	1.0
Actual versus estimated cost of project	1.0
Unanticipated infrastructure needs	1.7
Costs associated with operation and maintenance of equipment	1.7
Labor for proper operation and maintenance	2.0
Inexperience with technology (learning curve producer needs to go through to make technology work at facility)	2.0
Electrical connection for equipment	2.0
Inadequate technical support	2.3
Permitting (Air District, Regional Water Board, County, Coastal Commission)	2.3
Facility visibility	2.7



Finally, consultants and Technical Service Providers were asked to select options from a provided list that they believe would improve the AMMP process (Table 8). Respondents could select as many options as they chose. Two options were chosen by all respondents: 1) that reviewer feedback on applications be shared, and 2) that an interactive message board between TSPs and CDFA be maintained. Both options are clearly intended to clarify opportunities for application improvement and reduce uncertainty in the application and implementation process. A majority (67%) of respondents also suggested four additional improvements: fund more projects, improve the calculator to accommodate all eligible species, provide a 90-day application window, and streamline the application process.

Table 8. Consultant Survey: How can the AMMP process be improved? (select all that apply).			
Improvement	Percent Selecting		
Share reviewer feedback on applications	100%		
Maintain interactive message board between TSPs and CDFA	100%		
Fund more projects	67%		
Improve calculator to accommodate all eligible species	67%		
Provide 90 day application window	67%		
Streamline application process	67%		
Improve communication between individual TSPs and CDFA	33%		
Improve publication of individual TSP questions and answers	33%		
Increase project fund cap	33%		

A number of additional comments and suggestions were made during webinars or during project activities (e.g. visits to dairies, interviews with producers, emails with producers, Technical Service Providers and consultants, and other stakeholders.) One such comment, made by multiple producers and consultants, concerned the difficulty of accounting for –or estimating inflation– cost increases for materials and services in quotes from vendors and contractors. The potential for costs to rise significantly and unpredictably was seen as a challenge both for the project budget within the application and a potential impediment to being able to implement the project after a successful application. A second issue was the potential for AMMP practices to add "pinch-points" to the producer's system, for example, relying on a specialized tractor to pull a vacuum or till a compost bedded pack barn. Producers expressed that the use of specialized equipment meant relying on parts and maintenance that may not be available locally or would require building redundancy into the system by maintaining an expensive supply of replacement parts (including a tractor) to minimize disruptions when service was needed. Similarly, producers



noted that their AMMP practice required careful attention to labor management to ensure that the practice could operate without substantial new demands for labor or the creation of significant downtime or diversion of workers from other operational activities. Practices such as vacuum-only systems and compost bedded pack barns must be able to run every day, making the reliability of both the equipment and of labor critical to their successful operation. Disruptions in the functionality of these systems can effect animal health.

Producers have learned a great deal about AMMP practices in the years that the program has been active. Both CDFA staff associated with and AMMP and other producers have benefitted from the practical experience and lessons learned by early adopters. This project's webinars and surveys enabled the collection of this practical experience in a way that will benefit future AMMP applicants. The development of on-going systems of knowledge sharing and knowledge exchange among producers and consultants will continue to be important for the success of AMMP as the program and number of dairies employing AMMP practices continues to expand.



OUTREACH ACTIVTIES AND OUTCOMES

1. Provide a description of the target audiences reached by your efforts during the project term.

The primary target audience for this project was dairy producers and consultants/Technical Service Providers. Evidence that the project reached these audiences comes from attendance at any of the three webinars, visits to the project website, engagement on social media posts, input at California Dairy Quality Assurance Program partner meetings and feedback to project staff.

The three webinars had a total of 79 connection points, 37 of whom identified themselves as producers at registration. Some connection points had multiple people present. Three additional events (detailed in Table 10) had a total of 106 attendees, 45 of whom were producers. Additionally, Technical Service Providers and consultants participated in webinars. These individuals amplify messages to their clientele person-to-person and through group newsletter articles and emails.

The videos of the webinars, posted on the project webpage and hosted on YouTube, have also received substantial engagement. The three webinars have viewed 145 (flush to scrape—vacuum; December, 2020), 122 (separation plus additional treatment; October, 2021), and 9 (compost bedded pack barns; February, 2022) times. The most recent webinar has been posted for less than one month. The reach of the webinars, webinar videos, and the amplification of webinars and other project materials through Technical Service Providers and consultants represents a substantial increase in engagement beyond the existing funded AMMP projects. These resources serve as an excellent tool for those assisting producers as a new set of voices explains important information about AMMP practices and application process.

The project website had a total of 1,982 page landings from June 1, 2021 to March 16, 2022, of which 1,382 were new visitors. Page landings are visits to a webpage that a person "lands" on after clicking through from an email, social media post, or other link. Over this same period the project website had a total of 4,104 pageviews, of which 3,048 were unique pageviews. A pageview is an instance of a page being loaded in a browser.



Table 10. Outreach and publicity				
Outlet	Торіс	Date	URL	
UCCE	AMMP manure webinar flyer	10/2021	https://cestanislaus.ucanr.edu/news_102/Dairy _Newsletter/?newsletteritem=90840	
UCCE	Manure Vacuums	5/2021	https://cestanislaus.ucanr.edu/newsletters/Dairy _Newsletter89626.pdf	
UCCE	New AMMP practices under consideration	8/2020	https://cestanislaus.ucanr.edu/newsletters/Dairy _Newsletter86425.pdf	
UCCE	Grants fund AMM practices on dairies	5/2020	https://cestanislaus.ucanr.edu/newsletters/Dairy _Newsletter85036.pdf	
UCCE / CDQAP	Every point counts: Attention to details important on AMMP	3/2022	https://cestanislaus.ucanr.edu/news_102/Dairy _Newsletter/?newsletterlist=3718	

2. Describe the efforts used to reach participants, track attendance and solicit participant feedback.

Advertisement of each webinar and invitations to attend were circulated throughout the dairy industry prior to each webinar through a number of email lists and social media accounts. Table 11 provides a list of social media and email listservs used to reach participants and the estimated number of recipients for each outlet. Webinar registration tracked attendance at webinars. Attendees had the opportunity to email feedback or additional questions or reach out through their dairy trade organizations with feedback and additional questions. Host participants debriefed with the research team after webinars. Input from partners of the California Dairy Quality Assurance Program was solicited prior to webinars and feedback was solicited post webinars at regularly scheduled quarterly meetings.



Table 11. Efforts to reach participants by participant category.				
Outlet	Description of Recipients			
	40 recipients responsible for message amplification including: – contacts at trade associations (California Farm Bureau, California Dairy Campaign, Western United Dairies, Milk Producers Council),			
CDQAP Industry Colleagues	 milk processors encompassing more than 92% of CA milk (California Dairies Inc., Land O Lakes, Dairy Farmers of America, Hilmar Cheese), – the California Milk Advisory Board and CMAB Director of Producer Relations, 			
	 UC Cooperative Extension (including all dairy advisors and livestock and natural resource advisors.) 			
	Recipients were asked to distribute further to their own producer and dairy industry contacts.			
CDQAP Partner Colleagues	54 recipients including: – government organizations such as Natural Resources Conservation Service, Regional Water Quality Control Boards covering 95% of CA dairy cows (Central Valley, San Francisco Bay, and North Coast), State Water Quality Control Board, San Joaquin Unified Air Pollution Control District, State Resource Conservation District Association, Resource Conservation Districts (coastal), Sustainable Conservation, and California Air Resources Board			
CA Milk Advisory Board Producer List	329 recipients			
UC Cooperative Extension Dairy Lists	507 recipients			
Twitter	Each webinar and each video posted on the website was shared with the following industry/producer accounts: @CDRFMedia – California Dairy Research Foundation – 198 followers @SusCon_CA – Sustainable Conservation – 3568 followers @CalCAN – California Climate & Agriculture Network – 1973 followers @CDFAClimateNews – CDFA Climate Smart Ag – 1157 followers @DairyCares – Dairy Cares – 1066 followers @CDFANews – CDFA – 15,900 followers @MorningAgClips – Morning Ag Clips – 814 followers @Feedstuffs – Feedstuffs – 20,800 followers @UCANR – UC Agriculture & Natural Resources – 13,600 followers @ca_dairy_wife – Erin Nutcher – 392 followers			



	@WUDNews – Western United Dairies – 714 followers		
	followers		
	@CalDairyMag – California Dairy Magazine – 216 followers		
Facebook	California Dairy Farmers (private group hosted by California Milk Advisory Board) – 730 members		
UC ANR California Institute for Water Resources	Links to project website and information shared with Climate Smart Educators		

CDQAP industry and Partner organizations amplified webinar advertisements and program information through their own dairy producer/industry newsletters, websites and field staff outreach. University of California Cooperative Extension Dairy Advisors and Climate Smart Educators directed people to the website, webinars and fact sheets for information on AMMP practices. Announcements were made by Advisors at industry meetings such as Farm Bureau Meetings and Ag Net West Radio (9/29/21). Example announcements used to recruit webinar participants and advertise project materials are provided in Appendix 4. Outreach and advertisement of the webinars, AMMP practices, and the application process was also done through UC Cooperative Extension Statewide Dairy Newsletters.

3. Summarize the practices showcased and outreach events accomplished during the project term.

The three primary outreach events for this project were the webinars that featured flush to scrape (vacuum system), solid-liquid separation, and a compost-bedded pack barn. Three additional outreach events took place in 2022. Detail on the date of each event and the number of attendees in provided in Table 12.



Table 12. Outreach Events and Practices Showcased					
Event	Date	Practice Showcased	Location (County)	No. Attended	No. Producers Attended
Project Webinar 1	12/10/2020	vacuum	virtual	26	11
Project Webinar 2	10/7/2021	solid liquid separator	virtual	26	12
Project Webinar 3	2/2/2022	compost bedded pack barn	virtual	27	14
World Ag Expo	2/8/2022	AMMP Program, vacuum, compost bedded pack barn	Tulare	45	5
Pasture Club Meeting	2/19/2022	Solid separation	Sonoma	31	25
Golden State Dairy Management Conference	3/23/2022	AMMP Program, vacuum, compost bedded pack barn	Stanislaus	30	15



PROJECT PICTURES OR PRODUCTS

A list of materials resulting from the project is provided in Table 13. Materials for Objective 1-5 are available online. Materials for Objective 6 are provided below.

Table 13. Materials Resulting from the Project				
Objective	Title	URL		
Objective 1 (Webinars)	Flush to scrape (vacuum)	https://www.youtube.com/watch?v=qSjyfM5UHUE&t		
Objective 1 (Webinars)	Solid liquid separation	https://www.youtube.com/watch?v=H3Rz7kU6G2Y&t		
Objective 1 (Webinars)	Compost Bedded Pack Barn	https://www.youtube.com/watch?v=hp2T0pe_IDM		
Objective 2 (Topic-based practice highlight	Compost Bedded Pack Barn	https://cdqap.org/ammp-outreach-project/		
Objective 2 (Topic-based practice highlight	Flush to scrape vacuum	https://cdqap.org/ammp-outreach-project/		
Objective 2 (Topic-based practice highlight	Flush to scrape	https://cdqap.org/ammp-outreach-project/		
Objective 2 (Topic-based practice highlight	Mechanical separation	https://cdqap.org/ammp-outreach-project/		
Objective 2 (Producer experience	Gioletti self- propelled vacuum	https://www.youtube.com/watch?v=Hi8G5uiSaF4&t		
Objective 3 (Producer experience	Wilgenburg tractor pull vacuum	https://www.youtube.com/watch?v=V2iYd_Ilvel		
Objective 3 (Producer experience	Lima Ranch experience Solid liquid separation	https://www.youtube.com/watch?v=xPaqfr1lv7k&t		
Objective 3 (Producer experience	Beretta Farm experience	https://www.youtube.com/watch?v=rpFoLjJcly0		
Objective 3 (Producer experience	Wagner Dairy experience and David DeGroot	https://www.youtube.com/watch?v=Q0KXJmRkVEU		
Objective 4 (Quick-fact sheets)	Compost bedded pack barn	https://cdqap.org/wp- content/uploads/2021/09/compost_bed_pack_barn_v 4.pdf		



Objective 4 (Quick-fact sheets)	Solids Separation With Windrow Drying or Composting	https://cdqap.org/wp- content/uploads/2021/09/separation_compost_v4.pdf
Objective 4 (Quick-fact sheets)	Solids Separation With Open Solar Drying	https://cdqap.org/wp- content/uploads/2021/09/separation_open_solar_dry ing_v4.pdf
Objective 4 (Quick-fact sheets)	Scrape/vacuum conversion pull- type tanker with windrow drying or composting	https://cdqap.org/wp- content/uploads/2021/09/vac_compost_pull_type_v4 .pdf
Objective 4 (Quick-fact sheets)	Scrape/vacuum conversion self- propelled tanker with windrow drving or	https://cdqap.org/wp- content/uploads/2021/09/vac_compost_self_prop_v4 .pdf
Objective 4 (Quick-fact sheets)	Scrape/vacuum conversion pull- type tanker with open solar drying	https://cdqap.org/wp- content/uploads/2021/09/vac_solar_pull_type_v4.pdf
Objective 4 (Quick-fact sheets)	Scrape/vacuum conversion self- propelled tanker with windrow drving or	https://cdqap.org/wp- content/uploads/2021/09/vac_solar_self_prop_v4.pdf
Objective 5 (AMMP topic specific webpage)	Project Webpage	https://cdqap.org/ammp-outreach-project/
Objective 6 (Evaluate success of outreach plan through surveys)	Webinar Polls	
Objective 6 (Evaluate success of outreach plan through surveys)	Survey of Consultants and TSPs	
Objective 6 (Evaluate success of outreach plan through surveys)	Survey of Producers	



APPENDIX 1 – POST-WEBINAR SURVEY



How interested are you in adopting a vacuum on your dairy?

- 1 Not committed
- 2 Slightly committed
- 3 Moderately committed
- 4 Committed
- 5 Very committed

N/A I've already implemented it

What is your biggest hurdle or concern about adopting a vacuum on your dairy?

Cost or financial issue

Challenging to incorporate a vacuum into my dairy

Knowledge about how to use vacuum on my dairy

Application process/paperwork if seeking grant funds

Facility visibility

Other



Given what I learned during the webinar my plans for the AMMP program are

More likely to apply

Less likely to apply

No change

Does not apply - not a dairy producer

Does not apply - have not seen webinar

What makes the AMMP program attractive to you?

Facility improvement

Money for implementation

No cost share

Build for potential expansion

Nutrient management

Reduce methane emissions

Other



What makes the AMMP program less attractive to you?

Difficult application process

Amount of paperwork/detail needed to complete the application

Level of expertise needed to complete the application

Knowledge of facility management needed to complete the application

Financial letter needed from bank

Competitive, difficult to get

I have not applied before

Other

Given the choice between a webinar and a farm tour, which would you prefer?

Webinar

Farm Tour

Other



What do you like best about the webinar format?

What do you like least about the webinar format?

What topics would you recommend for future webinars on environmental stewardship?

 \rightarrow



APPENDIX 2 – ADVISOR SURVEY QUESTIONNAIRE



AMMP Advisor Questionnaire

Dear Dairy Advisor,

In the last 4 years, more than \$75,000,000 has been granted to dairy producers through CDFA's Alternative Manure Management Program (AMMP) to improve manure management. Additional funds will be <u>available</u> <u>early in 2022</u> and more funds are in the pipeline for future years.

UC Davis, UC Agriculture and Natural Resources, and the California Dairy Research Foundation are working with CDFA to identify barriers to, and incentives for, the adoption of alternative manure management practices as they relate to the AMMP.

We appreciate your participation in our brief questionnaire, which will take approximately 6 to 7 minutes to complete.

Please complete the questionnaire in the next week. We will follow up with you in early February if necessary. Please share this questionnaire with other advisors you know.

Information collected will be summarized as recommendations and will inform future CDFA programming. Participation in this research is completely voluntary, and you may decline to answer any questions. You do not need to self-identify in order to participate in the questionnaire. If you choose to self-identify, your identifying information will not be disclosed. **Responses will be completely confidential and aggregated to ensure anonymity.**

Thank you for your support of our dairy producers and continued collaboration with UC Davis, UC Agriculture and Natural Resources, and the California Dairy Research Foundation.

Sincerely,

Deanne Meyer Livestock Waste Management Specialist Department of Animal Science UC Davis dmeyer@ucdavis.edu	Denise Mullinax Executive Director California Dairy Research Foundation Assistant Director, CDQAP mullinax@cdrf.org	Mark Cooper Assistant Professor Department of Animal Scienc UC Davis <u>mheooper@ucdavis.edu</u>	e
I consent to participating in th	iis survey		
O Yes			
O No			
0%		100%	





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C	Organization		
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E	mail		
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R	egions/Counties Served		
	Central Valley		
	Humboldt / Del Norte		
	Other		
	am a (select all that apply)		
	Field representative		
	Cooperative Extension advisor		
	Non-government organization employee		
	- Other		
V	Vere you paid to complete the application?		
	O No, I did not receive compensation		
	O I received funding from CDFA to complete applications		
	 I received direct payment from the dairy operator (e.g. paid by the hour or by the project) O option 		
	- Other		
1	n wnat years nave you provided assistance to dairy producers on the AMMP program?		
	2017		
	2019		
	2020		
	0%		
	0%		
	_		
		→	



UCD	AVIS DE CALIECIDNIA				
AMMP Adviso	r Questionnaire				
	Please categorize how you advised facilities in the appropriate box.	facility applicants on	the AMMP and insert	that number of	
	Count each facility in each year you prov then you should count it twice.)	rided assistance. (e.g. if y	ou advised the same dai	ry in two different years	
	N	lumber of Facilities	Advised:		
	Completed an entire application	Not submitted	Submitted, Not Awarded	Submitted, Awarded	
	Completed part(s) of the application				
	Minor contributor to an application				
	Please rank the barriers to complet	ing an applications or	assisting dairy produ	cers with the AMMP.	
	Rank top to bottom, where top is move items.	the biggest barrier and b	ottom is the smallest bai	rrier. Drag and drop to	
	Getting in touch with produce	ers			
	Getting quotes from contracto	ors			
	Application criteria score likel	ly low			
	Permitting and/or project read	diness concerns or application			
	Insufficient training for adviso	ors on completing applica	tion		
	Responsiveness of CDFA staff	to application questions			
	Too much demand from dairles for my available time				
	Other (enter text)				
	Too much demand from dairie	es for my available time			
	Other (enter text)				
	Please rank what you think motivate	es dairy producers to	apply to the AMMP.		
	 Rank top to bottom, where top is t move items. 	the biggest barrier and bo	ottom is the smallest bar	rier. Drag and drop to	
	Improved manure managemen	nt			
	Improved bedding manageme	nt			
	No cost share required				
	Build for potential expansion				
	Improved nutrient manageme	nt			
	Other (enter text)				
	Please provide additional comment:	s about producer inter	rest in the AMMP.		
				11	





AMMP Advisor Questionnaire

Please assess the level of concern that <u>dairy producers</u> have had when APPLYING to the AMMP.				
	Significant concern	Slight concern	No concern	
Amount of paperwork/detail needed to complete the application	0	0	0	
Difficult application process requiring expertise	0	0	0	
Knowledge of facility management needed to complete the application	0	0	0	
Financial letter needed from bank	0	0	0	
Competitive, difficult to get	0	0	0	
They don't want to apply to government programs.	0	0	0	
Other	0	0	0	
Other	0	0	0	
In past application windows, how aware do you think dairy producers were of the AMMP application process and requirements? O Very aware O Somewhat aware O Not aware				

In past application windows, how aware do you think dairy producers were of the time requirements for the AMMP application process?

- O Very aware
- O Somewhat aware
- O Not aware



CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

For those facilities that were funded, please assess the level of concern among dairy producers about IMPLEMENTING AMMP funded projects?

	Significant Concern	Slight Concern	No Concern
Out-of-pocket cost to install project	0	0	0
Actual versus estimated cost of project	0	0	0
Unanticipated infrastructure needs	0	0	0
Labor for proper operation and maintenance	0	0	0
Costs associated with operation and maintenance of equipment	0	0	0
Inadequate technical support	0	0	0
Inexperience with the technology (learning curve producer needs to go through to make technology work at facility)	0	0	0
Permitting (Air District, Regional Water Board, County, Coastal Commission)	0	0	0
Electrical connection for equipment	0	0	0
Facility visibility	0	0	0
Other:	0	0	0
Other:	0	0	Ο

How can the AMMP process be improved? (select all that apply)

- □ Streamline application process
- □ Share reviewer's feedback on applications
- Improve calculator to accommodate all eligible animal species
- □ Improve communication between individual TSPs and CDFA
- □ Improve publication of individual TSP questions and answers
- □ Maintain interactive message board between TSP and CDFA
- Provide 90 day application window
- Fund more projects
- Increase project fund cap
- Other:
- Other:
- Other:



What advice would you give to o	lairy producers looking to participate in	the AMMP?	
0%		100%	
F			-
			Powered by Qualtrics 岱



APPENDIX 3 – DAIRY PRODUCER QUESTIONNAIRE



Dairy Producer Questionnaire

Dear Dairy Producer,

In the last 4 years, \$68,400,000 have been granted to dairy producers to improve manure management. Additional funds will be available early in 2022 and more funds are in the pipeline for future years. Please help us help you. Information collected will be summarized to inform and improve future CDFA program delivery.

This is a brief questionnaire, which will take approximately 8 minutes to complete.

Participation in this research is completely voluntary, and you can decline to answer any questions. You do not need to self-identify in order to participate in the survey. If you choose to self-identify, your identifying information will not be disclosed. Your participation is voluntary, and your responses will be completely confidential. Your responses will be aggregated to ensure anonymity. If you have any questions or would like to discuss the survey, please feel free to contact us. Our contact information is included below.

In appreciation of your time, the first 100 completed surveys will receive a \$10 gift card.

Thank you for your continued collaboration with UC ANR and CDRF. Feel free to contact us with any questions.

Sincerely,

Deanne Meyer Department of Animal Science Assistant Director, CDQAP UC Davis Livestock Waste Management Specialist dmeyer@ucdavis.edu

Betsy Karle Dairy Advisor Northern Sacramento Valley bmkarle@ucanr.edu

Denise Mullinax California Dairy Research Foundation mullinax@cdrf.org

Randi Black Dairy Advisor Sonoma, Marin, Mendocino Counties rablack@ucanr.edu

Jennifer Heguy Dairy Advisor San Joaquin, Stanislaus, and Merced Counties jmheguy@ucdavis.edu

Daniela Bruno Dairy Advisor Madera, Fresno and Kings Counties dfbruno@ucanr.edu

Mark Cooper Jeffery Stackhouse Professor Livestock Advisor Department of Animal Science Humboldt, Del Norte Counties UC Davis jwstackhouse@ucanr.edu mhcooper@ucdavis.edu





Dairy Producer	Questionnaire	
	How have you been involved with the California Department of Food and Agriculture's Alternativ Manure Management Practices Program (AMMP)?	e
	O Lam not aware of AMMP	
	O I am aware of the program but have not considered applying	
	O I have applied for funds with AMMP, but did not receive funding	
	O I have applied for funds with AMMP, and received funding	
	Current Completion	
	0% 100%	
	-	-
		Devered by Ouslinias 52
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Dairy Producer Questionnaire

CDFA's Alternative Manure Management Program (AMMP) provides financial assistance for the implementation of non-digester manure management practices in California, which will result in reduced greenhouse gas emissions.

What is an alternative manure management practice?

Alternative manure management practices involve handling and storing manure in ways that don't include use of an anaerobic digester, and support management of manure in a dry form. Currently, eligible practices for funding through AMMP include: pasture-based management; alternative manure treatment and storage (such as compost bedded pack barns); and solid separation or conversion from flush to scrape in conjunction with some form of drying or composting of collected manure.







Dairy Producer Questionnaire

If you applied, or would like to apply to AMMP, what motivates you?

	Very motivating	Somewhat motivating	Not motivating
Facility improvement	0	0	0
Money for implementation	0	0	0
No cost share required	0	0	0
Build for potential expansion	0	0	0
Nutrient management	0	0	0
Reduce methane emissions	0	0	0
Other	0	0	0
Other	0	0	0

What concerns would you have when applying to AMMP ?

	Strong concern	Possible concern	Not a concern
Amount of paperwork/detail needed to complete the application	0	0	0
Difficult application process requiring expertise	0	0	0
Knowledge of facility management needed to complete the application	0	0	0
Financial letter needed from bank	0	0	0
Competitive, difficult to get	0	0	0
I don't want to apply to government programs.	0	0	0
Other	0	0	0
Other	0	0	0





Dairy Producer Questionnaire

When funds become available through an incentives program (such as AMMP or EQUIP), which of the following would you consider implementing?

	Already implementing	Would consider implementing	Would NOT consider implementing
Compost bedded pack barn	0	0	0
Solid separation with with open solar drying	0	0	0
Solid separation with windrow composting or drying	0	0	0
Scrape/Vacuum conversion with windrow composting or drying	0	0	0
Scrape/Vacuum conversion with open solar drying	0	0	0
Other	0	0	0
Other	0	0	0

Of the practices you would consider implementing, how would you rate your concerns or barriers to implementing them?

	Very concerned	Somewhat concerned	Not concerned
Cost or financial issue	0	0	0
Challenging to incorporate with existing infrastructure	0	0	0
Operation and maintenance (labor, etc)	0	0	0
Inexperienced with the technology	0	0	0
Permitting	0	0	0
Facility Visibility	0	0	0
Other	0	0	0





Dairy Producer Questionnaire	
 What sources of information do you find most valuable when it comes to selecting new manure technologies or practices for your dairy? County Cooperative Extension Advisor Dairy consultants Other dairy producers Family members or partners Dairy-producer organizations / Industry groups Trade Shows Magazines or newspapers Online sources (websites, blogs, forums) Social media Other 	
Survey Completion 0% 100%	
	Powered by Qualtrics





Dairy Information If you choose to self-identify, your identifying information will only be accessible by members of research team and will not be used in reporting of results. Your responses will be completely confidential		
	Dairy Information	
Dairy Name		
County		
# of Milking Cows		
Milk / cow / day (lbs)		
Breed		
Contact Information If you choose to self-identify, your identifying information wi and will not be used in reporting of results. Your responses	II only be accessible by members of research team will be completely confidential	
Contact Information f you choose to self-identify, your identifying information wi Ind will not be used in reporting of results. Your responses	Il only be accessible by members of research team will be completely confidential Contact Information	
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Contact Information If you choose to self-identify, your identifying information wi and will not be used in reporting of results. Your responses Your Name Role (Owner, Manager, Other) Email Address Phone Number	Il only be accessible by members of research team will be completely confidential Contact Information	
Contact Information f you choose to self-identify, your identifying information wi and will not be used in reporting of results. Your responses Your Name Role (Owner, Manager, Other) Email Address Phone Number	Il only be accessible by members of research team will be completely confidential Contact Information Contact Information urre management technology use?	
Contact Information you choose to self-identify, your identifying information wi nd will not be used in reporting of results. Your responses Your Name Role (Owner, Manager, Other) Email Address Phone Number May we contact you with follow-up questions on man O Yes	Il only be accessible by members of research team will be completely confidential Contact Information	





Dairy Produce	r Questionnaire			
		We thank you for your time spent taking this survey. Your response has been recorded.		
		Survey Completion 0% 10	00%	
			Pov	vered by Qualtrics 🗅



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APPENDIX 4 – EXAMPLE OUTREACH ANNOUNCEMENTS



CDRF @CDRFMedia · Jan 28 AMMP Webinar on Compost Pack Barns: February 2 at 4:00 pm bit.ly/AMMPStudyReg

FREE for Dairy producers! Join us to explore a case study & ask questions of dairy producers who have implemented this practice with AMMP funds. @CDFAnews @MorningAgClips @Feedstuffs @DairyCares



♀ 😂 ၤ ♡¹ ↥ ᅦ

Hanuman Vishnoi liked your Tweet

AMMP Webinar on Compost Pack Barns: February 2 at 4:00 pm bit.ly/AMMPStudyReg

FREE for Dairy producers! Join us to explore a case study & ask questions of dairy producers who have implemented this practice with AMMP funds. @CDFAnews @MorningAgClips @Feedstuffs @DairyCares pic.twitter.com/0CEkP5Vd6O

17 🍯

Sustainable Conservation Retweeted your reply

Want to see how CA producers have used AMMP funding? Learn first-hand from peer dairy farmers and acquire fact-based, real-time information. Producers guide us through the thought process they used to select their chosen AMMP practice. cdqap.org/ammp-outreach-...



Sustainable Conservation liked your reply

Want to see how CA producers have used AMMP funding? Learn first-hand from peer dairy farmers and acquire fact-based, real-time information. Producers guide us through the thought process they used to select their chosen AMMP practice. cdqap.org/ammp-outreach-...





CDQAP Quality Assurance Update - January 2022

Antibiotic Stewardship on Track on California Dairies

By Dr. Michael Payne, UC Davis, School of Veterinary Medicine; Director, CDQAP

T e federal Food and D rug A dm in istration is poised to require nation-wide veterinary oversight of the use of m edically in portant an tibiotics in all livestock. T e new requirem entwill be enacted probably by m id-2003. In part thism eans that regard less of the type of livestock or poultry being raised, farm ers wan ting to use an tibiotics that are also used in hum an medicine will need a prescription from their herd or fock veterinarian.

W hile the change m ay be in portant in other states, itwon't af ect producers in C aliform in Since 2018, with the passage of <u>Senate Bill 27</u>, C aliform in has already required livesbock producers to consult with their herd veterinarians on an tibiotic use. In fact, rether then concern in a new rest. rather than concerning news, this new national in itiative by FDA noton by kvels the regulatory playing fell across the country, it also high lights the progress the Californias livestock industries have m ade over the last four years.



California's Leadership on Antibiotic Steward ship Californish Leadership on An tibiotic Steward ship At the heart of the states efort to preserve antibiotic efectiveness is CD FA's An tim icrobial Use& Stewardship (AUS) Program. Consisting of veterinarians, epidem io bigists and specialists, the program addresses the complex issue of an tibiotic resistance on a variety of fronts. T is includes data collection of antibiotic sales, monitoring developm ent of drug resistance, surveys of industry practices, funding research on an tibiotic alternatives and industry outreach and industry outreach.

In partnership with CDFA, California producers have led the nation in adaption of practices which help preserve the effectiveness of an tibiotics for hum ans and livestock alike. Even before the implementation of the new regulations, 92% of the states dairy producers already relied on their herd veterinarian for antibiotic guidance. In the years subsequent to SB 27, California dairy fammers



AMMP Webinar on Compost Pack Barns:

February 2 at 4:00 pm Additional A M N P funding is anticipated in late February. D airy producers have successfully reduced manure fow to lagoons by installing and m anaging com post bedded pack bams. Join us for a web nar to explore a case study. A sk questions of dairy producers who have



NLIFORNIA DAIRY

Quality Assurance

in plem ented this practice with A ltemative M anure Managem entProgram funds. February 2: 4 - 4:30 PM, FREE for Dairy Producers Register Here or by using the QR Code above.

View pastAM M P webinars on CDOAP swebsite.

Hold the Date: Golden State Dairy Management@onference

T e University of California Golden State Dairy M anagem ent conference will take place on Wednesday, March 23 at the Stanislans County Ag Center. Stay tuned form ore inform ation.



T e next virtual California Dairy Sastain ability Summit will take place on Inc on Aprill 2-14. Registration for dairy fam ers is \$25 and is now open. Tak to your trade organization of fell representative about potential opportunities for complimentary registration. Check out the grow ing speaker roster and details at cadairy sum m it com.



Golden State

CDQAP Certifie Facilities:

Confir Your Water Board Fee Invoice Includes Discount!

Annual invoices have been m ailed from the State W ater Q uality ControlBoard for the Dairy GeneralOrder.CDQAP certifed facilities in good standing enjoy a 50% discount in fees. A sm all percentage of certif ed

facilities were not credited for the discount in their invoice th is year due to a computer error.W ater Board staf are working hard to resolve the problem .For af ected producers, revised invoices



will be mailed. If your facility is CDQAP certifed, double-check your invoice before m ailing paym ent to be sure your invoice includes the "CAF-REDUCTION" credit. If your facility did not receive the "CAF-REDUCTION" credit in your invoice, please wait for the revised invoice before paying fees.

CDQAP is a program of the California Dairy Research Foundation.











AMMP Project Tours & Awareness Outreach December 8, 2020 · 🛞

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Interested in Moving More Manure Off-farm? Interested in Vacuum Technology?

Join dairy producers talking about using vacuums on their dairies and how vacuums have helped improve their manure management program!

Managing Manure: Complimenting Flush Systems to Manage Solids and Increase Solids Exports Date: Thursday, December 10

Time: 4-4:30 pm... See more

UCANR.EDU

Managing Manure: Complementing Flush Systems to Manage Solids & Increase...

Dairy producers have successfully incorporated vacuuming into their manure collection practices. Join us for an introduction to and...





#CADairy #ClimateSmartDairy

AMMP Project Tours & Awareness Outreach November 30, 2020 · 🔇

...

THU, DEC 10, 2020 Managing Manure: Complimenting Flush Systems to Manage Solids and Increase Solids Exports



Manage Cdrf
California Dairy Farmers
September 30, 2021 ·

...

California Dairy Research Foundation invites you to a webinar titled, Managing Manure: Keeping More Solids Out of Lagoons PRODUCERS ATTEND FOR FREE!

It will be held on October 7th at 4:00 pm. This outreach project is funded by CDFA and delivered in partnership by CDQAP, CDRF, and UC Agriculture and Natural Resources.

• Hear from a consultant and producer who applied for and implemented innovative manure handling technologies.... See more







Manage Cdrf ▶ California Dairy Farmers December 3, 2020 · ⊕

...

Greetings, ALL:

Introducing the first in a series of technology webinars on alternative manure management practices. Next Thursday, Dec. 10, 4 - 4:30 pm.

This 30-minute session addresses Flush-to-Scrape Conversion/Combinations:

- Hear from other CA producers who have purchased and installed vacuums
- Learn how they like them and how they are using them (lanes, frequency, and timing)

See more

UCANR.EDU

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Managing Manure: Complimenting Flush Systems to Manage Solids & Increase... Dairy producers have successfully incorporated

vacuuming into their manure collection practices. Join us for an introduction to and...



Dayna Wilson Ghirardelli Admin · October 1, 2021 · 😁

...

There is a great webinar coming up about CDFA's Alternative Manure Management Program

- Hear from a consultant and producer who applied for and implemented innovative manure handling technologies.
- Learn how projects funded through the Alternative Manure Management Program (AMMP), including automated scrapers and advanced separators, have helped dairies make the most out of manure solids.
- Watch a video of these technologies at work on North Coast and Central Valley dairies, and fin... See more





CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE





CalCAN @calclimateag · Jan 6

Funding for AMMP coming soon! calclimateag.org/new-funding-fo...

Replying to @calclimateag

Want to see how CA producers have used AMMP funding? Learn first-hand from peer dairy farmers and acquire fact-based, real-time information. Producers guide us through the thought process they used to select their chosen AMMP practice. https://cdqap.org/ammp-outreach-project/



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Sustainable Conservation @SusCon_CA · Aug 20, 2021 Digesters are great, but they're not a one-size-fits-all #dairy #manure solution. AMMP looks at solutions and tech for all kinds of operations! twitter.com/ucanrwater/sta...

 UC Water Institute @ucanrwater · Aug 17, 2021
 "Taken as a whole, the @CDFAClimateNews Alternative Manure Management Program has led to a reduction of 1.1 million metric tons of carbon dioxide equivalents over five years, the equivalent of 243,310
 cars being taken off the road." #ClimateSmartAg
 twitter.com/ucanrwater/sta...

Replying to @SusCon_CA

DAIRY

Want to see how CA producers have used AMMP funding? Learn first-hand from peer dairy farmers and acquire fact-based, real-time information. Producers guide us through the thought process they used to select their chosen AMMP practice. https://cdqap.org/ammp-outreach-project/



AMMP Project Tours & Awareness Outreach September 29, 2021 · 🔇

LIVE WEBINAR: How to Use AMMP Funds to Improve Manure Handling & Reduce Methane Emissions Join the Live Webinar Thursday, October 7, 4 - 4:30 p.m.

Producer registration is FREE – just sign up at https://surveys.ucanr.edu/survey.cfm?surveynumber=35816! (\$10 registration fee all others)... See more





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CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

CDRF @CDRFMedia · Dec 8, 2020

Still time to catch the live Q&A with CA Dairy Farmers about how their vacuum install and use is working for them!

🔤 CDRF @CDRFMedia · Dec 2, 2020

Sign up Here! #ManagingManure: Complimenting Flush Systems to Manage Solids & Increase Solids Exports. CA Dairy Farmers discuss vacuum install complementing flush. Webinar: 12/10 4pm buff.ly/3ltci1F @ca_dairy_wife @WUDnews @CADairyCampaign @CalDairyMag @DairyCares



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February 2 Webinar: Compost Bedded Pack Barn Installation, Management

California Dairy Quality Assurance Program

Dairy producers have successfully reduced manure flow to lagoons by installing and managing compost bedded pack barns. Join us for an introduction to, and overview of, compost bedded pack barn installation and management on dairies. View a case study and ask questions of dairy producers who have utilized this management practice with Alternative Manure Management Practice funds.

The webinar is from 4-4:30 p.m. Wednesday, February 2. Registration is \$10 and available here.





WEEKLY UPDATE | February 1, 2022



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WESTERN**UNITED**DAIRIES

California Cattle Council Renews Dairy Sustainability Position for 2022

-Anja Raudabaugh, CEO

Last year in collaboration with the California Cattle Council, Western United Dairies Foundation (WUDF)

brought new funding resources through state and federal programs to our dairy farmers under a new program designed to focus solely on creating water certainty. In the case of last year's abysmal hydrology, we wanted to make sure our dairy families were maximizing available assistance and receiving relief wherever needed. Working towards solutions within SGMA's demand reduction requirements,



diversification, and expansion of water supply for reliability and drought resilience, the position found financial resources for water and management practices. Developing unique partnerships and relationships for water supply reliability, not just for our farms, but for our communities, will be an ongoing objective to helping dairy survive in California. The 2021 Sustainability Position was highly successful across the dairy industry for small, large, organic and conventional dairy families. In just six short months, over 155 dairy families were directly assisted, and spanned the dairy space across cooperatives, creameries, and trade groups (WUDF-CCC Proposal with summary) *CONT. page 3*

AMMP Webinar on Compost Pack Barns: <u>February 2 at 4:00 PM</u> CDQAP Quality Assurance Update—January 2022

Additional AMMP funding is anticipated in late February. Dairy producers have

successfully reduced manure flow to lagoons by installing compost bedded pack barns. Join us for a webinar to explore a case study. Ask questions of dairy producers who have implemented this prace



implemented this practice with Alternative Manure Management Program funds.

February 2: 4-4:30 PM, FREE for Dairy Producers Register HERE





California Dairy Quality Assurance Program Update: Tricolored Blackbirds, Nutrient Budgeting, AMMP Survey



Courtesy of the California Dairy Quality Assurance Program

Here are highlights from the most recent California Dairy Quality Assurance Program (CDQAP) newsletter. Read the entire update <u>here</u>.

Be on the Lookout

Nesting season for the threatened tricolored blackbird is about 60 days, starting as early as February. As wetlands have continued to disappear, dairy forage fields have become a favorite nesting place for the species. *Continue reading <u>here</u>*.

Don't Forget the Water

By Deann Meyer, Ph.D., Livestock Waste Management Specialist, UC Davis, Dept. of Animal Science

So far, 2022 is DRY. In addition to other things, that means the nutrients in your lagoon may be more concentrated. Be sure to add fresh water as you apply liquid manure so nutrients are applied at appropriate rates. Keep in mind, if crop yields are off at harvest, you'll want to check crop nitrate concentrations and talk with your nutritionist. *Continue reading <u>here</u>*.

Producer Survey Mailed: Please Return!

Help us help you. Dairy producers should receive a survey this week on the Alternative Manure Management Program (AMMP). More AMMP funds will be available in 2022, and additional funding is anticipated for future years. Information gathered in the survey will be provided to CDFA to help improve future program delivery. Participation is voluntary and your information will remain confidential.