

**CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE (Department)
FERTILIZER INSPECTION ADVISORY BOARD (FIAB)**

**CDFA
2800 Gateway Oaks Drive
Sacramento, CA 95833
Room 101
(916) 900-5022**

**September 26, 2018
9:00 a.m.**

MINUTES

MEMBERS

Andrew Godfrey
David McEuen
Doug Graham
Melissa McQueen, Chair
Steve Spangler, Vice Chair

MEMBERS ABSENT

Gary Silveria
Jake Evans
Jay Irvine
Ron Naven

CDFA

Adriana Avalos
Amadou Ba
Angelia Johnson
Bahar Makhjavan
Barzin Moradi
Brittnie Sabalbro
Dale Woods
Kristopher Gulliver
Mark Cady
Martin Burger
Maryam Khosravifard
Natalie Jacuzzi
Natalie Krout-Greenberg
Nick Young
Stan Kobata

INTERESTED PARTIES

Greg Cunningham
Renee Pinel

INTRODUCTIONS AND ANNOUNCEMENTS

Melissa McQueen, Chair, called the meeting to order at 9:05 a.m. Self-introductions were made, and a quorum was established. Gary Silveria, Jake Evans, Jay Irvine, and Ron Naven were absent.

Chair McQueen announced that board terms expire on October 14, 2018 for three current board members. Ron Naven has discontinued board membership; he is no longer employed by Yara.

APPROVE JULY 10, 2018 MEETING MINUTES

Chair McQueen requested the board review the minutes from the July 10, 2018 FIAB meeting.

MOTION: Steve Spangler moved to approve the minutes; Doug Graham seconded. The motion passed unanimously by all board members present with a vote of 5 - 0.

DEPARTMENT / DIVISION / BRANCH UPDATES

Natalie Krout-Greenberg stated the Department is preparing transition documents for the next administration in the coming year. The documents are for the Governor's Office and Executive Office to better understand Division roles within the Department and high priority areas the Department will face this fall and next spring. The Department has worked on a revised strategic plan for the next five years highlighting the importance of a department workforce plan. The development of the workforce plan is to recruit new staff and retain current staff's knowledge and expertise for future growth and leadership. The Division's workforce plan focused on data comparison from 2015 to 2018 to ensure the Division addresses proper mentorship programs allowing entry level classifications the ability to continue state service assuming roles at incremental levels where they have the expertise and have met the minimum qualifications to grow into a leadership position in the future.

Natalie Krout-Greenberg reported, as a result of the E. coli outbreak linked to romaine lettuce originating from Arizona, the Division's Produce Safety Program (PSP) has participated on the Leafy Greens Food Safety Task Force. The task force is working with the produce industry, Centers for Disease Control (CDC), U.S. Food and Drug Administration (US-FDA), and the Department of Public Health (CDPH) to assess and address issues associated with the outbreak from supply chain and traceability, to investigative research and outcomes. Natalie Krout-Greenberg stated an update on the FDA investigative report will be presented at the next FIAB meeting.

Senate Bill (SB) 1383, which passed in 2016, pertains to reducing emissions of short-lived climate pollutants. CalRecycle's development of regulations for the bill has a component related to the work of the Department's Feed, Fertilizer, and Livestock Drugs Regulatory Services Branch. The Department is working with CalRecycle on a waste characterization study. This study may touch on data collection to the Feed program's tonnage reports and participation with CalRecycle in identifying landfill products that could be repurposed for other uses for digestors, compost, or diversion to animal feed, as opposed to waste channels. Natalie Krout-Greenberg anticipates that Feed regulations that address specific tonnage data criteria will help inform studies long term.

Amadou Ba announced that per the Bagley Keene Act, the agenda items to be discussed at the meeting are to be displayed in a new brief format; additionally, the

meeting minutes will no longer include gender specific salutations, but only first and last name.

Amadou Ba gave a legislative update and reported there were very few legislative impacts to the Fertilizer program. SB 844, regarding the Agricultural Safe Drinking Water Fees, did not pass through the Assembly; however, the bill may be recycled next year. The weight of the assessment was eight mills per dollar sale for fertilizer intended for farm use and four mills per dollar sale for noncommercial use, which was expected to bring in a \$20 million-dollar revenue from the fertilizer industry. SB 668, signed by the Governor, regarding administrative civil penalties, impacts the Feed program. The administrative penalties will be a mechanism for the Feed program to address violations and allow the program to move forward without having to go through the District Attorney's Office or the Attorney General Office.

A budget change proposal (BCP) for the Feed program was approved. The BCP requested four positions for the Feed Safety Implementation Program; three scientific and one administrative support staff.

Amadou Ba gave an Antimicrobial Use and Stewardship Program (AUS) update. The Inspection Services Division (ISD) is responsible for the sales and distribution of medically important antimicrobial drugs and restricted livestock drugs (RLD), and the Animal Health Division is responsible for the stewardship. AUS regulations were filed by the Secretary of State and effective on August 16, 2018. AUS is in the implementation phase of addressing the sale and recordkeeping of RLD licenses. AUS is also working on an outreach plan to educate the industry on compliance with the newly effective AUS regulations.

The Fertilizer Research and Education Program (FREP) continues engagement with stakeholders on Central Coast and Central Valley issues. FREP recently attended an educational workshop on agricultural orders in the Central Coast with agricultural and environmental groups and continues its ongoing involvement on Central Valley Salinity Alternatives for Long-term Sustainability. The Certified Crop Advisors (CCA) training is still ongoing; 1,200 CCAs in state and 950 CCAs were trained via the FREP grant. A CCA training is scheduled next year in Fresno, California. A meeting with the University of California, Davis, will take place October 1, 2018 to brainstorm alternative ways to train CCAs in the future.

The Branch is working with the Office of Information Technology on ways to enhance the program's database with a bifurcation between organic and conventional fertilizing material products by creating a mechanism allowing program staff to separate the mill assessment revenues. If SB 844 becomes law, the Branch will have the mechanism for separating the Department and State Water Board funds.

Amadou Ba provided a staff update. FREP's former Agricultural Aide (AA), Nicole Crouch, was hired as an Environmental Scientist. The Branch Office Support Staff also hired Rob English, AA.

FUND CONDITION / MILL ASSESSMENT / TONNAGE REPORTING

Angelia Johnson reported, as of June 30, 2018, the beginning fund balance of commercial fertilizer was \$8,455,352; organic input material (OIM) was \$743,174; the combined total was \$9,198,526. The commercial fertilizer revenue was \$5,532,645 and OIM was \$1,712,351; 23.6 percent of OIM revenue was due to mill assessment. Expenditures were \$4,370,686 for commercial fertilizer and \$1,081,280 for OIM; encumbrances were \$70,129 for commercial fertilizer and \$32,037 for OIM. Combined total funds for commercial fertilizer and OIM were \$10,991,556 with an adjusted balance of \$10,889,390.

Angelia Johnson reviewed the FREP fund condition and reported the beginning balance was \$3,648,076; revenue was \$2,684,469; expenditures were \$1,785,382; encumbrances through June 30, 2018 were \$1,122,783 with a total adjusted balance of \$3,424,380.

Angelia Johnson presented the mill assessment for fiscal year (FY) 17/18. The total fertilizer mill assessment at three mills for the year was \$8,448,500. The mill assessment has been stable in comparison to FY 16/17, highlighting an \$80,000 revenue increase.

Steve Spangler asked about program opinion on the previous concern of the fund condition being high. The board wants to be cognizant of grower expenditures ensuring they pay for services via mill assessment and not for another purpose other than for what is intended. Natalie Krout-Greenberg responded that with the understanding of industry's funds, it is the Division's intent to fund the program and to keep a six month reserve in case a program closed. Natalie Krout-Greenberg stated she is aware of the excess reserve and seeks guidance from the board on how to address this situation by relying on board feedback on trends in the fertilizer industry. The feedback received in the past was an expectation of a down turn to be adjusted and reflected in revenue.

Steve Spangler suggested the program consider moderating the mill. The industry went through a three-year slump of the fertilizer prices, especially nitrogen (N) which is related to crude oil prices. N imports are directly related to costs of petroleum, leading to less production which results in a rapid increase in N, like phosphate and potash. There is a decline in the industry in favor of more production off-shore and a gap between possible online production for all three major products. A major impact from China, who removed coal plants, has changed the global N balance. Because of import costs and the disappearance of available products from China, prices are escalating sharply on the West Coast with a 30 percent increase on fertilizer and N based products. Given

price escalations, Steve Spangler proposed trimming the mill rate to reflect 2015 revenue versus the last couple years.

Chair McQueen concurs with Steve Spangler's assessment stating the reason for anticipating the downturn is due to the new N plants that were significantly appearing in the US online; most are completed while some require improvement. With China scaling back on their coal production, China wants to go into ethanol products which will produce more corn, requiring more fertilizer, and changing the global supply demand. The outlook on the next five years is that fertilizer will have a firm pricing.

Amadou Ba stated the board can make a recommendation to the secretary proposing to change from three to two mills; one for commercial fertilizer and one for FREP. Amadou Ba stated if commercial fertilizer is placed at one mill, the only imbalance would be the impact on OIM's revenues, a barely self-sustainable program. Dale Woods stated the program separates the mill based on firms reporting of organic or conventional fertilizer sales. A change in mills will require the program to go through the regulatory process. Dale Woods stated he does not see many opposing the change.

Chair McQueen agrees with the proposal to change to two mills, acknowledging that the change may impact OIM. Renee Pinel suggested the board refine the comment of OIM being impacted advising that the board recognizes that the funds may be impacted but that the vote to change to two mills is not for the program to be impacted. For clarity purposes, even though the OIM program may be underfunded, it is the intent of the board to continue to fund the OIM program.

MOTION: Steve Spangler moved to approve a recommendation to the secretary to change the mill assessment rate to two mills; Doug Graham seconded. The motion passed unanimously by all board members present with a vote of 5 - 0.

PROGRAM UPDATES

Maryam Khosravifard provided a lab update and reported the lab received 958 samples, a 66 percent total received last year, and 101 rush samples, a 10 percent total from last year. Rush assays were 12 percent of the total number of assays requested. The sample turnaround time has improved over last year; 85 percent within 15-21 days.

The lab's focus is modernizing equipment, training staff, and updating methods from wet chemistry to newer technology, which has shown to improve turnaround time and productivity. The lab has met accreditation requirements for only the Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) method. The lab must comply with new International Standards Organization (ISO) 17025 by 2020 and build a robust laboratory management system that would allow the lab to operate consistently in daily operations. The accreditation is a two-year cycle with seven goals highlighting that the lab must focus on a risk-based approach. The lab must identify areas in the lab methods that may contribute to error correlating to being accurate, timely, and consistent. The challenges faced by the lab are an outdated lab, insufficient skilled staff,

and retiring staff. A two-year plan is in place to expand resources within personnel, facilities, and equipment, and develop a work flow for consistency with the new ISO requirements on expanding the elements of impartiality and confidentiality in their work process.

Chair McQueen stated Jay Irvine is encouraged by the details given by the program's lab and is willing to collaborate and advise on synergies within the lab. Maryam Khosravifard responded stating the lab appreciates and accepts the board member's effort to collaborate. Barzin Moradi agreed stating it will be beneficial for the lab to build a process based on how Jay Irvine currently runs his own lab.

Dale Woods presented the FY 18/19 proposed revised budget and FY 19/20 budget for commercial fertilizer. There has been a gradual progression with the personnel services as the salaries continue to go up varying by bargaining units and staff turnover. Most budget line items are consistent, highlighting the decrease in equipment cost from FY 18/19 \$50,000 to FY 19/20 of \$10,000; the program does not anticipate purchasing vehicles in FY 19/20. The substantial change in the distributed costs for the lab's equipment FY 18/19 proposed revised budget of \$350,000 are for specific items in the lab.

Chair McQueen asked why the operating expenses line item titled 'professional services internal/external' is substantially higher than previous years. Dale Woods responded that it is due to the modification of the program's ExtraView database for future developments of mill assessments, including the program payment for more licenses.

Dale Woods presented the FY 19/20 proposed budget stating the program was approved for the EcoCert contract which has a similar amount in the FY 18/19 approved budget. The program incurred substantial chemistry lab expenses in FY 17/18 budget compared to the FY 17/18 actual expenses primarily due to a significantly large ongoing investigation of material labeled as an OIM.

MOTION: Steve Spangler moved to approve the FY 18/19 revised budget and FY 19/20 proposed budget; David McEuen seconded. The motion passed unanimously by all board members present with a vote of 5 - 0.

Dale Woods presented the FREP FY 18/19 and FY 19/20 proposed budget. Personnel services costs in both budgets are primarily due to vacancies. FREP has increased costs for in-state travel reflecting their involvement in a variety of boards and statewide activities to meet the program's mission. FREP's fluctuations are with research contracts which are tied to how the researcher's submission of invoices are carried over a three-year period.

MOTION: Doug Graham moved to approve the FREP FY 19/20 proposed budget; Andrew Godfrey seconded. The motion passed unanimously by all board members present with a vote of 5 - 0.

Martin Burger gave a fertilizer registration update. As of September 4, 2018; 7,654 conventional fertilizer labels and 1,517 OIM labels were approved. Martin Burger presented the number of labels under the Department's pending review and labels under registrants review. From January 1st to August 31st, 1,184 conventional fertilizer labels and 367 OIM labels were submitted; 751 conventional fertilizer labels and 204 OIM labels were approved. Martin Burger gave a projection of total labels to be renewed every six months and the amount of staff time to review renewal labels, based on the program's registration staff review of labels to be renewed.

The program field and registration staff participated in the Lean Six Sigma White Belt training for internal process improvements. The program continues to educate the industry by hosting an annual Fertilizing Materials Registration Workshop. The workshop is on November 7 – 8, 2018 in La Jolla, California.

Nick Young presented an inspection, regulation, and Association of American Plant Food Control Officials (AAPFCO) update. The 45-day comment period for the program's proposed rulemaking to revise the administrative penalties violations matrix, ended on August 20, 2018. The program received constructive comments and will respond to comments and revise the proposed amendments.

Nick Young attended the AAPFCO summer annual meeting this past August. Nick Young presented a summary of definitions discussed at the meeting, including bat guano and seabird guano; calcium ammonium nitrate (CAN) is still under discussion. The Department is continuing to work with Yara on a solution regarding the acronym CAN.

Nick Young briefly discussed *The Fertilizer Institute's Director of Regulatory Affairs* presentation on biostimulants and the fertilizer industry. The biostimulant coalition coordinated industry/association meeting with the United States Department of Agriculture (USDA) resulted in a biostimulant working group to develop a framework for national registration/certification process. The US House passed a farm bill on biostimulant language which stipulated a definition with a desired objective for a national framework to approve and register biostimulants at USDA.

Nick Young gave a 2018 OIM inspection update. As of August 28, 2018, 85 OIM inspections were completed; 13 mass balance and 22 out-of-state and out-of-country. EcoCert, on a two-year contract, will resume out-of-state and out-of-country inspections. Nick Young reported 919 total samples were collected, 31 percent of the total is OIM. There were 20 Notice of Proposed Actions submitted through August 20, 2018; 11 are paid or under a payment plan; two are in default; two are pending reply or hearing; and five are under review. The number of administrative penalties have been consistent for the past four years.

Andrew Godfrey asked what percentage of the total administrative penalties are OIM. Nick Young responded stating of the total, 12 are conventional fertilizer, six are OIM, and two are both conventional fertilizer and OIM.

Natalie Jacuzzi gave a FREP update and reported the Technical Advisory Subcommittee (TASC) reviewed and recommended 12 proposals that addressed program research priorities. Natalie Jacuzzi gave an overview of the six proposals recommended for funding and presented the FY impact of each proposal. The FREP conference is on October 22-24, 2018 in Seaside, California. The conference includes a field day to visit Tanimura & Antle and Huntington Farms and learn about their irrigation and nutrient management strategies to cope with increasing demands in the Central Coast region.

MOTION: Andrew Godfrey moved to approve the six proposals recommended for funding; Doug Graham seconded. The motion passed unanimously by all board members present with a vote of 5 - 0.

Chair McQueen provided a board and TASC vacancy update and reported terms expire October 14, 2018 for Jake Evans, Andrew Godfrey, and Ron Naven. Chair McQueen stated that, alongside the review of applicants, the board is looking for representatives who are active and engaged in California's fertilizer industry, and continued coverage in all aspects from major nutrient manufacturers to formulators, to home and garden, to all facets. Chair McQueen asked the board to review and provide input on the list of eight applicants.

Steve Spangler expressed the importance of background and continuity with the recruitment of board members, as it influences the direction of long-term issues. A variety on the board representing significant portions of the industry allow for a diverse background in terms of industry impact and expertise with fertilizer registrants, labs, and inspection services.

Chair McQueen announced that applicant Edward Needham listed Needham Ag Services on his application which is not licensed and would not be eligible for board membership; however, Edward Needham is a sales agent for TI Inc, and American Ag Inc. which are licensed. Chair McQueen spoke on behalf of Jay Irvine who endorses him stating that Edward Needham is very active in the community throughout California and the farm bureau. Edward Needham represents two fertilizer companies, works with Duarte Nurseries, an expertise in soil amendments, used to own a gypsum plant, and has long-term experience. The program has requested Edward Needham submit an amended application indicating the two licensed fertilizer companies to be considered in the board selection process. The program will move forward on the consideration process once the amended application is received.

The board recommends Jake Evans, Greg Cunningham, and Edward Needham pending revised application, for appointment on the board.

MOTION: Steve Spangler moved to approve the board recommendations to the secretary; Andrew Godfrey seconded. The motion passed unanimously by all board members present with a vote of 5 - 0.

Chair McQueen announced the TASC recommendation to the board that Tom Bottoms, Suduan Gao, and DD Levine be appointed for TASC membership.

MOTION: Doug Graham moved to approve the TASC recommendations to the board; Steve Spangler seconded. The motion passed unanimously by all board members present with a vote of 5 - 0.

AGENDA ITEMS FOR FUTURE MEETINGS

Chair McQueen asked for agenda items for the next FIAB meeting. No comments or requests were made.

NEXT MEETING

The next FIAB meeting will be February 6, 2019 at 9:00 a.m., in Fresno, California.

MOTION: Doug Graham moved to adjourn the meeting; Andrew Godfrey seconded. The motion passed unanimously by all board members present with a 5 - 0 vote.

Chair McQueen adjourned the meeting at 12:06 p.m.

Respectfully submitted by:

ORIGINAL SIGNED BY DALE WOODS

Dr. Dale Woods
Environmental Program Manager I
Fertilizing Materials Inspection Program

9/26/2018
Date

Commercial Fertilizing Inspection Program and Organic Input Materials Program	FUND CONDITION REPORT		
	As of September 30, 2018		
	COMMERCIAL FERTILIZER	FY 2018/19 OIM	COMBINED TOTAL
Beginning Balance as of 7/1/2018:			
CDFA Account	\$ 2,315,533	\$ 1,374,245	\$ 3,689,778
Bank of America Account	\$ 7,269,722	\$ 0	\$ 7,269,722
Total Funds	\$ 9,585,255	\$ 1,374,245	\$ 10,959,500
Revenue*	\$ 2,426,745	\$ 273,857	\$ 2,700,602
Expenditures and Encumbrances			
Expenditures**	\$ 807,226	\$ 139,518	\$ 946,744
Encumbrances	\$ 29,253	\$ 0	\$ 29,253
Ending Balance as of 9/30/18:			
CDFA Account	\$ 2,504,902	\$ 1,508,584	\$ 4,013,486
Bank of America Account	\$ 8,699,872	\$ 0	\$ 8,699,872
Total Funds	\$ 11,204,774	\$ 1,508,584	\$ 12,713,358
Adjusted Balance***	\$ 11,175,521	\$ 1,508,584	\$ 12,684,105

* Revenue includes fertilizing material licenses, fertilizer product registration, fertilizing materials mill assessments, and interest accrued.
 ** Expenditure total per CDFA Financial Services Budget Report September 30, 2018. Amount does not reflect outstanding lag expenditures.
 *** Adjusted balance accounts for all program encumbrances through September 30, 2018.

Fertilizer Research and Education Program	FUND CONDITION REPORT		
	As of September 30, 2018		
			FY 2018/19
Beginning Balance as of 7/1/2018:			
CDFA Account			\$ 3,161,094
Bank of America Account			\$ 1,372,194
Total Funds			\$ 4,533,288
Revenue *			\$ 747,124
Expenditures and Encumbrances			
Expenditures**			\$ 359,294
YTD Research Contract Encumbrances			
FY 16/17	\$ 162,878		
FY 17/18	\$ 611,606		
FY 18/19	\$ 990,403		
Encumbrances through June 30, 2019			\$ 1,764,887
FY 19/20	\$ 889,308		
FY 20/21	\$ 430,315		
FY 21/22	\$ 111,130		
Total Encumbrances			\$ 3,195,640
Ending Balance as of 9/30/18			
CDFA Account			\$ 3,301,800
Bank of America Account			\$ 1,619,318
Total Funds			\$ 4,921,118
Adjusted Balance***			\$ 3,156,231

* Revenue fertilizer materials mill assessments, and interest accrued in the CDFA Fund Account and Bank of America Corporate Account.
 ** Expenditure total per CDFA Financial Services Budget Report September 30, 2018. Amount does not reflect outstanding lag expenditures.
 *** Adjusted balance accounts for all program encumbrances through June 30, 2019.

Mill Assessment Trends

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
	2 mill	2 mill*/3 mill**	3 mill	3 mill	3 mill	3 mill
July	\$ 571,280	\$ 1,416,290	\$ 2,310,808	\$ 573,004	\$ 577,420	\$ 716,378
August	\$ 1,091,065	\$ 541,175	\$ 1,260,241	\$ 1,891,179	\$ 2,275,200	\$ 2,271,772
September	\$ 16,276	\$ 11,159	\$ 175,100	\$ 602,868	\$ 159,061	\$ 257,066
October	\$ 510,158	\$ 889,464	\$ 751,077	\$ 589,860	\$ 810,846	\$ 803,026
November	\$ 533,733	\$ 234,832	\$ 941,636	\$ 1,209,884	\$ 959,552	\$ 773,610
December	\$ 620,250	\$ 36,795	\$ 123,351	\$ 69,729	\$ 177,362	\$ 253,887
January	\$ 601,502	\$ 584,271	\$ 613,056	\$ 387,075	\$ 543,828	
February	\$ 375,509	\$ 862,155	\$ 887,738	\$ 932,779	\$ 578,718	
March	\$ 14,158	\$ 24,547	\$ 72,343	\$ 165,554	\$ 155,650	
April	\$ 932,019	\$ 1,391,088	\$ 697,696	\$ 749,468	\$ 1,005,450	
May	\$ 301,170	\$ 568,729	\$ 1,191,681	\$ 915,768	\$ 870,822	
June	\$ 45,695	\$ 149,268	\$ 148,672	\$ 280,984	\$ 334,591	
	\$ 5,612,815	\$ 6,709,773	\$ 9,173,398	\$ 8,368,152	\$ 8,448,500	\$ 5,075,739

* July - December 2014 mill at .002

** January - June 2015 mill at .003

FERTILIZER INSPECTION ADVISORY BOARD

FINANCIAL SUMMARY

Commercial Fertilizing Inspection Program

&

Organic Input Materials Program

FUND CONDITION REPORT

As of September 30, 2018

	FY 2018/19		
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* Revenue includes fertilizing material licenses, fertilizer product registration, fertilizing materials mill assessments, and interest accrued.

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FERTILIZER INSPECTION ADVISORY BOARD

FINANCIAL SUMMARY

Fertilizer Research and Education Program

FUND CONDITION REPORT

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Total Funds	\$ 4,921,118
Adjusted Balance***	\$ 3,156,231

* Revenue fertilizer materials mill assessments, and interest accrued in the CDFFA Fund Account and Bank of America Corporate Account.

** Expenditure total per CDFFA Financial Services Budget Report September 30, 2018. Amount does not reflect outstanding lag expenditures.

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California Department of Food and Agriculture
 Fertilizing Materials Registration and Inspection Program

Mill Assessment Trends

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Fertilizer Registration Updates

Martin Burger, PhD
Senior Environmental Scientist (Supervisor)

Approved Labels (December 28, 2018)

	Organic Input Materials (OIM)	CONVENTIONAL
TOTAL	2,075	8,383
Commercial	506	2,498
Specialty Fertilizers and Packaged Agricultural Minerals	971	4,392
Auxiliary Soil and Plant Substances (ASPS)	229	774
Soil Amendments	369	719

New Label Applications Approved in 2018

	OIM	Conventional
Total new labels approved	312	1,141
Approved within 30 days	37%	42%
within 60 days	56%	61%
within 90 days	65%	77%
within 120 days	80%	86%

Registration Renewals 2019

Firm Names Starting with D – I: January 1, 2019 – December 31, 2020

	OIM	Conventional
Total Renewals Expected	~500	~2,100
Received by January 24	198	937
Approved	28	255

Proposed New AAPFCO Fertilizer Definitions

	<u>Old Definition</u>
1. <u>Calcium Ammonium Nitrate</u> Dry homogeneous mixture of Ammonium Nitrate & Limestone/Dolomite; explosion-proof	<i>None</i>
2. <u>Ammonium Calcium Nitrate – double salt</u> $5\text{Ca}(\text{NO}_3)_2 \bullet \text{NH}_4\text{NO}_3 \bullet 10\text{H}_2\text{O}$	<i>Calcium nitrate</i>
3. <u>Calcium Nitrate</u>	<i>Calcium nitrate</i>
a) Calcium nitrate tetrahydrate: $\text{Ca}(\text{NO}_3)_2 \bullet 4\text{H}_2\text{O}$	
b) Calcium nitrate anhydrate: $\text{Ca}(\text{NO}_3)_2$	



INSPECTION UPDATES

NICK YOUNG
SENIOR ENVIRONMENTAL SCIENTIST (SUPERVISOR)



2018 Sampling Summary

1,244	Total Samples
23%	Violation Rate (<i>assays</i>)
819	Conventional Samples
425	Organic Input Material (OIM) Samples
341	Total Firms Sampled



2018 Complaint Resolutions

39 Formal Complaints Received

24 Conventional, 15 OIM
34 Resolved, 5 Pending



2018 Administrative Penalties

21 Notices of Proposed Action

Total collected	\$ 159,918
Total in default	\$ 9,214
Total pending	\$ 14,305



Penalty Matrix Rulemaking Update

- Penalty Matrix Rulemaking
15-day Public Comment Period closed on December 5th
- Package will be under review by the Department's Executive, Budget, and Legal office



Association of American Plant Food Control Officials (AAPFCO) Updates

Winter Annual Conference
February 10-13, 2019
Albuquerque, New Mexico

- Calcium Nitrate
- Biostimulants

PROPOSED REGULATION TEXT

**FERTILIZING MATERIALS
MILL ASSESSMENT
HEAVY METALS
INVESTIGATIONAL ALLOWANCES**

**ARTICLE 1. STANDARDS AND LABELING
§ 2303. LABELING REQUIREMENTS.**

...

(s) Packaged product labels for commercial fertilizer and agricultural mineral products, ~~with the exception of gypsum, liming materials, manure, wood or coal fly ash, sewage sludge, composted products, potting soils, potting mix, blood meal, bone meal, feather meal, kelp meal or seaweed, cottonseed meal, fish meal, sphagnum peat moss and seed mix~~ **with guarantees of available phosphoric acid, iron, manganese, or zinc, which are derived from inorganic sources**, shall include either an informational statement of laboratory test results or provide an informational statement providing the maximum levels in parts per million of arsenic, cadmium, cobalt, copper, lead, mercury, molybdenum, nickel and selenium.

(1) In lieu of a statement on the label, the information may be provided by either of the following statements:

"Information regarding the contents and levels of metals in this product is available by calling 1-800-XXX-XXXX."

§ 2303. LABELING REQUIREMENTS. CONTINUED

(t) Testing methodology for the informational statement of laboratory test results shall conform to either sample preparation method 3050B or 3051 and conform to analysis methods as described in US EPA Publication SW-846 (Revision 3, December 1996), which is hereby incorporated by reference.

(1) The heavy metal testing results shall be no more than five (5) years old.

...

(w) A copy of the heavy metals analysis for the nine metals described in Section 2303 (s) shall be submitted to the secretary for any label that contains a link to the California website for heavy metals.

Note: Authority cited: Sections 407, 14502, 14601 and 14631, Food and Agricultural Code.

Reference: Section 14631, Food and Agricultural Code.

ARTICLE 2. SAMPLES

§ 2317.5. INVESTIGATIONAL ALLOWANCES.

ARTICLE 2. SAMPLES

§ 2317.5. Investigational Allowances.

(a) A fertilizing material shall be deemed deficient if the analysis of any nutrient is below the guarantee by an amount exceeding the values in the following schedule:

Guarantee Percent	Primary Nutrients		
	Total Nitrogen (N) Percent	Available Phosphoric Acid (P ₂ O ₅) Percent	Soluble Potash (K ₂ O) Percent
4 or less	0.49	0.67	0.41
5	0.51	0.67	0.43
6	0.52	0.67	0.47
7	0.54	0.68	0.53
8	0.55	0.68	0.60
9	0.57	0.68	0.65
10	0.58	0.68	0.70
12	0.61	0.69	0.79
14	0.63	0.70	0.87
16	0.67	0.70	0.94
18	0.70	0.71	1.01
20	0.73	0.72	1.08
22	0.75	0.72	1.15
24	0.78	0.73	1.21

26	0.81	0.73	1.27
28	0.83	0.74	1.33
30	0.86	0.75	1.39
32	0.88	0.76	1.44
34	0.88	0.79	1.46
36	0.88	0.83	1.49
38	0.88	0.86	1.51
40	0.88	0.90	1.54
42	0.88	0.93	1.56
44	0.88	0.96	1.58
46	0.88	1.00	1.61
48	0.88	1.03	1.63
50	0.88	1.07	1.66
52	0.88	1.10	1.68
54	0.88	1.10	1.70
56	0.88	1.10	1.73
58	0.88	1.10	1.75
60	0.88	1.10	1.78
62	0.88	1.10	1.80

- (1) If the guaranteed percent is between listed values, apply the higher investigational allowance. For example, a 21% N guarantee would have a 0.75% investigational allowance.
- (2) In no case may the investigational allowance exceed 50 percent of the amount guaranteed.
- (3) For Triple Super Phosphate (TSP), the investigational allowance for available phosphoric acid (P₂O₅) shall be 1.53%.

§ 2317.5. INVESTIGATIONAL ALLOWANCES CONTINUED

(b) Secondary and micronutrients shall be deemed deficient if the analysis of any element is below the guarantee by an amount exceeding the values calculated according to the following schedule:

Secondary and Micronutrients	
Element	Investigational Allowance
Calcium	0.2 unit + 5% of guaranteed analysis
Magnesium	0.2 unit + 5% of guaranteed analysis
Sulfur	0.2 unit + 5% of guaranteed analysis
Boron	0.003 unit + 15% of guaranteed analysis
Cobalt	0.0001 unit + 30% of guaranteed analysis
Molybdenum	0.0001 unit + 30% of guaranteed analysis
Chlorine	0.005 unit + 10% of guaranteed analysis
Copper	0.005 unit + 10% of guaranteed analysis
Iron	0.005 unit + 10% of guaranteed analysis
Manganese	0.005 unit + 10% of guaranteed analysis
Sodium	0.005 unit + 10% of guaranteed analysis
Zinc	0.005 unit + 10% of guaranteed analysis
The maximum allowance when calculated in accordance to the above shall be 1 unit (one percentage point).	

(1) In no case may the investigational allowance exceed 50 percent of the amount guaranteed.

(2) The investigational allowances are applied as follows:

(A) For zinc guaranteed at 0.75 percent Zn, the investigational allowance is calculated as $0.005 + 0.1(0.75) = 0.08$ percent. An analyzed value for zinc of 0.66 percent ($0.75 - 0.08 = 0.67$) or less would be declared deficient and in violation. An analyzed value for zinc of 0.67 percent or more is within the investigational allowance for a zinc guarantee of 0.75 percent Zn.

(B) For zinc guaranteed at 36.0 percent Zn, the investigational allowance is calculated as $0.005 + 0.1(36.0) = 3.605$ percent. However, the maximum allowance is 1 unit (one percentage point). Therefore, the investigational allowance for a 36.0 percent Zn guarantee is 1.0 percentage point. An analyzed value of 34.99 percent Zn or less would be declared deficient and in violation. An analyzed value for zinc of 35.0 percent or more is within the investigational allowance for a 36.0 percent zinc guarantee.

§ 2317.5. INVESTIGATIONAL ALLOWANCES CONTINUED

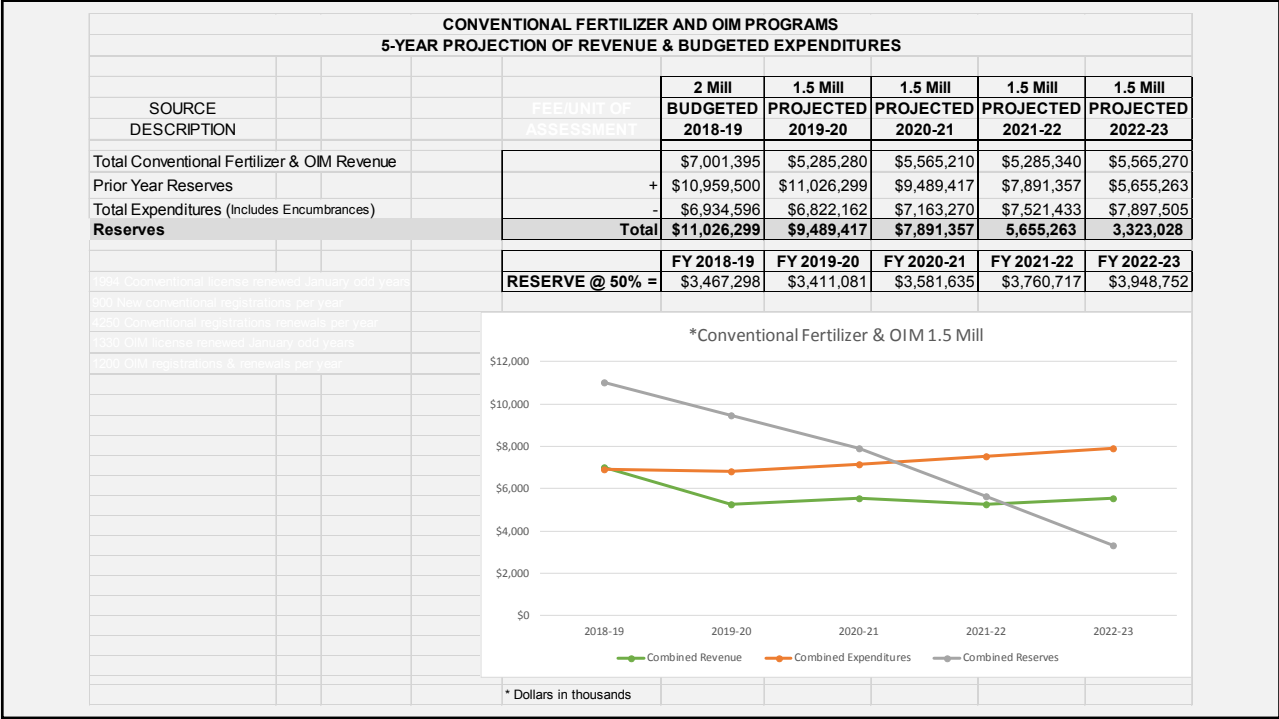
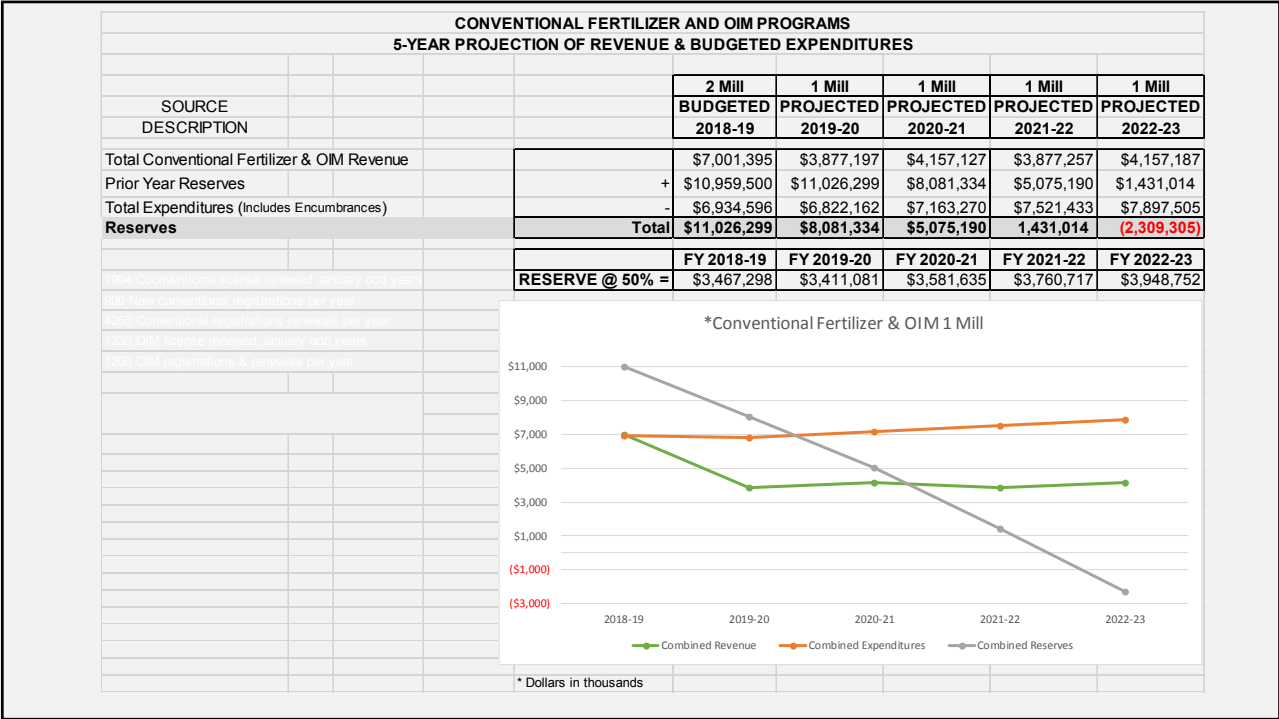
(c) Other guarantees or claims shall be deemed deficient if any ingredient or claim is below the guaranteed by an amount exceeding the values in the following schedule:

Other Ingredient Guarantees or Claims	
Ingredient or Claim	Investigational Allowance
Humic Acid	10% of guaranteed analysis
Gypsum	5% of guaranteed analysis
Gypsum Equivalent	5% of guaranteed analysis
Calcium Carbonate Equivalent	5% of guaranteed analysis
Vitamin B-1 (<i>thiamine hydrochloride</i>)	30% of guaranteed analysis
pH	+/- 3.14% of required National Organic Program value (3.5 pH) <i>(only required for organic input material liquid fish products)</i>

(1) The investigational allowance for pH is applied as follows:

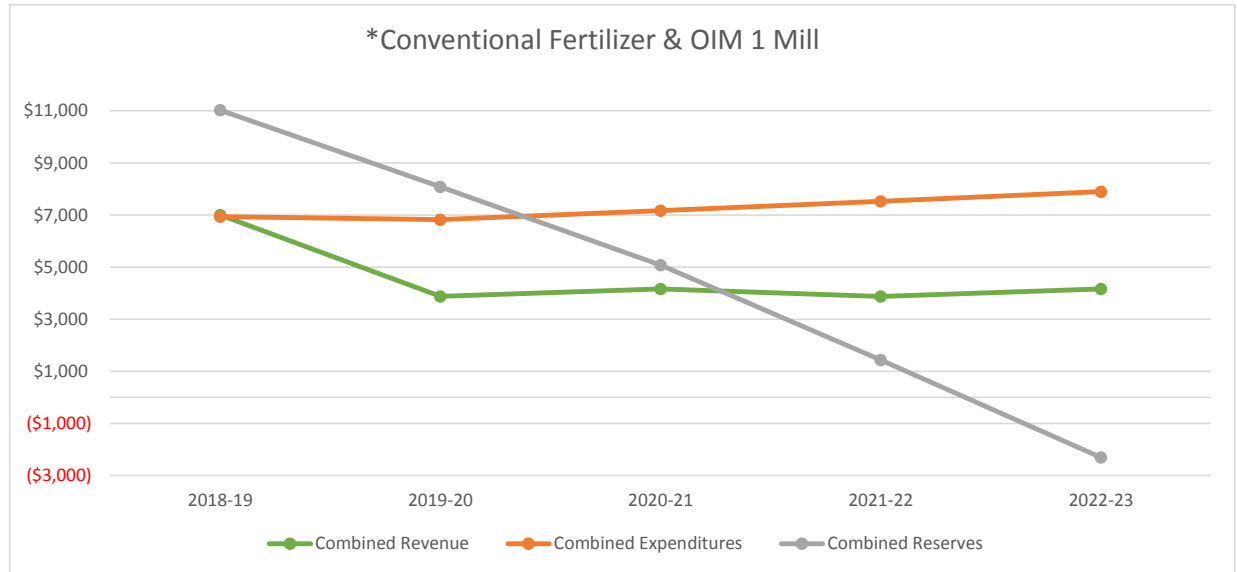
(A) For organic input material liquid fish products, the National Organic Program states that the pH cannot exceed 3.5. $3.5 \text{ pH} - 3.5(3.14\%) = 3.3901 \text{ pH}$. Any value below 3.3901 pH would be in violation of the National Organic Program rule (7CFR 205.601(j)(7)). Any value between 3.3901 to 3.4999 is within investigational allowance.

Note: Authority cited: Sections 407, 14502 and 14645, Food and Agricultural Code. Reference: Sections 14605, 14645 and 14646, Food and Agricultural Code.



**CONVENTIONAL FERTILIZER AND OIM PROGRAMS
5-YEAR PROJECTION OF REVENUE & BUDGETED EXPENDITURES**

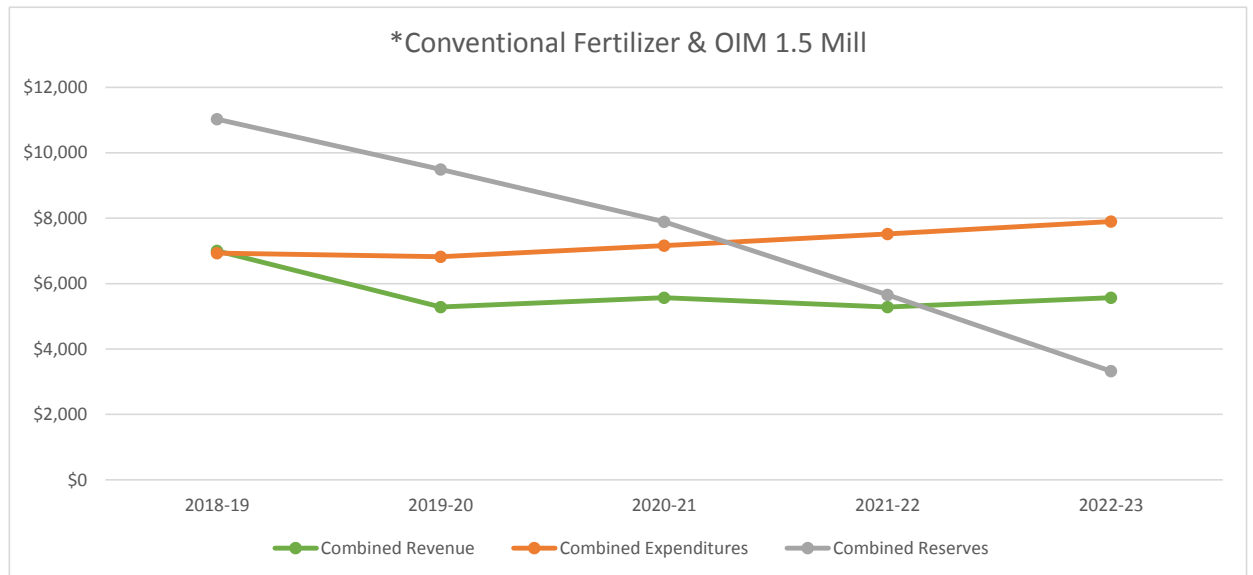
SOURCE DESCRIPTION		2 Mill	1 Mill	1 Mill	1 Mill	1 Mill
		BUDGETED 2018-19	PROJECTED 2019-20	PROJECTED 2020-21	PROJECTED 2021-22	PROJECTED 2022-23
Total Conventional Fertilizer & OIM Revenue		\$7,001,395	\$3,877,197	\$4,157,127	\$3,877,257	\$4,157,187
Prior Year Reserves	+	\$10,959,500	\$11,026,299	\$8,081,334	\$5,075,190	\$1,431,014
Total Expenditures (Includes Encumbrances)	-	\$6,934,596	\$6,822,162	\$7,163,270	\$7,521,433	\$7,897,505
Reserves	Total	\$11,026,299	\$8,081,334	\$5,075,190	1,431,014	(2,309,305)
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
	RESERVE @ 50% =	\$3,467,298	\$3,411,081	\$3,581,635	\$3,760,717	\$3,948,752



* Dollars in thousands

**CONVENTIONAL FERTILIZER AND OIM PROGRAMS
5-YEAR PROJECTION OF REVENUE & BUDGETED EXPENDITURES**

SOURCE DESCRIPTION		2 Mill	1.5 Mill	1.5 Mill	1.5 Mill	1.5 Mill
		BUDGETED 2018-19	PROJECTED 2019-20	PROJECTED 2020-21	PROJECTED 2021-22	PROJECTED 2022-23
Total Conventional Fertilizer & OIM Revenue		\$7,001,395	\$5,285,280	\$5,565,210	\$5,285,340	\$5,565,270
Prior Year Reserves	+	\$10,959,500	\$11,026,299	\$9,489,417	\$7,891,357	\$5,655,263
Total Expenditures (Includes Encumbrances)	-	\$6,934,596	\$6,822,162	\$7,163,270	\$7,521,433	\$7,897,505
Reserves	Total	\$11,026,299	\$9,489,417	\$7,891,357	5,655,263	3,323,028
		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
	RESERVE @ 50% =	\$3,467,298	\$3,411,081	\$3,581,635	\$3,760,717	\$3,948,752



* Dollars in thousands

ARTICLE 7. MILL ASSESSMENTS

§ 2326.1. MILL ASSESSMENT RATES.

(a) A licensee whose name appears on the label who sells or distributes bulk fertilizing materials, as defined in Food and Agricultural Code Sections 14517 and 14533, to unlicensed purchasers, shall pay to the secretary an assessment of ~~one~~ **two** mills (\$0.00**12**) per dollar of sales for all sales of fertilizing materials. A licensee whose name appears on the label of packaged fertilizing materials, as defined in Food and Agricultural Code Sections 14533 and 14551, shall pay to the secretary an assessment of ~~one~~ **two** mills (\$0.00**12**) per dollar of sales of all sales of fertilizing materials.

...

Note: Authority cited: Sections 407, 14501, 14502 and 14611, Food and Agricultural Code.

Reference: Sections 14501, 14517, 14533, 14551 and 14611(b), Food and Agricultural Code.



Fertilizer Research and Education Program (FREP) Update

Mark Cady, Senior Environmental Scientist (Supervisor)
Natalie Jacuzzi, Senior Environmental Scientist (Specialist)



2019 Grant Process Timeline

12/3/2018	Request for Concept Proposals Released
1/31/2019	Concept Proposals due
5/16/2019	Full Proposals Due
10/16/2019	Notification letters sent to applicants
1/01/2020	Project start date



Grower Training Program

- Central Valley: 75 sessions, 3,800 growers, 80% pass rate
- Revised curriculum is out for East San Joaquin order requirements
- FREP staff worked with Ventura County coalition to hold trainings
 - Curriculum adapted from Central Valley grower trainings
 - Two Ventura training sessions



Certified Crop Advisor (CCA) Training Program

- Nitrogen Management Training Program for CCAs
March 12-13, 2019
4584 W Jacquelyn Ave
Fresno, CA 93722
- 11 CCA Continuing Education Units (CEUs)

Water Quality Regulatory Updates



Irrigated Lands Regulatory Program

- Central Valley regulations to be updated February 7
 - Consistent with the East San Joaquin Waste Discharge Requirements
- Central Coast Update underway (Ag Waiver 4.0)
 - To be completed by March 2020

Water Quality Regulatory Updates



Central Valley Salinity Alternatives for Long Term Sustainability (CV-SALTS)

A regional, stakeholder-driven program designed to address nitrate in ground water through provision of drinking water and development of innovative regulatory tools.

- Plan adopted by Regional Board June 2018
- State Board to consider at April 2019 meeting

SAVE THE DATE



CONFERENCE

Nutrient Management:
Challenges and Opportunities

October 29-30, 2019
Fresno, California
DoubleTree by Hilton

Presented by:



Agreement #	Project Leader(s)	Institution	Project Title	Grant Start Date	Grant End Date	16/17	17/18	18/19	19/20	20/21	21/22	Remaining Balance	Total Fund Amount
14-0452-SA	O'Geen	UC ANR	A Data Driven Nitrate Leaching Hazard Index and BMP Assessment Tool	1/1/2015	12/31/2018	30.00	27131.00	10236.00				37,397.00	224,511.05
14-0508-SA	Sanchez Smith	U of AZ UC ANR	Field Evaluation and Demonstration of Controlled Release N Fertilizers in the Western United States	1/1/2015	9/30/2018	0.00	37489.60					37,489.60	224,966.45
15-0356-SA	Haffa Horwath	CSU Monterey Bay	Quantifying N2O Emissions under Different On-farm Irrigation and Nutrient Management BMPs that Reduce Groundwater Nitrate Loading and Applied Water	7/1/2015	12/31/2018	0.00	64020.76					64,020.76	270,000.00
15-0360-SA	Klassen Fulton	CURES	Evaluation of the Multiple Benefits of Nitrogen Management Practices in Walnuts	7/1/2015	6/30/2019	11537.28	34250.40					45,787.68	224,994.00
15-0392-SA	Klassen Prichard	CURES	Train the Trainer: A Nitrogen Management Training Program for Growers	7/1/2015	6/30/2019	0.00	55929.12					55,929.12	295,784.50
15-0393-SA	Burt	Cal Poly SLO	New Fertigation Book	7/1/2015	12/31/2018	58290.89						58,290.89	224,477.00
15-0492-SA	Brown	UC Davis	Prediction of Summer Leaf Nitrogen Concentration from Early Season Samples to Better Manage Nitrogen Inputs at the Right Time in Walnuts, Prunes, and Pears	1/1/2016	12/31/2018	0.00	0.01	35,908.54				35,908.55	228,469.00
15-0522-SA	Smith Cahn	UC ANR	Evaluation and demonstration of nitrogen and phosphorus management in organic leafy green vegetable production on the Central Coast	1/1/2016	12/31/2018	70555.70	57911.25	18,724.45				147,191.40	202,642.80
15-0523-SA	Brown	UC Davis	Improving nitrate and salinity management strategies for almond grown under micro-irrigation	1/1/2016	12/31/2018	0.00	0.00	37,293.53				37,293.53	223,215.00
16-0076 (13-0145)	Anderson	CAPCA	Provide Nitrogen Management Training for CDFA	7/1/2016	6/30/2018	0.00	3567.68					3,567.68	10,000.00
16-0708	Brown	UC Davis	Demonstration of a combined new leaf sampling technique for nitrogen analysis and nitrogen applications approach in almonds	1/1/2017	12/31/2019	0.00	25654.38	42,873.00	21,685.50			90,212.88	148,603.00
16-0652 (13-0241)	Parker	UC ANR	Nitrogen Management Training and Publications for Certified Crop Advisors	1/1/2017	12/31/2018	0.00	0.00	11,550.00				11,550.00	117,700.00
16-0707	Brown	UC Davis	Developing Nutrient Budget and Early Spring Nutrient Prediction Model for Nutrient Management in Citrus	1/1/2017	12/31/2019	0.00	52254.25	64,547.50	22,176.00			138,977.75	212,319.00
16-0710	Cahn	UC ANR	Online Decision Support Tools for Irrigation and Nitrogen Management of Central Valley Crops	1/1/2017	12/31/2019	0.00	0.00	0.00	27,948.69			27,948.69	241,560.00
16-0670	Horwath	UC Davis	Evaluation of Certified Organic Fertilizers for Long-term Nutrient Planning	1/1/2017	12/31/2019	0.00	26265.41	75,425.00	32,158.50			133,848.91	201,290.00
16-0662	Parikh	UC Davis	Evaluation of Biochar for On-Farm Soil Management in California	1/1/2017	12/31/2019	0.00	40080.02	86,603.60	44,573.90			171,257.52	269,637.00
16-0620	Lubell	UC Davis	Understanding Influences on Grower Decision-Making and Adoption of Improved Nitrogen Management Practices	1/1/2017	12/31/2018	0.00	0.00	11,139.42				11,139.42	184,584.00
16-0597	Gao	USDA-ARS	Soil Biochar Amendment to Improve Nitrogen and Water Management	1/1/2017	12/31/2019	22463.83	70042.50	72,884.00	37,384.50			202,774.83	215,854.00
16-0678	Oki	UC ANR	University of California Nursery and Floriculture Alliance Fertilizers and Plant Nutrition Education Program	1/1/2017	12/31/2018	0.00	2083.14	36,454.50				38,537.64	114,389.00
16-0703	Klassen	CURES	Train the Trainer: A Nitrogen Management Training Program for Growers Phase II	1/1/2017	12/31/2019	0.00	21623.83	22,197.75	10,810.25			54,631.83	69,028.50
17-0489	Walley	E. Stanislaus RCD	Training on Crop Management that Integrates Climate, Soil and Irrigation System Data to Minimize Nutrient Loss and Optimize Irrigation Efficiency	1/1/2018	12/31/2020		9017.92	58283.31	59007.74	29687.48		155,996.45	175,941.59
17-0515	Gazula	UC ANR	Nitrogen Uptake and Applied Irrigation Water in Asian Vegetables	1/1/2018	12/31/2019		23669.56	74999.80	37499.65			136,169.01	149,999.61
17-0488	Creamer	King R. Water Quality Coalition	Assessment of Harvested and Sequestered Nitrogen Content to Improve Nitrogen Management in Crops	1/1/2018	12/31/2020		0.00	60383.05	69912.16	31501.38		161,796.59	220,703.91
17-0516	Oki	UC Davis	A System Nitrogen Balance for Container Plant Production	1/1/2018	12/31/2020		28343.58	68341.35	70117.60	35400.65		202,203.18	207,484.00
18-0549	Brown	UC Davis		1/1/2019	12/31/2020			39363.51	78738.01	39374.51		157,476.03	157,476.03
18-0596	Brown Lubell	UC Davis		1/1/2019	12/31/2020			53710.89	94994.07	41283.18		189,988.14	189,988.14
18-0592	Diaz	UC ANR		1/1/2019	12/31/2021			39259.17	72183.37	68606.47	35682.27	215,731.28	215,731.28
18-0593	Sanchez	U of Az		1/1/2019	12/31/2021			36257.54	74347.79	76038.23	37947.97	224,591.53	224,591.53
18-0535	Spinelli	SC RCD		1/1/2019	12/31/2020			27347.09	60769.91	33422.82		121,539.82	121,539.82
18-XXXX	Hutmacher	UC ANR		1/1/2019	12/31/2021			37500.00	75000.00	75000.00	37500.00	225,000.00	225,000.00
Available Funds						1321054.00	1796054.00	1796054.00	1796054.00	1300000.00	1300000.00		
Total Contract Amount						1603013.47	1535143.17	1167456.10	901618.95	430314.72	111130.24		
Invoices Paid						1327937.97	923537.53	177052.60	12311.31	0.00	0.00		
YTD Encumbered Funds						162877.70	611605.64	990403.50	889307.64	430314.72	111130.24		

**Center for Analytical Chemistry
Fertilizer Laboratory
January - December 2018**

Fertilizer Samples

Total Number of Samples Received	1,253
Routine Samples	1,078
Priority Samples	5
Partial Rush Samples	25
Rush Samples	145
Total Number of Samples Completed*	1,166
Total Number of Assays Requested	5,936
Routine Assays	5,186
Rush Assays	750
Average Number of Assays Requested per Sample	5.09

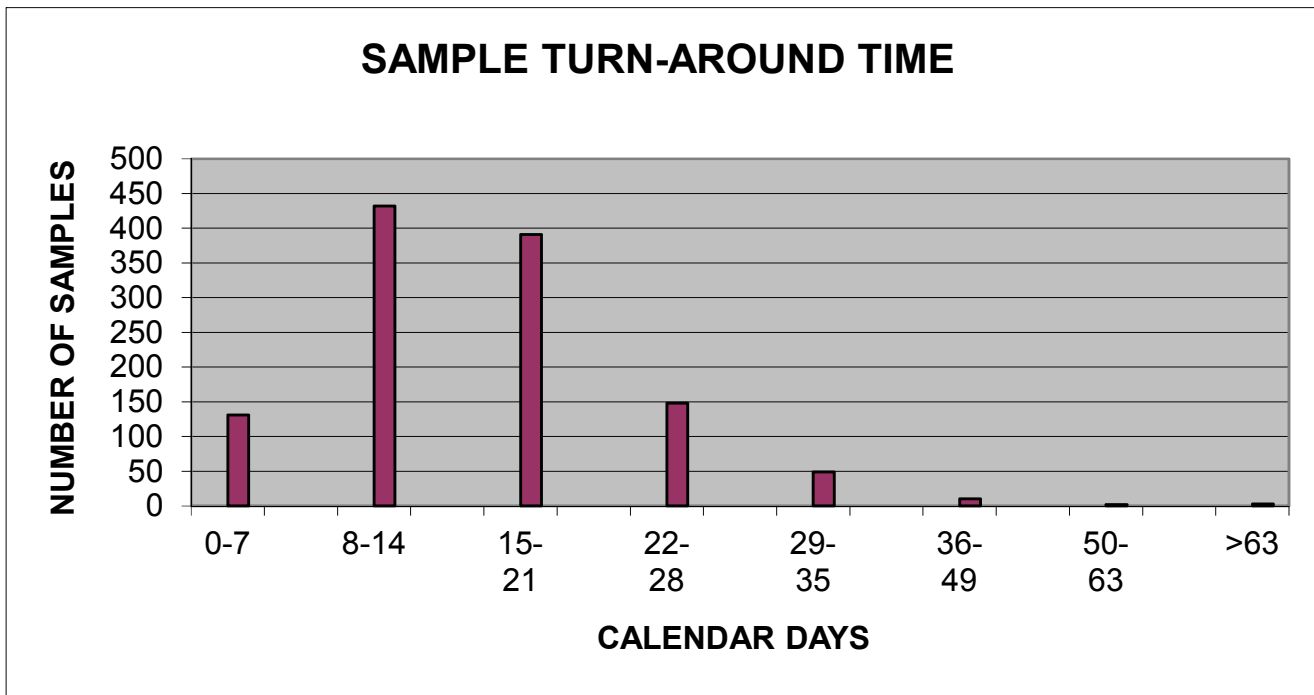
* Completed as of 1/7/19.

Turn-Around Time for Fertilizer Samples January - December 2018

Summary

Total Samples Received - 1,253

Total Samples Completed - 1,166*



Calendar Days	# of Samples	% of Total	Cumulative Total
0-7	131	11.2%	
8-14	432	37.0%	48.2%
15-21	391	33.5%	81.7%
22-28	148	12.7%	94.4%
29-35	49	4.2%	98.6%
36-49	10	0.9%	99.5%
50-63	2	0.2%	99.7%
<u>>63</u>	<u>3</u>	<u>0.3%</u>	100.0%
Total	1,166	100.0%	

* Completed as of 1/7/19.

FERTILIZER SAMPLES JANUARY - DECEMBER 2018

No.	Fertilizer	Method	Routine		Rush		Totals
	N, P2O5, K2O		Assay 1	Assay 2	Assay 1	Assay 2	
1	Nitrogen - Total	Combustion	721	124	119	78	1042
2	Phosphorus - Available	Wet Chemistry	547	83	65	50	745
3	Potassium - Soluble	AA	644	94	70	16	824
4	Ammoniacal Nitrogen	Kjeldahl	40	3	18	1	62
5	Nitrate Nitrogen	Wet Chemistry	31	0	15	0	46
6	Phosphorus - Total	Wet Chemistry	10	3	0	0	13
7	Urea	Kjeldahl	53	3	15	0	71
8	Water Insoluble Nitrogen	Kjeldahl	48	0	18	0	66
	Miscellaneous						
9	CCE	Wet Chemistry	15	5	0	0	20
10	Density	Wet Chemistry	17	1	15	7	40
11	Free Water	Oven	42	0	38	0	80
12	Gypsum Equivalent	Calculation	44	20	38	20	122
13	Humic Acid	Wet Chemistry	94	46	0	0	140
14	Microscopy	Microscope	2	0	0	0	2
15	Moisture	Oven	12	0	4	0	16
16	Organic Matter	Wet Chemistry	32	9	1	0	42
18	pH	pH Meter	37	23	47	43	150
19	Salinity	Wet Chemistry	0	0	0	0	0
20	Vitamin B1	LC	6	1	1	0	8
	Minerals						
21	Arsenic	AA	358	1	16	0	375
22	Cadmium	AA	358	1	16	0	375
23	Lead	AA	358	0	16	0	374
24	Boron	ICP	106	17	3	1	127
25	Calcium	ICP	268	41	47	23	379
26	Chloride	Wet Chemistry	43	2	1	0	46
27	Cobalt	ICP	21	9	0	0	30
28	Copper	ICP	105	16	1	1	123
29	Iron	ICP	227	40	8	4	279
30	Magnesium	ICP	114	15	3	2	134
31	Manganese	ICP	160	16	4	2	182
32	Molybdenum	ICP	87	12	2	1	102
33	Nickel	ICP	0	0	0	0	0
34	Selenium	ICP	0	0	0	0	0
35	Sodium	ICP	28	9	2	0	39
36	Zinc	ICP	188	27	7	2	224
	Plant Growth Regulators						
37	Abscisic Acid	LC/MS	7	0	7	0	14
38	6-Benzylaminopurine	LC/MS	7	0	7	0	14
39	Chlormequat Chloride	LC/MS	7	0	7	0	14
40	Colchicine	LC/MS	7	0	7	0	14
41	Daminozide	LC/MS	7	0	7	0	14
42	Ethephon	LC/MS	7	0	7	0	14
43	Forchlorfenuron	LC/MS	8	0	7	0	15
44	Gibberellic Acid	LC/MS	7	0	7	0	14
45	3-Indoleacetic Acid	LC/MS	7	0	7	0	14
46	Indole-3-Butyric Acid	LC/MS	7	0	7	0	14

**FERTILIZER SAMPLES
JANUARY - DECEMBER 2018**

47	Kinetin	LC/MS	7	0	7	0	14
48	Mepiquat Chloride	LC/MS	7	0	7	0	14
49	1-Naphthaleneacetic Acid	LC/MS	7	0	7	0	14
50	Paclobutrazol	LC/MS	7	0	7	0	14
51	Prohexadione	LC/MS	7	0	7	0	14
52	Uniconazole	LC/MS	7	0	7	0	14
	Sulfur						
53	Sulfur - Elemental	Wet Chemistry	3	1	0	0	4
54	Sulfur - Sulfate	Wet Chemistry	52	12	38	17	119
55	Sulfur - Total	Wet Chemistry	202	42	10	8	262
	Fertilizer		Routine		Rush		Total
	Assays		Assay 1	Assay 2	Assay 1	Assay 2	
	Total		5186	676	750	276	6888