

C STATE OF CALIFORNIA
STANDARD AGREEMENT
 STD 213 (Rev 05/18)

AGREEMENT NUMBER 18-C0072
REGISTRATION NUMBER

1. This Agreement is entered into between the State Agency and the Contractor named below:
- STATE AGENCY'S NAME
 Department of Pesticide regulation, hereinafter referred to as "State"
- CONTRACTOR'S NAME
 The Regents of the University of California, Davis hereinafter referred to as "University"
2. The term of this Agreement is: 1/1/2019 through 11/30/2020
3. The maximum amount of this Agreement is: \$ 93,250.00
4. The Parties agree to comply with the terms and conditions of the following Exhibits, which by this reference are made a part of the Agreement.

Exhibit A – A7: A–Scope of Work; A1–Deliverables; A2–Key Personnel; A3–Authorized Representatives; A4–Use of Intellectual Property; A5–Resumes/Biosketch; A6–Current & Pending Support; A7–Third Party Confidential Information (if applicable)	11 page(s)
Exhibit B – B–Budget; B1–Budget Justification; B2– Subawardee Budgets (if applicable); B3– Invoice Elements	3 page(s)
Exhibit C* – University Terms and Conditions	UTC-518
Check mark additional Exhibits below, and attach applicable Exhibits or provide internet link:	
<input type="checkbox"/> Exhibit D – Additional Requirements Associated with Funding Sources	page(s)
<input type="checkbox"/> Exhibit E – Special Conditions for Security of Confidential Information	page(s)
<input type="checkbox"/> Exhibit F – Access to State Facilities or Computing Resources	page(s)
<input checked="" type="checkbox"/> Exhibit G – Negotiated Alternate UTC Terms	1 page(s)

Items shown with an Asterisk (*) are hereby incorporated by reference and made part of this agreement as if attached hereto.
 These documents can be viewed at <http://www.dgs.ca.gov/ols/Resources/ModelContractLanguageUniversities.aspx>

IN WITNESS WHEREOF, this Agreement has been executed by the Parties hereto.

CONTRACTOR		<i>California Department of General Services Use Only</i>
CONTRACTOR'S NAME (if other than an individual, state whether a corporation, partnership, etc.)		
<u>Regents of the University of California</u>		
BY (Authorized Signature)	DATE SIGNED (Do not type)	
	1-15-2019	
PRINTED NAME AND TITLE OF PERSON SIGNING		
Kimberly Lamar, Associate Director Office of Contracts & Grants		
ADDRESS		
2801 Second Street, Davis, CA. 95618		
STATE OF CALIFORNIA		
AGENCY NAME		
Department of Pesticide Regulation		
BY (Authorized Signature)	DATE SIGNED (Do not type)	
	2/6/19	
PRINTED NAME AND TITLE OF PERSON SIGNING		
Leslie Ford, Branch Chief		
ADDRESS		
1001 I Street, Sacramento, CA 95814		
		<input type="checkbox"/> Exempt per:

Exhibit A – Scope of Work

Project Summary & Scope of Work

Contract Grant

PI Name: Michael Cahn

Project Title: Seed treatment effects on neonicotinoid concentration in irrigation run-off from lettuce fields

Project Summary/Abstract

Briefly describe the long-term objectives for achieving the stated goals of the project.

Neonicotinoid pesticides are used for lettuce production on the central coast of California to control against insect pests such as lettuce aphid and garden symphylans as soil application at the time of planting and/or seed treatment. Fungicides can also be applied as a seed treatment to protect against seedling rot and disease. The offsite transport of pesticides applied as seed treatments or direct soil application may occur during irrigation and rainfall events. Neonicotinoid pesticides and fungicides applied at planting by seed treatment or direct soil application may be especially susceptible to being lost because the crop is typically established with overhead sprinklers and frequently irrigated which often results in high volumes of run-off and drainage. Neonicotinoid pesticides can potentially cause toxicity to aquatic organisms such as the midge *Chironomus dilutus* and have been identified as a cause of aquatic toxicity in the Salinas Valley watershed. To the best of our knowledge, no studies have evaluated the concentrations of pesticides used as seed treatments in run-off from lettuce fields during stand establishment (0 to 20 days after planting) under typical commercial field conditions. The objective of this project is to evaluate neonicotinoid and fungicide concentrations in irrigation run-off in lettuce that has either received a seed or drench treatment with neonicotinoids or fungicides at planting.

If Third-Party Confidential Information is to be provided by the State:

- Performance of the Scope of Work is anticipated to involve use of third-party Confidential Information and is subject to the terms of this Agreement; **OR**
- A separate CNDA between the University and third-party is required by the third-party and is incorporated in this Agreement as Exhibit A7, Third Party Confidential Information.

Scope of Work

Describe the goals and specific objectives of the proposed project and summarize the expected outcomes. If applicable, describe the overall strategy, methodology, and analyses to be used. Include how the data will be collected, analyzed, and interpreted as well as any resource sharing plans as appropriate. Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the goals and objectives.

1. Background and Goals

Neonicotinoid pesticides are used for lettuce production on the central coast of California to control against insect pests such as lettuce aphid and garden symphylans as soil application at the time of planting and/or seed treatment. Fungicides can also be applied as a seed treatment to protect against seedling rot and disease. The offsite transport of pesticides applied as seed treatments or direct soil application may occur during irrigation and rainfall events. The neonicotinoid class of pesticides is generally highly soluble and can be potentially leached during irrigation and rainfall events or carried in run-off. Neonicotinoid pesticides and fungicides applied at planting by seed treatment or direct soil application may be especially susceptible to offsite transport because the crop is typically established with

overhead sprinklers and frequently irrigated which often results in high volumes of run-off and drainage. Neonicotinoid pesticides can potentially cause toxicity to aquatic organisms such as the midge *Chironomus dilutus* and have been identified as a cause of aquatic toxicity in the Salinas Valley watershed. To the best of our knowledge, no studies have evaluated the concentrations of neonicotinoids and fungicides in run-off from lettuce fields during stand establishment (0 to 20 days after planting) under typical commercial field conditions.

2. Objectives

- 1) Evaluate neonicotinoid insecticide and fungicide concentrations in irrigation run-off in lettuce that has either received a seed or drench treatment with neonicotinoid insecticide or fungicide at planting,
- 2) Evaluate neonicotinoid and fungicide concentrations remaining in soil samples (composite surface samples) and neonicotinoid concentrations in 0-5' soil cores.

3. Work to be Performed

Task 1: Contractor will conduct lettuce seed treatment field trial for year one

A field trial evaluating neonicotinoid and fungicide concentrations in run-off from seed treated and direct soil application treatments in lettuce will be conducted at the United States Department of Agriculture-Agricultural Research Service (USDA-ARS) Spence research farm in Salinas, CA. Pesticide treatments will be imposed at planting (seed treatment or drenching) following a randomized complete block design with 4 replicates:

1. Control, no pesticide application.
2. Clothianidin + Azoxystrobin seed treatment (label rate for lettuce).
3. Azoxystrobin seed treatment (label rate for lettuce) with an imidacloprid direct soil application (shanking).
4. Azoxystrobin (label rate for lettuce) + Imidacloprid seed treatment (label rate for lettuce), no soil application.

Surface soil composites from the experimental site will be sampled from the 0 to 30 cm depth to determine the background level of neonicotinoid and fungicide concentrations before planting (By USGS collaborators). Additional soil cores (0-5') will be collected before planting and at the end of the study (by DPR collaborators). Plots will measure approximately 270 ft × 13.33 ft (4 beds). Total area of the trial will be 1.4 acres. The field will be irrigated with overhead impact sprinklers (Rainbird 20 JH) 4 to 6 times, with an irrigation event every 2 days during the germination phase. Volume of applied water will be measured using a flow meter (Seametric Ag3000). Rainfall will be measured at the California Irrigation Management Information System (CIMIS) weather station (station 214) located on site. Run-off from the center 3 furrows of each plot will be collected in a sump at the lower end of the plots and sampled with automated peristaltic pumps into stainless steel containers during an irrigation. Run-off from rain events (up to 2 rain events) will also be sampled. Up to 7 run-off events that will be sampled during the trial. Sub-samples of the run-off water will be stored in amber glass bottles at 5°C until they can be analyzed. Efficacy of treatments to control insect pests, such as aphids, in lettuce will be evaluated by UCCE entomology advisor Alejandro del Pozo. This study will evaluate the efficacy of alternative tactics (application methods and different active ingredients) to the use of pyrethroid and neonicotinoid insecticides. The data and any associated reports from the efficacy study will be made available to DPR upon finalization. Any necessary modifications to field trials including growing conditions, pesticide application methods, irrigation, and active ingredients tested must be made in mutual agreement between the State Contract Manager and United States Geological Survey (USGS) collaborators.

Task 2: Contractor will conduct lettuce seed treatment field trial for year two

The procedures from the first year will be repeated in the second year with the exception of no soil cores (0-5') will be collected. Modifications to the procedures may occur based on lessons learned from the first year. Any changes to conditions must be made in mutual agreement between the State contract manager and USGS collaborators.

Task 3: Contractor will analyze run-off flow data and statistical analyses

Flume flow data will be analyzed for both years to determine the volume and percentage of applied water or rainfall that was lost as run-off. Pesticide load in run-off will be estimated from the run-off volumes and concentration of pesticide in the run-off (USGS will provide concentration of pesticides in samples). Statistical analyses will be conducted to evaluate differences among treatments for concentration, load, and run-off volume using general linear means model in SAS 9.3 software. Means separation tests will also be performed.

4. State Responsibilities:

- A. State will review the Annual Report following year 1 trials (described below in Deliverables) and will provide comments within 21 days; DPR will provide prompt comments should modification to study design be necessary.
- B. State will review the Final Technical Report (described below in Deliverables) and will provide comments within 21 days of submission
- C. State will collect soil core samples using State equipment and personnel. To collect the soil core samples, State personnel will be granted access, by the contractor, to the experimental fields at the request of soil core sampling crews.
- D. State is responsible for executing the contract with USGS (Contract #18-C0071) that is responsible for providing surface water and soil concentrations of samples taken during field trials.

Exhibit A1 - Deliverables

SCHEDULE OF DELIVERABLES

List all items that will be delivered to the State under the proposed Scope of Work. Include all reports, including draft reports for State review, and any other Deliverables, if requested by the State and agreed to by the Parties.

If use of any Deliverable is restricted or is anticipated to contain preexisting Intellectual Property with any restricted use, it will be clearly identified in Exhibit A4, Use of Preexisting Intellectual Property.

Unless otherwise directed by the State, the University Principal Investigator shall submit all Deliverables to the State Contract Project Manager, identified in Exhibit A3, Authorized Representatives.

Deliverable	Description	Due Date
Post-trial updates	Provide post-trial updates, by email, summarizing progress of the experiment and confirmation of sample collection and sample shipment to State contract manager and USGS	7/31/19, 7/31/20
Annual report year 1	Provide a report at the end of each year of the contract summarizing the experimental field trials for that year, including relevant field trial data to State contract manager and USGS	12/31/19
Final technical report	Provide a final report 21 days before the end of the contract summarizing the experimental field trials for the 2 years of trials, including relevant field trial data to State contract manager and USGS	10/30/20
The following Deliverables are subject to Section 19. Copyrights, paragraph B of Exhibit C		

Exhibit A2 – Key Personnel

KEY PERSONNEL

List Key Personnel as defined in the Agreement starting with the PI, by last name, first name followed by Co-PIs. Then list all other Key Personnel in alphabetical order by last name. For each individual listed include his/her name, institutional affiliation, and role on the proposed project. Use additional consecutively numbered pages as necessary.

Last Name, First Name	Institutional Affiliation	Role on Project
PI:		
<i>Cahn, Michael</i>	<i>University of California, Cooperative Extension</i>	<i>Oversee field trial including setting up sampling equipment, analyzing flow data and statistical analyses</i>
Co-PI(s) – if applicable:		
<i>Last name, First name</i>	<i>Institutional affiliation</i>	<i>Role on the project</i>
<i>Last name, First name</i>	<i>Institutional affiliation</i>	<i>Role on the project</i>
Other Key Personnel (if applicable):		
<i>Last name, First name</i>	<i>Institutional affiliation</i>	<i>Role on the project</i>

Exhibit A3 – Authorized Representatives

AUTHORIZED REPRESENTATIVES AND NOTICES

The following individuals are the authorized representatives for the State and the University under this Agreement. Any official Notices issued under the terms of this Agreement shall be addressed to the Authorized Official identified below, unless otherwise identified in the Agreement.

State Agency Contacts	University Contacts
<p>Agency Name: Department of Pesticide Regulation</p>	<p>University Name: Regents of the University of California, Cooperative Extension, Monterey County</p>
<p><i>Contract Project Manager (Technical)</i></p> <p>Name: Scott Wagner Environmental Scientist</p> <p>Address: Department of Pesticide Regulation 1001 I Street, MS3-B Sacramento, CA 95812</p> <p>Telephone: 916-324-4087 Fax: 916-324-4088 Email: Scott.Wagner@cdpr.ca.gov</p>	<p><i>Principal Investigator</i></p> <p>Name: Michael Cahn Irrigation and Water Resources Advisor</p> <p>Address: UCCE Monterey County 1432 Abbott ST Salinas CA 93901</p> <p>Telephone: 831-759-7377 Fax: 831-758-3018 Email: mdcahn@ucanr.edu</p> <p>Designees to certify invoices under Section 14 of Exhibit C on behalf of PI:</p> <ol style="list-style-type: none"> 1. <Name>, <Title>, <EmailAddress> 2. <Name>, <Title>, <EmailAddress> 3. <Name>, <Title>, <EmailAddress>
<p><i>Authorized Official (contract officer)</i></p> <p>Name: Leslie Ford Branch Chief</p> <p>Address: Department of Pesticide Regulation 1001 I Street, 4th Floor Sacramento, CA. 95814</p> <p><i>Send notices to (if different):</i></p> <p>Name: Kim Bateman Contract Analyst</p> <p>Address: Department of Pesticide Regulation 1001 I Street, MS 4-A Sacramento, CA. 95814</p> <p>Telephone: 916-445-2512 Email: kim.bateman@cdpr.ca.gov</p>	<p><i>Authorized Official</i></p> <p>Name: Kathleen P. Nolan Director</p> <p>Address: UC, ANR Contracts & Grants Office 2801 Second Street Davis, CA. 95618</p> <p>Telephone: 530-750-1306 Fax: 530-756-1148 Email: knolan@ucanr.ca.edu</p> <p><i>Send notices to (if different):</i></p> <p>Name: Heidi von Geldern Senior Contracts & Grants Analyst</p> <p>Address: UC, ANR Contracts & Grants Office 2801 Second Street Davis, CA. 95618</p> <p>Telephone: 530-750-1304 Fax: 530-756-1148 Email: hvongeldern@ucanr.ca.edu</p>

<p>Administrative Contact</p> <p>Name: Kim Bateman Contract Analyst</p> <p>Address: Department of Pesticide Regulation 1001 I Street, MS 4-A Sacramento, CA. 95814</p> <p>Telephone: 916-445-2512</p> <p>Email: kim.bateman@cdpr.ca.gov</p>	<p>Administrative Contact</p> <p>Name: Heidi von Geldern Senior Contracts & Grants Analyst</p> <p>Address: UC, ANR Contracts & Grants Office 2801 Second Street Davis, CA. 95618</p> <p>Telephone: 530-750-1304</p> <p>Fax: 530-756-1148</p> <p>Email: hvongeldern@ucanr.ca.edu</p>
<p>Financial Contact/Accounting</p> <p>Name: Department of Pesticide Regulation Accounts Payable</p> <p>Address: Department of Pesticide Regulation Accounts Payable P.O. Box 4015 Sacramento, CA 95812-4015</p> <p>Telephone: (916) 445-4149</p> <p>Email: Accounts_Payable@cdpr.ca.gov</p>	<p>Authorized Financial Contact/Invoicing</p> <p>Name: James Ringo Associate Accounting Officer</p> <p>Address: Contracts & Grants Accounting 1441 Research Park Drive Davis, CA. 95618</p> <p>Telephone: 530-757-8523</p> <p>Fax: 530-757-8721</p> <p>Email: efa@ucdavis.edu</p> <p>Payment Address: Cashier's Office University of California Davis P.O. Box 989062 West Sacramento, CA. 95798</p>

Exhibit A4 – Use of Intellectual Property

USE OF INTELLECTUAL PROPERTY

If either Party will be using any third-party or pre-existing intellectual property (including, but not limited to data, copyrighted works, known patents, trademarks, service marks and trade secrets) "IP" with restrictions on use, then list all such IP and the nature of the restriction below. If no third-party or pre-existing IP will be used, check "none" in this section.

A. State: Preexisting IP to be provided to the University from the State or a third party for use in the performance in the Scope of Work.

None or List:

Owner (Name of State Agency or 3 rd Party)	Description	Nature of restriction:

B. University: Restrictions in Preexisting IP included in Deliverables identified in Exhibit A1, Deliverables.

None or List:

Owner (Name of University or 3 rd Party)	Description	Nature of restriction:

C. Anticipated restrictions on use of Project Data.

If the University PI anticipates that any of the Project Data generated during the performance of the Scope of Work will have a restriction on use (such as subject identifying information in a data set) then list all such anticipated restrictions below. If there are no restrictions anticipated in the Project Data, then check "None" in this section.

None or List:

Owner (University or 3 rd Party)	Description	Nature of Restriction:

Exhibit A5 - RÉSUMÉ/BIOSKETCH

RÉSUMÉ/BIOSKETCH

Attach 2-3 page Resume/Biosketch for the PI and other Key Personnel listed in Exhibit A2, Key Personnel.

MICHAEL D. CAHN

Water Resources and Irrigation Advisor
University of California, Cooperative Extension
1432 Abbott St
Salinas, CA 93901
831-759-7377, mdcahn@ucdavis.edu

EXPERIENCE

1995-present University of California, Cooperative Extension, Farm Advisor
1991-1995 University of Illinois, Agricultural Engineering Department
Post-Doctoral Research Associate

EDUCATION

B.S. Soil and Water Science, University of California, Davis, 1985
M.S. Agronomy-Soil Science, Cornell University, 1988
Ph.D. Agronomy-Soil Science, Cornell University, 1991

Areas of Specialization

Irrigation management of vegetable and row crops, water quality protection, salinity management, drip irrigation, fertility management of vegetables, microbial food safety.

Selected Peer-Reviewed Publications

Cahn, M.D., Johnson, L.F. 2017. New Approaches to Irrigation Scheduling of Vegetables. *Horticulturae* 3, pp. 28
<http://www.mdpi.com/2311-7524/3/2/28> doi:10.3390/horticulturae3020028.

Smith, R.; Cahn, M.; Hartz, T.; Love, P.; Farrara, B. 2016. Nitrogen dynamics of Cole crop production: Implications for fertility management and environmental protection. *HortScience* 51:1586-1591.

Johnson, L.F., M. Cahn, F. Martin, F. Melton, S. Benzen, B. Farrara, K. Post. 2016.
Evapotranspiration-based irrigation scheduling of head lettuce and broccoli. *HortSci*. 51(7):935-940.

Cahn, M., K. Bali. 2015. Drought Tip: Managing salts by leaching. Leaching for salt management. ANR publication 8550.
pp. 8. <http://anrcatalog.ucanr.edu/pdf/8550.pdf>

Koike, S. T., and M.D. Cahn. 2015. 4.3. Water management. In *Plant diseases and their management in organic agriculture*. Ed. Finchkh, M.R., van Bruggen, A.H.C., and Tamm, L. APS press. The American Phytopathological Society. St Paul Minnesota USA. pp. 141-152.

E.R. Atwill, J. A. Chase, D. Oryang, R. F. Bond, S. T. Koike, M. D. Cahn, M. Anderson, A. Mokhtari, S. Dennis. 2015. Transfer of *E. coli* O157:H7 from simulated wildlife scat onto Romaine lettuce during foliar irrigation. *Journal of Food Protection* 02/2015; 78(22):240-247

Heinrich, A.L., R. Smith, and M. Cahn. 2014. Winter-killed cereal rye cover crop influence on nitrate leaching in intensive vegetable production systems. *HortTechnology*. 24(5) 502-511.

Olivieri A., Seto E., Cooper C., Cahn M., Colford J., Crook J., Debroux J., Mandrell R., Suslow T., Tchobanoglous G., Hultquist R., Spath D., Mosher J. (2014) Risk-Based Review of California's Water-Recycling Criteria for Agricultural Irrigation. *Journal of Environmental Engineering*. DOI: 10.1061/(ASCE)EE.1943-7870.0000833.

Bottoms, T, T.K. Hartz, M. D. Cahn, B. F. Farrara. 2013. Crop and soil nitrogen dynamics in annual strawberry production in California *HortSci* 48(8):1034–1039.

Heinrich, A.L., R. Smith, and M. Cahn. 2013. Nutrient and water use of fresh market spinach. *HortTechnology* 23:325-333.

Bottoms, T.G., R.F. Smith, M.D. Cahn and T.K. Hartz. 2012. Nitrogen requirements and N status determination of lettuce. *HortScience* 47:1768-1774

Bolda, M., M. Gaskell, E. Mitcham, M. Cahn. 2012. Fresh Market Caneberry Production Manual. UCANR Publ. 3525 p. 74.

Recent Abstracts presented at Professional Meetings

Cahn, M., Hartz, T., Smith, R., Noel, B., Johnson, L., and Melton, F. 2015. CropManage: an online decision support tool for irrigation and nutrient management. *Proceedings of the Western Nutrient Management Conference*. Volume 11 March 5-6, 2015 Reno, NV. pp. 9-13.

[http://www.ipni.net/ipniweb/conference/wnmc.nsf/e0f085ed5f091b1b852579000057902e/4be3031d1d87927a85257e37004fa7a8/\\$FILE/WNMC2015%20Cahn%20pg9.pdf](http://www.ipni.net/ipniweb/conference/wnmc.nsf/e0f085ed5f091b1b852579000057902e/4be3031d1d87927a85257e37004fa7a8/$FILE/WNMC2015%20Cahn%20pg9.pdf)

Cahn, M., R. Smith, K. Bali. 2015. Irrigation and nitrogen management web-based software lettuce production. 23rd annual CDFA Fertilizer Research and Education Program Conference Proceedings. Nov 5-6, 2015. Seaside, CA. pp. 67-69. https://www.cdfa.ca.gov/IS/ffldrs/frep/pdfs/2015_Proceedings_FREP.pdf

Cahn, M. D., R.F. Smith, T.K. Hartz, and B. Noel. 2013. Irrigation and nitrogen management web-based software for lettuce production. *Abstracts of Presentations from the Annual Conference of the American Society for Horticultural Science* July 22–25, 2013 Palm Desert, California. *HortScience* Vol. 48(9) p. 212.

Cahn, M., R. Smith and T. Hartz. 2013. Improving irrigation and nitrogen management in California leafy greens production. *Proceedings of the NUTRIHORT Conference*, Ghent, Belgium, pp. 65-68.

Exhibit A6 – Current & Pending Support

CURRENT & PENDING SUPPORT

University will provide current & pending support information for Key Personnel identified in Exhibit A2 at time of proposal and upon request from State agency. The "Proposed Project" is this application that is submitted to the State. Add pages as needed.

PI: Michael Cahn					
Status (currently active or pending approval)	Award # (if available)	Source (name of the sponsor)	Project Title	Start Date	End Date
Proposed Project	18-C0072	Department of Pesticide Regulation	Seed treatment effects on neonicotinoid concentration in irrigation run-off from lettuce fields	1/1/19	11/30/20
CURRENT		California Leafy Green Research Board	An integrated vegetated treatment system for mitigating imidacloprid and permethrin in agriculture irrigation runoff	4/1/18	3/31/19
CURRENT		CDFA Specialty Crop Block Grant	Innovative Best Management Practice Adoption Strategies to Increase Nitrogen Efficiency in Central Coast Specialty Crops	1/1/17	3/31/19
CURRENT		CDFA Specialty Crop Block Grant	Addressing improvements in water use efficiency of high-value Salinas Valley specialty crops	11/1/17	4/30/20
CURRENT		CDFA-FREP	Adapting CropManage Irrigation and Nitrogen Management Decision Support Tool for Central Valley Crops	1/1/17	12/31/19
PENDING					
NAME OF INDIVIDUAL					
Status	Award #	Source	Project Title	Start Date	End Date
Proposed Project					
CURRENT					
CURRENT					
PENDING					
NAME OF INDIVIDUAL					
Status	Award #	Source	Project Title	Start Date	End Date
Proposed Project					
CURRENT					
CURRENT					
PENDING					
NAME OF INDIVIDUAL					
Status	Award #	Source	Project Title	Start Date	End Date
Proposed Project					

Exhibit B - Budget

Budget for Project Period

Principal Investigator (Last, First):

Cahn, Michael

Exhibit B

COMPOSITE BUDGET FOR ENTIRE PROPOSED PROJECT PERIOD						
		01/01/2019	to	11/30/2020		
BUDGET CATEGORY	From: To:	1/1/2019 12/31/2019 Year 1	1/1/2020 11/30/2020 Year 2	Year 3	TOTAL	
PERSONNEL: <i>Salary and fringe benefits.</i>		\$18,300	\$18,300	\$0	\$36,600	
TRAVEL		\$0	\$0	\$0	\$0	
MATERIALS & SUPPLIES		\$ 3,000	\$3,000	\$0	\$6,000	
EQUIPMENT		\$0	\$0	\$0	\$0	
CONSULTANT		\$0	\$0	\$0	\$0	
SUBRECIPIENT		\$0	\$0	\$0	\$0	
OTHER DIRECT COSTS (ODC)	<i>Subject to IDC Calc</i>					
LAND RENT USDA-ARS	Y	\$16,000	\$16,000	\$0	\$32,000	
ODC #2	Y	\$0	\$0	\$0	\$0	
ODC #3	Y	\$0	\$0	\$0	\$0	
ODC #4	Y	\$0	\$0	\$0	\$0	
ODC #5	Y	\$0	\$0	\$0	\$0	
ODC #6	Y	\$0	\$0	\$0	\$0	
TOTAL DIRECT COSTS		\$37,300	\$37,300	\$0	\$74,600	
Indirect (F&A) Costs	<u>F&A Base</u> <u>Rate 25%</u>					
	<u>MTDC *</u>	\$0	\$0	\$0	\$0	
		\$9,325	\$9,325	\$0	\$18,650	
TOTAL COSTS PER YEAR		\$46,625	\$46,625	\$0		
TOTAL COSTS FOR PROPOSED PROJECT PERIOD					\$93,250	

* MTDC = Modified Total Direct Cost

JUSTIFICATION. See Exhibit B1 - Follow the budget justification instructions.

Funds Reversion Dates: Unless otherwise specified, fund reversion dates are three years from fiscal year end of year funded

Project Period Budget Flexibility (lesser of % or Amount)

Prior approval required for budget changes between approved budget categories above the thresholds identified.

%	25.00%
	or
Amount	\$10,000

Exhibit B1

Budget Justification

The Budget Justification will include the following items in this format.

Personnel

Name. Starting with the Principal Investigator list the names of all known personnel who will be involved on the project for each year of the proposed project period. Include all collaborating investigators, individuals in training, technical and support staff or include as "to be determined" (TBD).

Michael Cahn (PI), Staff Research Associate II (TBD)

Role on Project. For all personnel by name, position, function, and a percentage level of effort (as appropriate), including "to-be-determined" positions.

Michael Cahn (5% FTE), Coordinate field trials, analyzed data, write reports.

Staff Research Associate II (23% FTE), Set up sampling equipment, set up field equipment, assist in sampling run-off.

Fringe Benefits.

In accordance with University policy, explain the costs included in the budgeted fringe benefit percentages used, which could include tuition/fee remission for qualifying personnel to the extent that such costs are provided for by University policy, to estimate the fringe benefit expenses on Exhibit B.

A fringe benefits rate of 52.5% of salary was used in the budget.

Travel

Itemize all travel requests separately by trip and justify in Exhibit B1, in accordance with University travel guidelines. Provide the purpose, destination, travelers (name or position/role), and duration of each trip. Include detail on airfare, lodging and mileage expenses, if applicable. Should the application include a request for travel outside of the state of California, justify the need for those out-of-state trips separately and completely.

N/A

Materials and Supplies

Itemize materials supplies in separate categories. Include a complete justification of the project's need for these items. Theft sensitive equipment (under \$5,000) must be justified and tracked separately in accordance with State Contracting Manual Section 7.29.

Seed coating of lettuce (\$200 per trial = \$400), Sampling materials (Stainless steel containers (\$400), amber glass bottles (\$500), silicon tubing (\$100), 16 peristaltic pumps (\$150 ea), Fedex shipping (\$400), Flow meter (Seametric) and components (\$2,000)

Equipment

List each item of equipment (greater than or equal to \$5,000 with a useful life of more than one year) with amount requested separately and justify each.

N/A

Consultant Costs

Consultants are individuals/organizations who provide expert advisory or other services for brief or limited periods and do not provide a percentage of effort to the project or program. Consultants are not involved in the scientific or technical direction of the project as a whole. Provide the names and organizational affiliations of all consultants. Describe the services to be performed, and include the number of days of anticipated consultation, the expected rate of compensation, travel, per diem, and other related costs.

N/A

Subawardee (Consortium/Subrecipient) Costs

Each participating consortium organization must submit a separate detailed budget for every year in the project period in Exhibit B2 Subcontracts. Include a complete justification for the need for any subawardee listed in the application.

N/A

Other Direct Costs

Itemize any other expenses by category and cost. Specifically justify costs that may typically be treated as indirect costs. For example, if insurance, telecommunication, or IT costs are charged as a direct expense, explain reason and methodology.

N/A

Rent

If the Scope of Work will be performed in an off-campus facility rented from a third party for a specific project or projects, then rent may be charged as a direct expense to the award.

Land Rent USDA-ARS \$16,000

Indirect (F&A) Costs

Indirect costs are calculated in accordance with the budgeted indirect cost rate in Exhibit B.

25% rate based on Salary and benefits

Exhibit B3 – Invoice Elements

Invoice and Detailed Transaction Ledger Elements

In accordance with Section 14 of Exhibit C – Payment and Invoicing, the invoice, summary report and/or transaction/payroll ledger shall be certified by the University’s Financial Contact and the PI (or their respective designees).

Summary Invoice – includes either on the invoice or in a separate summary document – by approved budget category (Exhibit B) – expenditures for the invoice period, approved budget, cumulative expenditures and budget balance available¹

- Personnel
- Equipment
- Travel
- Subawardee – Consultants
- Subawardee – Subcontract/Subrecipients
- Materials & Supplies
- Other Direct Costs
 - TOTAL DIRECT COSTS (if available from system)
- Indirect Costs
 - TOTAL

Detailed transaction ledger and/or payroll ledger for the invoice period ²

- Univ Fund OR Agency Award # (to connect to invoice summary)
- Invoice/Report Period (matching invoice summary)
- GL Account/Object Code
- Doc Type (or subledger reference)
- Transaction Reference#
- Transaction Description, Vendor and/or Employee Name
- Transaction Posting Date
- Time Worked
- Transaction Amount

¹ If this information is not on the invoice or summary attachment, it may be included in a detailed transaction ledger.

² For salaries and wages, these elements are anticipated to be included in the detailed transaction ledger. If all elements are not contained in the transaction ledger, then a separate payroll ledger may be provided with the required elements.

Exhibit G – Negotiated Alternate UTC Terms (if applicable)

An alternate provision in Exhibit G must clearly identify whether it is replacing, deleting or modifying a provision of Exhibit C. The Order of Precedence incorporated in Exhibit C clearly identifies that the provisions on Exhibit G take precedence over those in Exhibit C.

*While every effort has been made to keep the UTC as universal in its application as possible, there may be unique projects where a given term in the UTC may be inappropriate or inadequate. California Education Code §67327(b) allows for those terms to be changed, but only through the mutual agreement and negotiation of the State agency and the University campus. If a given term in the UTC is to be changed, the change should **not** be noted in Exhibit C, but rather noted separately in Exhibit G.*

1. Harassment Free Workplace

The Department of Pesticide Regulation (DPR) is committed to providing a safe, secure environment, free from sexual misconduct. It is policy of the Department that employees have the right to work in an environment that is free from all forms of discrimination, including sexual harassment. This policy specifically speaks to freedom from a sexually harassing act that results in the creation of an intimidating, hostile or offensive work environment or that otherwise interferes with an individual's employment or work performance. As a Contractor with DPR, you and your staff are expected to comply with a standard of conduct that is respectful and courteous to DPR employees and all other persons contacted during the performance of this Agreement. Sexual harassment is unacceptable, will not be tolerated; and may be cause for prohibiting some or all of the Contractor's staff from performing work under this Agreement.

2. Rights in Data

The Parties agree that all data, plans, drawings, specifications, reports, computer programs, operating manuals, notes, and other written or graphic work submitted under Exhibit A in the performance of this Contract shall be in the public domain.

3. Indirect Costs

Overhead/Indirect Costs may not exceed 25% of the Modified Total Direct Cost.