FRESNO COUNTY FARMERS' PERSPECTIVES ON WATER MANAGEMENT AND THE SUSTAINABLE GROUNDWATER MANAGEMENT ACT (SGMA)

As a farmer in Fresno County, you are being asked to provide your perspectives on groundwater management, water availability, sustainability, and groundwater policies in California including the Sustainable Groundwater Management Act (SGMA). SGMA is a policy passed by the California legislature and signed by the governor in 2014, which requires the development of groundwater sustainability agencies and plans for groundwater sustainability to be developed by 2022 and achieved by 2042. **This survey provides farmers an opportunity to collectively voice their perspectives on these topics during a time of continuing policy development.**

This survey is being funded by the Water Foundation and coordinated by researcher Dr. Meredith Niles in collaboration with Fresno County Farm Bureau and California Farm Bureau Federation.

Your participation in this survey is voluntary and confidential. All of your answers will remain confidential and will not be shared with direct attribution to you. The survey should take approximately 20-30 minutes to complete. Should you have any concerns or comments about this survey, please email us at SGMASurvey@gmail.com.

In this survey we use the term "farmer" to be encompassing of farmers, ranchers, grape growers, and all other agricultural producers. We also use the term "farm" to be encompassing of all land and agricultural production. We use these terms only because of space limitations: we recognize the diversity of agriculture across the county.

Thank you for participating!
The survey begins on the next page.

SECTION 1: FARM CHARACTERISTICS

1. How many total acres do you manage (all land owned, leased or managed): _____

2. What percentage of this land do you own? _____

3. In a typical year, how much of the following crops, animals or land do you manage/own?

Crop or Land Type	Acres Managed or Owned
Fruit crops	
Nut trees	
Row crops	
Seed crops	
Vegetables	
Rice	
Grain	
Table Grapes	
Vineyard Grapes	
Hay/alfalfa	
Cattle on pasture/rangeland	
Sheep on pasture/rangeland	
Dairy (total head)	
Hemp	
Cannabis	
Other land use (please indicate):	

4. Does your farm participate in any of the following voluntary programs?

Program	I am not aware of this program	I am aware of this program and...			
		do not intend to participate	previously participated, do not intend to participate again	previously participated, intend to participate again	intend to participate in the future
Agricultural Conservation Easement Program (ACEP) (USDA Program)					
California Agricultural Water Enhancement and Efficiency Program (DWR/CDFA Program)					
California Landowner Incentive Program (Fish and Wildlife Program)					
California State Water Enhancement and Efficiency Program (SWEEP) (CDFA Program)					
Conservation Reserve Program (CRP) (USDA Program)					
Conservation Stewardship Program (CSP) (USDA Program)					
Environmental Quality Incentives Program (EQIP) (USDA Program)					
Organic/biodynamic certification					
Other (please indicate):					

All answers are confidential.

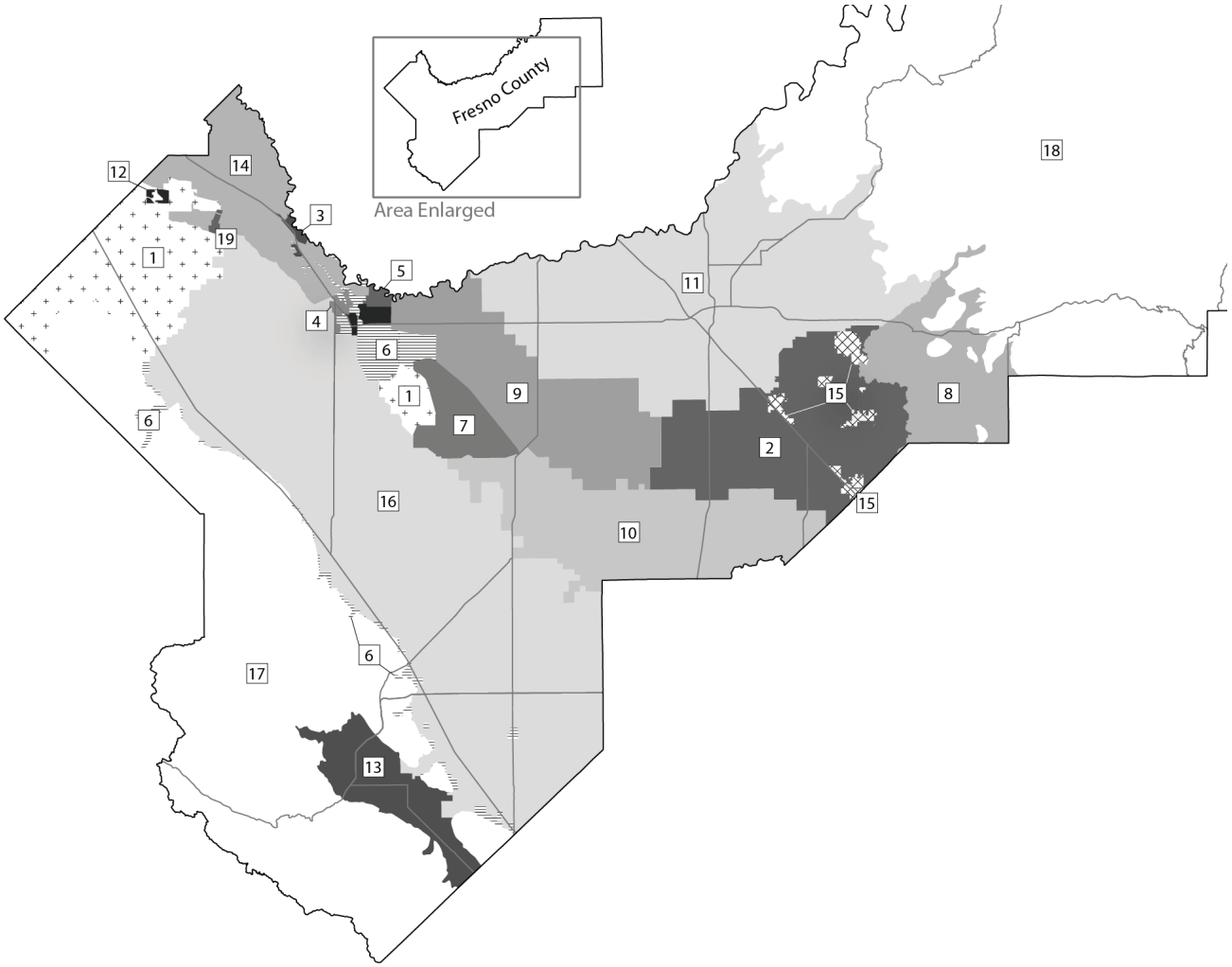
5. Which of the following sources of water and management do you typically utilize under the following conditions:

Water Source/ Management	Dry Years	Normal Years	Wet Years
Irrigation through surface water only			
Irrigation through groundwater only			
Irrigation through a mixture of surface and groundwater			
No irrigation			

6. If you do use irrigation, which of the following methods of delivery do you use? Check all that apply

☐ Furrow/flood ☐ Sprinklers ☐ Drip ☐ Microsprinklers ☐ Center pivot

☐ Other (Please indicate): _____



7. Above is a map of the Fresno County Groundwater Sustainablity Agencies (GSAs). Please indicate below in which districts you have land parcels. Check all that apply.

___ 1 Central Delta - Mendota Region Multi-Agency
___ 2 Central Kings
___ 3 City of Firebaugh
___ 4 City of Mendota
___ 5 Farmers Water District
___ 6 Fresno County
___ 7 James Irrigation District
___ 8 Kings River East
___ 9 McMullin Area
___ 10 North Fork Kings
___ 11 North Kings
___ 12 Ora Loma Water District
___ 13 Pleasant Valley
___ 14 San Joaquin River Exchange Contractors Water Authority
___ 15 South Kings
___ 16 Westlands Water District
___ 17 White Area 1
___ 18 White Area 2
___ 19 Wildren Water District

All answers are confidential.

SECTION 2. WATER SCARCITY MANAGEMENT PRACTICES

8. Please indicate, in response to water scarcity, if you currently use the following practices and your likelihood to use the following practices in the future.

Practice	Currently Use	Future Use					
		Very unlikely	Unlikely	Somewhat unlikely	Somewhat likely	Likely	Very likely
Drill more wells							
Restore existing wells							
Make existing wells deeper							
Pump more groundwater than previous years							
Drip irrigation							
Water monitoring technology							
Fallow fields							
Soil moisture sensors							
Change to a less water intensive crop							
Reduce livestock stocking rates							
Leaf sampling to measure plant-water status							
Purchase additional water							
Purchase crop insurance							
Other:							

9. If you are considering the adoption of a new practice or technology related to water scarcity how important are the following factors? Please rank them from 1 (most important) to 8 (least important)

Factor	Rank
Cost	
Ethical or social implications	
Impact on farm productivity	
Reducing environmental impact	
Time requirements for implementation	
Ability for it to improve my community	
Ensure viable farming operation for future generations	
Regulatory compliance	

All answers are confidential.

SECTION 3. SGMA POLICY

10. Please indicate your level of concern about the following potential conditions related to groundwater management in Fresno County. If you have additional concerns, please indicate them in the "Other" category.

Condition	Deeply unconcerned	Unconcerned	Somewhat unconcerned	Somewhat concerned	Concerned	Deeply concerned
Lowering of groundwater levels						
Reduction in groundwater in the basin						
Water quality degradation						
Local subsidence						
Depletions of surface water						
Reduction of agricultural access to groundwater						
Other:						
Other:						

11. What is the likelihood that Fresno County will experience these conditions in the following timeframes without any interventions? **Please choose only one option for each condition.**

Condition	Likely to **not occur in next 20 years**	Likely to occur in **20 years**	Likely to occur in **10 years**	Likely to occur in **5 years**	Occurring **Now**
Lowering of groundwater levels					
Reduction in groundwater in the basin					
Water quality degradation					
Local subsidence					
Depletions of surface water					
Reduction of agricultural access to groundwater					
Other:					

12. Please rank your level of agreement with the following statements related to SGMA:

Statement	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
The SGMA process is being managed at the local Fresno County level						
Farmers have been involved in the SGMA process						
I feel the process for engaging farmers in the SGMA process has been fair						
I know how to participate in the SGMA policy process and have my opinions heard						
I have talked to other farmers about SGMA						
I clearly understand the SGMA policy process for establishing groundwater sustainability in Fresno County						
I have personally participated in SGMA related events such as attending a meeting						

13: If you have personally participated in SGMA related events, which of the following have you done and when? (If you have not participated, continue to Question 14). Check all that apply.

Event	Within the last 6 months	Between 6 and 12 months ago	Between 12 and 24 months ago	Over two years ago
Attended a SGMA meeting				
Served on a board related to SGMA				
Testified on a SGMA issue				
Voted on GSA agency formation				
Other:				

14. Which of the following organizations, if any, are important to represent your interests regarding SGMA?

Farmer Representation through...	Not important	Somewhat not important	Somewhat important	Important
A Groundwater Sustainability Agency (GSA) (e.g. an irrigation or water district)				
Fresno County Farm Bureau				
Private pumper advisory committee				
Other: (your opinion)				

All answers are confidential.

15. Which are your preferred sources of information for SGMA. **Please check all that apply.**

Organization	Received information on SGMA from this source	Would trust information on SGMA from this source	Would like to receive information on SGMA from this source
Commodity organization/grower cooperative			
County Agricultural Commissioner			
Department of Water Resources			
Fresno State			
GSA-Eligible Entities meetings/working groups			
Local Irrigation or Water District			
Other farmers			
Popular Media (e.g. newspapers, radio, television)			
Resource Conservation District			
Social Media (e.g. Facebook, Twitter)			
State/Regional Water Resources Control Board			
University of California Cooperative Extension			
Others:			

16. What is your preferred mode of communication? (e.g. paper mailings, email, bill-inserts, etc.)

_____

SECTION 4: GROUNDWATER SUSTAINABILITY

17. When pumping groundwater, how important are the following factors to you? Rank your responses from 1 (very important) to 8 (least important). If you do not pump groundwater, please skip to question 18.

Factors	Rank
Economics/cost of production	
Family/self livelihood and well-being	
Labor and time requirements	
On-farm autonomy	
Policy/regulatory compliance	
Potential impact on environment	
Potential impact on future generations	
Society/community well-being	

18. The following allocation of groundwater use is practiced in different parts of the US, including California. Please rate your perceived level of fairness for the following methods of determining water allocations.

Method of Determining Water Allocation	Very unfair	Not fair	Somewhat not fair	Somewhat fair	Fair	Very fair
Allocated based on the overlying land area (e.g. made based on correlative rights)						
Allocated based on farm historical average pumping						
Allocated based on standard crop water requirements (e.g. depending on your crop type and what you grow)						
Allocated based on agricultural output (e.g. proportional to total sales of agricultural output)						

All answers are confidential.

19. The following are a list of management options that have been used in the West for water management. Please provide your level of preference for these types of management.

Management Option	Strongly against	Against	Somewhat against	Somewhat support	Support	Strongly support	Not familiar with this
Individual recharge credits (e.g. winter flooding)							
Water metering							
Water trading through markets							
Public program highlighting farmers implementing water saving practices							
Farmer adoption of water management practices							
District investment in conjunctive use infrastructure (e.g. water storage)							
Groundwater replenishment fees							
Fixed quota for water pumping allocated to each farmer							
Incentives for water saving practices							
Moratorium on drilling new wells							
Permits for drilling new wells							
Other: (your opinion)							
Other: (your opinion)							

20. If groundwater monitoring were required in the future, which of the following monitoring methods would you prefer?

Method of Determining Water Allocation	Strongly not preferred	Not preferred	Somewhat not preferred	Somewhat preferred	Preferred	Strongly preferred
Well metering						
Well metering using electricity data						
Use satellite estimates and ground truth						
Use standard crop water requirement indexes						

21. What is your preferred means of reconciliation, should disputes arise over SGMA implementation?

Dispute Option	Strongly not preferred	Not preferred	Somewhat not preferred	Somewhat preferred	Preferred	Strongly preferred
State Water Resources Control Board						
Groundwater Sustainability Agency						
County Board of Supervisors						
Superior Court System						
Arbitration						
Other:						

22. Please mark your level of agreement with the following statements regarding SGMA implementation.

Statement	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
I feel confident in my ability to manage my own water resources						
I believe SGMA is necessary to achieve groundwater sustainability in **Fresno County**						
I believe SGMA is necessary to achieve groundwater sustainability in **California**						
I feel confident that I can achieve groundwater sustainability under SGMA						
SGMA will be affordable to implement						
On average, I use less water than other farmers who produce similar products						
The majority of farmers think that SGMA is necessary for achieving groundwater sustainability in **Fresno County**						
The majority of farmers think SGMA is necessary for achieving groundwater sustainability in **California**						

23. What do you believe will be the average cost to you, per acre, to comply with SGMA? _____

All answers are confidential.

SECTION 5. PERCEPTIONS OF CHANGE

The following questions ask you to think about any changes you may or may not have seen in the past related to water and land use, policy, and climate.

24. In the **last 5 years**, indicate which of the following **LAND USE** trends, if any, you have observed in Fresno County:

Trend	Decreased significantly	Decreased somewhat	Stayed the same	Increased somewhat	Increased significantly	I don't know
The number of wells						
The amount of nut acreage						
The amount of fallow fields						
The number of family owned farming operations						
The number of corporate-owned farming operations						
The amount of land in urban or residential use						
The amount of vineyard acreage						

25. In the **last 5 years**, indicate which of the following **POLICY** trends, if any, you have observed in Fresno County:

Trend	Decreased significantly	Decreased somewhat	Stayed the same	Increased somewhat	Increased significantly	I don't know
Level of farmer engagement in policy processes						
Number of regulations for farms						
Opportunities for agricultural incentive programs						
Amount of reporting and paperwork associated with regulations						
Change in surface water allocation						

26. Please indicate your level of agreement/dis-agreement with the following statements related to changes in climate:

Statement	Strongly disagree	Disagree somewhat	Neutral	Agree somewhat	Strongly agree	I don't know
The global climate is changing						
Average global temperatures are increasing						
Local temperature extremes are increasing						
Water availability has changed because of climate change						
Human activities such as fossil fuel combustion are an important cause of climate change.						
Climate change presents more risks than benefits to agriculture **globally**.						
Climate change presents more risks than benefits to agriculture in **Fresno County**.						

SECTION 6: PERSONAL HISTORY

27. How long have you been farming in Fresno County? _____

28. Are you a member of Fresno County Farm Bureau? (yes/no)

29. Do you consider yourself a full-time farmer? (yes/no)

30. In which year were you born? _____

31. Are you (check one)

☐ Male ☐ Female ☐ Prefer not to answer

32. What is the highest level of formal education you completed? Check one.

☐ Some high school

☐ High school diploma

☐ Trade school, apprenticeship or on job training

☐ College education, no degree

☐ College education, associate's degree

☐ College education, bachelor's degree

☐ Graduate education, master's degree

☐ Graduate education, doctorate degree

33. What is your approximate yearly household gross income, including all on farm and off-farm incomes?

☐ Less than $40,000 ☐ $40,000- $60,000 ☐ $60,000- $80,000

☐ $80,000- $100,000 ☐ $100,000- $150,000 ☐ $150,000- $200,000

☐ $200,000- $500,000 ☐ More than $500,000 ☐ Prefer not to answer

34. What percent of your household income comes from outside of your farm income? _____

35. Do you have a farm succession plan for after you retire?

☐ Yes ☐ No ☐ Partial

We welcome any additional information or feedback regarding SGMA, water management, or farming in Fresno County that you may wish to provide:

Thank you for your participation!

All answers are confidential.