



Madera County Farmer Perspectives on Water Management and the Sustainable Groundwater Management Act (SGMA)

Meredith T. Niles, PhD ¹

Courtney Hammond Wagner, PhD ²

Results from a 2019 farmer survey

¹ Food Systems Program & Department of Nutrition and Food Sciences, University of Vermont
² Natural Resources Program, University of Vermont

Background

California is currently implementing the Sustainable Groundwater Management Act (SGMA), which became law in 2014. SGMA requires local groundwater sustainability agencies (GSAs) to develop sustainable water management plans and implement them to achieve groundwater sustainability (defined by avoidance of six undesirable results) by 2040. Agriculture is the largest human-related user of water in California; therefore farmers are an important stakeholder for SGMA implementation and achieving water sustainability. This research surveyed farmers in four California counties (Fresno, Madera, San Luis Obispo, and Yolo) to understand their perspectives on water issues, current and future water management practices, SGMA and policy preferences. This brief details the results of the survey for Madera County, where 101 farmers responded to the survey. The survey was deployed via mail in the spring of 2019 in collaboration with the Madera County Farm Bureau.

Key Findings

1. The majority of farmers are concerned about groundwater issues and believe they are occurring now or in the next five years.
2. Farmers have already adopted many water management practices, and are likely to adopt more.
3. Majority of farmers believe the SGMA process is being managed locally and is fair, but less than half understand the process and know how to participate
4. The majority of farmers support incentive programs as well as recharge credits, permits for new wells, and water markets.
5. Majority of farmers believe SGMA is necessary in Madera County and California; however, they don't believe other farmers think SGMA is necessary in these places.

Farmer and Farm Characteristics

Farmer respondents (86% male, 9% female, 5% prefer not to answer) were on average 59 years old, had farmed 31.4 years and 87% were full-time farmers. Average farm size was 1832 acres, with 74% on average owned by the farmer. The most common crop types were nut trees (68%), vineyard grapes (34%), hay and alfalfa (12%), and fruit crops (11%). Most common water sources (in a "normal year") was a mix of surface and groundwater (64%), groundwater only (35%), surface water only (14%), and no irrigation (5%). Farmers indicated in which GSAs they had land, with the most frequent Madera Irrigation District (52%), County of Madera GSA (44%), and Chowchilla Water District (22%).

Current and Future Water Management Practices

Farmers in the region have already adopted many water management practices, most commonly drip irrigation (61%), crop insurance (50%), and soil moisture sensors (48%) (Figure 1). Among non-adopters, farmers also indicated interest in adopting multiple water technologies in the future (Figure 2) especially water monitoring technology (77%), soil moisture sensors (76%), and drip irrigation (75%).

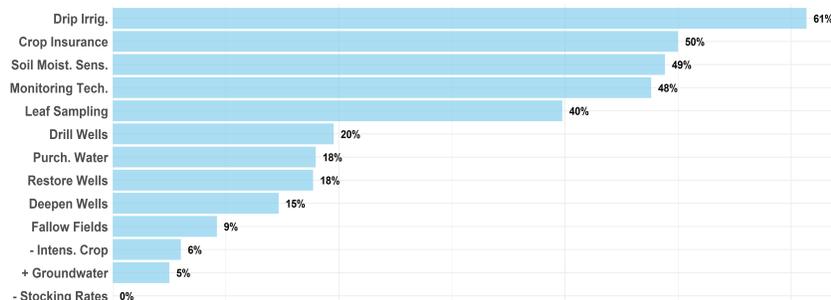


Figure 1. Current farmer adoption of water scarcity management practices.

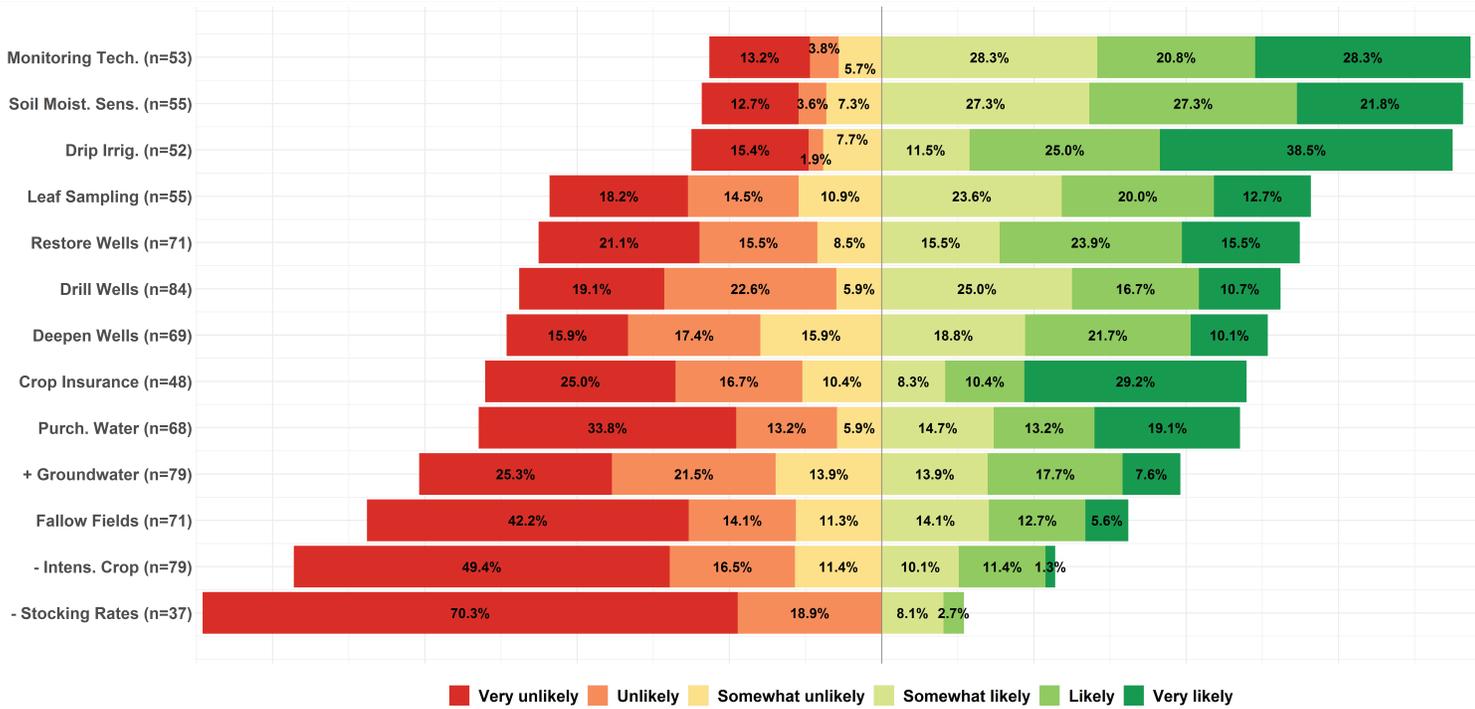


Figure 2. Farmers' likely adoption of water scarcity management practices.

Concern for Groundwater Issues

The majority of farmers (78% or greater) are at least somewhat concerned with each of the six SGMA undesirable results (Figure 3). As well, the majority of farmers believe that these undesirable results are already happening or will occur in five years. (Figure 4).

Farmer Preferences for Groundwater Sustainability and SGMA

The majority of farmers at least somewhat agree that the SGMA process is being managed locally (68%), is fair (53%), and has involved farmers (64%). However, fewer than half of all farmers agreed that they knew how to participate (49%) or clearly understood the SGMA policy process (48%). (Figure 5). Most farmers believe that water allocation based on correlative rights (76%), crop water requirements (71%), and historical pumping (69%) is at least somewhat fair. The majority of farmers prefer well metering (60%) and standard crop water requirement indexes (56%) for water monitoring in the future, if necessary.

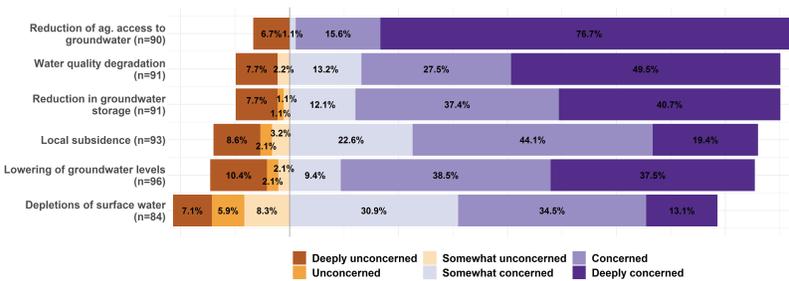


Figure 3. Farmer concern for groundwater management conditions (i.e. SGMA undesirable results" in Madera County).

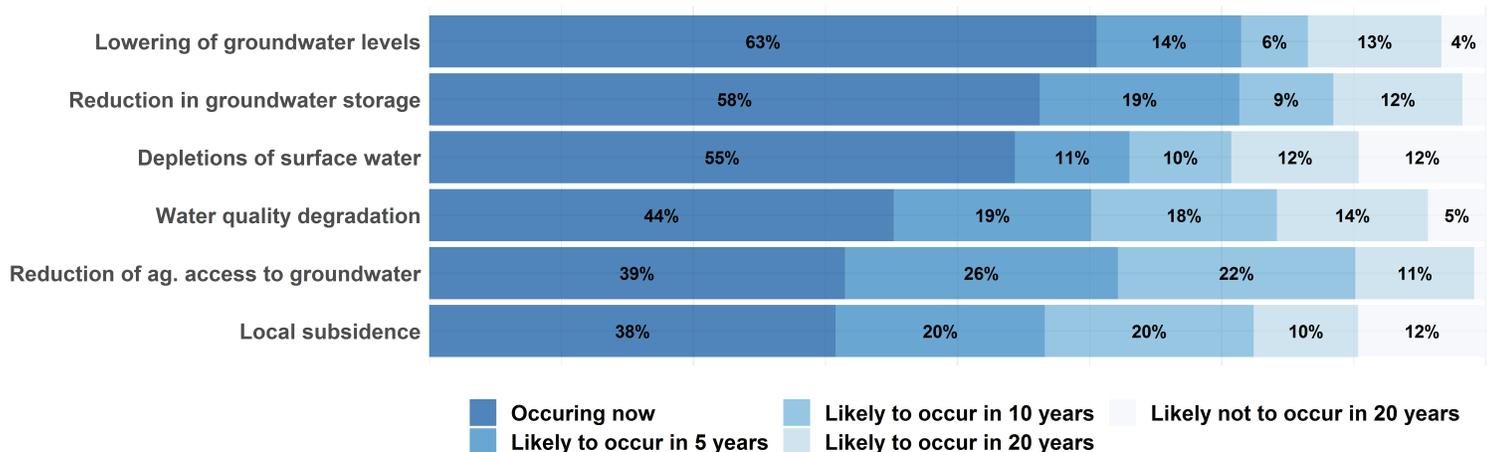


Figure 4. Farmer perceptions of likely timeframe in which groundwater management conditions will occur without interventions.

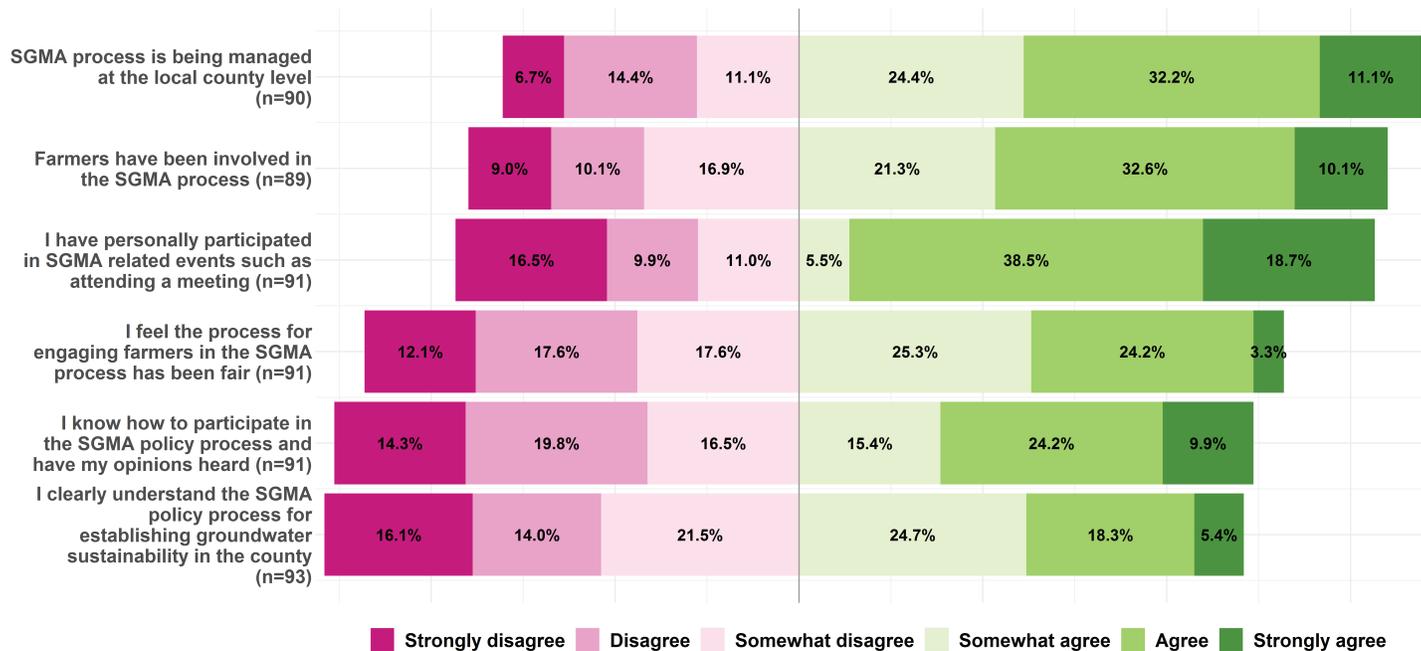


Figure 5. Farmer perceptions of SGMA policy process and participation

Farmers have mostly received information about SGMA from the local irrigation or water districts (33%) or the GSAs (23%); however, they would most trust information about SGMA from the County Agricultural Commissioner or a commodity organization/grower cooperative (41% each). Farmers would most like to receive SGMA information from the local irrigation or water district (28%) and the UC Cooperative Extension (27%). Farmers support a diversity of water policy and management strategies that may be components of SGMA (Figure 6).

SGMA Cost and Policy Need

Most farmers agree to some extent that SGMA is necessary in both Madera County (58%) and California (56%); however, the majority of farmers don't believe that other farmers think SGMA is necessary in Madera County (30%) or California (29%) (Figure 7). This suggests a disconnect between farmer's individual policy preferences and those of their peers. Farmers believe that SGMA will be costly to implement; on average, costing \$1,731 per acre.

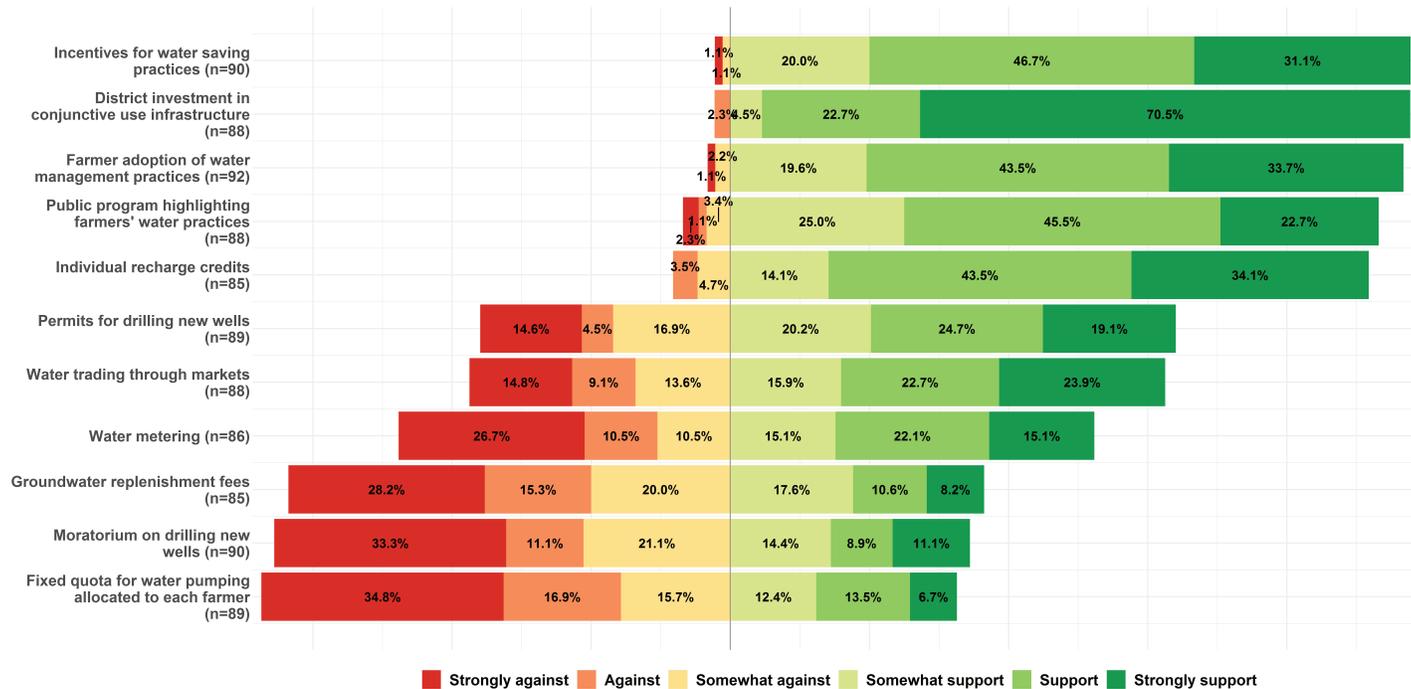


Figure 6. Farmer preferences for potential water management options.

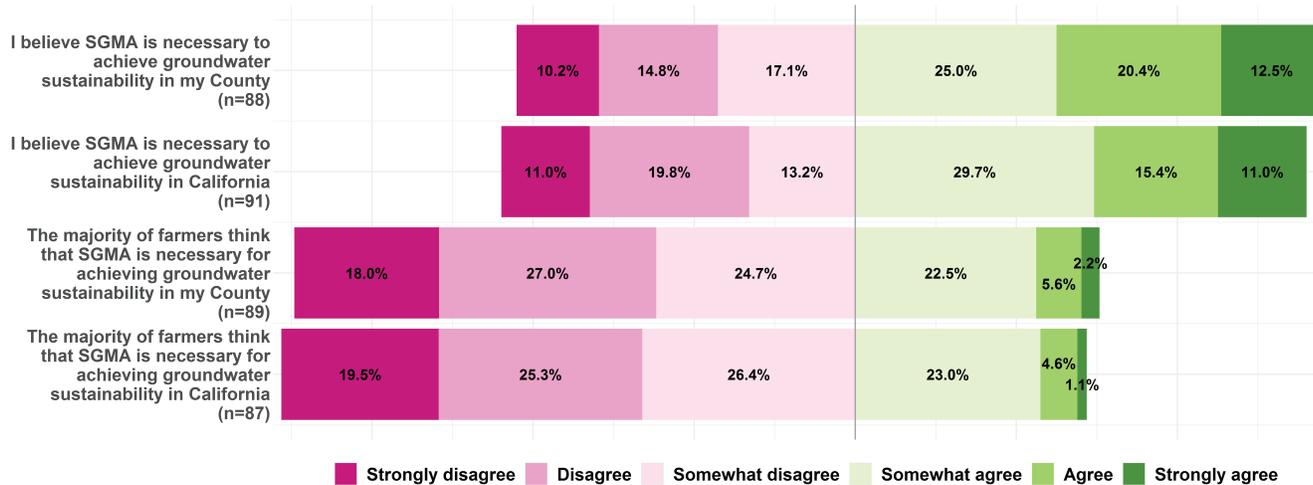


Figure 7. Farmer support for SGMA in Madera County and California.

Perceptions of Change

Farmers expressed that a number of changes in land, policy and climate had occurred recently. 94% of farmers felt that nut acreage had increased in the last five years, and 78% felt that urban land use had increased. 74% of farmers felt that corporate farms had increased, while 73% felt that family farms had decreased. In policy, 98% of farmers felt that the number of regulations had increased, and 96% felt that the amount of paperwork with regulations had increased in the last five years. 64% felt that farmer’s involvement in policy had increased and 54% felt that incentive opportunities in agriculture had also increased. 46% of farmers felt that surface water allocations had decreased. The majority of farmers (58%) agreed that the global climate was changing; however, less than half (47%) felt that global average temperatures were increasing or that humans were an important cause of climate change (30%) (Figure 8). Fewer than half of farmers also agreed

that climate change would provide more benefits than risks for agriculture in the County (45%) and globally (42%). Finally, the majority of farmers (59%) disagreed that water availability had changed over time because of climate change.

Acknowledgements

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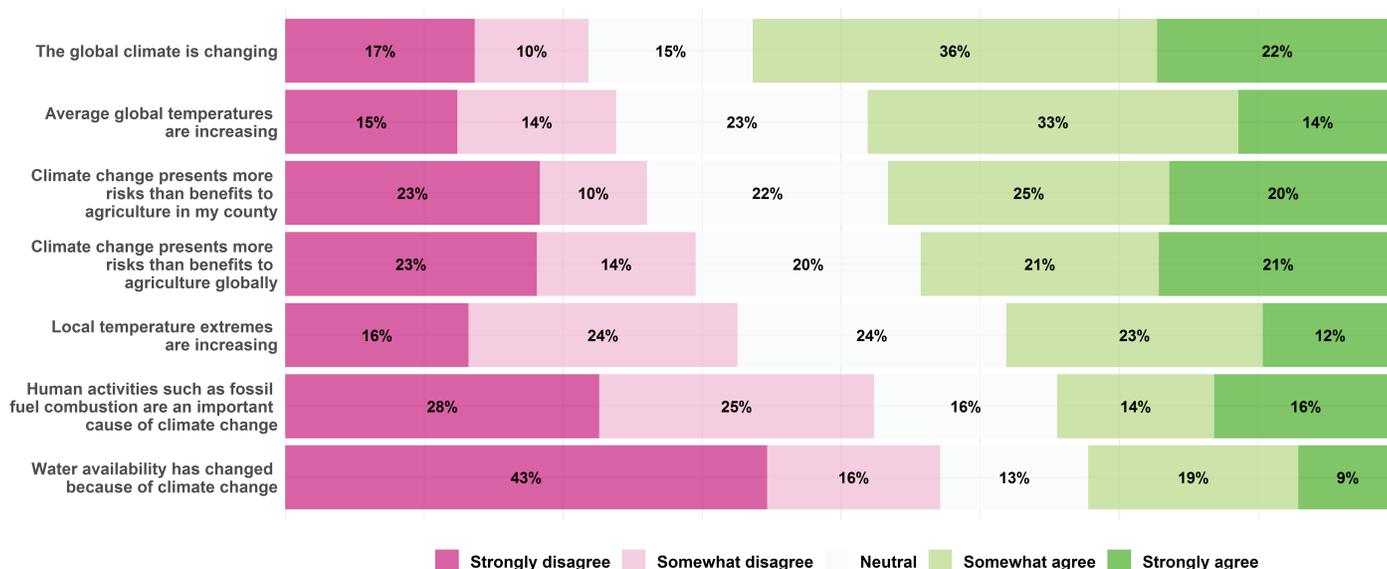


Figure 8. Farmers' level of agreement with climate change and weather risk statements.