Climate Smart Agriculture: Assessing Needs and Perceptions of California's Farmers

Table 1 *Implementation, Interest and Need for Information by Farmers on Adaptation Practices*

Adaptation Practices	Interest (%)				Need for Information (%)			
	n	No	Interested	Implementing	*n*	No	Some	High
Change irrigation practices	315	18.4	27.6	54.0	305	42.3	41.0	16.7
Reduce reliance on groundwater	313	29.1	38.3	32.6	304	41.4	44.1	14.5
Water harvesting	303	34.7	54.5	10.9	299	39.1	41.5	19.4
Concentrate surface water on less acreage	303	51.8	34.3	13.9	299	55.2	36.1	8.7
Use of drought tolerant varieties	307	30.3	48.5	21.2	299	49.5	37.1	13.4
Switch to new crops	305	59.3	30.2	10.5	302	60.9	28.8	10.3
Switch to low-chill varieties	300	61.7	31.7	6.7	300	67.3	27.7	5.0
Diversify production	305	43.3	33.1	23.6	299	58.2	32.4	9.4
Plant early maturing varieties	305	49.8	34.8	15.4	300	60.0	33.3	6.7
Use of cover crops	308	26.9	33.8	39.3	302	47.7	37.1	15.2
Mulching	308	24.4	36.4	39.3	301	47.5	39.9	12.6
Rotational or adaptive grazing	292	70.9	17.8	11.3	298	71.8	22.8	5.4
Build soil organic matter	303	17.8	35.3	46.9	300	38.0	42.3	19.7
Reduce soil disturbance	303	24.4	27.7	47.9	301	51.5	36.2	12.3
Integrate crops and livestock	297	66.7	21.5	11.8	298	72.1	21.5	6.4
Rotating crops or intercropping	299	59.2	19.7	21.1	298	69.8	21.8	8.4
Transition to perennial plants	297	57.6	13.8	28.6	299	75.3	20.1	4.7
Transition to annual crops	297	58.9	20.9	20.2	297	73.1	21.2	5.7
Alter planting schedules	298	66.1	23.8	10.1	292	71.2	24.3	4.5
Increase acreage	296	59.8	32.8	7.4	287	71.4	24.7	3.8
Decrease acreage	296	81.4	12.5	6.1	284	84.2	14.8	1.1
Increase ecosystem services	298	53.4	32.9	13.8	287	58.2	35.5	6.3
Agroforestry	291	69.1	23.4	7.6	287	70.0	24.7	5.2
Add windbreaks	294	66.7	23.8	9.5	285	69.5	25.3	5.3

Transition to renewable energy for farm use	300	21.7	48.7	29.7	285	37.2	42.5	20.4
Reduce dependency on fossil fuels	293	41.3	48.1	10.6	286	45.8	38.5	15.7
Fuel load management (e.g., prescribed fire)	290	68.3	23.4	8.3	281	70.5	21.0	8.5
Alter labor schedules to cope with heat	296	34.1	34.1	31.8	285	58.6	31.9	9.5
Add on-farm enterprise	288	55.9	34.0	10.1	280	60.4	30.0	9.6
Earn off -farm income	292	47.6	32.9	19.5	283	57.2	29.3	13.4
Secure access to insurance	291	29.2	45.7	25.1	282	44.3	34.0	21.6
Apply for government assistance	288	33.0	45.8	21.2	282	39.0	40.4	20.6
Change market strategy	287	41.8	42.9	15.3	279	50.9	36.2	12.9
Reduce input use	286	34.6	45.5	19.9	282	46.5	41.8	11.7

Table 2 *Barriers to Implementation of Adaptation Practices and Program by Farmers*

Barrier to implementing climate adaptation practices?	*n*	Extent of a Barrier (%)			
		Not	Somewhat	Moderate	Significant
Knowledge on suitable adaptation practices	290	33.1	37.2	21.7	7.9
Knowledge to implement climate adaptation practices	284	32.4	36.3	21.1	10.2
Knowledge on how to use climate information for agricultural decisions	282	34.4	35.1	23.0	7.4
Knowledge of new crops	284	43.0	27.1	20.8	9.2
Access to appropriate equipment to implement climate adaptation practices	284	28.5	29.2	24.6	17.6
Access to locally adapted monitoring tools (e.g., weather stations)	282	42.9	27.0	20.6	9.6
Access to locally adapted decision support tools (e.g., prediction tools for temperature).	284	39.8	31.3	19.4	9.4

Access to climate adapted varieties	282	41.1	31.6	17.7	9.6
Access to water	284	22.5	25.7	18.3	33.5
Labor access or cost	284	17.3	21.1	26.4	35.2
Access to lease land	282	60.3	16.3	12.4	11.0
Land ownership	281	53.0	14.2	13.9	18.9
High input costs (agrochemicals)	288	10.4	18.1	24.7	46.9
Access to investment capital or funds	287	15.0	28.6	24.0	32.4
Access to appropriate insurance	279	28.7	28.0	19.7	23.7
Government regulations	288	9.7	16.3	20.8	53.1
Access to appropriate markets	286	26.2	26.6	24.8	22.4
Access to detailed economic information (cost/benefit analysis)	286	24.5	36.4	23.8	15.4
Time	285	17.5	23.5	29.5	29.5
Risk of implementing new practices	286	16.4	30.8	28.8	24.8
Access to translation support assistance	279	52.3	24.0	14.7	9.0
I am hesitant to implement new practices technologies	282	47.9	31.6	11.3	9.2
I have not observed how the adaptation practices work on another farm	279	36.9	28.0	21.9	13.3