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Water Wise Agriculture

Survey of growers in the Navarro River Watershed

Please answer all of the questions. *Your personal information will not be released and no individual will be identified* in our reports of this survey. We need to ask for personal information because if we have questions regarding your responses we will need to contact you. Once the responses are entered into the database your name will be deleted and data will be presented only in aggregate.

Completed surveys can be mailed to the Mendocino UC Cooperative Extension office at 890 N. Bush St. Ukiah, CA 95482 and please also sign and return the included consent form when sending us your survey. If you have any questions or would like additional information, please call us at (707) 463-4495 or email to cemendocino@ucdavis.edu. If you would like to access the survey online or download the final report for the Russian River portion of this study, they can be found at http://ucanr.org/Navarro_Water_Wise/

Thanks again for your time!

First Name: _____
Last Name: _____
Town/Zip: _____
Telephone: _____
Email: _____

Section 1: General Irrigation and Water Use History

1. How many years have you irrigated crops within the Navarro Watershed? _____

2. Have you ever had difficulty meeting the irrigation needs of your crops?
   ☐ Yes ☐ No Year(s): _____

   If so, please check the reasons below that apply to your situation.

   Reasons (check **all** that apply)
   ☐ Irrigation system failure
   ☐ Pond(s) dry
   ☐ Well(s) dry
   ☐ Low rainfall
   ☐ Creek or stream dry
   ☐ High climatic demand
   ☐ Establishing crop

   Your comments:

3. Have you ever had difficulty meeting the frost protection needs of your crop?
☐Yes ☐No Year(s): _____

If so, please check the reasons below that apply to your situation.

Reasons (check all that apply)
☐ Irrigation system failure
☐ Pond(s) low or dry
☐ Well(s) dry
☐ Large number of frost days
☐ Early bud break
☐ Stream levels low

Your comments:

4. Do you use water for heat protection on your farm? ☐Yes ☐No

If so, which of the measures below do you consider?

Reasons (check all that apply)
☐ Low leaf water potential
☐ Leaf wilting/other physical signs
☐ Low soil moisture
☐ Number of days over _____ degrees (please fill in the temperature you use)

In which years did you provide the greatest amount of heat protection? _____

Your comments:

5. Do you apply any post-harvest irrigation to your crop and if so, on average, how many times do you irrigate? ☐Yes ☐No Times: _____

6. If you get water from a stream diversion, have you ever coordinated your pumping schedule with neighboring water users in order to reduce the impact of pumping on stream flow?
☐Yes ☐No

Your comments:

Section 2: Crops Irrigated

7. What is the total acreage you currently farm (irrigated and non-irrigated)? _____

8. Write in how many acres of each crop that you irrigate.

Grapes:	_____	Olives:	_____	Other 1:	_____
Apples:	_____	Pears:	_____	Other 2:	_____
Pasture/Hay:	_____	Vegetables:	_____	Other 3:	_____

9. Of those irrigated acres identified in question 8 above, estimate how many acres are in fields that are irrigated directly from a river, stream, or other surface water course, how many from off-stream water storage reservoir and how many from wells.

Crop	Irrigation Water Source		
	Direct diversion of surface watercourse	**Off-stream reservoir**	**Well or other groundwater source**
Grapes	_____	_____	_____
Apples	_____	_____	_____
Pasture/Hay	_____	_____	_____
Olives	_____	_____	_____
Vegetables	_____	_____	_____
Other 1: _____	_____	_____	_____
Other 2: _____	_____	_____	_____
Other 3: _____	_____	_____	_____

10. For the irrigated acres identified in question 8 above, estimate the acreage irrigated by the following irrigation methods.

Crop	Irrigation Method			
	Drip	**Overhead Sprinkler**	**Under/Micro Sprinkler**	**Flood/Furrow**
Grapes	_____	_____	_____	_____
Apples	_____	_____	_____	_____
Pasture/Hay	_____	_____	_____	_____
Olives	_____	_____	_____	_____
Vegetables	_____	_____	_____	_____
Other 1: _____	_____	_____	_____	_____
Other 2: _____	_____	_____	_____	_____
Other 3: _____	_____	_____	_____	_____

11. For the irrigated acres identified in question 8 above, estimate the acreage for which you provide **frost protection** by the following methods.

Crop	Frost Protection Method			
	No Frost Protection	**Sprinkler**	**Fan**	**Other: _____**
Grapes	_____	_____	_____	_____
Apples	_____	_____	_____	_____
Pasture/Hay	_____	_____	_____	_____
Olives	_____	_____	_____	_____
Vegetables	_____	_____	_____	_____
Other 1: _____	_____	_____	_____	_____
Other 2: _____	_____	_____	_____	_____
Other 3: _____	_____	_____	_____	_____

Section 3: Irrigation System

12. Indicate the number of pumps you operate according to their power source and age group.

Age Group	Power Source			
	Diesel	Electric	Biodiesel	LPG
1-2 years	_____	_____	_____	_____
2-5 years	_____	_____	_____	_____
5-10 years	_____	_____	_____	_____
More than 10 years	_____	_____	_____	_____

13. How many of your pumps by age group are volume metered?

Age Group	Volume Meter	
	Yes	No
1-2 years	_____	_____
2-5 years	_____	_____
5-10 years	_____	_____
More than 10 years	_____	_____

14. By age group how many of your intake pumps have intakes in a local stream or creek and of those how many have fish screens?

Age Group	Stream Intake		No Stream Intake
	Fish Screened	Not Fish Screened	
1-2 years	_____	_____	_____
2-5 years	_____	_____	_____
5-10 years	_____	_____	_____
More than 10 years	_____	_____	_____

15. List the number of reservoirs that you have from each water source and their total storage capacity in acre-feet.

	Surface Water Diversion	Well Water	Subsurface Drainage System	Rainfall Harvesting/ Ephemeral Stream
Number of reservoirs	_____	_____	_____	_____
Total storage capacity	_____	_____	_____	_____

16. Do you usually have to refill your reservoir(s) using surface water diversion during the irrigation season and, if so, generally during which month?
☐Yes ☐No Month: _____

17. Indicate if you have you made a change in irrigation systems method and if so in what year?
☐Yes ☐No Year(s): _____

18. If you indicated yes in question 17, why did you make this change (check all that apply)?

☐ Cost savings in electricity or fuel
☐ Cost savings in water
☐ Replace failing or old system
☐ Replanting or changing crops
☐ Increased yield
☐ Improved crop quality
☐ Water conservation
☐ Other: _____

19. Indicate if you have made a transition in frost protection technology and if so in what year?
☐Yes ☐No Year(s): _____

20. If you indicated yes in question 19, why did you make this change (check all that apply)?

☐ Cost savings in energy and fuel
☐ Cost savings in water
☐ Replace failing or old system
☐ Replanting or changing crops
☐ Water conservation
☐ Other: _____

Section 4: Irrigation Information

21. Rank, in order of use, your primary sources of information for irrigation system design. (1 = the source you most often use, 10 = a source rarely or never used)

Rank
_____ Crop buyer
_____ Farm Advisor
_____ Farm Manager
_____ Growers
_____ Irrigation Consultant
_____ Irrigation equipment supplier/designer
_____ NRCS (Soil Conservation Service
_____ Self
_____ Wine makers
_____ Other: _____

22. Rank, in order of use, your primary sources of information for crop water requirements and application rates. (1 = the source you most often use, 10 = a source rarely or never used)

Rank
_____ Crop buyer
_____ Farm Advisor
_____ Farm Manager
_____ Growers
_____ Irrigation Consultant
_____ Irrigation equipment supplier/designer
_____ NRCS (Soil Conservation Service)
_____ Self
_____ Wine makers
_____ Other: _____

23. Do you use the practices of Regulated Deficit Irrigation (RDI) in your decisions of when and how much water to apply to your crop? ☐Yes ☐No

Your comments:

24. Do you know of and use the following tools and methods in your decisions of when and how much water to apply for crop production?

Tool or Resource	Know of	Use
CIMIS	☐	☐
Electronic weather station	☐	☐
Soil moisture measurements (neutron probe or other)	☐	☐
Crop water potential measurements (pressure bomb)	☐	☐
On-farm weather station	☐	☐
Field observations	☐	☐
Other (fill in): _____	☐	☐

25. Do you know of and use the following tools and methods in your decisions of when and how much water to apply for frost protection?

Tool or Resource	Know of	Use
Online weather sources	☐	☐
Alarm systems	☐	☐
On farm field measurements (wet bulb, thermometers)	☐	☐
Fruit frost forecast	☐	☐
Other (fill in): _____	☐	☐

Section 5: Irrigation and Water Management Alternatives

26. Have you ever participated in a conservation program? If so, please check the appropriate box below.

☐ USDA Environmental Quality Incentives Program
☐ Fish and Game Fishery Restoration Grants Program
☐ Fish Friendly Farming
☐ Wine Institute/CAWG Code of Sustainability
☐ Other: _____

27. How important are each of the following reasons for participating in water conservation programs? Rate each reason separately on a scale from 1 to 5 (1 = not important, 5 = very important)

Rate
___Lower farm costs for water
___Lower farm costs for electricity and fuel to run irrigation system
___Marketing and premium for crop
___Comply with regulations
___Natural resource stewardship
___Personal values and beliefs
___Maintain stream flow for fish habitat
___Tax rebates and incentives
___Provide water for urban growth and development