

Grower Survey: UV-based Ag. Water Disinfection

Hello!

We would like to invite you to complete a short research survey. Completing the survey will take about 10 minutes and you have the option to enter into a drawing to win one of *FIFTEEN* \$25 Visa Gift Cards.

Kansas State University (KSU) is leading a survey of produce growers to learn more about your barriers and needs related to using ultraviolet light technologies to improve the quality of water on your farm. The goal of this survey is to learn more about the current level of knowledge, attitudes, and perceptions in this area so that we can more effectively design educational and other outreach materials to help growers to improve or maintain the quality of their water to raise safe produce.

Your identity will be kept completely anonymous in the survey results. Only group comparisons will be made and reported in summary form. Your participation is entirely voluntary, and you may withdraw from participation at any time without penalty. Identifiers will be removed from any identifiable private information, and, after such removal, the information could be used for future research studies or distributed to another investigator for future research studies without additional informed consent from you, the survey participant. If you are interested, you can register your name and contact information on a separate list (which will not be connected with your survey results) to enter a drawing to win one of fifteen \$25 Visa gift cards that are available to survey respondents.

If you have any questions about the survey or would like a copy of the summarized results, please contact Dr. Londa Nwadike (lnwadike@ksu.edu), state Extension Food Safety Specialist for KSU and MU. If you have questions about the rights of human research subjects, you should contact Heath Ritter at hlr@ksu.edu or 785- 532-3234.

Thank you for your time. We appreciate your participation in the survey and value your input.

1. Do you grow fresh produce?

☐ Yes

☐ No

2. Which of the following water sources do you use for **pre-harvest produce-related activities** (irrigation, crop sprays, fertigation, etc.)? Please select all that apply.

☐

Ground Water (well, aquifer)

☐

Surface Water (creek, pond, rain barrel, etc.)

☐

Municipal Water

☐

Other (please list) _____

3. Do you treat any of the water sources you use for **pre-harvest produce-related activities** (irrigation, crop sprays, fertigation, etc.)? Please select all that apply.

☐

I do not treat any of my water source(s) used in **pre-harvest produce-related activities**

☐

Ground Water (well, aquifer)

☐

Surface Water (creek, pond, rain barrel, etc.)

☐

Municipal Water

☐

Other (please list) _____

4. Please indicate the treatment(s) you apply to the water sources you use for **pre-harvest produce-related activities** (irrigation, crop sprays, fertigation, etc.). Please select all that apply.

- ☐ I do not treat any of my water sources used for **pre-harvest produce-related activities**
- ☐ Ultraviolet (UV) light
- ☐ Chlorine-based disinfectant
- ☐ Hydrogen peroxide
- ☐ Organic acid (i.e., peroxyacetic acid/PAA)
- ☐ Other (please list) _____

5. Which water sources do you use for **post-harvest produce-related activities** (produce washing, hand washing, moving produce, etc.)? Please select all that apply.

- ☐ Ground Water (well, aquifer)
- ☐ Surface Water (creek, pond, rain barrel, etc.)
- ☐ Municipal Water
- ☐ Other (please list)

6. Do you treat any of the sources you use for **post-harvest produce-related activities** (produce washing, hand washing, moving produce, etc.)? Please select all that apply.

- ☐ I do not treat any of my water source(s) used for post-harvest produce-related activities
- ☐ Ground Water (well, aquifer)
- ☐ Surface Water (creek, pond, rain barrel, etc.)
- ☐ Municipal Water
- ☐ Other (please list)

7. Please indicate the treatment(s) that you apply to the water sources you use in **post-harvest produce-related activities** (produce washing, hand washing, moving produce, etc.). Please select all that apply.

- ☐ I do not treat any of my water sources used for post-harvest produce-related activities
- ☐ Ultraviolet (UV) light
- ☐ Chlorine-based disinfectant
- ☐ Hydrogen peroxide
- ☐ Organic acid (i.e., peroxyacetic acid/PAA)
- ☐ Other (please list) _____

8. Please answer the following questions about ultraviolet (UV) light, based on your current knowledge.

	Agree	I don't know	Disagree
UV light can kill disease-causing germs	☐	☐	☐
UV light is invisible to the naked eye	☐	☐	☐
UV light cannot penetrate clothing	☐	☐	☐
UV lamps have an infinite lifespan	☐	☐	☐
UV light effectiveness depends on time and intensity	☐	☐	☐

9. Please answer with the extent you agree or disagree with the following statements about ultraviolet (UV) light-based water treatment systems.

	Strongly Agree	Mostly Agree	I don't know	Mostly Disagree	Strongly Disagree
They are easy to install	☐	☐	☐	☐	☐
They are easy to maintain	☐	☐	☐	☐	☐
They are easy to use	☐	☐	☐	☐	☐
They are safe for humans to use	☐	☐	☐	☐	☐
They are affordable	☐	☐	☐	☐	☐
They can reduce the number of microorganisms in agricultural water	☐	☐	☐	☐	☐
They can reduce the number of microorganisms on irrigated crops	☐	☐	☐	☐	☐
They are suitable for treating agricultural water(s) in my operation	☐	☐	☐	☐	☐

10. What are the barriers to you using ultraviolet light water disinfection systems on your farm?

- ☐ UV disinfection systems require **technical skills** I do not have
- ☐ UV disinfection systems are **too costly**
- ☐ UV disinfection systems are **too complicated to set up**
- ☐ UV disinfection systems are **too much work to maintain**
- ☐ UV disinfection systems **are not appropriate for my operation**
- ☐ Other (Please list) _____

11. What resources do you need to overcome these barriers? (Check all that apply)

- ☐ Money
- ☐ Technical Training
- ☐ Time
- ☐ More information about its benefits
- ☐ Other (Please list) _____

Please answer the next demographics questions to help us understand our farming community better. Please indicate your:

12. State that your farm is located

13. Gender

- ☐ Female
- ☐ Male
- ☐ Other
- ☐ Prefer not to say

14. Age

- ☐ Under 25 years
- ☐ 25 to 34
- ☐ 35 to 44
- ☐ 45 to 54
- ☐ 55 to 64
- ☐ 65 to 74
- ☐ 75 years and over
- ☐ Prefer not to say

15. Years of farming experience

- ☐ Less than 4
- ☐ 5 to 9
- ☐ 10 to 14
- ☐ 15 to 19
- ☐ 20 to 24
- ☐ 25 to 29
- ☐ 30 years and over
- ☐ Prefer not to say

16. Highest level of education

- ☐ Some high school
- ☐ High school diploma or GED
- ☐ Some college
- ☐ College or university diploma
- ☐ Master's degree
- ☐ Doctoral degree
- ☐ Prefer not to say

17. Farm size (in acres) for growing produce

- ☐ Less than 1
- ☐ 1 to 9
- ☐ 10 to 49
- ☐ 50 to 69
- ☐ 70 to 99
- ☐ 100 to 139
- ☐ 140 to 179
- ☐ 180 to 219
- ☐ 220 to 259
- ☐ 260 to 499
- ☐ 500 or more
- ☐ Prefer not to say

18. Annual farm income from selling produce

- ☐ Less than \$1,000
- ☐ \$1,000 to \$2,499
- ☐ \$2,500 to \$4,999
- ☐ \$5,000 to \$9,999
- ☐ \$10,000 to \$24,999
- ☐ \$25,000 to \$49,999
- ☐ \$50,000 to \$99,999
- ☐ \$100,000 to \$499,999
- ☐ \$500,000 or more
- ☐ Prefer not to say

19. Please select your current certifications or food safety trainings you have attended

- ☐ GAP (Good Agricultural Practices) certified
- ☐ FSMA PSA (Produce Safety Alliance) Training
- ☐ HACCP (Hazard Analysis and Critical Control Points) training
- ☐ USDA Organic certification
- ☐ Other (Please List) _____

20. Do you identify with any of the below populations? (Select any that apply)

☐

Military Veteran

☐

Racial or Ethnic Minority (e.g., Black, Indigenous, Latino/a)

☐

Amish or Mennonite

☐

I do not identify with any of these populations

:

21. Do you have any feedback you would like to provide to us about the survey?

22. Do you wish to be entered into a drawing for one of the visa gift cards?

☐ Yes

☐ No

23. If yes, please provide your email, phone number, or mailing address, and you will be contacted if your name is drawn for one of the visa gift cards.