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Farmers are Interested in Nontraditional Water but Want Additional Information about Quality and Access

Most farmers in the Mid-Atlantic region of the United States (Delaware, Maryland, Pennsylvania, Virginia, West Virginia, and Washington D.C.) consider the use of nontraditional water sources important. Nontraditional water is any water source other than groundwater, including agricultural runoff, treated wastewater, reclaimed water, produced water, untreated surface water, and brackish surface and groundwater (USDA, 2017). For more information and definitions of water reuse terms, please see *Recycled Water & Related Terms Relevant for Agriculture* (2018).

While farmers are interested in using nontraditional water, they report having limited knowledge regarding it and are concerned about water quality. This fact sheet describes the results from a survey developed by the University of Maryland, the University of Arizona, and CONSERVE: A Center of Excellence at the Nexus of Sustainable Water Reuse Food and Health. The survey assessed farmers' opinions regarding nontraditional water use for agriculture in the Mid-Atlantic United States.

The survey consisted of 22 multiple-choice and open-ended questions on demographic factors, farmers' association with water, their primary water source, current knowledge, access to and opinions of nontraditional water sources, as well as preferred education methods related to these water sources.

Nearly 270 farmers in the Mid-Atlantic region responded to the survey. Most respondents were white (85%), non-Hispanic (97%) males (69%) between 50 and 69 years old (52%) with at least two years of post-high school education. Sixty-three percent of respondents farm between 0-100 acres, 32% farm 101-1000 acres, and 5% farm 1001-2000 acres. In the Mid-Atlantic, the most common primary water source is groundwater (59%), followed by 30% of farmers who use surface water.

Most Mid-Atlantic Farmers Would Use Nontraditional Water on their Farm

Farmers overwhelmingly (68%) considered nontraditional water use in agriculture to be moderately to very important. **Fifty-three percent of farmers would supplement with nontraditional water sources, with**

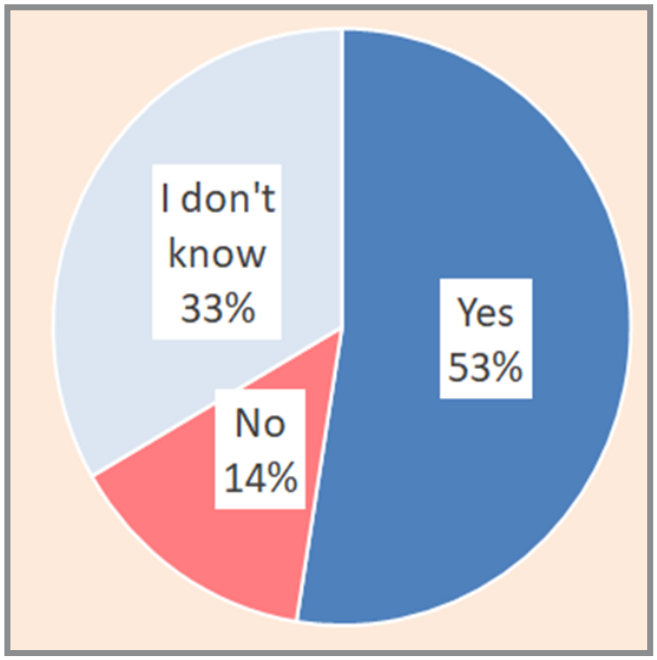

Figure 1. Mid-Atlantic farmer responses to the question: "If given the option, would you use nontraditional water to supplement your current water source?"

75% of farmers being willing to supplement with nontraditional water sources if the quality were good or better than their current water source (Figure 1).

Mid-Atlantic farmers were most willing to use nontraditional water for irrigation of vegetables, fruits, and nuts, equipment water washing, irrigation of greenhouse or nursery produce, and irrigation of wheat, grain, and barley. Farmers around the world have expressed interest in using nontraditional waters such as reclaimed water (highly treated municipal wastewater), including in water-rich Nicaragua (100%) and water-stressed Greece (76%) (Jiménez et al., 2011; Menegaki et al., 2007).

Farmers were most concerned about water quality (28%), food safety and health risks (19%), water quantity (18%), and reliability of treatment methods (12%) as it relates to nontraditional water use in agriculture (Figure 2).

Similarly, Nicaraguan and Greek farmers surveyed about agricultural water reuse were most concerned about health and water quality (Jiménez et al., 2011; Menegaki et al., 2007) .

Having more information increased farmers' willingness to use nontraditional water. Not only did the percentage of farmers increase from 52% to 75% if they received information that nontraditional water quality was the same or better than their current water source, but farmers' reported knowledge about nontraditional water impacted their willingness to use it (Figure 3). Approximately 75% of people who considered themselves very or somewhat knowledgeable about nontraditional water would supplement with nontraditional water sources, compared to only about 40% of people with no knowledge of nontraditional water.

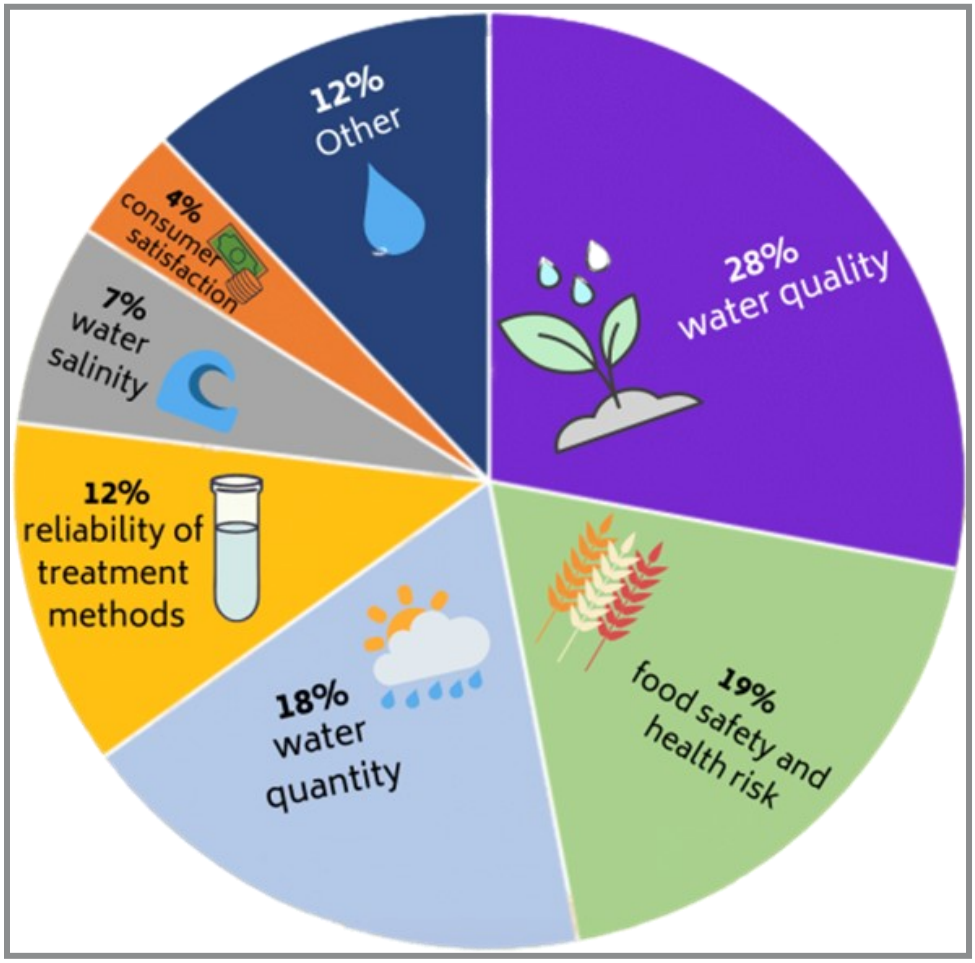

Figure 2. Mid-Atlantic farmer responses to the question: "What are some of your concerns regarding the use of nontraditional water?"

More information is needed on water quality, alternative water sources, and access to these types of water. Most farmers (71%) had little or no prior knowledge of nontraditional water sources, with only 23% of farmers reporting being somewhat knowledgeable. Only 25% of respondents reported having access to nontraditional water and 20% didn't know if they had access to nontraditional water.

Farmers are stewards of natural resources making it vitally important that their concerns and needs regarding water are addressed. Moving forward, CONSERVE and the University of Maryland will continue to analyze data and prepare educational materials for farmers on nontraditional water, addressing the concerns highlighted in this survey.

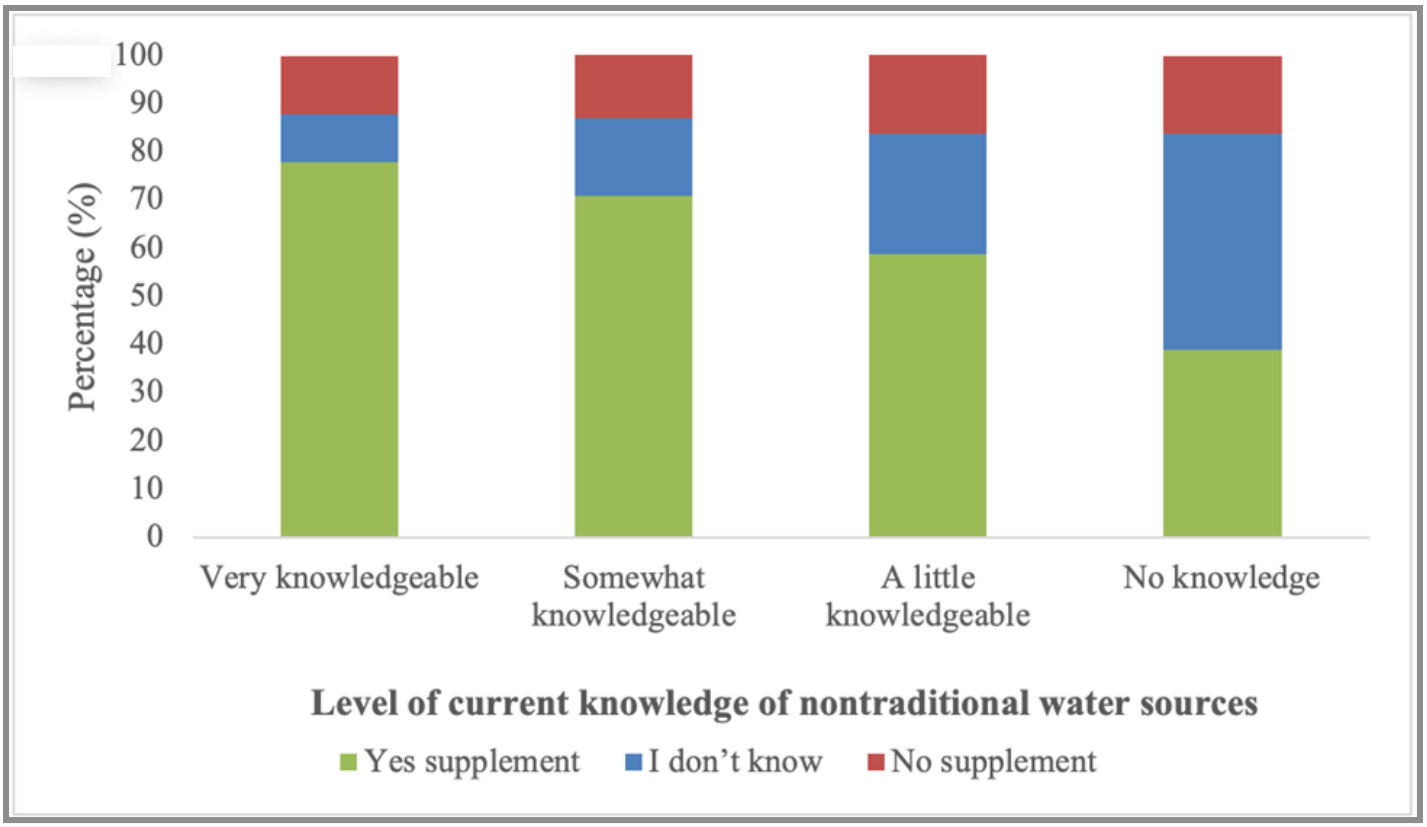

Figure 3. Association between a farmer's reported knowledge about nontraditional water and their willingness to use that water.

Source: Suri et al., 2019.

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For more information about recycled water in agriculture, including fact sheets and videos, visit www.conservewaterforfood.org

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