NC STATE EXTENSION

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Black Mountain Town Council
160 Midland Ave.
Black Mountain, NC 28711

Dear Council Members,

I am writing this letter to provide an overview of the findings from the water use assessment we conducted in 2024 at the John Wilson Community Garden in Black Mountain, NC. As an Area Specialized Agent with NC State University I focus on helping farmers that grow fresh fruits and vegetables in Western NC better understand how to implement food safety practices that prevent foodborne illness and microbial contamination when growing, harvesting and packing. This assessment was done in collaboration with Meghan Baker, Small Farms County Extension Agent in Buncombe County and with Lucille Nelson, former Garden Manager.

Agricultural water assessments are conducted to determine if the water used at a farm is of adequate sanitary quality for its intended use and provide recommendations to address any food safety risks identified. This approach is in line with the Final Rule for Pre-harvest water used at produce farms published by the FDA in July 2024. During the assessment we inspected water sources, the water distribution system and looked at the way in which the water is applied to the different crops grown in the garden and factored in environmental conditions and adjacent land use. We specifically looked for animal activity, possible contamination from human waste/ septic systems along the water sources and any use of biological soil amendments of animal origin in the area. The water use assessment was conducted in the months of August and September prior to Hurricane Helene when severe drought conditions had affected the area. However, just a few weeks later the area experienced catastrophic flooding from Hurricane Helene. Despite the fact that the John Wilson Community Garden suffered minimal flooding during this event, the Swannanoa River (one of the water sources) was seriously impacted by Hurricane Helene.

The John Wilson Community Garden consists of 90 plots that are rented by gardeners and 20 additional plots that are destined to grow produce for donation to the elderly population in the county. The findings show that the community garden relies on two water sources: the Swannanoa River and five rain barrels that collect rainwater runoff from the Grey Eagle Building's metal roof. The Swannanoa River water quality is variable and reports received before and after Hurricane Helene from water samples, failing septic systems along the river and animal activity in the vicinity make it a higher risk water source for microbial contamination. After inspecting the water collection system we recommend the water collected be used to water landscape and non edible crops. Roof runoff can contain heavy metals, pathogens from birds roosting in the trees adjacent to the roof and can be challenging to monitor from a water quality standpoint. Water collected from roofs should not be applied overhead when growing fresh fruits and vegetables.

In regards to how water is used at the garden, most gardeners are overhead irrigating their plots. This means that water comes in direct contact with the edible portion of the crop. Furthermore, a significant amount of leafy greens, tomatoes, cucumbers, herbs and crops that grow close to the ground are among the most popular crops grown. These crops are all considered to have a higher risk for microbial contamination especially when overhead irrigation is used. Under these circumstances, the use of drip irrigation would help reduce microbial risks but may be impractical due to the layout of the garden and the planting methods used by gardeners.

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Per FDA regulations for produce farms, untreated surface water must not be used for activities that occur after fresh fruits and vegetables are harvested such as washing produce, hand washing and cleaning and sanitation of harvest bins and buckets. Treatment of water of either source is an option. However, water treatment can be costly and must be regularly monitored and maintained. As a result of these findings, we recommend that the garden change their water source to either municipal water or well water. The installation of a well at the John Wilson Community Garden in the long run may be the most efficient and least costly option. This will ensure gardeners have access to a safe and reliable water source to grow fresh fruits and vegetables. Either one of these sources will also be acceptable to use as water for handwashing, washing produce after it is harvested and for proper cleaning and sanitation of harvest containers and tools.

We will be very glad to assist Leonora Stefanile, Garden manager and provide further training in the area of produce safety to the garden users. If you need additional information, please do not hesitate to contact us.

Sincerely,



Elena Rogers
Area Specialized Agent- Food Safety- Fresh Produce Western NC
Department of Horticultural Science
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Meghan Baker

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