



May 4, 2020

Sonia Salas
Western Growers
15525 Sand Canyon
Irvine, CA 92618

RE: Leafy Greens Guidance Comments

Dear Ms. Salas,

Many thanks for the opportunity to provide commentary on the issue of water and potential improvements to the current metrics in this section. The Yuma Safe Produce Council was founded shortly after the 2006 Spinach Outbreak. Our main purpose at the time was to provide a network that would support the necessary training and education needed in order to implement the AZ LGMA metrics in our companies. Our continued purpose is to enhance food safety education in our community and among members by networking, increasing public awareness through media outlets, and maintaining a high understanding of current and ongoing research. Protecting the public's health by providing safe, quality produce is our focus. Our membership mainly consists of food safety professionals working for growers, harvesters, and shippers from the greater desert production area.

The attached document represents a review of the CA LGMA strawman as posted on the Leafy Green Guidance website. We concur with the CA LGMA on many points. Where we differ, the Council's comments are noted and we have included some additional suggestions with regards to the following:

Chemical Compatibility - Yuma Safe Produce Council members have a full season of practical application and implementation of the water metrics with regards to irrigation water treatment. We must be able to produce a crop to its maturity free of plant pests, with sufficient size, shape and weight to be commercially viable. The use of nutrients and crop protection chemicals are necessary to achieve that goal. As currently written, the 21 days-to-scheduled harvest are limiting with regards to crop inputs and there is no allowance for weather events (rain) or market changes.

We are suggesting that a window for application(s) of nutrients and/or crop protection chemicals be considered. The LGMA's must continue to encourage research on this topic and enlist the help of FDA and/or the EPA.

Agricultural Water Treatment System – Additional clarification is needed when defining what an agricultural water treatment system is.

Figure and Table Consistency – A thorough review and side-by-side comparison of all figures and tables is needed to remove errors and provide consistency.

Root Cause Analysis - The use of root cause analysis is confined to baseline and initial microbial assessments of Type A water. We suggest that at a minimum, root cause analyses should be encouraged, but not required, for all types of failures associated with water and water treatment. As the FDA mentions in their 2020 Leafy Greens STEC Action Plan, they have an interest in collaborating with stakeholders to advance, standardize, and socialize root cause analysis protocols for food safety. Steps in this direction on the part of the LGMA's are a positive improvement.

We are encouraged by the revitalization of the review process and look forward to the open discussion by all.

Sincerely,

Amanda Brooks, Mary Campbell, Vicki Scott

Yuma Safe Produce Council
Executive Board

YUMA SAFE PRODUCE COUNCIL COMMENTS

Line or Section of Metrics	Issue addressed	Previous Language	Rationale	New Proposed Language	Comments
474-476	Clarification of sample process	Collect three (3) 100 mL samples no closer than 20 minutes apart. Acceptance Criteria and Data Monitoring Criteria as outlined in Table 2D - Routine Monitoring of Microbial Water Quality must be met.	Previous Language is too prescriptive	Collect three (3) 100 ml samples from 3 different sprinkler heads with at least one from the last sprinkler head . Acceptance Criteria and Data Monitoring Criteria as outlined in Table 2D - Routine Monitoring of Microbial Water Quality must be met.	Support the idea of removing the 20 minute interval. At least one sample should be from the last sprinkler head.
495	Best Practice Language	No previous language	To add clarity and awareness to emphasize caution with Type B water	Efforts should always be made, when using Type B water, to avoid contact with the edible portion of the crop within 21 days of a scheduled harvest.	Concur.
497-505		No previous language		Furrow Irrigation Best Management Practices:	
	Best Practice Language	No previous language	To add clarity and awareness to emphasize caution with Type B water	1. Agricultural practices, such as irrigation methods, bed configuration, etc., should be implemented in a manner to avoid water from breaching the top of the bed.	Support as a best practice but not an auditable checklist question.
	Best Practice Language	No previous language	To add clarity and awareness to emphasize caution with Type B water	2. Agricultural practices, such as equipment movement, irrigation practices, etc., should be monitored at headland and tail ditch locations for damaged beds which may allow water to contact	Support as a best practice but not an auditable checklist question.
	Best Practice Language	No previous language	To add clarity and awareness to emphasize caution with Type B water	3. It is recommended to coordinate irrigation events with harvest to avoid harvesting when soil is still saturated from an irrigation event and, to the degree possible, to avoid saturation of the field soil to prevent excessive dirt and mud from getting on the edible portion of	Focus language on coordination with harvesting. Support as a best practice but not an auditable checklist question.
507-511		No previous language		Drip Tape Irrigation:	
	Best Practice Language	No previous language	To add clarity and awareness to emphasize caution with Type B water	1. Drip tape should be handled, stored, used, and re-used in a manner that prevents damage and contamination to the drip tape.	Concur
	Best Practice Language	No previous language	To add clarity and awareness to emphasize caution with Type B water	2. While in use, repairs to drip tape should be completed in a timely manner to prevent water contact with the edible portion of the crop.	Concur.
Table 2A	Clarification of 35 day sampling requirement	After the first sample is shown to be within acceptance criteria, subsequent samples shall be collected no less frequently than monthly at points of use within the distribution system.	To create sampling language based on system approach. And allow more flexibility in sampling	After the first sample is shown to be within acceptance criteria, subsequent samples shall be collected no less frequently than monthly (or at the next irrigation event if longer than monthly) at points of use within the distribution system.	Includes allowance for sampling to be done at the irrigation event instead of a calendar date Or at the next irrigation event if no water was applied within 35 days of last sample. Documenting reasons for

Table 2A		Sampling Frequency:		Sampling Frequency:	
Table 2A	Clarification of sampling requirement	One sample per agricultural water source shall be collected and tested prior to use if >60 days since last test of the water source. Additional samples shall be collected during use no less than 18 hrs apart and at least monthly during use from points within the delivery system.	To create sampling language based on system approach and allow more flexibility in sampling	One sample, per agricultural water source, shall be collected and tested prior to use if >60 days since last test of the water source. Additional samples shall be collected during use no less than 18 hrs apart and at least monthly (or at the next irrigation event if longer than monthly) during use from points within the delivery system.	Includes allowance for sampling to be done at the irrigation event instead of a calendar date. <i>Documenting reasons for not sampling should be enough for auditing.</i>
Figure 1		Sampling Frequency:		Sampling frequency:	
	Clarification of sampling requirement	Sampling Frequency: One sample per water source shall be collected and tested prior to use if >60 days since last test of the water source. Additional samples shall be collected no less than 18 hours apart and at least monthly during use.	To create sampling language based on system approach and allow more flexibility in sampling	Sampling Frequency: For Type B water, one sample per water source shall be collected and tested prior to use if >60 days since last test of the water source. Additional samples shall be collected during use, no less than 18 hours apart and at least monthly (or at the next irrigation event if greater than monthly) during use.	Includes allowance for sampling to be done at the irrigation event. <i>Documenting reasons for not sampling should be enough for auditing.</i>
Figure 4	Clarification of sampling requirement	Sample monthly during use and test for generic E. coli and total coliform using a FDA-allowed method.	To create sampling language based on system approach and allow more flexibility in sampling	Sample monthly (or at the next irrigation event if greater than monthly) during use and test for generic E. coli and total coliform using a FDA-allowed method.	Includes allowance for sampling to be done at the irrigation event. <i>Documenting reasons for not sampling should be enough for auditing.</i>
Table 2E		Routine Verification of Microbial Water Quality :		Routine Verification of Microbial Water Quality:	
Right Column	Clarification of sampling requirement	No less than one (1) sample per month per water distribution system is required under these metrics. If there are multiple potential point-of-use sampling points in a water distribution system, then samples shall be taken from different point-of-use locations each subsequent month (randomize or rotate sample locations).	To create sampling language based on system approach and allow more flexibility in sampling	No less than one (1) sample per month (or at the next irrigation event) per water distribution system is required under these metrics. If there are multiple potential point-of-use sampling points in a water distribution system, then samples shall be taken from different point-of-use locations each subsequent sampling event (randomize or rotate sample locations).	Includes allowance for sampling to be done at the irrigation event. <i>Documenting reasons for not sampling should be enough for auditing.</i>
Table 2E		Routine Verification Sampling Frequency:		Routine Verification Sampling Frequency:	
left column	Clarification of sampling requirement	Additional samples shall be collected no less than 18 hrs. apart and at least monthly during use from points within the water distribution system.	To create sampling language based on system approach and allow more flexibility in sampling	Additional samples shall be collected during use no less than 18 hrs. apart and at least monthly (or at the next irrigation event if greater than monthly) during use from points within the water distribution system.	Includes allowance for sampling to be done at the irrigation event. <i>Documenting reasons for not sampling should be enough for auditing.</i>
Table 2G	Table Title is Confusing with Post Harvest off Farm Use	Post-Harvest Direct Product Contact and Food-Contact Surfaces	Clarification that standard relates to on farm water use	Post-Harvest Direct Product Contact and Harvest Food-Contact Surfaces <i>Practices Only</i> <i>On Farm</i>	
		Sampling procedure:		Sampling procedure:	
Left column of Table 2G	Clarification	100 mL sample collected aseptically at the point of use	To create sampling language based on system approach and allow more flexibility in sampling	Follow Type A Baseline Language and sampling requirements.	<i>Have the Type A Baseline language repeated so it is in this section. Helpful to have the reference in the same section/location when you</i>

		Sampling Frequency:		Sampling Frequency:	
Left column of Table 2G	Clarification	One sample per water source shall be collected and tested prior to use if >60 days since last test of the water source.	To create sampling language based on system approach and allow more flexibility in sampling	Follow Type A Baseline Language and sampling requirements.	Have the Type A Baseline language repeated so it is in this section. Helpful to have the reference in the same section/location when you
Left column of Table 2G		Physical/Chemical Testing :		Physical/Chemical Testing :	
Left column of Table 2G	Complicated Testing procedures, ORP no longer in use	Target Variable: Water disinfectant (e.g., chlorine or other disinfectant compound, ORP). Multi Pass Water Acceptance Criteria: Chlorine > 1 ppm free chlorine after application and pH 5.5 – 7.5 OR ORP > 650 mV and pH 5.5 – 7.5 Other approved treatments per product EPA label for human pathogen reduction in water.	Simplify and create consistency in language and procedures	Follow B to A irrigation water treatment monitoring requirements.	The committee suggests that the previous language be removed and that new monitoring language be similar to B to A monitoring language. How does this help? Have the language repeated. Find the thread.
Right column of Table 2G		Single Pass vs. Multiple Pass Systems		Single Pass vs. Multiple Pass Systems	
right hand column	Either/or option of testing	Multi-pass use – Water must have non-detectable levels of E. coli and/or sufficient disinfectant to ensure returned water has no detectable E. coli (minimally 1 ppm chlorine).	Both E.coli and breakpoint disinfectant need to be monitored	Multi-pass use – Water must have non-detectable levels of <i>E. coli</i> or sufficient disinfectant to ensure returned water has no detectable <i>E. coli</i>	
Right hand Column		Remedial Actions:		Remedial Actions:	
	Remedial Actions Requirements	No previous language	Provide language to cover out of compliance water	Develop an SOP that determines what corrective actions will be required when post harvest water does not meet acceptance criteria.	Develop an SOP per company policy.
Figure 6		Acceptance Criteria		Acceptance Criteria	
	Clarification	Negative or below DL / 100 mL generic E. coli or >1 PPM free chlorine (pH 5.5 - 7.5) or >650 mV ORP (pH 5.5-7.5) after contact. REMOVE--change to no detect for generic E. coli/100 ml	Language Implication	Non-detect for generic E. coli / 100 mL	
		Action Level		Action Level	
	Clarification	If water exceeding the acceptance criteria has been used postharvest, it is not appropriate microbial quality for this use. Sample and test product for STEC (including E. coli O157:H7) and Salmonella as described in Appendix C.		If water exceeding the acceptance criteria has been used postharvest, notify the handler/shipper and grower/producer of the water issue and determine an appropriate sampling and testing strategy for STEC (including E. coli O157:H7) and Salmonella as described in Appendix C or discard the product affected.	YSPC recommends notifying the grower/producer as well.

New		No previous language		Water used for aerial chemical applications within 21	
	Water requirements for overhead chemical applications		Best Practices for overhead chemical applications, clarify requirements	<p>Develop a SOP for all of the parts of the ag water system used in aerial/overhead chemical application. The SOP must address items such as:</p> <ul style="list-style-type: none"> •Water used in overhead applications (e.g., pesticide and fertilizer, etc.) within the 21-days-to-harvest window must meet Type A and/or B→A water quality requirements •Bolding tanks and equipment-mounted application tanks, manifold and boom lines, and nozzles MUST be regularly inspected and properly maintained and cleaned so they do not pose a contamination risk. •Water treatment chemistry shall be compatible with the agricultural chemicals being applied. •Procedures to control pest access to the equipment during storage and staging (examples may include: avian deterrents, fencing, and rodent monitoring) must be in place. (validation can include: PCA records, label requirements, letter of guarantee) 	<p>Technical committee discuss lack of science with water treatment chemistry compatibility.</p> <p>Aerial vs overhead - see the glossary. Work for consistency and/or understanding. Add language to include crop protection, crop nutrition. Deleted the word components and added new language. Delete the Fifth bullet point. Auditor training on what (c) pest concerns are.</p>
				Type A Water:	
	Record Keeping clarification		Clarify need for records	Have records that demonstrate the water used for chemical applications meets Type A source water requirements. See Tables 2B and 2C for historical and/or baseline water quality requirements for	
				Type B to A Agricultural Water Treatment	
	Clarification		Clarify need for records	<p>Type B water, used for overhead applications within 21 days of scheduled harvest, must be treated. With the start-up of any new treatment process it is important to evaluate all conditions that may affect water treatment efficacy and performance. Examples of parameters that provide valuable information about treatment efficacy in relationship to water quality are:</p> <ul style="list-style-type: none"> o Turbidity o Total suspended solids o pH o Antimicrobial dose 	<p>Reference Appendix A Removed total suspended solids as it is not likely to be used.</p>
	Clarification		Clarify need for records	<p>Develop a written Standard Operating Procedure (SOP) for each unique application process to treat water that will be used within 21 days of a scheduled harvest. Prior to 21 days-to-scheduled harvest conduct an initial water treatment assessment to establish treatment process parameters that will be monitored to ensure consistent treatment delivery and to demonstrate effectiveness. Repeat this assessment if a material change to your system occurs. Incorporate this assessment's findings into your water treatment SOP.</p> <p>A water treatment SOP should include :</p> <ul style="list-style-type: none"> • Step-by-step instructions to ensure the water treatment is correctly implemented • Location of water sources • Name, and suggested supplies needed • Sanitizer used and quantity used • Critical limits and operational limits 	<p>Not related to source water but related to different sanitizers that can be used.</p>

Header				Develop a Baseline for Water Treatment	
				Sample Size:	
	Clarification		The intent is to show treatment is effective over multiple treatment events and all three (3) samples are not from the same treatment batch.	A minimum of three (3), 100 mL, samples must be taken for each overhead application process (distinct water quality sources, different sanitizer, different size water holding tank, etc.) The three (3) samples must be taken from different treated water batches.	Distinct water source? We don't think every ranch water source should need a baseline. Historical information exists that can be used to characterize water sources. If water quality is not significantly different and the source is meeting
				Acceptance criteria (generic E. coli):	
	Clarification		clarification	All three (3) samples must be non-detect for generic E. coli	
				Ongoing Monitoring:	
	Clarification		Clarification	Between microbiological routine testing events records must be kept that verifies that each application event is conducted following the	
				Routine Testing :	
	Clarification		Clarification	A minimum of ONE (1) microbiological sample must be taken each month from a representative agricultural water system , or at the next application event if no applications occur within the monthly time	Clarity on where the sample is taken.
				Acceptance Criteria :	
	Clarification		Clarification	Non-detect for generic E. coli / 100 mL sample	
				Corrective Actions:	
				Acceptance Criteria	
New		No previous language	New language for corrective actions when chemical application water does not meet requirements.	If monitoring shows that the water treatment parameters are not being met, do not use the water . •Perform a corrective action to assure the water treatment is effective before using the water. •Take a microbiological sample to verify that the treatment was effective and have that result as part of the corrective action documentation. •If the verification microbiological sample does not meet acceptance	Guidance language needs to be developed to assist applicators with meeting this requirement. Add language to Appendix A if appropriate.
New		No previous language	New language for corrective actions when chemical application water does not meet requirements.	If microbiological testing shows that the water did not meet generic E. coli acceptance criteria, within 21 days of a scheduled harvest, perform a root cause analysis and correct the concern. Notify the grower/producer . The product must be tested for pathogens before harvest if this water was used in aerial application. Follow the product testing requirements outlined in Table 2F	Guidance language needs to be developed to assist applicators with meeting this requirement. Notify grower/producer at this stage because the applicator is working for them during this period of crop
				If water exceeding the acceptance criteria has been used postharvest, notify the handler/shipper of the water issue and determine an appropriate sampling and testing strategy for STEC (including E. coli O157:H7) and Salmonella as described in Appendix C or discard the affected product.	
				Monitoring Event	??

	Chemical Compatibility	Water treatment chemistry is compatible with the agriculture chemicals being applied. When water from a Type B agricultural irrigation water system is used in an overhead application within (\leq) 21 days to the scheduled harvest date, it must be treated to move it from a Type B agricultural water system to a Type A system (B->A) by a scientifically valid antimicrobial water treatment - i.e., contain an approved antimicrobial water treatment at sufficient concentration to prevent potential contamination risk during overhead applications.	We have to be able to grow a crop to maturity - nutrients and crop protection. Days to scheduled harvest are limiting (21 days). No allowance for weather-rain, market changes.	When water from a Type B agricultural irrigation water system is used in an overhead application within (\leq) 21 days to the scheduled harvest date, it must be treated to move it from a Type B agricultural water system to a Type A system (B->A) by a scientifically valid antimicrobial water treatment. A window for application(s) of nutrients and/or crop protection chemicals is allowable within the 21 days-to-harvest window provided the application occurs at the beginning of the irrigation event and is followed by an antimicrobial water treatment of sufficient concentration and duration to prevent potential contamination risk during the remainder of the overhead	Encourage research and FDA/EPA help. Are we addressing the spirit or the letter of the guidance. We did this for a season and it is not realistic. Make sure the treatment end is the one with timeframe. Timeframe in irrigation events to deliver fertilizer. Run fertilizer in the beginning and then run treatment. 4 hrs or 1/3 of total irrigation time?
Glossary	Definition of Agricultural Water Treatment System	None	Need clearer language about what is a treatment system in the glossary.	An add-on to an agricultural water system that improves the quality (safety) of the water to make it more acceptable for a specific end-use. The agricultural water treatment system may treat multiple ranches, water sources or batches of water as defined by the water system description.	Moving treatment systems, material changes. Contiguous treatment window for a system-not blocks/lot#'s. Does this belong in the Appendix and/or in the body
	Consistency of language.		Table and Figure QC check to make sure they are consistent.		The Yuma Safe Produce Council is requesting that a thorough review be performed to ensure that tables and figures are consistent and to
AZ line 403-404	Root Cause Analysis	If Type A or B agricultural water system fails the respective acceptance criteria, follow remedial action steps as outlined in Table 2F (also included in Figures 2B, 3A, and 3C)		If Type A or B agricultural water system fails the respective acceptance criteria, follow remedial action steps as outlined in Table 2F (also include in Figures 2b< 3A, and 3C). Consider performing root cause analysis to determine if additional preventive measures can be	