



Red Tractor Fresh Produce scheme

Revised water matrix appendix IG.b

Categories (Crop categories can be found on the Red Tractor website)	Intended use of the water	Water Sources												Maximum acceptable level – indicator of faecal contamination: <i>E coli</i> (7)	
		Mains water supply (1)		Treated/disinfected water (2)		Rainwater (untreated) (3)		Borehole/well water (untreated) (4)		Surface water (untreated) - river/canal /stream (5)		Reservoirs - water from any water source held in an open reservoir prior to use (6)			
CROP PRODUCTION WATER USE		Risk Level	Test Frequency	Risk Level	Test Frequency (11)	Risk Level	Test Frequency	Risk Level	Test Frequency	Risk Level	Test Frequency	Risk Level	Test Frequency		
Category 0 Crops - Salad cress and micro leaves	Irrigation (any use)	Low	Annual	High	Monthly	Unacceptable	N/A	Unacceptable	N/A	Unacceptable	N/A	Unacceptable	N/A	<10 CFU/100ml	
	Application of pesticide, fertilisers etc.														
Category 1 Crops - eg. Salads, herbs, strawberries etc.	Irrigation in direct contact with edible portion of the crop		Water authority test certificate	Low	Annual	Medium	2 per year	Medium	2 per year	High	Monthly	High	Monthly	<100 CFU/100ml	
	Dilution of PPP's, fertiliser, cleaning of equipment in direct contact with edible portion of the crop		Water authority test certificate	Low	Annual	Medium	2 per year	Medium	2 per year	High	Monthly	High	Monthly		
	Irrigation NOT in direct contact with edible portion of the crop		Water authority test certificate	Low	Annual	Medium	2 per year	Medium	2 per year	Medium	2 per year	Medium	2 per year	<1000 CFU/100ml	
	Dilution of PPP's, fertiliser, cleaning of equipment in NOT in direct contact with edible portion of the crop		Water authority test certificate	Low	Annual	Medium	2 per year	Medium	2 per year	Medium	2 per year	Medium	2 per year		
Category 2 Crops - eg. Brassicas, bulb onions, legumes, carrots etc.	Irrigation (where use is in direct contact with edible portion- e.g. overhead irrigation)		Water authority test certificate	Low	Annual	Medium	2 per year	Medium	2 per year	High	Monthly	High	Monthly	<1000 CFU/100ml	
	Dilution of PPP's, fertiliser, cleaning of equipment in direct contact with edible portion of the crop		Water authority test certificate	Low	Annual	Medium	2 per year	Medium	2 per year	High	Monthly	High	Monthly		
	Irrigation (where use is NOT in direct contact with edible portion of crop e.g. trickle application)		Water authority test certificate			Low	Annual	Low	Annual	Medium	2 per year	Medium	2 per year		
	Dilution of PPP's, fertiliser, cleaning of equipment in NOT in direct contact with edible portion of the crop		Water authority test certificate			Low	Annual	Low	Annual	Medium	2 per year	Medium	2 per year		
Category 3 crops - eg. Potatoes	Irrigation (where the crop is likely to be eaten cooked and in direct contact with edible portion of crop - e.g. sprouts or leeks)		Water authority test certificate	Low	Annual	Low	Annual	Medium	2 per year	Medium	2 per year	Medium	2 per year	<1000 CFU/100ml	
	Dilution of PPP's, fertiliser, cleaning of equipment on crops likely to be eaten cooked (in direct contact with edible portion of crop - e.g. sprouts or leeks)		Water authority test certificate	Low	Annual	Low	Annual	Medium	2 per year	Medium	2 per year	Medium	2 per year		
	Irrigation (where the crop likely to be eaten cooked and NOT in direct contact with edible portion of crop - e.g. potatoes)		Water authority test certificate					Low	Annual	Low	Annual	Low	Annual	<10,000 CFU/100ml	
	Dilution of PPP's, fertiliser, cleaning of equipment on crops likely to be eaten cooked (NOT in direct contact with edible portion of crop - e.g. potatoes)		Water authority test certificate					Low	Annual	Low	Annual	Low	Annual		
Post Harvest Uses															
Categories - 1, 2 & 3 (8)	Use for desoiling and stone separation		Water authority test certificate	Low	Annual	Low	Annual	Medium	2 per year	Medium	2 per year	Medium	2 per year	<1000 CFU/100ml	
	Post harvest cooling and transport of crops that are likely to be cooked before consumption		Water authority test certificate	Low	Annual	Low	Annual	Medium	2 per year	Medium	2 per year	Medium	2 per year		
	Water used for first-wash, cooling and drenching, post harvest transport (e.g. flume) of crops likely to be eaten raw (9)		Water authority test certificate	Low	Annual	Medium	2 per year	High	Monthly	High	Monthly	High	Monthly	<100 CFU/100ml	
	Water used in cleaning equipment and food contact surfaces		Water authority test certificate	Low	Annual	Medium	2 per year	High	Monthly	High	Monthly	High	Monthly		
Only Potable Water															
Category - 0	Final rinse, ice or drenching for cooling	Low	Annual	High	Monthly	Unacceptable	N/A	Unacceptable	N/A	Unacceptable	N/A	Unacceptable	N/A	Potable standard (10)	
Categories - 1, 2 & 3	Final rinse, ice or drenching for cooling		Water authority test certificate	Medium	2 per year	High	Monthly	High	Monthly	High	Monthly	High	Monthly	Potable standard (10)	

Guidance notes

(1)	Use of municipal water directly on crop does not require testing other than where indicated. Where municipal water is stored in open reservoir prior to use see point 6
(2)	Treated/ disinfected water can be from any primary sources that has passed through a validated treatment process (e.g. UV, Chlorine, Chlorine Dioxide etc. which has been proved to be effective in reducing microbial loading to an acceptable level) that is under direct control/management of the grower/producer. This is required to be well managed (i.e. critical control point)
(3)	Rainwater (water collected from rainfall (or snow) and sometimes also called rain harvested water) captured from building roofs etc. - generally low risk of microbial contamination
(4)	Water taken from borehole or well point that is either applied directly to the crops or stored in a reservoir prior to application. Where water is stored in a reservoir see point 6
(5)	Water taken from a river/stream/canal can show significant variation in levels microbial contamination between tests as rivers open to contamination outside growers control e.g. upstream sewage outfalls, upstream livestock production etc. and need more frequent testing on higher risk crops where the water is in contact with edible portion of the crop
(6)	Where water is stored in an open reservoir, no matter its original source, it is open to potential microbial contamination from the local environment, farming and neighbouring activities and wildlife etc.
(7)	Where testing results for faecal indicator levels (<i>E coli</i>) are greater than maximum acceptable standard, the grower must develop a corrective action plan to reduce risk to consumers and address the adverse microbial levels e.g. water treatment, application methods, period between last application and harvest, use alternative source etc.
(8)	Category 0 crops use post harvest must meet mains/ drinking water standards
(9)	Washing is classed as use of water to remove soiling etc. on crops and is not for washing in terms of producing a ready to eat product
(10)	Potable water standard as defined by DEFRA Drinking Water Inspectorate http://dwi.defra.gov.uk/consumers/advice-leaflets/standards.pdf
(11)	For water which is required to be tested at high frequency, a minimum of two tests must be taken before harvest. For medium testing a minimum of one test must be taken before harvest.

NB. The Water Matrix is based on the Water Matrix in the European Commission's Guidance Document on Addressing Microbiological Risks in Fresh Fruit and Vegetables at Primary Production through Good Hygiene