

## Banana Water Quality Risk Framework 2017-2022

Soil management (weighting)	Relative water quality risk			
	Lowest risk (A)	Moderate – Low risk (B)	Moderate risk (C)	High risk (D)
	Innovative	Best practice	Minimum standard	Superseded
<b>Ground cover during banana fallow (15%)</b>	A deliberate break crop is planted between banana crop cycles, with no tillage during the wet season.	Weeds and grasses are allowed to establish in the fallow period between banana crop cycles. There is no cultivation during the wet season.	All of the fallow area is cultivated and maintained in a cover free state between crop cycles, or there is no fallow period between crop cycles.	
<b>Tillage prior to plant crop (10%)</b>	The banana crop is planted into permanent beds. The row area only receives minimum tillage necessary for establishment. The rest of the block receives no tillage.	Minimum tillage of whole block area, with only the row area subject to more cultivation necessary to establish beds and plant.	The entire block is cultivated in preparation for planting.	
<b>Maintaining covered ground (35%)</b>	Inter-rows and headlands are maintained with living vegetation. Vegetation is managed through slashing/mulching.	Inter-rows and headlands may be sprayed but vegetation is allowed to grow first and then left intact after spraying. Banana trash or other mulch may be left in the inter-row to add cover.	Inter-rows and headlands are sprayed or cultivated.	



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<b>Controlling runoff (10%)</b>	If the farm has areas under banana production with a gradient of 3% or more, ALL blocks in these areas have been planted along the contour and designed to include diversion banks and constructed waterways. Advice has been sought for placing these structures correctly. Annual maintenance is carried out to ensure these structures are operating correctly. Blocks are left undeveloped if erosion cannot be managed.		If the farm has areas under banana production with a gradient of 3% or more, MOST blocks in these areas have been planted along the contour and designed to include diversion banks and constructed waterways. Advice has been sought for placing these structures correctly. Annual maintenance is carried out to ensure these structures are operating correctly.	The farm has areas under banana production with a gradient of 3% or more, but there are no control structures in place.
<b>Managing inter-rows (25%)</b>	Cultivation and reshaping to repair inter-rows is not usually required. Machinery traffic is carefully managed to avoid rutting. High flotation tyres and tracked vehicles are used where possible, <i>and/or</i> ladders are used in preference to bagging machines in wet conditions. Blocks are maintained in a level state to ensure that run-off is directed safely from inter-rows.	Cultivation and reshaping to repair inter-rows is only required in some blocks on a seasonal basis. Blocks are planned and maintained in a level state to ensure that run-off is directed safely from inter-rows.	Bogging and rutting requires cultivation and reshaping to repair the inter-rows each season. Most blocks are maintained level to move water efficiently.	Wheel ruts and machinery bogging are common and persistent through the wet season.
<b>Sediment trapping (5%)</b>	Sediment trapping structures are professionally designed and effective across as much of the production area as possible.		Some sediment trapping structures.	There are no structures in place for the purpose of capturing sediment.

Nutrient management (weighting)	Relative water quality risk			
	Lowest risk (A)	Moderate – Low risk (B)	Moderate risk (C)	High risk (D)
	Innovative	Best practice	Minimum standard	Superseded
<b>Matching nutrient supply to crop demand (70%)</b>	Fertiliser program is supported by annual soil testing and <b>routine</b> leaf testing to guide application rates. Revised frequently to ensure targets are achieved.		N and P fertiliser rates are supported by annual soil AND some leaf testing and adjusted based on test results.	N and P fertiliser rates are based on historical target rates with infrequent soil and/or leaf testing.
<b>Fertiliser application frequency (30%)</b>	The aim is to apply fortnightly applications of fertiliser during high growth periods such as summer, and potentially reduce this during low growth periods such as winter. Weather conditions may mean this is not always possible.		Monthly fertiliser applications all year around.	Fertiliser is applied less frequently than monthly.

Pesticide management (weighting)	Relative water quality risk			
	Lowest risk (A)	Moderate – Low risk (B)	Moderate risk (C)	High risk (D)
	Innovative	Best practice	Minimum standard	Superseded
<b>Managing foliar diseases (30%)</b>	Foliar diseases are monitored on a regular and consistent basis by trained staff or service providers. Treatments are developed using monitoring information and relevant thresholds for control. Regular and effective cultural control practices and use of paraffinic oils may reduce need for fungicide applications (<10 fungicide sprays).		Foliar disease levels are monitored while doing other farm activities and a range of control and prevention measures such as deleafing are applied accordingly (10-20 fungicide sprays).	Fungicides are applied on a routine or calendar basis, and/or in response to severe outbreaks (20+ fungicide sprays).
<b>Managing plant parasitic nematodes (35%)</b>	Management incorporates reduced tillage, eradicating bananas from fallows, use of tissue cultured plant material, and non-host fallow crops. Crop is routinely monitored using the root disease index. Nematicide use only considered if economic thresholds are exceeded and impact on IPM program is justified.		Management incorporates reduced tillage, eradicating bananas from fallows, use of tissue cultured plant material, and non-host fallow crops. Nematicides may be used in response to observed pressure.	Nematicides may be used in each crop cycle to manage nematode pressure.
<b>Managing corm and soil-borne insect pests (35%)</b>	Management relies on good crop hygiene and monitoring for pest presence in relation to control thresholds. Control is usually achieved through stem injection of insecticides.		Management includes routine use of granular or band sprayed insecticides as a preventative measure against outbreaks.	

Irrigation management (weighting)	Relative water quality risk			
	Lowest risk (A)	Moderate – Low risk (B)	Moderate risk (C)	High risk (D)
	Innovative	Best practice	Minimum standard	Superseded
<b>Irrigation method (50%)</b>	All irrigation is automated drip or micro sprinkler system underneath trees. The efficiency of irrigation and evenness of distribution is checked frequently.		All irrigation is drip or micro sprinkler system, manually operated. System is checked at least annually for irrigation efficiency and even distribution.	Some overhead irrigation. System efficiency and distribution checked less frequently than yearly.
<b>Irrigation scheduling (50%)</b>	Irrigation schedules and volumes applied are based on capacitance probes in most blocks, factor in local climate data, and are fully automated.	Irrigation scheduling and volumes are based on in-field indicators such as tensiometers, gypsum blocks or capacitance probes in representative blocks.	No soil moisture monitoring tools are used to inform the timing or volume of irrigation.	