Agricultural Environmentally Relevant Activity standard for banana cultivation in the Great Barrier Reef catchment (ERA #) – Version 1

This agricultural environmental relevant activity (ERA) standard has been created in accordance with the *Environmental Protection Act 1994*. It provides the minimum operating conditions for the agricultural ERA that involves the carrying out of banana cultivation in the Great Barrier Reef Catchment.

1. Who this document applies to

This agricultural ERA standard (banana cultivation standard) applies to all persons carrying out the agricultural ERA involving banana cultivation in the Great Barrier Reef catchment.

2. When banana cultivation standard takes effect

Banana cultivation standard applies to	**Date standard commences**
Banana cultivation in the Wet Tropics region	[insert date]
Banana cultivation in the Cape York, Burdekin, Mackay Whitsunday, Fitzroy and Burnett Mary regions	[insert date]

3. Enforcement of the agricultural ERA standard

Failure to comply with the banana cultivation standard is an offence and penalties apply under the *Environmental Protection Act 1994*.

4. Advice Notes for meeting the conditions

Advice notes are recognised approaches that allow a person to meet the relevant condition. They are not compulsory and the person carrying out the agricultural ERA (banana cultivation) may choose their own measure/s to meet or exceed the condition.

5. Terms and definitions

Common terms used in this document are **bolded** the first time they appear and are defined in Appendix 1.

6. Other requirements

Other relevant Commonwealth, State and local government legislative requirements may be applicable to banana cultivation activities. Some additional environmental legislative requirements which may apply, and other possible applicable legislation and documents are listed in Appendix 2.

7. Version history

Version	**Date**	**Description of changes**
1	XX XX XXXX	Banana cultivation standard takes effect

Conditions for an agricultural ERA (banana cultivation)

Condition	Advice for meeting the condition
Nitrogen and phosphorus application	
B1 Prior to applying **fertiliser** on the **relevant agricultural property**, application rates of nitrogen and phosphorus for banana **plant crops** and **ratoon crops** must be calculated using one of the following methods: a) **Maximum Annual Rate Method**; or b) **Adjustment Method**. If using the Maximum Annual Rate Method for nitrogen (N), maximum annual N application must not exceed: • 250 kg N/ha/year for plant crops • 350 kg N/ha/year for ratoon crops If using the Maximum Annual Rate Method for phosphorus (P), maximum annual P application must not exceed 60 kg P/ha/year. If using the Adjustment Method for N, use a starting N application rate of up to 250 kg N/ha/year for Plant Crops, and between 250-350 kg N/ha/year for Ratoon Crops, then adjust N rates depending on the concentration of N in **leaf testing**. **Concentration of nitrogen in leaf tests** Element / Low / Adequate / Surplus % of Nitrogen / < 2.8 / 2.8 – 3.5 / > 3.5 If N concentration is adequate or surplus, N rates can be adjusted downwards. If N concentration is low (<2.8%): • add extra N incrementally up to a maximum of an extra 50 kg N/ha/year with a maximum allowable application rate of 300 kg N/ha/year (plant crop) • add extra N incrementally up to a maximum of an extra 50 kg N/ha/year with a maximum allowable application rate of 400 kg N/ha/year (ratoon crop).	**A1** There is no advice note for this condition.

<table>
<tr><th>Condition</th><th>Advice for meeting the condition</th></tr>
<tr><td>
If using the Adjustment Method for P, determine the starting P application rate based on soil testing results:
<table>
<tr><th>Colwell P, mg/kg</th><th>Rate of phosphorous fertiliser, kg P/ha/year</th></tr>
<tr><td><20</td><td rowspan="2">Plant Crop 60 kg P/ha/year
Ratoon Crop 20-60 kg P/ha/year</td></tr>
<tr><td>20-45</td></tr>
<tr><td>45-75</td><td>Plant Crop 20 kg P/ha/year
Ratoon Crop 20 kg P/ha/year</td></tr>
<tr><td>75-100</td><td>20 kg P/ha/year at planting</td></tr>
<tr><td>>100</td><td>Do not apply P. Check Soil Testing before replanting.</td></tr>
</table>
Adjust P rates depending on the concentration of P in leaf testing.
Concentrations of phosphorus in leaf tests
<table>
<tr><th>Element</th><th>Low</th><th>Adequate</th><th>Surplus</th></tr>
<tr><td>% of Phosphorus</td><td>< 0.19</td><td>0.19 – 0.22</td><td>> 0.22</td></tr>
</table>
If P levels are adequate or surplus, P rates can be adjusted downwards. If P rates are low (<0.19%):
add extra P incrementally up to a maximum of an extra 20 kg P/ha/year with a maximum allowable application rate of 80 kg P/ha/year.
</td><td></td></tr>
<tr><td>B2
The application rate of fertiliser on the relevant agricultural property must not exceed the application rate calculated in B1.</td><td>A2
There is no advice note for this condition.</td></tr>
<tr><td>B3
Ground-based broadcast application of fertiliser containing N and/or P must not occur on the relevant agricultural property.</td><td>A3
For the purposes of B3, ground-based broadcast application does not include:
a) Surface banded application of fertiliser.
b) Aerial broadcast application of fertiliser.
c) Broadcast application of soil conditioner/s (including mill mud), if it is incorporated into the soil during the fallow period.
d) Broadcast application of fertiliser containing P, but not N, during the fallow period to support crop establishment, if it is incorporated into the soil.</td></tr>
</table>

Condition	Advice for meeting the condition
Erosion and sediment control	
B4 The following minimum erosion and sediment control **measures** must be implemented and maintained on the relevant agricultural property: a) all ratoon paddock inter-rows consistently have at least 60% (living or dead) covered ground (e.g. plant material, trash), and b) all plant blocks have at least 60% (living or dead) covered ground in the inter-row prior to the wet season; and c) all fallow blocks have a **grassy fallow or cover crop** established following harvest that maintains **adequate covered ground**.	**A4** There is no advice note for this condition.
B5 In addition to B4, where there is a **high risk of erosion** on the relevant agricultural property, additional measures that minimise the release of soil and/or nutrients to **receiving waters** must be implemented and maintained.	**A5** The following are examples of measures that may be used to achieve B5: a) **diversion banks** are in place to divert **surface water** flows away from areas of exposed soil. b) all surface water drainage structures are designed to reduce run-off velocity (e.g. **wide vegetated spoon drains**); c) all surface water drains to **sediment traps** or similar structures prior to release to receiving waters. d) **vegetated buffers** with adequate covered ground are in place. e) **contour banks** are in place that intercept run-off and channel it into a structure (e.g. grassed waterway) that reduces run-off velocity. . f) any other measure that achieves B5.

Appendix 1: Terms and definitions

Terms	Definitions
Activity	The agricultural environmentally relevant activity to which this agricultural ERA standard applies.
Adequate covered ground	Means trash, mulch, or another material or crop, that is placed or retained across the surface of the paddock to protect soil from wind and water erosion and minimise soil and nutrient loss. An adequate cover is one that covers the paddock soil surface (not including roads, drains and headlands) and is of sufficient depth and composition that the cover remains in place and is effective, e.g. until canopy closure of subsequent crops.
Adjustment method	Means a method to work out fertiliser application rates based on soil and leaf test results (see separate definitions) that have determined how much nutrient is in the soil and leaves and how much of that is available for use by the crop. Laboratory analyses and tests must be carried out by a NATA or ASPAC certified laboratory.
Aerial broadcast application	Means the application of fertiliser by aircraft used where ground-based application is not practicable.
Agricultural Environmentally Relevant Activity (agricultural ERA)	Has the same meaning as the *Environmental Protection Act 1994.* (1) An activity is an agricultural ERA if it is— (a) carrying on any of the following on a commercial basis— (i) cattle grazing; (ii) horticulture; (iii) cultivation of another crop. (b) carried out on a lot that is in the Great Barrier Reef catchment. (2) However, if only part of the lot is in the Great Barrier Reef catchment, the activity is an agricultural ERA if the part of the lot that is in the catchment is – (a) More than 75% of the lot; or (b) More than 20,000 hectares.
Agricultural ERA Record	A record that is required to be kept by a person carrying out an agricultural ERA under a relevant agricultural ERA standard.
Broadcast application	Means application across the entire surface of the paddock.
Colwell P	A soil test to measure Colwell extractable phosphorus (Method 9I2), which provides an indication of the amount of phosphorus in the soil in mg/kg.
Contour banks	Means a constructed earth embankment, incorporating a channel on the upslope side, typically traversing a slope on or close to the contour to control and/or prevent the erosion of that slope. Also referred to as graded banks, terraces, or bunds.

Diversion banks	Means a structure to divert run-off away from areas where it could cause problems (such as cultivated paddocks or buildings) into stable waterways, natural depressions or water storages.
Fertiliser	Means a product that contains a quantified amount, obtained by analysis, of nitrogen and/or phosphorus.
Grassy fallow or cover crop	Means a crop planted in between each banana crop rotation to help maintain or improve soil structure and health. No living banana crop is present during the fallow to help break pest and disease cycles.
Grassed waterways	Means a vegetated, stable, longitudinally sloping water disposal area of sufficient capacity used to discharge surplus run-off and to allow it to flow to a lower level without causing erosion.
Great Barrier Reef catchment	Has the same meaning in the *Environmental Protection Act 1994.* The Great Barrier Reef catchment is the area shown on a map prescribed by regulation as the Great Barrier Reef catchment.
High risk of erosion	Means an area with a high risk of soil loss from wind and water erosion, such as those with (but not limited to) - (a) a slope of 3% or greater; or (b) poor ground cover; or (c) soil unprotected by surface cover; or (d) increased risk of erodibility; or (e) evidence of erosion.
Inter-rows	Means the area between crop rows.
Leaf testing	Means a test of the characteristics of leaves, analysed by a National Association of Testing Authorities (NATA) or Australasian Soil and Plant Analysis Council (ASPAC) accredited laboratory, or one holding an equivalent certification.
Maximum annual rate method	For the purposes of this agricultural ERA standard, means: 1. A maximum annual nitrogen (N) application rate of: a) For plant crops, 250 kg N/hectare/year b) For ratoon crops, 350 kg N/hectare/year 2. A maximum annual phosphorus (P) application rate of 60 kg P/hectare/year.
Measures	Means an action or procedure planned and implemented to minimise the risk to the environment of releases of sediment or nutrients into the environment as a result of the agricultural ERA.
Mill mud	Means the residual mud and fibre filtered from the raw juice after lime addition and juice clarification in rotary vacuum filters. Mud is comprised mainly of water, fibre, mud solids from soil and natural impurities in the sugarcane. Also called filter mud, filter cake or sugarcane press mud.

Plant crop	For the purposes of this standard means the initial banana crop after planting.
Ratoon crop	For the purposes of this standard means a new crop of bananas produced from suckers of the harvested plant.
Receiving waters	Means the *waters* into which the relevant agricultural property drains. *Waters* has the meaning in the *Environmental Protection Act 1994* and includes all or any part of a creek, river, stream, lake, lagoon, swamp, wetland, spring, unconfined surface water, unconfined water in natural or artificial watercourses, bed and bank of any waters, non-tidal or tidal waters (including the sea), and underground water. For the purposes of this standard, receiving waters also includes structures or features which may reasonably be expected to drain to *waters* including a storm water channel, storm water drain, or roadside gutter.
Relevant agricultural property	The agricultural property on which the agricultural ERA is carried out.
Sediment trap	Means localised depressions in the land surface, the purpose of which is to retard surface flows and reduce the amount of run-off.
Soil conditioner	Means a substance added to soil to improve the growing conditions for plant roots. Examples are gypsum, lime and organic matter. For the purpose of this regulation, mill mud is considered a soil conditioner.
Soil testing	Means a test of the characteristics of soil, analysed by a National Association of Testing Authorities (NATA) or Australasian Soil and Plant Analysis Council (ASPAC) accredited laboratory, or one holding an equivalent certification.
Surface banded application	Means fertiliser applied in bands along the crop rows on the soil surface.
Surface water	Has the meaning in the *Environmental Protection (Water) Policy 2009* and means “waters other than ground waters.”
Vegetated buffer	Means a strip of retained or planted vegetation used to prevent off-site effects of intensive cropping.
Wet season	For the purpose of this standard, the wet season means between 1 November and 30 April.
Wide, vegetated spoon drains	Means shallow, open, vegetated channels between crop rows primarily designed for conveying water along a drainage pathway.

Appendix 2: General obligations under the *Environmental Protection Act 1994*

This appendix is not intended to provide a comprehensive list of all obligations under Queensland law. It provides some general information and person(s) conducting an agricultural ERA (banana cultivation) are encouraged to familiarise themselves with all requirements related to their specific activity.

Separate to the banana cultivation standard, a person conducting an agricultural ERA (banana cultivation) must also be aware of, and meet their obligations under the *Environmental Protection Act 1994*, and the regulations made under that Act including the following provisions.

Record keeping requirements

The Environmental Protection Regulation 2008 states that the person carrying out an agricultural ERA must make and keep records (an agricultural ERA record) about the matters prescribed. The person carrying out the agricultural ERA must also keep all relevant primary documents related to the agricultural ERA records (i.e. invoices, receipts). The department has the power under section 466 of the *Environmental Protection Act 1994* to request the production of these records for inspection. It is an offence under section 477 of the *Environmental Protection Act 1994* for a person not comply with a request to produce documents.

General environmental duty

Section 319 of the *Environmental Protection Act 1994* states that we all have a general environmental duty. This means that we are all responsible for the actions we take that affect the environment. We must not carry out any activity that causes, or is likely to cause, environmental harm unless we take all reasonable and practicable measures to prevent or minimise the harm. To decide what meets your general environmental duty, you need to consider:

- the nature of the harm or potential harm
- the sensitivity of the receiving environment
- the current state of technical knowledge for the activity
- the likelihood of successful application of the different measures to prevent or minimise environmental harm that might be taken
- the financial implications of the different measures as they would relate to the type of activity.

It is not an offence not to comply with the general environmental duty. However, maintaining your general environmental duty is a defence against the following:

a) an act that causes serious or material environmental harm or an environmental nuisance
b) an act that contravenes a noise standard
c) a deposit of a contaminant, or release of stormwater run-off, mentioned in section 440ZG.

More information is available on the Queensland Government website https://www.business.qld.gov.au.

Duty to notify

Section 320A of the *Environmental Protection Act 1994* explains the duty to notify. The duty to notify applies to all persons and requires a person or company to give notice where serious or material environmental harm is caused or threatened. Notice must be given of the event, its nature and the circumstances in which the event happened. Notification can be verbal, written or by public notice depending on who is notifying and

being notified.

The duty to notify arises where:

- a person carries out activities or becomes aware of an act of another person arising from, or connected to, those activities that causes or threatens serious or material environmental harm
- while carrying out activities a person becomes aware of the happening of one or both of the following events:
- the activity negatively affects (or is reasonably likely to negatively affect) the water quality of an aquifer
- the activity has caused the unauthorised connection of two or more aquifers.
- the owner or occupier of contaminated land or an auditor performing an auditor's function (as defined in section 568(b) of the Environmental Protection Act 1994 becomes aware of:
- the happening of an event involving a hazardous contaminant on the contaminated land; or
- a change in the condition of the contaminates land; or
- a notifiable activity having been carried out, or being carried out, on the contaminated land;
- that is causing, or is reasonably likely to cause, serious or material environmental harm.

For more information on the duty to notify requirements refer to the guideline 'Duty to notify of environmental harm' (ESR/2016/2271).

Some relevant offences under the *Environmental Protection Act 1994*

Causing serious or material environmental harm (sections 437–39)

Material environmental harm is when the harm is not trivial or negligible in nature. Serious environmental harm is harm that is irreversible, of a high impact or widespread, or that is caused to an area of high conservation value or special significance.

Serious or material environmental harm excludes environmental nuisance.

Causing environmental nuisance (section 440)

Environmental nuisance is unreasonable interference with an environmental value caused by aerosols, fumes, light, noise, odour, particles or smoke. It may also include an unhealthy, offensive or unsightly condition because of contamination.

Depositing a prescribed water contaminant in waters (section 440ZG)

Prescribed water contaminants include a wide variety of contaminants listed in schedule 9 of the Environmental Protection Regulation 2008.

It is your responsibility to ensure that prescribed water contaminants are not left in a place where they may or do enter a waterway, the ocean or a stormwater drain. This includes making sure that stormwater falling on or running across your site does not leave the site contaminated. Where stormwater contamination occurs you must ensure that it is treated to remove contaminants. You should also consider where and how you store material used in your processes onsite to reduce the chance of water contamination.

Placing a contaminant where environmental harm or nuisance may be caused (section 443)

A person must not cause or allow a contaminant to be placed in a position where it could reasonably be expected to cause serious or material environmental harm or environmental nuisance.

Responsibilities under other legislation

An agricultural ERA (banana cultivation) pursuant to the *Environmental Protection Act 1994* does not remove the need to obtain any additional approval for the activity that might be required by other state and/or Commonwealth legislation.

Other legislation for which a permit may be required includes, but is not limited to:

- *Aboriginal Cultural Heritage Act 2003*
- *Contaminated land provisions of the Environmental Protection Act 1994*
- *Fisheries Act 1994*
- *Forestry Act 1959*
- *Nature Conservation Act 1992*
- *Petroleum and Gas (Production and Safety) Act 2004 / Petroleum Act 1923*
- *Queensland Heritage Act 1992*
- *Planning Act 2016*
- *Waste Reduction and Recycling Regulation 2011*
- *Water Supply (Safety and Reliability) Act 2008*
- *Water Act 2000*
- *Work Health and Safety Act 2011*, Work Health and Safety Regulation 2011 and Work Health and Safety (Codes of Practice) Notice 2011

Additional obligations may be applicable including, but not limited to:

- Safe Work Australia Code of Practice on How to Safely Remove Asbestos 2011 or the Safe Work Australia Code of Practice on How to Manage and Control Asbestos in the Workplace 2011 or any subsequent versions
- Australian Dangerous Goods Code
- Australian and New Zealand Environment and Conservation Council (ANZECC) Polychlorinated Biphenyls Management Plan Revised Edition – April 2003.

Persons are advised to check with all relevant statutory authorities and comply with all relevant legislation.