Hort360 Reef Certification Compliance







Hort360 Reef Certification Compliance 2020 Growcom Australia

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- Management
- Nutrient Management
- Sediment Management
- Pesticide management
- Water Management

Business Name			
Completed by:	Signature:	Date:	

Hort360 Reef Certification Compliance

	Management		
Element	Compliance Criteria	Evidence	
	Hort360		
Hort360	Completion of Hort360 Reef BMP module within last 12 months • Complete the property page/s relating the property to be reef certified o Property Info o On-Farm Operations o Lot & Plans	Hort360 Reef Certification report and date sighted (paper or electronic) Hort360 Reef Certification report Date of report – no older than 12 months	Hort360 Reef Certification

Resources and Login

www.hort360.com.au

	Identify property areas, infrastructure and local activities on a property map		Freshcare Alignment
Mapping	A property map is documented and maintained The map identifies:	Property map(s) are available and identify/include all applicable areas as specified	Property map Environmental M1.2
	 Property boundaries, roads and surrounds (farming, school, sports fields, residential, etc.) 	Property map(s) can be aerial photographs, topographical map, cadastral map, self-drawn map, overlays etc.	Item specific to Reef Certification
	Drainage lines and discharge points		

Natural waterways, wetlands, riparian areas and lakes
 Areas that are, or are at risk of being, highly degraded, eroded or contaminated
Various soil types / management zones

Soil information and data – QGlobe (online webinar)

https://www.hort360.com.au/wordpress/wp-content/uploads/2020/02/Where-to-look-for-soil-information.pdf

https://www.youtube.com/watch?v=ckbUz1ovbi8&feature=youtu.be

https://www.hort360.com.au/wordpress/wp-content/uploads/2020/02/Soil-information-and-data-online-webinar.pdf

www.qglobe.information.qld.gov.au/

	Documentation	Evidence	Freshcare Alignment
Documents	Current editions of the Hort360 Reef Certification are kept	Sighted copies (print or electronic) Hort360 Reef Certification Introduction Hort360 Reef Certification Compliance Hort360 Reef Certification Forms Hort360 Reef Certification Interpretive Guideline Hort360 Reef Certification Rules	Documentation M2.1, M2.2
Records	All records and documents required to verify compliance to the Hort360 Reef Certification are legible	All records sighted (print or electronic), include at a minimum: title date of issue or version number business name	Documentation M2.1, M2.2

	As documents and records change, out-of-date versions are replaced	 name of person completing the record and date of completion All documents and records are current (a CAR to be raised if there is evidence of out-of-date documents in the system / being used). 	Documentation M2.1, M2.2
	All records are kept for a minimum of three years in-line with tri annual auditing	Availability of individual records dating back 3 years	Documentation M2.1, M2.2
	Complete corrective actions for non-compliance	Evidence	Freshcare Alignment
CAR	A Corrective Action Record (CAR) must be completed when the requirements of the Hort360 Reef Certification, Freshcare Rules or legislation are not being met, as identified by: • Routine activities • Annual Hort360 Reef BMP module completion • Tri-annual external audits • A valid complaint received from a neighbour, customer or regulatory authority • Environmental harm has occurred/may occur as a result of property activity, neighbouring activity or a natural event	Completed Form: Corrective action record (CAR), or equivalent. A complaints register providing a record of any external complaints / notification (from neighbours, council, customers etc.) received by the business.	Complete corrective actions for any non-compliance M4.2

 A Corrective Action Record must include: Description of the problem Cause of the problem Whether or not the problem has occurred before Short term fix (action taken to fix the problem) Long term fix (action taken to prevent the problem recurring) Confirmation that the short term and long term actions are completed and effective Name and signature of person completing the review Date of the review 	 Sighted evidence of CARs that have been recorded and completed appropriately when required Discussion with grower to confirm instances when CARs are/should be raised; such as spray drift incidents/suspected incidents 	Complete corrective actions for any non-compliance M4.2
Reoccurrences of non-compliance are reviewed by the owner or appropriate senior manager.	Sighted evidence that CARs raised for reoccurring incidents are reviewed (signed/actioned etc.) by the owner or appropriate senior manager and adequate actions to rectify reoccurrences have been undertaken.	Complete corrective actions for any non-compliance

• Corrective action record (CAR)

Nutrient Management				
Element	Compliance Criteria	Evidence	Freshcare Alignment	
Do you conduct soil / leaf / sap / fruitlet testing?	Soil sampling collected / collated annually per soil type / management zone and/or Leaf / sap / fruitlet sampling completed annually per management zone • A sampling regime recommended by a suitably qualified / experienced person And Collection / collation conducted as per industry recognised procedure Testing conducted by NATA / ASPAC accredited lab	Soil testing results linked to soil type / management zone mapping Leaf/sap/fruitlet testing results linked to management zone mapping Testing conducted by a NATA/ASPAC accredited lab	Select fertilisers and soil additives to minimise risk to the environment E5.1.1	

https://www.hort360.com.au/wordpress/wp-content/uploads/2019/11/Fertcare-Soil-Sampling-Guide.pdf

https://www.hort360.com.au/wordpress/wp-content/uploads/2019/11/Sampling-Procedure-Plant-Tissue.pdf

Do you undertake nutrient target setting / budgeting?	/ .	Documents and/or calculations showing the relationship between the testing results and quantities of fertiliser applied. • Suitably qualified person recommendations based on test results • Lab test results and comments / recommendations • NATA/ASPAC accredited labs are used	Select fertilisers and soil additives to minimise risk to the environment E5.1.1
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https://www.hort360.com.au/wordpress/wp-content/uploads/2019/11/Farm-Flow-Fertiliser-Use-Efficiency.pdf

https://www.hort360.com.au/wordpress/uploads/Nutrient/Decision/Cracking%20the%20Nutrient%20Code%20optimized.pdf – refer to section 3.4 Nutrient Budgeting, Page 26-27.

https://www.hort360.com.au/wordpress/wp-content/uploads/2019/11/Principles-of-Nutrient-Management.pdf

 $\underline{https://www.hort360.com.au/wordpress/wp-content/uploads/2020/06/Soil-Wealth-Fertiliser-Program.pdf}$

Crop nutrient removal calculator –

http://www.ipni.net/article/IPNI-3346

What method of fertiliser application do you use?	Various application methods (fertigation, incorporation, broadcast, banding and / or foliar) in accordance with weather conditions Typically small amounts often In accordance with weather conditions	Completed Form: Fertiliser and soil additive application record, or equivalent Records of all fertiliser and soil additive applications are kept and must include: • application date • location and crop • product used • rate of application • wind speed and direction • method of application/incorporation	Fertiliser and soil additive application record, or equivalent E5.4.1 &/or F5.1.9 Hydroponic nutrient solution monitoring record, or equivalent E5.4.2
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 name and signature of the person applying the fertilisers and soil additives

Completed Form: Hydroponic nutrient solution monitoring record, or equivalent

A record of hydroponic nutrient solution monitoring is kept and must include:

- monitoring date
- location and crop
- pH and electrical conductivity (EC) of the feed solution
- pH and electrical conductivity (EC) of the drainage solution
- quantity of drainage solution
- name and signature of the person conducting the monitoring activity

Resources

Refer to Hort360 Reef Certification Forms

- Fertiliser and soil additive application record
- Hydroponic nutrient solution monitoring record

 $\underline{\text{https://www.hort360.com.au/wordpress/uploads/Nutrient/Management/Fertigation\%20Management.pdf}}$

https://www.hort360.com.au/wordpress/uploads/Nutrient/Management/Fertigation%20System%20Performance.pdf

 $\underline{https://www.hort360.com.au/wordpress/uploads/Nutrient/Application/Fertigation\%20Compatability\%20and\%20Solubility.pdf}$

 $\underline{https://www.hort360.com.au/wordpress/uploads/Nutrient/Decision/Cracking\%20the\%20Nutrient\%20Code\%20optimized.pdf} - refer to page 38 - the following the following and the following and the following the following and the following and the following the following and the followin$

At what rate do you apply fertiliser?	Variable rate Includes: • Crop growth stage	Completed Form: Fertiliser and soil additive application record, or equivalent Completed Form: Hydroponic nutrient solution monitoring record, or equivalent	Fertiliser and soil additive application record, or equivalent E5.4.1 &/or F5.1.9 Hydroponic nutrient solution monitoring record, or equivalent E5.4.2
Resources			

Refer to Hort360 Reef Certification Forms

- Fertiliser and soil additive application record
- Hydroponic nutrient solution monitoring record

Queensland Agriculture, 12/01/2016, "Prescription mapping for variability in vegetables", YouTube, Available at: https://www.youtube.com/watch?v=f_t8d18TZ0Q
HortSMART, 16/9/2015, "Yield mapping and monitoring of Queensland vegetable crops", YouTube, Available at: https://www.youtube.com/watch?v=zCA1vFk9Ri0
HortSMART, 07/09/2015, "Using technology to identify crop variability in vegetables", YouTube, Available: https://www.youtube.com/watch?v=q1GUN1IOD9o
Refer to Hort360 Reef Certification Interpretive Guideline

Do you record nutrient applications?	All applications are recorded per management zone in line with nutrient targeting	Completed Form: Fertiliser and soil additive application record, or equivalent	Fertiliser and soil additive application record, or equivalent
		Completed Form: Hydroponic nutrient solution monitoring record, or equivalent	E5.4.1 &/or F5.1.9 Hydroponic nutrient solution monitoring record, or equivalent E5.4.2

Resources

Refer to Hort360 Reef Certification Forms

- Fertiliser and soil additive application record
- Hydroponic nutrient solution monitoring record

https://www.hort360.com.au/wordpress/wp-content/uploads/2019/11/Farm-Flow-Fertiliser-Use-Efficiency.pdf

Refer to Hort360 Reef Certification Interpretive Guideline

Is fertiliser application equipment (includes fertigation) properly & regularly calibrated & maintained?	Fertiliser equipment is calibrated & maintained on a seasonal basis	Completed form: Calibration record (Fertiliser / Fertigation) Equipment used to apply fertilisers and soil additives is calibrated at least annually or as per manufacturer's instructions. A record of calibration is kept and must include: • description of method • calibration results • date of calibration • name of the person calibrating the equipment	E5.3.2
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Resources

Refer to Hort360 Reef Certification Forms

• Calibration Record (Fertiliser / Fertigation)

https://www.hort360.com.au/wordpress/uploads/Nutrient/Application/Fertigation%20System%20Performance.pdf

https://www.hort360.com.au/wordpress/uploads/Nutrient/Decision/Cracking%20the%20Nutrient%20Code%20optimized.pdf – refer to page 32

Sediment Management				
Element	Compliance Criteria	Evidence	Freshcare Alignment	
Does farm run-off flow across vegetated buffers (or through buffer device) of sufficient width, type and quality before reaching a waterway or wetland?	Vegetated buffers in place, provides protection of waterways in the majority of instances	 Contour map Evidence of maintained contour banks Photos / management zone walk of in-field soil erosion control measures – soil cover, drainage system, contour banks/rows, diversion banks, levelling Photos / management zone walk of ground cover / grassed drains, headlands / vegetative buffers / sediment retention Structure designs and management Photos of riparian areas maintained 	Manage land and soil, and minimise degradation, erosion compaction and contamination E2.1.1, E2.2.1 Manage water to minimise environmental harm E6.3.3	

 $\underline{https://www.hort360.com.au/wordpress/uploads/Run\%20Off/Buffer\%20Riparian/Sediment\%20-\%20Vegetated\%20buffer-filter\%20strips.pdf}$

 $\underline{https://www.hort360.com.au/wordpress/uploads/Run\%20Off/Buffer\%20Riparian/Buffer\%20Strip\%20Factsheet.pdf}$

 $\underline{https://www.hort360.com.au/wordpress/uploads/Run\%20Off/Buffer\%20Riparian/Designing\%20filters\%20strips\%20to\%20trap\%20sediment\%20and\%20attached\%20nutrient.pdf}$

 $\underline{https://www.hort360.com.au/wordpress/uploads/Run\%20Off/Infield\%20Runoff/Soil\%20Conservation\%20in\%20Horticulture.pdf}$

Do you have structures that collect sediment which are of sufficient size, design and are	Structures / systems are working effectively Deemed suitable for: structure / system catchment area sediment source / farming system	 Contour map Photos / management zone walk of ground cover / grassed drains, headlands / vegetative buffers / sediment retention 	Manage land and soil, and minimise degradation, erosion compaction and contamination
maintained efficiently?	and maintenance is carried prior to spring/summer rainfall period	 Photos / management zone walk of in-field soil erosion control measures – soil cover, drainage 	E2.1.1, E2.2.1

		 system, contour banks/rows, diversion banks, levelling Photos / management zone walk of silt traps/drainage collection ponds or channels/runoff water collection & recycling systems Structure designs and management Photos / management zone walk of riparian areas maintained 	Manage water to minimise environmental harm E6.3.3
https://www.hort360.com	.au/wordpress/uploads/Run%20Off/Infield%20Runof .au/wordpress/uploads/Run%20Off/Farm%20Runoff, .au/wordpress/uploads/Run%20Off/Control%20Mea tification Interpretive Guideline		<u>llf</u>
How do you ensure that soil is protected during non-productive cropping periods? (Plant bed management)	Annual / Pineapple • bare beds combined with green manure / cover cropping planted between (space and time) commercial crops and or • products such as PAM (polyacrylamide), PVA (polyvinyl acetate) or molasses which bind soil together may also be utilised in circumstances / locations where there are impediments to maintaining cover Must include:	 Contour map Photos / management zone walk of ground cover / grassed drains, headlands / vegetative buffers / sediment retention Photos / management zone walk of plant bed (residue retention) and inter-row cover Statement of tillage practice 	Manage land and soil, and minimise degradation, erosion compaction and contamination E2.1.1, E2.2.1 Manage water to minimise environmental harm E6.3.3

• vegetated drains / drainage areas, vegetated

buffers

Irrigation systems used are appropriate for slope %

Trees

prunings / volunteers

and or

• products such as PAM (polyacrylamide), PVA (polyvinyl acetate) or molasses which bind soil together may also be utilised in circumstances/locations where there are impediments to maintaining cover (e.g. shade from mature tree canopy)

Irrigation systems used are appropriate for slope %

Resources

 $\underline{\text{https://www.hort360.com.au/wordpress/uploads/Run\%20Off/Infield\%20Runoff/Fact\%20Sheet } \\ \underline{\text{Managing\%20Soil\%20Erosion\%20in\%20Vegetatables.pdf}}$

 $\underline{https://www.hort360.com.au/wordpress/uploads/Run\%20Off/Infield\%20Runoff/Sediment\%20-\%20Fallow\%20management.pdf}$

Refer to Hort360 Reef Certification Interpretive Guideline

To reduce in-field losses your inter-rows are?

Annual / Pineapple / Trees

IF a bare inter-row is maintained due to general block management / crop canopy closure you must include:

 vegetated drains / drainage areas, vegetated buffers

May also include:

• diversion and contour banks, contour plantings, adequate silt traps, crop rotations, cover cropping, levelling and/or sediment retention

- Contour map
- Photos / management zone walk of bare inter-row with grassed headlands / grassed drains at ends of blocks / ground cover / grassed drains, headlands / vegetative buffers / sediment retention
- Photos / management zone walk of plant bed (residue retention) and inter-row cover
- Photos / management zone walk of in-field soil erosion control measures – soil cover, drainage system, contour banks/rows, diversion banks, levelling
- Control practices in place options include levelling, vegetated drains / drainage areas, diversion and

Manage land and soil, and minimise degradation, erosion compaction and contamination

E2.1.1, E2.2.1

Manage water to minimise environmental harm

E6.3.3

		contour banks, contour plantings, adequate silt traps, crop rotations, cover cropping, and/or inter-row soil cover	
Resources			
https://www.hort360.com	m.au/wordpress/uploads/Run%20Off/Infield%20Runoff	f/Sediment%20-%20Inter-row%20management.pdf	
https://www.hort360.com	m.au/wordpress/uploads/Run%20Off/Infield%20Runoff	f/Sediment%20-%20Row%20plantings%20on%20mound.pdf	
Refer to Hort360 Reef Ce	rtification Interpretive Guideline		
Are headlands / roads maintained to reduce runoff?	Maintenance procedures for roads and grassed / covered headlands are implemented with minimal runoff issues	Photos / management zone walk of ground cover / grassed drains, headlands / vegetative buffers / sediment retention / roads and tracks	Manage land and soil, and minimise degradation, erosion compaction and contamination E2.1.1, E2.2.1
		f/Soil%20Conservation%20in%20Horticulture.pdf – refer to pa	
	rtification Interpretive Guideline		

Pesticide Management				
Element	Compliance Criteria	Evidence	Freshcare Alignment	
In an effort to reduce pesticide use on farm do you use any Integrated Pest Management (IPM) methods?	A full complement of IPM measures are implemented with a range of control strategies used	 Completed Form: Pest and disease monitoring record, or equivalent. Completed Form: Preventive pest and disease control program, or equivalent. 	Select pest and disease control strategies to minimise risk to the environment Preventive pest and disease control program E4.1.3	

Refer to Hort360 Reef Certification Forms

- Pest and disease monitoring record
- Preventive pest and disease control program

https://www.hort360.com.au/wordpress/uploads/Pesticide/Application/Best-practice-IPM.pdf

 $\underline{https://www.hort360.com.au/wordpress/uploads/Pesticide/Management\%20\&\%20Safety/Integrated\%20Crop\%20Management.pdf}$

https://www.hort360.com.au/wordpress/uploads/Pesticide/Application/IPM%20case%20study.pdf

Are you maintaining accurate spray diaries?	Spray use is recorded electronically as per industry standards and reviewed annually for ongoing decision making	Records of pesticide applications are kept and must include:	Avoid potential for spray drift & record E4.6.1, E4.6.2, E4.9.1 and / or F4.5, F4.8
		equipment and/or method used to apply the chemical	

 wind speed and direction withholding period (WHP) or earliest harvest date (EHD) method of disposal of leftover chemical solutions name and signature of the person who applied the
chemical

• Pre-harvest chemical application record

https://www.hort360.com.au/wordpress/uploads/Pesticide/Application/Spray Application Basics.PDF

Refer to Hort360 Reef Certification Interpretive Guideline

How do you determine crop / pest chemical requirements?	Using your own and agronomist recorded crop monitoring results, action thresholds and labelled rates	 Completed Form: Pest and disease monitoring record, or equivalent. Completed Form: Preventive pest and disease control program, or equivalent. 	Select pest and disease control strategies to minimise risk to the environment Preventive pest and disease control program E4.1.3
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Resources

Refer to Hort360 Reef Certification Forms

- Pest and disease monitoring record
- Preventive pest and disease control program

 $\underline{https://www.hort360.com.au/wordpress/uploads/Pesticide/Application/Best-practice-IPM.pdf}$

 $\underline{https://www.hort360.com.au/wordpress/uploads/Pesticide/Management \%20\&\%20Safety/Integrated \%20Crop\%20Management.pdf}$

 $\underline{https://www.hort360.com.au/wordpress/uploads/Pesticide/Application/IPM\%20case\%20study.pdf}$

To reduce the loss of chemicals via spray drift you?	Spray in accordance with label requirements In appropriate weather conditions Wind speed is visually assessed in addition to regional / local weather forecast or weather station check for wind speed and direction at time of spraying	A record of actual or suspected (contractor, neighbour, council) spray drift incidents is sighted. Records of pesticide applications are kept and must include: • wind speed and direction from regional / local weather forecast and/or weather station at time of spraying	Avoid potential for spray drift E4.6.1 & E4.6.2, E4.9.1 &/or F4.5, F4.8
	Use fit for purpose spray equipment to control droplet spectrum with appropriate spray buffers in place		

Refer to Hort360 Reef Certification Forms

Pesticide Application Record

https://www.hort360.com.au/wordpress/uploads/Pesticide/Application/Application%20and%20Drift%20Management%20BGordon%20presentation.pdf

https://www.hort360.com.au/wordpress/uploads/Pesticide/Application/Spray%20Drift%20Best%20Practice%20Guidelines%20July11.pdf

https://www.hort360.com.au/wordpress/uploads/Pesticide/Application/Spray_Application_Basics.PDF

https://www.hort360.com.au/wordpress/uploads/Pesticide/Application/Spray%20Drift%20Management%20CSIRO.pdf

Is chemical application equipment properly & regularly calibrated?	Spray equipment is calibrated annually according to manufacturer's instructions and checked for efficiency at every use & recorded	 Completed Form: Calibration Record (Pesticides) or equivalent Maintenance detailed on service/maintenance record. Records of servicing/parts available. Manufacturer's instructions (if calibrating to a frequency documented by manufacturer). Demonstration/explanation of calibration methods. Calibration certificates 	Maintain and calibrate chemical application equipment E4.7 and or F4.6
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Refer to Hort360 Reef Certification Forms

• Calibration Record (Pesticides)

https://www.hort360.com.au/wordpress/uploads/Pesticide/Application/boom%20sprayers.pdf

https://www.hort360.com.au/wordpress/uploads/Pesticide/Application/Calibration%20%20Guide%202009.pdf

Refer to Hort360 Reef Certification Interpretive Guideline

Water Management

Element	Compliance Criteria	Evidence	Freshcare Alignment
Do you know the rate of water applied by your irrigation system (i.e. mm/hr or L/hr)?	Application rate suited to soil type and volume applied meets crop stage requirement Annually measure volume of water applied	Completed Form: Maintenance and Service – Irrigation application rate record, or equivalent	Manage water use on property E6.1.3

Not Applicable – non irrigated farming system

Resources

Refer to Hort360 Reef Certification Forms

• Maintenance and Service - application rate record

 $\underline{https://www.hort360.com.au/wordpress/uploads/Irrigation/Irrigation%20Management/Water%20Management.pdf}$

 $\underline{https://www.hort360.com.au/wordpress/uploads/Irrigation/Water\%20Supply/Estimating-how-much-water-should-be-applied.pdf}$

Do you have a
procedure for
determining when to
irrigate and how much
to apply?

Use subjective tools

(e.g. Finger, shovel, push rod, crop appearance)

in addition to regional / local weather forecast inclusive of evaporation, temperature and rainfall data

- Monitoring records such as
 - o Regional / local weather condition data or weather station data
- Indication of crop water requirement
 - o Calculation using crop, soil & weather information
 - o Water applied

Water management program

E6.1.2

Maintenance and Service – Irrigation system application rate record

Not Applicable – non irrigated farming system

Resources

Refer to Hort360 Reef Certification Forms

Water management program

https://www.hort360.com.au/wordpress/uploads/Irrigation/Irrigation%20Management/Scheduling%20Tools.pdf

https://www.hort360.com.au/wordpress/uploads/Irrigation/Irrigation%20Management/Positioning%20soil%20water%20monitoring%20tool.pdf

 $\underline{https://www.hort360.com.au/wordpress/wp-content/uploads/2019/12/Horticulture-manufacturers-factsheet.pdf}$