Supplier Manual

Version 1 – July 2023

Contents

PART ONE: GENERAL

1. INTRODUCTION AND CUSTOMER FOCUS

BerryCo is responsible for the sales and marketing of Mountain Blue and Moondarra varieties of blueberries growing under licence in New Zealand. This document outlines the requirements of growers and packers who supply fruit for sale by BerryCo.

Our local and international customers have a variety of compliance requirements. BerryCo is committed in its objective to ensure that all produce marketed meets the standards specified by our retail customers, their clients and any statutory obligations required by industry groups, legal authorities and importing countries.

It is the responsibility of both growers and packers to ensure that they comply with the standards outlined in these specifications. It is the expectation that all growers will maintain comprehensive knowledge of all facets of the production, handling, and post-harvest systems and that they implement accurate and timely documentation and quality management activities to ensure that their operations are focused on meeting the customers' requirements.

~~Occasional~~ **Consistent** monitoring and review of BerryCo growers and packers will be conducted to determine compliance with BerryCo requirements.

2. RESPONSIBLE SOURCING AND CERTIFICATION

Governments, retailers, and consumers have increasing demands for product that has been produced and supplied via a sustainable supply and distribution chain. Retailer supply standards now include expanded environmental and labour ethics standards. These standards include SEDEX and other modern slavery and worker welfare standards. Additionally, retailers have set targets for reduction in Waste, Water Use, and the increase in Recycling, to support the Global Sustainability Initiative (SAI).

Policy

BerryCo is committed to the protection of the environment and efficient use of natural resources. BerryCo recognises that they and their suppliers are part of the wider community and that suppliers have impacts on people and the environment beyond their facility. Therefore, we will encourage suppliers to act in a responsible manner. BerryCo will involve staff, suppliers, clients, and external community stakeholders to ensure that their concerns are recognized and fairly represented in operational processes and procedures.

As part of this policy we will:

- Promote environmental awareness and encourage supplier training of all staff on appropriate environment and resource management issues.
- Encourage suppliers to monitor the use of natural resources such as power and water.

- Encourage and promote suppliers incorporating environment and resource management controls in operational procedures and processes.

- Encourage and monitor supplier's compliance with all relevant legislation and regulations, industry codes of practice and customer specified environment and resource management standards and specifications.

Supplier Responsibilities

Suppliers are defined as the grower who grows and packs the fruit, growers who delegate packing authority to a third-party packer are responsible for making sure that all packing requirements are met. It is suppliers' responsibility to maintain appropriate food safety, ethical trading and environmental management certification and regularly review their production, harvest, and post-harvest operations to identify opportunities to prevent and / or minimize environmental effects from their operations to comply with New Zealand's Climate Change Response (Zero Carbon) Amendment Act. Actions taken should include:

- Grower suppliers and their packing facilities complying with all relevant legislation and regulations, industry codes of practice and customer specified environment and resource management standards and specifications including the Resource Management Act 1991, the National Environmental Standards for Freshwater Regulations 2020, Hazardous Substances and New Organisms Act 1996 and Waste Minimisation Act 2008.

- Promoting awareness of biodiversity and the training all staff on appropriate environment and resource management issues.

- Regular monitoring of the use of natural resources such as power and water to prevent the unnecessary wastage of energy.

- The incorporation of environment and resource management controls in operational procedures and processes including nutrient, soil, irrigation, waterbody, and waste management.

- Prevention of contamination of water through runoff from facility operations.

- Ensuring that all materials that can be recycled are collected, stored, and disposed of by recycling companies.

- Ensuring that noise from operations are minimised as much as possible.

- Monitoring site operations to identify opportunities to minimize the impact on the landscape and wildlife in the suppliers' general facilities environment.

- Conserving wildlife and the landscape within the general environment of the suppliers' facility.

Social Responsibility

- Business Integrity and Ethics: Packhouses and their grower suppliers operate in full compliance with all applicable laws and regulations and other applicable internationally agreed laws, rules, and regulations related to worker welfare, health and safety, and environmental compliance.

- Transparency: Packhouses and their grower suppliers are transparent with their policies, processes, and records and allow assessor(s) full access to facility premises, workers, and records.

- Management Systems: Packhouses and their grower suppliers have written policies and internal procedures to oversee all aspects of compliance, including, but not limited to code of conduct, health and safety, environment, recruitment practices, worker welfare etc. Suppliers communicate all policies and procedures to all workers to ensure understanding and implementation and training and training materials are provided in a language that workers understand.

- Social and Labour Standards: Packhouses and their grower suppliers are to treat all workers with respect and dignity and are to provide workers with a safe place to work, and respect workers' rights to freedom of association. Worker grievances are to be heard, appropriately investigated, and any required remediable action taken, in addition to building capacity and awareness around social and labour practices.

PART TWO: ORCHARD

3. COMPLIANCE

The New Zealand government requires compliance with the Food Act 2014 and as a condition of supply our retail customers are requiring that all suppliers are certified to a GFSI (Global GAP) equivalent standard and have stipulated acceptable food safety certifications, these are:

	Grower	Private Packhouse	Contracted Packhouse	Distributor
Global G.A.P	✔	✔		
GRASP/SEDEX	✔			
BRC or SQF			✔	
Spray Diary Verification	✔			
Residue Test	✔			
Food Act	✔	✔	✔	

For clarity, a private packhouse packs only the fruit from the grower's own orchards

Global GAP

Global GAP – All growers must have Global GAP, NZGAP (Benchmarked version) is NOT ACCEPTABLE

A series of templates for creating a Global GAP manual is available on the BerryCo Grower portal.   A sample of a complete manual is available on request.

A social practice certificate obtained via SEDEX or a GRASP add on to Global GAP is also required.

Blueberries New Zealand Inc

BBNZ is the recognized industry organization for New Zealand blueberry growers. Its membership is voluntary however its functional resources include spray diary and residue analysis relative to market access in accordance with the ICPR.

BBNZ contracts Berryworld to oversee chemical residues and pest management strategies.
They have developed a new spray diary software platform called 'BASES'. Information entered into the BASES spray diary by the grower is visible for both BBNZ and BerryCo (on grower activation from their privacy settings within the App). BBNZ can use the information to monitor spray usage and residues from NZ growers and issue clearance. Also, to support market access initiatives to new markets such as South Korea, China and India.

In parallel, BerryCo can access growers spray diaries for compliance in spray residues for our markets and

agronomic support. It is encouraged that all growers utilise BASES. There is an annual cost of using BASES, currently $100 payable along with the BBNZ annual membership.

Those not using BASES will be required to electronically submit their spray diary to both BBNZ and BerryCo prior to Clearance to Pick being approved.

4. CLEARANCE TO PICK

Introduction

BCL has a formal process to manage the commencement of harvest – Clearance to Pick (CTP). This involves a range of requirements that need to be met prior to an authorized BerryCo staff member issuing a "BerryCo Clearance to Pick" certificate. When this certificate is sent to the grower and their designated BerryCo packhouse fruit is approved for harvest.

In the event of different distinct areas or varieties (eg Eureka Sunrise plantings) in the orchard maturing at different stages the CTP process is required for each maturity area

The Grower is required to submit to BCL a detailed description of multiple an orchard (production areas. This could be a detailed written description and/or a) map outlining the maturity areas for each property location.

Components of the CTP
- Compliance
- Crop Estimate
- Spray Diary – Grower Declaration, Submission & Audit
- Residue Analysis – Collection and submission of a residue test for each Maturity Area
- Fruit Maturity Inspection
- Harvest Checklist (see page 16)

Compliance

All Compliance requirements need to be met as outlined in Section 3. For the Global Gap audit, amongst other things, Growers must have had a microbial water test for water applied to any spray or irrigation that would have contact with the foliage/fruit or that the pickers are using for washing their hands.

Crop estimate

The grower is required to provide a crop estimate on or before 1 July. Correspondence will occur reminding the grower of this requirement with any instructions. Methodology and template can be found on the BerryCo Grower Portal, Grower Manual 5.3.1, 5.3.2, 5.3.3

https://www.berryco.co/grower-manual

Spray Diary.

Growers are required to keep a complete and comprehensive spray diary throughout the full 12 month growing period. If glyphosate has been used in the tunnels or around the plants this should be included. Growers are advised to use BASES or a spray diary based on the 'Growsafe' template that needs to be electronically transmitted to BerryCo and BBNZ prior to the preharvest residue sample being submitted.

Residue Analysis

Based on the sprays used, as outlined in their 'Spray Diary', Growers should request the appropriate tests from Hills Laboratories – MR1, MR2, CS2 and GLY if glyphosate is used. The cost of tests are at the Grower's expense

Spray Diary Verification

BerryCo requires that growers follow the spray residue testing protocol and submit their diary via the online BASES portal to obtain an independent validation of residue compliance. Following this process growers market access status for both domestic and export markets will be determined. Asian market customers occasionally ask that fruit is residue tested for contaminants such as herbicides and heavy metals, BerryCo may do additional tests to your fruit to satisfy this requirement.

These steps will take 2-4 weeks to complete and need to be undertaken prior to harvest. As a guide begin when you see the first fruit in your orchard begin to change colour.

1. BerryCo preferred option is to use the BASES online portal for registration contact Rob Silberbauer at ~~Berryworld~~BBNZ
2. As an alternative email your spray diary to BerryCo for analysis. ~~nicki@berryco.co~~david@berryco.co

Residue Testing Analysis

~~T~~~~An independent sampler must t~~ake a random ~500g sample of ~~green, red and/or blue~~the most mature blueberries from a large cross section of the orchard maturity area being tested, and then send to Hills Laboratories for residue testing. Make up this 500g with the largest and most mature fruit (Blue) available but smaller red and green fruit may be used in the event of not enough Blue fruit being available.

The number and type of tests required can be referred to by the chemical list and testing criteria on the subsequent page.

Hills Laboratories will forward residue test results to BerryCo. BerryCo will then be able to give clearance to harvest fruit. Whether you have clearance for all markets, or market restrictions in place will be determined by these results and will be subsequently referenced on your CTP form.

Use quote number 111673 to receive discount from Hills. Using this number allows Hills to share spray residue results directly with BerryCo.

A further declaration will have to be made on any subsequent chemical application to each maturity area that has previously had a CTP. Any additional sprays after harvest should be consulted with the BerryCo Technical Manager in writing prior to application.

~~A list of approved 'independent samplers' that encompass all regions will be compiled by BerryCo. It is envisioned that this will generally comprise~~ Testing to be carried out by BerryCo representatives or representatives from the Growers local merchant's (Fruitfed, Horticentre, Farmlands) ~~and also~~or include independent consultants ~~and~~ or those~~–~~ operators offering pest monitoring. Such parties must carry this out in conjunction and consultation with BerryCo.

Hills Labs test form is accessible from the link below

https://www.hill-laboratories.com/assets/Documents/Analysis-Request-Forms/Pesticide-Residue- and-Heavy-Metal-Analysis-Request-Form.pdf

Chemical List

CHEMICAL	BRAND NAME	HILLS TEST
Abamectin	Avid	MR2
Captan	Captan	MR1
Carbendazim	Goldazim, Chief, Protek	MR2
Bacillus Thuringiensis	Dipel	NA
Boscalid/Pyraclostrobin	Pristine	MR2
Buprofezin	Applaud, Ovation, Pilan	MR1
Chlorothalonil	Bravo, Barrack, Barrachlor	MR1
Copper sprays	Nordox, Kocide	HM
Cyprodinil/fludioxonil	Switch	MR1
Didecyldimethylammonium chlorine	Sporekill	NA
Emamectin benzoate	Proclaim	MR2
Escolta	Cypriconazole/Trifloxystrobin	MR1
Lambda-cyhalothrin	Karate	MR1
Mancozeb	Manzate	CS2
Methomyl	Lannate	MR2
Methoxyfenozide	Prodigy	MR2
Milbemectin	Mit E Mec	MR2
Phosphorous Acid	Phosgard	NA
Pirimicarb	Pirimor	MR1
Propargite	Omite	MR2
Propiconazole	Tilt	MR1
Pyrethrins	Pyrethrum	MR1
Pyrimethanil	Scala	MR1
Spinetoram	Sparta	MR2
Spinosad	Success	MR2
Spirotetramat	Movento	MR2
Sulfoxaflor	Transform	MR1*
Tebuconazol	Folicur	MR1
Thiacloprid	Calypso	MR2
Thiram	Thiram	CS2
Ziram	Mizar	CS2

Chemical list and associated Hills test requirements, please note this list is not an exhaustive list of chemicals available to growers. Spray recommendations are in the grower portal.

*must be specifically requested when doing MR1 test

Withholding Periods

It is each grower's responsibility to comply with withholding periods. Growers are accountable for the repercussions where residue testing indicates minimum thresholds are exceeded.

See Grower Manual sections 4.1.1 Spray Calendar, 4.1.2 Spray Options on theBerryCo Grower Portal for more details on spray withholding periods.

Fruit Maturity Clearance Protocols

A brix test is required to determine the minimum harvest fruit maturity within that maturity area. The grower may undertake the collection of the sample in accordance with the procedures below.

Brix Testing Procedure

Take a representative sample of 20 blue coloured blueberries from the maturity area that a CTP is being requested. Using a calibrated refractometer to measure, test each berry separately. The results should be submitted to BerryCo who will incorporate the results, undertake the assessment, and communicate the results to the grower and the nominated post harvest facility. The results of the test will be included on the final CTP document. Fruit maturity is achieved when 100% of the berries tested return a result greater than 10 degrees brix. Each defined maturity area that has received a Clearance to Pick from BerryCo must be maturity tested separately.

FRUIT MATURITY Applies to ~~Eureka, First Blush, Masena and Twilight~~all varieties	UNDER RIPE	RIPE
	<10 brix	10+

Pre-Harvest Checklist Timeline

CROP VOLUME FORECAST	
Submit crop volume forecast to BerryCo	1 July annually
ORCHARD COMPLIANCE	
Social practice certificate: SEDEX ~~Currently not required. (~~See section 4.0 for requirements, the SEDEX online audits take between 4-6 hours to complete ~~if reinstated)~~ or GRASP	~~Currently not required~~ 6-8 weeks prior to harvest
Global GAP All growers must have Global GAP, allow 6 weeks to create a GAP manual from scratch, 2 weeks if you are moving from NZGAP to Global **GAP.** Book an audit for at least 2 weeks prior to harvest	6-8 weeks prior to harvest
SECOND CROP FORECAST	
Submit current crop estimates to BerryCo and your packer	4 weeks prior to harvest
SPRAY RESIDUE COMPLIANCE	
Residue Test, submit 500g berry sample to Hills lab for residue testing for each maturity area	7-10 days ~~2 weeks~~ prior to harvest
SPRAY DIARY	
Spray diary market access audit, share BASES or, collate and send your spray diary to both rob@blueberriesnz.co.nz ~~berryworld@gmail.com~~ and BerryCo staff, Please use excel template on grower portal or Growsafe templates, See appendix 3	2-4 weeks prior to harvest
TRANSPORT	
Accredited transport operator form submitted to BerryCo. harvest	2-3 weeks prior to
ANNUAL SUPPLY SCHEDULE	
The Annual Supply Schedule must be signed and submitted prior to harvest.	2-3 weeks prior to harvest
FRUIT MATURITY EVALUATION	
Use taste and visual assessment to guide decision making of brix evaluation before harvest	3 days prior to harvest
Brix, conduct a random fruit sample of 20 berries per maturity area. These should test at above 10 brix with detailed breakdown of levels tested submitted to BerryCo	3 days prior to harvest
CLEARANCE TO PICK	
Clearance to pick issued by BerryCo prior to harvest and copied to nominated packhouse	

PART THREE: PACKING

This defines the minimum fruit quality requirements for supplying BerryCo marketing programs. The grade standards form part of the quality management and food safety systems that have been implemented to provide assurance to BerryCo customers that BerryCo operate a quality management system that ensures fresh blueberries are consistently packed to grade and are safe to eat. Suppliers must undertake inspections of product to ensure that the product meets the minimum quality requirements specified in this standard when delivered to our customers.

Retail customers have no lenience for defects affecting fruit condition and therefore fruit sales.These include soft fruit, lack of bloom, rots, cuts, mould and foreign matter. Suppliers need to ensure that when product is provided to BerryCo for marketing that it will meet our Grade Standards, and retailer requirements at inspection at the retailers DC.

Brand and Fruit Characteristics

GRADE	BRAND	CHARACTERISTICS
CLASS ONE	Blue Royal / Blue Royal JUMBO	**Fruit Quality:** The Blue Royal brand is for premium fruit. There is a low tolerance for colour defects and skin markings. **Size:** Two size grades can be packed **Premium** 12mm-17.9mm **Jumbo** 18mm -28mm **Pack size:** 125g, 200g
CLASS TWO	RIVER RUN FARMS Blueberries 125 G	**Fruit Quality:** River Run has a slightly higher tolerance for colour defect and skin markings than Blue Royal. **Size:** River Run is for fruit larger than 10mm **Pack Size:** 125g
CLASS THREE	Unbranded	**Fruit Quality:** Rejected fruit due to soft texture, bruising, split, excessive colour defects and skin markings. Suitable for sale as frozen. Use of 'Blue Royal' or any BerryCo branding or trademarks prohibited for Class 3 sales.

5. CLASS ONE FRUIT PRODUCT SPECIFICATIONS

Fruit Size Specifications

	DESCRIPTION	DEFECT CATEGORY
Jumbo	**18mm-28mm**	**Minor**
Premium	**12mm-17.9mm**	**Minor**

Notes

Size inspection requires a random ten berry sample per punnet.

As the harvest progresses, the average size of the fruit profile range may decrease. The size standards of the Jumboand Premium fruit may be adjusted accordingly. This will be communicated to growers and packers via email.

Class One Grade Standard

DEFECT	DESCRIPTION	ALLOWANCE	DEFECT CATEGORY
Firmness	Fruit should be firm to touch. Under mild pressure the berry does not deform. Not soft or spongy. Softness is a sign of over ripeness, overhandling or bruising.	No more than 6% of the berries in the sample are soft or spongy.	**Minor**
Size	Fruit Size as defined in thepackaging standards, Fruit diameter is within permissible size standards for product label	No more than 6% of the berries in the sample are outside the specifications	**Minor**
Colour	Fruit that is not typical of the variety in colour. Fruit that is green, pink or red.	Up to 20% of the berry can have a colour defect	**Minor**
Bloom	Bloom is a natural even waxy coating onthe surface of the berries	Bloom can be slightly faded or uneven, Shiny dark berries without bloom are unacceptable	**Minor**
Blemish	Superficial healed skin blemishes i.e., limb rub, russeting	Up to 15% of the berry can have a superficial blemish	**Minor**
Blossom Beard	Berries with flower (beard) attached to calyx.	A partial beard is acceptable, a full beard is unacceptable	**Minor**
Sunburn	Bleached yellow / brown areas affecting one side of the berry	Up to 15% of the berry can have sunburn	**Minor**
Superficial Skin, Physical Damage	Minor dry or <u>healed</u> hail injury, stem pull injury that does not break pulp, skin tearing or thrips damage to the calyx.	Up to 15% of the berry can have superficial skin damage	**Minor**
Misshapen	Fruit must be consistent to the variety. Fruit should be round, symmetrical and slightly squat.	Misshapen fruit that does not detract from the appearance of the fruit is allowed	**Minor**
Serious Flesh Damage	Unhealed damage, which penetrates the flesh, including holes, cuts, hail damage, splits that break the skin and pest damage i.e. chewed berries or larval burrows.	Serious flesh damage is unacceptable	**Major**
Pressure Damage	Pressure damage, squashed berries and/or bleeding / juice within the punnet (not due to condensation). Deep seated bruises causing indentations on berries (soft, water-soaked areas).	Bruising and pressure damage is unacceptable	**Major**
Diseases	Soft decaying areas due to grey mould (Botrytis), fluffy white mould (Rhizopus), other moulds or bacterial infections.	Mould and bacterial rots are unacceptable	**Major**
Dehydrated Fruit	Dehydrated or severely shrivelled / mummified berries.	Severely dehydrated fruit is unacceptable	**Major**
Temperature Injury	Soft water-soaked areas on berries	Water or juice-soaked berries are unacceptable.	**Major**
General	Fruit must be free: • from abnormal external moisture • from foreign smell or taste • of any contamination that may impact on food safety	Nil	**Major**

Packing Tolerance Allowances

	DESCRIPTION	ACCEPTABLE	REJECT
Minor Defects	As defined in the Berry Defect Descriptions	No more than 6% of fruit in each punnet has a minor defect	Greater than 6% of fruit in each punnet has a minor defect
Major Defects	As defined in the Berry Defect Descriptions	No more than 2% offruit in each punnet has a major defect	Greater than 2% of fruit in each punnet has a major defect
Pack Weights 125g	Punnets should be overpacked to allow for fruit shrinkage.	A 125g punnet should be packed to at least 130g (+4%)	Punnet weights <130g
Pack weights 200g	Punnets should be overpacked to allow for fruit shrinkage.	A 200g punnet should be packed to at least 208g (+4%)	Punnet weights <208g

The average defect percentage of the punnets sampled must be within the above tolerances for the pack run to be acceptable.

If a packhouse receives more than 3 quality flags from a consolidation point QC audit within a two week timeframe, this will trigger an increase in the QC requirement at packhouse. BerryCo will appoint an independent QC at the infringing packhouse to review processes and systems, with the cost of such a QC borne by the packhouse.

Fruit Defect Photos

Anthracnose

Grey Mould

Stems Attached

Weeping Fruit

Skin Damage

Immature Colour

Green   Pink to Red   Blue

Skin Damage, (thrips damaged calyx)

White Mould

Dehydration, Shrivelled Skin

6. CLASS TWO GRADE FRUIT PRODUCE SPECIFICATIONS

Fruit Size Specifications

	DESCRIPTION	DEFECT CATEGORY
Second Grade	>10mm	<9mm

Notes

Size inspection requires a random ten berry sample per punnet.

Class Two Grade Standard

DEFECT	DESCRIPTION	ALLOWANCE	DEFECT CATEGORY
Firmness	Fruit should be firm to touch. Under mild pressure the berry slightly deforms and immediately springs back when released.	**No more than 10% of fruit** is soft or spongy.	**Minor**
Size	Fruit Size as defined in the packaging standards, Fruit diameter is within permissible size standards for product label.	No more than 6% of berries in the sample are outside the specifications	**Minor**
Colour	Fruit that is not typical of the variety in colour. Fruit that is green, pink or red.	Up to 25% of the berry can have a colour defect	**Minor**
Bloom	Bloom is a natural even waxy coating on the surface of the berries	Bloom can be slightly faded or uneven, Shiny dark berries without bloom are unacceptable	**Minor**
Blemish	Superficial healed skin blemishes i.e. limb rub, russeting	Up to 20% of the berry can have a superficial blemish	**Minor**
Blossom Beard	Berries with flower (beard) attached to calyx.	A partial beard is acceptable, a full beard is unacceptable	**Minor**
Sunburn	Bleached yellow / brown areas affecting one side of the berry	Up to 20% of the berry can have sunburn	**Minor**
Superficial Skin, Physical Damage	Minor dry or <u>healed</u> hail injury, stem pull injury that does not break pulp, skin tearing or thrips damage to the calyx.	Up to 20% of the berry can have superficial skin damage	**Minor**
Misshapen	Fruit must be consistent to the variety. Fruit should be round, symmetrical and slightly squat.	Misshapen fruit that does not detract from the appearance of the fruit is allowed	**Minor**
Serious Flesh Damage	Unhealed damage, which penetrates the flesh, including holes, cuts, hail damage, splits that break the skin and pest damage i.e. chewed berries or larval burrows.	Serious flesh damage is unacceptable	**Major**
Bruising / Pressure Damage	Pressure damage, squashed berries and/or bleeding / juice within the punnet (not due to condensation). Deep seated bruises causing indentations on berries (soft, water-soaked areas).	Bruising and pressure damage is unacceptable	**Major**
Diseases	Soft decaying areas due to grey mould (Botrytis), fluffy white mould (Rhizopus), other moulds or bacterial infections.	Mould and bacterial rots are unacceptable	**Major**
Dehydrated Fruit	Dehydrated or severely shrivelled / mummified berries.	Severely dehydrated fruit is unacceptable	**Major**
Temperature Injury	Soft water-soaked areas on berries	Water or juice-soaked berries are unacceptable.	**Major**
General	Fruit must be free: • from abnormal external moisture • from foreign smell or taste • of any contamination that may impact on food safety	Nil	**Major**

Packing Tolerance Allowances

	DESCRIPTION	ACCEPTABLE	REJECT
Minor Defects	As defined in the Berry Defect Descriptions	No more than **10%** of fruit in each punnet has aminor defect	Greater than 10% of fruit in each punnet has a minor defect
Major Defects	As defined in the Berry Defect Descriptions	No more **than 5%** of fruit in each punnet has a major defect	Greater than 5% of fruit in each punnet has a major defect
Pack Weights 125g net	Punnets should be overpacked by at least +4% to allow for fruit shrinkage.	A 125g punnet should be packed to at least 130g (+4%)	Punnet weights <130g

7. QUALITY CONTROL AND INSPECTION

Packhouses will be required to have an effective Quality Control system operated by suitably competent personnel.

The quality of each pack run should be monitored against the grade standards, A pack run is a continuous run of packing involving the same grower, maturity area and pick date. The QC process is mandated by BerryCo to ensure compliance against the grade standards and to achieve a consistent standard across all BerryCo approved packhouses.

Inspection Areas and Equipment

Inspection areas:
- Should be kept clean from contaminants that may harbour pests or create a food safety issue;
- Have appropriate lighting;
- Be of adequate size to hold sample packs, records and equipment;
- Equipment shall include calibrated scales and a magnifying lens to identify pests.

Sampling Procedures

Packhouses **should** document and implement a quality control sampling procedure. The procedure should include:
- A sampling system verifying that BerryCo product specifications are being met;
- Inspection of packaging components to verify that they meet BerryCo specifications and are free from contaminants;
- Records of all inspections are retained and are available for review.
- Verification that corrective action is taken as required and records are retained.

Sampling Frequency

QC checks should be carried out on one of the first few trays and then repeated at regular intervals throughout the pack run. After a punnet from the first tray is checked, check another within 5minutes of the first, aim to sample at least one punnet every 5 minutes during each pack run.

If a punnet is rejected immediately recheck another and trouble shoot the packaging systems. Adjust the packaging line where necessary to meet grade specifications.

The overall aim is to test the equivalent of 12 punnets per hour and a minimum of 3 punnets per grower. Sampling should be evenly spread across different grades and where appropriate, different varieties.

Quality Inspection Process

1. Remove a punnet at random from the packaging line, pour the berries out on a clean light-coloured surface
2. Assess the berries for defects, start with bloom, as it will rub off during the inspection process
3. Count the number of minor and major defects then calculate the percentage of defects
4. Take a random sample of ten berries for assessing size and for pest inspection
5. Record results on QC sheets

Count the total number of major and minor defects in the punnet, then divide that by the total number of berries in the punnet, multiply by 100 to get the percentage.

Example,
A punnet contains 45 berries, it has two berries with major defects and three with minor defects

Minor defects: (3 ÷ 45) x 100 = 6.6% (round down to 6%) this passes
Major defects: (2 ÷ 45) x 100 =4.4% (round down to 4%) This fails, and the punnet should be rejected.

Rounding
Round defects % with decimal of .1,.2,.3,.4,.5,.6% down, round 6,.7,.8,.9% up

Sampling Traceability and Record Keeping

Quality control sampling records (manual or electronic) need to be verified against the pack run. It is a requirement that quality control sampling records and retention samples are able to be linked back to each specific packhouse pack run for the purpose of audit and verification. These manual or electronic records must be kept for the duration of the season should they be required.

See Appendix 2 for quality assurance record sheets, an excel and PDF version is available on the grower portal.

Corrective Action

If the number of defects identified in a product inspection of a random punnet exceeds the tolerance in any category for the class i.e. class 1 or class 2, the product in this pack run is **not** acceptable for BerryCo.

Should a line of berries being packed fail a product inspection:

- Stop the pack line immediately

- Assess the product and system to determine the extent of the problem.

- Identify suspect product and implement whatever corrective and/or preventative action is necessary.

- Review production systems and implement appropriate corrective and or preventative action.

- Maintain records of all corrective/preventative action and subsequent sampling, particularly if repacking has been undertaken.

- Corrective actions to be notified to BerryCo within 24 hours of inspection.

Incorrect or damaged labels are unacceptable and, should any be identified, will require further investigation to establish the cause of the problem.

Pest Infestation

Notify BerryCo should a pest infestation happen within in the facility, on fruit or in packaging is suspected or has been identified that may impact on the products market status. BerryCo will work with the packing facility to identify options for managing pest infested fruit as this may contravene the importing **countries** product requirements (ICPR).

Retention samples

Packhouses are to keep representative library samples from each pack run for each grower.
A maximum of 4 punnets from each run are to be kept in storage by the packhouse.
These punnets are to be clearly labelled with the pack run, grower, packed date, grade and variety.
These punnets can be the same punnets as used for the QC monitoring.
The punnets should be stored in the coolstore at 2°C for further observation.
Punnets to be evaluated at 7, 14 and 21 days before being discarded.
Records need to be kept of samples taken and any observations.

External Auditing

BerryCo will audit across the supply chain including the primary packhouse to verify compliance against grade, the BerryCo supply specifications and supply chain best practice standards.

The auditor may be appointed externally to BerryCo. The audit will assess the packhouses systems and results against the agreed protocols and the BerryCo grade standards.

The auditing regime would be within the first 3 days of packing, not later than day 10 and then periodically at random at the discretion of BerryCo.

8. COOL CHAIN AND TEMPERATURE MANAGEMENT

Once harvested, berries continue to ripen. This ripening and consequential biological aging leads ultimately to cell breakdown. To prolong storage life, reduction in respiration is required and coolchain management is critical to this.

Berries degrade quickly at temperatures above 10°C and suffer chilling injuries and potentially freezing damage below 0°C.

Cool Chain Best Practice

Orchard and Pre Packing Cool Store Storage	4°C

- Harvested blueberries should commence cooling as soon as possible, ideally within 30 minutes of harvest.
- Growers should be able to bring fruit pulp from field temperature to 4°C as soon as possible and within two hours of picking.
- Fruit that arrives at the packhouse above 4°C is required to be chilled for 12 hours prior to packing

Packhouse	Up to 10°C

- While packing, aim to have fruit outside of a cool store for no more than 20 minutes
- Fruit should ideally be packed within 24 hours of harvest. Store fruit at just above dew point if fruit are to be held for longer than 24 hours prior to packing.
- The maximum time allowed between harvest and packing should be 48 hrs.

Post Packing Storage	1°C

- Once packed, storage temperature should be managed between 0.5°C and 2°C. Respiration rates of blueberries increase exponentially above 5°C.
- Packed product is to be dispatched to a BerryCo distribution centre within **60 hours** of harvest.
- Forced-draft precooling of pallets may be necessary to remove heat prior to transport
- Hand and automatic monitoring equipment capable of reading and recording to 0.25°C withan accuracy of +/- 0.5°C.
- Electronic system for monitoring and logging temperature records

Transport	1-4°C

- Once packed, temperature control should be maintained, particularly during transport as temperature-controlled transport is essential.

- Transport berries in such a manner as to prevent infestation, and not place product quality and security at risk.

- Maintenance of security in the event of a transport breakdown.

- Protection from contamination or tampering and deterioration

- Ensure truck decks and are clean and pest-free. If not clean or pest-free, do not use, organise to be returned.

- Cover/protect all berries to prevent contamination of the product by dust, rain, insects, exhaust fumes and heat absorption.

Guidelines for the Efficient Management of Post Harvest Cool Storage

- Know the performance specifications of each cool room and operate within its refrigeration equipment capabilities.
- Ensure there is a documented management plan for the control of temperature, and atmosphere (if required).
- Supply BerryCo with cool store control and or inventory records as requested.
- Maintain backups of all electronic and manual data.
- Do not store berries in cool stores with other fruit types.
- Packed fruit should be labelled and placed in cool storage as quickly as possible.
- Pallets should not be shrink wrapped in plastic film as this inhibits effective cooling.

9. PACKAGING SPECIFICATIONS

Packaging Standards

Consumable	Specification	Approved Manufacturer
Punnet 125g	T4321 Blue Royal Jumbo T4321 Blue Royal Premium	Flight Plastics
Punnet 125g	T3113 River Run (run out) T4321 River Run	Flight Plastics
Punnet 200g	T4334 Royal Blue Jumbo T4334 Royal Blue Premium	Flight Plastics
Tray	Blue Royal BerryCo Blueberry Tray	Visy Oji
Hire Crate	Standard Domestic Hire Crate	**Weck, or Chep or Loscam**
Pallet	Standard P10 1206 X 1006	Approved ISPM compliant manufacturer
Pallet Foodstuffs	Standard Hire Pallet 1206 X 1006	n/aFCC or Loscam
Pallet Progressive	Standard Hire Pallet 1206 X 1006	**n/aRed Chep pallet**
Punnet Labels Class 1		
Punnet Labels Class 1		
Punnet Labels Class 2		

- Blue Royal labels are to be applied to product meeting the BerryCo class 1 product. All otherproduct is to be labelled with River Run Farms labels. If in doubt contact BerryCo.

Punnet Labels

Punnet labels are supplied directly to the punnet manufacturer and pre-applied to the punnets as part of the order process

Palletisation

- Trays to be palletised in the manufacturers recommended format
- Interlocking strips should be used in conjunction with manufacturers recommendations as provided
- Dust caps recommended as best practice
- Plastic strapping 10mm+ and/or plastic netting is acceptable
- Shrink wrap plastic and metal strapping is not acceptable
- Trays must not overhang the edges of the pallet
- Pallets must not have excessive under hang
- Pallets must be stable and strong enough to be moved safely by forklift when fully loaded(350kg)

10. Product Identification and Traceability

Pack Identification

- All punnets, trays and/or retail crates need to be labelled to ensure traceability.

- Grower ID must be printed on each punnet to assist full trace back.

- All outer trays or transport packaging shall be labelled for traceability. The EAN label format is preferred on the tray end with manual stamping being acceptable.

- The labelling shall include grower identification code, pack run, packer code and product description. Additionally, labels ~~should~~ must include packers name, packers address and packed on date.

- All labelling shall be appropriately positioned, clearly legible and permanent.

- All trays must be clean, free from contaminants and in a sound condition.

- Partial or mixed grade or size trays cannot be accepted.

Pallet Identification

- At the time of palletisation an approved pallet card shall be assigned and attached to the pallet. Pallet card formats can be a single sheet EAN or a manual pallet card supplied by BerryCo.

- All pallets are to be identified with a pallet card that provides details of the product on thepallet.

- Remove the first page of the pallet card for your records and ensure that the pallet card withthe remaining copies is securely attached to the pallet.

11. Inventory Management

The packhouse is required to provide BerryCo at least daily, a record of all product packed and submitted into the inventory. Such inventory is to be referenced against specific pallet card numbers and include pallet number, pack date, grower, variety and quantity of trays. Fruit that does not have all market access must be clearly identified both in terms of the inventory records, and the relevant market hold details applied.

Copies and/or spreadsheets should be compiled and sent to orders@berryco.co

Inventory Traceability

- The supplier shall operate a system to ensure the identity of the product is maintained through all phases of the growing, harvest, packing, storage and distribution process.
- Records are to be maintained for all blueberries harvested, packed and dispatched.
- Individual trays of fruit shall contain only fruit picked from the property indicated by the grower identification number.
- Suppliers are to provide adequate product security to ensure market restricted product is only loaded out to suitable destinations.
- Suppliers are to ensure that all relevant data relating to product consolidated from other suppliers is maintained.
- Suppliers are to operate an inventory management system to record accurately the movement of fruit and to provide inventory information as requested by BerryCo for marketing activities.

12. LOADOUT AND TRANPORT

Transport Providers

- All transport providers must sign and comply with the BerryCo Accredited Transport Operator Product Security Contract. See appendix 4
- Transport providers must maintain product in a temperature-controlled environment, and follow the guidelines set out in Section 8 Cool Chain and Temperature Management in the Supply Manual.

Loadout Notification to Handling Facility

All inventory dispatched against an order must have loadout documentation to facilitate the transfer of fruit from one facility to another. This could be in the form of a BerryCo supplied consignment book, or other approved format, to supply sufficient information to BerryCo, the freight company, and the receiving party

The load out documentation required by BerryCo's logistics partners and freight forwarders is as follows.

- Load date and time
- Destination
- Vehicle / truck number
- List of pallet numbers
- Variety
- Quantity on each pallet
- Total number of pallets
- Total number of packs
- Dispatch temperature
- Declaration of Conformity if from an approved MAO
-

13. PRODUCT INSPECTION

An audit of product will be undertaken from time to time at any designated BerryCo consolidation point within the supply chain to validate outturn against agreed standards. The scope of this audit will include elements of fruit quality and best practice performance across the supply chain. Note that such inspections are only a snapshot and may or may not identify poor quality fruit within the entire consignment.
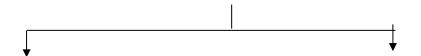
Consolidation Point Audit

- Product assessment has two main components:
  (a) Phytosanitary Inspection via endpoint IVA for non MAO approved facilities
  (b) Quality and customer audits on behalf of BerryCo.
- Such quality audits are to verify grower/packer accountability against the BerryCo grade and quality standards. Insights to such inspections may also be used to prioritise specific key customer shipments.
- Non compliance will be notified by BerryCo to the supply entity (grower/packer) and traceback auditing will be undertaken to determine accountability and fiscal responsibility
- BerryCo may at its discretion allocate inventory to either the domestic or export channel
- All consolidation points are expected to maintain an effective quality management regime including the maintenance of inspection records.
- Auditing at the consolidation point is deemed to be a pool cost.

Marketplace Outturn Inspection

- An "Outturn survey /Inspection" of product is undertaken on arrival of each product shipment at contracted handlers facilities in the marketplace. This survey (inspection) is undertaken for both quality (to identify if any compliance issues exist) and for insurance purposes (to confirm that carriage conditions have been effectively maintained).
- The contracted Marketplace Handlers (Service providers) are contracted to receive, handle, process and dispatch product to retail customers on behalf of BerryCo. The obligations and services provided are specified in service contracts that BerryCo holds with the contracted service providers. These contracts vary according to location and are based on the provision of services to specified standards.
- Unless otherwise specified by BerryCo, the performance indicators that the contracted handlers are monitoring will be the products compliance on delivery at the contracted handlers facility with all supply specifications for fruit quality, product and pack labelling, packaging componentry according to supply specifications. These include recognised industry standards and customer provided specifications e.g. Coles Australia.
- The inspection process is detailed in the following process flow:

There are two parts to the inspection process at air container arrival

Container Inspection and Reporting

Fruit Inspection and Reporting

Air Container Issues (Marine Cargo) Reporting

- Should an issue with the container be identified (Temperature / Shipment) service providers:
  - Activate the provisions within the

    "Offshore Handlers Agreement".

- Handlers indicate in the comments section of the "Inspection Report" when no issue has been identified with shipping / container.

Fruit Inspection

An inspection of the fruit is required for all shipments to determine whether the product meets grade standards and other specifications such as labelling. Results can include:

- Consignment passed inspection.
- Consignment failed inspection.
- A specific pallet or grower number failed and requires rework but the remainder of the consignment has passed inspection.

Problem Notification

- Should significant issues with fruit quality be identified BerryCo is to be notified within 2 hours of the issue being identified. The notification is to include shipment and Product details and to confirm the issue supporting photographs.

Inspection Reporting

- The standard fruit inspection record must be completed and sent within 24 hours of the inspection being undertaken (with supporting photographs and temperature

Supplier Notification

- The outturn inspection report is forwarded to the New Zealand supplier of the product.
- This notification will be supported by photographic images

14. ORCHARD FOOD SAFETY AND HYGIENE BEST PRACTICES

Worker health, hygiene and sanitation plays a critical role in minimising contamination in blueberrieswhich has multiple handling areas during harvest and postharvest. Suppliers need to be aware of and implement appropriate hygienic practices for harvesting and packing blueberries.

Accountability in all areas of the supply chain (orchard, packhouse, transport, distribution centre) isimportant to a successful food safety program. Suppliers need to ensure that there are trained personnel and effective monitoring is implemented to ensure that all elements of the food safety /hygiene management program functions as planned.

Risk Assessment and Management Program

Undertake a Food Safety Risk Assessment and develop and implement a management program controlling the risks identified in the risk assessment.The program needs to be focused on prevention and training to control potential microbial hazards and contamination sources. Preventing problems before they become critical contamination hazards is key to orchard operations. Controls implemented should include:

- Implementing a staff training programme to ensure that they staff are familiar with typical signs and symptoms of infectious diseases.
- Ensuring that staff showing symptoms of an infectious illness do not have direct or indirectcontact with fresh fruit.
- Staff being instructed to report any active case of illness / infectious diseases before beginning work.
- Having adequate toilet facilities available.
- Having adequate hand washing stations available
- Having written training procedures on the importance of hand washing and personalhygiene.
- Placing written and/or international signs in appropriate places.
- Monitoring to ensure that good hygienic practices are followed by staff, contractors andvisitors.
- Ensuring that all drinking water is potable or safe for human consumption.

Monitoring

Monitoring of staff hygiene procedures needs to be undertaken each day during daily orchard activities. This ensures that all staff and contractors, directly or indirectly involved in the orchard operations comply with established hygienic practices. Records of monitoring should be retained.

Hygiene Training and Management

Staff that handle fruit are required to understand and practice proper hygiene. Staff, visitors and contractors can unintentionally contaminate fresh produce, water supplies,

and other workers, and transmit food borne illness if they do not understand and follow basic hygienic principles. Training and re-enforcement of training in general work safety practices and illness prevention maximizes compliance by staff. Therefore, to prevent microbial contaminations thetraining program should follow these guidelines:

- All staff are trained (including induction training) to follow good hygienic practices sothat they have a good working knowledge of basic sanitation and hygiene principles.
- Posting signs in appropriate locations reminding staff, visitors and contractors to wash hands.
- Recording the training and content of training meetings.
- Reviewing the hygiene and food safety program with all new staff at the time of employment.
- Correcting hygiene / food safety hazards found during orchard inspections.
- Ensuring the use of production and management practices that minimize the potential for direct or indirect contact between faecal material and fresh produce.
- Notifying staff, visitors and contractors the location of the toilets and hand washing facilities.
- Notifying visitors and contractors the hygiene rules of the orchard.

Training Areas

Hand Washing

Emphasizing the importance of hand hygiene because the most common method of microbial transmission is thorough hands. Staff are trained that when handling produce hands should be clean. *Clean* means the physical removal of visible filth with soap and water of adequate sanitary quality (potable).

Have adequate hand washing stations, documented hand washing procedures and follow six simple steps for proper hand washing:

- Wet hands with clean or potable water.
- Apply soap.
- Scrub hands, between fingers and under and on top of your hands for at least **20 seconds** to do it properly. Friction and the duration of that friction is key to good hand washing.
- Rinse off soap thoroughly.
- Dry hands with single-use paper towels.
- Discard used towel in a trash can.

Drinking Water

- All drinking water must be potable or safe for human consumption.
- Water containers are to be cleaned & rinsed daily and must be kept covered.
- If held in containers, drinking water must be changed daily.
- Drinking cups or water bottles should not be shared.

Toilet Use

- All staff are trained that after going to the bathroom they must wash their hands with soap and water. When using toilet facilities, workers, visitors are trained:

- NO soiled toilet paper is to be left on the floor.
- NO soiled toilet paper is to be placed in waste baskets or boxes.
- Soiled toilet paper is to be placed into the toilet bowl.
- NOT to dry hands on pants or shirt sleeves. Clothes are exposed to environmental contamination and hands will pick up all that is on the surface of pants or shirts.

Blood and Bodily Fluid Contamination and First Aid

- Wounds are controlled to prevent an open wound bleeding onto produce or other staff. Procedures have been developed outlining what to do with the fruit, machines / equipment, bins, etc. that has become contaminated with blood or other bodily fluids. As a minimum the controls include:
- Open wounds or a lesion with pus (such as a boil or infected wounds that are open or draining) that might have contact with produce (during harvest or product handling) increases the risk of contaminating fresh produce and must be covered.
- A first-aid kit is always available for use. The first aid kits are inspected annually to confirm contents and to ensure that they are maintained in a sanitary and usable condition.
- Staff handling fruit are to have cuts, grazes or infected areas covered to prevent product contamination by foreign matter i.e. blood.

Smoking

- Smoking and vaping rules for the orchard have been developed and communicated to all staff, visitors and contractors.
- A smoking area is provided for staff as per New Zealand legislation. The area is positioned away from the operational areas and contains waste receptacles for smokers waste.

Harvest Practices

Contact with manure or biosolids, poor quality water, workers with poor hygiene, and unclean packaging or harvest containers greatly increases the risk of contaminating blueberries with pathogenic microorganisms.

Fruit Handling considerations

- Wet berries are very susceptible to spoilage. To reduce the risk of infection by post-harvest disease organisms wait a few hours to begin harvesting after rain or heavy dew.
- Store fruit in porous stackable trays
- Avoid stacking fruit more than 100mm deep as this can cause crushing
- Avoid shrink wrapping pallets, pallet netting is advised

Clean and sanitise containers

- Harvest containers used repeatedly during harvest should be checked regularly for contamination and cleaned as required. If the containers are stored outside, they should be cleaned and sanitized before being reused.
- Dispose of any damaged containers or containers that are no longer cleanable as they increase the risk of microbial contamination of fresh blueberries.
- Harvesting containers should not be used to store or carry non-produce items during harvest.

- Vehicles used to transport harvested product should be clean and <u>not be used</u> to transport non-food products (biosolids, pesticides, fertilizers, etc).

Personnel Hygiene and Contaminant management-Controls

- All workers must wash their hands properly:
  - before handling blueberries:
  - after each visit to the bathroom or portable facility.
  - whenever they come in contact with body fluids, including saliva and runnynoses.
  - after smoking, snacking or eating.
- NO smoking or vaping is permitted while harvesting, handling fruit or packaging as defined in the orchard hygiene rules.
- DO NOT pick fruit that has bird droppings on it.
- DO NOT harvest fruit that has fallen on the ground or is growing in close proximity to theground.
- Remove as much dirt, plant debris, and other contaminants as practicable from blueberries during harvest.

15. PACKING FACILITIES FOOD SAFETY AND HYGIENE BEST PRACTICES

Responsibility

The packing facility should operate a Food Safety System that has identified food safety risks, and developed and implemented appropriate risk management processes. Food safety risks from personnel, pests, building infrastructure and equipment should be included in the risk assessment. Hazard controls for identified risks will have been identified and implemented.

Packing Facility operators shall ensure that they have developed and implemented systems to ensure compliance with New Zealand Regulations including the New Zealand Food Act 2014 – National Program Level One.

Facility Construction and Maintenance

Facilities should be constructed and designed to reduce the risk of contamination and be maintained in good condition:

Lights

- All lights situated in fruit packing and storage areas shall have shatterproof bulbs or shatterproof covers;
- All lights in non-production areas which are not protected from breakage shall be managed as part of a documented glass management plan/register;
- A procedure for the replacement of light fittings should be in place to minimise the risk of possible contamination;
- Lighting in the facility shall be appropriate to ensure that production and inspection activities can be effectively conducted.

Equipment

- Equipment should be designed and constructed to facilitate cleaning and maintenance.
- Equipment materials should be compatible with cleaning agents, durable and able to resist repeated cleaning.
- Product contact surfaces should be constructed from materials designed for food use. They should be impermeable and rust or corrosion free.

Measuring and calibration

- Measuring and monitoring equipment should be sufficiently accurate and reliable to provide confidence in results.
- All measuring equipment i.e. scales and temperature probes, should be verified at a specified frequency and calibrated if found to be out of specification.
- Measuring equipment used to monitor critical product attributes (cool room temperatures, punnet weights etc.) should be identified and controlled.
- A register of the critical measuring equipment should be maintained
- Calibration methods used shall be sufficient to give confidence in the results.
- Corrective action procedures shall be in place for any critical measuring equipment found to be out of specification. This process shall include segregation of affected product.
- Measures shall be in place which prevent critical measuring equipment from being adjusted by unauthorised staff and protect it from damage, deterioration or misuse.

Building Fabric and Site Layout

- Floor drains should be free of obstructions.
- There should be provisions for wet weather loading for containers and curtain side trucks.
- There is adequate cool storage of for packed and unpacked fruit.
- Measures are taken to exclude animals or pests from packing and storage facilities.
- Interior walls, floors and ceilings are well maintained and are free of major cracks and crevices.
- Pipes, ducts, fans and ceilings which are positioned above blueberry handling operations should be maintained in sound condition.
- Storage rooms, buildings, and/or facilities are maintained and sufficiently sealed or isolated to be protected from external contamination.

Production Controls

Site Hygiene and Maintenance

- Packing facility interior is clean and maintained in a clean and hygienic condition.
- Pipes, ducts, fans and ceilings which are positioned above blueberry handling operations should be subject to a cleaning program.
- Lights located above the blueberry flow zones are contained in case of breakage.
- The site should be free of litter, debris or weeds as they are sources of contamination by pests (rodents, insects, etc.).
- Only food grade approved and labelled lubricants should be used on the packing equipment and/or machinery.
- Mechanical equipment used during the storage process is clean and maintained (forklift, etc.) to prevent contamination of blueberries.

Water Quality

- Only use potable water to wash blueberry surfaces to remove dirt, soil and other contaminants.
- Undertake annual water sampling and testing. Results of water tests should be maintained for inspection.
- If required Install backflow devices or air gaps to separate clean from dirty water

Packaging Materials

- Store packaging materials in a clean area that protects the packing materials from contamination i.e contamination from pests such as rodents, dirt, and water condensing from overhead equipment and structures.
- Punnets and packaging materials i.e. labels should be properly stored, covered or sealed when not in use, to protect them from dust and pest contamination (cobwebs, mites, birds, rodents, etc.).
- Open boxes of clamshells or other fruit packaging containers should be sealed to avoid dust and pest contamination.
- Pallets, bins, cellars, storage rooms, etc., are clean and in good condition to avoid blueberry contamination with foreign materials (plastics, wood splinters, cobwebs, etc.).
- Blueberries stored temporarily outdoors in lugs, trucks, bins and other containers are covered and protected from contamination.
- Storage facilities/areas are inspected for foreign material or contamination sources **prior** to loading with blueberries.
- Inspection records are written and maintained.

Personnel Hygiene

- Employee facilities such as locker rooms, lunch and break areas, etc. should be clean and located separately from the packing and storage areas.
- Employees and visitors should follow a written policy regarding personal health and hygiene in the

packing and storage areas. The policy and supporting controls could include the following:
- Wearing of protective clothing
- Wearing of gloves
- Wearing of snoods for beards and general hair contamination prevention
- Footwear permitted
- Jewellery permitted
- Wearing of perfume

- Allergen management processes have been developed to minimise cross contamination. These include no food allowed in product handling areas and hand washing after eating.

Dropped Fruit Policy

- A policy has been written and implemented for the handling and disposal of product which has come in contact with the floor or other potentially contaminating surfaces.

Pest Control

- Establish a pest control system to minimise the potential source of contamination from pests. Include regular and frequent monitoring of controlled areas to accurately assess the program's effectiveness.
- Maintain grounds in the immediate vicinity of packing and storage areas ensuring that they are kept clear of waste, litter.
- Remove any unused and/or inoperative equipment to eliminate areas that harbor pests.
- Undertake daily cleaning to remove products or remnants that attract pests in and around the packing facility and any other places where products are handled or stored.
- Regularly inspect all facilities to check for evidence of pest populations or animal contamination.
- Remove dead or trapped birds, insects, rodents, and other pests promptly to ensure clean and sanitary facilities and to avoid attracting additional pests.
- Block access of pests into facilities i.e. holes in walls, doors, flooring, etc., and vents that allow entrance into the facility.
- Maintain a pest control log that includes dates of inspection, inspection report, and steps taken to eliminate any problems.

Equipment and Machinery

- Equipment used in sorting, grading, and packing blueberries should be easily cleanable.
- Inspect conveyers for damage on a regular basis. Damaged conveyer surfaces harbour pathogenic microorganisms and cause damage to the surface of blueberries, they should be inspected, cleaned, and if needed repaired or discarded.
- Inspect punnet fillers and clean and ensure that all fruit contact surfaces are cleaned every time a new blueberry lot is processed, and at the end of the days operations.
- Wash/rinse/sanitize the packing line belts, conveyers, and fruit contact surfaces at the end of each days activities to avoid build-up of harmful microorganisms.
- Wash using a sanitizing agent (chemical agent generally).
- Keep Material Safety Data Sheets (MSDS) for cleaning and sanitizing products in a place accessible to all employees.
- Routinely inspect & maintain equipment used during the packing and storage i.e. forklifts to ensure that they are maintained in a clean and hygienic condition to prevent contamination of blueberries.

Cleaning

- All surfaces and machinery in the fruit production areas shall be maintained in a clean condition.
- A cleaning programme should be documented that identifies the frequency of cleaning required to ensure that the building, grading tables, packing line, utensils and equipment are maintained in a clean condition.
- Cleaning procedures should include:

- Identification of each item/area to be cleaned
- Responsibility for the task
- Cleaning method and frequency (specific requirements for pre-season cleaning as well as the cleaning to be undertaken throughout the season)
- Any removal or disassembly of equipment requirements
- List of cleaning tools and materials to be used with dedicated tools for each area.
- Methods for monitoring/verifying the effectiveness of the cleaning (sign off by an independent person)

- A record of cleaning undertaken shall be maintained.
- Cleaning and sanitation programmes shall be monitored at specified frequencies to ensure their continuing suitability and effectiveness.
- Staff facilities shall be maintained in a clean and hygienic condition. A documented cleaning programme is also required for toilet and hand washing facilities

Waste Management

- A waste management programme should be documented and implemented to prevent contamination of product, product handling areas, equipment or personnel and to ensure all waste material is properly handled.
- All waste sources on site is identified and provision made for the segregation, storage and removal of waste.
- Waste is regularly removed from fruit production areas. Accumulation of waste should not be permitted in fruit production or storage areas.
- All waste receptacles are placed to minimise risk of product contamination. If commercial waste disposal companies are used, instructions should be given to these companies on where to place the bins.
- Waste receptacles are clearly marked.
- Outside waste containers should have lids that are closed when not in use and be located away from packing facility entrances.

Chemical Use and Storage

- Processes are documented and implemented to control the use, storage and handling of chemicals used on the site.
- A register of chemicals used in the facility is maintained and updated regularly.
- A Material Safety Data Sheet is available for each chemical and cleaner used on the site.
- Approved chemicals are only used by people who have been trained in their use.
- Chemicals with a strong odour are avoided.
- All containers being used for storage chemicals are clearly labelled and identified at all times.
- All chemicals are segregated, stored securely and access is restricted to authorised personnel only.
- Cleaners and sanitisers used in the facility have been determined to be suitable for purpose i.e., food grade and can be used on food contact surfaces, and MSDS are held on file to confirm acceptability.
- Training for the use of cleaners and sanitisers has been provided with instructions for their use to ensure there is not a risk of transfer of residues to fruit.
- Non-food grade substances (paints, lubricants, pesticides, etc.) should NOT be stored in close proximity of blueberries.
- Chemicals not approved for use on blueberries or for machinery use and other Non-food grade substances (paints, lubricants, pesticides, etc.) should segregated and stored away from packing / fruit handling areas.

16. <u>DIRECTORY</u>

BerryCo NZ Limited
C1 120 Hamilton Street
Tauranga 3110
PO Box 13134 Tauranga Central
Tauranga 3141
PH 07 552 6878

General Manager
Alice Moore
021626634
alice@berryco.co

~~**Operations and Post Harvest**~~
~~Nicki Paget~~
~~021774097~~
~~nicki@berryco.co~~

Technical Grower Services
Alan Mclean
021864468
alan@berryco.co

David Holmes
0272427201
david@berryco.co

Accounts
~~Gaylene Higgins~~
accounts~~gaylene@~~berryco.co

Sales
Jeff Robertson
021 831 115

Grower Portal
https://www.berryco.co/grower-portal-login?bnc=1&rsn=noOb&fromProt=&lng=

17. <u>APPENDICES</u>

Appendix 1 Covid 19 Compliance Information

GLOBALG.A.P. Certificate Extension

The corona virus pandemic has impacted everything we do, including food safety certifications. Due to controls on travelling and services GLOBALG.A.P. have had to re-evaluatetheir emergency procedures for certificate extension and have decided to adapt their policies,to ensure transparency in the food supply chain and to support producers that need to showcompliance with a Global Food Safety Initiative (GFSI) recognized standard.

GLOBALG.A.P have modified procedures to allow for a 6-month extension of GLOBALG.A.P. certificates:

"GLOBALG.A.P. certificate validity may be extended beyond the 12 months, for a maximum period of 6 months." This can be done based on a risk assessment (conductedby the Certification Agency i.e. AsureQuality, SGS), which has to be recorded.

- The following are the only reasons that are considered valid for certificate extension:
  - The Certifying Body (CB) wants to schedule the on-site inspection/audit after the certificate has expired in order to observe a certain part of the production process: because it hasnot been seen in the previous inspection/audit; because it is considered a high-riskprocess in terms of product safety; or to be able to see a newly added product, process or a new or particular member of a producer group;
  - The CB needs to be able to extend some certificates because of resourcerestraints.
  - The CB was not able to conduct the on-site inspection/audit and/or the producer was not able to receive the CB inspection audit due to circumstances beyond its control i.e. epidemic/pandemic.

- The certificate cannot be extended for the following reasons:
  - If the inspector/auditor is able to conduct the on-site audit.
  - If the producer's reasoning not to receive the inspection/audit is not justified.
  - If there is no on-going production and no product to be sold and the expected nextharvest will not start before the end of the potential 6-month extension.
  - If the producer did not reconfirm with the CB that they will continue with thecertification after the extension.
  - If there is a complaint against the producer where the investigation requires anon-site revisit.

<u>Reminder to review Good Practice Basic Guidelines and Key GLOBALG.A.P Clauses in your Food Safety Systems.</u>

<u>Sick workers</u>
Although it is obvious that workers who show signs of illness should not work withproduce, it is important to emphasize and enforce these policies.

The control point AF 3: "Hygiene" (3.1 to 3.4) of the GLOBALG.A.P. Integrated Farm Assurance covers these requirements, and growers should review and update their procedures and training to include the special case requirements in regard to COVID-19.

<u>Hand washing</u>
A reminder that producers should provide sufficient supplies of soap, single-usetowels, and hand sanitizers to all workers and at all workstations.

The control points General Risk Assessment, AF 3: Hygiene (3.1-3.4), AF 4.4:Protective Clothing/Equipment, AF 4.5: Worker Welfare, FV 5.1: Principles of Hygiene,FV 5.2: Sanitary Facilities covers these requirements, and growers should review andupdate their procedures and training to include the special case requirements in regardto   COVID-19.

<u>Emergency procedures</u>
Growers need to prepare basic procedures on whom to contact in case someone showssymptoms or whom to notify of possible infection or exposure, emergency contact numbers, and contingency plans in order to continue operating. Identify scenarios in which you would have to temporarily (short- or long-term) closedown the operation. Communication of the status and procedures to all workers should be clear and succinct.

Control points GLOBALG.A.P. Integrated Farm Assurance AF 4.1.2, 4.3.1 and 4.5.2 covers these requirements, and growers should review and update their procedures and training to include the special case requirements in regard to COVID-19.

<u>Visitors policy</u>
Growers need to ensure that visitors should be limited to an unavoidable minimum and   must   strictly follow   instructions   on   social   distancing   and   hygiene.

Control points GLOBALG.A.P. Integrated Farm Assurance AF 3.2 (hygiene policy), AF 4.3.1 (accident and emergency procedures), AF 4.4.1 (protective clothing) covers these requirements, and growers should review and update their procedures and training to include the special case requirements in regard to COVID-19.

<u>Worker Housing and Transportation</u>
Where growers are responsible for worker housing, it is necessary thatgrowers/workers and their families understand these mitigating measures and implement social distancing and increased hygiene measures. Transportation of workers should follow all these measures and any additionalrequirements (e.g. permits) set by guidelines or regulations.
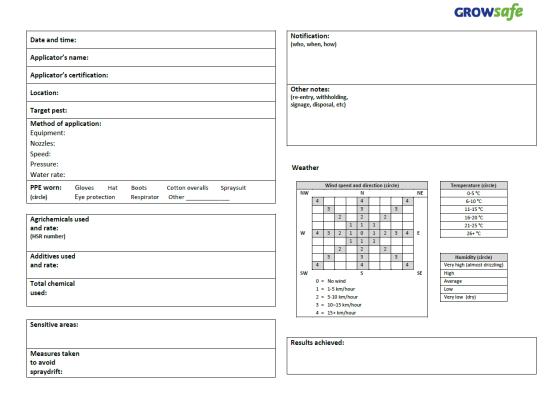
Appendix 2 Quality Control Sheet

Full size form Available as a PDF and Excel sheet on the Grower portal.

Grower:				Block ID		Variety		Quantity	
Grower No:									
Packhouse:				Quality Controller:					
Date Fruit Picked:		Pack Date		Notes: Record Packhouse Run Number					

	Punnet 1	Punnet 2	Punnet 3	Punnet 4	Punnet 5	Punnet 6	Punnet 7	Punnet 8	Punnet 9	Punnet 10
Brand	Blue Royal example									
# Berries in punnet	55									
Time of inspection	2pm									
SIZE (mm)										
Berry 1	17									
Berry 2	19									
Berry 3	28									
Berry 4	33									
Berry 5	18									
Berry 6	19									
Berry 7	16									
Berry 8	25									
Berry 9	17									
Berry 10	14									
Average	**21**									

See section 8 grade standards for fruit size tolerance   Sample 10 berries per punnet randomly for size

Minor Defects (total per punnet)										
Colour	1									
Bloom										
Blemish	3									
Sunburn										
Skin Damage	1									
Shape										
Total Minor Defects	5									

Minor Defects (total per punnet)										
Serious Flesh Damage	1									
Bruising										
Disease										
Dehydrated Fruit										
Temperature Injury										
Total Major Defects	1									

See Section 8 Grade standards for fruit tolerances

Pest Monitoring										
Thrips	1									
Scale										
Mealy Bugs	1									
Aphids										
Leaf Roller										
Egg Masses	1									
Other										

Addapted from the BBNZ Quality assesment record sheet   Sample 10 berries per punnet for pests, See Grade standards for pest tolerances

Appendix 3 Spray Diary Templates

Growsafe Spray Diary Template,

GROWsafe

Date and time:
Applicator's name:
Applicator's certification:
Location:
Target pest:

Method of application:
Equipment:
Nozzles:
Speed:
Pressure:
Water rate:

PPE worn:	Gloves	Hat	Boots	Cotton overalls	Spraysuit
(circle)	Eye protection		Respirator	Other _____	

Agrichemicals used and rate:
(HSR number)

Additives used and rate:

Total chemical used:

Sensitive areas:

Measures taken to avoid spraydrift:

Notification:
(who, when, how)

Other notes:
(re-entry, withholding, signage, disposal, etc)

Weather

Wind speed and direction (circle)

				N				
NW	4			4			4	NE
		3		3		3		
			2	2	2			
				1	1	1		
W	4	3	2	1	0	1	2	3	4	E
				1	1	1		
			2	2	2			
		3		3		3		
SW	4			4			4	SE
				S				

0 = No wind
1 = 1-5 km/hour
2 = 5-10 km/hour
3 = 10–15 km/hour
4 = 15+ km/hour

Temperature (circle)
0-5 °C
6-10 °C
11-15 °C
16-20 °C
21-25 °C
26+ °C

Humidity (circle)
Very high (almost drizzling)
High
Average
Low
Very low (dry)

Results achieved:

Berryworld Spray Diary template

Grower Number	Orchard Name	Block name	Variety Name	Product	Active Ingredient	Category	Spray Date	Rate	Unit	Water Rate/ha	Comments
11006	Example grower	Packhouse	Reka	Caltex DC-Tron NR	Mineral Oils	IMF	13/08/2018	5000	ml/100 L	600	

Key elements
Grower number consistent with industry records
Orchard name consistent with industry records
One product per line for each application
Active ingredient is the key - this can be tricky for some of the miscellaneous products like Thermomax
Category eg IMF= Insecticides, miticides, fungicides HRB= herbicides, FF - foliar fertilisers, OTH= other
Spray date critical to have it in date format

BerryCo.
growing innovation

Accredited Transport Operator Product SecurityAgreement
(and Cool Chain Requirements)

Company Name: ……………………………………..

For carriage of Blueberries it is a requirement that the Transport Operator/s used be accredited under the BerryCo Quality Assurance programme.

Statement
The parties agree to meet the following requirements set by NZ Customs, Ministry of PrimaryIndustries (MPI) and BerryCo, during loading and transport of export product.

Prior to and during loading
- Transport vehicles and units are to be constructed and maintained to prevent contaminationof product by dust, debris, water, insects, exhaust fumes or any other foreign objects.
- Transport vehicles and units are to be provided thoroughly sanitized, free from odours and well prepared for the cartage of food product.
- Transport vehicles provided should not have carted chemicals, hazardous substances, or any substances that may taint or contaminate the product in any way since last being sanitized.
- Driver is responsible for ensuring empty containers are clean and in good order and condition. This includes checking for obvious dirt when container is loaded onto truck at thereleasing depot.
- If it is required the driver is responsible for supplying Customs Security Seal to final load point/packhouse, however packhouse is responsible for applying seal to container and notingSeal Number on all relevant documents.
- Driver responsible for ensuring container doors are well secured upon departure.

During Transport
- All documentation relating to the product transported to be delivered to the destination as instructed by the initiating site/packhouse.
- Should breakdowns, delays or damage occur notify BerryCo:
    - ~~Kenny Wang, 02102006817, kenny@valleyfresh.co.nz~~Anne Crivello 021 289 4599 anne.crivello@outlook.com
    - ~~Operations at BerryCo~~orders@berryco.co

Receipt of Product & Transfer of Product Security (PIPS) Responsibility
- Once the product is signed out of the initiating site (Packhouse/Coolstore) the responsibilityfor product security is transferred to the Transport Operator under contract to BerryCo
- **Every endeavour** shall be made to keep product under refrigeration at all times.

Sign on behalf of Transport Company: ………………………………………….

Date: ……………………

NOTE: This contract is valid 12 months from the Date signed above.
This contact will supersede any previous contracts.