

29633: Demonstrate understanding of the New Zealand primary sectors and industries

Level
2



Learner Guide

Unit standard 29633 v1	Level 2	Credits 4
Demonstrate understanding of the New Zealand primary sectors and industries		

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Introduction

Learning outcomes

This unit standard is for people starting in, or intending to, work in New Zealand's primary sector.

People credited with this unit standard are able to demonstrate understanding of:

- New Zealand primary industries, and their geographic location
- the contribution of the New Zealand primary sectors and industries to the New Zealand economy
- the career and employment opportunities in the New Zealand primary sectors.

Symbols

You'll also see symbol which we've used to help you know what's going on, for example:



Top tip: key information and useful tips.



Activity: a written activity for you to do.

Glossary

You may find new words (highlighted in **bold**) as you read through this Learner Guide. The meanings of these words are in the glossary at the back.

Assessment

You will find a separate assessment booklet for this unit standard. You will need to work through the activities in the assessment and discuss with your Verifier or Assessor. This may be your Supervisor, Workplace Trainer, Workplace Assessor or an Independent Assessor.

The assessment will involve a conversation between you and your Verifier or Assessor, and your responses to the activity tasks or questions may be recorded by you or your Verifier or Assessor.

Your Verifier or Assessor will fill in the appropriate declarations once they are satisfied you have achieved the learning outcomes for the unit standard.

The Assessor will check all declarations and fill in the final sign-off once final competency is achieved.

This is an open book assessment. This means that throughout the assessment tasks you complete, you are able to refer to:

- notes you have taken
- any activities you have completed
- any photographs you have taken
- any workplace documentation you have completed
- any workplace policies and procedures you use/implement this workbook.

Primary sectors in New Zealand

New Zealand relies heavily on the production and earnings of the following primary industry sectors:

- Agriculture
- Horticulture
- Forestry
- Equine
- Sports turf
- Seafood.

The agriculture sector

The main agricultural products for New Zealand are described below.

Dairy

This is New Zealand's biggest export earner. Dairy cow numbers, herd sizes and production have all increased since the early 1900s. Most milk produced in this country is used in manufacturing.

Dairy manufacturing involves large facilities processing lots of different products such as:

- Milk powders, including whole milk, skim milk and buttermilk powder
- Cream products, including butter, milk fat, and ghee
- Cheese – mainly cheddar, but an increasing number of specialty cheeses
- Protein products such as casein and caseinate
- Alcohols.

Beef

Most beef meat exported from New Zealand comes from:

- Dairy cows that have been **culled** from the herd
- Bulls from dairy farms.

Lamb

Lamb production in New Zealand is only a small part of the world's total production but we export more lamb than any other country.

New Zealanders only eat about 10% of the total lamb, hogget and mutton meat produced each year. The remaining 90% is exported.



Wool

New Zealand is the world's largest producer and exporter of crossbred wool. Australia is the world's largest producer of wool overall, with New Zealand close behind as the second largest.



Deer

New Zealand is the main world market supplier of venison and one of the main suppliers of deer velvet.



Arable (crops)

The main crops grown in New Zealand are barley, wheat, maize grain and oats.

The horticulture sector

The main horticultural products for New Zealand are described below.

Fruit	
Viticulture (grapes)	Wine production and export value for New Zealand has increased hugely over the past 10 years. We export mostly to the UK, Australia and the USA.
Kiwifruit	New Zealand's kiwifruit export market has grown over the last 10 years due to the introduction of gold kiwifruit. We lead the world in the development and breeding of new cultivars to meet market demand.
Apples and pears	Exports for apples and pears depend on the current climate in the countries they are being exported to and biosecurity concerns (pests and diseases). New Zealand is constantly developing new cultivars of apples to meet market demand.

Vegetables	
Onions	This is our main fresh vegetable export.
Squash	This is the second most exported fresh vegetable.
Potatoes	Frozen potato products (such as chips and hash browns) are the main processed vegetable export.



The forestry sector

New Zealand forestry is broken up into different industries producing different products.

Wood production

This is the planning, planting, **silviculture** and harvesting of trees.



Sawmilling

This involves cutting the log into pieces that are used for:

- Structural lumber (for example, framing for houses)
- Re-manufactured products (for example, finger-jointed mouldings)
- Wood panels:
 - Veneer, plywood and laminated veneer lumber are made from high quality logs
 - Particleboard and medium density fibrewood are made from sawdust, shavings and chips.

Paper

Paper is made from logs that are too small for solid wood products, or from pieces left over from sawmilling. Paper products include:

- Newsprint
- Paperboard
- Tissue
- Corrugated board
- Wrapping
- Bags.

Furniture

Furniture-making companies range from small handcrafted operators to large companies specialising in production furniture. This industry also includes cabinet making, upholstery manufacturing and finishing (polishing).

The equine sector

New Zealand's equine (horse) sector makes money from:

- Export of horse semen for breeding
- Breeding and selling racehorses overseas
- TAB betting.

There has been a steady increase in the number of horses racing or in training but the number of jobs available in the industry has stayed about the same.

The sports turf sector

People working in this sector include sports turf managers and groundskeepers. They have to manage the natural turf environment to meet the surface demands of sport. This includes:

- Tracks and pitches at sports fields
- Golf courses
- Schools
- Racecourses.

Most groundskeepers and sports turf managers work for city or district councils, companies contracted by the councils, schools, racecourses, bowling greens and golf courses.

The seafood sector

The New Zealand seafood sector involves:

- **Harvesting** fish from deep sea or inshore fishing. This includes rock lobster, squid, hoki and orange roughy.
- **Aquaculture** – growing and harvesting fish and shellfish in marine farms. This includes greenshell mussels, king salmon, and oysters. Eighty percent of New Zealand’s aquaculture happens in the Marlborough Sounds.
- **Processing** fish and shellfish to add value to the product. This part of the sector employs the most people.



In your own words, write one or two sentences to describe each of New Zealand’s primary sectors.

Sports turf:

Forestry:

Horticulture:

Seafood:

Agriculture:

Equine:

Where do you find the primary sectors?

From this point we will just focus on the agriculture, horticulture and forestry sectors.

New Zealand's landscape, soil and climate are the main factors that influence where production happens for each of these sectors. This is because:

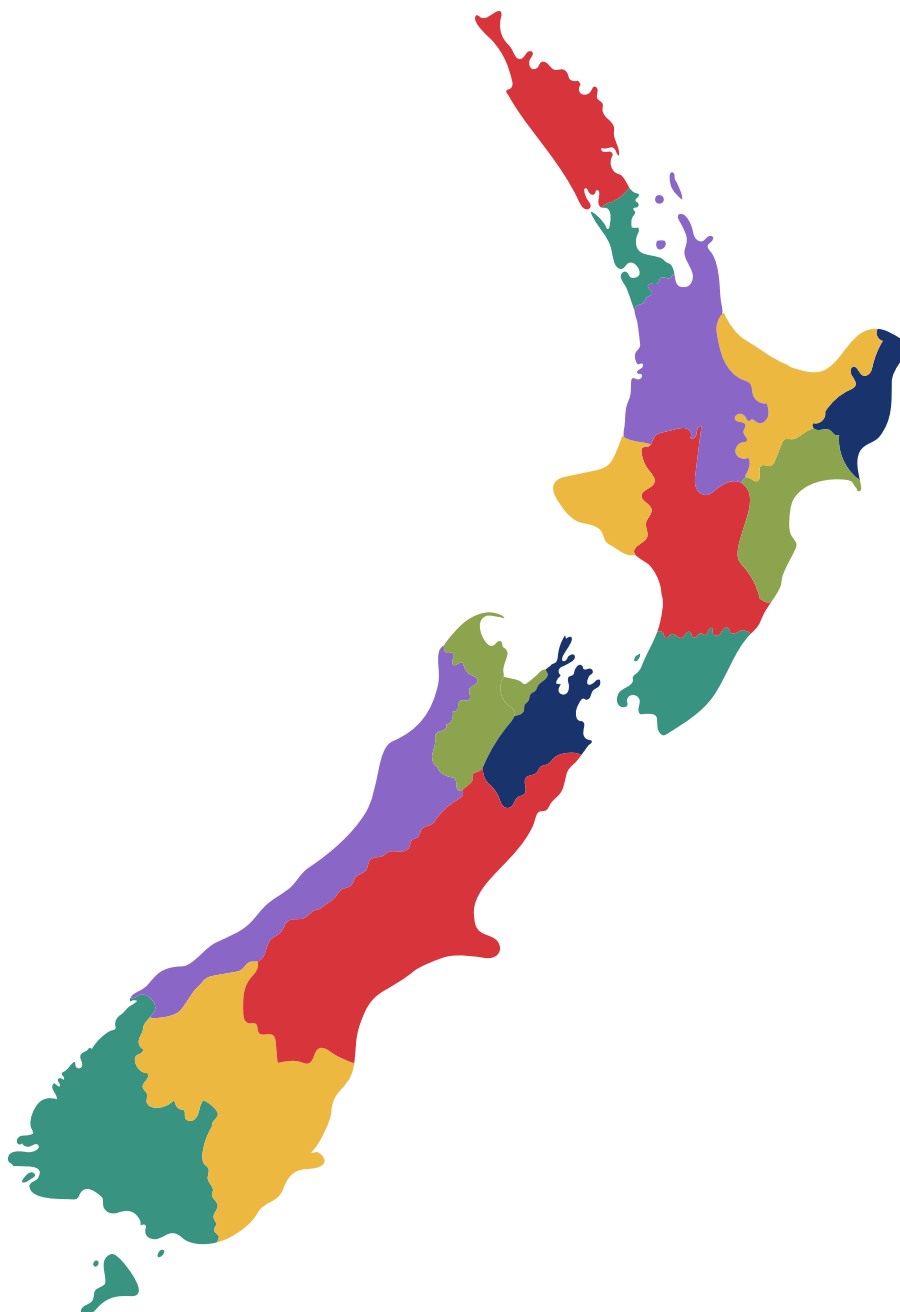
- New Zealand is a long and narrow country that stretches 1600 km from the **subtropical** northern tip to the cool southern end
- Most of the country is higher than 200 metres above sea level
- Annual rainfall ranges from 380 ml in the eastern North Island to over 8000 ml in the west of the South Island.

The map below shows the following features:

- **Latitude lines** down the left side. These represent the distance from the **equator**. Because New Zealand is in the Southern Hemisphere, the latitude lines are all below the equator.
- **Climate zones** down the right side. Weather patterns within these zones can still be variable as well.
- **Northwesterly wind** coming from the Tasman Sea (between New Zealand and Australia). This wind affects the weather patterns.



Label the map below with New Zealand's regions. Use the list provided at the bottom of this page.



Auckland

Bay of Plenty

Canterbury

Hawkes Bay

Whanganui - Manawatu

Northland

Marlborough

Nelson - Tasman

Waikato

Otago

Southland

Taranaki

Wellington

West Coast

Locations for the agriculture sector

Dairy	
Main regions	Reasons
Northland	Subtropical weather patterns.
Waikato	Warm climate and volcanic soils – perfect for growing grass.
Taranaki	Year-round rainfall and volcanic soils.
Manawatu/Horowhenua	Mostly flat to rolling land and mild climate.
Wairarapa	Flat to gently rolling hills and good grass-growing climate.
Canterbury	Relatively mild and wet winters, with irrigation used for hot and dry summers.
Otago/Southland	Large flat land and good rainfall for grass growth.

Sheep and beef	
Main regions	Reasons
Hawkes Bay	Rolling hills that are too steep for horticulture.
Manawatu/Horowhenua	Gently rolling hills.
Wairarapa	Flat to rolling hill country.
Canterbury	Broad plains for high quality sheep farming.
Central Otago	Central areas on the edge of the Southern Alps (the High Country) produce fine merino wool in extremely cold weather conditions.
Lower Otago/Southland	Broad plains.

Deer	
Main regions	Reasons
Canterbury	Broad plains.
Lower Otago/Southland	

Arable	
Main regions	Reasons
Canterbury	Broad plains, important for process crop production.

Locations for the horticulture sector

Vegetable farms are found in most areas of New Zealand.

The main fruit-growing areas are:

- Northland
- Greater Auckland
- Bay of Plenty – 80% of New Zealand’s kiwifruit orchards are in this region
- Gisborne
- Hawkes Bay – this region’s flat areas produce high quality pip and summer fruit, and the hot, dry summers also make it a premium grape growing/wine making area
- Wairarapa – the hot, dry summers in this area (particularly Martinborough) are ideal for grape growing
- Nelson and Marlborough – mild climate for a good range of horticultural crops
- Otago.

Grapevines in Marlborough courtesy of Mount Riley Wines Ltd.

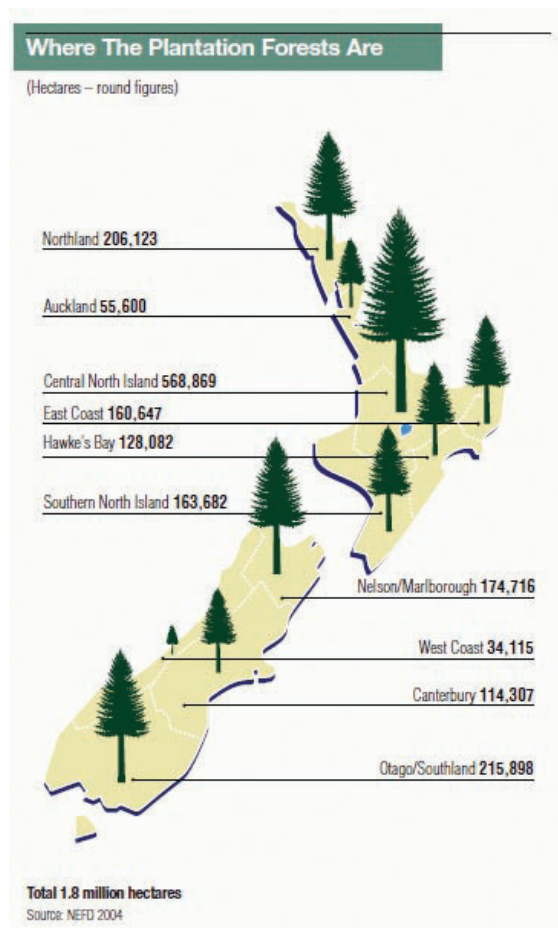


Locations for the forestry sector

New Zealand has about 1.7 million hectares of very productive plantation forests. About a third of New Zealand's commercial forests are found in the central North Island on the Volcanic Plateau.

This map below shows the main plantation regions. Forests are planted in these areas because of the good, free-draining soils, good rainfall, and generally mild weather. (Note: the size of the tree in each region gives you an idea of the area planted.)

New Zealand plantation forests are mostly planted with **exotic species**. Radiata Pine makes up 90% of the total trees planted, 6% is Douglas Fir, and cypress and eucalypt species make up 4%.



Primary sectors and the economy

The agriculture, horticulture, and forestry sectors are very important to New Zealand's economy, both as export earners and for employment. The economic situation for each sector is constantly changing so it is up to you to find up-to-date information.

Use the table on the next page to summarise the following for each sector:

- Number of people employed
- Export earnings
- Contribution to New Zealand's **Gross Domestic Product (GDP)**
- Top three export destinations.

Ask your Supervisor for some advice on the best places to look for information.



Complete the table on the following page with current information for the three primary sectors.

Date sourced: _____

Number of jobs	Export earnings	Gross Domestic Product (GDP)	Top three export destinations
Agriculture sector			
Horticulture sector			
Forestry sector			

Employment in the primary sectors

The main features of employment for the three primary sectors are compared in the tables below.

Employment features	Agriculture sector	Horticulture sector	Forestry sector
Working hours	<ul style="list-style-type: none"> • Early morning starts or late evenings. • Flexible hours, depending on the type of employment. For example, sheep and beef employees generally work 9 hour days, 6 days per week; dairy employees often work 10 hour days, with 12 days on and 2 days off. 	<ul style="list-style-type: none"> • May work full time and year-round, or only during picking and/or pruning seasons. • Usually work regular hours but may need to work longer hours and weekends during planting, picking and packing seasons. • Fruit picking is mainly seasonal with greatest demand for workers from December to June. • Fruit pickers sometimes work up to 50 hours per week. • Vegetable work is more year-round. 	<ul style="list-style-type: none"> • Work hours and days depend on the type of forestry job. For example, some may start at 5am to travel to a site, not getting home until 7pm. • Mill workers have rostered hours, usually 8 hours per day.
Working environment	Working with animals and machinery outdoors, in the wind, rain or sunshine.	Might work in warm glasshouses, cold or hot pack houses, outside in a variety of conditions – depends on the job.	Range of jobs means there is the option for working indoors or out. For example, forestry harvesting contractors mainly work in rural or isolated areas, in all weather conditions.

Employment features	Agriculture sector	Horticulture sector	Forestry sector
Amount of physical activity	<p>Work can be physically demanding so it is important for workers to be fit and healthy.</p>	<p>Need to be reasonably fit, with strong arms and backs to do physical work all day.</p>	<p>Many of the previously physically demanding jobs have been taken over by mechanical equipment operated by computers.</p>
Jobs available	<ul style="list-style-type: none"> • Farm worker roles such as shepherd, tractor driver and dairy farm assistant. • Management roles such as stock manager, operations manager, sharemilker, and farm owner. • Servicing roles such as shearer, fencer, spray contractor, and machinery repair engineer. • Science roles such as vet, animal nutritionist, and soil and fertiliser specialist. • Business roles such as farm accountant, consultant, and rural valuer. 	<ul style="list-style-type: none"> • Working roles such as flower grower, grape grower, gardener, landscape architect, and nursery grower. • Management roles such as orchard manager, pack house manager, vegetable farm manager, and warehouse manager. • Servicing roles such as horticultural contractor, spraying contractor, grain and seed merchant, and arborist. • Science roles such as horticultural scientist, environmental scientist, and soil scientist. • Business roles such as horticultural sales and marketing, and logistics (transport and delivery). 	<ul style="list-style-type: none"> • Working roles such as silviculture worker, timber filleter, timber grader, saw doctor, sawmill operator, kiln operator, log yard operator, and floater. • Management roles such as crew supervisor, operations supervisor, forest information manager, and site manager. • Servicing roles such as customer sales and marketing, mechanical technician, and instrument technician. • Science roles such as research worker, glue technician, and process technician. • Business roles such as forestry consultant, office worker, planning analyst, and business advisor..

Employment features	Agriculture sector	Horticulture sector	Forestry sector
Personal attributes	<ul style="list-style-type: none"> • Motivated and hard working. • Adapts well to change. • Responsible. • Willing to learn. 	<ul style="list-style-type: none"> • Hard working. • Reliable. • Observant and can concentrate for long periods. • Gets on well with others. • Follows instructions. 	<ul style="list-style-type: none"> • Adapts well to change. • Responsible and alert. • Assertive.
Skills and knowledge required	<ul style="list-style-type: none"> • Knowledge of different farming methods, including cultivation and harvesting methods, sprays and spraying techniques, and managing grass and feed. • Skills to use and look after farm equipment and machinery. • Practical skills for tasks such as fencing. • Animal care and handling skills. 	<ul style="list-style-type: none"> • Knowledge of workplace health and safety, and ability to look after both yourself and others on the job. • Mathematical skills for completing calculations. • Communication skills. • Knowledge of growing and harvesting crops. • Knowledge of crop diseases, weeds and pests, and how to control them. • Knowledge of the local climate and weather conditions. • Knowledge of food safety, market certification and quality requirements. 	<ul style="list-style-type: none"> • Knowledge of forestry processes. • Knowledge of wood and forest products and product development. • Knowledge of the RMA and other relevant legislation. • Knowledge of environmental protection methods. • Knowledge of Forest fire protection and safety methods. • Good planning, organisational and problem-solving skills.

Employment features	Agriculture sector	Horticulture sector	Forestry sector
Skills and knowledge required	<ul style="list-style-type: none"> • Problem solving and organisational skills. • Ability to drive motorbikes, tractors and farm utility vehicles safely. 	<ul style="list-style-type: none"> • Ability to apply fertilisers and chemicals. • General maintenance skills and basic mechanics. • Ability to assess fruit or vegetables for ripeness, damage or size. 	<ul style="list-style-type: none"> • Good communication skills to deal with a variety of people. • Management and budgeting skills. • Computer skills.
Training pathways to gain the skills and knowledge required	<ul style="list-style-type: none"> • Short courses on various agricultural topics – offered by education providers. • NCEA in Agricultural Science – offered through some secondary schools. • National certificates in agriculture – gained in the workplace (through Primary ITO or other education providers). 	<ul style="list-style-type: none"> • Short courses on various horticultural topics – offered by education providers. • NCEA in Horticultural Science – offered through some secondary schools. • National certificates in horticulture – gained in the workplace (through Primary ITO or other education providers). 	<ul style="list-style-type: none"> • Short courses on various forestry topics – offered by education providers. • National certificates in forestry, wood manufacturing or furniture making – gained in the workplace (through FITEC or other education providers).

Employment features	Agriculture sector	Horticulture sector	Forestry sector
	<ul style="list-style-type: none"> • National diplomas in agriculture – gained in the workplace (through Primary ITO) or through education providers such as Lincoln University. • Tertiary degrees in agriculture – gained through universities. 	<ul style="list-style-type: none"> • National diplomas in horticulture – gained in the workplace (through Primary ITO), or through education providers such as Lincoln University. • Tertiary degrees in horticulture – gained through universities. 	<ul style="list-style-type: none"> • National diplomas in forestry – gained through universities. • Tertiary degrees in forestry – gained through universities.



Employment in the primary sectors

After reading about the employment requirements for the three primary sectors, which sector interests you the most and why?

Which job(s) in that sector are you interested in finding out more about?

Which of the personal attributes, skills and knowledge do you already have to work in this sector?

What training pathways could you complete to gain the other skills and knowledge you need to work in this sector?

Glossary

You will find new words as you read through this Learner Guide.

The meanings of these words are in the glossary below.

Term	Definition
Biosecurity	Procedures set up by a to protect people and animals from infectious diseases and pests.
Crossbred wool	Wool produced by breeding a long fibre-fleeced sheep with a short fibre-fleeced sheep.
Culling	Removing animals from a group based on specific criteria, e.g. poor production, older animals etc.
Cultivars	New plants created by choosing plants with the features you want and breeding them through cultivation.
Equator	Young sheep up to one year of age.
Exotic Species	Species that have been introduced to the country, i.e. not native.
Gross Domestic Product (GDP)	Total value of goods produced or services provided in a country for one year.
Hogget	Sheep between the ages of 9-18 months (up until they cut two teeth).
Lamb	Young sheep up to one year of age.
Mutton	Meat that comes from mature (or adult) sheep.

Term	Definition
Re-manufacturing	Processing previously milled lumber.
Silviculture	Growing and cultivation of trees.
Subtropical	Area closer to the equator that has a generally warmer climate.

Resource Feedback

In order to keep our resources as up-to-date and relevant as possible we would appreciate any comments, feedback or suggestions you may have with regard to this particular resource or others that you have used.

Please contact us via email **product@primaryito.ac.nz** if you have any suggestions that you feel would be useful.

Please remember to indicate the resource you are giving feedback on in your email, and please provide your contact details.

Thank you for taking the time to provide us with feedback.

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