



National Certificate of Educational Achievement  
TAUMATA MĀTAURANGA Ā-MOTU KUA TAEA

## **Exemplar for Internal Achievement Standard Agricultural and Horticultural Science Level 1**

This exemplar supports assessment against:

**Achievement Standard 91929**

**Demonstrate understanding of factors that influence the purpose and location of primary production**

An annotated exemplar is a sample of student evidence, with a commentary, to explain key aspects of the standard. It assists teachers to make assessment judgements at the grade.

New Zealand Qualifications Authority

To support internal assessment

Grade: Achieved

For Achieved, the student needs to demonstrate understanding of factors that influence the purpose and location of primary production.

This involves describing the purpose and location of primary production, and factors that influence the purpose and location.

The student has described the main purpose of beef farming as economic, and the location as Taranaki. Factors that have been described are rainfall, temperature, and topography.

The student has provided an explanation of the effects of rainfall on beef farming in Taranaki, using supporting evidence. A second factor would need to be explained in order to meet the requirements for Merit. For example, an explanation of the influence of temperature or topography in this location.

Achieved

NZQA Intended for teacher use only

# We've got Beef

## AS 1.2

## Purpose of Beef Production Locally

- ▶ Beef is farmed locally for reasons like economics, historical factors, market reasons, climatic conditions and the physical environment around us. Its farmed for the economic factor because of the money the farmers receive, for the meat produced on the animal. whereas other primary productions may cost more than beef farming, affecting the money you actually receive at the end. For instance, in dairy farming there is a lot of energy costs involved, to run things like the milk shed and heavy machinery, as you don't really have any reason as the animals graze on big blocks of lands, where they eat grass and other plant material.

## Purpose continued.....

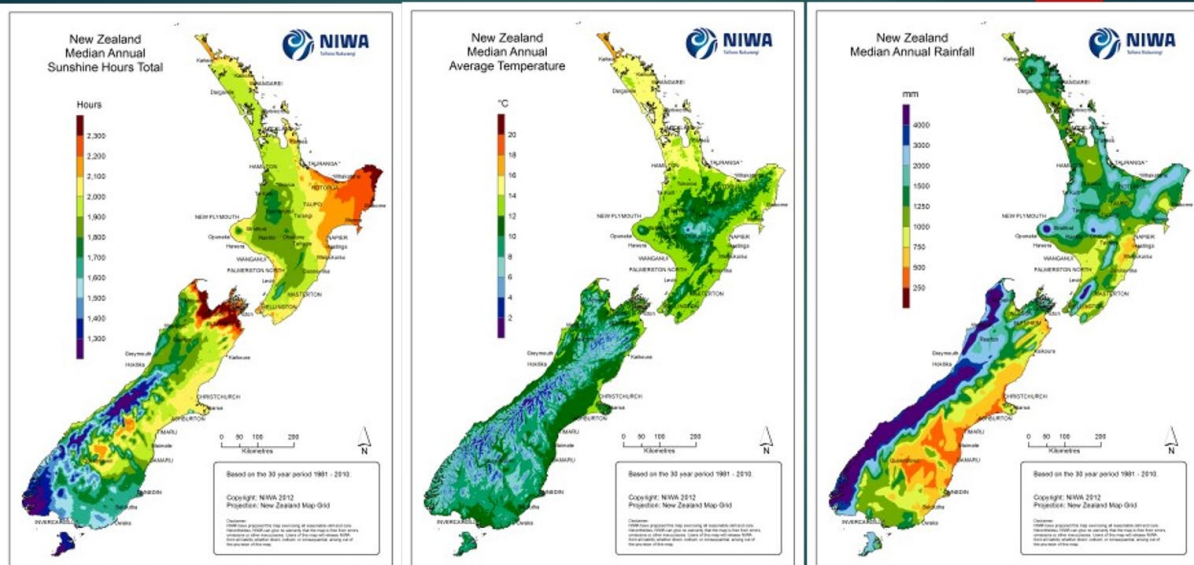
- ▶ Another reason for beef farming to be continued locally is because of the historical influence it has had on the generations of the families that own the farms. Some families have been on the farms for 50+ years, and it has been handed down through generations and the kids have taken over the farms, wanting to continued their parents/grandparents legacy. They may also keep the land due to it being the best land for the purpose, like the weather and land type effects it has on the animals that they have chosen, for example, if the land is hilly and not the best growing conditions for high quality grass, they would be better off raising beef cows or sheep, as they don't need high quality feed for production, unlike dairy cows or sheep, as they don't need better milk and more milk solids. Taranaki has both hilly and flat terrain, so we can do both dairy farming and beef farming.

## Area & Growing Condition of Beef Production

- ▶ Beef production needs certain areas of land to promote plant growth for the cows/bulls to eat. For beef farming, a lot of farmers graze the stock over hilly land that does not have the best pastoral growth, but the land amount makes up for that factor as the paddocks are large and so the cows have a more "quantity of quality" type diet. But some farmers graze the stock over flat, luscious grass filled paddocks, but this is mainly in places in Otago and southern part of Canterbury. Although there is a lot of flat land, there is very little rainfall, we can see this due to the dry and brown land on the plains of Otago, whereas in Taranaki the land has luscious green grass due to the resourceful ash produced by the mountain falling on the land and entering the soil. But Taranaki gets a good amount of rainfall, whereas Otago doesn't have a very plentiful humidity, so the pasture does not get a very even dosage of water. So, the farmers decided to add irrigation to solve this problem, with large steel watering systems that go over the flat paddocks, evenly distributing water.

# Climatic Conditions

- ▶ For pastures to grow however, we need certain climatic conditions for the plants to get an even distribution of water and sunlight for the plants photosynthesis needs. As mentioned before, Otago only gets 250 mls – 1 500 mls throughout the year, this is due to the Southern Alps and its positioning with the Tasman sea and Otago. The clouds that come from the Tasman sea are blocked by the Southern Alps, making the water get dumped on the West coast, where they get 40000+ mls annually. But in Taranaki we don't get a lack of, or abundance of rain. We get, we have a good allround temperature, being around 3000 mls. Also, Taranaki gets average annual temperature of around 14 degrees celsius (not including Mt Egmont), where Otago gets anywhere from 2 – 12 degrees celsius, making it much colder than Taranaki. This helps Taranaki primary industries due to plants benefitting from the warmth for germination and also frost protection.





## Market Factor

### Economics of supply and demand

Also, the fact that there may be a demand for the meat in the market, and the people have taken the opportunity to make money due to this level of demand or cost of beef, could also affect the overall economic factor of beef farming. Also the animals may get low cost transport due to the positioning of the farm to the meat works. Timing matters as well, if you have a large amount of beef cows and the demand for beef is low, don't sell them off then, wait a bit for the demand to rise, and sell them for a higher price for more profit.

## Any other factors..

- If you own a large farm and you are by yourself, you may need employees to help with your farm management, so people may decide to farm where there is some people looking for work.
- Transport can be a pain when farming, from trying to get the cows to the works, or transporting machinery. Optimal positions for farms would be close to a slaughterhouse or where a truck can easily collect the animals.

Grade: Merit

For Merit, the student needs to explain factors that influence the purpose and location of primary production.

This involves explaining the purpose and location of production based on the influence of contributing factors.

The student has explained how calm waters, strong current, and cold water influence the location and the economic purpose of mussel farming in the Marlborough Sounds.

For Excellence, the student could evaluate the factors by ranking them in a comparison of importance for the purpose and location of mussel farming in the Marlborough Sounds. Another option would be to compare the locations of two areas of mussel production in New Zealand.

**Report below:**

In society today there are a variety of reasons why a business would start to explore the wonders of mussel farming. They could do it for economical reasons ( money ), society or social ( people ), environmental ( self explanatory ), and those are just a few to list. The economic status of the world is how we as humans survive. We create something and hope that people will understand and want to spend money on what we provide. The economical pov in mussel farming can be a major factor in launching a mussel farming company. Mussels can continue to finance a mussel facility because of the demand that people supply to have this specific kai moana. Mussels can bring in a large sum of money simply because people love to consume them also because they get imported around the world which is why economically mussels are a good product to invest into.

The most suitable place when cultivating mussels is a location that provides a few environmental factors when it comes to the ocean. To begin with mussels need a relaxed bay where the muscles won't get stressed. Having calm and subtle waters also plays to the farmers pros as it becomes easier to harvest mussels without worrying about rough waves, detachment and being at risk of falling into the water. In order for the mussels to constantly be fed the body of water that the mussels live in must contain a strong current that pushes new water in and old water out. This way the mussels will constantly be supplied with nutrients on a daily basis. Lastly mussels thrive when in cold water which is why the best mussels farms are set up in the south island as opposed to north island waters normal temperatures would be. If mussels were to live in warm waters the metabolism of a mussels would start to decrease which then opens up a range of problems for the mussels immune system. Their energy levels would be lower which can then impact their growth and make them susceptible to any diseases that could harm them.

Mussel production serves as a highly economic production due to several reasons. Firstly, mussels are highly demanded and have a large market demand both nationally and internationally. The production of kaitiaki allows for quite a profitable industry, and also allows for quite a large sum of people to be employed. Mussel farming also is crucial for the health of the moana because of how mussels consume food.

Mussels are filter feeders which means they extract all the microorganisms out of the water as well as extract all the extra nutrients that the water has to supply. Mussels being filter feeders also is cost efficient as it costs nothing to feed them therefore this kai moana is one of the best products you can produce.

Marlborough sounds is one of the best locations in new zealand to cultivate mussels because as ive said before the temperatures on the south island waters as well as the calmness of the bays in marlborough really play in favor to the mussel productions

**Economic Strengths :**

Cost - it's a cost effective production because of the mussels being able to feed themselves.

Market demand - the demand of this kaimoana is so high not just nationally but internationally as well.

investment - because of the high demand and how cost effective mussel production is, it is a really good idea to invest into a mussel facility which is why investment plays into a strength

**Social weaknesses :**

Time - when starting to grow mussels you really have no control on how fast they grow and how well the grow while in the water.

Public perception - many people may take mussel farming as a type of harmful production to be in because of how they've seen other kai moana companies pollute and harm the environment



In conclusion, like any other productions or companies there are always gonna be pros and cons but personally I believe economically and socially play a really important part when it comes to starting or investing into a mussel farm.

Grade: Excellence

For Excellence, the student needs to evaluate factors that influence the purpose and location of primary production.

This involves evaluating the purpose and location of production based on the influence of contributing factors.

The student's evaluation begins with an explanation of the factors (economics, temperature, and distance to the processing plant) that influence the purpose and location of beef farming in Taranaki. The comprehensive evaluation is completed by ranking the importance of the factors, with reasons.

## The purpose of beef farming

People farm beef because they want to make a profit and use the steep hilly terrain that is unwanted by dairy farming. Beef farmers aim to get the beef cattle as fat as possible and in as short amount of time as possible because it will give them a higher profit. Beef farmers do this by giving their cattle higher quality feed and a higher quantity of feed. Some beef farms also have sheep on them because they work well together as the beef cattle eat and shorten the grass and then the sheep can come in and eat the rest of it, which also the farmer more profit.

The reason lots of beef farms are on hills instead of the nice flat land is because flat land has a higher value. The flat land is used for dairy farms as it is more profitable and pay off the flat land quicker.

## The areas of beef production

The areas beef is farmed is mostly steep topography e.g. lots of up and down landscape. Because of this, it is unfit for dairy farming so beef cattle are perfect for the steep country.



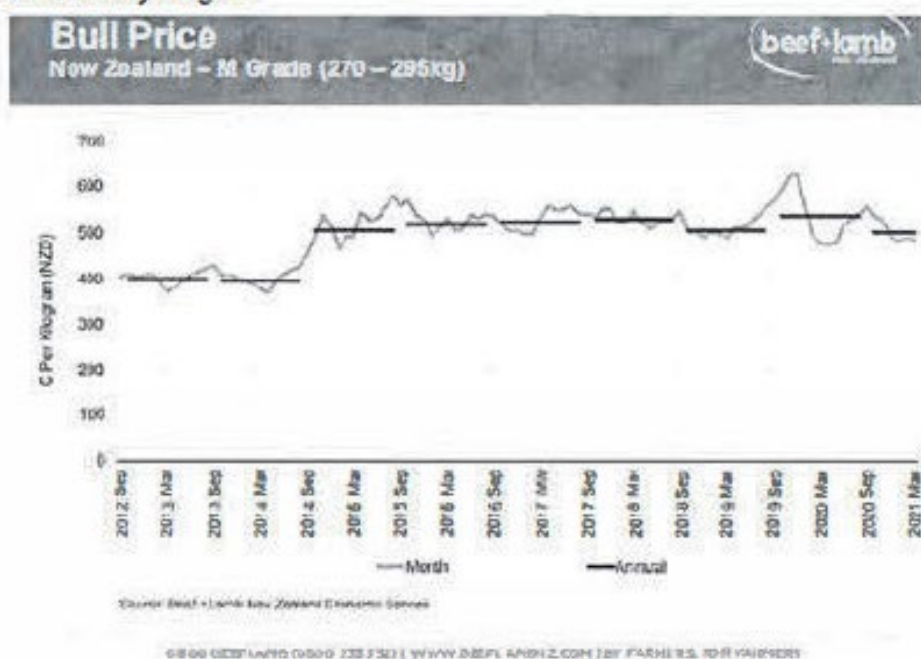
## Growing conditions

The growing conditions are important for beef farming as lots of rain and barely any sunshine can lead to the grass not growing as well because it will become pugged and will flood as the water cannot drain away. These conditions will end up affecting the farmer's beef animal's growth rate as they aren't grazing long, lush pastures full of the needed nutrients. Taranaki's soil is great for growing things like grass as it has heaps of ash from thousands of years ago from Mt Taranaki erupting.

Having a water trough at the top of a hill isn't a good idea because the cattle most likely won't want to go up there as the nice grass is more likely to be on the lower parts of the hill. Having some flatter areas in your paddocks can help with animal growth rate as the beef cattle don't have to traverse such rough terrain to get to the grass.

## The factors that influence beef farming

The market is a huge factor for beef farming because if there is no demand for beef then the price will drop and the farmers won't get paid as much per kg and will have to start thinking of a different way to make some income. The higher the demand for exporting beef the more the farmer will get paid per kg. The more farms there are producing beef the lower the demand as supermarkets and other places will already have heaps in stock. If there were fewer beef farms or something happened to lots of cattle, the demand will go up because there would be less being produced and won't be as easy to get.



This shows what the beef price was like back in 2012 all the way to 2021. The annual price of per kg of beef had peaked at about 550c per beef animal weighing 270-295kg. The more likely cause of price going up is the higher demand or fewer farms producing beef

### Climate for Taranaki

Median Annual Sunshine hours	1900 2100
Median Annual Rainfall	1250 4000
Median Annual temperature	10-12 Celsius



The climate is a significant factor for beef farming. Taranaki has a great climate for its beef farming as Taranaki gets on average about 1250 to 4000 mm of rainfall and gets about 1900 to 2100 hours of sunshine and gets a median temperature of about 10 to 12 Celsius. The climate where the beef farm is important as if it gets too cold the grass won't grow and the farmer won't be able to get the cattle heavy enough to get money for them.

The distance between the beef farm and the processing plant matters as it costs money for the truck to come pick up your animals and transport them to the facility. Some beef farms might have their own butchery and so they don't have to spend their money on transport.

Access to workers can be a big help as it helps take some of the workload off of the farmer and lets the farmer do the more important jobs on the farm.

### Summary of factors

In my opinion, the market is the biggest factor as without a demand there is no point in doing it as most likely you aren't going to be making a profit.

The climate is the second biggest factor as without the ability to grow good pastures and having to spend heaps of money on bales or other food sources for your cattle then you might not make a big profit off beef.

The third biggest factor is how far the farm is from the processing plant as if its too far away the farmer is going to have to pay more to transport the animals there.

The fourth biggest factor is being able to find workers as workers take some of the work load off the farmer. Also being able to find worker to run a home butchery to make your own produce would take away the need for the animal transport fee.