



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

## **Exemplar for Internal Achievement Standard Agricultural and Horticultural Science Level 3**

This exemplar supports assessment against:

**Achievement Standard 91529**

**Research and report on the impact of factors on the profitability of a New Zealand primary product**

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

New Zealand Qualifications Authority

To support internal assessment

	<b>Grade Boundary: Low Excellence</b>
1.	<p>For Excellence, the student needs to comprehensively research and report on the impact of factors on the profitability a New Zealand primary product.</p> <p>This involves analysing the processed information to justify the impact of the factors on the profitability of a New Zealand primary product. The report findings need to be coherent and concise, and include a summary of the key findings.</p> <p>The student is reporting on how a range of factors impact on the profitability of New Zealand produced apples by considering their effect and/or impact on the production process used for apples in New Zealand.</p> <p>The student justifies the impact of political factors (tariffs (1) and free trade agreements (2)) and economic factors (variety of apples (3), thinning (4), and dwarf rootstock (5)) on the profitability of export apple production. The student's report is coherent and concise, and it includes a clear summary of key findings.</p> <p>For a more secure Excellence, the student should include a greater range of factors that may impact on apple production.</p>

**Student 1:                    The Summary of Important Factors**

The summary of important factors from this report of investigating the profitability of apples shows:

- Tariffs imposed the greatest costs for exporters from a political perspective. Even though the New Zealand exporter does not have to pay the tax, they are impacted by the consequence as they receive less \$/TCE (tray carton equivalent). ①
- FTAs (free trade agreement) allow exporters to trade without tariffs, helping the apple industry increase price received and therefore profitability. ②
- A variety of apples enables growers to reach different markets when exporting. This means receiving higher prices for niche markets, and also obtaining optimum count size prices. Count size allows the growers to target maximum returns for their fruit, which means increasing the possibility of a profitable production. ③
- Thinning is an important management practice as it relates to count size and quality of the fruit. Since the grower receives their price/carton, quality of fruit is crucial. However, thinning ensures a consistent yield/ha for each tree - especially when grown on dwarfing rootstocks and in high density plantings. ④
- Lastly, the development of apple trees growing on dwarf rootstocks has meant more intensification of the industry. This has led to a higher yield/ha and packout %'s /volumes which means the grower has a greater quantity of fruit to sell to overseas market. Accordingly, they have a much greater income due to selling more produce for no real extra costs. ⑤

This is why I believe that yield/ha of export quality apples produced is the critical factor in ensuring the production of apples in New Zealand is profitable. Many factors influence the yield of fruit per hectare, including pruning, thinning, rootstock and variety selection. Climatic extremes (e.g. hail) will in random years result in a dramatic reduction in yield due to damage but this should not be a regular occurrence.

Most importantly, dwarf rootstock development has meant similar volumes of apples have been produced and exported with 5,000 less planted hectares. Leading to more income for New Zealand apple growers, with less costs from managing less land.

The primary production of apples in New Zealand is profitable. New Zealand growers are able to grow, manage, pack and export apples to their international markets. The income they obtain (quantity sold x price received) from this production is typically greater than their overall orchard production costs. Therefore, an apple business in New Zealand will allow the owner to make profit, thereby it is an economically sustainable venture.

	Grade Boundary: High Merit
2.	<p>For Merit, the student needs to effectively research and report on the impact of factors on the profitability of a New Zealand primary product.</p> <p>This involves interpreting processed information to explain the impact of factors on the profitability of a primary product.</p> <p>The student reports on how a range of factors impact on the profitability of New Zealand produced lamb by considering their effect and/or impact on the production process used for lamb in New Zealand.</p> <p>Throughout the report, the student processes and interprets information and explains the impact of factors such as economic (1) (2) (3) (4) and physical conditions (5), that impact on the profitability of export lamb production.</p> <p>To reach Excellence, the student should justify the impact of the factors on the profitability of lamb and include a summary of the key findings.</p>

## Lamb

### Price

The average price has a big impact on the profitability of lamb and in the production of lamb; the average price is how much the farmer is receiving for each lamb on average. Between the 2003/04 season and the 2007/08 season things were looking pretty grim for lamb prices as the annual averages were between \$70 and \$50 per lamb and the average price for all grades never got over \$90. Although in the 2008/09 farming season as a result of a seasonal peak of \$95 per head for all grades, the annual average all grades lamb prices held around \$90 - an increase of \$30 per head on the previous year's annual. The 2009/10 season showed a fall in the average price of lamb back down to just above \$80 per head. Although the following year showed at least a ten year high in price with the average price reaching a high of just under \$160 per lamb and an annual average of just under \$120 per head (2). A small drop in the annual average price for lamb occurred in the 2011/12 season back down to \$115 per head. The 2012/13 season has shown another fall in price back down to \$85 per lamb.

In the 2013/14 season Belgium along with Germany paid the highest price of 13,000 NZ dollars per tonne of lamb, indicating that they are buying the best cuts of lamb (3). Although we can also see that we only exported 3,000 tonnes to Belgium and around 8,000 tonnes of lamb to Germany last year. The US also pays a very high price per tonne of 12,500 NZ dollars but again imports less than 10,000 tonnes of NZ lamb. This is because America has a tradition of eating meat with bones, like pork ribs. So most of what New Zealand exports to America is lamb racks.

Great Britain, New Zealand's second biggest export market for lamb in the 2013/14 season paid 9,000 NZ dollars per tonne which was the lowest per tonne from our main markets in the European Union. This tells us they are not buying the racks as they are most expensive, nor are they buying the poor cut but are buying a lot of roasts which are valued in between. However Great Britain is New Zealand's largest market for lamb exports in the EU (with just fewer than 35,000 tonnes exported there last year) and was our largest market in the world up until the 2012/13 season when China took over as our largest market for lamb.

China is now New Zealand's biggest export market for lamb as last year they imported over 45,000 tonnes of lamb, although they paid the lowest out of all our significant exports, paying under 6,000 NZ dollars/tonne. So most of what we export to China is the poorer, less favourable cuts of the lamb like the neck chops. In China mutton is also sold as lamb. So the Chinese are not buying lamb for the roasts and racks, but instead buying the neck chops and flaps which are being used for lamb stews etc.

Previously up until March of this year New Zealand has had to trade with China through a third currency usually the US dollar. This has meant exporters have been receiving less money than they would have been if they were trading straight with the Chinese currency the renminbi or yuan because of the cost of the third transaction. From March onwards exports will be receiving more money as the cost of the third money transaction has been cut out.

**Seasonally of supply** is another aspect that affects price of lamb.

The seasonal price is due to changes in supply volume. If there is lots of supply then the price per lamb will tend to drop, and if there is a very limited supply then the price will increase. On a typical year the supply is at its leanest around October, November, and there is the most supply around the

months of March, April. This is because most farms lamb in the spring, grow the lambs throughout the summer and then sell them in the autumn before the winter (particularly in Southland where the winters are very harsh and the summers achieve extremely high growth rates due to the long daylight hours). The highest the price of the Y lamb received in 2013 was \$5.68/kg on the 11 of November and the lowest the price of the Y lamb got in 2013 was from the 4<sup>th</sup> of March to the 8<sup>th</sup> of April where the price stayed at \$4.07/kg.

So an on farm management practice that the farmer can do (if the location of the farm allows) is lamb in early July, grow the lambs as fast as he can and then sell the first cut of lambs off to the works by early October. Selling the first cut of lambs before October 15 means that the farmer will receive some of the highest schedule prices of the year, as well as an extra premium for new lambs that will be shipped off to the UK as Christmas lamb. However if this premium is missed, the farmer who is selling lambs in late October to November will typically still be receiving the highest prices of the year. Not only this but selling them early before the summer means they have grown fast so less energy and feed has gone into maintenance (higher conversion rates), also getting rid of them before summer minimises/ eliminates the risk of the lamb getting fly strike.

However it would not be profitable for the farmer to lamb in July if they farm in an area like Southland which is very prone to snow in July. As if the farmer was mid-way through lambing and had 4000 lambs on the ground and then a snow storm in August came in, most of these 4000 lambs would die as they are still very little and prone to extreme weather conditions like being in snow for a few days. This decreases the profitability on lamb for this farmer as the quantity of lamb he is selling is dramatically affected. As  $\text{profitability} = \text{income (average price} \times \text{quantity produced)} - \text{costs}$  and if the farmer loses a large proportion of his lambs due to a snowstorm then that quantity produced is going to be less, so the farmers income is going to be massively affected due to less quantity produced and therefore the profitability of that farm is going to decrease. Although if this snow storm affected a large area and lots of lambs were lost all over the southern south island then the average price of lamb in the south island is likely to increase as there is the same amount of demand but limited supply, pushing the price up.

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	Grade Boundary: Low Merit
3.	<p>For Merit, the student needs to effectively research and report on the impact of factors on the profitability of a New Zealand primary product.</p> <p>This involves interpreting processed information to explain the impact of factors on the profitability of a primary product.</p> <p>The student reports on how a range of factors impact on the profitability of New Zealand produced poultry by considering their effect and/or impact on the production process used for poultry in New Zealand.</p> <p>The student briefly explains the impact of climatic conditions (1) and how the economic factor of grain prices (2) affects the profitability of poultry in New Zealand.</p> <p>For a more secure Merit, the student should provide explanations that link the factor with the profitability of poultry production in New Zealand. Prices of poultry, social and costs were outlined but not linked to profitability of producing poultry in New Zealand.</p>

## Poultry

### Price of grain feed.

New Zealand chicken farms tend to use milling wheat as feed for their chickens.

Last week the milling wheat at a Global cost was around \$433 a tonne. In the last six months the cost was around \$418 a tonne of feed, and around a year ago the cost of a tonne of milling wheat was around \$412 showing that as time goes on there is a steady but certain increase in the cost of milling wheat around the world. About 70% of the cost of producing poultry is the cost of feeding the chickens grain.

Feed, grazing, cultivation, and harvesting prices were relatively flat from 1989 to 2001. Grain prices increased in 2001 and 2002, and again in 2007 and 2008, showing that poultry prices increased at about the same time when feed prices rose. **The prices of the poultry feed has increased over the years meaning a poultry farmer of this decade will be spending more, and will be getting a lower profit than a farmer from the last decade.**

### Price of poultry.

Between the March 1981 and June 2010 quarters, poultry prices increased by 124 percent, which is less than the 259 percent increase for food over the same period. Poultry prices reached a peak in the June 1990 quarter, and then generally followed a downward trend for the next 16 years. Poultry prices decreased in total by 20% in the September 2006, during a time when food prices increased overall by 31.3%. Poultry prices did not return to the June 1990 level until 17 years later in the June 2007. The cost of producing poultry meat includes feed, processing and packaging, storage, distribution, and marketing.

### Management Practices and Seasonality

Climate control in sheds has a huge impact on the quality and quantity of the poultry being produced. This is due to the farmer being able to produce the same sized and generally the same number of chickens all year round. Due to there being a continuous climate control the chickens are able to convert their feed to muscle faster rather than using heat energy to keep themselves warm or cool themselves off. There is a maximum of 19 birds per square metre and their area is kept clean each day, resulting in a minimized number of deaths to bacterial diseases and they have constant access to food unlike sheep and beef who have trouble feeding on pasture over the winter periods. **By using climate controlled sheds to raise the chickens, the farmers are able to avoid weather fluctuations such as droughts or floods. They are also able to minimize the number of deaths of the chickens, which would otherwise result in a decrease in quantity leading to a decrease in profitability. The more chickens the farmer is able to produce due to having optimum environmental conditions, the more money the farmer will receive back.**

### Costs.

On average, a farmer will pay \$2221.66 for power and \$2639.64 on gas to run the shed for one run, a total of 45 days. Once the broilers are of age and weight to be taken to slaughter (8 weeks to an average carcass weight of 1.8kg and with a live weight of 2.4kg) the farmers will have to pay to get



the sheds cleaned out, normally on average a 2 week process cut down to 6 days in order to get their next lot of broilers in faster, which should lead to an increase in profitability. It may cost more for the process to be happening so fast and to get all the maintenance done in such a short time but the theory is that it pays off due to the new chickens reaching the required weight two weeks faster than what it would have been. There is also the cost of the wood chippings used to cover the ground the broilers are on, and getting that covered or removed. When compared with other agricultural production poultry meat takes less land due to the farmers being able to fit so many chickens into one comfortable sized shed.

The economics of production are:

50% Goes towards growing one broiler

22% Processing

16% Sales, distribution, advertising

8% Parents

2% Hatchery

2% Grandparents

### **Social**

There are multiple reasons for the demand of poultry in New Zealand and around the world, and due to the many health benefits it carries, it's no wonder its one of New Zealand's most consumed meat. Health benefits such as the source of lean, low fat protein to help muscle growth and development it also contains phosphorus (an essential mineral that supports teeth and bones). Due to chicken being considered healthy and lends itself to low fat diets and low fat calorie meals, people who become conscious of their weight and self image will keep this product high in demand.

Chicken is also okay for all ethnic groups to eat, Hindus cannot eat beef, Jews/Muslims cannot eat pork but everyone can eat chicken. Due to this there are plenty of different cultural ways of cooking chicken, widening the use and demand of poultry in New Zealand. As well as home cooked meals chicken is also popular in fast food outlets such as Macdonalds, Burger King, KFC and Subway.

Due to poultry being so healthy, easy to make and okay for nearly everyone in the world to eat, there is an ever increasing demand of poultry and in order for the demand to be kept, quantities produced will always need to increase. There was 177,376 tonnes of poultry meat being produced last year and poultry was the leading meat consumed in 2009 at 35.79% and still is in 2014.

	Grade Boundary: High Achieved
4.	<p>For Achieved, the student needs to research and report on the impact of factors on the profitability of a New Zealand primary product.</p> <p>This involves selecting and processing information relating to the specific factors that may impact on profitability of a New Zealand produced primary product. The processed information describes the impact of the factors on the production of the primary product and the report findings should be written in a logical manner.</p> <p>The student is reporting on how a range of factors impact on the profitability of New Zealand produced wool by considering their effect and/or impact on the production process used for wool in New Zealand.</p> <p>The student selects and processes information relating to specific factors that may impact on the profitability of wool in New Zealand. They explain the impact of economics between the two different breeds of sheep in the production of wool (1) and briefly describe how the political factor of free trade agreement improves profitability (2).</p> <p>To reach Merit, the student should explain how tariffs (5) and climatic conditions (3) (4) impact on the profitability of wool in New Zealand.</p>

## Wool Discussion

From the research carried out and through processing and analysing the information there is now enough stats and figures to discuss and work out if the farmer is making a profit from producing and exporting wool in New Zealand.

Student 4: High Achieved

NZQA Intended for teacher use only

## Political Intervention:

The New Zealand government plays a very large part New Zealand's wool exports. The free trade agreement New Zealand has with China has had a positive influence on the profitability for farmers as it has cleared tariffs meaning a higher return price for their wool.

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## Economics

The farmer receives \$16 for every kilogram of merino wool. The average merino fleece weighs around 4kg meaning the farmer is receiving \$64 for every sheep's fleece. Shearing costs need to be included into this which cost around \$145 for every 100 sheep shorn which averages out to be \$1.45. The Romney breed returns \$4.50 for every kilogram of wool and their fleece weighs on average 5kg which works out to be a return of \$22.50 per sheep and then including the cost of shearing that is \$1.45.

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Feed supplement: Hay in case of extreme weather, made themselves around \$5 a bale = 15kg of dry matter a bale and 1 stock unit (an in lamb Romney ewe) is recommended to consume 1kg of dry matter a day = \$0.30 and allowance has to be made to feed all winter through (90 days) = \$27 a ewe per year for Romneys and approximately \$13.50 for merinos.

Fertiliser: 200kg per hectare once a year. For areas used in intensive sheep farming superphosphate is the main fertiliser required but in some smaller areas they would require the addition of potash. The recommended stocking rate for intensive sheep farming sits around 10 Romney sheep depending on cattle: sheep ratios, fertility and contour. So if a farmer is applying 200kg of superphosphate at \$320/t = \$64 per hectare and stocking 10 sheep to that hectare each sheep is costing \$6.40 per year. In places like high country down the South Island these figures would not stack up as due to low nutrient feed and extremely steep contour as well as extremely cold conditions and a rocky landscape the rate sits around 1 unit to every 3 hectares.

Breeding: Rams are a major cost to sheep farming regardless of wool or meat and a lot of effort has been put into correct breeding and crossbreeding to produce better traits.

Romney Rams = \$1500 on average. Average rams will only cost around \$830 but a top of the line Romney can reach prices of \$2200.

Merino Rams = \$2200 on average. Bottom end will reach \$1500 and higher prices will reach \$3200.

The ram to ewe ratio sits around 1: 40 = In terms of profitability the cost sums up to \$55 per sheep for merino and \$37.50 for Romney.

Rates: Rates are a council tax that every land owner has to pay and are calculated on land area and land use as well as capital value and improved value. Due to different regions and different areas incurring different council rates and proximity to town it is hard to include this into these calculations but an example is; a 1000 acre dairy farm located 10 minutes from New Plymouth will pay rates at around \$25,000 a year. The same size farm out the back of Stratford running sheep would only cost around \$7000.

Power and insurance: Insurance for the average sheep farm would cost around \$8000 a year and power would cost around \$6000 but these prices may vary.

Romney sheep costs and figures: Romney sheep are a sheep used by wool growers for their carpet wool, they are a large framed sheep that can weigh up to 80kg and their average fleece weight when shorn is around 5kg and returns around \$22.50 in profit minus the costs to manage the sheep as follows:

- Shearing = \$1.45
  - Drenching = \$1.14
  - Dipping = \$4.60
  - Feed = \$27
  - Fertiliser = \$6.40
  - Breeding = \$37.5
- Total loss = \$78.09

Merino sheep are a high country sheep used by wool farmers for their fine wool used in luxurious items. They are a smaller sheep that weigh around 45kg and are famous for their ability to live in really high country in inhospitable conditions and survive on vegetation not high in minerals and nutrients. A merino fleece weighs around 5kg and returns around \$64 per fleece minus the costs of farming as follows:

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- Shearing = \$1.45
  - Drenching = \$0.26
  - Dipping = \$3.30
  - Feed = \$13.50
  - Fertiliser = \$6.40
  - Breeding = \$55
- Total loss = \$79.91

These prices are based purely off the profit back to the farmer off wool prices alone. Wool farmers in this day and age run cattle along with the sheep to clean up pastures. Also the sales of these beef cattle along with lamb sales and the sale of culled ewes adds to the profit. An average lamb will cost around \$100 and on a farm running around 1000 lambs they will only keep 20% (200) of these lambs meaning the sale of 800 lambs creating a return profit of \$80,000. The market for wool alone is dropping gradually due to synthetic fibres replacing wool carpets and lack of promotion overseas is also putting a fading light on the industry. Merino wool seems to be the only market going anywhere but wool itself cannot pay for itself. Merino breeders are usually stud farms that sell merino lambs, rams and ewes along with wool to make a profit

Today's sheep farmers are mainly in the industry for meat production but every sheep will grow wool and therefore needs to be shorn therefore turning wool from the key focus of sheep farming into a by-product grown while producing lamb.

### Conclusion

The facts and figures I have researched are done approximately for wool grower's nationwide, different regions experience different conditions which cause different circumstances. A farmer will experience gains in profit through the sale of ewes and lambs along with wool but may also experience a loss in profit due to uncontrollable deaths caused by climatic factors along with infertile rams and ewes not getting in lamb but overall there is no profit in wool farming alone due to the introduction of synthetic fibres and lack of advertisement worldwide along with higher profitability with farming sheep for their meat instead of wool.

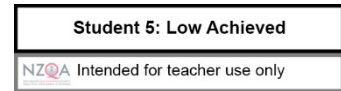
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So can you make a profit from the primary production of wool in New Zealand?

No a farmer will not make a profit from wool production due to decrease in exports and higher profitability in the meat industry. However Merino wool is beginning to develop a name for itself from sheep breeders worldwide and there may be room for profit in the future.

	Grade Boundary: Low Achieved
5.	<p>For Achieved, the student needs to research and report on the impact of factors on the profitability of a New Zealand primary product.</p> <p>This involves selecting and processing information relating to the specific factors that may impact on profitability of a New Zealand produced primary product. The processed information describes the impact of the factors on the production of the primary product and the report findings should be written in a logical manner.</p> <p>The student is reporting on how a range of factors impact on the profitability of New Zealand produced venison by considering their effect and/or impact on the production process used for venison in New Zealand.</p> <p>The student selects and processes information relating to specific factors that may impact on the profitability of venison in New Zealand. They describe the impact of economic factors such as price (1) and exchange rate (2) and the physical conditions on venison profitability (3).</p> <p>For a more secure Achieved, the student should provide more links between cultural markets and profitability (4).</p>

## Venison



### Economic:

One of the factors affecting profitability of venison is the price. Venison is paid in \$/kg. Venison has always been a very volatile industry, because of the fluctuating supply and the small market. There is also a seasonal component with venison pricing as European demand peaks between October and November during the traditional hunting season and Christmas. Between 07/07/08 and 07/07/12 the price per kg of AP stag has been between \$6.50 and \$9.00. The large spike in 2009 can most likely be attributed to the global financial crisis. The New Zealand dollar plummeted against the Euro which is the currency of the majority of New Zealand's venison export markets. **With the low New Zealand dollar, exporters got a greater return on their exported goods, not only for venison but all New Zealand exports. The NZD reaches a low of \$0.39 in 2009. This led to the profitability of deer farming increases for a short period. This is important because the price paid for the producer is a governing factor in determining whether a product is profitable** (1). But the price received for a product is dependent on the supply and demand for the product, which in this case is venison.

**The exchange rate is a factor that affects the profitability of venison farming. During the global financial crisis when the New Zealand dollar plummeted, venison farmers saw a temporary increase in export returns** (2).

Another factor contributing to the profitability of venison is the costs involved producing it. Due to deer being naturally giddy and jumpy, special farm management practices are required to farm deer both profitably and safely. One of these practices is having a curved race. This is because deer like to avoid eye contact with humans as they enter yards. Deer have even been known to rush back towards those herding them when being herded towards the yards down a straight race. Also due to their skittish nature it is best to use a "quiet, assertive manner" when working with deer. All aggressive or ill-tempered animals should be ear tagged and culled from the herd, to limit stress on the animals. Another practice which limits the stress of animals is the design of the yards themselves. [www.teara.govt.nz/](http://www.teara.govt.nz/) says "Yarding and handling principles are the same for a large deer farm as a small one. A few large yards can lead to progressively smaller ones as deer move towards central holding pens. This will avoid deer piling up in the corner of large pens. In paddocks, fences need to be made of netting at least 2 metres high." This need for larger fences is because deer are much more agile than cattle and sheep. Thus they can leap over normal fences or push between wires. These practices relieve the stress of the animals and make the animals easier to manage. Since deer farming is a small part of the New Zealand agricultural industry, it may be more expensive to put in new fences and yards as specialist are harder to find specialists who can put build these features. Also, it is important to keep herds calm, as injured stock may lead to vet bills or having to put the animal down. All these things are part of the profitability equation under costs. Since costs are to be minimised, it is imperative that these practices are implemented and maintained on deer farms to make venison production as profitable as possible.

The importance of feed is represented by the fact that "Fawn losses from birth to weaning can be high for intensively farmed deer. Often 6–10% of calves born to adult hinds and 12% born to yearling hinds are lost. The most common causes are starvation, misadventure and dystocia (large calves causing a difficult birth)." - [http://www.teara.govt.nz](http://www.teara.govt.nz/). Since starvation is such a big limiter of how many fawns a farmer can raise, it is imperative that they get the feed they need to sustain them through the hard summer. These lost fawns are huge financial loss because they are the farmer's future herd. With a smaller herd the farmer will get fewer returns on the stock he is slaughtering because there will be less

of them. Also the extra feed consumed by the pregnant hinds would've gone to waste if their fawns die. This affects profitability two ways, the quantity produced had decreased because of the dead fawns and the costs have increased through feed consumption.

The fact that there are exclusive deer farm races and fences and other on farm practices like soothing the animals to keep them calm really are not big influences on profitability, yes the races and fences may be expensive but all farming specializations have different equipment they must purchase, deer is no different. Also, calmer and more relaxed herds may lead to less injury thus reducing cost and possible loss of stock if things got really out of hand.

The critical factor influencing profitability with venison is feed management. This is because all these other factors rely on having a product to sell, if your herd dies out you go bankrupt. There are some costs involved but the costs involved in feeding the herd over summer is well outweighed by the returns of a strong healthy herd with plenty of fawns. This is why I believe feed management is the critical factor that impacted the profitability of deer farming in NZ. I believe that if feed is managed properly the primary production of venison can be profitable.

### **Cultural:**

One of the factors affecting the demand of venison is that it isn't very competitive against other meats such as beef, lamb, pork and poultry. Traditionally these meats are much more commercial and popular to the consumer, making it harder for venison to become a big player in the NZ agricultural economy. For example in 2013 the value of venison exports was only 171.2 million USD whereas beef was 2,142.8 million NZD and lamb was 2,283.2 million NZD (Source: Beef + Lamb New Zealand Economic Service, Statistics New Zealand). This goes to show that there is simply not the same level of demand for venison as there is for other meats. But that does not mean there is no demand, it just limits the export options for venison producers and creates a rather volatile and unstable market. But however, this does affect profitability, because with such small and volatile markets, it limits the farmer's ability to produce venison.

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### **Physical / Climatic:**

Most deer farms are located in Southland, Canterbury, Hawke's Bay and Manawatu. These regions all have similar features. One of these features is that these places all have rolling hills with a little bit of flat land, as this kind of landscape is very close to their natural habitat. Canterbury, Hawke's Bay and Manawatu all have similar rainfall (400-1200mm) and an average temperature of between 10-15 degrees Celsius. Canterbury however has very thin soil, so irrigation is needed for pasture growth. Southland is very similar in both terrain and rainfall but it is a bit colder with an average temperature of 5-10 degrees Celsius. Southland also has a heavier soil which can grow grass with irrigation. Deer are farmed on the rolling hills because it is easier for the farmer to do so. Deer farming does not have high returns like lamb, beef or dairy farming so it cannot afford the flat plains to farm deer on, and the steep rocky terrain nearer the mountains is too expensive or dangerous to fence.

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Deer seem to do well in these 4 regions, because they can handle the conditions such as little grass or there is not enough rainfall for pasture growth. In these situations they will eat trees and shrubs to compensate. Deer are a mix between grazers and foragers; they can graze pasture when available and forage for shrubs and other plants when pasture is not available. However in the summer, it is important to maintain feed quality. This requires supplementary feeds and crops. These crops and feeds ensure that the deer are well fed over the otherwise harsh summer months. The summer months experience less rain and it gets very dry, leading to less to no pasture growth. This ultimately ties into being a cost. This is a huge contributor to the costs of running a venison farm.

	Grade Boundary: High Not Achieved
6.	<p>For Achieved, the student needs to research and report on the impact of factors on the profitability of a New Zealand primary product.</p> <p>This involves selecting and processing information relating to the specific factors that may impact on profitability of a New Zealand produced primary product. The processed information describes the impact of the factors on the production of the primary product and the report findings should be written in a logical manner.</p> <p>The student is reporting on how a range of factors impact on the profitability of New Zealand produced milk by considering their effect and/or impact on the production process used for milk in New Zealand.</p> <p>The student briefly describes how the economic factor of exchange rate impacts on the production of milk in New Zealand (1).</p> <p>To reach Achieved, the student should expand on the concepts of exchange rate, free trade agreements (2) and tariffs (3) linking them to milk production and profitability, as well as investigating other factors, such as social and climatic.</p>



## Milk

### EXPORTS:

In New Zealand when the exchange rate is high we are going to receive less return, therefore when the exchange rate is low we are going to receive a high return. This is a major factor for profitability, but if the exchange rate is high we cannot do anything about it. This then means the profitability for the season is dependent on the exchange rate. All the farmer can do is increase the quantity of milk he produces (1). This will also affect the amount of palm kernel that needs to be imported and the grass that needs to be fed to allow for this increase in quantity.

The main countries that we export to are China, the US, Japan, the European Union, Malaysia, Australia, Philippines, Taiwan, Singapore, Belgium, Venezuela and Saudi Arabia.

### POLITICAL INTERVENTION: FREE TRADE AGREEMENT = CHINA

As New Zealand is a large producer of the world's milk products, we as a country do not import any milk products.

FREE TRADE AGREEMENT = CHINA. The New Zealand- China free trade agreement is a bilateral free trade agreement signed between the Chinese and New Zealand Governments in April 2008. This has had a huge positive influence on the returns farmers get. This is because it has reduced and cleared tariffs, allowing a higher return price for the farmers. (3)

Until quite recently, Fonterra-the New Zealand dairy cooperative responsible for nearly one-quarter of New Zealand's export earnings, met the growing Chinese demand for New Zealand dairy products—including cheese, butter and milk powder—by exporting to China. Then, in 2007, Fonterra opened its own farm in Tangshan which it stocked with Friesian heifers from New Zealand, to supply China with milk produced within China.

Under the agreement, 37 per cent of Chinese exports to New Zealand and 35 per cent of New Zealand exports to China will be tariff free by October 2008. All tariffs for Chinese exports to New Zealand will be eliminated by 2016, and 96 per cent of New Zealand exports to China will be tariff free by 2019.

On the 1<sup>st</sup> of January 2017 butter, cheese and liquid milk will have tariff elimination.

The free trade agreement is also duplicated in other places e.g. Taiwan.

Trade barriers and quality of supply affect productivity due to the free trade agreement. This is due to free trade agreements getting rid of the trade barriers. (2)

Lately there has been talk of a free trade agreement between NZ and Europe, but nothing has yet been confirmed.

### QUOTA'S:

A quota is a volume restriction on imports-meaning there is a limit to how much of a certain product can come into that country per year.