

## Assessment Schedule – 2018

### Agricultural and Horticultural Science: Demonstrate understanding of how market forces affect supply of and demand for New Zealand primary products (91530)

Achievement	Achievement with Merit	Achievement with Excellence
“Demonstrate understanding” involves <b>explaining</b> how market forces affect supply and demand for New Zealand primary products.	“Demonstrate in-depth understanding” involves <b>explaining in detail</b> how market forces affect supply and demand for New Zealand primary products, with quantitative data.	“Demonstrate comprehensive understanding” involves <b>analysing</b> how market forces affect supply and demand for New Zealand primary products, with a focus on the significance and impact of the market forces.

#### Question One: Market forces affecting the supply of primary products

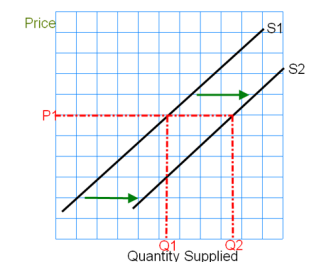
##### Sample evidence

##### Price received by the grower

- Growers are reluctant to sell goods below production cost, but because of the limited shelf life of most primary products, they often have little choice – e.g. potatoes grown for the table market sell for \$500/tonne. When potatoes grown for processing are struck with ‘zebra chip’ they can be dumped in to supermarkets. Processing potatoes usually only get \$300/tonne, so these suppliers are happy to receive less than \$500/tonne.
- When PSA hit New Zealand back in 2013–2014, orchards were cut out and burnt to reduce spread of the disease. There was a huge drop in quantity of Gold kiwifruit supplied to the market, but because this significantly increased the price received per tray, growers’ income was not significantly affected.
- Farmers receive a premium price for lamb if they can get them to a carcass weight of 17.5kg in time for the UK Christmas market (to the works in early November). The difference in return averages \$20 per head of lamb between early Nov and early Jan, which is a significant incentive to alter timing of supply.

##### Production costs

- Increases in the minimum wage will raise labour costs for producers. This creates a shift of the supply curve to the left. Producers will be willing to supply **less** product at the same price.
- Innovation and improvements in technology that decrease production costs will shift the supply curve to the right – producers are willing to supply **more** goods at the same price (see graph).



##### Weather events

- Droughts reduce the growth of grass; beef and lamb farmers run short of feed, and need to sell animals (either to the works, or to other farmers). This results in large quantities of animals being slaughtered early, followed by a shortage of animals later in the season.
- Wine: Rain near grape harvesting time impacts on the quality of wine produced. First off, if it is very cloudy or overcast, it is harder for grapes to ripen, as they need sunlight. If it rains, the grapes will take on more water, which means the flavours become diluted and the sugar / acid balance that winemakers are looking for can be lost. With too much rain, the grape berries start to swell and even split, which can result in spoilage, mould, and mildew. Rain is also a concern in the spring; grapes are formed from flowers, and a heavy rain can knock the blooms off the plant and reduce the size of the crop. Damp conditions can also lead to mildew and other diseases.

##### Justification

Student response should compare and/or contrast one market force against at least one other, justifying why it has a more significant impact on overall market supply for their selected product. For example:

- All of the market forces explained so far have a significant impact on market supply. The willingness of a producer to produce goods for sale ultimately comes down to the ability to earn an income for his/her self, and create a profit for the business that could lead to growth of the business and therefore more money.
- The price received by the grower has obvious implications, as it may not be enough to cover the costs of production, or to indicate a growing demand and hence the likely level of future sales (*gives examples of market trends or prices received historically*).
- Production costs will have an impact on the difference between the cost to produce the product and the price received by the grower, and there are things within the grower’s control that they can do to increase the margin, e.g. use of technology (*develops argument of production costs*).

The first two market forces described above have an element of predictability, and a grower can – and should – make adjustments based on these predictions, as they will impact on the **willingness** to produce (*specified*) product in the future.

However, the market force that has the greatest impact on supply is weather events, because the grower has little or no control over them and they impact on the **ability** to produce a quality product. A bumper crop (*example*) or the devastation of a crop because of hail or drought (*example*) will impact on supply immediately (*strengthens argument to a logical and reasonable conclusion*).

N1	N2	A3	A4	M5	M6	E7	E8
With reference to a specified primary product, ONE market force is partially explained.	With reference to a specified primary product, TWO market forces are partially explained.	With reference to a specified primary product, ONE market force is explained in general terms.	With reference to a specified primary product, TWO market forces are explained in general terms.	With reference to a specified primary product, ONE market force is explained in detail (supported using qualitative and/or quantitative material where appropriate), and the other is explained in general terms.	With reference to a specified primary product, TWO market forces are explained in detail, using qualitative and/or quantitative material where appropriate.	With reference to a specified primary product, TWO market forces are explained in detail, using qualitative and/or quantitative material where appropriate. <i>AND</i> Partial justification, using both qualitative and quantitative material where appropriate.	With reference to a specified primary product, TWO market forces are explained in detail, using qualitative and/or quantitative material where appropriate. <i>AND</i> A full and comprehensive justification, using both qualitative and quantitative material where appropriate.
<b>N0</b> = No response; no relevant evidence.							

## Question Two: Market forces affecting the demand for primary products

### Sample evidence

#### Exchange rate

- A lower NZD is favourable for exporters, as it increases the demand for New Zealand exports.
- Growers need to achieve a certain level of returns to cover costs. The amount is measured in NZD. If the NZD weakens against other currencies, this effectively lowers the price for overseas consumers, as they can buy our goods more cheaply in their local currency, while New Zealand growers still get the same amount of revenue. Basic economic theory equates this to a shift along the demand curve, and market demand increases.
- The opposite also holds true – if the NZD strengthens, then our products become more expensive overseas, and consumer demand will decrease.

#### Consumer preferences

- Asian palettes prefer sweeter and smaller varieties; Kiwifruit Gold meets this preference, and so demand is increasing for this product in many Asian markets.
- The taste of Kiwifruit is linked more to dry matter than to sugar (brix) measurement; growers are encouraged to alter production techniques in order to increase the proportion of dry matter in their kiwifruit.
- UK lamb market: Because butchers make cuts based on the weather of the day (steaks and chops on BBQ days, roasts on colder days) butchers in the UK prefer primal cuts (lamb leg / forequarter) so that those decisions can be made over there.
- Consumers prefer New Zealand fresh lamb to UK fresh or New Zealand frozen lamb. Using strict meat handling methods, New Zealand lamb can be “fresh chilled” for up to 73 days for delivery to the UK. Higher prices are paid.
- Halal-killed meat products are produced so that New Zealand meat is suitable for Muslims (approx. 5% of UK market) without needing further differentiation.

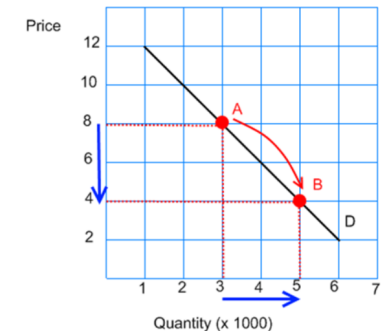
#### Reliability of supply

- An important requirement in supplying export markets is the ability to meet contract commitments (regular supply in terms of products as commodities, e.g. beef to McDonalds, lamb to supermarket chains), and often to manage a significant volume in order to have any market presence – e.g. Zespri Kiwifruit has northern hemisphere growers not only to ensure year-round supply, but also because they need to supply significant volumes to have a visible presence in European supermarkets.
- Overseas consumers will want to buy lamb throughout the year; the northern hemisphere season will naturally dip when New Zealand lamb production is reaching its peak. For the seller, being able to supply consumers with a product year-round is of great benefit. New Zealand’s southern hemisphere location gives producers a window to introduce their product and start to establish a brand.

#### Justification:

Student response should compare and or contrast one market force against at least one other, justifying why it has a more significant impact on overall market demand for their selected product. For example:

- There are two things that determine demand – the individual consumer’s willingness and ability to purchase a product at the given price. Market demand takes a whole lot of consumers and puts all of their individual demand curves together to form a general market demand.
- It is therefore difficult to say if the willingness to buy (which comes from the consumer’s preferences) is more significant than the actual ability to buy (which is determined by price and incomes).
- Reliability of supply is less important to an individual consumer, and is more important to a supermarket chain or large commodity producer (*supported with an example relating to the specified product*).



The exchange rate directly impacts on the price, and consumers will have some elasticity with regard to price, as the specified product is a staple, and hence a normal part of their daily diet (*examples or supporting data*). There will come a point on the price curve where consumers will be put off and look for substitute goods, but so long as their preference remains unchanged, they will return to the specified product when the price is favourable again.

Therefore, it is consumer preference that has the greatest impact on market demand, and it is also the thing that growers have the greatest control over. Consumer preference for the specified product is the result of quality control, promotion, etc, and so long as the market is **wanting** to buy the product, there will be elasticity in price and reliability of supply (*strengthens argument to a logical and reasonable conclusion*).

N1	N2	A3	A4	M5	M6	E7	E8
With reference to a specified primary product, ONE market force is partially explained.	With reference to a specified primary product, TWO market forces are partially explained.	With reference to a specified primary product, ONE market force is explained in general terms.	With reference to a specified primary product, TWO market forces are explained in general terms.	With reference to a specified primary product, ONE market force is explained in detail (using qualitative and/or quantitative material where appropriate), and the other is explained in general terms.	With reference to a specified primary product, TWO market forces are explained in detail, using qualitative and/or quantitative material where appropriate.	With reference to a specified primary product, TWO market forces are explained in detail, using qualitative and/or quantitative material where appropriate.  <i>AND</i>  Partial justification, using both qualitative and quantitative material where appropriate.	With reference to a specified primary product, TWO market forces are explained in detail, using qualitative and/or quantitative material where appropriate.  <i>AND</i>  A full and comprehensive justification, using both qualitative and quantitative material where appropriate.
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**Question Three: Biosecurity and New Zealand's primary products**

<b>Sample evidence</b>	
<i>Biosecurity (phytosanitary regulations)</i> New Zealand's isolation means we are relatively free of many pests and diseases. Many countries are happy to accept our exports because we pose little risk to them in terms of biosecurity.	
Market access	OMARS (Overseas Market Access Requirements) are documents outlining <b>all</b> of the requirements in order to export goods to other countries. Industry and the Ministry of Primary Industries (MPI) ensure that these requirements are strictly adhered to in order to avoid complications or rejection at overseas ports. (They include as much detail as "No peanut butter in the staff lunch room, no glass (e.g. drink bottles) on food production floor", etc.)  After consultation with the horticultural, forestry, and arable sectors, MPI has updated the standards for plant export phytosanitary certification. The new standards came into effect on 1 June 2015.
Cost of border or infestation control	Approx \$1,000,000 for each fruit fly found in Auckland.  Under the Government Industry Agreement (GIA) 2012, MPI has agreed to meet the first 20% of the cost for a joint activity in recognition that activities such as trade and tourism can create biosecurity risks. The remaining 80% of the cost will be split between industry and government, with the condition that industry never pays more than 50% of the total costs.
Impact of incursions on the agricultural and horticultural industries	Varroa, a parasitic mite that infects honey bees and can transfer fatal viral pathogens, is a source of concern to the horticultural and agricultural industries, which rely on bees for crop pollination. It is estimated that the introduction of the varroa mite, discovered in New Zealand in 2000, will cost the economy between \$400 and \$900 million over 35 years.  Analysis has shown that the Psa virus is expected to cost the Kiwifruit industry between \$310 and \$410 million in net present value terms over the next five years. Over a ten-year time horizon, the estimated costs will increase to approximately \$500 to \$600 million, and over a 15-year period to between \$740 and \$885 million.  A highly contagious cattle disease commonly found in many parts of the world has infected a South Canterbury dairy herd in the first recorded case in New Zealand. An economist observed that news of the outbreak had an instant effect on the New Zealand dollar, with a fall of 20 basis points, and that any news story with the words "cow" and "disease" tended to have such an impact.
Biological control issues	In some instances, growers will want to introduce a biological control to reduce the use of chemicals, but the delay in timing for the appropriate testing to be done is constrictive (but necessary in the long term). The risk is the premature, unauthorised release of some agents, e.g. Rabbit Calicivirus Disease (RCD) in 1997; now a new strain of this virus is about to be released in Australia, and scientists are looking at releasing it in New Zealand.
Quarantines	The freshness of produce can be compromised by quarantines at overseas borders. By guarding our own borders carefully, and NOT having many pests and diseases, it is easier for New Zealand producers to avoid quarantines and sanitary and phytosanitary (SPS) regulations overseas, because we do not pose a threat.  In February 2018, four ships carrying vehicles from Japan were turned away because the brown marmorated stink bug was found. In the USA, the stink bug damages 90% of crop yield. This would have impacted on our NZ\$5.6 billion horticultural industry.
Benefits	The Ministry for Primary Industries (MPI) has said that the Queensland fruit fly was a particularly destructive species and could have threatened the \$6 billion horticulture industry if it had become established in New Zealand.

New Zealand's primary industries generate about \$37 billion a year in exports. The MPI's role is to provide trusted assurances to overseas countries that our products meet their requirements. This activity helps maximise primary sector exports.

N1	N2	A3	A4	M5	M6	E7	E8
A limited description of how the supply of, OR demand for, a specified primary product is affected by sanitary or phytosanitary issues.	Some general information about how the supply of, OR demand for, a specified primary product is affected by sanitary or phytosanitary issues.	Describes / partially explains how the supply of, OR demand for, a specified primary product is affected by sanitary or phytosanitary issues.	Describes / partially explains how the supply of, AND demand for, a specified primary product is affected by sanitary or phytosanitary issues.	Explains how the supply of, AND demand for, a specified primary product is affected by sanitary or phytosanitary issues, with either supply OR demand discussed in depth.	Explains how the supply of, AND demand for, a specified primary product is affected by sanitary or phytosanitary issues, with both supply AND demand discussed in depth.	Discusses how the supply of, AND demand for, a specified primary product is affected by sanitary or phytosanitary issues.  The regulations are fully explained, and either supply OR demand is discussed comprehensively, with supporting data quantifying / qualifying the impact for either supply OR demand.	Discusses how the supply of, AND demand for, a specified primary product is affected by sanitary or phytosanitary issues.  The regulations are fully explained, and both supply AND demand are discussed comprehensively, with supporting data quantifying / qualifying the impact for both supply AND demand.
<p><b>N0</b> = No response; no relevant evidence.</p>							

### Cut Scores

Not Achieved	Achievement	Achievement with Merit	Achievement with Excellence
0 – 6	7 – 12	13 – 18	19 – 24