

This task requires phone numbers for local farmers and would benefit from internet access so could pose an access issue for some students

NZQA Approved

Remote Internal Assessment Resource

Agricultural and Horticultural Science Level 3

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| This resource supports assessment against:  Achievement Standard 91529  Research and report on the impact of factors on the profitability of a New Zealand primary product |
| Resource title: Can you make money from venison production? |
| 6 credits |
| This resource:   * Clarifies the requirements of the standard * Supports good remote assessment practice * Should be subjected to the school’s usual assessment quality assurance process * Should be modified to make the context relevant to students in their school environment and ensure that submitted evidence is authentic |

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| Date version published by Ministry of Education | Originally published December 2012 and edited April 2020  To support remote internal assessment due to COVID-19 |
| Quality assurance status | These materials have been quality assured by NZQA.  NZQA Approved number A-A-5-2020-91529-01-6439 |
| Authenticity of evidence | Teachers must manage authenticity for any assessment from a public source, because students may have access to the assessment schedule or student exemplar material.  Using this assessment resource without modification may mean that students’ work is not authentic. The teacher may need to change figures, measurements or data sources or set a different context or topic to be investigated or a different text to read or perform. |

Internal Assessment Resource

Achievement Standard Agricultural and Horticultural Science 91529: Research and report on the impact of factors on the profitability of a New Zealand primary product

Resource reference: Agricultural and Horticultural Science 3.2AR

Resource title: Can you make money from venison production?

Credits: 6

Teacher guidelines

The following guidelines are supplied to enable teachers to carry out valid and consistent assessment using this internal assessment resource.

Teachers need to be very familiar with the outcome being assessed by Achievement Standard Agricultural and Horticultural Science 91529. The achievement criteria and the explanatory notes contain information, definitions, and requirements that are crucial when interpreting the standard and assessing students against it.

Context/setting

This activity requires students to research and report on ways in which a range of factors impact on the profitability of venison production in New Zealand. The report should consider both the internal and external factors impacting on the profitability of the venison production process used in New Zealand, and on the effect of a range of factors on the profitability for the venison internationally.

Although this resource is modelling venison, it can be adapted to other primary products such as beef, lamb, salmon, kiwifruit, or grapes.

Conditions

This assessment task will take place over six to ten weeks.

The students need to work individually to gather and report relevant research information and findings. As this is a research task, students should locate their own resources in addition to those provided by you. Previous teaching and learning programmes should have developed the student’s ability to select appropriate information from primary and secondary sources and construct response to address the research question.

Resource requirements

Provision of contacts of deer farmers in the local area prepared to support student research.

Suggested websites for students should focus on venison production processes used in New Zealand. These could include:

Deer Industry New Zealand

Deer Industry News

NZ Deer Farmer magazine

[DEEResearch](http://www.deeresearch.org.nz/) - <http://www.deeresearch.org.nz/> The New Zealand deer industry's major research website.

[Cervena](http://www.cervena.com/) - <http://www.cervena.com/> What is Cervena, how to buy it, and guide to cooking Cervena

[New Zealand Deer Farmers' Association](http://www.deernz.org/?id=41) - <http://www.deernz.org> Information on the role and structure of the NZDFA, both nationally and locally.

Additional information

As the research will require research and reporting over several weeks, it would be useful to use milestones or regular checks to monitor student progress. These can be done via email or other online applications such as Skype or Zoom.

The research for this assessment can occur concurrently with the teaching and learning programme.

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| Achievement | Achievement with Merit | Achievement with Excellence |
| Research and report on the impact of factors on the profitability of a New Zealand primary product. | Effectively research and report on the impact of factors on the profitability of a New Zealand primary product. | Comprehensively research and report on the impact of factors on the profitability of a New Zealand primary product. |

Student instructions

Introduction

This assessment activity requires you to research New Zealand venison production in order to answer the question “Can you make a profit from venison production in New Zealand?” You are to report 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.

In considering the profitability you will need to research on-farm practices, off-farm processes, and other factors such as physical and climatic conditions; and social, technological (for example, value-added innovations), economic, political, and cultural factors.

The production process used for venison in New Zealand includes all stages under the producer’s control, such as production process, management practices, quantity, timing, and product attributes.

You must work independently on the collation, processing, and reporting of your research findings.

You have up to 10 weeks to carry out the research and complete your report.

You will be assessed on how effectively and comprehensively you carry out your research and report on your findings.

Task: Can you make money from venison production?

***Conduct the research***

Research relevant information on the impact of specific factors such as physical and climatic conditions; and social, technological, economic, political, and cultural factors on the profitability of New Zealand produced venison.

Plan your research process and include regular check points with your teacher. This may be via email, or online programmes such as Skype or Zoom.

Select and organise relevant information under each specific factor so that you can use it to develop an informed response to this question.

Use the information to:

* describe the impact of the factors on the production process used for venison in New Zealand
* explain the impact of the factors on the profitability of venison production in New Zealand
* analyse the processed information to justify the impact of the factors on the profitability of New Zealand produced venison.

Keep a record of your research in a logbook and save this to your school’s shared file drive. Include a reference list. Send your research logbook with your completed report to your teacher, as it may be used to assess how you have processed and integrated the knowledge you have gathered during your research.

***Prepare your report***

Present your findings in a coherent and concise manner, including a summary of key findings.

The report will include:

* Purpose – a statement that provides a clear description of your research focus
* Introduction – provides the relevant background to the topic and the research you have carried out
* Findings – presents a summary of the relevant information you selected and processed relating to the topic. This information is written in your own words, along with referenced quotes you have selected. It will include graphs and tables relating to the specific factors. In this section you will describe the impact of each of these factors on the venison production process in New Zealand.
* Discussion – an interpretation of findings based on your own processed information. This is written in paragraph form and should address each factor you have described, with an explanation of how each impacts on the profitability of venison production in New Zealand. You must summarise information that justifies your stance on the impact of specific factors on the profitability of venison production in New Zealand.
* Conclusion – a valid conclusion(s) that relates to the purpose of the research. If you make a statistical conclusion it may be shared in the conclusion, supported by your statement that justifies whether or not you can make a profit from venison production in New Zealand.
* References – referencing using a recognised style, so that sources may be verified.

Assessment schedule: Agricultural and Horticultural Science 91529 Can you make money from venison production?

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| Evidence/Judgements for Achievement | Evidence/Judgements for Achievement with Merit | Evidence/Judgements for Achievement with Excellence |
| The student has researched and reported on the impact of factors on the profitability of a New Zealand primary product when they:   * select and process information related to specific factors that may impact on profitability of venison * use the processed information to describe the impact of the factors on the production of venison * report findings in a logical manner.   For example,  Statement of purpose  To find out whether climatic conditions and political 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.  Factor: Climatic conditions  Venison from a North Otago deer farm is supplied on contract to a German supermarket chain, which requires a year-round, weekly shipment of fresh-chilled 1000 pre-packaged 500g short loin medallions with a minimum diameter of 8cm, no fat layer and a taste of “game”. Climatic conditions have meant that the grower has been unable to meet this requirement for 3 weeks in the past year due to snow. This resulted in a penalty clause of $1000 per week being applied to the sale agreement.  The German market requires natural, free-range venison that has been fed on pastures only, and with supplementary feed such as hay and silage. Venison production is not to be supported by growth promoters, steroids, growth hormones, or genetically modified feed. However, this can be difficult to achieve when there is snow on the ground and more feed is required to increase and/or maintain weight.  Current production processes for venison to meet the required product attributes of this contract, require farm rearing of hinds to be at a killing weight of at least 50kgs or live weight of at least 92kgs at one year of age or needs to be three years and under.  To provide venison short loin medallions of more than 8cm the growth of the hinds would need to be killed at the right time when the hind’s growth had produced steaks of this diameter.  To ensure the venison produced had a “game flavour”, the hinds would need to be run on rough country in the latter part of the rearing process, where the rougher vegetation, such as tussocks that they consume, would provide a “gamier” flavour to the meat than when deer consume straight pasture.  Factor: Political  The new National Animal Identification and Tracing (NAIT) scheme put out by the Ministry of Primary Industries will come into effect on 1 March 2013 for all deer farmers. This means that all deer need to be tagged with a NAIT approved radio frequency identification device (RFID) tag before that date. Each tag has a globally unique 16-digit identification number, and can be read by both RFID readers and scanners, eliminating the need for manual data entry. To change to this new identification system, it is an additional cost to the farmer. Each tag costs $4.82, a stick scanner costs $2290, and a new software package costs $435 (all prices include GST). It would take two labour units 8 hours to tag all the deer, and another day of labour to install the software package and understand how to enter the information into the NAIT system, therefore costing $571.48 ($190.49 per day per labour unit). This North Otago deer farm has 3148 deer (3148 x $4.82 = $15173), so the total initial cost to implement this scheme would cost $18,469, thus reducing their overall profit.  Findings are reported in a logical manner.  A reference list is provided.  *The examples above relate to only part of what is required, and are just indicative.* | The student has effectively researched and reported on the impact of factors on the profitability of a New Zealand primary product when they interpret processed information to explain the impact of the factors on the profitability of venison.  For example,  Factor: Climatic conditions  The usual feed requirements utilised by farmers is to graze their herds on rye grass and clover pasture with the addition of supplementary feeds, which include silage, hay, and green crops, such as kale or grain. In good feed conditions, mature hinds will lay down fat reserves; however, they will lose this condition during periods of under-feeding. If snow is persistent it can be difficult to gain access to feed the hinds and weight loss can occur trying to keep warm. If this situation arose the producer would not be able to meet the contract. The application of the penalty clause in the contract due to inability to supply venison requirements for 3 weeks due to adverse weather conditions has meant the producer has suffered a financial loss of $3000, plus the loss of income for that period of time of $11,370 ($3.79 per 500g x 1000, x 3 weeks). This has affected the income the producer will make and will result in a reduced overall profit for the year.  To ensure the venison produced had a “game flavour”, the hinds would need to be run on rough country in the latter part of the rearing process. This will ensure the venison meat has a stronger flavour, and this will make it more acceptable to European buyers. Higher demand increases the profitability of supplying this German market for the New Zealand producer.  To provide venison medallions of more than 8cm, the growth of the hinds would need to be monitored regularly over the preceding 3 months so that selection for killing is done at the right time when the muscles are at the required dimension to be cut into medallions of the required diameter. If this is not done and the producer sends produce that does not meet the market requirements then the product could be rejected by the German company leading to penalties. Penalties means that there would be a reduced profit made by the producer.  Factor: Political  The NAIT scheme ensures that each hind has lifetime of traceability, as it has the ability to continuously trace where the hind has been located from birth to death. International markets, due to issues such as biosecurity, food safety, and physical security, increasingly seek after lifetime traceability. Traceability schemes have already been adopted in other countries such as Australia and Canada, and are being considered by other major producers such as the United States. As well as ensuring that New Zealand is keeping up with our international counterparts, the NAIT scheme responds to a call by the World Health Organisation for Animal Health for the progressive implementation of animal identification and traceability systems worldwide. So initially there is a high cost to the farmer to implement the NAIT scheme, but in the long term the scheme will allow value to be added, predominantly from an ability to prove authenticity or the means of production. This means that the venison short loin medallions in Germany can be traced back to the farmer in North Otago, so German customers can find out the production process to produce the venison, and information about its attributes. Short term the farmer is not happy to implement the scheme as the cost reduces his profitability (income = $197,080 – expenses (taken from the 2011 Deer Monitoring report) = $174,225 ($155,756 + $18,469) = $22,854 profit before tax).  *The examples above relate to only part of what is required, and are just indicative.* | The student has comprehensively researched and reported on the impact of factors on the profitability of a New Zealand primary product when they:   * analyse the processed information to justify the impact of the factors on the profitability of venison * report findings in a coherent and concise manner, including a summary of key findings.   For example,  Factor: Climatic conditions  Young deer have very seasonal appetites in which there are potentially high growth rates in spring and summer and lower growth rates in winter. A feeding strategy is necessary to maximise growth in some seasons and minimise cost in others. To provide venison medallions of more than 8cm, the hinds would need to be monitored regularly over the preceding 3 months so that selection for killing is done at the right time. This requires daily growth rates of 100g, which would require 2.9kg dry matter feed rates throughout the year. Most of the feed will be provided by the pasture, however supplementary feed would be required when pasture growth is low such as the winter and summer months. A high amount of supplementary feeding is not usually used to support hind growth during the winter months, as their growth rate naturally decreases from May onwards due to the influence of day length, regardless of the feed that they receive. However, in order for them to meet this contract they would need to be fed supplementary feed to ensure that there are enough hinds of the required weight during this period of time. A typical deer farm in North Otago would not be able to support this rate of feed without considerable supplementary feeding during both summer and winter months. Feeding during the summer months would be required due to the natural shortage of pasture at this time. The cost of supplementary feeding would be $22,726 per year. This added cost would mean the projected returns of $197,080 per year (500kg x 52 weeks = 260,000kg x $7.58 per kg ($3.79 per 500g) = $197,080) would still make the production of venison medallions for German markets profitable (income = $197.080 – expenses (taken from the 2011 Deer Monitoring report) = $155,756 = $41,324 profit before tax), but the farmer would need to factor into their budget a certain number of penalties in case they would be unable to supply the market for any reason. To ensure that supplying this market is profitable, it is critical that the farmer targets achieving high live weight gains in the shoulders of the season (autumn and spring) when feed was less expensive and when the hinds will do better.  Factor: Political  The deer farmer understands the need to implement the NAIT traceability scheme and believes that the Ministry of Primary Industries is justified in making it compulsory for all New Zealand deer farmers. Traceability is the ability of the consumer to find out exactly where a product has been produced or to track ingredients through the food chain, from farm to fork. It means that New Zealand deer producers have brand and market protection of their product and have higher overseas demand due to market access, and consumer and biosecurity confidence. Consumers want to know the venison they are consuming is disease free, free of pesticides, additives, preservatives, and is not genetically engineered. These reasons increase the profitability of supplying this German market for this New Zealand producer.  Implementation of the RFID technology also provides some on-farm benefits, including:   * *accurate recording of production details about individual hinds and the ability to use this data to support both breeding and herd management decisions* * *the ability to regularly weigh hinds to kill at optimum individual weight* * *tracking of treatments* * *recording breeding/genetic information* * *automated drafting of hinds that meet pre-defined conditions.*   Therefore, long term the deer farmer believes that NAIT will provide ongoing financial benefits for their business and the initial costs will be outweighed by the flow on effects in the future. For example, VIAscan from the Alliance Group (venison processors). This technology takes a scan of the whole hind carcass and uses complex algorithms to compare the shape and colour profile with a large database of boning trial results. It divides the carcass into three sections, leg, middle and shoulder and reports a meat yield result for each. It then matches the meat with the export market. Providing product quality and food safety standards are vital for export markets. By having the NAIT scheme in place means the farmer is able to measure the performance of each individual carcass and how the herd performs against ideal market requirements.  Summary of key findings  To ensure the production of venison is profitable for a New Zealand producer, it will be important for any contracts they enter into with European companies, to allow for changes in exchange rates, traceability of deer, and unexpected weather events that could affect the reliability of supply. A production process that demands a deer farmer produce and rear hinds throughout the year, and the meeting of high standards for venison attributes relating to quality and quantity, would require a highly efficient production system on the farm, which is mindful of withholding periods and feed availability as well as off-farm influences that are beyond producer control, such as exchange rates and political factors.  Valid conclusion that relates to the purpose of the research.  Climatic and political factors like snow and NAIT do impact negatively on the profitability of New Zealand produced venison. However, in regards, to the climatic conditions the farmer can use various management practices to try and limit the effects of them on productivity. With political factors, such as NAIT there is no getting away from the implementation of it due to it being compulsory but farmers need to look for the positives that will come with it once it is in place.  *The examples above relate to only part of what is required, and are just indicative.* |

Final grades will be decided using professional judgement based on a holistic examination of the evidence provided against the criteria in the Achievement Standard.