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SCHOLARSHIP EXEMPLAR



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

Scholarship 2015 Agricultural and Horticultural Science

2.00 p.m. Wednesday 2 December 2015

Time allowed: Three hours

Total marks: 24

ANSWER BOOKLET

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

Answer ALL questions from Question Booklet 93105Q.

Write your answers in this booklet.

Start your planning and answers to Questions One, Two, and Three from pages 2, 8, and 14 respectively.

If you need more room for any answer, use the extra space provided at the back of this booklet.

Check that this booklet has pages 2–24 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

QUESTION ONE: EXPORTING IN A GLOBAL MARKET (8 marks)

The Building Export Markets report confirms the government's goal of increasing the contribution of exports to the economy from 30 per cent to 40 per cent of GDP by 2025.

The Minister of Finance says this is a challenging target, and that achieving it will require a concerted effort by New Zealand over many years. It will also require the continued development of new and expanding export markets. *long term*

Text source (adapted): <http://www.beehive.govt.nz/release/govt-releases-first-progress-report-export-markets>

Issues associated with achieving this goal include:

- access to international markets *in order to develop + expand, access is required 1st.*
- venison Neth.
- *buy* commodity versus value-added exports
- aspects of the "New Zealand story" – e.g. country of origin and traceability
food safety.

*baseline
mc.*

Consider TWO of these issues and discuss how New Zealand's agricultural and horticultural exports might contribute to this goal, including both the challenges and opportunities. Refer to at least TWO specific primary production systems in your answer.

<i>Market Access + Value added</i>		<i>PLANNING</i>	<i>Value added.</i>										
<i>Trade policies.</i>	<i>how will they affect exports and the goal to increase exports</i>	<ul style="list-style-type: none"> <i>Intro</i> <i>Dairy</i>: - Value added - Market <i>Venison</i> - Value - Market 	<table border="1"> <thead> <tr> <th><i>Fonat</i></th> <th><i>Tatua</i></th> </tr> </thead> <tbody> <tr> <td>12.5 13/14</td> <td>8.40</td> </tr> <tr> <td>14/15</td> <td>4.40</td> </tr> <tr> <td>15/16</td> <td>4.60</td> </tr> <tr> <td></td> <td>6.00</td> </tr> </tbody> </table> <p><i>processing stage.</i></p>	<i>Fonat</i>	<i>Tatua</i>	12.5 13/14	8.40	14/15	4.40	15/16	4.60		6.00
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15/16	4.60												
	6.00												

~~Value Added~~ *Dairy, Venison*

Dairy: Fonat vs Tatua
niche product
~~product with a small customer base but higher returns~~
customer willing to pay more
some raw product,
processed differently.

challenge now Fonat also
Lactose won't be
so "niche" - surplus?
no limited supply →

"adding value by
branding, letting
them know its
different."

differentiating

Market Access

FTA - China, Aus?
TPP - currently being negotiated.

Venison:

capitalising late autumn-early spring
Netherlands
15000kg → 1200 dutch restaurants

promoted
branded as "chilled" premium
marketed venison

3 new cuts

educating chefs how to cook
not just "wild game" most
consumers would think

challenge once its a familiar meat how will
value continue.

Open - expand, trial new markets this one
was successful.

To increase the contribution of ~~New Zealand~~ New Zealand exports to the economy from 30% to 40% of GDP by 2025 is a massive economic goal, which has several potential issues. New Zealand's export industry will have to look at aspects ~~that will~~ of their product that will result in increases to the returns received as a producer, a processor and marketer. Value may be able to be added to a commodity product in hopes consumers will be willing to pay a higher price. Before the product reaches the consumer though, access to other international markets is required before expansion can occur.

Primary industries contributed well over half of New Zealand's exported goods in 2014. This included dairy products at 29% of the \$50.3 billion export value. Niche products and markets are a way of increasing value to a ~~product~~ commodity bulk product. This means creating products that different, that have a smaller customer base but reap higher returns.

Creating a new niche product occurs at the processing stage within a production system. The producer does not need to change ~~as the~~ their product although the goal is for the added value to filter back from the high paying customer to the producer along the production chain.

Currently only 10-30% of value added to a product gets back to the producer.

An example of adding value to a product through niche innovation is Tatua vs. Fonterra. Fonterra is New Zealand's largest

milk supplier, with Tatua a smaller operation located in Waikato with a restricted number of contributing farms. However the dairy payout for the producers for the last several years is as follows:

Year	Fonterra	Tatua
13/14	\$8.40	\$9.00
14/15	\$4.40	\$7.10
15/16	\$4.60	\$6.800

Tatua, although the smaller producer, manages to sustain a higher price over the last 3 years, where fluctuations were inevitable.

Tatua and Fonterra produce products using the same raw product, except Tatua thrives in niche products.

Dairy Whip™ is the brainchild of the Tatua company. The cream in a can is not produced in bulk so value can be added as consumers seek to purchase it for the convenience of whipped cream without needing a kitchen on hand.

Lactoferrin is also known as pink gold. It is an ingredient derived from milk whey powder - needing 10,000 litres of milk to produce 1 kg of the product. Lactoferrin is known for its medicinal and good health benefits. This substance is found in breast milk as a newborn baby consumes approximately 3 grams per day. The Asian market is very interested in lactoferrin with Japan using it in pills to combat bad breath.

Tatua has been extracting lactoferrin in large export quantities for several years now. Resulting in another successful niche product which has allowed the raw product of "milk" to be used for a product with added value to its name. Something that the industry must continue to explore if the governments goal for increase in economy due to exports is chased.

A challenge ~~that~~ that nears its head is too many companies trying to add the same value to their niche products. For example Fonterra has just invested \$11 million in its Flaxton, Waikato plant so it has the capacity to extract export quantities of lactoferrin.

The issue with this is ~~the~~ sustaining the high value lactoferrin receives even with an increase in supply.

The dairy industry needs to control and/or restrict the amount of lactoferrin produced before the "pink gold" gets in surplus.

A way to combat this ~~the~~ potential surplus and subsequently increase exports and contribute to NZ's GDP, is accessing new international markets. Market access is an issue that is ~~the~~ critical in terms of reaching the goal by 2025. In order to expand and development New Zealand's exports, access to a market in which that product will thrive is required. There is no point creating and investing into a fabulous niche product like lactoferrin if the high value product has no market to be

solded into and potential realised. //

Free trade agreements (FTA) like that with China are essentially to the ~~the~~ continued development of our exports. The Trans Pacific Partnership ~~is~~ (TPP) is currently being negotiated between New Zealand and several key countries. These agreements will be critical in allowing the nation's economy to increase 10% through exports. These deals assure our producers back in New Zealand that there are markets that can be easily accessed. This reassurance means the production systems are able to continue or even expand in the amount of product being produced. //

Another example is Cervena Venison.

- trialled "chilled" venison in Netherlands
- 1200 dutch restaurants took 15,000kg of venison
- NZ venison industry educated high end chefs
- made sure to differentiate the product
- this was done by new promotion and branding
- ensuring clear "NZ" brand, premium meat
- along with new cuts trialled
- resulted in value being added to a product.

- the NZ venison industry has accessed a new market with their newly branded product.
- opportunities include ~~as~~ starting more trials like that ~~at~~ in Netherlands elsewhere. //

- Very successful so with this knowledge, the industry can look to expand again.
- other European countries
- new markets //
- ~~Market access~~ Market access isn't just getting the product into the country. It's about reaching a local market - restaurant, & prime supermarket shelves. //

The main NZ industries need to follow Cervena Venison's footsteps if they want to achieve market success. More successes would greatly contribute to the government's export goal.

- Industries need to work together
- combine efforts from all stages of production system chain
- integrate new niche, different products slowly, like the Netherlands trial.
- nurture the new markets, educate
- value added initiatives compliment new markets as never seen before products.
- get the consumer on side with the product as at the end of the day it is what the consumer is willing to pay decides the value of the product and if the industry's investment was worth it. //

QUESTION TWO: SUSTAINABILITY AND REGIONAL COUNCILS (8 marks)

The Minister of Primary Industries has said that the introduction of the new national environmental standards for lakes and rivers will balance economic growth with environmental sustainability. *Where economic come in to it?*

"It's not an either / or situation – we need both. Primary industries contribute a significant proportion of our merchandise exports and largely depend on fresh water, while tourism also relies on the beauty of New Zealand's water bodies. We all want sustainable and profitable primary industries. That will mean changes to some of our farming practices, but I know farmers are up for the challenge."

Source (adapted): http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11286994 (accessed 3 July, 2014)

With reference to this statement, discuss the role of regional councils in balancing the different aspects of sustainability (economic, social, and environmental) with the requirements of the stakeholders involved.

econ. The stakeholders include:

- producers *farmers - landuse*
- local communities *businesses - families*
- central government. *regional council. local authority*

social *growth*

Reg Coun.

What?
Why?
Goal?
Respons

RMA
educate/ impose
implement
monitor
prosecute.

TDC - environmental planning
if they do this it keeps social & econ continue 200 intensify
main concern is eco \$80mil 9275
I know if they meet it will be balanced by flow on of social - challenge is environmental.

PLANNING

"sustainable regional well being"

Env, Eco., Soc.

Importance to ensure all 3 aspects are balanced as a region is made up of a range of stakeholders, all of whom have differing agendas.

New standards for lakes/riv

hoping to balance economic growth w/ environsus.

can't sacrifice one or other as

New Z sectors like primind + tourism rely on both.

(central govt.)

The environ is in everyone's best interest
Socially so many jobs are created

Up to regional council for that to happen, to reach sustainable + profitable primary industries w/o negatively impacted en.

Create policies for farming - monitor - enforce - prosecute.
wait for change.

{reg. counil.}

main stakeholders @ local level.
may be a minority but land use control over such significant area of land

A regional council is one of two complementary sets of local authorities part of the central government's scheme for regions. ~~Under the Resource Management Act~~ They act under the central New Zealand government. Under the Resource Management Act, regional councils are given the authority and ability to prosecute groups or individuals not abiding by their regions bylaws and policies. The regional council also educate, impose, implement and monitor progress around the region, ~~to ensure they maintain responsibility for the environment~~ to ensure they maintain sustainable regional well-being. Other responsibilities include managing freshwater use, air, land and coastal waters as well as rivers, flood issues and mitigating soil erosion.

Importantly, the regional council is not just all about environmental aspects of the region. "Sustainability" goals also include the local economy and social sides. It is greatly important to ensure all three aspects of sustainability are balanced within a region as the area is composed of a range of stakeholders, all of whom have differing agendas //

The main agenda for the central government is economic growth for the country. However they must be seen to engaging in other areas of the nation's well-being. The Minister of Primary Industries (MPI) has realised that for New Zealand's economy to continue to grow, and social benefits continue to arise, the environment must not be

sacrificeel. by stating "we need both" and not environmental benefits or economic growth, the government has acknowledged change to ~~freeze~~^{freeze} the largest landuse sector is inevitable.(dairy). //

The new national environmental standards^{are} being introduced with the idea^{that} economic growth and environmental sustainability will be balanced. However, although ~~these~~ are central government initiatives, it is up to the regional councils of New Zealand to ~~the~~ create the change, the government so desperately craves. It is the role of a regional council to enforce policies that have created from the guideline and standards of the government. The baton falls to the regional council to reach sustainable and profitable primary industries without negatively impacting the regions environment.

~~An example of a regional cou~~ Regional councils, especially those in areas with large involvement in the agricultural and horticultural sector, are expected to monitor, enforce and prosecute if need be those farms and orchards that are not following the rules. Because for ~~the~~ change that the government wishes to occur, the practises and processes of the main stakeholders needs to change. Although a n //

Although a minority in some regions, farmers are often the most important stakeholder due to the ~~amount~~ landuse. They own and control such a large proportion of land within a region. ~~that the coucils must~~ With

this amount of land is the high possibility of including waterways like ponds, lakes, rivers, streams and aquifers.

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The Taranaki Regional Council realised nearly 20 years ago that primary industries, like dairy, were vitally important in maintaining a socially and economically stable region. They knew the development and scale of farming in Taranaki over the next 20 odd years would be increasing and benefitting the region in ways no other industry could. Therefore an initiative began in 2001, where all waterways were to be fenced off from stock, and riparian planting was to occur.

The Taranaki Regional Council (TDC) looked to the future and saw that intensification of farms was inevitable, however this meant the environment - in particular the water - may be negatively impacted.

Fencing and planting waterways is a way of minimising the amounts of effluent leaching into our waterways. In doing so pollution would potential decline or remain stable as stocking rates increased.

It was not until 2015 that the NZ government has said "all waterways are to be fenced" as a law. The TDC had the initiative and saw responsibility in ensuring the environmental sustainability of the region remained in tact as intensification of farms occurred.

Taranaki as a region can now proudly say they are sustainably striving for ~~the~~ a sustainable balance of economic growth, social benefits and environmental sustainability through the help of their regional council. //

Another example is Hawke's Bay Regional Council (HBRC) and their involvement in the Ruataniwha scheme.

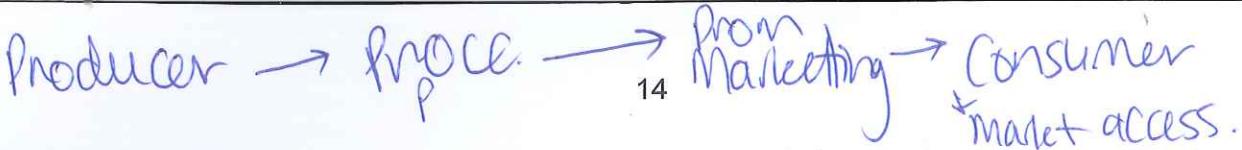
Ruataniwha is a dam storage scheme that is close to be signed off and started as 2015 closes. The HBRC has invested \$80 million into the scheme which is estimated to cost \$275 million. This is a huge investment for a regional council, however with their responsibility to achieve sustainable regional well-being, they have identified a way to balance the three aspects of sustainability //

The HBRC has played a supporting role to the HB farmers who desperately suffer from long periods each year. The Ruataniwha dam will allow these farmers a reliable water source for irrigation year round.

The use of irrigation in the HB increases the value of a hectare of pasture (by \$1500/ha). Along with this economic benefit, the Ruataniwha dam itself contributes to the Ruataniwha Dam generating an estimated \$230 mil/yr to the region, as well as 2000 jobs during construction. Not only has the HBRC looked to the future for long term investment returns, but also short term social benefits for the local community.

The river at which the dam will be built now has the ability to keep a minimum flow year round, without drying up and negatively impacting the aquatic ecosystem. This is an environmental win also for the dam and the HBC's huge investment for long term ~~sust~~ regional well-being //

Therefore the Central Government has the nations interest at their focus as well as consistent economic growth. In comparison, a regional council looks to benefit as many stakeholders as possible, including producers, NZ govt and local businesses, with their policies and plans. Their overall role is to support and educate the communities in order to achieve and maintain sustainable regional well-being which starts with a ~~balanced~~ environmental, social and economic aspects all being balanced. //



QUESTION THREE: CONTEMPORARY ISSUES (8 marks)

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Choose ONE of the following contemporary issues:

- changes in land use
- biosecurity
- animal welfare.

pork + dairy

With reference to TWO nationally significant primary production systems, discuss the impacts that the selected issue has had on each primary production system, and the responses from the industry.

PLANNING

Animal Welfare

why important?
Who does it affect?

Producer → Processing / Pack → Marketing
Promotion
Branding → Consumer.

Pork, front man for NZ Pork
shock to consumer's trust.

Mike King Scandal 2008 - PB Sunday.
National outrage

People who usually have blind eye couldn't.
Trust lost.

Pork was seen as an issue meat - chose alternatives.

Responses

Pig Care accreditation
Code of Animal Welfare.
Positive promotion of pork in
videos "transparent"
→ 2018 sow crates gone/ban

Dairy

Recent bobby calf scandal in Nov 2015.

Video - very emotive.

Mother cows distressed

Poor mistreatment of bobbies

Responses

As issue so recent we can only estimate damage
→ China already knows may have effect on "trust".

expect similar response to M.K pork LINK

however challenges
↳ can't "ban" bobbles 2 mil / yr.

Intro

Pork - what
- responses.

Dairy - what
- responses.
challenges.

↳ filters back to producer price being affected even though it was an issue down the chain of proc.

Animal welfare is a contemporary issue in the agricultural sector, such as such as pork and dairy industries. It becomes an issue when rules and laws are not abided by and other stakeholders in the production system are made aware. Usually media and journalism plays a major role in animal welfare issues like the piggery scandal and the more recent bobby calf outrage //

Mike King is a familiar face in New Zealand households. After all he was the celebrity front man for New Zealand Pork for a number of years. However from 2008 onwards he would be now ~~be~~ associated with the ~~pig~~ piggery scandal he helped uncover. There was national outrage when Mike King and the TV One team aired a horrific video taken by a hidden camera of a pig farm. It showed caged pigs, distressed and in generally unhygienic conditions //

The reason so much unrest was caused was because of the trust New Zealand consumers had in ~~the~~ one of the major primary production systems that lead to brilliant, juicy NZ pork ribs or loin. New Zealand consumers assume high quality products. They expect the product to be produced from high grade systems with assured animal welfare. So it was a major shock to the nation when the trusted NZ Pork guy had gone a full 180° and changed his views on the pork industry //

Many followed suit in the aftermath of the scandal. Pork became an "issue" meat, with other alternatives being purchased. Leaving the Pork Industry to scramble in order to save many other farms who did in fact supply pork to butcheries and supermarkets that had a high standard of animal care up until its humane death. //

With the trust lost, the New Zealand Pork Board came up with some solutions in efforts to reduce the impact on producers and processors as it was at the consumer end where things were hitting the fan. The industry targeted the area of production system they thought would generate the most significant results: Marketing, promotion and branding. All three aspects key to achieving trust from the consumers once again. //

PigCare accreditation alongside a Code of Animal Welfare was created for the industry. The "PigCare" was a branding scheme which allowed the product to be stickered - to visually remind consumers that this product came from a pig farm that abided by the Code of Animal Welfare. //

Alongside the PigCare accreditation, the industry also pushed positive promotion of the product. Revamping websites, new advertisements for media, all in

the name of regaining the consumers trust. This was key as the consumer is as a vital if not critical part in the production system. Videos of organic and indoor piggeries were circulated to show "Transparency". Without sugar coating the issue at hand, the industry knew to respond in a way that would allow the consumer to put trust back in the sector and its product when they felt sufficiently assured.

The very recent boldy calf scandal is expected to follow suit of the NZ Pork industry response to some extent. In the last week of November 2015, a video was aired on TV1's Sunday programme displaying disturbing images of mistreatment of hobby calves (young, unwanted calves intended for the meat works). Stakeholders from all parts of the production chain were appalled. The producers and processors even somewhat offended as this mistreatment was reassured to be a 1% minority.

~~Although~~ A short term response that may act as a message to the dairy industry will be the actions of the Ministry of Primary Industries (MPI). MPI needs to be seen to be fixing the problem in order to minimise damage to their largest sector. An urgent investigation was launched immediately with hopes in finding the farm and factory workers responsible for this lack in animal welfare.

Although no long term responses or impacts have been able to advise yet, ~~they are~~ expected to be similar to that of the Pork Industry's clean up. China, New Zealand's biggest dairy trade partner, ~~may~~ and their response to the somewhat emotive bobby calf video may play a large part in the damage estimated to be caused. While the issue occurred at the processing stage of the production system, farmers are most likely be affected as the damage filters back from consumer outrage //

The difference between the scandals of these two major industries is the challenges the dairy industry is expected to face. With over 2 million unwanted, ~~un~~ bobby calves per year, there is no ~~an~~ easy fix solution in the foreseeable future. Unlike the Pork industry who was able to create new rules and regulations with animal welfare the focus, like all sow crates to be banned and not used by 2018. Bobby calves ~~will~~ and their destination will stay the same, it is the treatment and transparency that the dairy industry need to address. SAFEC and other animal activists also need to understand that videos like that of last weeks do not reflect the entire industry. However the impacts of one farms stupidity will no doubt affect a population of farmers via the primary production system //