



A Classroom View of New Zealand's Primary Industry

Kellogg Rural Leadership Programme

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Becs Lough

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## Executive Summary

We certainly can't argue with the fact that New Zealand has recognised the issues around the future of the Primary Industries workforce. We read about it every day, we have data to prove it and a sector constantly talking about it. Initiatives throughout the country have been set up to try and combat the issue but do we need a more central collaborative solution to the problem?

*"Education is the most powerful weapon which you can use to change the world"*

*– Nelson Mandela*

With our Primary Industry requiring 50,000 additional skilled workers by 2025 and the world having 10 billion mouths to feed by 2050. The importance of education and skills has never been greater. For many years in New Zealand, Agriculture Education and Training has been a significant topic of discussion. Our future primary sector sits with the young New Zealander's of today. Generating passion and knowledge early will be a powerful weapon of use in the industry.

The aim of this report is to better understand how students make decisions around career choice and to evaluate the impact that an NCEA Agribusiness study programme in New Zealand has had for the Primary Industries.

The method used for this study is a qualitative and thematic analysis on the current situation, the history and the issues that we are faced with around Agricultural Education in New Zealand. Thematic analysis allows identification of different perspectives around the issue and helps to recognize some possible outcomes. Interviews with Kerry Allen, Agribusiness Project Curriculum Director and Mel Simmons, Agribusiness Advisor were used to gain insight into a newly developed NCEA Agribusiness programme which describes the key challenges as being:

- Perception of the Primary Industries
- Student Attraction
- Teacher Education & Support
- Assessment levels
- Cross Sector Support

With the industry undergoing rapid change and innovation the ability for people to keep up is challenged. The resources and support within our education sector appear to be coming up short. The complexity around education required is quite significant.

When we look at the numbers it is alarming to see where our future knowledge is coming from, what the future of our industry looks like and the pressures we are going to be placing on the people we leave behind to produce off our land and provide science based research and advice. Key recommendations as a result of this research are as follows:

- Offering of Scholarships for career changes to encourage teachers to train in the Agribusiness area.
- Generate appeal for Primary Industry workers to cross over into education to influence the next generation
- Ensure the promotion of job variety and prosperity within the primary industry is far reaching e.g. students, teachers and parents
- Ability for universities to be able to train teachers in the Agribusiness subject
- Explore the option of being able to integrate throughout the main subjects of the NZ curriculum.
- Create strong collaborative working links between the Ministry of Primary Industries and the Ministry of Education

Recognising the primary sector workforce issues isn't the hard part but coming up with successful solutions is. The ability to help alleviate challenges continually faced by initiatives like the Agribusiness programme lies within the industry and could be the key that unlocks the door.

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## Background

### New Zealand Education System

New Zealand's education system is based on a student-centred pathway that provides progression and continuous learning at three different levels. The levels of education are; early childhood, primary and secondary and further education which encompasses higher (tertiary) and vocational education.

The Ministry of Education advises the government on the education system with their purpose being "we shape an education system that delivers equitable and excellent outcomes" (New Zealand Government, 2019). The Ministry of Education creates the national curriculum and reviews it to ensure it is delivering results that are in line with their purpose for New Zealanders.

### New Zealand Curriculum

The New Zealand curriculum is established through The Ministry of Education and interested parties are used as reference groups. Its vision is "young people who will be confident, connected, actively involved, lifelong learners" (The New Zealand Curriculum, 2007). These four key areas give purpose to the main subjects that the national curriculum is built around; English, arts, health & physical ed, learning languages, mathematics + statistics, science, social science & technology. Assessment is used in most situations to improve student learning and help to track progress (The New Zealand Curriculum, 2007).

### Funding

There are four different types of schools in New Zealand based on funding, which impact the type of education a child will get. State Schools are government funded, free to New Zealand citizens and follow the national curriculum (Wikipedia, 2019). Private Schools are funded on tuition fees paid by parents and some receive a little bit of government funding. They have their own curriculum and are not required to follow the national curriculum outlined by the ministry (Wikipedia, 2019). State-integrated schools are private schools that have decided to integrate back into the state education system as a result of a near collapse in the private system and the need not to flood the state system. There are tuition fees paid, but not to the same amount as a private school and government funding is received as well

(Wikipedia, 2019). Charter schools are also an option and are fully state funded however they do not have to operate within the state system and teachers are only required to undergo a police vetting. There are 5 charter schools in New Zealand, and they tend to have a smaller roll (Wikipedia, 2019).

Government funded schools are on a per student basis and can also depend on the decile level that the school has been deemed by the Ministry. In 2017 the national government budget was \$13.3 billion, and this is projected to be up to \$14.4 billion in 2021 (Wikipedia, 2019).

## Agricultural Education in New Zealand

The significance of Agriculture to New Zealand has always been known. In the early 1870s discussions were being had about the need for scientific and technical education designed for farmers (Peden, 2019). Between 1899 and 1915 the Department of Education introduced practical science and agriculture subjects to schools (Peden, 2019). After World War II Agriculture became a school certificate subject and grew from there to become a bursary exam subject by mid 1990s (Allen, 2009).

Some schools purchased farms to help with the training and amongst these schools Agriculture education was very popular. The ongoing challenge for the subject was access to resourcing for teachers, so in 1993 the Horticulture, Agriculture Teachers Association (HATA) was established (Allen, 2009). The idea behind the association was to give teachers access to self-produced resources all from voluntary efforts of members of the association. Today the association has around 330 members with around 150 of those active (Allen & Simmons, St Paul's College Agribusiness Programme, 2019).

Tertiary education also progressed in New Zealand in the 1900s with the establishment of Lincoln and Massey University. Lincoln University became New Zealand's sixth independent self-governing University after a long relationship with Canterbury University (Peden, 2019). In 2007 the university farmed 6 properties equating to 3462ha used for a range of educational purposes. Massey was founded in 1926 on its site outside Palmerston North and officially became a university in 1966 (Peden, 2019). The government purchased 330ha



for the college to help with its agriculturally based studies. By 2007 the University ran 2200ha of farmland for research and learning purposes (Peden, 2019).

In more recent times the primary industries workforce has come under scrutiny with high export targets, environmental challenges and an increasing population, the need for workers has never been greater. Whilst understanding the practical and scientific nature of what goes on behind the farm gate is integral, the value chain within the industry is important for its success (New Agribusiness Courses for NCEA Level 2 & 3, 2019). The job opportunities throughout the value chain makes for an exciting, innovative, growing sector that should be an easy sell to young New Zealanders.

## Objectives

The objectives of this study are:

- To better understand decision making by school students that leads to careers in the Primary Industries
- To evaluate a current initiative within the education sector that is focusing on the research that has been done in terms of career choices and perceptions of the primary industry.
- To identify the challenges still faced for a programme trying to tackle the primary industries labour shortage

## Method

The research used for this report comprised of a literature review, thematic analysis and interview. The literature review allowed an understanding of the educational system, decision making, and challenges still being faced across the primary industry and educational sectors. It has provided facts and figures around the primary industry workforce.

Thematic analysis helped to focus on strengths and weaknesses to Primary Industry and Education across both sectors, helping to draw out beneficial recommendations.

The opportunity to gain insight with leading, passionate professionals behind an award-winning educational Agribusiness programme allowed for an understanding of successes and ongoing challenges. It shed light on how best to overcome these challenges with the end goal to generate greater career opportunities for young New Zealanders.

## Primary Industries Workforce

For the primary industries to meet the challenges and opportunities that it is faced with today and in the future the need to attract people with diverse backgrounds and different skill sets will be crucial to its success. It's important to understand what the workforce looks like and where the changes have occurred.

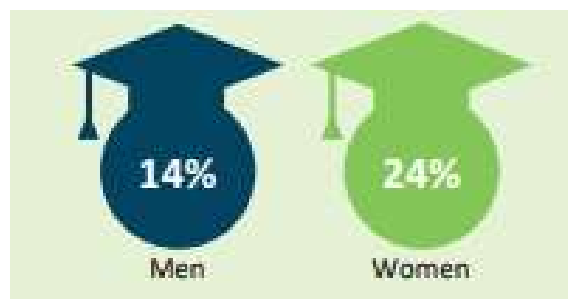
MPI conducted some research to help provide a snapshot of the industry in 2016 to allow for a better understanding and overview. The information is managed by Statistics New Zealand from Census data, tertiary education data and industry training organisation data (Ministry of Primary Industries, 2019).

Figure 1 demonstrates the employment count from 2002 to 2016 for the primary industries. The increase in numbers from 2012 to 2016 have been attributed to the support services roles which couldn't be broken down into specific areas as they cross section throughout the industry from forestry, to dairy and the red meat sector.



**FIGURE 1 EMPLOYMENT COUNTS FOR THE PRIMARY INDUSTRIES FROM 2002 TO 2016 (MINISTRY FOR PRIMARY INDUSTRIES, 2019)**

Figure 2 shows the percentage of men and women who work in the Primary Industries that hold a degree level qualification or higher. The data suggests that there is an upward trend in numbers holding a qualification.



**FIGURE 2 GENDER PERCENTAGE OF PRIMARY INDUSTRIES WORKFORCE THAT HOLD A DEGREE LEVEL QUALIFICATION OR HIGHER (MINISTRY OF PRIMARY INDUSTRIES, 2019).**

Generating and engaging interest for students to head down the path of tertiary education will be paramount to ensuring the trend is increasing and we are able to hit the government's target of 50,000 more workers by 2025.

## Decision Making by School Students

Understanding how students decide around a career or further educational study is crucial in trying to tackle the primary industry work force issues. The old story of demand and supply is vital for schools and educators to apply resources and funding effectively. If the demand isn't there it is hard to put a case forward for the requirement of an Agriculture & Horticulture science teacher for example.

A study initiated by Primary Industry Capability Alliance (PICA) and conducted by Colmar Brunton in November 2016, examined secondary school student's awareness, consideration and attitudes towards a career within the primary industries. The sample size was 470 and was based on students who were completing or had completed their schooling years in urban areas. The study focused on better understanding what influences their career decision making, guiding them to tertiary study and a career within the primary sector (Colmar Brunton, Millward Brown Company, 2016). The key areas of emphasis for decision making are based around awareness of opportunities, influential people and motivators as well as attitude towards the sector.

The study showed that 85% of the students had heard of the primary industries but only 16% indicated that they knew a lot or a fair amount about the industry. The most common definition given by students was a close link to farming/agriculture (Colmar Brunton, Millward Brown Company, 2016). In line with this definition when asked about occupations within the industry the common ones mentioned were farm worker (63%), forestry worker (27%) and fisheries worker (20%). The research showed that there was very low consideration of the primary sector with only 22% having considered or considering a career in the primary sector (Colmar Brunton, Millward Brown Company, 2016). When students were provided with a list of potential primary industries jobs the most considered job was Robotics Engineer with 16% saying they would plan to do this job or seriously consider it.

The conclusion made around the students' awareness section of the research was that it isn't about the industry itself it is about the jobs that are on offer (Colmar Brunton, Millward Brown Company, 2016). Once students can break pass the mould of agriculture and horticulture and understand that there is more to the industry, then the future for the sector is looking a lot brighter. It is important to point out that the job of robotics engineer

wouldn't have been on a primary industry job list 50 years ago, but this highlights the ever-changing nature of the primary sector.

In terms of students' attitude toward the primary sector there was high agreeance on a lot of the positive things about the industry with 75% agreeing to the statement "The primary industries make a substantial contribution to New Zealand's Economy" (Colmar Brunton, Millward Brown Company, 2016). What was more alarming were the statements that students agreed least with. A staggering 45% felt that the primary industries didn't offer equal career opportunities for men and women. There was also 41% that agreed with the statement that high achieving students don't enter careers in the primary sector (Colmar Brunton, Millward Brown Company, 2016). Being able to provide students with evidence to dismiss these misconceptions is going to play a big role in the prosperity of the sector.

Influential motivators were the final section of the research that was looked at in understanding decision making that leads to careers in the Primary Industries. The study indicated 9 highly motivating factors (Colmar Brunton, Millward Brown Company, 2016);

1. Good employment opportunities (skills shortage, growth, study leads to a job)
2. International connections (opportunity for travel)
3. Variety (learn new things, never bored)
4. Intellectually stimulating/ Challenging (solutions based, research opportunities)
5. Tertiary study options (scholarships and summer job opportunities to reduce student debt)
6. Freedom (flexible hours, be your own boss)
7. Growing industry (exciting developments and lots of change)
8. Technological skills (developing and applying technology)
9. Connecting with people

The results of the study showed that factors 4, 5, 6, 7 and 9 are not strongly connected with the Primary Industries (Colmar Brunton, Millward Brown Company, 2016). The industry needs to promote these factors and provide the evidence that it can offer these things to students who choose a career in the sector. In terms of influential people, parents were motivators alongside people who are working in the types of jobs that the students are interested in. This is important to consider as we should be utilising the people currently

working in the primary industries to communicate the benefits and the highly motivating factors that the sector can offer. It also capitalises on the importance of the opinion of parents if their perceptions of the industry are narrow then they will not be positive influencers when it comes to student's decision making on future careers.

## NCEA Agribusiness Programme

The NCEA achievement standards Agribusiness programme was first taught at St Paul's Collegiate, Hamilton in 2014. The standards were then trialled by 11 other lead schools throughout New Zealand in 2017 and as of 2018 have been made available to all schools (Allen & Simmons, St Paul's College Agribusiness Programme, 2019). St Paul's have been a driving force behind the programme with 105 students currently studying Agribusiness at level 2 and 3 out of a roll of 750 it makes it the third biggest subject of study at the school (Ministry of Education, 2019).

An advisory group was established to ensure links were generated with industry and collaboration goals were being achieved, with representatives from the following organisations; DairyNZ, Beef + Lamb NZ, Gallagher, BNZ, Zoetis, NZ National Fieldays Society, AGMARDT, Greenlea Premier Meats, Waikato Milking Systems, AgrowQuip, Waitomo Petroleum, Campbell Tyson, Tetra Pak and Fairview Motors (St Paul's Collegiate School wins Prime Minister's Education Excellence Award, 2018).

A survey sent out to parents came back with results that indicated they didn't feel the rural sector needs were being met in terms of education. This gave the ammunition required to pull together an Agribusiness programme with a tremendous amount of support from the top down within the school (Allen & Simmons, St Paul's College Agribusiness Programme, 2019).

The Agribusiness programme is taught under four strands;

- Science
- Innovation
- Marketing
- Management + Finance

Teaching under these four strands focuses on future proofing, innovation and growing value which are all central to New Zealand's primary sector. Peter Hampton, St Paul's College Deputy Principal was quoted in the Education Gazette as saying "Agribusiness has a massive future. Food is our top export. It's an exciting field with real life relevance. And there are 45000 jobs out there waiting for graduates" (Ministry of Education, 2019). This aligns seamlessly with the NZ curriculum vision of "young people who will be confident, connected, actively involved, lifelong learners" (New Zealand Government, 2019) by giving them exposure and opportunities to witness the value chain within the primary industry.

## What is Agribusiness?

Defining Agribusiness proved to be more difficult than anticipated. With Google defining it as "agriculture conducted on strictly commercial principles and the group of industries dealing with agriculture produce and services required in farming" (Wikipedia, n.d.). In contrast to this definition the Centre of Excellence for Agricultural Science and Business have defined Agribusiness as "a course of study that integrates all the primary industries and businesses. Primary Industries comprises a group of sectors including; agriculture, aquaculture, dairy manufacturing, equine, forestry, horticulture, seafood and sports turf that form the basis of modern primary production." (New Agribusiness Courses for NCEA Level 2 & 3, 2019). Two quite different definitions, however with the creation of the Agribusiness programme and the development of the four strands in which it is taught under, it is clear there are a lot more links in the chain than just the agriculture chunk.

## Assessment

The idea behind the programme was to add achievement standards rather than just unit standards which had been traditionally, the way Agriculture and Horticulture science subjects were assessed (Allen & Simmons, St Paul's College Agribusiness Programme, 2019). Achievement standards are NZ curriculum based and often allow students to get a not achieved, achieved, merit or excellence grade compared to a unit standard which is generally competency based and is either an achieved or not achieved result (New Zealand Qualifications Authority, n.d.). Currently there are no external NCEA examinations specifically for Agribusiness. The standards are combined with standards in other subjects

like Biology and Business Studies to make up a full programme to gain enough credits (Ministry of Education, 2019).

## Experiences

A big part of the programme is the interaction and exposure to different parts of the primary sector. The sector itself has become more open to this sort of interaction however there is still room for improvement in this area (Allen & Simmons, St Paul's College Agribusiness Programme, 2019). To put some perspective around the interactions that the Agribusiness Programme is providing to its students an example that was mentioned in the education gazette showed some Dunedin Agribusiness students on a three day trip to Mt Difficulty Winery in Central Otago where they were able to get a first hand experience of the challenges that present themselves whilst running, maintaining and growing a successful business (Ministry of Education, 2019). Dr Craig Preston, Director of Agribusiness at John McGlashan College explains that “these experiences integrate theory and practice, and let the students taste businesses in a real-life context.” (Ministry of Education, 2019). This is just one of the many practices that the students who study the Agribusiness programme get to be involved with.

Insight into how students felt about the programme and the impacts that it has had on them when it comes to the decision-making process about a future career have been documented. A St Paul's Agribusiness student said that after spending some time visiting dairy farms, talking to vets, sharemilkers and other major export players like Fonterra “that it was very useful. I found out I didn't want to be in those areas. Crossing off boxes to clarify your final goal is actually important in making a final choice. My interest is in the finance side”. (Ministry of Education, 2019) The insights provided by the Agribusiness programme have given the ability for educated decisions to be made when it comes to career choices.

The achievement standards on offer for a student studying Agribusiness at level 3 are outlined below providing some context and understanding around what the programme is aiming to achieve (New Zealand Qualifications Authority, n.d.).

- Demonstrate understanding of how internal factors interact within a business that operates in a global context.



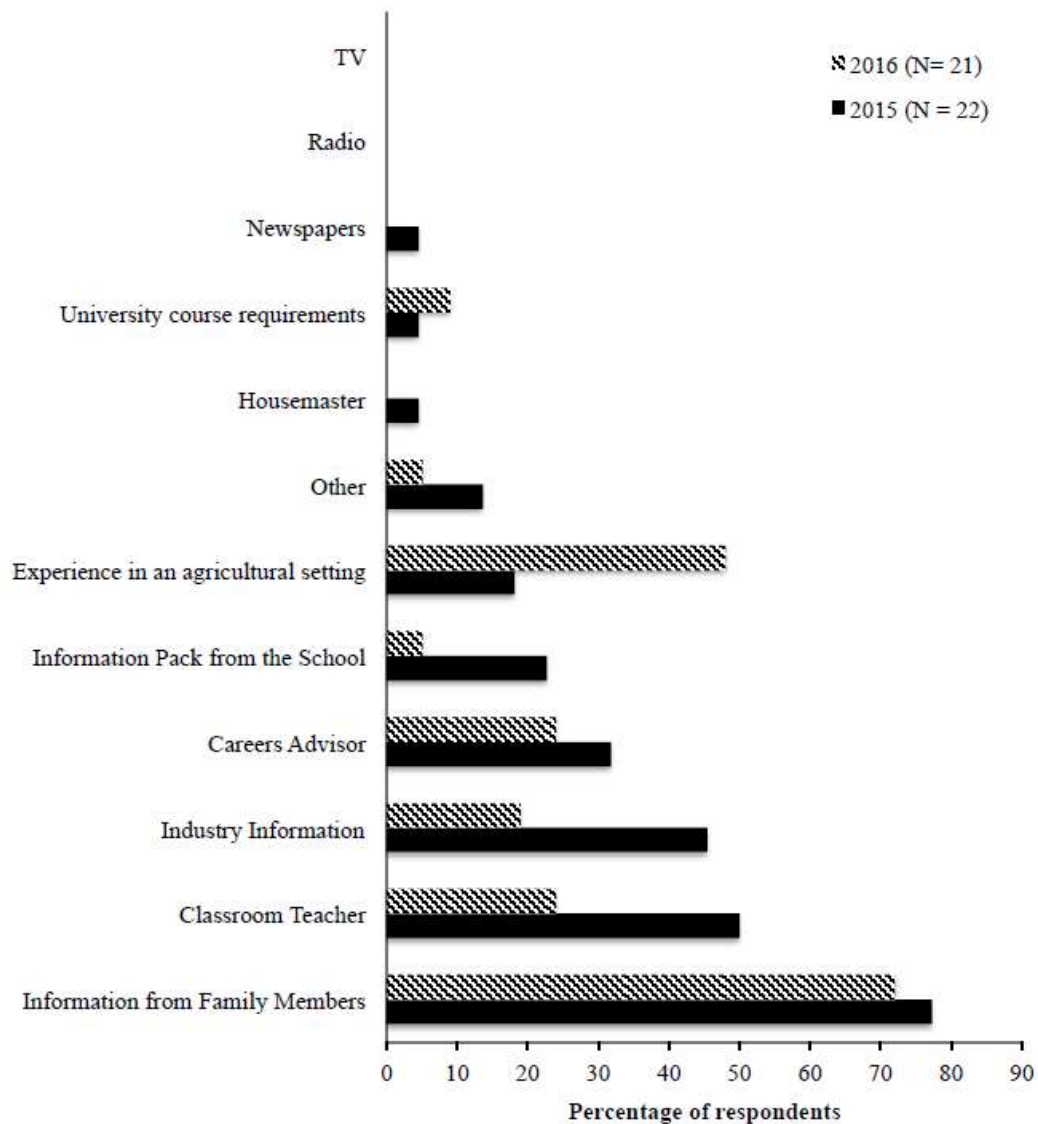
- Demonstrate understanding of strategic response to external factors by a business that operates in a global context
- Apply business knowledge to address a complex problem in a given global business context
- Develop a marketing plan for a new or existing product
- Analyse a human resource issue affecting businesses
- Carry out, with consultation an innovative and sustainable business activity
- Investigate the exporting potential of a New Zealand business in a market, with consultation
- Analyse future proofing strategies to ensure long term viability of a business
- Analyse the effect of financing options of a strategic capital expenditure decision on a business.

These standards all display a wide set of skills and the knowledge required to complete and understand these standards will be beneficial to the primary industries future.

## Tracking Progress

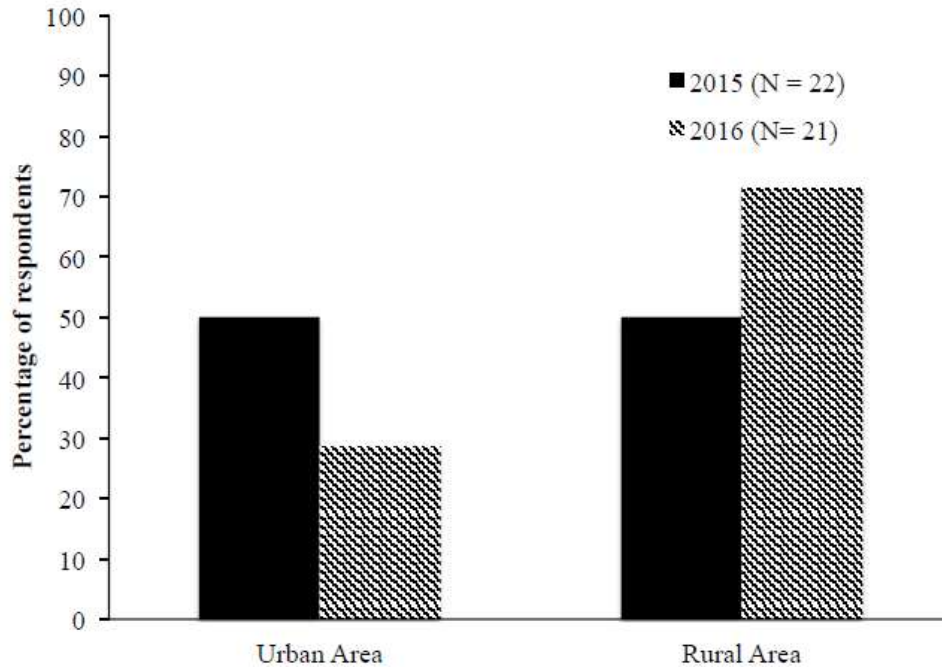
In 2016 a research report was completed by Richard Calderwood of Waikato University that looked at why students at St Paul's had decided to study Agribusiness and their perceptions of the programme (Calderwood, 2016). The survey was completed in 2015/2016 with students studying the programme at level 2 and 3. The respondent sample size is relatively small with this research, but the report indicates further surveys will be carried out, as more schools start to come on board providing a larger data set (Calderwood, 2016).

Figure 3 displays the sources of information that students use when deciding whether to take up studying the Agribusiness programme. Interestingly it correlates well with the research earlier identified in the report with industry and parents being large influencers in the students' decision to be involved in the programme. Classroom teachers were hugely influential in 2015 compared to 2016, however they are still seen of significant influence in comparison to others. Social Media hasn't been included in this list, but it would be interesting to gain an understanding of where this sits for students.



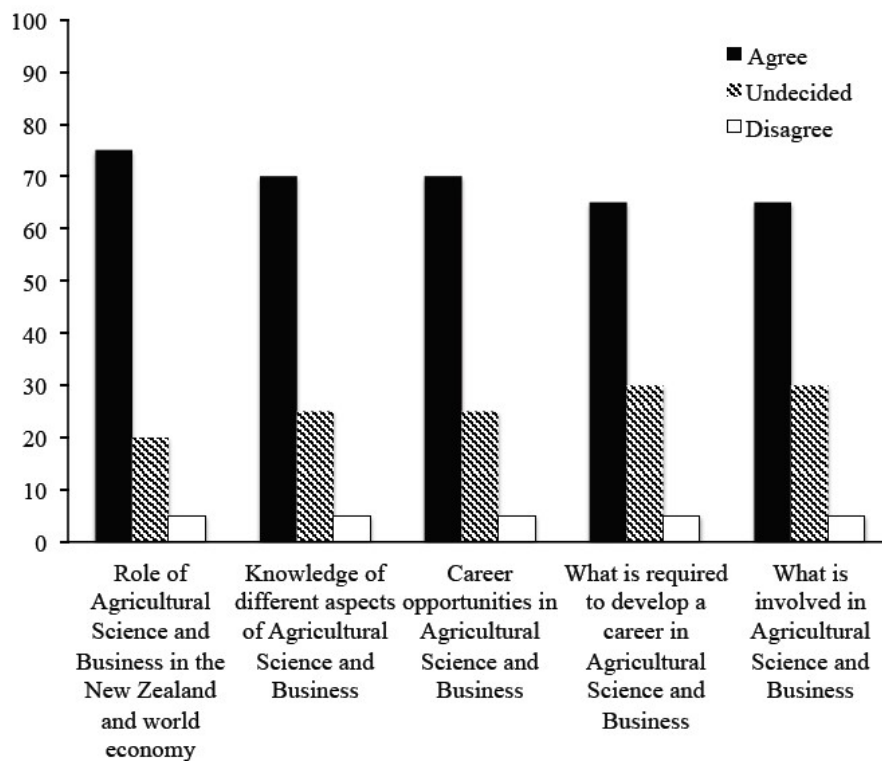
**FIGURE 3 SOURCES OF INFORMATION USED BY STUDENTS TO DECIDE ON STUDY OF THE AGRIBUSINESS PROGRAMME (CALDERWOOD, 2016).**

Figure 4 below gives us perspective around the residential location of the students who decide to study Agribusiness. Surprisingly in 2015 it was a relatively even split between rural and urban dwellers. This is great background information and is positive to note that the urban attraction is there. In 2016 there is more rural dwellers however, the programme is still gaining momentum from urban students.



**FIGURE 4 RESIDENTIAL LOCATION OF STUDENTS COMMENCING STUDY OF THE AGRIBUSINESS PROGRAMME (CALDERWOOD, 2016).**

Figure 5 gives an overall perspective of how the programme is tracking in terms of student knowledge, skills and understanding of the primary industry after completing the Agribusiness programme. The figure indicates that students have gained knowledge and the programme is increasing awareness of the industry and what it has to offer for students. It will be beneficial to expand the sample size with continuous monitoring of the programme and as more schools and students come on board to be able to gauge that the curriculum is achieving good outcomes.



**FIGURE 5 KNOWLEDGE AND SKILLS THAT STUDENTS FEEL THEY ARE GETTING FROM THE AGRIBUSINESS PROGRAMME (CALDERWOOD, 2016)**

Over 100 schools are teaching Agribusiness at NCEA level 2 & 3 with the target being 200 by 2021 (Ministry of Education, 2019). A significant achievement for the programme that has provided it with the kudos that it deserves was winning the Prime Minister’s Award for Excellence in Leading Change in 2018. The award celebrates leadership and influence that strengthens professional capability with improved and sustained outcomes for young people (St Paul's Collegiate School wins Prime Minister's Education Excellence Award, 2018). The programme was also 1 of 4 finalists for an international award that celebrates extraordinary initiatives by schools around the globe (Allen & Simmons, St Paul's College Agribusiness Programme, 2019). Gaining recognition at world level is a huge achievement for the programme and puts it in good stead for its future and is certainly not something that should go unnoticed.

## Challenges

The hunger for success is a huge motivator, and it is imperative that victory is celebrated, however the sustainability of an initiative is shown through its ability to rationalise and resolve current and potential challenges. The Agribusiness programme is faced with 5 main challenges around; student attraction, teacher education/support, health and safety, assessment and industry support.

### Student Attraction

The industry image and media influence still has significant impact on attracting students to study the Agribusiness programme (Allen & Simmons, St Paul's College Agribusiness Programme, 2019). The challenge here is that students don't gain the exposure until they have enrolled to study in the course in the first place. Industry image is a constant issue in the primary sector. When we consider the research that signifies the influence that parents have for students making career decisions telling the sectors 'good stories' becomes even more important to increase enrolment.

### Teacher Education/Support

The changing nature of the primary industries means teacher support is crucial. The importance for a teacher to remain current and up to date with any changes in the sector can be challenging. There are no textbooks to be able to refer to and this can put extra pressure on workload (Allen & Simmons, St Paul's College Agribusiness Programme, 2019). Professional development support is important to ensure that what is being taught is up to date and current, equipping students with up-to-date and relevant industry knowledge (Allen & Simmons, St Paul's College Agribusiness Programme, 2019).

With the removal of subject targeted funding for secondary teacher education by the Ministry of Education in the 1990s it reduced the ability for educational institutions to offer smaller subjects like Agriculture and Horticulture science (Allen, Teaching Agricultural and Horticultural Science in New Zealand Secondary Schools, 2009). There are no current training institutions that offer Agribusiness or Agricultural science. The domino effect of this is that students with it as a specialty subject are not entering the profession leaving very few teachers specifically trained in the Agribusiness area, making it reliant for a school to have

someone that is passionate about the industry (Allen & Simmons, St Paul's College Agribusiness Programme, 2019).

### Health and Safety

Health and Safety can be a barrier for schools and teachers due to the practical nature of the primary industries. Visiting sites like farms, orchards wineries etc can be made difficult with various protocols needing to be followed at different sites (Allen & Simmons, St Paul's College Agribusiness Programme, 2019). This can limit access to areas and can't always be made suitable for classroom size visits. Planning and communication of specific visits becomes crucial and takes extra time for teachers and organisers to ensure everything is covered.

### Assessment

While assessment has come a long way with the introduction of achievement standards rather than only having unit standards, the Agribusiness programme is not assessed externally. The standards need to be combined with other standards from subjects like Biology or Business Studies to make up a full programme (Allen & Simmons, St Paul's College Agribusiness Programme, 2019). Students ability to be endorsed with Merit or Excellence within the Agribusiness subject is limited. This creates a challenge as we aren't necessarily recognising excellence within a subject that is so crucial to New Zealand's future economy. While trying to acquire highly academic driven students into the subject the lack of recognition may turn them away from the study (Allen & Simmons, St Paul's College Agribusiness Programme, 2019).

### Support from Primary Industries

The support from the primary industries is vital to the success of the Agribusiness programme. The recognition of the academic education for the primary sector has been a long time coming and could still be better. The link between the industry and teacher education is still being worked through with academic versus skills education, however the exposure and passion starts at an academic level so without it the skills education may be surplus to requirement (Allen & Simmons, St Paul's College Agribusiness Programme, 2019).

Parts of the industry are still limiting information supply or exposure when approached by the Agribusiness programme, there could be many reasons behind why this might be the

case but the reality is that if the need for workers in those fields is going to increase, then exposure and knowledge will be critical (Allen & Simmons, St Paul's College Agribusiness Programme, 2019).

## Findings & Discussion

Being able to understand the vision and mission of the New Zealand education system and curriculum has been interesting to refer to whilst looking at education within the primary industries and the development of the Agribusiness programme at NCEA level. When trying to provide young people with the opportunity to feel connected, confident, actively involved and lifelong learners it appears there is still work to be done across both sectors to promote the primary industries ability to do this. Being actively involved in the industry that is the backbone of New Zealand's economy should be an exciting and easy sell.

The sector has recognised that there is an issue when it comes to our primary industries workforce. The development of the NCEA Agribusiness programme at level 2 and 3 is a step in the right direction nationally for the industry to get more traction at an education level. With support from Primary Industry partners and the Ministry of Education in the development of the programme it shows that collaboration is the best form of momentum. Often funding can be used as the point of difference between success and failure but in this case, it has been recognised by both accounts as being an issue and the primary industry partners have acknowledged their role in the education of their future employees (St Paul's Collegiate School wins Prime Minister's Education Excellence Award, 2018). A broader skillset from people entering the primary sector is important as it navigates through its challenges. The ability to collaborate on these issues has strengthened the programme as it achieves its goals and targets. Ensuring students are getting full exposure of the industry takes away the bias (New Agribusiness Courses for NCEA Level 2 & 3, 2019). It is clear from the different experiences had by the students outlined in this report, that they are not short of insights and involvement within the sector.

Creating a curriculum for such a complex industry is no mean feat and the support from St Paul's College in doing this has been pivotal (Allen & Simmons, St Paul's College Agribusiness

Programme, 2019). Their success in earning the Prime Ministers award was undeniably well earned. The shift from Agriculture & Horticulture Science, focusing on inside the farm gate to an Agribusiness curriculum, highlighting all aspects of the value chain, helps to detract from the primary industries being viewed as purely an Agriculture based industry. Its ability to offer a whole lot more through its value chain becoming recognised and the versatility to interlink throughout various studies is a huge plus.

The shift of focus from post farm gate to an Agribusiness structure of the whole value chain has helped to attract higher academic students. The public perception is that Agriculture education courses are for less able students. The programme is a step in the right direction for schools and communities to recognise the opportunities and pathways that are available (Ministry of Primary Industries, 2019).

## Common Themes

### Perceptions of the Industry

Perception appears to be an issue that is constantly being discussed when referring to the primary sector. It appears we are good at telling our stories amongst the industry but struggle to go beyond that. This is evident in the Colmar Brunton research as well as the report tracking the progress of the NCEA Agribusiness programme. The lack of knowledge and attitude towards the industry is still a test for the Agribusiness programme in its ability to attract students and teachers to the subject. Once students have elected to commence study around the subject it is obvious to see from the experiences outlined in this report that exposure becomes less of an issue.

Teachers and parents have an important influential role to play in the students' choice to study in the Agribusiness programme which also correlated with the data gained from the Colmar Brunton research. Changing the perception of the industry needs to be far reaching with the focus not just on our young people but their parents and older generations as well.

The key findings from the Colmar Brunton survey identified 3 key recommendations from its research; (Colmar Brunton, Millward Brown Company, 2016)



1. Provide students with evidence to dispel misconceptions they may have about the Primary Industries, challenging any stigma that it is not a place for high achieving students.
2. Utilise people working in the Primary Industries in communication with students in recognition of their impact as a key influencer.
3. Raise students' awareness of what the Primary Industries cover, with a focus on the range of jobs and roles that are available.

The experiences students have had through the Agribusiness programme indicate the exposure and interaction with people in the industry all while increasing their awareness.

The opportunity to bridge the gap between rural and urban communities is highlighted in (Calderwood, 2016) progress report showing an even number of enrolment from rural and urban students into the programme. Bridging this gap is of real benefit to the industry as it aims to change its perceptions amongst New Zealand communities (Allen & Simmons, St Paul's College Agribusiness Programme, 2019).

### Demand vs Supply

It is obvious that if we don't have students aspiring towards Agribusiness education then it is hard to provide funding and an expertise of teachers who are able to teach the subject.

Understandingly job security is important for teachers, so the attraction is challenged in a subject that currently has slow growth and recognition (Allen & Simmons, St Paul's College Agribusiness Programme, 2019). The subject's future is doubtful by the fact that Agriculture science is no longer offered at teacher's college as a subject to be trained in. Without our future generation of teachers coming through with expert knowledge the subject will continue to be tested. If the demand for Agribusiness education is there from students, then the supply of teachers will be required.

### Teacher Support/Education

A common theme that has carried right through this research is the requirement from teachers for support to teach this subject. With its complexities and constant obligation of keeping up to date the time needed to do so should be factored in and considered. An increased workload can be a big deterrent when deciding on which subject to specialise in, making Agribusiness teacher education less desirable. Industry support has improved

significantly from this perspective with many more resources available (Allen & Simmons, St Paul's College Agribusiness Programme, 2019). The reality is that the interest must be there from the start. With less specialist teachers entering the education world with an Agribusiness background or passion the harder it is to drive the learning (Allen & Simmons, St Paul's College Agribusiness Programme, 2019).

An integral part to teaching the subject is the ability to have access to local farmers and producers which can be made difficult for teachers in an urban area. There is a lot of work being done in this space and support has improved but still appears to have a long way to go (Allen & Simmons, St Paul's College Agribusiness Programme, 2019). As part of the Agribusiness programme support is offered to help teachers to implement it within the school, this sets up a community approach to sharing ideas and stories and is a step in the right direction for helping teachers.

The Agribusiness programme can have an outstanding curriculum built into it, however if there is no one to teach the curriculum we can run into significant issues (Allen & Simmons, St Paul's College Agribusiness Programme, 2019).

### Assessment

The development of achievement standards compared to unit standards encourages students of high academic ability to pursue study of the programme. For many years it seems that Agriculture Education has been viewed as a subject for less able students (New Agribusiness Courses for NCEA Level 2 & 3, 2019). The Agribusiness programme combats this perception by using the 4 strands that it teaches under; innovation, finance & management, marketing and science to encapsulate and expose students to all that the industry has to offer.

The context of the achievement standards outlined in the report have significant impact on the industry we know today. Empowering smart business decisions and understanding the context of which they are made in whether it be at farm level or a corporate scale. This knowledge and skill are what is required to drive passion and enthusiasm for a successful industry.

The programmes ability to gain an external assessment opportunity under NCEA will improve its credibility for encouraging students to pursue it as a study option.

## Conclusion

The research has shown a strong correlation around student decision making and perceptions of the primary sector. It highlights the importance of image and influencers in student career choices.

The impacts of this relate to the supply of teachers and demand from students for the subject to be taught. The requirement for specialist teachers to enter the education sector relies heavily on the primary sector promoting its opportunities and telling the good stories.

Targeting the right people to attract students to the subject is important. As shown throughout the study, understanding key influencers in student decision making can give direction to the sector when establishing and catering to a targeted audience.

Primary sector support towards initiatives like the Agribusiness programme are critical and need to be ongoing. This was made evident through the inclusion of many sector partners in the development of the Agribusiness programme and the valued experiences that students have recalled that have been outlined in this report.

The future of the sector relies heavily on the young New Zealanders of today and recognising education as a powerful weapon for change will inject the industry with the right people, for growth and prosperity.

## Recommendations

- Offering of Scholarships for career changes to encourage teachers to train in the Agribusiness area.
- Generate appeal for Primary Industry workers to cross over into education to influence the next generation.
- Ensure the promotion of job variety and prosperity within the primary industry is far reaching e.g. students, teachers and parents
- Ability for universities to be able to train teachers in the Agribusiness subject.
- Explore the option of being able to integrate throughout the main subjects of the NZ curriculum.
- Create strong collaborative working links between the Ministry of Primary Industries and the Ministry of Education.

### Further Research:

- A future progress study that provides information around pathways taken by students who have completed study within the Agribusiness programme.
- A study looking into how a country like the Netherlands incorporates Agribusiness type education could be fundamental in providing potential solutions. The Netherlands have similar reliance to New Zealand on Agricultural exports and is also home of the globally recognised Wageningen University specialising in food production, environment and lifestyle.

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