



KELLOGG
RURAL LEADERSHIP
PROGRAMME



Understanding what drives youth perspective to make radical change in agriculture.

Kellogg Rural Leadership Programme

Course 40 2019

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VETMARKER



2.0 Forward

This topic is of interest to me as although I have an agricultural background, through discussion with many of my peers towards the end of secondary school many were unsure where they were heading with the courses they were taking. It was not until my second year of university that I realised where my future was heading.

Now a few years on and delving into this matter it is hard to find youth interested in agriculture. My thoughts around this were confirmed earlier this year when I attended a Secondary School in a farming community and I was very naïve to think that there would-be eager students to broaden their knowledge. Alas I was sadly mistaken as there were only a few students (some did not show up) and only one of the students was interested. When asked what they wanted to do when they left school, one replied they want to be a mechanic. I asked another student why they had chosen to study agriculture. They responded with “because it’s the easy class”. To this response I came to the reality that these students are simply misled and do not understand the knowledge of what is involved in the farming sector and being a good farmer.

3.0 Personal Background

Born in the hills of Taihape, I was brought up on a Sheep and Beef Farm. My enthusiasm for sheep and beef is inherent, although I have also had a strong interest in horses and worked at Racing Stables and a Horse Stud during University holidays. I also worked at a dairy farm while studying at Massey University. In 2017 I graduated with a Bachelor of Agri-Science Majoring in Equine. My passion for agriculture brought me home to Taihape where I am currently the local Nutrient Specialist for Ballance Agri-Nutrients.

In my spare time I can be found riding my horse, hunting, playing netball, squash or badminton and spending time with friends and family.

I am passionate about agriculture and am dedicated to playing my part in securing the future of agriculture in an ever-changing world. I aspire to play an influential part in ensuring future generations to see agriculture in a positive light and aim to represent the industry with great enthusiasm.

4.0 Executive Summary

The agriculture sector is one that is talked about and analysed from every angle by people all around the world every single day. Successful agriculture is essential to survival as people have to eat.

As the world population is constantly increasing, so is the need to produce more food/fibre. Yet every day the agriculture sector is struck with the issue that we cannot gain enough attraction for passionate people to enter the sector; consequently nationally and internationally there is a cry for help from agricultural businesses trying to find and retain staff.

Agriculture in New Zealand is constantly in the limelight for questions being raised around impacts on the environment, on animal health and wellbeing. Due to this it is no wonder there is a struggle to attract good young people to the industry.

There is also little government support to the industry, particularly to ensure the younger generations understand what agriculture is really about, let alone a clear pathway into the sector as agriculture is not a big part of the education curriculum.

Through looking into past literature, statistics, and interviews we can clearly identify the current situation of agriculture and the direction it is heading in the future.

Key recommendations as a result of this research are;

- Continue to share positive agricultural stories, by various methods such as media.
- Target educating youth about agriculture as early as primary school through introducing an independent teaching platform as part of the primary school curriculum.
- Teach children where their food comes from using backwards engineering; from plate to farm. This would need to be backed by company's such as Talent Central and farming industry bodies to provide the information.
- Build a clear pathway to support people with agricultural passion right from young children, through primary school, secondary school and beyond their tertiary education. We would do this by recognising those children with an agricultural interest and nurturing this. This would be implemented through introduced education programs and offering support to teachers, career advisors and parents. This could be done but those bodies collectively involved in primary, secondary and tertiary education.
- Utilise technology and use it as a platform to educate the urban population. Selectively place interactive technology where people can read, listen and learn about agriculture in New Zealand.

Acknowledging there are already movements in place to change the common negative perspectives towards agriculture, creating a solution is a difficult task. Targeting children earlier is currently an area which will require further work. By helping children understand where their food comes from and establishing a 'Just Cause' around feeding the world, children are more likely grow up with a passionate agricultural mind set.

5.0 Introduction

Considerable research has been done. For this research I have looked into previous Kellogg's Scholar reports, St Pauls Collegiate in Cambridge and Barry Brooks and Tony Scott (2019) – Growing the food and fibre sector, Recommendations for the Tertiary Education Commission. These reports have been based on why recruiting staff is difficult, yet very little work has been done on trying to solve this problem. Current solutions involve agricultural career advisors and further educating and grading students. I feel there is a large gap in the way the education system works, where students from less fortunate back grounds are missed and not given the opportunity to understand what is involved with agriculture. It is common knowledge that some of New Zealand's most successful farmers were less than average at school and left at around age 15 to begin their farming careers. Time has moved on and now we are asking future farmers and advisors to gain qualifications before they start practical work.

This potentially is an issue that drives these students to other careers such and mechanics and builders where they can learn on the job and gain a qualification while being paid.

6.0 Objectives

- To better understand youth and their decision-making tools for their career paths towards and away from agriculture.
- What information is currently available for youth around agriculture and what career paths agriculture might provide?
- Identify what group of people to target and to create radical change in the view of agriculture.
- Is there an opportunity to develop a simple method to get into student minds around agriculture?

7.0 Methodology

The first method for this research is literature reviews, which are of relevance to my topic. I have pulled key findings from the literature to build a picture of what is happening in agriculture in recent years.

I then carried out three semi structured interviews where I discussed with people who are immersed in the Agricultural Industry their views and opinions of where we are currently and what direction we are shifting in. I selected three people after doing considerable online research to find people with knowledge on New Zealand education with an interest in agriculture. The people I chose to interview mostly deal with the tertiary education sector, both directly and indirectly dealing with the education sector.

I then quantitatively analysed key data to support discussions from the literature review and interviews. I identified themes that few people are studying agriculture post-secondary school. Drivers to study agriculture are mostly driven by family, experiences and teachers. And potential income in the agricultural industry is competitive compared to Health, and engineering careers which are stereotypically considered as much higher paying careers.

Finally, I summed up the literature reviews, interviews and data by identifying key challenges the agriculture sector faces in order to attract interest from younger generations.

8.0 Literature Review

I have completed a literature review mostly on past Kellogg Projects. In these reports a huge amount of research has been done and some of them cross over in their objectives. I would like to collect this data and information so that it can be used productively to make changes to the Agricultural sector moving forward. I have selected Kellogg projects which are of relevance to my project and have been done in more recent times as I feel these are more representative of what is currently happening in agriculture.

I have also reviewed some research documents which give information into the current situation of agriculture and where it needs to be going forward.

8.1 Past Kellogg projects

8.1.1 Becs Lough (2019) – A Classroom View of New Zealand's Primary Industry

Becs completed the Kellogg Rural Leadership Programme in 2019. For her research she looked into what is currently happening with primary industries from a classroom view. She looked to identify the vision and mission of the New Zealand and how the education system is adjusting to include Primary Industries as part of the curriculum.

The key objectives Becs looked into were understanding the decision making of school students that lead to their careers. She also looked into current initiatives done in the education sector which particularly target research into perception of the primary industries and their career choices. Lastly, she identified the challenges in the primary industry which result in labour shortages.

Becks used Literature reviews, Thematic analysis and an interview for her project. The literature review was appropriate to help her gain an understanding of the education system and the decision's and challenges made around the how the education system affects the primary workforce. The thematic analysis was done to discover strengths and weaknesses in primary and education sectors in order to make recommendations. The interviews were to back up information she had collected from both the literature review and the thematic analysis.

Key Recommendations from Becks findings were:

- 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 Agri-business 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

Overall Becks project has given strong insight into the current situation of primary industries and primary education. The direction the education is currently shifting in towards the primary industries sector is positive, however we need to keep this movement going and developing it further. I will use this research project as a backbone and indication of where primary industries is incorporated into tertiary education and how I can fine tune this to ensure it is carried on into future generations and become more than just a faze/temporary movement.

8.1.2 John Fitzgerald (2019) – Opening Gates, Staff attraction and retention on New Zealand's Meat and fibre farms

John Fitzgerald completed the Kelloggs Leadership Programme in July 2019. His research looked at attracting people to work in the New Zealand Agricultural Industry and how to retain them.

John set up a questionnaire to gain knowledge from Lincoln Diploma Students, Coleridge Downs Cadet School and Farm Staff at all levels from the Junior Shepherds to Farm Managers and Farm Owners. These questionnaires were completed in a variety of formats, which included sending out the questioners with Beef and Lamb NZ and social media. John was disappointed that he did not get as much feedback as he would have liked, to be sure he did have a good understanding of the results. However the results that were received were all very conclusive. However, there was an anomaly with what staff had said and with what employers had said.

Key findings from his report were:

- There is a lack of suitable candidates for many of the positions offered
- There is a need for innovative farm managers
- All staff need to have good literacy and numeracy skills
- There needs to be greater emphasis put on work life balance with many Managers working very long hours.

- Accommodation for younger staff was not a propriety, but for senior staff it is.
- There was a need to keep upskilling with the ever-changing farm environment, whether it be practical or theory it is an important part of farming that cannot be ignored.
- Staff want employers/managers to provide positive proactive working environments.
- With the current labour shortage, staff do have some bargaining power when looking for a position which helps them to find a job better suited to their needs.
- Many staff have aspirations for farm ownership and they need help in how to build equity.
- Over half the staff surveyed felt they were not paid fairly.
- Some staff did receive perks such as flexible working hours and extra time off.
- All staff wanted to feel respected, trusted, included in farm decisions recognised and appreciated.
- The research was alarming in the secondary percentage of staff that had/were considering leaving sheep and beef farming.
- Many farm owners believed they paid their staff adequately, had reasonable working hours and conditions. They found it hard to measure how to reward good performance.
- They considered extra training a perk of the job.
- Most people found it increasing harder to find staff.
- Some farms had weekly meetings to ensure all staff knew what was happening and invited staff feedback to make staff feel involved.
- All employers said they had learnt from previous mistakes, which they considered made them better employers.
- First time employers found it difficult to let someone else do the role.

From this research it shows that farm employers need to seriously look at their farming operations and engage better with their staff to ensure they retain their staff.

8.1.3 Olivia Ross (2017) – The Agriculture Lure, Understanding the awareness of the red meat sector at a secondary school level

Olivia Ross was raised on a Southland Sheep and Beef Farm and at the time of writing her report was employed by Beef and Lamb New Zealand. She completed the Kellogg Rural Leadership Programme in 2017.

Key facts that Olivia found were:

- Red Meat Sector needs rebranding to Agri-Foods Production.
- Parents and friends influence school subjects.
- The educators need educating. This is just as important as educating the students.
- Farmers and other agricultural leaders need to tell their positive stories and attend schools telling students about the wide range of opportunities agriculture can produce. It is not only jobs at farm level but there are a variety of jobs involved in agriculture.
- Schools should have courses covering science, agribusiness, leadership and practical skills.
- Poor teacher awareness in agriculture limits promotion of agricultural studies.
- Positivity and confidence needs to be increased across all aspects of agriculture.
- At field days careers are promoted, such as Lincoln and Training Schools, but the level of this promotion needs to be lifted dramatically.

- The Government could be encouraged to set up apprenticeship schemes to help people into agriculture.
- Simple lesson plans need to be created to help teachers with easy quick fact sheets.
- New Zealand needs to embrace change and everyone needs to work together for the benefit of the New Zealand economy.

8.1.4 David O’Sullivan (2017) – Primary Attraction, Understanding student awareness of primary sector career opportunities

David completed the Kellogg Rural Leadership Programme in 2017. He has an understanding of the need to feed the world and increase production with the worlds constantly growing population. Also, with the constant pressure on the primary sector David wanted to explore what the perception of senior secondary school students really is, as they prepare to leave school and enter the work force.

David completed his research assignment by literature reviews, a survey, looking into the education sector and a case study. The literature review clarified his sense of direction for the project. The survey was successful for getting insightful knowledge into understanding awareness of primary industries from students with both rural and urban backgrounds aged between 15-12. David looked into the education sector to gain information on the way teachers perceive agriculture and how that can be influential to students. Finally, David did a case study on three individuals to explore “how aware are our school leavers of the diverse range of career opportunities within New Zealand’s primary sector?”

David’s key Findings were:

- Historical poor perceptions by parents, teachers and career advisors that are affecting knowledge of modern primary sector career options.
- Our youth are very interested in knowing more regarding New Zealand’s primary sector, there is strong interest in finding careers that help New Zealand’s economy prosper.
- Creating interest is only the first step, nurturing that interest right through to employment is lacking.
- Tying together social media, technology and emotional marketing are the key to creating change.

David’s project has given into where the perspective of primary industries was at in 2017 for youth in their late teens, however it would be interesting to re conduct this research regularly and over a wider group of people to get a more accurate idea of where we are at with our progress in increasing the number of informed students in the primary industry and what direction we are moving.

8.2 National article review

8.2.1 Barry Brooks and Tony Scott (2019) – Growing the food and fibre sector, Recommendations for the Tertiary Education Commission

A research project about growing the food and fibre sector in New Zealand was carried out by Barry Brooks and Tony Scott. This project acknowledged the primary industry needs to “attract, train and retain people” for the food and fibre industry to excel. They looked into and gave advice around why food and fibre production needs to be a priority for tertiary education.

Through their research they came up with some key points about the food and fibre industry;

- Food and fibre provided 78% of merchandise export earnings.
- New Zealand exports to over 200 countries or territories.
- Food and fibre contribute over 10% of the New Zealand GDP.
- 350,000 people in New Zealand are employees in the Food and Fibre industry, which is 13% of New Zealand’s total employment.
- Some regions employ one in every three people in the food and fibre industry.
- Activities traverse 52% of New Zealand’s land mass and 4.1 million square kilometres of ocean.

These findings are extraordinary and clearly highlight the need to attract train and retain people. If New Zealand agriculture does not continue to produce these sorts of earnings it will have a severe impact on the New Zealand economy affecting everyone, especially small communities and the tax revenue.

This report also makes suggestions on how best to go about attracting, training and retaining the younger generations.

From primary school age we need to create a connection with the children, we can then connect that connection to a career. This will build into education at a Secondary School level. To achieve this, we need to;

Inspire -----→ Inform ----→Educate

Once the connection is related to the career we can prepare them for their career. To achieve this we will need to;

Educate ----→ Invest ----→ Redesign

The final step to set Youth up for their future, is to have them set career life goals. We can achieve this by;

Co-ordinate and collaborate ---→ Invest -----→ Develop

Barry and Tony developed five priority Ideas that they felt best needed attention from the Tertiary Education Commission.

1. Lifting awareness opportunities in food and fibre careers.
2. Creating clear and accessible pathways.
3. Relevant and quality tertiary education.
4. Ensuring great work places.
5. Strategic partnership and co-investment

Over all Barry and Tony have completed a fantastic report which clearly outlines the current importance of food and fibre in New Zealand and established plans for best practice moving forward in the tertiary sector.

8.3 Literature Review Summary

These research projects have all expressed a strong need to increase the attraction of youth into Agriculture. Currently there is poor perspectives of agriculture going around. There is clear evidence of this in the key findings in the literature reviews, particularly those from Olivia Ross, David O,Sullivan and John Fitzgerald. The key driver of this perspective on youth is being generated by parents and teachers.

"Historical poor perceptions by parents, teachers and career advisors that are affecting knowledge of modern primary sector career options." (O,Sullivan .D, 2017)

Another common out come from these projects is the traditional perspective. Traditionally agriculture was seen as something 'dumb' people did. It was also portrayed as an occupation for the poor or those interested in a low income. This results in parents and teachers raising children to believe that to be successful they had to become doctor, lawyers etc.

9.0 Quantitative analysis.

The statistics in this section are a collection from different literatures and research projects which I believe is supporting data for this report. They give information to the current agricultural industry and an understanding of youth perspective of agriculture.

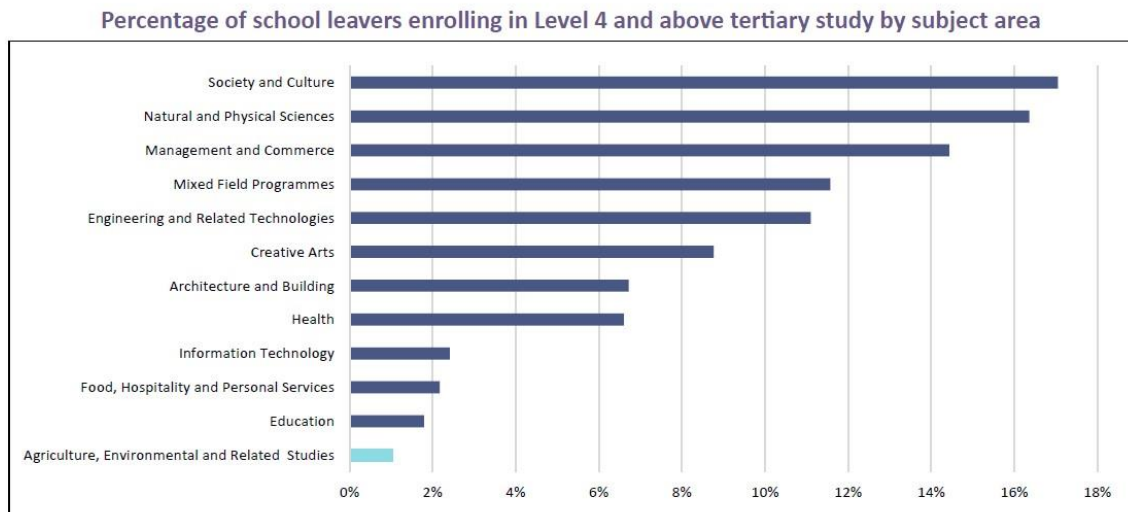


Figure 1, (B & Scott, T. (2019))

This graph clearly displays how few people are leaving secondary school to study agriculture. Only around 1% of those leaving school and enrolling in level 4 and above tertiary study are planning to study food and fibre. In 2017 of the 434,000 students who enrolled in tertiary education only 8% of those enrolled to study agriculture. This percentage increase is due to only 40% enrolled to study agriculture are under the age of 25. This would indicate that the percentage just leaving school would be much less. From this data we need to consider what were these adults doing until they were over the age of 25 years and how do we get people passionate and enrolling in agriculture at a younger age.

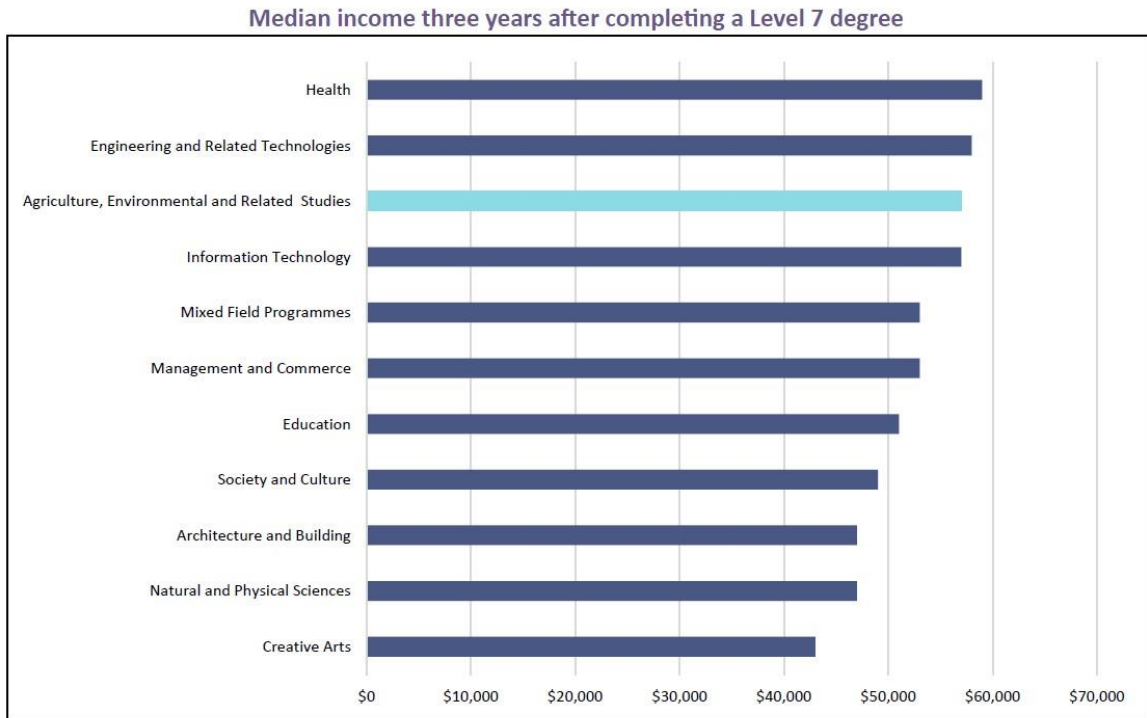


Figure 2, (B & Scott, T. (2019))

This data clearly shows that the income for agriculture after completing a three-year degree is one of the highest paying occupations being paid an average of \$56,000. That well and truly goes against the traditional perception that agriculture is a poor payer. There are a large range of occupations in agriculture from shepherds, farm consultants to machinery operators and many more which pay very well, in fact well over \$50,000 and not much behind those who studied health and engineering.

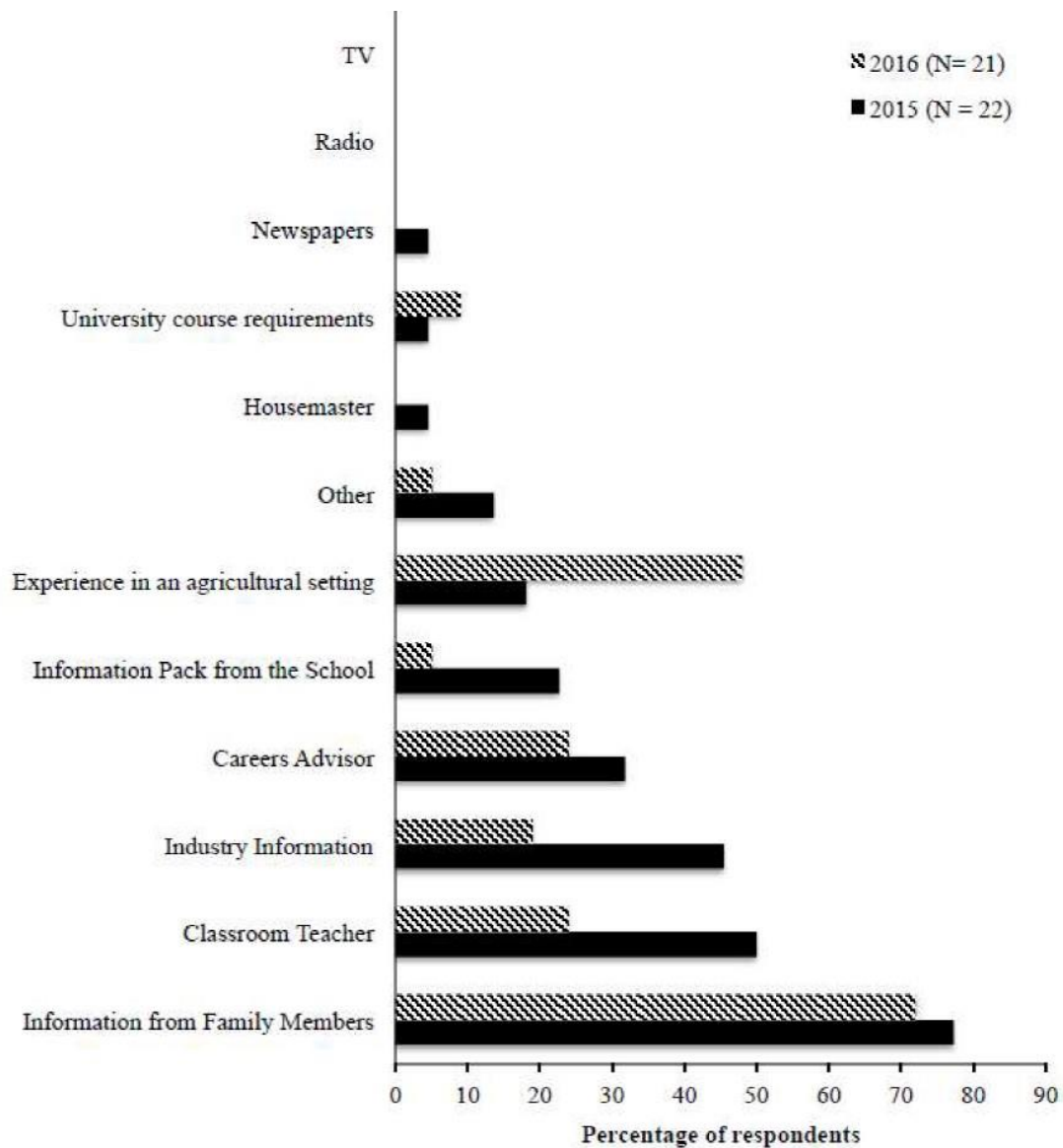


Figure 3 Sources of information used by students to decide on study of the Agri-business programme (Calderwood, 2016)

Figure 3 above shows how secondary school students make their decision to study Agri-business at NCEA level. The shaded represents the rural population of students while the dark charts represent students with an urban upbringing. Those with a rural up-brining are more likely to study Agribusiness and the parents being the most influential on both rural and urban students choosing to study agri-business.

10.0 Interview responses

The following section is key notes from main ideas that came from semi structured interviews with Margaret Kouvelis, Susan Stokes and Melanie Simmons.

10.1 Margaret Kouvelis (CEO, Talent Central)

1. Where do you see agriculture and youth perspective currently?

Currently Margaret and Talent Central are targeting secondary school students and helping them to develop their passion for their future careers by giving them opportunities to physically get a taster of their career ambitions. Margaret sees that there are currently restrictions around developing career pathways into agriculture, due to teachers and teacher's perspectives on agriculture.

2. What direction do you see agriculture going in the future?

Margaret sees that there is a lot of opportunity to improve the perspective of agriculture. She believes that one of the biggest steps forward is to make positive changes to the education system. Providing future generations approach agriculture with a positive approach and embrace and move with the fast-changing world. In the future, farming will be the career to aspire to so we need to do something about creating career pathways in schools to achieve this. The farmer of the future will need to be a global thinker, better informed, more innovative, incredibly agile, better trained and so we need to have our top brains focussed on our agricultural well-being. To do that we need more investment in technology transfer, a greater spend on research, development and training, more top graduates attracted into science and agriculture. In short we need an industry wide rural strategy and it needs to start in primary school.

3. What are the biggest influences of youth career path?

"Teachers are the biggest influencer on students." Teachers see students on a daily basis and can very easily influence students to take on a perspective which is a line with their teachers whether it be positive or negative. Teachers have a responsibility to inspire, motivate and reveal the whole range of opportunities and challenges on any issue, subject or sector.

4. How do we get influencers enthusiastic about agriculture?

Referring back to teachers as the biggest influencers in agriculture on youth one of the key points is that we need to educate the teachers so that they understand the wide range of occupations that are available in agriculture. By teachers being exposed to seminars and site visits from experts in the agriculture sector they will quickly see that not only is New Zealand reliant on protein but the world is; and we can be at the forefront of innovation to solve some of the food problems facing the world. This is down to the simple fact that for the population to survive people need to eat.

From Margaret's perspective with Talent Central one of the biggest drivers in helping young people decide their future careers, is to expose them to work experience and opportunities

for hands-on practical experience. Talent Central provides a Work Ready portfolio on a digital platform “My Mahi” where the students can record their experience and learnings. Through this they can also be rewarded by receiving NCEA credits. This system is enabling students to be better prepared for the work force and following their career paths once they leave school.

5. What gets youth focused and motivated about their potential future career paths?

Youth are motivated by wanting to make a difference and also by reward. Currently we have in the NZQA a points system which dictates their future, if they can go to university or not. We also have many agri-scholarships at secondary and university level, but we do not have a clear line of sight as to the subjects required at school that best prepare students for the agricultural industry. There are two main points that drive young people’s motivation-participation in a ‘just cause’; younger people are motivated by the concept of feeding the world/people.” The other point Margaret talked about is “the culture of a business is experienced and felt before it is fully known.”

6. What age group should we be targeting?

Currently there is a lot of work that has been done on targeting secondary school student’s particularly those enrolled in Level 1-3 NCEA. This is potentially too late. Ideally, we would like to see young students at a primary school level expressing an interest in agriculture. Years 5 – 8 is ideal to introduce the science behind agriculture. This also means it is some years before they become enrolled in NCEA and therefore can make better choices.

7. How do we ensure youth enter the agriculture sector beyond school?

To encourage youth into agriculture beyond school we need to give them the backbones to knowing and understanding their career path and follow them right from when they are little to their final year at secondary school. Margaret gave a great example of how one of her grandchildren was playing with his trains on a circular train track. When Margaret talked to him about his trains, he corrected Margaret by telling him it was a rotary milking shed. This is a fantastic example of how a small child can so easily learn new things and how their imagination can create new ideas which are often the reality of an adult and if these imaginative ideas are fostered, they in the future could become the child’s reality. We need to showcase the production of food from plant to plate, farm to factory, as a pipeline from early childhood right through school so they have a clear line of sight to the many opportunities beyond school.

8. How do we teach Agriculture as being more than just the farmer and his dog?

During the interview Margaret and I discussed how we can achieve this. Margaret felt that digital interaction would be a great idea. By having digital platforms strategically placed where tourists and locals can view write ups about New Zealand agriculture and how food is produced. We could design an app for schools that showcase how food is grown and changed into products that they buy in the supermarket.

“We need to share the journey of the animal, help people to better understand where wool and meat comes from” This is a great example of what could be put on digital platforms. Another great example of how to share the journey of the animal that could particularly target children is the story about Shrek the Sheep.

“We need to think about, what do our tourists see?” Often as New Zealanders we take what we see for granted. When looking through the eyes of a tourist we will be able to more clearly see our current position in agriculture and therefore envision where we want to be in the future.

One of Margaret’s biggest points around how to get more youth interested in agriculture is by “Backwards Engineering” from the end product; garment, carpet or food back to the grower and the animal or plant and the kind of soil in which that plant grows well and why.

Margaret has some fantastic ideas and I feel that many of her ideas are worth exploring and implementing to make the first big steps in changing the way we do things.

10.2 Susan Stokes (Industry Education Facilitator, Dairy NZ)

1. Where do you see agriculture and youth perspective currently?

Susan believes there is currently a growing awareness for agriculture and agribusiness, particularly in schools such as St Pauls Collegiate in Cambridge which have been successfully implementing agriculture into the curriculum. The current curriculum for agri-business tends to target academics. “Post school the pathway for agriculture for many young adults is unclear”.

Currently “marketing is adding value.” This is done through positive promotion particularly of products which meet the modern consumer’s wants/needs. An example of these products is in alternative proteins. These products are successful due to the “connection between product and marketing.” From this, positive stories are being told and we are seeing an increase in specific diets (vegetarian/vegan) and a notable increase in particular in younger generations.

2. What direction do you see agriculture going in the future?

“We need to target practical people” many of the most successful people in agriculture tend to be practically minded. These people are the ones that drive creativity and the ability to adapt with the ever-changing consumer preferences.

3. What are the biggest influencers of young people’s career path?

“Parents are one of the main influences on their children’s future.” There is a general tendency that if the parents support agriculture the kids will follow career paths which may lead them to agriculture. Visa versa, parents who do not necessarily have a positive perspective on agriculture will generally tend to encourage their children into career paths which do not involve agriculture.

One of the other big influences in the career path of youth is the teachers. Teachers spend a lot of their day with youth. Therefore, their perspective can easily influence students.

4. How do we get influencers enthusiastic about agriculture?

“By opening the doors to teachers and agriculture.” However, there is a huge amount of time pressure on teachers and it is important to acknowledge this and understand how we can educate teachers about agriculture without putting extra pressure on the teachers. One way we could do this could be by having agriculture as part of the curriculum at teachers training college. By doing this, teachers would be better able to understand how science, math and other common subjects can be related back to agriculture.

5. What gets youth focused and motivated about their potential future career paths?

One of the key drivers to motivate youth in agriculture is to “help them understand where food comes from.” By establishing ways to help people understand the importance of food and where it comes from, there will be an increase in interest of youth wanting to become part of food/fibre production.

6. What age group should we be targeting?

People of all ages should be targeted. There are definitely benefits in targeting primary school students and carrying it on to secondary school students. However, we need to “create a clear pathway”. When creating the pathway, we need to consider “are all the students ready for the pathway?” To achieve this and make sure they are ready, we need to guide them right through school and tertiary education.

7. How do we ensure youth enter agriculture beyond school?

Much like discussed in the above question by creating clear pathways into agriculture we will have the most success in retaining youth in agriculture. We also need to “adopt a quality work environment” by shortening hours of work and increasing pay rates. Also looking after the health of workers and preventing isolation, the attraction and retention into agriculture will increase”.

8. How do we teach Agriculture as being more than just the farmer and his dog?

To teach the future generations about available options in agriculture “we need to collaborate.” To do this we need to have parents, teachers and communities all working together and viewing agriculture from a positive perspective. “If we get communities together we will drive attraction”.
We also need to “educate the reality” by helping students understand where their food comes from the perspectives will be broadened into what sectors they can enter in agriculture.

10.3 Melanie Simmons (Advisor to schools, Agri-Business, St Paul's Collegiate School)

1. Where do you see agriculture and youth perspective currently?

"There is a general poor public perception towards agriculture which results in parents and their children being confronted with this poor perception." Parents are often a big influence on their children's perspectives and take some control over what their children can and cannot study/ take an interest in. Also, currently agriculture is seen particularly in schools as the subject/occupation for dumb people. This is possibly due to the practical demands of agriculture. Traditionally those who worked in agriculture were paid little and parents would encourage their children that if they want to be successful, they must take up traditional occupations such as become a doctor or a lawyer.

2. What direction do you see agriculture going in the future?

"Agriculture is currently trying to move in a direction which changes the general perception to become positive." Agri-business/Horticulture is becoming a more sort after subject in secondary schools partially after schools are beginning to see the success that St Paul's Collegiate is achieving. "If we keep schools interested in teaching agriculture the future of agriculture is very bright".

3. What are the biggest influences of youth career path?

"The teachers are definitely the biggest influencers in the career paths of students. However, parents do have some influence. An example of this is a girl went right through secondary school on scholarships to study agriculture. When she came to the end of her school career, she decided she would go to university to study agriculture. Her parents encouraged her away from this and pointed her in the direction of completing an engineering degree. Although she is studying engineering there is a high chance that due to her passion in agriculture she will pursue a career engineering in the agriculture sector."

4. How do we get influences enthusiastic about agriculture?

The first thing we need to do to help improve influencers/enthusiasm around agriculture is to acknowledge "there is a general lack of understanding." From here we can improve their understanding of agriculture. "Although parents also influence their children, provided teachers are able to provide career paths and the student is passionate enough, parents will come around to understand their child's passions and ambitions."

Schools also need smaller classes. By doing so teachers will be able to help students get a better understanding of their subjects and teachers will have more time and ability to incorporate real life scenarios. For example, "This could result in teachers being able to teach math through Agriculture."

We also need to get away from the "assumption that agriculture is all practical. Math is generally considered harder to learn than agriculture" This is possibly down to agriculture

requires a specialist style to teach, as well as those students studying agriculture want to be there and have the passion and drive to learn the subject. Many students take math, due to the fact it is compulsory and struggle to take interest in it.

The other assumption that is often made is very traditional and that is doctors/lawyers are paid more than someone involved in agriculture. In today's society that is most certainly not the case and many people are paid equal, if not more than doctors and lawyers in some situations. If parents and teachers understand this, they will often be more comfortable in supporting their child's passion in following an agricultural career path.

5. What gets youth focused and motivated about their potential future career paths?

Youth are often driven by their passion. They are more likely to follow career paths that they are interested in. When a child expresses that they are interested in agriculture we need to foster those interests and keep building them preventing them from being shut down.

They will also be motivated by their parents and teachers, so by increasing the understanding of agriculture students they will be more likely to feel comfortable in following their career paths as they have the support required to do so.

6. What age group should we be targeting?

Currently there is a strong movement of agriculture in secondary schools particularly with Agri-Business/Horticulture being recognised by NZQA. The next step is to get younger students at primary school age understanding food and seeing agriculture in a positive light. They will then enter secondary school willing to learn subjects around agriculture.

7. How do we ensure youth enter agriculture beyond school?

There is no real way we can ensure youth enter agriculture beyond school. This is particularly due to the fact that what I talked about in the above question where the girl went on to study engineering at university, this situation happens regularly. These students are regarded as a potential loss to the industry. However, provided we have given students a strong backbone into agriculture right through secondary school, we will often see them come back to agriculture. For example, the girl who went off to study to be an engineer will quite possibly come back to agriculture and work as an engineer for a company such as Fonterra. We don't realise how many different career paths are agricultural - related – we tend to think of finance, manufacturing, technology and science etc as not being part of the agriculture sector.

8. How do we teach Agriculture as being more than just the farmer and his dog?

As discussed in the above question we often disregard many careers as being agriculturally related. Often students will leave school and could do the likes of a mechanics apprenticeships. They then might become a diesel mechanic and service tractors or service quadbikes. These occupations are often disregarded as being agriculturally related. If we can

build students' interest in agriculture through their schooling, life chances are they will come back to agriculture.

The best we can do to ensure that students are aware of what goes into producing food and fibre and helping them understand and build on their career paths and passions so that they do come back to service the agricultural industry.

10.4 Interview Review Summary

Collectively there is agreement between all their thoughts and opinions. Throughout the interviews there was several themes which each interviewee discussed from their own point of view. The main themes that came from these interviews were; perception of agriculture, influences on career paths/perceptions, thinking bigger than the farmer and targeting youth at a younger age to educate about agriculture.

All three interviewees tended to talk about agriculture currently being poorly perceived in the public eye. By making changes and encouraging positive stories about agriculture into schools we will see an increase in passionate young people entering the industry. Margaret and Melanie were in agreeance that poor perceptions of agriculture is driven by teachers while Melanie believed it is also driven by parents. However Susan while in agreeance of this pointed out that *"Post school the pathway for agriculture for many young adults is unclear"*. This uncertainty could also be contributing to parents and teachers developing poor perceptions. (Stokes. S, 2019)

Teachers and parents are the biggest influencers on student's career paths. This was in general agreeance by all three interviewees however Margaret and Melanie tended to lean more towards the opinion that teachers have the most influence while Susan felt that parents are the biggest influence on student's career paths.

One of the ways agriculture is perceived is that you will go on to be a farmer milking cows and chasing sheep. This is not at all the case; agriculture supports and is supported by a wide range of occupations ranging from accountants to mechanic's to engineers. Melanie emphasised this when she pointed out a student with an interest in agriculture going to tertiary education to study engineering will have a good chance at serving agriculture as engineer in the future.

The interviewees were in agreeance that there is an opportunity to help and educate key influences in agriculture. Theses influences being teachers and parents. Melanie made the statement that *"Although parents also influence their children, provided teachers are able to provide career paths and the student is passionate enough, parents will come around to understand their child's passions and ambitions."* Susan also was in agreeance with this, although she feels parents are the biggest influences on their children's career paths she sees there are benefits in opening the door wider to teachers. Margaret also believes that we should be targeting teachers. She believes we should be doing this by helping them to understand the wide range of occupations available in the industry and that there is more to farming to just chasing sheep.

We are already making good progress in implementing agriculture into schools at a secondary school level. From this all interviewees agreed that targeting primary school students is the next step to improving general perceptions around agriculture. Now we need to target children at primary schools and educate them about where their food comes from, so they are entering their secondary school studies with a solid back bone and perspective on agriculture. Susan made the comment that we need to *"create a clear pathway"*. This was discussed to some extent by all, particularly Margaret

who believed that it is getting too late by the time youth get to secondary school and are given more independent ability to select subjects which could dictate their future career paths.

11.0 Key Current Agricultural resources in primary education

Through my research into the agriculture, I have found extensive resources which look into agriculture at secondary school education. However, very little research has been done at a primary school level. These include garden table, a programme to teach children how to grow their own fruit and vegetables then harvest and prepare what they have grown. Rosie's Education provides resources to help teachers be able to teach students core subjects using dairy farming examples.

11.1 Garden to table

Garden to table is a programme currently available to primary schools and began in 2008. It is targeted at changing the way children think about food. They encourage children to learn how to grow, harvest and prepare fresh food.

Since it was established a large percentage of New Zealand primary schools have taken the opportunity to participate.

It currently requires no government funding as it is reliant on donations.

This is a fantastic opportunity for children to dive in and learn more about food. Due to it being reliant on donations, it is a concern, that if corporate partners were to stop funding garden to table it would close down very quickly.

The other concern, to run these programmes, they require passionate informed teachers. If teachers leave the schools/the education sector, we need to ensure passionate teachers are replaced by passionate teachers. This puts extra pressure on new teachers to learn above and beyond the school curriculum.

11.2 Dairy NZ Schools/Rosie's Education

Dairy NZ is a Cooperative group which is funded by New Zealand Dairy Farmers to represent New Zealand Dairy Farmers. They started up a programme called Dairy NZ Schools also known as Rosie's Education. Their purpose for doing this was;

"We want to help ensure that New Zealand school children get the opportunity to learn about dairying. We do this by creating curriculum related resources which are designed to help teachers create fun and interesting lessons that provide effective learning. Our resources have a dairy context, so children get to find out about our largest export industry while they are learning science, maths, problem solving and a range of other topics" (Dairy NZ, 2019)

Rosie's Education provides resources for teachers to have in class which relate the school curriculum back to real life examples - namely dairy farming. This not only helps the children to understand dairy farming through learning at school, it also helps the teachers to teach the school curriculum by using real examples which are easy to understand.

The second part to Dairy NZ Schools is their find a farmer programme. This is set up so that it is easy for schools to go to field days on dairy farms with minimal effort to organise. All the school needs to

contact Dairy NZ and they will find a suitable farm for the school to visit. The school will then need to get in contact with the farmer and they will be all set to go.

This is a fantastic idea and a great opportunity to help children understand Dairy Farming at an earlier age. I do believe the opportunities like this should be embraced and expanded by all New Zealand Agricultural Co-operations.

12.0 report review

This section summarises main points which align with literature reviews, quantitative analysis and semi structured Interviews.

12.1 The education system

Through discussion with Margaret Kouvelis the education system is an extremely difficult area to overcome. In Margaret's opinion, for many years there has been very little change in the system. Use your critical thinking skills. However, to make changes to the education system, we need to take an approach from a government level. We would also require active support from schools and teachers. This can be difficult to gain traction as schools and teachers are already very busy teaching the current curriculum and change can be a difficult challenge to embrace.

The education system is also a very complex system which has not experienced extensive change in many years, if at all. In the 1990s, subject targeting funding was removed from the secondary school education. This has made it difficult for smaller courses such as agri-business and horticulture to be taught in schools (Simmions. M, 2019). This is an issue as it indicates the government has very little interest in the education of future generations and has a main goal to teach students based on the tradition curriculum which has a strong focus on core subjects such as Math, English and Science.

12.2 Teachers

Teachers can be a challenge for two main reasons. Firstly, teachers can very easily develop their own opinions. This can result in teachers expressing their opinions to their students. As teachers are considered as role models by most, it can be very difficult for students to establish their own perspective whether it be positive or negative. For this reason, it is extremely important to educate teachers and encourage communities to share a positive and up to date perspective on agriculture. Also ensuring career advisors are as knowledgeable as possible about agriculture and how different career paths can link back to agriculture.

The second challenge we have with teachers is they do not have time. Teachers are extremely busy and very little time to learn new topics and due to the school system, they cannot afford time out of school as both the teacher and the student. This is due to having a curriculum they must work through and have completed within the school year and have the students well prepped for final exams.

12.3 Parents

The challenge we have with parents is we have no control over their involvement with agriculture and with their children. Often parents will develop their own opinions on topics due to their upbringing. These opinions are often passed on to their children and the child is restrained from developing their own opinion as they are brought up to believe that their parent's opinion is what is right.

This is a challenge which is very difficult to get through as we do not have the ability to directly enter a family home and correct the negative perception about agriculture.

However, there are two main ways we can get positive conversation about agriculture into family homes. The first is by increasing learning about agriculture early in schools. Allow children to learn and understand agriculture in a positive light. Children who show interest and passion for agriculture would be noted by teachers and by parents when the child goes home after school. Parent, Teacher interviews is another opportunity for the teacher to express how well the child is learning and if there is anything that might help that child excel in learning.

The second way to get in front of parents is through media. By getting in positive agricultural stories share over the television, newspapers and the internet, parents are more likely to see this in their homes than anywhere else.

When their child comes home from school talking about their positive agricultural experience and parents then see positive agricultural stories, they are more likely to gain a greater understanding of agriculture, therefore will be more supportive of their child's interests.

12.4 Media

The media can be one of the biggest enemies and the biggest friend of the story being told. Far too often stories are told in the eye of the editor or in a way that will attract people's attention in order to make money. This results in stories being told incorrectly or some would say bend the truth. In agriculture we have thousands of positive stories all over New Zealand and they work. Unfortunately, it is the poor stories or those that do not accurately represent food/fibre production as a whole that gives agriculture a bad name.

The pace at which news stories are spread in today's society is phenomenal. Access to the news is literally everywhere you go. On the television, on your phones, through the internet, newspapers and magazines. When a negative story gets shared about agriculture, it has an instant emotional connection with people. People will emphasise with the animals and create a picture in their mind that says all farmers are poor farmers. This is often linked back to titles such as 'Dirty Dairy'.

The reality is, if the media continues to sell agriculture in a negative light, the ability to attract people into the industry is difficult enough let alone training and retaining passionate people in the sector.

Over all the education sector is going to be one of the most challenging systems to enter in order to make opportunities to improve perceptions around agriculture. Parents and teachers play a key part in influencing future generations in their general perceptions and future career paths. We will have more difficulty improving people's perception around agriculture because of media influences. If we can sell positive agricultural stories, it will complement any work done in education, to help better educate teacher's parents and students.

13.0 Conclusion

Over all through this research I have established that there has been extensive investigation into attraction to agriculture at a secondary and tertiary education level. From the research and literature I have put together the key findings are as following;

- These investigations clearly indicate that teachers and parents are the main drivers of youth following a future agriculture career path as well as their experiences in the industry.
- Through schools and the education system we are most likely to have the most success in gaining traction for an increase in interest in agriculture.
- Primary school education is an area which less focus has been on. Moving forward, primary schools should be considered as a priority target to build agricultural attraction through introducing stable and continuous food and fibre programmes.
- There is opportunity to improve perceptions around agriculture through educating teachers, parents, students and sharing positive stories in the media.
- Study of agriculture is often considered as a course for the less intelligent ‘dumb’ people.
- There is currently no clear pathway in agriculture. Youth can easily be lead away from their agricultural desired due to misinformation from parents and teachers. Currently St Pauls is working towards changing this had has encouraged other schools to consider Agribusiness/horticulture as part of the available curriculum for students working towards NCEA.

14.0 Recommendations

Going forward I believe the future of agriculture is positive, provided passionate people sell farming in a way that represents the majority of the industry. Key recommendations are;

- Continue to share positive agricultural stories, by various methods such as media.
- Target educating youth about agriculture as early as primary school through introducing an independent teaching platform as part of the primary school curriculum.
- Teach children where their food comes from using backwards engineering; from plate to farm. This would need to be backed by company’s such as Talent Central and farming industry bodies to provide the information.
- Build a clear pathway to support people with an agricultural passion right from young children, through primary school, secondary school and beyond their tertiary education. We would do this by recognising those children with an agricultural interest and nurturing this. This would be implemented through introduced education programs and offering support to teachers, career advisors and parents. This could be done by those bodies collectively involved in primary, secondary and tertiary education.
- Utilise technology and use it as a platform to educate the urban population. Selectively place interactive technology where people can read, listen and learn about agriculture in New Zealand.

15.0 Thinking towards the future

Through the experience of preparing this report, I have been cautiously thinking of ways to better educate youth about agriculture. If I am to refer back to my key recommendations, I believe the best way achieve those recommendations is gauge what drives children and makes them think. In this report I looked at Dairy NZ in schools/ Rosie's Education and Garden to Table. These are both fantastic and reasonably successful. However, I would like to see something bigger than this to enter primary schools.

When I think back to my years at primary school, I think about what were key learnings from outside the school classroom that I will never forget. The key programme that I clearly remember was Harrold the Giraffe. Through this I learnt about the human body and how to live a full healthy life. Harrold came to school every year right through primary school.

I feel that if we can find a way to incorporate this concept and link it to Garden to Table as well as Dairy NZ in Schools we will be a step forward in educating positive agriculture and making radical change.

My next steps would be, to work with the people I have interviewed to pursue a system/framework that can ensure agriculture is presented in an up to date accurate perspective to young people and their parents. I see myself as part of a working group with the likes of Talent Central, The Rural Innovation Lab and the Agribusiness subjects in secondary school. By doing this I will be ensuring that the above recommendations become a reality.

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17.0 Appendix

Interview Questions.

1. Where do you see agriculture and youth perspective currently?

2. What direction do you see agriculture going in the future?
3. What are the biggest influences of youth career path?
4. How do we get influences enthusiastic about agriculture?
5. What gets youth focused and motivated about their potential future career paths?
6. What age group should we be targeting?
7. How do we ensure youth enter agriculture beyond school?
8. How do we teach Agriculture as being more than just the farmer and his dog?

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