

DEVELOPING AGRIBUSINESS ACHIEVEMENT STANDARDS

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Agribusiness Achievement Standards

Introduction

This report provides a rationale for the recommendation of the introduction of Agribusiness Achievement Standards at NCEA Levels 2 and 3.

The subject Agribusiness is defined as a course of study that integrates all the primary industries and businesses that comprise primary production. 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. Primary industry businesses often called agribusinesses include companies that are involved along the whole value chain including the manufacture, production operations, storage, processing, distribution of product and supplies, marketing of primary products and items made from them, along with support industries such as fertiliser companies, veterinarians, rural consultants and accountants.

Through the focused learning of Agribusiness, students engage in future and innovative thinking and develop problem-solving strategies and lifelong skills. They build knowledge of the whole operation, and are encouraged to find innovative solutions to challenging operational issues. They will learn the economic, physical / climatic, political, environmental, technological, historical, social, ethical, and cultural influences on agribusinesses and the interrelationships of science, business, technology, society, and the environment.

Agribusiness is applied science and commerce looking at how humans choose to use technical knowledge and limited resources such as land, labour, capital and management to produce primary and secondary products and distribute them for consumption to different people over time. Agribusiness is the understanding that the ability to grow primary products is not sufficient to make growers succeed and that there are many other elements which are also important, such as human resources, strategic management, marketing, policy, financial planning, economics, and natural resources. It is important to get society's basic needs of food, fibre and shelter to all people in the right form at the right time!

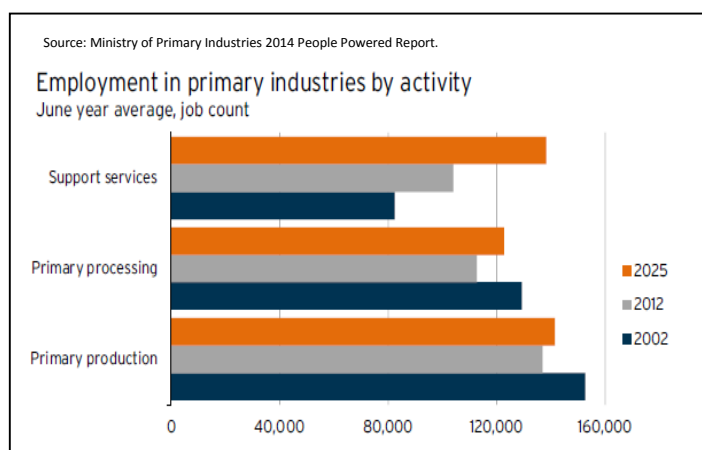
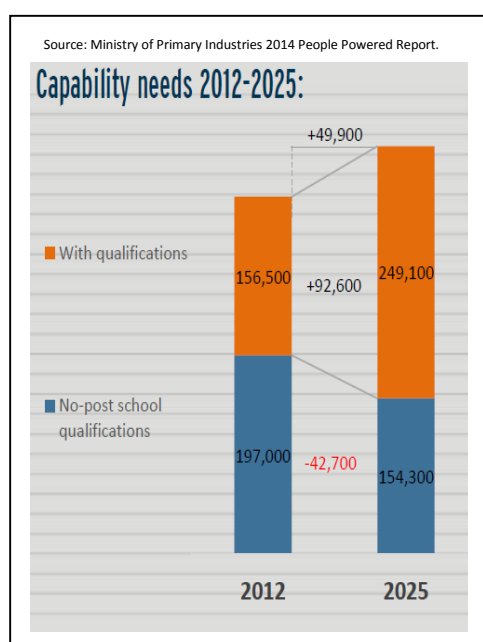


Current Situation

The primary industry is how New Zealand earns a living. It generates 70% of our merchandise export earnings and around 12% of Gross Domestic Product, with employment in primary industries around 16% of total employment in New Zealand (Ministry of Primary Industries). More than any other developed country, New Zealand's economy, people and environment depends on the success of our primary industries. Despite being further from markets than any other major primary producer, New Zealand has built highly competitive and efficient primary production systems exporting virtually to every corner of the globe. The primary industry is a key driver of New Zealand's economic, social, and environmental development. The products from primary production are a source of well-being for the present generation and will be so for future generations.

New Zealand's primary industry is a multi-billion dollar business. It is the backbone of our economy. The industry is not what it used to be, and it is changing every day. New technologies and innovation help produce more food to feed an ever increasing population however, the level of scrutiny over the management of our natural resources intensifies. Today's agribusinesses are sophisticated multi-million dollar businesses with people who have many skills that are required to run these enterprises. The primary industry needs more than just workers and farmers. They need environmental scientists, engineers, economists, accountants, marketing, business professionals and much more. There is a recognised long term need for the industry to develop highly skilled and motivated young people, necessary for a sustainable future of the primary sector and to keep pace with the changing demands of society and our discerning consumers (Ministry for Primary Industries, 2014. People Powered Report).

The New Zealand Government has set an ambitious target of doubling our primary sector exports by 2025. To get there, New Zealand will need investment, innovation, market development and a skilled workforce.



The agribusiness sector in New Zealand has major skill shortage across the value chain now, let alone in the future. The Ministry of Primary Industries forecasts show that across the primary industries there will be a growing demand for professional skills such as engineering, science, and management and that the workforce of the future may look very different. In many cases, jobs will be more specialised, will require people with strong educational backgrounds and there will be an increasing demand for more people in occupations with higher qualifications, especially for professional degrees in field of specialisation aligned with the value chain (Ministry for Primary Industries, 2014. People Powered Report).

The government estimates the sector will need to employ another 50,000 people by 2025, half of them requiring tertiary or level 4 qualifications (Honourable Nathan Guy: Minister for Primary Industries). However, the number of university graduates in primary industry related fields has dropped in recent years. Of the 22,820 undergraduate degrees awarded to domestic students across the country in 2011, only 68 were for agricultural sciences and 90 were for farm and agribusiness management students. Meanwhile, performing arts turned out 650 students, philosophy 424, and mathematics 334. DairyNZ estimates an annual need of 1250 agriculture-related graduates to keep the dairy industry healthy and growing (Mark Paine: DairyNZ Strategy and Investment Leader) and Competenz states, that by 2025 the forestry industry is expected to need 25,900 more trained workers to replace older workers leaving the industry (<http://www.competenz.org.nz/industry/forestry/>).

The Primary ITO and Competenz (and other sector - related ITO's) provide learning opportunities and pathways for secondary school students through the provision of training programmes based on unit standards that carry credits at Levels 2 and 3 on the NZQA Framework. This is a significant pathway, however, it is seen as being for a less academic group of students to get into primary industry careers at entry level of the value chain such as on-farm, on-orchard, in-forest, and at-sea (drivers, fencers, farm workers for example). Hence academically focussed students are not interested in moving through this pathway.

Agricultural and Horticultural Science numbers at senior secondary school are in decline. Level 3 NCEA Agricultural and Horticultural Science over the five years since 2010 has averaged around 440 students per year and shows little sign of increasing. This compares with an average of 14,000 students taking Level 3 NCEA English and 7,500 taking Chemistry, while the language subjects; Maori (600) and French (800) had more interest from the country's most senior secondary school students. Scholarship figures are even more alarming with an average of just 36 students actually sitting Scholarship Agricultural and Horticultural Science across the whole country (NZQA National Statistics Reports 2010 -2013).

Agricultural and Horticultural Science does not have a high profile as a career pathway. The public perception is that agricultural and horticultural courses are for less able students. School and community perceptions of the importance of agribusiness to New Zealand need improving, and the opportunities and pathways that are available are not recognised or well known. In particular there is a need to engage the urban sector with the primary sector which politically is so very important for New Zealand's future. There is an urgent need for initiatives that provide a better link between secondary schools, tertiary institutions and the agribusiness sector.

There is currently no senior New Zealand secondary school programme that looks to interest and engage academic tertiary capable students into careers in the agribusiness sector right along the value chain or that meets the New Zealand Government priority areas of increasing productivity in the primary industries. The primary industry needs the brightest and the best with transferable skills to take up careers in the primary industry to help feed an ever growing population across the world. The current agribusiness (Agricultural Science, Agricultural Commerce etc.) graduate requirements for New Zealand are 1000 annually (Mark Paine - DairyNZ, 2014; Andrew West - Lincoln University Vice Chancellor, 2014). The 2014 numbers of agribusiness students graduating from New Zealand universities was approximately 250 (Andrew West - Lincoln University Vice Chancellor 2014). Therefore, there is a current shortfall of approximately 750 annually.

By introducing Agribusiness as an innovative teaching and learning programme with Achievement Standards at NCEA Levels 2 and 3, St Paul's Collegiate School is hoping to provide a new emphasis which will address the needs and interests of many students and use the opportunities found in the



school and the community. Contexts for learning will be chosen for their relevance and utility, and the teaching is focussing on long-term, valued outcomes, particularly desired outcomes of many employers in the agribusiness sector. Schools need help to develop programmes that connect learning across science, technology, mathematics and statistics, social sciences, business studies, economics, and geography and this connection needs to be explored in more depth and further extended across the learning areas. While the intent of the realignment of Level 3 NCEA Agricultural and Horticultural Science was a step in the right direction in terms of agribusiness, the resulting curricula is seen as too difficult for the less academic students, and not engaging enough for the more capable tertiary bound students. The inherent challenges and opportunities offered to schools have not been taken up and numbers are stagnant.

The innovative Agribusiness teaching and learning programme designed by St Paul's Collegiate School, has appealed to senior students from both the Science and Commerce domains, with 88 students taking it across the two Levels in 2015. It utilises the particular opportunities found within secondary schools and their communities and is an initiative of national significance for the agribusiness sector. Agribusiness targets the identified needs and interests of more academic students, New Zealand tertiary institutions and the agribusiness sector at large. Agribusiness tertiary institutions, particularly Massey University, Lincoln University and Waikato University are involved in this initiative and have given their enthusiastic support at Vice-Chancellor level. The course has a major emphasis on experiential learning, gaining understanding and applying examples of industry 'best practice' to conceptual learning within the classroom. Industry visits, field trips and guest speakers from within the agricultural science and business sectors are an integral part of this course. Another key focus is on career pathways and opportunities within the agribusiness industry using the value chain i.e.

- Suppliers i.e. beef, dairy, sheep, venison; farm management
- Processors i.e. business management, food safety, food science, information technology, pharmaceutical, marketing, engineering, packaging, research and development
- Marketplace (customers) i.e. traders, logistics, wholesalers, importers, distributors, supply chain management, retailing, brand management, communication management
- Professional and technical support services i.e. AgResearch, farm technology, farm machinery, rural banking, farm advisory, fertiliser supply, finance, economists, animal health
- Science i.e. soil, grassland, sustainability, water.

Currently the Level 2 and 3 Agribusiness programmes at St Paul's Collegiate School are being assessed by using Achievement Standards from Economics, Business Studies, Education for Sustainability, Science, Agricultural and Horticultural Science, Geography, and Technology, and adapted to meet the needs of the programmes. However, due to Agribusiness having different knowledge, context, skills and emphasis from these curriculum areas, finding achievement standards that fit nicely and appropriately has been challenging, and therefore developing viable, proven, achievement standards based on Agribusiness at NCEA Levels 2 and 3 is required.

This report provides a rationale for the introduction of Agribusiness Achievement Standards at NCEA Levels 2 and 3, which will ensure that the assessment for the contextualised teaching and learning Agribusiness programmes that St Paul's Collegiate School have designed, to encourage academic students into exciting career opportunities in the primary industries, are appropriate and relevant.



Curriculum Principles

1. Big ideas or key concepts and the body of knowledge of Agribusiness widely agreed across subject matter by experts and teachers

Key concepts are the big ideas and understandings that we hope will remain with our students long after they have left secondary school. Agribusiness has a well-established and an agreed body of knowledge. The following are key concepts/big ideas in Agribusiness.

- Agri-innovation

Agribusiness will create opportunities to develop knowledge and understanding of innovative solutions and strategies for future proofing the primary industries in current and/or future issues; such as food safety, climate change, loss of biodiversity, global economic trends, over exploitation of natural resources, food losses and waste, the social importance of transforming individual poverty to community wealth, the power of social media to spread knowledge and ideas rapidly, and the globalisation of trade. The impact of outside influences on agribusinesses need to be predicted, prevented, limited, minimised, or corrected to ensure that they meet present needs, remain viable, protect the environment without compromising the ability of future generations to meet their needs, and maintain New Zealand's reputation.

- Agriscience

Agribusiness understands the importance of scientific concepts, skills and knowledge of the primary industry and recognises its need to apply these to their agribusinesses to meet consumer and producer future and current needs, resolve their issues, develop new markets and provide consumers with safe, convenient and nutritious end products. New Zealand is a country whose economy depends predominantly on the animal and plant products derived from its primary production. For New Zealand to remain competitive in the local and international markets, new products, production and processing methods and new technologies must continually be developed through science.

- Agrimanagement and finance.

Agribusiness will examine the decision-making by agribusinesses in the primary industry, the economics of producing and selling a primary product and the way they interact in specific sectors and markets. It is concerned with the future rather than the past, attempting to predict and mitigate what will happen if some action is taken. The primary industry is affected by two features that make it distinct from all others. One is the cyclic nature of production due to physical and biological factors; and the second one is price instability caused by changes within the markets for primary products and the actual physical primary product. Agribusinesses need to have an understanding of the cause and effect relationships for them to succeed.

- Agrimarketing

Agribusiness will explore the concepts of marketing and growing value within the primary industry, the ability to be able to make informed decisions that enhance and add value to any primary products and secondary products or services derived from primary products. Having an understanding of the whole value chain ensures present and future agribusinesses being able to sell products or services for higher return. Capturing more value and marketing the product is important to agribusinesses to ensure their survival, their global, national or regional importance and growing New Zealand's economy. Students will develop understanding of the effects marketing has on an agribusiness in the short and long terms and how to provide current and future focussed marketing and delivery practices.

2. Key skills and competencies which would be developed through the study of Agribusiness

Agribusiness programmes at levels 7 or 8 are based around realistic and practical contexts and provide students with the opportunity to develop skills and concepts to explore agribusiness issues and to communicate their ideas to others. Agribusiness students develop the skills of planning, investigating, designing, drawing, model-making and capabilities in using digital tools and processes. They use creativity, logic, knowledge and problem solving to find innovative solutions to real-life problems, necessary for New Zealand to remain competitive in local, regional and international markets.

Learning programmes in Agribusiness aim to build the knowledge, skills, and experience that underpin economic and environmental sustainable primary production systems, through the understanding of scientific and technological principles to ensure marketable primary and secondary products and services.

The New Zealand Curriculum identifies five key competencies: thinking, using language, symbols, and texts, managing self, relating to others, and participating and contributing.

Thinking.

Agribusiness students need to be able to understand agribusiness theory with scientific concepts and technological know-how. The ability to be able to think creatively, critically and problem solve is important to future proof agribusinesses. These skills can be applied to shape actions, make decisions, and construct knowledge, to ensure students are able to capitalise on market opportunities that come along or to ensure that they are challenging current assumptions and perceptions. Students who are able to think outside the square, critically analyse, reflect, and evaluate decisions will be better equipped to be able to cope with any challenge in their enterprises that the future may hold.

Using language, symbols and texts.

Agribusiness uses language and subject specific terminology from a range of areas, such as mathematical, scientific, technological and commerce, to communicate ideas, information and experiences. Students need to be able to use the appropriate language in the given situation to ensure they are able to communicate effectively, solve problems, create processes, and manage day to day operations, as this will improve their success in Agribusiness. Having cultural intelligence will also ensure that agribusiness and scientific or technological research are done successfully within different cultures.

Managing Self.

Agribusiness will provide the opportunity for students to be able to enhance their personal growth. Qualities such as being enterprising, self-sufficient, reliable, and resilient are required if they are going to be successful in an agribusiness. Through the provision of strategies and experience, students are able to set goals, high standards and gain motivation to ensure that they are able to future proof, meet challenges, act independently and be a part of successful agribusinesses.

Relating to others.

The ability to be able to relate to other people is essential in agribusiness, science and technology and across the whole chain in the primary industry. Agribusiness students need to be able to communicate with diverse groups of people, in different contexts and situations, both nationally and internationally. By developing the ability to actively listen, recognise different people's point of view, negotiate and share ideas, they will be able to effectively cooperate and work together to determine their agribusiness success and that of others.



Participating and contributing.

Due to the complexity and multi layered nature of agribusinesses, students need to be able to participate, contribute and be actively involved in their communities. This provides a sense of belonging and support which is required to ensure resilience to meet future local, national or global challenges. Agribusiness students need to be able to understand and balance the rights, roles and responsibilities of all people involved, to have social responsibility and to contribute to the quality and sustainability of social, cultural, physical, and economic environments.



3. Clear curriculum pathways which enable students to participate in future study, training, or employment

The Ministry of Education has a priority outcome of “Every young person has the skills and qualifications to contribute to their and New Zealand’s future”. They believe that this is important as, New Zealand’s economic growth is the overriding objective for the Government. Ministry of Education states that “education plays a vital role in ensuring New Zealand’s long-term prosperity. Successfully completing a secondary school level qualification is the platform on which young people base their next steps into employment, further training, and higher level education” (Ministry of Education, 2010. Statement of Intent 2011 – 2015. New Zealand Government).

In the Statement of Intent report it states that, “in 2008, 29 per cent of school leavers (15,837 young people) left school without achieving NCEA Level 2. This level of underachievement has implications for both individuals, who are not equipped for skilled employment, and for the productivity of the broader workforce. The education system must meet the needs of all students including those who want to move into study at a tertiary institution, those who are seeking an apprenticeship or other industry qualification, and those students for whom school is not the best learning environment and need preparation to enter the workforce. We want every 16 and 17-year-old to be in education, training or work to ensure we have more young people with the skills and qualifications to contribute to their and New Zealand’s future” (Ministry of Education, 2010. Statement of Intent 2011 – 2015. New Zealand Government).

New Zealand needs bright, academic young people who understand the production of primary and secondary products and who value the contribution that agribusinesses make to our society, economy, and culture. It needs people who are able to apply scientific, technological and business knowledge and skills to new situations and to the solving of current or future primary industry problems. Such knowledge and skills are crucial to our future, but are in short supply. St Paul's Collegiate School believes that developing Agribusiness achievement standards will help to meet this short fall.

The knowledge and skills that students develop through their learning in Agribusiness opens pathways to a wide range of career opportunities, both in New Zealand and overseas. These pathways lead to careers as varied as property appraiser, agricultural policy analyst, agribusiness manager, crop producer, grain and livestock buyer, market analyst, financier, quality controller, marketing head, real estate, retail marketing, food processing and investments. They can also lead to related fields such as scientific or technological research, packaging design, and food processing and marketing.

As well as exposing students to a range of possible careers, learning in Agribusiness connects students to mentors and to the agribusiness community. These connections can be further developed as students enter the workforce and progress in their own agribusiness careers. All students who take Agribusiness gains knowledge, skills and attributes that they will need should they become entrepreneurs, run their own or become involved in an agribusiness or an organisation.

Students studying Agribusiness can continue with further agribusiness education in the tertiary sector through the Universities of Massey, Lincoln, and/or Waikato; at relevant polytechnics, wananga or specialist training organisations such as Taratahi Agricultural Training Centre.

Students who do not opt for further qualifications or to take up a career in agribusiness will be more knowledgeable in the primary industries and be better able to understand the intricacies of agribusiness as a result of their learning. The skills gained in Agribusiness are transferable to learning in many other areas and to real life.



There are a number of school based initiatives that have been developed to meet the above Priority Outcome. The Ministry of Education has developed the Youth Guarantee programme to enable better achievement across the schooling and tertiary sector and improving transitions between school, tertiary and work. They have developed one for the primary industries and have re-contextualised existing achievement standards from other subject areas with a primary industry context. This programme aims to improve educational outcomes for 16 and 17-year-olds by improving the retention of young people in education and learning and access to school-level qualifications.

The Primary Industry Training Organisation (Primary ITO) supports people that work in the primary sectors to improve their skills and knowledge in the workplace. They also offer a range of programmes to help high school students take their first step towards a primary industry career while they are still at school, in the form of two programmes; Trades Academy and Gateway. Both programmes offer assessment opportunities using both unit and achievement standards. The Primary ITO Trades Academy works alongside NCEA and Year 11, 12 or 13 students can combine their NCEA studies with a National Certificate in Agriculture, or Horticulture (Level 1 or 2). Students are able to study a range of relevant training and qualifications. Blending classroom study with on-job learning, the Trades Academy includes field trips in Year 11 and one day per week industry placement in Year 12. The Gateway programme encompasses theory and practical unit standards between Levels 1 and 3. Theory work is reinforced with real-life industry work experience, giving students a taste of what a career in the primary sector is truly like.

The below table shows how Agribusiness lines up with other educational pathways for senior secondary students wanting careers in the agribusiness sector.

| Secondary Schools Primary Industries Programmes | Level | Unit (US) or Achievement (AS) Standards | Where |
|--|-------|---|---------------------------|
| Proposed NCEA Agribusiness achievement standards | 2 – 3 | New AS | School based |
| Vocational Pathways Award in the Primary Industries | 1 – 2 | Existing AS and US | Industry and school |
| Trade Academies - NZ Primary Industries Trades Academy (Primary ITO) - Primary Industries Trades Academy (Taratahi Agricultural Training Centre) | 1 – 3 | Existing AS and US | Industry and school based |
| National Certificates in 29 sectors of Primary Industries | 1 – 3 | Existing US | Industry workplace |
| Primary ITO Gateway programmes | 1 – 3 | Existing US | Industry and school |
| Agricultural & Horticultural Science Achievement Standards | 1 – 3 | Existing AS | School based |

While, St Paul's Collegiate School believes that these initiatives are a step in the right direction, it is not necessarily meeting the aims of the primary industry, their skills shortage or attracting bright young people to step into employment, further training, and higher level education in the primary sector. There is a body of knowledge, content and skills that agribusinesses need to have and this will only be achieved with specially developed Agribusiness teaching and learning programme that is assessed with specially designed Achievement Standards in Agribusiness. Agribusiness achievement standards will be complementary to the Youth Guarantee programme and will provide better learning outcomes and more opportunities for 16 and 17-year-olds to pursue integrated education pathways that lead to skilled and sustainable employment.



4. Clear achievement objectives at appropriate curriculum levels

Agribusiness is a multi-disciplinary subject, and as such integrates concepts and achievement objectives from a range of learning areas including Science, Technology, Social Sciences and Mathematics and Statistics. Programmes should take account of the particular needs and interests of the students and the particular opportunities that are available in the community.

The New Zealand Curriculum does not specify achievement objectives for Agribusiness, so learning objectives have been developed to describe the intended outcomes.

Strands

The learning objectives for Agribusiness integrate the key concepts with the four agribusiness learning area strands.

- **Agri-innovation**

Agribusiness will create opportunities to develop knowledge and understanding of innovative solutions and strategies for future proofing the primary industries in current and/or future issues; such as food safety, climate change, loss of biodiversity, global economic trends, over exploitation of natural resources, food losses and waste, the social importance of transforming individual poverty to community wealth, the power of social media to spread knowledge and ideas rapidly, and the globalisation of trade. The impact of outside influences on agribusinesses need to be predicted, prevented, limited, minimised, or corrected to ensure that they meet present needs, remain viable, protect the environment without compromising the ability of future generations to meet their needs, and maintain New Zealand's reputation.

- **Agriscience**

Agribusiness understands the importance of scientific concepts, skills and knowledge of the primary industry and recognises its need to apply these to their agribusinesses to meet consumer and producer future and current needs, resolve their issues, develop new markets and provide consumers with safe, convenient and nutritious end products. New Zealand is a country whose economy depends predominantly on the animal and plant products derived from its primary production. For New Zealand to remain competitive in the local and international markets, new products, production and processing methods and new technologies must continually be developed through science.

- **Agrimanagement and finance.**

Agribusiness will examine the decision-making by agribusinesses in the primary industry, the economics of producing and selling a primary product and the way they interact in specific sectors and markets. It is concerned with the future rather than the past, attempting to predict and mitigate what will happen if some action is taken. The primary industry is affected by two features that make it distinct from all others. One is the cyclic nature of production due to physical and biological factors; and the second one is price instability caused by changes within the markets for primary products and the actual physical primary product. Agribusinesses need to have an understanding of the cause and effect relationships for them to succeed.

- **Agrimarketing**

Agribusiness will explore the concepts of marketing and growing value within the primary industry, the ability to be able to make informed decisions that enhance and add value to any primary products and secondary products or services derived from primary products. Having an understanding of the whole value chain ensures present and future agribusinesses being able to sell products or services for



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higher return. Capturing more value and marketing the product is important to agribusinesses to ensure their survival, their global, national or regional importance and growing New Zealand's economy. Students will develop understanding of the effects marketing has on an agribusiness in the short and long terms and how to provide current and future focussed marketing and delivery practices.

Progression in Agribusiness

Agribusiness addresses the same concepts at levels 7 and 8. The development of conceptual understanding is cumulative as students return to the same concepts in different contexts throughout their learning. As students' progress through levels 7 – 8, they demonstrate their increasing understanding as they:

- make connections between the strands
- make connections between the range of learning areas including Science, Technology, Social Sciences, and Mathematics and Statistics
- use more complex and abstract Agribusiness concepts
- apply and transfer their understandings to different agribusinesses and to more complex and distant contexts, as well as to those that are familiar
- problem solve and future proof in increasingly sophisticated and innovative ways
- advocate for sustainable policies and methodologies in all agribusinesses, and
- take responsible actions and make informed decisions that are based on their new understandings.

Learning programmes in Agribusiness aim to build:

- understanding of the scientific, economic and technological principles used in Agribusiness that ensure economic, social, ethical, cultural and environmentally sustainable primary production systems and secondary products and services linked to the primary sector
- the ability to apply economic, social, ethical, cultural and environmental considerations to primary and secondary production systems to ensure marketable, environmentally sustainable products and services.



Learning objectives

Through learning in these strands, students will gain knowledge, skills, and experience to:

| Strand | Level 7 | Level 8 |
|----------------------------|---|--|
| Agri-innovation | 7-1 Examine the impact of influences on agribusinesses to meet present and future needs, viability, and protection of the environment. | 8-1 Critically examine innovative solutions and strategies for future proofing agribusinesses in current and/or future issues. |
| Agriscience | 7-2 Examine how scientific principles, concepts and knowledge are applied in agribusinesses to ensure present and future primary and secondary production. | 8-2 Critically examine how scientific principles, concepts and knowledge in agribusinesses are used to meet consumer and producer needs, resolve their issues and develop new agri-technological advances. |
| Agrimanagement and finance | 7-3 Examine the decision-making by agribusinesses in producing and selling a primary product and/or secondary products and services linked to the primary sector and the way they interact in specific sectors and markets. | 8-3 Critically examine the operational and strategic decisions in agribusinesses and how they impact on the future direction of production and society. |
| Agrimarketing | 7-4 Examine decisions in agribusinesses that allow producers to enhance and sustain local and/or global primary production and enterprise. | 8-4 Critically examine how agribusinesses capitalise on the opportunities to grow the value of their products round the globe. |



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5. Indicators of progression at each appropriate curriculum level and across curriculum levels

Indicators are examples of the behaviours and capabilities that a teacher might expect to observe in a student who is achieving at the appropriate level.

Learning objective 7-1: Agri-innovation

Students will gain knowledge, skills, and experience to:

- Examine the impact of influences on agribusinesses to meet present and future needs, viability, and protection of the environment.

Indicators

- Evaluates the costs and benefits of primary sector development on our community, and the environment.
- Constructs a survey to identify the common attitudes and values in a community regarding future proofing agribusinesses.
- Identifies and predicts potential outside influences on an agribusiness.
- Explains the short term or/ and long term impacts these outside influences could have on an agribusiness in terms of production, and profitability.
- Researches a range of case studies of outside influences on agribusinesses.
- Explains how outside influences can be mitigated, prevented, limited, minimised, or corrected to ensure that agribusinesses meet present needs, remain viable, protect the environment without compromising the ability of future generations to meet their needs, and maintain New Zealand's reputation.
- Brainstorms why adopting new innovations, ideas and techniques is important to the production and the future of agribusinesses in terms of sustainable practices and solving problems.
- Compares and contrasts traditional and new management practice associated technologies in an agribusiness and how they are impacted / affected and brought about by outside influences.

Learning objective 8-1: Agri-innovation

Students will gain knowledge, skills, and experience to:

- Critically examine innovative solutions and strategies for future proofing agribusinesses in current and/or future issues.

Indicators

- Develops strategies and solutions for meeting future proofing challenges in agribusinesses.
- Discusses innovative future proofing solutions and strategies which mitigate, prevent, limit, minimise, or correct outside influences to ensure that they meet present and future needs of an agribusiness.
- Researches examples of innovations and evaluates their future proofing outcomes.
- Examines the role of technology, commerce and science to develop new ideas, processes and techniques to alleviate potential outside influences in agribusinesses.
- Identifies the use of technology, commerce and/or science as an intervention and explain the impacts and implications of this.
- Critiques the role of technology, commerce and/or science in the development of sustainable agribusinesses.
- Compares and contrasts strategies for future proofing an agribusiness.
- Justifies future proofing solutions for outside influences and their effect on an agribusiness in terms of production, and profitability.
- Critically examines future proofing solutions throughout an agribusiness and understand which plays a bigger role / impact on the agribusiness as a whole.
- Deliberates how an agribusiness that operates in a global context responds strategically to future proof external influences.

Learning objective 7-2: Agriscience

Students will gain knowledge, skills, and experience to:

- Examine how scientific principles, concepts and knowledge are applied in agribusinesses to ensure present and future primary and secondary production.

Indicators

- Examines the role of science to develop new ideas, processes and techniques to alleviate potential outside influences.
- Applies food, plant, animal and soil science knowledge, principles and concepts to Agribusiness and understands their impact on production in an agribusiness.
- Identifies composition and nutritive value of food products produced and marketed by agribusinesses to grow their value e.g. health, convenience, gourmet / niche market and sustainability.
- Uses plant and/or animal science knowledge and skills to understand the difference between the plant and/or animal species in terms of their classification, morphology, development and responses to the environment and how these adaptations make them successful as current or future crop/stock species and their use in food products or production.
- Compares and contrasts the benefits, risks, advantages, disadvantages and opportunities as market demands change when using current or future plant/animal species or cultivars in an agribusiness.
- Realises that broad research programmes are needed to meet consumer's needs, as well as ensuring the industries are sustainable long term by developing tools and techniques to increase yield, minimise inputs and reduce environmental impacts of agribusinesses.
- Understands that for New Zealand to remain competitive in local and international markets, 'new' products must continually be developed.
- Describes how scientists develop new ideas through research, and relates these to current scientific knowledge.
- Uses scientific knowledge or processes to answer socio-economic questions on an agribusiness.

Learning objective 8-2: Agriscience

Students will gain knowledge, skills, and experience to:

- Critically examine how scientific principles, concepts and knowledge in agribusinesses are used to meet consumer and producer needs, resolve their issues and develop new agri-technological advances.

Indicators

- Applies scientific knowledge to manipulate and/or process food, to meet consumer and producer needs and wants, resolve their issues and develop new markets and/or agri-technologies.
- Appreciates that food processing, scaling up and storage modifies the physical, chemical, biological, nutritional, and sensory properties of primary products.
- Discusses the impact that new food products have on consumption, market acceptability, market value, how they meet consumer and producer needs and wants and add value to agribusinesses.
- Recognises that food scientists need to have an in-depth knowledge of food and how they can be handled, processed and/or packaged to provide consumers with safe, convenient and nutritious end products.
- Presents a scientific solution to a future proofing issue in an agribusiness.
- Uses scientific evidence to formulate and make informed decisions in an agribusiness.
- Critically examines decisions that enhance and sustain food production in an agribusiness.
- Understands that economic growth through new opportunities is developed by science such as biopharmaceuticals and biomaterials.
- Researches and develops a better understanding of the importance and possible uses of microorganisms and/or entomology in primary and secondary production.
- Distinguishes the scientific, ethical and/or social implications when decision making in an agribusiness.

Learning objective 7-3: Agrimanagement and finance

Students will gain knowledge, skills, and experience to:

- Examine the decision-making by agribusinesses in producing and selling a primary product and/or secondary products and services linked to the primary sector and the way they interact in specific sectors and markets.

Indicators

- Explains the effect of and responses to an external factor on the cash flow forecast.
- Justifies the most effective response(s) to the external factor on the cash flow forecast.
- Identifies the finance needs for a seasonal agribusiness including seasonal variations in cash flow, asset maintenance, feed or fertiliser programmes.
- Prepares a cash flow forecast for the day to day/monthly operations of an agribusiness that experiences seasonal differences in income/expenses and/or price fluctuations using computer software.
- Analyses data from the cash flow forecast to include monthly forecast cash inflows and cash outflows and the operational finance needed and/or adjustments required to outflows, to manage surplus deficits where they arise, including as a result of a change in the original forecast.
- Discusses the types and features of organisational structures of agribusinesses and their advantages and disadvantages.
- Investigates the organisational ownership structures (e.g. partnerships, trusts including Maori trusts; companies including iwi based; and share farming) within the primary sector.
- Evaluates the ownership structure of an agribusiness in terms of the objectives for the beneficiaries of the ownership structure, including future generations of beneficiaries (succession planning).
- Compares and contrasts social tensions and opportunities from different ownership and management models for agribusinesses in New Zealand.
- Researches the purposes and activities of primary industry organisations.

Learning objective 8-3: Agrimanagement and finance

Students will gain knowledge, skills, and experience to:

- Critically examine the operational and strategic decisions in agribusinesses and how they impact on the future direction of production and society.

Indicators

- Researches the consequences of agribusiness decisions on society.
- Investigates the internal operations of agribusinesses that operate in a local and/or global context.
- Discusses how an agribusiness that operates in a local and/or global context responds strategically to external factors.
- Utilises financial and non-financial information for agribusiness decision-making purposes.
- Analyses a strategic decision or decision-making processes within a primary industry organisation or an agribusiness.
- Identifies innovative, sustainable and ethical aspects related to operational and strategic decisions in an agribusiness.
- Evaluates a strategic decision in an agribusiness against economic, ethnical, environmental, social, and cultural outcomes.
- Substantiates a human resource decision made against an objective for the agribusiness and states the consequences of that human resource decision on the agribusiness and society.
- Justifies the financing option(s) for the capital expenditure against a goal or objective and expected future benefits (financial and non-financial) for undertaking the capital expenditure.

Learning objective 7-4: Agrimarketing

Students will gain knowledge, skills, and experience to:

- Examine decisions in agribusinesses that allow producers to enhance and sustain local and/or global primary production and enterprise.

Indicators

- Explains agrimarketing.
- Identifies the global, national or regional importance of agrimarketing.
- Brainstorms the current and future focussed agrimarketing and delivery practices.
- Investigates an agribusiness event or an agribusiness that is exploring a new marketing opportunity.
- Discusses the current relevance of traditional agricultural, pastoral and industrial shows to agribusinesses and their likely role in the future.
- Implements a marketing plan for an agribusiness.
- Reflects on the different stakeholders involved in marketing primary and secondary agri-products and services.
- Evaluates the effects of an agrimarketing opportunity on the agribusiness in the short and long terms.
- Utilises decision making techniques like cost benefit analysis or statistical analysis to analyse the strengths and weaknesses of a marketing opportunity.
- Projects sales and/or growth of the agribusiness for the next 3 to 5 years after a marketing opportunity has been released.

Learning objective 8-4: Agrimarketing

Students will gain knowledge, skills, and experience to:

- Critically examine how agribusinesses capitalise on the opportunities to grow the value of their products round the globe.

Indicators

- Discusses the importance of the supply chain in growing value.
- Researches the value chain for both primary and secondary products within the primary sector and reflects on the different forms that growing value can take.
- Gathers and presents growing value information for different agribusinesses and its importance to the New Zealand economy.
- Identifies the different stakeholders involved in growing value of primary and secondary products and services.
- Recognises that agribusinesses need to capitalise on growing value opportunities to secure a greater share of the value its products are creating round the globe.
- Compares and/or contrasts the use of growing value approaches/strategies in terms of long-term strategy to create and capture greater value.
- Identifies marketing opportunities and strategies for an agribusiness product or service for the domestic and/or international market.
- Researches the purposes and activities of primary industry marketing organisations.
- Investigates marketing methods and/or organisations of the primary industry in terms of their features, relevance, and effects on the international market.
- Plans the launch of a product for a global market.
- Justifies alternative marketing strategies for an agribusiness by explaining or justifying how an agribusiness would alter its marketing strategy in response to fulfilling customer needs.

6. Clear and demonstrable links to the National Curricula which do not duplicate existing learning outcomes

Agribusiness is a multi-disciplinary subject, which has strong connections with other learning areas. Opportunities exist for links to be made between Agribusiness and other learning programmes. Agribusiness contexts offer opportunities to integrate learning, concepts and achievement objectives from a range of different subjects or learning areas including Science, Technology, Social Sciences and Mathematics and Statistics. Integrated learning can be planned for by Agribusiness teachers joining with other teachers from other curriculum areas to jointly plan learning; or teachers in other curriculum areas teach Agribusiness related learning as part of their regular programme. The following section suggests a way in which this can be done.

Business Studies in an Agribusiness Context

Level 7: Students will gain knowledge, skills and experience to:

- Explore how and why large businesses in New Zealand make operational decisions in response to internal and external factors.

Context for learning:

Using Agribusiness knowledge and skills to be able to research the market for a new or existing technological agri-innovation product. This is a new or existing product from a suitable agribusiness connected to the student's life and community and based on their talents, needs and aspirations.

Students would:

- Have an understanding of what is required to undertake research into the market for a new or existing technological agri-innovation product.
- Be able to undertake market research for a new or existing technological agri-innovation product.
- Understand why evaluation of the research process in market research is important in an agribusiness.
- Know how to improve the methods of research, as well as using different presentations and formats.
- Enhance their research data processing skills.

Conducting market research would typically involve:

- Identifying the aim, planning the research for a new or existing technological agri-innovation product.
- Designing resources, collecting and recording primary data on a new or existing technological agri-innovation product.
- Presenting the data for a new or existing technological agri-innovation product.
- Drawing conclusion from the findings for a new or existing technological agri-innovation product.
- Using business concepts to explain the research findings / conclusions for a new or existing technological agri-innovation product.

Business knowledge, concepts and content.

- Reasons for research a new or existing technological agri-innovation product.
- Secondary (internal and external) and primary research
- Sampling methods (random, stratified, quota, cluster)
- Methods of research (observations, questionnaires, focus groups, testing interviews, surveys, desk top, statistics, journals, sales reports, government information)



- Advantages and disadvantages of types and methods
- Data types (quantitative and qualitative)
- Interpreting data
- Presenting data using a range of appropriate methods
- Evaluation the marker research process
- Ways to improve research for a new or existing technological agri-innovation product.

As is the intent of The New Zealand Curriculum, programmes should take account of the particular needs and interests of the students and to make use of particular opportunities that exist within the school and the local community.

Contexts for learning are chosen for their relevance and utility, and teaching focuses on long-term, valued outcomes rather than the learning of discrete and possibly isolated pieces of content.

Agribusiness is treated in these guidelines as a single context, but programmes can focus on any or all of the primary sectors such as agriculture, aquaculture, dairy manufacturing, equine, forestry, horticulture, seafood, or sports turf.

National Education Goals

As stated by the Ministry of Education, “education is at the core of our nation’s effort to achieve economic and social progress. In recognition of the fundamental importance of education, the Government sets the goals for the education system of New Zealand”.

St Paul's Collegiate School believes that the development of Achievement Standards in Agribusiness will meet the National Education Goals, in particular NEG 1, 3, 5, and 6.

- NEG 1 - The highest standards of achievement, through programmes which enable all students to realise their full potential as individuals, and to develop the values needed to become full members of New Zealand's society.
- NEG 3 - Development of the knowledge, understanding and skills needed by New Zealanders to compete successfully in the modern, ever-changing world.
- NEG 5 - A broad education through a balanced curriculum covering essential learning areas. Priority should be given to the development of high levels of competence (knowledge and skills) in literacy and numeracy, science and technology and physical activity.
- NEG 6 - Excellence achieved through the establishment of clear learning objectives, monitoring student performance against those objectives, and programmes to meet individual need.



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Sector Principles

The following sector principles are relevant considerations to be taken into account:

1. Subject maturity: Agribusiness has been taught for some time and has an established and agreed body of knowledge

Agribusiness is one of New Zealand's leading export money earners. Agribusiness combines all facets of business operations, and associated organisations that make up the primary sector. In a small, remote economy such as New Zealand, successful agribusiness relies on the ability to understand the operation of competitive global markets, international marketing and the management of complex and extended supply chains. Agribusiness builds knowledge and business skills across the range of management capabilities that are relevant to the primary sector.

The term agribusiness was first used in the 1960s to more adequately describe the economic usefulness and job opportunities for students studying agriculture and economics. This was the time where there was fewer opportunities for students to return to production agriculture and therefore the horizons were broadening in the total food and fibre sector that services agriculture. For the majority of students coming out of tertiary education who have studied the primary industries, agribusiness is probably the best description of the type of positions in which they will be employed.

Due to New Zealand being largely reliant on agribusiness to sustain our economy, it has been taught as a subject for many years at Lincoln and Massey Universities and most recently at Waikato University. New Zealand has a strong, established and agreed body of knowledge as New Zealand agribusinesses are different to the rest of the world. New Zealand has had to build up this knowledge as we are predominately pastoral farming, have no government subsidies, have lots of technological innovation, and have value chain efficiencies which are different to agribusinesses around the world.

New Zealand would not be where it is if we did not have this established and agreed body of knowledge.



2. Evidence of sufficient numbers of students taking and teachers teaching Agribusiness to NCEA Level 3 to warrant the development of achievement standards

In 2014, 44 St Paul's Collegiate School students took our developmental Agribusiness courses which included the teaching of tasters from the proposed new achievement standards. While only two St Paul's Collegiate School students had gone to agribusiness universities at the end of 2013, in 2014 after teaching tasters of the proposed subject, seventeen students went to agribusiness universities, an increase that we definitely attribute to the engaging teaching and learning programme.

In 2015 St Paul's Collegiate School has 84 students taking our developmental agribusiness courses, half at each of the Levels 2 and 3. We envisage a similar positive uptake in many of the nation's schools. More than half of the students are taking as well at least one senior Science subject and/or at least one senior Commerce subject i.e. they are academic, tertiary capable students.

The table below shows the projections for future agribusiness tertiary graduates based on the successful introduction of Agribusiness as an NCEA Level 2 and 3, UE approved and Scholarship subject in 2017.

Future agribusiness graduate projections based on the successful introduction of Agribusiness as an NCEA Level 2 and 3, UE approved and Scholarship subject in 2017.

| Entry Year | Graduation Year | Schools on Board | Projected Numbers | Rationale |
|------------|-----------------|------------------|-------------------|--|
| 2016 | 2019 | 2 | 20 | *Based on St Pauls' student numbers in 2015 |
| 2017 | 2020 | 8 | 160 | 8 trial schools in 2017 @ 20 students per school |
| 2018 | 2021 | 50 | 750 | Approved for schools in 2018 - 50 schools @ 15 students per school |
| 2019 | 2022 | 100 | 1500 | 100 schools on board @ 15 students per school |
| 2020 | 2023 | 130 | 2000 | 130 schools on board |

Eight Lead Schools, one in each of the major provinces, have agreed to be part of a trial in 2017 for the new Agribusiness standards, if approved by the Ministry of Education. The schools are Mt Albert Grammar School (Auckland), St Pauls Collegiate School (Hamilton), Feilding High School (Feilding), Lindisfarne College (Hastings), Christchurch Boys High School (Christchurch), John McGlashan College (Dunedin), Southland Boys High School (Invercargill) and Southland Girls High School (Invercargill). The teachers involved have all indicated that they are happy to teach Agribusiness and are enthusiastic to get started. All the above schools will be teaching Agribusiness in 2016 using existing Achievement Standards for assessment. The Lead Schools have already met four times, for two days on each occasion, to discuss the Agribusiness initiative, what Achievement Standards could be used and how we are going to be teaching it.

St Paul's Collegiate School has been approached by a number of teachers from various schools wanting to find out about the Agribusiness programme, such as Inglewood High School, Columba College, Morrinsville College, Te Awamutu College, St Andrews College, Opotiki College, Huanui College, Reporoa College, and Scott's College; with some wanting to be involved as soon as possible, such as Palmerston North Boys High School; and yet others who want to develop something similar but for the primary production in their local area such as Katikati College, Marlborough Girls' College and Marlborough Boys' College.



St Paul's Collegiate School believes that there is sufficient students and teachers interest to warrant the introduction of Agribusiness as a subject with new Achievement Standards. Due to agribusiness' multi-disciplinary nature, once achievement standards have been developed more schools and teachers will be encouraged to pick the standards up to teach in conjunction with subjects such as Agricultural and Horticultural Science, Business Studies, Accounting, Economics, and Food Technology.



3. A reasonable spread of schools offering Agribusiness across the country

Eight Lead Schools, one in each of the major provinces, have agreed to run an Agribusiness programme in their schools in 2017. These schools were selected from around the country to be part of a trial in 2017 for the new Agribusiness achievement standards, by St Paul's Collegiate School and the business partners of DairyNZ and Beef and Lamb New Zealand. The schools were selected to be representative of all high schools in New Zealand such as, rural, urban, large, small, state, integrated, private, taught Agricultural and Horticultural Science, and did not teach Agricultural and Horticultural Science. All the schools selected taught senior sciences and commerce subjects to Year 13.

With the amount of interest from other schools around the country, St Paul's Collegiate School is confident that Agribusiness would and could be taught in a range of schools throughout the country.



4. Recognising that Māori engaged in Māori medium are a minority group

Māori Agribusiness.

About 1.4 million hectares of New Zealand land is Māori freehold land, the Māori economy is estimated to total \$40 billion and is almost exclusively made up of primary sector assets. As a result, Māori own and operate many agribusinesses.

A Māori agribusiness is a business that identifies itself as a Māori agribusiness. It will have strong Māori culture, values, tradition and tikanga which underpins land management and utilisation and will employ modern primary and secondary production practices and technologies. These include multiple owner, collectively owned trusts and incorporations and sector service providers. It will be owned by Māori, may be predominately staffed by Māori and te reo may often be used in workplace interactions. Part of its kaupapa may be to support the Māori community using other priorities apart from economic such as social, cultural, environmental, spiritual and philanthropic. This is an important distinction in the way Māori agribusinesses make their decisions and to achieve the goals and objectives of the owners as a collective. These are integrated aspects to a Māori agribusiness, and is vital to understand if students are going to be working in Māori agribusinesses.

The subject Agribusiness will have particular emphasis on future proofing, the concepts of land and water value, kaitiakitanga and the relationship of these kaupapa Māori-based systems to agribusinesses. Students will develop an understanding of Māori resource issues and the relevance of Te Tiriti o Waitangi to Māori agribusiness and present day legislation.

Māori Values important to Agribusiness:

The below concepts underpin the Māori worldview and value system and drive agribusiness behaviour.

Tikanga

The concept of tikanga refers to Māori ethics and customary values and practices such as whakapapa - honouring your genealogy. The tikanga of Māori agribusinesses will have a strong influence on the general conduct of day to day affairs and in the balancing of values in management decisions.

Kaupapa

Kaupapa refers to principles, policies and ideas which act as a base or foundation for action. An agribusiness kaupapa is a set of values, principles and plans which people have agreed on as a foundation for their actions within the business.

Kaitiakitanga

Kaitiakitanga is the guardianship and stewardship of mahinga kai (food sources), land and waterways. Māori view themselves as kaitiaki (guardians, protectors) of the land for the benefit of future generations. For Māori agribusinesses, in particularly those that are of intergenerational nature, this is a key focus of the business and generally decisions made are on long term stability rather than short term gain.

Manaakitanga

Manaakitanga is hospitality, kindness, support and care for others. Policies written within the agribusiness will protect and nurture their people, ensure a progression plan through their business or in the industry and assigning a mentor for each person to support learning and life within that agribusiness.



Whānaungatanga

Whānaungatanga is about attaining, maintaining and caring for whānau through relationships. Opportunities are provided within Māori agribusinesses to make real changes to people's lives and to the lives of their whānau, through strengthening relationships and ties between one another and provide responsibilities as whānau.

Rangatiratanga

Rangatiratanga is the Māori people's right to participate in making decisions about their agribusinesses and to decide how primary sector services might be provided for their benefit. It enables whānau, hapū, iwi and Māori to exercise control over their own assets and agribusinesses, as well as the direction and shape of their own institutions, communities and development as a people.



5. Sufficient resource and expertise available within the Agribusiness community to provide the infrastructure required to maintain and support the development of achievement standards and the ongoing exam writing, marking, moderation and resource activity development

As a result of initial “think tank” with St Paul's Collegiate School agribusiness connected parents and a regional Young Farmers group early in 2013, an Advisory Group made up of industry leaders and tertiary institution representatives was set up to explore the idea of developing a dedicated Agribusiness teaching and learning programme in senior secondary schools. The group was of the view that the current courses available in schools did not adequately do this. The intention of the Advisory Group was, and still is, to address what would best meet the sector’s current and future needs. A key point of difference in what followed has been the development of a draft Agribusiness teaching and learning programme that is a product of a close partnership between a sector determined to play a significant part in meeting its own needs and a high achieving academic school. The Group continues to meet regularly and advise the school on the skill set needed by young people if they are to make a valuable contribution to the sector. The Group to date has guided the school on the types of experiences and skills that a leading edge secondary school Centre of Excellence in Agribusiness should offer its students.

Along with the key industry leaders on our Advisory Group, two major players in the sector, the DairyNZ and the Beef and Lamb New Zealand have both endorsed the intent of the proposed Agribusiness programme and want to be involved in its development and in helping to roll it out throughout the country in the future. To show their commitment, they have made a significant financial contribution and have provided support through their expertise. Other agribusinesses have also made financial contributions and want to help out in any way that they can, particularly providing expertise from the sector to developing agribusiness in secondary schools. These agribusinesses are Gallagher, BNZ, LIC, Zoetis, New Zealand National Fieldays Society, AGMARDT, Greenlea Meats, Waikato Milking Systems, AGrowQuip, Waitomo Petroleum, and Campbell Tyson. All have a representative on the Centre of Excellence Advisory Group. Along with these agribusinesses, St Paul's Collegiate School has had numerous offers of support and expertise from other agribusinesses and primary sectors leaders. This support both financial and expertise, will ensure that the Agribusiness achievement standards are well resourced, well supported and that they are on the right track to meet the needs of the primary sector. An Agribusiness Project Curriculum Director has been appointed and an Agribusiness Conference is proposed to be held in 2017, which will help teachers and schools to facilitate a teaching and learning programme in their schools and to support the introduction of Agribusiness achievement standards. The Advisory Group hopes to continue to play a key role in providing both resources and expertise to maintain and support the development of Agribusiness achievement standards in the future.

There has been extensive interest from schools and teachers throughout New Zealand who are keen to be involved in agribusiness. St Paul's Collegiate School has been approached by a number of teachers from various schools wanting to find out about the Agribusiness programme. With the amount of interest from other teachers and schools around the country, St Paul's Collegiate School is confident that there would be enough personnel to help in the development of achievement standards and the ongoing exam writing, marking, moderation and resource activity development.



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Development of New Agribusiness Achievement Standards

A meeting was held between representatives from St Paul's Collegiate School, Ministry of Education, Ministry of Primary Industries, and NZQA to discuss progress in developing a high quality Agribusiness learning and teaching programme with suitable standards. In putting together appropriate achievement standards to assess Agribusiness, it was agreed to be solution focused, where we would work together to manage the integrity and useability of the New Zealand Curriculum, the aligned achievement standards, and the flexibility of the New Zealand Qualifications Framework.

At the meeting, it was discussed that;

1. A number of existing achievement standards can be re-contextualised;
2. Some existing achievement standards need clarification and possible changes in the explanatory notes, and
3. That there are gaps in the Framework and some new achievement standards need to be introduced.
4. Agribusiness needs to be University Entrance approved.

Since the meeting, St Paul's Collegiate School have consulted with a Technology advisor and a Science advisor as well as the Primary ITO.

Using Unit Standards to assess Agribusiness

The Primary ITO does assess Agribusiness at Levels 4, 5 and 6 and some of the unit standards content appeared appropriate for assessing Agribusiness in secondary schools. St Paul's Collegiate School contacted the Primary ITO to discuss the possibility of using these higher level Agribusiness unit standards in secondary schools to assess Agribusiness. Unfortunately, Dave Jefferd, the Education Adviser from the Primary ITO stated that unit standards at Levels 4 and 5, cannot be taught in schools as they are designed for assessment to take place in an agribusiness work place, and therefore no secondary schools can meet this criteria.

St Paul's Collegiate School also asked if the Primary ITO was likely to be developing any lower level Agribusiness unit standards for use at Levels 2 and 3. Dave Jefferd stated that at this point in time there is no plans for any lower level Agribusiness unit standards to be developed.

Therefore, secondary schools wanting to offer Agribusiness will not be able to utilise the existing Agribusiness unit standards developed from the Primary ITO to assess Agribusiness in their teaching and learning programmes.

Technology Advisor.

St Paul's Collegiate School met with Dr Vicki Compton from the Ministry of Primary Industries, who had been involved in the development of the Technology Curriculum. This discussion provided a greater understanding of the Nature of Technology strand, its components and indicators of progression. In light of this consultation, we have removed some of our proposed new achievement standards as we can see that they can be assessed using re-contextualised existing achievement standards.



Science Advisor

St Paul's Collegiate School contacted Kate Rice, a Science Adviser in Education Support Services at the College of Education from University of Otago, to provide guidance regarding the Science Achievement Standards. Unfortunately at the time of submission, Kate had not got back to us with her feedback.

A full analysis of our recommendations of the re-contextualised Achievement Standards can be found in Appendix One. An example of an Agribusiness Teaching and Learning Programme using a mixture of new and existing re-contextualised Achievement Standards can be seen in Appendix Two.



Recommendations for new Agribusiness Achievement Standards.

After analysing and trialling some of the existing achievement and unit standards, there are Agribusiness knowledge, content and skills that cannot be assessed using existing achievement standards and therefore we propose the development of new Agribusiness Achievement Standards.

We particularly think that there is a need for three standards at each level which are externally assessed, to ensure that the focus and intent of the assessment of achievement standards is on Agribusiness and not on the subject that the achievement standard has been utilised from. Due to Agribusiness having different knowledge, context, skills and emphasis from other subject areas, finding achievement standards that fit nicely and appropriately is challenging, particularly in externals.

For big schools, many of the possible re-contextualised Achievement Standards are already being taught in other subjects. This poses issues for the both the teachers and students ensuring a quality teaching and learning programme with minimal overlap of possible assessment and duplication of Achievement Standards offered.

There is also a lack of certainty from the teacher in content required and emphasis in teaching other subject areas assessment materials.

With the development of the new Agribusiness Achievement Standards, we foresee that other subjects may like to utilise them in their teaching and learning programmes.

Our recommendations for the new Agribusiness Achievement Standards are listed below.

Strand: Agri-innovation

Learning Objective: 7-1:

Examine the impact of influences on agribusinesses to meet present and future needs, viability, and protection of the environment.

- ASXXXXX Agribusiness 2.1 Demonstrate knowledge of future proofing in agribusiness. (4 credits) External

Learning Objective: 8-1:

Critically examine innovative solutions and strategies for future proofing agribusinesses in current and/or future issues.

- ASXXXXX Agribusiness 3.1 Demonstrate understanding of solutions and strategies for future proofing agribusinesses. (4 credits) External.

NB: US16661 Agribusiness Management. Identify, assess, and plan the management of risk for an agribusiness. (6 credits) Internal. This unit standard covers the content that we would like to use to assess this aspect of Agribusiness.



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DairyNZ



Strand: Agriscience

Learning Objective: 7-2:

Examine how scientific principles, concepts and knowledge are applied in agribusinesses to ensure present and future primary and secondary production.

- ASXXXXX Agribusiness 2.2 Demonstrate understanding of the value and importance of current and future microorganisms in an agribusiness. (4 credits) External
- ASXXXXX Agribusiness 2.3 Demonstrate understanding of the biology used in development of current and future plant /livestock species /cultivars. (4 credits) External.

Learning Objective: 8-2:

Critically examine how scientific principles, concepts and knowledge in agribusinesses are used to meet consumer and producer needs, resolve their issues and develop new agri-technological advances.

- ASXXXXX Agribusiness 3.2 Demonstrate understanding of the value and importance of current and future entomology in an agribusiness. (4 credits) External.

Strand: Agrimanagement and finance

Learning Objective: 7-3:

Examine the decision-making by agribusinesses in producing and selling a primary product and/or secondary products and services linked to the primary sector and the way they interact in specific sectors and markets.

- ASXXXXX Agribusiness 2.4 Demonstrate understanding of cash flow forecasting for an agribusiness. (4 credits) Internal.
- ASXXXXX Agribusiness 2.5 Demonstrate understanding of the ownership, governance and management structures in agribusinesses. (4 credits) External.

NB: US21385 Agribusiness Management. Demonstrate knowledge of land tenure, business and asset ownership, and succession planning for an agribusiness (5 credits) Internal. This unit standard covers the content that we would like to use to assess this aspect of Agribusiness.

Learning Objective: 8-3:

Critically examine the operational and strategic decisions in agribusinesses and how they impact on the future direction of production and society.

- ASXXXXX Agribusiness 3.3 Demonstrate understanding of the impacts of a strategic capital expenditure decision in an agribusiness. (4 credits) Internal.
- ASXXXXX Agribusiness 3.4 Demonstrate understanding of accounting for agribusiness contractors. (4 credits) Internal.



NB: These unit standards covers the content that we would like to use to assess these aspects of Agribusiness.

- US11853 Agribusiness Management. Prepare a case for obtaining finance to establish, extend, or diversify an agribusiness (15 credits) Internal;
- US16655 Agribusiness Management. Manage agribusiness capital (6 credits) Internal; and
- US21398 Agribusiness Management. Analyse agribusiness data using computer software (8 credits) Internal.

Strand: Agrimarketing

Learning Objective: 7-4:

Examine decisions in agribusinesses that allow producers to enhance and sustain local and/or global primary production and enterprise.

- ASXXXXX Agribusiness 2.6 Investigate an agrimarketing opportunity for an agribusiness. (4 credits) Internal.

Learning Objective: 8-4:

Critically examine how agribusinesses capitalise on the opportunities to grow the value of their products round the globe.

- ASXXXXX Agribusiness 3.5 Demonstrate understanding of marketing strategies used in agribusiness. (4 credits) Internal.
- ASXXXXX Agribusiness 3.6 Demonstrate understanding of the importance of agribusinesses growing the value of their products. (4 credits) External.

Agribusiness Matrix – proposed new Achievement Standards

| STRANDS | | | |
|--|--|---|---|
| Agri-innovation | Agriscience | Agri-management and finance | Agrimarketing |
| LO: 7-1 Examine the impact of influences on agribusinesses to meet present and future needs, viability, and protection of the environment. | LO: 7-2 Examine how scientific principles, concepts and knowledge are applied in agribusinesses to ensure present and future primary production. | LO: 7-3 Examine the decision-making by agribusinesses in producing and selling a primary product and/or secondary products and services linked to the primary sector and the way they interact in specific sectors and markets. | LO: 7-4 Examine decisions in agribusinesses that allow producers to enhance and sustain local and/or global primary production and enterprise. |
| ASXXXXX Agribusiness 2.1 Demonstrate knowledge of future proofing in agribusiness. 4 Credits External | ASXXXXX Agribusiness 2.2 Demonstrate understanding of the value and importance of current and future microorganisms in agribusiness. 4 Credits External | ASXXXXX Agribusiness 2.4 Demonstrate understanding of cash flow forecasting for an agribusiness. 4 Credits Internal | ASXXXXX Agribusiness 2.6 Investigate an agrimarketing opportunity for an agribusiness. 4 Credits Internal |
| | ASXXXXX Agribusiness 2.3 DUO the biology used in development of current and future plant /livestock species /cultivars. 4 Credits Internal | ASXXXXX Agribusiness 2.5 Demonstrate understanding of the ownership, governance and management structures in agribusinesses. 4 Credits External | |
| LO: 8-1 Critically examine innovative solutions and strategies for future proofing agribusinesses in current and/or future issues. | LO: 8-2 Critically examine how scientific principles, concepts and knowledge in agribusinesses are used to meet consumer and producer needs, resolve their issues and develop new agri-technological advances. | LO: 8-3 Critically examine the operational and strategic decisions in agribusinesses and how they impact on the future direction of production and society. | LO: 8-4 Critically examine how agribusinesses capitalise on the opportunities to grow the value of their products round the globe. |
| ASXXXXX Agribusiness 3.1 Demonstrate understanding of solutions and strategies for future proofing agribusinesses. 4 Credits External | ASXXXXX Agribusiness 3.2 Demonstrate understanding of the value & importance of current & future entomology in an agribusiness. 4 Credits External | ASXXXXX Agribusiness 3.3 Demonstrate understanding of the impacts of a strategic capital expenditure decision in an agribusiness. 4 Credits Internal | ASXXXXX Agribusiness 3.5 Demonstrate understanding of marketing strategies used in agribusiness. 4 Credits Internal |
| | | ASXXXXX Agribusiness 3.4 Demonstrate understanding of accounting for agribusiness contractors. 4 Credits Internal | ASXXXXX Agribusiness 3.6 Demonstrate understanding of the importance of agribusinesses growing the value of their products. 4 Credits External |

Level 2: 24 Achievement Standard Credits, 3 externally assessed standards, 3 internally assessed standards

Level 3: 24 Achievement Standard Credits, 3 externally assessed standards, 3 internally assessed standards



Examples of the new Agribusiness Achievement Standards

| | | | | |
|----------------------------|---|----------------|---|----------------------------|
| Subject Reference | Agribusiness 2.1 | | | |
| Title | Demonstrate understanding of future proofing in agribusiness. | | | |
| Level | 3 | Credits | 4 | Assessment External |
| Subfield | | | | |
| Domain | | | | |
| Status | Status date | | | |
| Planned review date | Date version published | | | |

This achievement standard involves demonstrating understanding of future proofing in agribusiness.

Achievement Criteria

| Achievement | Achievement with Merit | Achievement with Excellence |
|---|--|---|
| <ul style="list-style-type: none"> Demonstrate understanding of future proofing in agribusiness. | <ul style="list-style-type: none"> Demonstrate in-depth understanding of future proofing in agribusiness. | <ul style="list-style-type: none"> Demonstrate comprehensive understanding of future proofing in agribusiness. |

Explanatory Notes

- 1 This achievement standard is derived from the *Guidelines for Agribusiness in New Zealand Schools*, Learning Media, Ministry of Education, 1999.
- 2 This achievement standard is derived from Level 7 of *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, including learning outcomes from the Education for Sustainability, Science, Social Sciences, Health and Physical Education, and Technology learning areas achievement objectives.
- 3 *Agribusiness* refers to any business encompassed by a group of sectors (agriculture, aquaculture, dairy manufacturing, equine, forestry, horticulture, seafood, and sports turf) that form the basis of modern food production.
- 4 Demonstrate understanding of future proofing in agribusiness involves describing the impacts of outside influences on an agribusiness to meet present and future needs, viability, and protection of the environment.

Demonstrate in-depth understanding of future proofing in agribusiness involves explaining the short term or/ and long term impacts outside influences have on an agribusiness in terms of production, business and profitability.



Demonstrate comprehensive understanding of future proofing in agribusiness involves evaluating the impacts from outside influences to ensure that agribusinesses meet present needs, remain sustainably viable, protect the environment without compromising the ability of future generations to meet their needs, and maintain New Zealand's clean green reputation. This may involve justifying, comparing and contrasting, and analysing.

- 5 *Future proofing* requires the understanding of the impacts of outside influences in current and/or future issues to ensure that agribusinesses meet present needs, remain sustainably viable, protect the environment without compromising the ability of future generations to meet their needs, and maintain New Zealand's clean green reputation.
- 6 Outside influences includes, but is not limited to: economic, political, cultural, social, ethical, technological, legalities, biological, environmental, and scientific.

Quality Assurance

- 1 Providers and Industry Training Organisations must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.
- 2 Organisations with consent to assess and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference

0226



| | | | | |
|----------------------------|--|----------------|---|----------------------------|
| Subject Reference | Agribusiness 2.4 | | | |
| Title | Demonstrate understanding of cash flow forecasting for an agribusiness | | | |
| Level | 3 | Credits | 4 | Assessment Internal |
| Subfield | | | | |
| Domain | | | | |
| Status | Status date | | | |
| Planned review date | Date version published | | | |

This achievement standard involves demonstrating understanding of cash flow forecasting for an agribusiness.

Achievement Criteria

| Achievement | Achievement with Merit | Achievement with Excellence |
|---|--|---|
| <ul style="list-style-type: none"> Demonstrate understanding of cash flow forecasting for an agribusiness. | <ul style="list-style-type: none"> Demonstrate in-depth understanding of cash flow forecasting for an agribusiness. | <ul style="list-style-type: none"> Demonstrate comprehensive understanding of cash flow forecasting for an agribusiness. |

Explanatory Notes

- This achievement standard is aligned with *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007 at <http://seniorsecondary.tki.org.nz/>.
- Demonstrate understanding* involves:
 - using a spreadsheet template to show seasonal variation in income and expenses in a cash flow forecast
 - showing the effects of or responses to an external factor on the cash flow forecast
 - explaining the effects of or responses to the external factor on the cash flow forecast.

Demonstrate in-depth understanding involves:

- using a spreadsheet template to show seasonal variation in income and expenses in a cash flow forecast
- showing the effects of and responses to an external factor on the cash flow forecast
- explaining the effects of and responses to the external factor on the cash flow forecast.

Demonstrate comprehensive understanding involves:

- using a spreadsheet template to show seasonal variation in income and expenses in a cash flow forecast
- showing and explaining the effect of and responses to an external factor on the cash flow forecast



- justifying the most effective response(s) to the external factor on the cash flow forecast.
- 3 *Agribusiness* refers to any business encompassed by a group of sectors (agriculture, aquaculture, dairy manufacturing, equine, forestry, horticulture, seafood, and sports turf) that form the basis of modern food production.
 - 4 *Seasonal variation* can be in income and/or expenses across the whole agribusiness's normal operating cycle.
 - 5 *External factor* could be but is not limited to environment, political, climate, prices, costs, regulatory, exchange rate.
 - 6 *Effects* will be on income and/or expenses.
 - 7 *Responses* refer to the changes the agribusiness could make to (but is not limited to) quantities, prices, costs, inputs, outputs, outcomes, work flow, employment, and financing.
 - 8 Assessment Specifications for this achievement standard can be accessed through the [XXXX](#) Resources page found at www.nzqa.govt.nz/ncea/resources.

Quality Assurance

- 1 Providers and Industry Training Organisations must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.
- 2 Organisations with consent to assess and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference



| | | | | |
|----------------------------|---|----------------|---|----------------------------|
| Subject Reference | Agribusiness 3.3 | | | |
| Title | Demonstrate understanding of the impacts of a strategic capital expenditure decision in an agribusiness | | | |
| Level | 3 | Credits | 4 | Assessment Internal |
| Subfield | | | | |
| Domain | | | | |
| Status | Status date | | | |
| Planned review date | Date version published | | | |

This achievement standard involves demonstrating understanding of the impacts of a strategic capital expenditure decision in an agribusiness.

Achievement Criteria

| Achievement | Achievement with Merit | Achievement with Excellence |
|--|---|--|
| <ul style="list-style-type: none"> Demonstrate understanding of the impacts of a strategic capital expenditure decision in an agribusiness. | <ul style="list-style-type: none"> Demonstrate in-depth understanding of the impacts of a strategic capital expenditure decision in an agribusiness. | <ul style="list-style-type: none"> Demonstrate comprehensive understanding of the impacts of a strategic capital expenditure decision in an agribusiness. |

Explanatory Notes

- This achievement standard is aligned with *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007 at <http://seniorsecondary.tki.org.nz/>.
- Demonstrate understanding* involves:

 - Completing a cost-benefit analysis
 - Explaining the impacts of a strategic capital expenditure decision.

Demonstrate in-depth understanding involves:

 - Completing a detailed cost-benefit analysis
 - Explaining, in detail, the impacts of a strategic capital expenditure decision.

Demonstrate comprehensive understanding involves:

 - Completing a detailed cost-benefit analysis
 - Comprehensively explaining the impacts of a strategic capital expenditure decision.
- A strategic capital expenditure decision has medium to long-term impact on the future direction of the agribusiness.

- 4 *Agribusiness* refers to any business encompassed by a group of sectors (agriculture, aquaculture, dairy manufacturing, equine, forestry, horticulture, seafood, and sports turf) that form the basis of modern food production.
- 5 *Explaining in detail* includes drawing on evidence to support the explanations.
- 6 *Comprehensively explaining* includes drawing on evidence to support the explanations and an evaluation of the impacts. Including links between the impacts and/or flow on effects to wider society
- 7 *Impacts* may include but not limited to; environmental, economic, social and cultural.
- 8 Assessment Specifications for this achievement standard can be accessed through the [XXXX](#) Resources page found at www.nzqa.govt.nz/ncea/resources.

Quality Assurance

- 1 Providers and Industry Training Organisations must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.
- 2 Organisations with consent to assess and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference



| | | | | |
|----------------------------|--|----------------|---|----------------------------|
| Subject Reference | Agribusiness 3.6 | | | |
| Title | Demonstrate understanding of the importance of agribusinesses growing the value of their products. | | | |
| Level | 3 | Credits | 4 | Assessment External |
| Subfield | | | | |
| Domain | | | | |
| Status | Status date | | | |
| Planned review date | Date version published | | | |

This achievement standard involves demonstrating understanding of the importance of agribusinesses growing the value of their products.

Achievement Criteria

| Achievement | Achievement with Merit | Achievement with Excellence |
|--|---|--|
| <ul style="list-style-type: none"> Demonstrate understanding of agribusinesses growing the value of their products. | <ul style="list-style-type: none"> Demonstrate in-depth understanding of agribusinesses growing the value of their products. | <ul style="list-style-type: none"> Demonstrate comprehensive understanding of agribusinesses growing the value of their products. |

Explanatory Notes

- This achievement standard is derived from the Guidelines for Agribusiness in New Zealand Schools, Learning Media, Ministry of Education, 1999.
- This achievement standard is derived from Level 7 of The New Zealand Curriculum, Learning Media, Ministry of Education, 2007, including learning outcomes from the Education for Sustainability, Science, Social Sciences, Health and Physical Education, and Technology learning areas achievement objectives.
- Agribusiness* refers to any business encompassed by a group of sectors (agriculture, aquaculture, dairy manufacturing, equine, forestry, horticulture, seafood, and sports turf) that form the basis of modern food production.
- Demonstrate understanding* involves:
 - explaining why growing value is important to the New Zealand economy
 - explaining how different agribusinesses have grown the value of their product to align with consumer wants
 - gathering and presenting growing value information for different agribusiness and its importance to the New Zealand economy.



Demonstrate in-depth understanding involves:

- explaining in detail why growing value is important to the New Zealand economy
- explaining in detail how different agribusinesses have grown the value of their product to align with consumer wants
- referring to growing value information to support explanations.

Demonstrate comprehensive understanding involves:

- synthesis of growing value approaches/strategies from one agribusiness sector to explain in detail a new opportunity to grow the value of an agribusiness product in another agribusiness sector and/or the same agribusiness sector
- analysing, comparing and/or contrasting or justifying the use of these approaches/strategies in terms of long-term strategy to create and capture greater value
- integrating growing value information to support the synthesis.

- 5 *Growing value* is about building a platform that will consistently create and capture value. Firstly, the product offered is designed from a detailed understanding of the consumer, and is a perfect fit for their current needs. Then, through unceasing insight and innovation, the product is continually evolved to satisfy consumer requirements as their lifestyle changes. Capturing this value relies on competency in many areas; but the most important include product innovation, operational excellence, and the ability to build deep customer relationships. It requires world-class capability in at least one of these areas. It also requires an organisational culture that is prepared to back a long-term strategy to capture greater value; perhaps the greatest issue for many companies in the agribusiness sector.
- 6 Assessment Specifications for this achievement standard can be accessed through the [XXXX](#) Resources page found at www.nzqa.govt.nz/ncea/resources.

Quality Assurance

- 1 Providers and Industry Training Organisations must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.
- 2 Organisations with consent to assess and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference



Appendix One

Re-contextualising existing Achievement Standards to assess Agribusiness.

Due to the flexibility of the New Zealand Curriculum many Achievement Standards have aspects of the Agribusiness learning objectives and indicators, so it is possible to assess these areas with existing Achievement Standards, much like the Vocational Pathways.

Strand: Agri-innovation

Learning Objective: 7-1:

Examine the impact of influences on agribusinesses to meet present and future needs, viability, and protection of the environment.

Recommendations for assessing some aspects of Agribusiness using existing Achievement Standards:

- AS91361 Generic Technology 2.8. Demonstrate understanding of sociocultural factors, and how competing priorities are managed, in technology (4 credits) Internal.
- AS90811 Education for Sustainability 2.2. Explain how human activity in a biophysical environment has consequences for a sustainable future (4 credits) Internal.
- AS90844 Business Studies 2.2. Demonstrate understanding of how a large business responds to external factors (4 credits) External.

Learning Objective: 8-1:

Critically examine innovative solutions and strategies for future proofing agribusinesses in current and/or future issues.

Recommendations for assessing some aspects of Agribusiness using existing Achievement Standards:

- AS91615 Generic Technology 3.8. Demonstrate understanding of consequences, responsibilities and challenges involved in technology (4 credits) Internal.
- AS91735 Education for Sustainability 3.2. Evaluate measures that may be taken to sustain and/or improve a biophysical environment (4 credits) Internal.
- AS91411 Earth and Space Science 3.2. Investigate a socio-scientific issue in an Earth and Space Science context (4 credits) Internal.



Strand: Agriscience

Learning Objective: 7-2:

Examine how scientific principles, concepts and knowledge are applied in agribusinesses to ensure present and future primary and secondary production.

Recommendations for assessing some aspects of Agribusiness using existing Achievement Standards:

- AS91163 Chemistry 2.3. Demonstrate understanding of the chemistry used in the development of a current technology (3 credits) Internal.
This Achievement Standard will cover food and soil science.
- No suitable Achievement Standards for assessing demonstrate understanding of the value and importance of current and future microorganisms in Agribusiness.

Learning Objective: 8-2:

Critically examine how scientific principles, concepts and knowledge in agribusinesses are used to meet consumer and producer needs, resolve their issues and develop new agri-technological advances.

Recommendations for assessing some aspects of Agribusiness using existing Achievement Standards:

- AS91389 Chemistry 3.3. Demonstrate understanding of chemical processes in the world around us (3 credits) Internal.
This Achievement Standard will cover food and soil science.
- No suitable Achievement Standards for assessing demonstrate understanding of the value and importance of current and future entomology in Agribusiness.

Strand: Agrimanagement and finance

Learning Objective: 7-3:

Examine the decision-making by agribusinesses in producing and selling a primary product and/or secondary products and services linked to the primary sector and the way they interact in specific sectors and markets.

Recommendations for assessing some aspects of Agribusiness using existing Achievement Standards:

No suitable achievement standards to assess Agribusiness concepts such as cash flow forecasting or governance and management structure which is the focus of this Agribusiness learning objective.



Learning Objective: 8-3:

Critically examine the operational and strategic decisions in agribusinesses and how they impact on the future direction of production and society.

Recommendations for assessing some aspects of Agribusiness using existing Achievement Standards:

No suitable achievement standards for operational and strategic decisions in agribusinesses which is the focus of this Agribusiness learning objective.

Strand: Agrimarketing**Learning Objective: 7-4:**

Examine decisions in agribusinesses that allow producers to enhance and sustain local and/or global primary production and enterprise.

Recommendations for assessing some aspects of Agribusiness using existing Achievement Standards:

- AS90846 Business Studies 2.4 Conduct market research for a new or existing product. (3 credits) Internal.
- No suitable achievement standards to assess Agribusiness concepts such as agrimarketing decisions in agribusinesses which is the focus of this Agribusiness learning objective.

Learning Objective: 8-4:

Critically examine how agribusinesses capitalise on the opportunities to grow the value of their products round the globe.

Recommendations for assessing some aspects of Agribusiness using existing Achievement Standards:

- No suitable Achievement Standards for assessing how agribusinesses capitalise on the opportunities to grow the value of their products round the globe.
- No suitable achievement standards to assess Agribusiness concepts such as marketing strategies used in agribusinesses which is also the focus of this Agribusiness learning objective.

Agribusiness Matrix – Achievement Standards that can be re-contextualised for Agribusiness.

| STRANDS | | | |
|---|--|---|--|
| Agri-innovation | Agriscience | Agri-management and finance | Agrimarketing |
| LO: 7-1 Examine the impact of influences on agribusinesses to meet present and future needs, viability, and protection of the environment. | LO: 7-2 Examine how scientific principles, concepts and knowledge are applied in agribusinesses to ensure present and future primary production. | LO: 7-3 Examine the decision-making by agribusinesses in producing & selling a primary product &/or secondary products & services linked to the primary sector & the way they interact in specific sectors & markets. | LO: 7-4 Examine decisions in agribusinesses that allow producers to enhance and sustain local and/or global primary production and enterprise. |
| AS90844 Business Studies 2.2 Demonstrate understanding of how a large business responds to external factors. 4 Credits External | AS91163 Chemistry 2.3 DUO the chemistry used in the development of a current technology. 4 Credits Internal | | AS90846 Business Studies 2.4 Conduct market research for a new or existing product. 3 Credits Internal |
| AS90811 Education for Sustainability 2.2 Explain how human activity in a biophysical environment has consequences for a sustainable future. 4 Credits Internal | | | |
| AS91361 Generic Technology 2.8 DUO sociocultural factors, & how competing priorities are managed, in technology 4 Credits Internal | | | |
| LO: 8-1 Critically examine innovative solutions and strategies for future proofing agribusinesses in current and/or future issues. | LO: 8-2 Critically examine how scientific principles, concepts and knowledge in agribusinesses are used to meet consumer and producer needs, resolve their issues and develop new agri-technological advances. | LO: 8-3 Critically examine the operational and strategic decisions in agribusinesses and how they impact on the future direction of production and society. | LO: 8-4 Critically examine how agribusinesses capitalise on the opportunities to grow the value of their products round the globe. |
| AS91411 Earth and Space Science 3.2 Investigate a socio-scientific issue in an Earth and Space Science context. 4 Credits Internal | AS91389 Chemistry 3.3 Demonstrate understanding of chemical processes in the world around us. 3 Credits Internal | | |
| AS91735 Education for Sustainability 3.2 Evaluate measures that may be taken to sustain &/or improve a biophysical environment 4 Credits Internal | | | |
| AS91615 Generic Technology 3.8 DUO consequences, responsibilities and challenges involved in technology. 4 Credits Internal | | | |

Appendix Two

Assessing Agribusiness Teaching and Learning Programme.

It is envisioned that an Agribusiness Teaching and Learning Programme would utilise both existing re-contextualised and new Agribusiness Achievement Standards in its assessment. This would ensure that the students are engaged in future and innovative thinking and develop problem-solving strategies and lifelong skills that are relevant to their needs and location. For example, teachers will be able to design a programme to cover primary products such as salmon and / or secondary products and services in their area like John Deere, and to encourage students into the work force and careers in that agribusiness. Emphasis on experiential learning, gaining understanding and applying examples of industry 'best practice' to conceptual learning within the classroom will be able to be achieved by visiting agribusinesses within their area. Industry visits, field trips and guest speakers from within the science and business sectors will be an integral part of the programme. Students will be able to build knowledge of the whole agribusiness operation, and are encouraged to find innovative solutions to challenging operational issues, which they will be able to visit and access in their area. They will learn the economic, physical / climatic, political, environmental, technological, historical, social, ethical, and cultural influences on the agribusinesses and the interrelationships of science, business, technology, society, and the environment.

Assessment needs to be relevant to the agribusiness chosen, the area, the school and to the students themselves. Schools will be able to choose relevant achievement standards that reflect those needs. Below is an example of possible combination of existing and new achievement standards used to assess an Agribusiness teaching and learning programme at Level 2 and 3.



Agribusiness Programme Matrix – using new and existing Achievement Standards

| STRANDS | | | |
|---|--|---|---|
| Agri-innovation | Agriscience | Agri-management and finance | Agrimarketing |
| LO: 7-1 Examine the impact of influences on agribusinesses to meet present and future needs, viability, and protection of the environment. | LO: 7-2 Examine how scientific principles, concepts and knowledge are applied in agribusinesses to ensure present and future primary production. | LO: 7-3 Examine the decision-making by agribusinesses in producing and selling a primary product and/or secondary products and services linked to the primary sector and the way they interact in specific sectors and markets. | LO: 7-4 Examine decisions in agribusinesses that allow producers to enhance and sustain local and/or global primary production and enterprise. |
| ASXXXXX Agribusiness 2.1 Demonstrate knowledge of future proofing in agribusiness. 4 Credits External | ASXXXXX Agribusiness 2.2 Demonstrate understanding of the value and importance of current and future microorganisms in agribusiness. 4 Credits External | ASXXXXX Agribusiness 2.4 Demonstrate understanding of the ownership, governance and management structures in agribusinesses. 4 Credits External | ASXXXXX Agribusiness 2.5 Investigate an agrimarketing opportunity for an agribusiness. 4 Credits Internal |
| | AS91163 Chemistry 2.3 Demonstrate understanding of the chemistry used in the development of a current technology. 4 Credits Internal | | |
| LO: 8-1 Critically examine innovative solutions and strategies for future proofing agribusinesses in current and/or future issues. | LO: 8-2 Critically examine how scientific principles, concepts and knowledge in agribusinesses are used to meet consumer and producer needs, resolve their issues and develop new agri-technological advances. | LO: 8-3 Critically examine the operational and strategic decisions in agribusinesses and how they impact on the future direction of production and society. | LO: 8-4 Critically examine how agribusinesses capitalise on the opportunities to grow the value of their products round the globe. |
| ASXXXXX Agribusiness 3.1 Demonstrate understanding of solutions and strategies for future proofing agribusinesses. 4 Credits External | ASXXXXX Agribusiness 3.2 Demonstrate understanding of the value & importance of current & future entomology in an agribusiness. 4 Credits External | ASXXXXX Agribusiness 3.3 Demonstrate understanding of the impacts of a strategic capital expenditure decision in an agribusiness. 4 Credits Internal | ASXXXXX Agribusiness 3.6 Demonstrate understanding of the importance of agribusinesses growing the value of their products. 4 Credits External |
| AS91615 Generic Technology 3.8 Demonstrate understanding of consequences, responsibilities and challenges involved in technology. 4 Credits Internal | | | |

Level 2: 20 Achievement Standard Credits, 3 externally assessed standards, 2 internally assessed standards

Level 3: 20 Achievement Standard Credits, 3 externally assessed standards, 2 internally assessed standards

