



PEOPLE POWERED

Building capabilities to keep New Zealand's primary industries internationally competitive



Publisher

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This publication summarises information contained in the *Future capability needs for the primary industries in New Zealand* (April 2014). The report was prepared for the Ministry for Primary Industries by Infometrics and Nimmo-Bell Company Ltd.

Both publications are available on the Ministry for Primary Industries website at:
<http://www.mpi.govt.nz/news-resources/publications.aspx>

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FOREWORD

Our primary industries are a vital part of our economy and way of life, and are responsible for over 70 percent of our product exports.

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



As part of its work to support these strategies, the Ministry for Primary Industries (MPI) has worked in partnership with DairyNZ and Beef + Lamb New Zealand to fund research that forecasts the future capability requirements of our primary industries. This work will help inform planning and decisions on education, training and employment practices.

This publication provides a summary of that research. It has been developed to help those working within primary industries as well as students, educators, and government agencies to prepare for future skills requirements.

We know these industries will continue to play a major role in New Zealand as the backbone of our economy. This work shows big changes in skills are required if these sectors are to adapt and respond to new opportunities and technologies.

Attracting and retaining competent, qualified staff is going to be an important challenge for our primary industries into the future. This report will be a very useful first step towards that goal.

A handwritten signature in blue ink that reads "Nathan Guy". The signature is fluid and cursive, with a long underline under the name.

Hon Nathan Guy
Minister for Primary Industries



INTRODUCTION

MPI is working with our stakeholders to better understand the future capability needs of New Zealand's primary industries. This work will help determine how we build this capability, which is critically important for lifting New Zealand's productivity.

In June, MPI published *Future capability needs for the primary industries in New Zealand* (the report) prepared by Infometrics and Nimmo-Bell Company Ltd. The report was funded by MPI, DairyNZ, and Beef + Lamb New Zealand with input provided by a primary industries steering group. The report provides an outlook for primary industries employment based on industry (horticulture, red meat and wool, arable, dairy, seafood, forestry, other primary industries, and support services), occupation, qualification level, field of study, ethnicity, gender, and region.

The forecast findings show that across the primary industries there will be a need to have a workforce that has been upskilled in what are traditional primary industry occupations (for example, farm workers). In addition, there will be a growing demand for professional skills such as engineering, science and

management. Changes will be needed across the value chain, including in production, processing, marketing, and customer relationships. Specialist skills will be required to manage issues around food safety, biosecurity, environmental health and animal welfare.

In this publication we present the key findings from the report and summarise the expected capability needs for each of the primary industries, along with the services, such as marketing and scientific research, that support the primary industries.

The primary industries will continue to be an important part of New Zealand's economy. The workforce of the future, however, may look very different than it does today. In many cases, jobs will be more specialised and will require people with strong educational backgrounds. It's an exciting time to be involved with the primary industries and one where there are numerous opportunities for people who are innovative and adept at working in a dynamic environment.

To learn more, the full report is available on the MPI website: www.mpi.govt.nz.



AN OVERVIEW

New Zealand's primary industries include horticulture, red meat and wool, arable, dairy, seafood, forestry, and other primary sectors. Primary industries are defined here as including the whole value chain, such as production, processing and marketing, along with support industries, such as fertiliser industries, veterinarians, rural consultants and accountants.

The primary industries are the backbone of New Zealand's economy, bringing in billions of dollars each year. While across New Zealand the primary industries account for nearly one in every six jobs, in some regions, such as Gisborne, Tasman, Marlborough and Southland, they account for nearly one in every three jobs. To stay competitive, each primary industry has developed a strategy to support future technological innovation and market development. An objective of the industry strategies is to attract and retain highly skilled and motivated people to maintain a proficient workforce. Together, these strategies¹ are expected to help primary industries grow and capitalise on New Zealand's reputation for producing high-quality food and fibre that is safe, free of pests and diseases and produced sustainably.

¹ In the report, *Future capability needs for the primary industries in New Zealand* (MPI, April 2014), forecasting was done for both business-as-usual and with industry strategies in place. Because strategies have been adopted by the main primary industries, only forecasting with the strategies in place is discussed unless otherwise noted.

As the industry strategies discuss, over the next decade there will be a need to increase the skill level across the primary industries. This means that even roles that have traditionally not required formal qualifications will increasingly need greater skills and an increased demand for on-the-job and professional training. In addition, there will be an increase in the need for support services, especially as primary production and processing becomes more sophisticated and greater value is added across the value chain. Achieving this increase in skills is vital if New Zealand is to realise its economic and environmental goals.

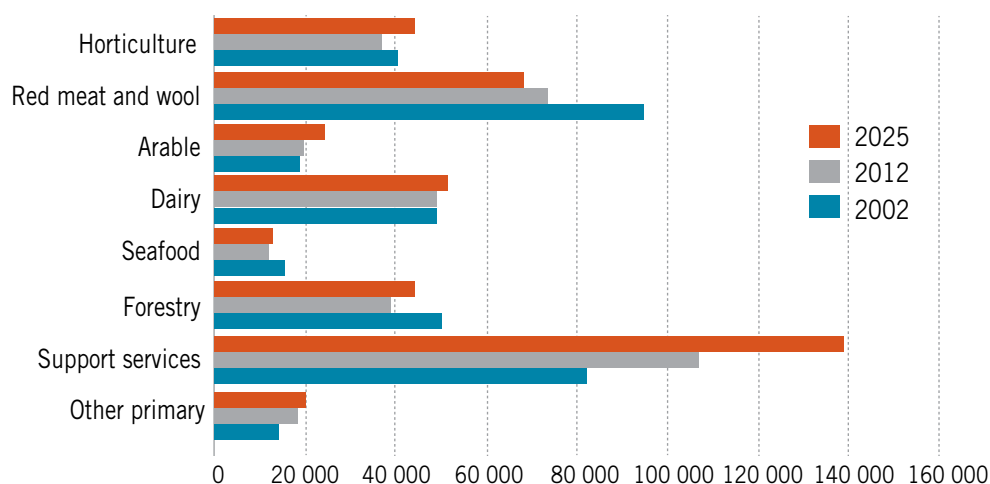
The future of primary industries

New Zealand has a well-earned reputation for producing high-quality food and fibre that we export all over the world. Over the next 10 years, the primary industries will need to adapt to build on that reputation.

There are a number of reasons why our export markets are changing, including:

- » **Consumer demands are evolving and changing:** The primary industries already export to multiple markets; however, the Asian markets are becoming more important and the demographics and demands from our traditional markets are also changing. Consumers are becoming more discerning and are looking for food and fibre that suits their tastes and

Figure 1: Employment in primary industries
June year average, job count



lifestyles, along with greater assurances around social licence, environmental sustainability, animal welfare and food safety.

- » **There is a need to maintain and add value:** Meeting consumer demands will require continued innovation throughout the value chain. For some products, especially products whose highest value is in a fresh form, such as seafood and many horticultural and meat products, a strong focus on the supply chain, especially where this requires refrigeration, and packaging will be critical. For other products where further processing can add value, such as wool and timber, there will be an increased demand for people with scientific and engineering skills.
- » **There will be an increase in automation and the use of robotics:** In a number of areas, particularly processing, more technical skills will be required as automation and robotics becomes the norm.
- » **Production units will become more specialised, sophisticated and larger:** Farms and horticultural units are already becoming larger and employing more people in specialised roles, such as herd managers. While the level of specialised expertise is increasing, there will also be an increased demand for integrated farm systems knowledge. This systems knowledge will be critical for implementing innovation and productivity improvements on farms, and also for meeting requirements for environmental

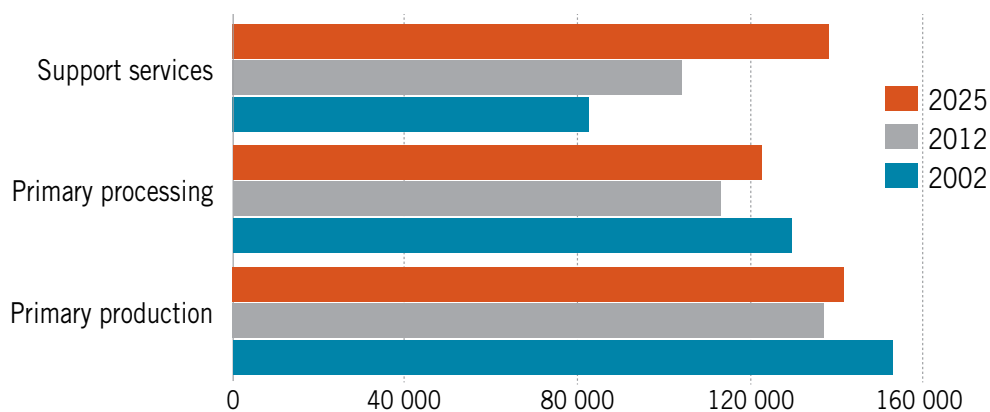
sustainability, animal welfare, managing risk and food safety.

- » **There is a growing demand for support services:** As the primary industries become more sophisticated there will be an increased demand for professional services from researchers, rural consultants, veterinarians, agronomists and irrigation specialists. There will also be an increase in demand for non-traditional skilled areas such as IT, engineering, robotics, automatic processing equipment, precision agriculture and in-market services.
- » **Transferability of skills across the primary industries:** Employees will need to be more skilled and flexible. Not only will employees need good technical skills they will also need the right aptitude and attitude and the flexibility to work across industries during their career.

What type of skills will be required?

A wide range of skills will be needed to meet the diverse needs of the primary industries. In addition, there will be a need to increase the skill level across the board. The primary industries will continue to generate job opportunities for those without formal qualifications. What is clear, however, is that even roles that have traditionally not required formal qualifications in the past will demand greater skills.

Figure 2: Employment in primary industries by activity
June year average, job count



There will be an increase in demand for highly skilled workers, especially in support services and in management roles across the sectors. Along with a demand for highly skilled workers, there will be an increasing demand for more people in occupations with higher qualifications, especially for professional degrees in fields of specialisation aligned with the value chain.

What does this mean for educational requirements?

It is becoming increasingly important for primary sector workers to have some form of post-school qualification. In 2002, only 36 percent of primary sector workers possessed a post-school qualification. In 2012, it was estimated that 44 percent of workers had a formal post-school qualification. It is expected that by 2025 this will need to increase to 62 percent.

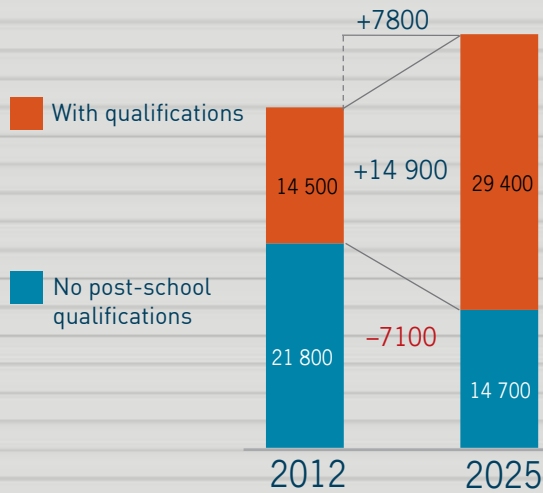
Primary industry businesses are likely to be larger and more productive, use more technology (for example, precision agriculture) and require more professional advice. This means a greater need for systems expertise requiring more degree-qualified people in businesses and in business support roles. Staff will need to be more highly skilled, increasing the demand for diplomas and certificates, especially those provided as in-work training through industry training organisations (ITOs).

There is also a growing demand for professional skills, such as management and business, technical and scientific skills. This is particularly important if we are to add more value to our primary products and will require more people in science, engineering and technology.



HORTICULTURE

Capability Needs 2012-2025



By 2025 the horticulture industry is expected to need:

- a net increase of 7800 workers;
- 14 900 more workers with qualifications;
- 7100 fewer workers without post-school qualifications (through training and natural attrition);
- an additional 26 300 trained workers to replace the natural attrition of workers within the industry.

Horticulture is a diverse industry with exports dominated by wine, kiwifruit and apples. These three sectors make up 70 percent of the total horticultural exports. Other parts of the horticulture industry include avocados, berry fruit, summer fruit and olive oil. The value of exports in 2012 was \$3.5 billion and is expected to grow to \$7.3 billion by 2025.

For the horticulture industry, some of the main changes over the next 10 years are expected to be in technology, access to new and emerging markets, and consumer quality requirements.

Forecasts of skill requirements

Horticulture employment is highly concentrated in on-farm activities with 67 percent of employment involved in growing activities. The largest employment growth is expected in grape growing, under-cover vegetable growing, and under-cover nursery production. A strong expansion of support services is also expected (for example, in fruit and vegetable wholesaling activities).

In terms of occupation, the prime growth is expected in on-farm activities. For example, horticulture farmers, farm managers and farm workers are expected to

increase. Other occupations that are likely to become important for horticulture are skilled horticulture workers, engineers, and sales staff. Beyond growth areas within horticulture, there's also likely to be replacement demand pressures for factory process workers, other technicians and trade workers, ICT professionals, and transport and plant operators.

Building a skilled and qualified workforce

Improving the skill level of the workforce will be a critical requirement for achieving the horticulture industry's strategy targets. In 2012, 40 percent of the horticulture workforce had a formal post-school qualification. It is expected that by 2025 this will need to increase to 66 percent.

The horticulture industry is expected to require 7800 more workers between 2012 and 2025. The qualifications most in demand are likely to be horticulture, management and commerce fields of study. In proportion to current skill areas, the skill areas in growing demand will be sciences and social sciences.



Preparing for tomorrow – skills and knowledge required for the horticulture industry:

- More market and product skills including value-chain skills to maximise market potential of new cultivars.
- Supplying product to diverse markets with consumer services.
- Better business and management skills particularly in logistics, information and assurance systems.
- New production skills such as technology adoption in production of proprietary new cultivars.
- Additional science and technical support for the development of proprietary new cultivars.

Occupation close-up **HORTICULTURE**

CHRISSEY STOKES

Occupation: Orchard Productivity Manager, Orchard Productivity Centre team at Zespri

The work day: “My work includes providing technical support for kiwifruit growers from Kerikeri to Nelson which means I am on the road quite a bit. When I am at the office, I work with the productivity team on issues that our growers are having, along with analysing data and writing technical reports.”

Skills and knowledge: Aside from kiwifruit, Chrissy has worked in the wine and fresh-cut salad industries. She has a Bachelor of Science and a postgraduate diploma in plant biology from Massey University.

“I have worked in labs before, but this role is quite practical which I really enjoy – using science to find practical solutions to help growers raise the productivity and profitability of their orchards.”



RED MEAT AND WOOL

The red meat and wool industry comprises meat (beef, sheep, venison, and other red meat), co-products and wool. The value of exports in 2012 was \$7.46 billion. By 2025, industry expects exports to increase to \$13.8 billion.

For the red meat and wool industry, some of the main changes over the next 10 years are expected to include a change in market mix and a rising middle class in new and emerging markets, along with the implementation of environmental regulation.

Forecasts of skill requirements

Continued advances in on-farm productivity and increases in post-farm value added products and services are expected to allow the industry to meet its ambitions for export earnings growth. This increased activity is expected to require some expansion in employment opportunities in meat wholesaling. In processing, a combination of productivity improvements and a realignment from textile to meat processing will mean little change in overall processing employment numbers.

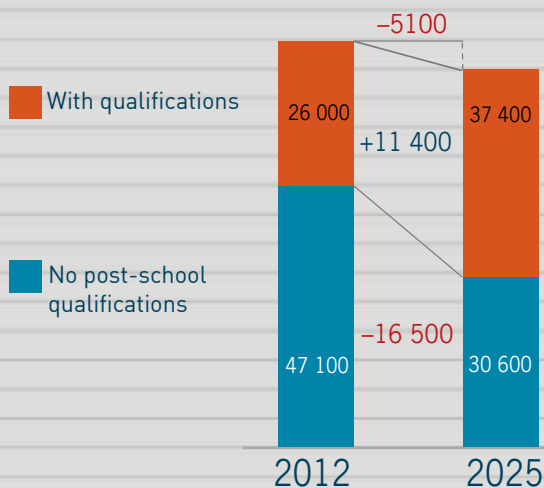
In terms of occupation, process workers and food-trade workers are the only occupations where any significant net increases are expected for the red meat and wool industry. Net replacement demand, however, means that a number of other areas will need training to maintain occupation employment numbers, including factory process workers, farmers and farm managers, farm workers, and machine operators.

Building a skilled and qualified workforce

Improving the skill level of the workforce will be a critical requirement for achieving the red meat and wool industries strategy targets. In 2012, 36 percent of the red meat and wool workforce had a formal post-school qualification. Forecasts suggest that by 2025 this will need to increase to 55 percent.

The red meat and wool workforce is expected to contract by 5100 workers between 2012 and 2025, but the number of workers with a formal qualification is expected to increase by 11 400. The industry is likely to need to find an additional 32 700 trained workers to replace the natural attrition of workers. The qualifications most in demand are likely to be in the engineering field of study.

Capability Needs 2012–2025



By 2025 the red meat and wool industry is expected to need:

- 5100 fewer workers;
- 11 400 more workers with qualifications;
- 16 500 fewer workers without post-school qualifications (through training and natural attrition);
- an additional 32 700 trained workers to replace the natural attrition of workers within the industry.



Preparing for tomorrow – skills and knowledge required for the red meat and wool industry:

- More market and product skills, in-market skills, market-led product innovation, and cultural and language capability.
- Better business and management skills in supply-chain management, including information infrastructure, food safety, and processing innovation.
- Improved production and business skills, innovative farm managers and owners who are skilled in staff leadership and management and have willingness to adopt new technology.
- Staff with improved literacy and numeracy competency.
- Targeted science and technical support for production, environment, and social sciences, along with improved capability of accredited rural professionals.

Occupation Close-up **RED MEAT AND WOOL**

AMANDA BOWIE

Occupation: Extension Manager, Eastern North Island, Beef + Lamb New Zealand

The work day: “When you work in extension much of your life is on the road – I joke that I can pretty much work anywhere as long as I have my car, my cell phone and my laptop. Weekly, I will have at least one extension event and spend quite a bit of my time organising events, facilitating workshops, and meeting with farmers and agribusiness representatives.”

Skills and knowledge: Bachelor of Agricultural Science from Lincoln University with an honours in plant science. “Before this role I worked as a field officer for New Zealand Young Farmers which really got me into rural communities across the lower North Island.”

“As an extension manager, I provide information and services to farmers, communities and agribusinesses to help them make good, informed decisions that are relevant for their business and community. Much of my work focuses on bringing farmers and specialists together to discuss issues ranging from feed budgeting, to animal health, to strategic business planning.”



ARABLE

The arable (grains and seeds) industry supports the livestock industries, high-value seeds development and production, and the food industry. The New Zealand arable sector produces grains, such as wheat, barley, oats and maize, for mainly domestic consumption or as feed for livestock. As such, the arable sector supports a number of other exporting sectors. New Zealand also produces high-quality herb and vegetable seeds for export. In 2011, direct sales of grains and seeds amounted to \$868 million contributing \$959 million to GDP and downstream contribution to GDP through pasture improvement was \$3.2 billion.

For the arable industry, some of the main changes over the next 10 years are expected to include continued strong growth in overseas demand for seeds and specialist flour-based products, along with a growth in demand for new plant-based protein products as blends or alternatives to animal proteins.

Forecasts of skill requirements

Official employment figures for arable product activities indicate that employment is concentrated in processing activities. Smaller numbers in production partly reflects the relatively low labour requirements for arable farming, but it is also likely numbers are underestimated because many farmers who grow crops are also involved in other farming activities, such as sheep and beef farming.

The 4700 forecast increase in jobs associated with the arable industry represents a 24 percent increase between 2012 and 2025. The forecast increase in

employment opportunities is generally proportional with current employment patterns. Although this may hold at the high level (for example, between farm, processing, and support activities) the development of new products means there is scope for a different mix of employment within processing.

The expansion in arable industry activities is expected to increase demand for support and sales workers, factory process workers, non-farm managers, and food-trade workers.

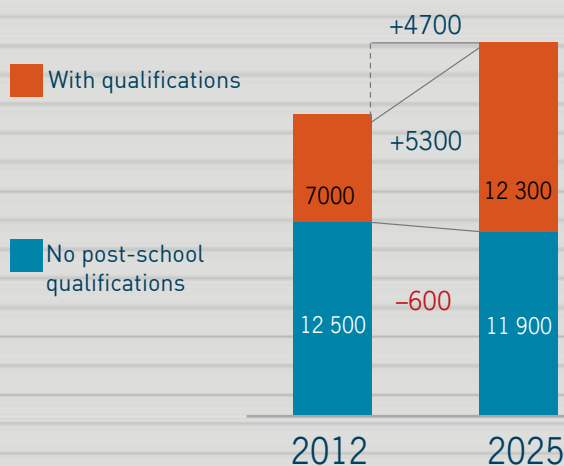
Building a skilled and qualified workforce

Improving the skill level of the workforce will be a critical requirement for achieving the arable industry's strategy targets. In 2012, 36 percent of the arable workforce had a formal post-school qualification. Our forecasts suggest that by 2025 this will need to increase to 51 percent.

The arable workforce is expected to expand by 4700 workers between 2012 and 2025, but the number of workers with a formal qualification is expected to increase by 5300. This indicates that a further acceleration in training activity is required to meet potential demand. To achieve a net increase of 5300 qualified workers, the industry is likely to need to find an additional 15 200 trained workers to meet both the new demand and to replace the natural attrition of workers.

The qualifications most in demand are likely to be in the engineering, management and commerce fields of study.

Capability Needs 2012-2025



By 2025 the arable industry is expected to need:

- a net increase of 4700 workers;
- 5300 more workers with qualifications;
- 600 fewer workers without post-school qualifications (through training and natural attrition);
- an additional 15 200 trained workers to replace the natural attrition of workers within the industry.

Preparing for tomorrow – skills and knowledge required for the arable industry:

- More market skills including marketing, logistics, supply-chain management and cultural and language capability.
- Better business skills including understanding new business models to transform commodities into branded products with strong supply-chain partners.
- A higher level of leadership and entrepreneurial abilities with an understanding of the interconnectedness with other sectors and along the whole value chain.
- Improved production skills including farm and financial management for sophisticated farm systems.
- More science and technical support skills with a greater focus on plants, such as botany and agronomy.

Occupation Close-up **ARABLE**

DOUG AND GABI MICHAEL

Occupation: Owners of Gladfield Malt and barley growers

What we do: “Until the past couple of years we were working both the farm and the malt roasting business on our own. As our business has grown we have been able to hire really good staff who help with the malt production now. Our malt is processed from barley and used mainly to make craft beers.”

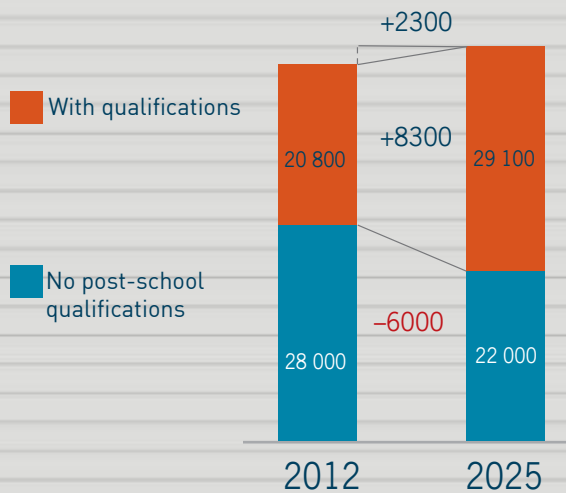
Skills and knowledge: Doug has a Bachelor of Agricultural Science from Lincoln University. Gabi is a large animal veterinarian from Brazil. Gabi came to New Zealand 11 years ago after completing her studies to gain some overseas work experience. She met Doug shortly after arriving and the two set up Gladfield Malt.

“Malt can only be as good as the barley it comes from, so it’s important we look after our growers. While every batch of malt will have slight differences, our goal is to make sure we are providing our customers with a consistent product that will give them good results every time.”



DAIRY

Capability Needs 2012–2025



By 2025 the dairy industry is expected to need:

- a net increase of 2300 workers;
- 8300 more workers with qualifications;
- 6000 fewer workers without post-school qualifications (through training and natural attrition);
- an additional 25 700 trained workers to replace the natural attrition of workers within the industry.

New Zealand is well known for its ability to produce milk and turn it into a wide range of high-quality products that are in demand all over the world. The dairy industry has experienced strong growth in value and volume in the past 10 years. The value of exports in 2012 was \$13.66 billion. By 2025, industry expects export value to increase to \$27.4 billion.

For the dairy industry, some of the main changes over the next 10 years are expected to include growing global demand for dairy from Asia, the Middle East and North Africa, along with resource and capital constraints to milk production growth in New Zealand.

Forecasts of skill requirements

Farming is the main source of employment in the dairy industry. While the number of dairy farmers and farm managers are only expected to increase slightly, the number of non-farm managers is expected to increase by 15 percent, indicating a continued trend towards larger dairy farm operations. The largest proportion increase in employment numbers is expected in dairy manufacturing. Sales are expected to be the fastest growing occupations for dairy, with sales jobs increasing by more than 20 percent by 2025.

Building a skilled and qualified workforce

Improving the skill level of the workforce will be a critical requirement for achieving the dairy industry's strategy targets.

The dairy workforce is expected to expand by 2300 workers between 2012 and 2025, but the number of workers with a formal qualification is expected to increase by 8300.

The industry is also likely to need to find an additional 25 700 trained workers to meet the additional demand and to replace the natural attrition of workers.

The qualifications most in demand are likely to be in the agriculture, environment, engineering, management and commerce fields of study.

Preparing for tomorrow – skills and knowledge required for the dairy industry:

- More market and product skills in consumer branding, along with cultural knowledge and language skills to address barriers to doing business in emerging markets.
- Business and management skills in the areas of risk management, food safety and quality assurance systems.
- Higher levels of production-oriented skills including whole farm systems, information management, resource use, financial efficiency, soft skills, and managing local and migrant staff and contractors.
- Increased science and technical support skills, particularly researchers on resource use efficiency, reducing environment effects and agriculture resource economics.
- More accredited rural professionals and providers to transfer new techniques and knowledge to farmers.

Occupation Close-up **DAIRY**

RYAN WALKER

Occupation: Farm Assistant, 550 cow dairy farm

The work day: “Even though I am working with the herd every day, no two days are ever the same. This time of year (May–June) we are moving stock into pastures and building and repairing fences. This is actually our quiet time of year, once calving season begins in July we will be extremely busy.”

Skills and knowledge: Earned a National Certificate in Agriculture Level 4 Dairy Option at Taratahi Agricultural Training Centre. In 2013, Ryan received a DairyNZ Excellence Award. “My farm placement through the programme gave me the opportunity to practice what I had been taught. At the end of my studies, I was also involved with a three-week exchange to the UK to compare farming systems.”

“I was raised on a farm and really enjoy the work. I like being outside – even on cold and rainy days – and I like the variety of farming. My plan is to work my way up to farm manager with the long-term goal of farm ownership.”



SEAFOOD

The seafood industry includes seafood captured through New Zealand's world-leading quota management system and our growing aquaculture industry. The seafood industry expects total seafood exports to reach \$2.3 billion by 2025.

For the seafood industry, some of the main changes over the next 10 years are expected to include extracting higher value from wild fisheries production and a growing share of aquaculture in global seafood supply.

Forecasts of skill requirements

Employment in seafood-related activities has been in decline over the past 10 years. The implementation of the industry's strategy is expected to leave employment numbers similar to 2012 levels.

The expansion in seafood industry activities is expected to increase demand most for labourers, marine farmers and farm managers, and other managers, and support and sales workers.

Replacing workers leaving the industry will increase training requirements. For example, a 61 net increase in factory process workers is expected, but to achieve this target accounting for

expected net of departures will require attracting 1100 such workers to the industry. Other occupations where replacement demand pressures are likely to increase training requirements include ICT professionals, technicians, transport and plant operators, and trade workers.

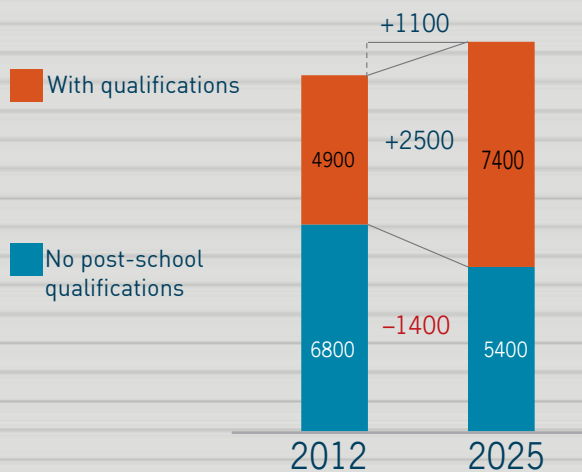
Building a skilled and qualified workforce

Improving the skill level of the workforce will be a critical requirement for achieving the seafood industry's strategy targets. In 2012, 42 percent of the seafood workforce had a formal post-school qualification. By 2025 this will need to increase to 57 percent.

The seafood workforce is expected to expand by 1100 workers between 2012 and 2025, but the number of workers with a formal qualification is expected to increase by 2500.

The qualifications most in demand are likely to be in the engineering field of study.

Capability Needs 2012-2025



By 2025 the seafood industry is expected to need:

- a net increase of 1100 workers;
- 2500 more workers with qualifications;
- 1400 fewer workers without post-school qualifications (through training and natural attrition);
- an additional 7200 trained workers to replace the natural attrition of workers within the industry.



Preparing for tomorrow – skills and knowledge required for the seafood industry:

- More market and product skills for export marketing.
- Improved business and management skills, particularly in supply chain and channel management and commercialisation of health claims and higher-value products.
- Better production skills for sustainable fishing to retain their social license.
- More emphasis on specification and assurance systems for precision harvesting.
- Specialists in developing offshore aquaculture sites.

Occupation Close-up **SEAFOOD**

NATHAN REID (Ngāti Tūwharetoa, Te Arawa, Te Aupōuri and Te Rarawa)

Occupation: Supply Supervisor, Aotearoa Fisheries Inshore (trading as Moana Pacific Fisheries)

The work day: “I spend much of my time keeping in touch with our boats mainly, planning with them what we need, when we need it, and monitoring how those vessels are tracking performance-wise against the monthly and yearly harvest plans I formulate at the start of the season. Ultimately, we only want to take what we need and no more. That means we are always in close communication with our fleet of independent fishers. Another part of my role is being involved in a number of industry working groups and organisations like Southern Seabird Solutions Trust. These groups provide a good opportunity for industry, scientists, and regulators to work together for the greater good of the industry and our environment.”

Skills and knowledge: Right out of high school Nathan worked on a fishing trawler for three years. He then went to the University of Waikato where he earned his Bachelor of Management Studies. In 2005, Nathan earned the Te Ohu Kaimoana Global Fisheries scholarship and spent one year training with Nissui in Japan. After that life-changing experience, he began working at Moana Pacific Fisheries and has worked his way up in the organisation.

“It’s a dynamic industry and one where technology, the changing nature of weather and markets, the regulatory framework, and science are all requiring those of us in the industry to look at things differently. While it’s challenging, it’s also pretty exciting.”



FORESTRY

The forest industry is mainly based on sustainably managed pine. Export value reached \$4.29 billion in 2012 (38 percent logs, 62 percent wood products). By 2025, export value has the potential to increase to \$12 billion.

For the forestry industry, some of the main changes over the next 10 years are expected to include increasing log availability, an industrial roundwood deficit particularly in Asia, a transition from log exporting to exporting more processed products, and opportunities such as carbon farming.

Forecasts of skill requirements

Employment in the forestry industry is concentrated in processing activities and the overall forestry workforce is expected to expand by 5300 workers between 2012 and 2025.

The move to automation will require a more skilled workforce, including better maintenance and diagnostic skills. In addition, fabricated and engineered products will require design engineers and skilled assembly workers and fabricators. Greater emphasis on engineered products and prefabricated buildings will require training specialists to educate engineers, designers and architects.

The largest job growth in the forestry industry is expected for support and sales workers, technicians and trade workers, non-farm managers, labourers, and transport and plant operators. The one occupation where a decline is expected is forest workers.

Occupations where replacement demand pressures are likely to increase training requirements include support and sales, transport and plant operators, technicians and trade workers, factory process workers, and forestry workers.

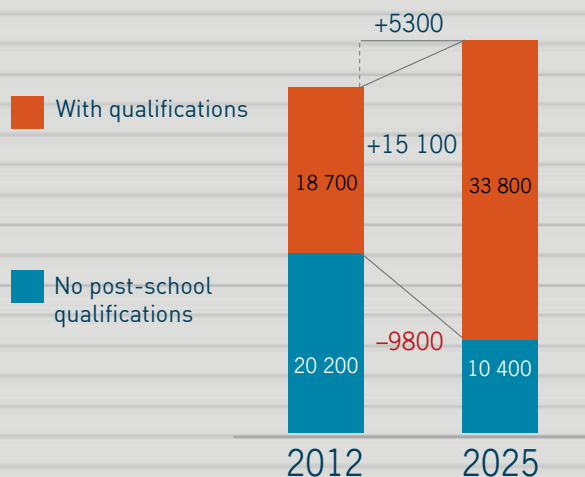
Building a skilled and qualified workforce

Improving the skill level of the workforce will be a critical requirement for achieving the forestry industry's strategy targets. In 2012, 48 percent of the forestry workforce had a formal post-school qualification. By 2025 this will need to increase to 77 percent.

The forestry workforce is expected to expand by 5300 workers between 2012 and 2025, but the number of workers with a formal qualification is expected to increase by 15 100.

The qualifications most in demand are likely to be in engineering and related technology, architecture, building, management and commerce fields of study.

Capability Needs 2012-2025



By 2025 the forestry industry is expected to need:

- a net increase of 5300 workers;
- 15 100 more workers with qualifications;
- 9800 fewer workers without post-school qualifications (through training and natural attrition);
- an additional 25 900 trained workers to replace the natural attrition of workers within the industry.



Preparing for tomorrow – skills and knowledge required for the forestry industry:

- More market and product skills, particularly in-market, showcasing, and engagement with the wood and construction sectors.
- Better business and management skills in investment and new business models.
- Better production skills with greater skilled design engineers and assembly skills.
- Maintenance and diagnostic skills, chemical engineering, harvesting technology and equipment manufacturing.
- Science and technical support skills in genetics and pathogens, carbon forestry research, extension, and sustainability and verification.

Occupation Close-up **FORESTRY**



SAM GREIG

Occupation: Quality Assurance Apprentice, Juken New Zealand

The work day: “As an apprentice, every day is different. Today, for example, I am learning about assessing how adhesive bonds work with different wood products.”

Skills and knowledge: “Part of my apprenticeship includes earning New Zealand qualifications (Levels 2, 3, and 4), but a big part of the apprenticeship is also practical. It’s a six-year apprenticeship – so it’s a real commitment – but it’s worth it because it’s interesting work and it offers new opportunities.”

“My first job for Juken New Zealand was on the floor in processing. When the apprenticeship came up it seemed like a really good way to learn more about the industry and how we operate as a business. I started out just thinking I needed a job, but it’s become a career.”

SUPPORT SERVICES

Support services represent a diverse range of activities, including input manufacturing (for example, fertilisers and pesticides), equipment manufacture and maintenance, transport services, and professional services such as rural consultants².

Support services are an expanding source of employment in New Zealand generally. While some of this growth reflects organisational changes, there has been a fundamental shift towards greater specialisation and a higher proportion of value-added products incorporating service aspects, such as design and customisation requiring greater professional support.

Forecasts of skill requirements

In 2002, 22.6 percent of primary sector employment was involved in support services. By 2012, this had expanded to 30.2 percent, and is expected to be over 34 percent by 2025. The success of primary industries will depend on activities beyond the farm gate and processing operations.

The expansion in primary industry activities is expected to increase demand most for support and sales workers, non-farm managers, transport and plant operators, and professionals (design, engineering, science and transport along with ICT and other professionals).

Replacing workers leaving the industry will further increase training requirements. For example, a 7000 net increase in support and sales workers is expected, but to achieve this target accounting for expected net departures will require attracting 20 000 such workers to the industry. Other occupations where replacement demand pressures are likely to increase training requirements include managers, trade workers, factory process workers, and transport and plant operators.

Building a skilled and qualified workforce

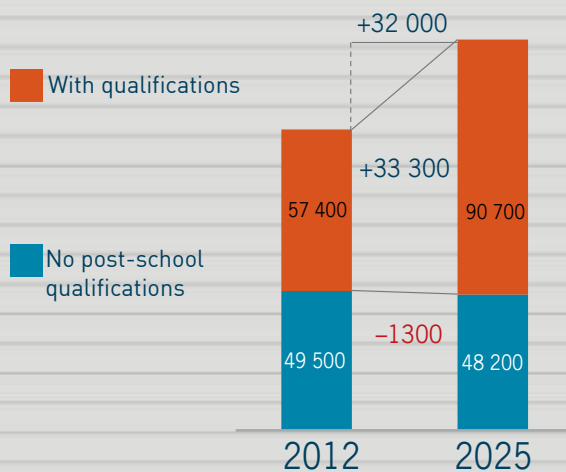
The primary industries will need to obtain access to a wider range of skills from the support services. This is likely to increase the qualification level of support services.

In 2012, 54 percent of the primary industries support service workforce had a formal post-school qualification. By 2025 this will need to increase to 65 percent. The primary industries support service workforce is expected to expand by 32 000 workers between 2012 and 2025, but the number of workers with a formal qualification is expected to increase by 33 300.

The industry is likely to need to find an additional 90 200 trained workers to meet demand and to replace the natural attrition of workers.

² Many people counted in support services provide important support for primary industries, but based on the type of work they do there is a possibility that a number have been included who are only peripherally associated with the industries.

Capability Needs 2012–2025



By 2025 support services are expected to need:

- a net increase of 32 000 workers;
- 33 300 more workers with qualifications;
- 1300 fewer workers without post-school qualifications (through training and natural attrition);
- an additional 90 200 trained workers to replace the natural attrition of workers within the industry.



Preparing for tomorrow –
skills and knowledge required
for the support services
of New Zealand's primary
industries:

- Engineering.
- Management and commerce.
- Social sciences.
- Sciences.
- Agriculture, environmental and related studies.

Occupation Close-up **SUPPORT SERVICES**

JEMMA MACKENZIE

Occupation: Operations Manager, Agri Optics

The work day: “Ideally, I should spend about half of my time in the office compiling and analysing data and the other half of my time in the field working with farmers and land managers.”

Skills and knowledge: Jemma graduated from Lincoln University with a Bachelor of Agricultural Science. As an undergraduate she completed a year's study abroad in the US at Colorado State University where she learned about Precision Ag.

“There's real potential for using today's tools and technology to help New Zealand farmers raise their productivity, profitability and improve their environmental footprint. Our goal is to provide farmers with the knowledge they need to make the right decisions for their operations.”



NOTES



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