Food, Fibre & Timber Industries
Training Council (WA) Inc.

[redacted]

Website: www.fftitc.com.au

Submission

2025 Core Skills Occupations List (CSOL)

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Introduction

Western Australia's Food, Fibre, and Timber Industries are vital to the state's economy, regional employment, and export markets. They encompass agriculture, horticulture, fishing, forestry, and related processing sectors, employing thousands across metropolitan and regional areas. Over the past 12 months, occupational shortages have been identified across these industries and continue to affect productivity, particularly in supervisory and highly skilled roles such as Fishing Leading Hands, Horticultural Supervisors, Senior broadacre, dairy and livestock agricultural workers, and Irrigation Technicians. Contributing factors include an ageing workforce, competition from other sectors, regional training gaps, regulatory and licensing requirements, and the demanding nature of much of the work. Without targeted workforce development, these shortages risk productivity, sustainability, and the ability to meet growing domestic and global demand. This submission outlines current and future workforce needs and proposes strategies to strengthen skills pathways, support workforce growth, and enhance industry capacity.

The Food, Fibre and Timber Industries Training Council

Funded under a service agreement with the Western Australian Department of Training and Workforce Development, the Food, Fibre & Timber Industries Training Council (FFTITC) has several core functions:

- Provide leadership and strategic advice about workforce, training and skills development in Western Australia to government, industry and related stakeholders.
- Work with industry to identify current and future workplace and skills needs of the food, fibre, and timber industries and to then identify key strategic priorities and outcomes for its industry sectors.
- Promote vocational training including traineeships and apprenticeships to industry, including facilitating partnerships between industry and the training sector.
- Supporting innovation and workforce development.

The Food, Fibre and Timber Industries Training Council service the following industry areas:

- Agriculture and Production Horticulture
- Animal Care and Management
- Forest and Forest Products
- Furniture, Forest and Forest Products
- Green Skills - Landscape Horticulture
- Manufactured Textiles and Fashion
- Meat and Seafood
- Racing and Horse Breeding
- Sustainable Furnishings - cabinet making, flooring, glazing, furniture making, interior design and decoration

As a not-for-profit incorporated body, the primary purpose of the Food, Fibre and Timber Industries Training Council is to provide advice to Government on behalf of industry and ensure all nationally recognised training programs and packages reflect the current and future needs within the industries.

FFTITC engages key industry organisations to identify current and future vocational education and training priorities. Industry take-up of training is promoted, including awareness of new initiatives from the Department and efforts are made to ensure training quality remains at the highest standard, while advocating the benefits of participation and support for training.

This submission is informed by a structured, industry-focused approach to identifying workforce and skills needs. Over the past 12 months, research has been conducted through consultations, surveys, industry forums, workshops, and one-to-one stakeholder engagement.

Findings from this research provide qualitative insights that inform the State's Skills Priority Occupation List, guide public funding allocations, and support the WA Skills Migration List. This methodology ensures that the submission reflects current and emerging industry skill shortages.

Targeted Occupations

149399 Scientific and Environmental Managers nec# (ANZSCO 139912 Environmental Manager)

Environmental Managers are critical to Australia's capacity to meet regulatory requirements, manage environmental risks, and advance sustainability across industries. They develop and implement environmental management systems, conduct audits and impact assessments, ensure compliance with legislation, and drive initiatives in waste reduction, recycling, biodiversity protection, and renewable energy adoption. They also negotiate service agreements, engage with stakeholders, and promote environmental awareness within organisations.

In Western Australia, around 420 Environmental Managers are currently employed, with demand particularly strong in mining, construction, public administration, and professional services. The growing need for these professionals is being driven by increasingly stringent environmental legislation, heightened community expectations, and the corporate shift toward sustainability and ESG commitments. A search of job listings revealed over 160 vacancies in environmental management, suggesting strong labour market demand, though the interchangeable use of titles such as advisor, consultant, or coordinator makes it difficult to capture the true scale of need.

Industry stakeholders consistently report skills shortages for Environmental Managers. These shortages stem from labour market gaps, qualification inconsistencies, and experience deficits. While numerous degree programs exist in areas such as environmental science, engineering, climate science, and environmental policy, the lack of standardisation in course content means graduates enter the workforce with varied skills. Many lack strong report-writing abilities, applied regulatory knowledge, and the resilience needed for complex compliance work. Employers also note a shortage of experienced candidates, with the ageing workforce expected to intensify this challenge in coming years.

To address these shortages, industry has called for stronger government support for tertiary and vocational training, scholarships and incentives to attract students, and the development of short courses and micro-credentials aligned to industry needs. Practical upskilling, work placements, and structured vocational learning are particularly important to bridge the gap between academic theory and workplace application. Formal recognition of Environmental Managers on skills

shortage lists such as WASMOL and the national skills list would also strengthen the pipeline of workers by supporting migration pathways and aligning training investment to demand. Migration from interstate and overseas is viewed as a useful strategy, provided candidates possess strong English communication skills for reporting and stakeholder engagement. Local compliance knowledge can be taught on the job through targeted induction programs.

The demand for Environmental Managers is expected to remain high, and in some sectors may become critical. Tighter mining regulations, growing corporate sustainability commitments, and increasing public scrutiny are major drivers of this demand. Regulatory change relating to climate targets, nature-positive approaches, and circular economy principles will also intensify the need for skilled professionals who can interpret and implement complex requirements.

In the short term, over the next two years, there will be strong demand for vocational skills in compliance solutions, biodiversity management, carbon accounting, and monitoring. Graduates and existing workers alike will need to continuously update their knowledge as regulations evolve. Over the longer term, in the next three to five years, Environmental Managers will require expertise in climate change adaptation, nature-positive strategies, and emerging technologies for environmental monitoring and reporting. Strong leadership and communication capabilities will become even more important as they balance compliance requirements with public and community engagement.

Regional workforce supply presents ongoing challenges. In Western Australia's regional areas, inadequate housing, healthcare, childcare, education, and infrastructure discourage relocation, leaving many roles reliant on fly-in fly-out arrangements. Without stronger regional incentives, the long-term supply of Environmental Managers outside metropolitan centres will remain fragile.

Environmental Managers are central to achieving Australia's sustainability and regulatory objectives. Demand is already strong and will continue to grow, fuelled by legislation, industry commitments, and community expectations. However, shortages in labour, qualifications, and practical experience pose significant risks. Addressing these gaps will require coordinated action across government, industry, and education providers, with expanded training pathways, stronger alignment of curriculum to industry needs, and strategic use of migration. Without such measures, industries risk disruption from a critical undersupply of skilled Environmental Managers.

151199 Broadacre Crop Growers nec# &152999 Livestock Farmers nec# (ANZSCO 121711 Broadacre crop and livstock farmer)

The demand for skilled broadacre crop and livestock farmers in Western Australia is high and projected to intensify due to shifting agricultural practices, rising productivity expectations, and the need for sustainable farming methods. While the sector continues to experience strong yields and stable markets, the workforce is ageing, with 36% of workers aged 60 or over compared to 12% across the wider WA workforce. This creates an urgent need for new entrants with the technical knowledge, resilience, and practical expertise to sustain future production. Many smaller farms are exiting the industry or outsourcing management functions due to succession challenges and the growing complexity of farming operations.

The 2024–2025 harvest, which delivered nearly 20 million tonnes—WA's third-largest on record—highlights both the resilience and volatility of broadacre farming. Predictions of lower yields were

overturned by favourable late-season rainfall, reduced crop stress, and improved crop varieties, particularly in the Geraldton Zone where outcomes exceeded expectations. This demonstrates the increasing reliance on skilled farmers who can adapt to unpredictable climatic conditions and maximise production through advanced agronomy and resource management.

Simultaneously, the decline in the sheep industry has pushed many producers toward cropping. Australia's wool production has fallen to its lowest level in a century, driven by high costs and falling returns. In response, more farmers are focusing on grain, where demand remains strong. This shift has heightened the need for broadacre farmers capable of managing complex cropping operations, including machinery use, precision agriculture, and soil and water management.

Despite ongoing efforts, the industry faces persistent skills shortages caused by a combination of labour scarcity, insufficient qualifications, and experience gaps. Many workers rely on unaccredited training to develop skills in machinery operation, animal welfare, and safety. However, there is a pressing need for expanded access to accredited programs, including the Certificate IV and Diploma of Agriculture, to ensure competency, safety, and national recognition of skills. Industry stakeholders emphasise that formal training pathways, agricultural apprenticeships, and better connections between VET, universities, and employment are essential to strengthen the workforce pipeline.

Government support is viewed as vital in addressing these shortages. Stakeholders recommend greater investment in agricultural education, starting in schools through farm visits, camps, and career awareness programs. Incentives for employers, tax benefits, and wraparound support for apprentices and trainees would make training more accessible and attractive. Regional investment in housing, telecommunications, and essential services would also help attract and retain workers, reducing reliance on fly-in fly-out labour. Migration remains an important strategy, with workers recruited from countries with similar farming systems such as South Africa, the UK, and New Zealand. However, long-term workforce resilience requires building local capability through structured pathways and apprenticeships.

Future demand for skilled farmers is expected to remain high or reach critical levels. Several factors are driving this trend, including global food security pressures, limited arable land, regulatory requirements for sustainability, and technological advances in farming. Short-term skill needs (within two years) include expertise in automation, precision agriculture, robotics, and digital technologies such as GPS-guided machinery, drones, and data-driven farm management systems. Farmers will need to integrate these technologies while maintaining traditional skills in agronomy and land management. Long-term skills (within three to five years) will extend to climate change adaptation, regenerative agriculture, carbon farming, renewable energy integration, and ESG compliance. Digital literacy, data analysis, and supply chain transparency—including blockchain-based traceability—will be critical to meeting consumer and trade expectations.

One major barrier is low digital literacy, which limits the adoption of new technologies. Without improved training in data interpretation, AI, and farm management software, smaller operations risk falling behind larger, tech-enabled farms. Addressing this gap requires investment in both technical training and foundational literacy, numeracy, and employability skills to ensure workers can successfully adopt modern farming practices.

The agricultural workforce is at a turning point. Strong yields and global demand create significant opportunity, but persistent skills shortages, competition from other industries, and an ageing workforce threaten the sector's future capacity. To remain competitive and sustainable, Western Australia must build a future-ready agricultural workforce by expanding accredited training, embedding technology skills, supporting apprenticeships, and investing in regional infrastructure. Without these measures, the broadacre cropping and livestock industry faces significant disruption from an undersupply of skilled farmers.

151232 Fruit Grower (ANZSCO 121612 Fruit Grower)

The demand for fruit growers in Western Australia is strong and projected to increase, underpinned by rising export opportunities, growing domestic consumption, and continuous technological advancements. Fruit growers play a central role in planning, coordinating, and managing commercial operations that are vital to WA's $13 billion primary industry export sector. According to the 2021 ABS Census, WA had 725 fruit growers, with 38% aged 60 or over and 63% holding no formal qualifications, highlighting both the reliance on experience-based skills and the pressing need to attract younger, qualified workers. The industry has consolidated into larger family and corporate farms due to limited land availability and the challenges faced by smaller operators, but this has created opportunities for increased efficiency through technology adoption and new breeding methods.

WA's fruit industry is demonstrating its capacity for growth, as seen in 2023–24 when avocado exports surged by 400% to $36.8 million, with the state producing 65,000 tonnes—nearly half of Australia's total output. At the same time, fresh fruit imports into Australia have declined significantly, further strengthening demand for local production. These trends point to a sector with strong market potential, but sustaining this growth requires a skilled and adaptable workforce.

Industry stakeholders consistently report skills shortages, driven by labour shortages, qualification gaps, insufficient workplace experience, licensing requirements, and an ageing workforce. The shortage of supervisory and management training programs prevents workers from advancing into leadership positions, while the absence of Registered Training Organisations delivering the Certificate IV in Production Horticulture limits opportunities for formal recognition and skill development. Without these pathways, the supply of qualified professionals entering the industry remains inadequate.

In response, the horticulture industry has worked with government and education providers to address these shortages. Initiatives include career promotional resources, workforce development projects led by DPIRD, and stronger school engagement through industry-focused curricula and events like the Robotics Challenge. These measures aim to increase awareness of horticulture careers, improve the industry's image, and attract new talent. However, significant barriers remain in regional WA, where limited housing, childcare, healthcare, and education options restrict workforce attraction and retention. The mining sector also draws potential workers away with higher wages and better conditions, intensifying competition for labour. Migration continues to play a vital role in meeting seasonal and long-term labour needs, but the industry stresses the importance of maintaining accessible visa pathways, including the Working Holiday Maker program.

Looking ahead, demand for fruit growers is expected to be high to critical. Factors driving this growth include expanding international markets, increasing demand for fresh and organic produce, technological innovation, and the global imperative for food security. In the short term (within two years), skill needs include precision agriculture, automation, irrigation management, and sustainable practices. Training in digital literacy, data analytics, and the use of drones, sensors, and farm management software is also urgently required to help growers adapt to modern production systems.

In the longer term (three to five years), skills development will focus on sustainability, ESG compliance, regenerative practices, carbon farming, biodiversity conservation, and renewable energy integration. Growers will need knowledge of certification systems such as organic and Fair Trade standards, carbon footprint labelling, and blockchain-based traceability to meet evolving trade and consumer requirements. Expertise in biotechnology, AI, and machine learning will further enhance productivity and risk management, while digital marketing and direct-to-consumer strategies will reshape business models. Strengthening foundation skills—particularly digital literacy—will be essential to ensure smaller farms can access the benefits of new technologies and compete with larger operations.

At the same time, the sector must contend with biosecurity threats and climate risks, which are expected to intensify over coming years. Exotic pests and diseases such as fruit fly, alongside increased biosecurity scrutiny from trading partners, mean growers require advanced knowledge in monitoring, compliance, and integrated pest management. Climate change poses additional challenges, including higher temperatures, extreme weather events, and changing rainfall patterns, all of which affect yields, water use efficiency, and crop quality. Meeting these challenges demands a workforce trained not only in traditional horticulture skills but also in adaptive management, climate resilience strategies, and innovative water and soil management practices.

Overall, the fruit-growing industry in WA faces a dual challenge: significant opportunities for market expansion and innovation, alongside critical workforce shortages and regional barriers. Addressing these challenges will require targeted government investment in vocational training, industry-led programs, and infrastructure to support regional workforce sustainability. By developing career pathways, embedding technology skills, strengthening biosecurity and climate resilience, and supporting both local and migrant labour, WA can secure a future-ready fruit-growing workforce capable of meeting global food demand and ensuring the resilience of this vital sector.

151236 Vegetable Grower (ANZSCO 121616 Vegetable grower)

The demand for vegetable growers in Western Australia is being driven by a combination of structural pressures, workforce shortages, and growing market opportunities. The Australian vegetable industry is experiencing a cost-of-production crisis, with many growers under financial stress and some considering leaving the industry altogether. An AUSVEG survey found that one-third of growers intend to exit within a year, while another third would leave if they could obtain a fair price for their farms. Such an exodus would threaten supply security and increase the need for new entrants and existing growers to sustain production. At the same time, labour shortages—particularly in skilled roles—are undermining the industry's capacity to meet demand. These issues are compounded by rising input costs, poor farmgate returns, compliance burdens, and an ageing workforce, with not enough younger workers entering the sector to replace retirees.

Despite these challenges, demand for vegetables remains strong. A growing population is fuelling domestic consumption, and export opportunities—particularly into Asia—continue to expand, supported by the reputation of Australian produce for high quality and safety. However, these opportunities can only be realised if there is a reliable and skilled workforce. Current shortages arise from a lack of qualified applicants, limited workplace experience among new entrants, licensing requirements, and structural barriers to training. The industry is in undersupply, and employers are struggling to secure workers with the required technical, supervisory, and compliance skills.

To address workforce gaps, AUSVEG has advocated for measures such as a National Labour Hire Licensing Scheme, improved Fair Work and Border Force oversight, reduced barriers to labour agreements, and streamlined visa pathways. Migration plays a vital role in sustaining production, with the industry heavily reliant on seasonal workers, the PALM scheme, and the Working Holiday Maker Visa. AUSVEG has also called for a new short-term harvest visa and a longer-term visa scheme targeting workers from India, Indonesia, and Vietnam. In parallel, industry is investing in raising career awareness through promotional booklets, student engagement, and collaboration with schools to build pathways into horticulture.

Industry stakeholders are clear that state government support is critical to addressing these shortages. Priorities include funding workforce development programs tailored to vegetable growing, expanding access to accredited qualifications, and creating a strong training culture to attract and retain talent. Addressing regional barriers—such as housing shortages, limited health and education services, and competition from mining—is also essential to stabilising the workforce. Without investment in infrastructure and incentives to live and work in regional WA, attracting and retaining skilled growers will remain difficult.

In the short term (within two years), immediate skill needs include proficiency in precision agriculture, automation, irrigation and water efficiency, climate-controlled production, and sustainable farming practices. Digital literacy is a pressing gap, with many growers lacking the ability to interpret and use data generated by modern technologies such as drones, sensors, and farm management platforms. Expanding short courses, micro-credentials, and industry-led training will help workers adapt quickly to these evolving requirements.

Looking to the longer term (three to five years), demand for skills will be shaped by ESG compliance, climate change adaptation, and consumer expectations around traceability and sustainability. Vegetable growers will need expertise in carbon farming, regenerative practices, biodiversity conservation, renewable energy integration, and waste reduction. Knowledge of certification systems such as organic, Fair Trade, and carbon footprint labelling will be increasingly important, along with digital traceability systems such as blockchain. Proficiency in biotechnology, AI, and machine learning will also enhance productivity and risk management. Business skills—particularly digital marketing and direct-to-consumer strategies—will be needed as market dynamics shift.

Barriers to supply remain significant. There are no RTOs currently delivering the Certificate IV in Production Horticulture, limiting opportunities for formal recognition and advancement. The lack of supervisory training prevents workers from progressing into leadership roles. Combined with an ageing workforce, limited regional infrastructure, and low digital literacy, these factors pose risks to both current production and long-term industry resilience.

The future demand for vegetable growers in WA is expected to remain high to critical. Strong population growth, export potential, regulatory complexity, climate challenges, and consumer expectations for sustainable food systems will sustain and expand demand for skilled workers. Without urgent investment in workforce development, training pathways, and regional support, the industry faces the risk of significant disruption to supply. Attracting and retaining skilled vegetable growers is therefore essential to maintaining WA's production capacity, food security, and competitiveness in international markets.

244334Park Ranger & 244333 Ecologist (ANZSCO 234314 Park Ranger)

Park Rangers in Western Australia play a critical role in protecting and managing the state's unique natural and cultural heritage. They are responsible for conserving biodiversity, safeguarding cultural sites, maintaining park infrastructure, and engaging with visitors to promote education and stewardship. According to the 2021 ABS Census, 372 individuals identified as Park Rangers in WA, with nearly one-third based in the Kimberley. Over half of the workforce holds post-secondary qualifications, which reflects the increasingly specialised nature of the role and the need for formal education and training.

Recruitment strategies vary across regions. In metropolitan areas, Park Ranger positions typically target graduates completing conservation qualifications such as the Certificate III in Conservation and Ecosystem Management. In contrast, in regional and remote areas, especially the Kimberley, Pilbara, and Goldfields, many Park Rangers are Aboriginal and employed through the Department of Biodiversity, Conservation and Attractions (DBCA). The Australian Government's Indigenous Ranger Program has been central in building this workforce, integrating traditional ecological knowledge with modern conservation science. This initiative strengthens cultural stewardship, ensures culturally significant sites are protected, and provides sustainable employment pathways for Indigenous communities.

Although SEEK and Indeed data suggest demand for Park Rangers remains steady without systemic shortages, industry reports highlight challenges in attracting and retaining skilled workers. Shortages arise from limited applicant pools, gaps in qualifications, lack of workplace experience, licensing requirements, and the impacts of an ageing workforce. To address these issues, DBCA has invested in accredited in-house training for Park Rangers. A major innovation has been the development of On Country qualifications tailored for Aboriginal trainees. These qualifications focus on heritage-based land conservation and cultural management, blending Indigenous knowledge with conservation practice. Early trials, including South Regional TAFE's delivery of On Country training, have shown promising results, with expansion into more regions under consideration.

Despite current workforce stability, future demand for Park Rangers is expected to remain high. A range of factors will shape this demand, including climate change, biodiversity loss, community expectations for environmental stewardship, and growth in ecotourism. Government policies targeting net-zero emissions, regenerative conservation, and nature-positive practices will require rangers to develop skills in sustainability, environmental compliance, and ecosystem restoration. Expanding visitor numbers to national parks also increase the need for rangers to ensure public safety, enforce regulations, and protect fragile ecosystems.

The skills required of Park Rangers are also evolving. In the short term, within the next two years, key skill needs include drone operation for wildlife monitoring, GPS and GIS mapping for conservation planning, fire management and emergency response, and habitat restoration practices. Communication and community engagement skills are also essential, as rangers must educate visitors and work collaboratively with local communities. In the longer term, over three to five years, Park Rangers will need enhanced expertise in environmental policy compliance, sustainable land management, regenerative practices, and advanced technologies such as data analytics, drone surveillance, and remote sensing. These skills will help manage the impacts of climate change, clean energy developments, and increased demand for ecosystem services.

Barriers to workforce supply remain. While qualifications such as the Certificate II and III in Conservation and Land Management provide entry pathways, RTOs face challenges in delivering training, particularly in remote areas. Aboriginal and Torres Strait Islander students often encounter barriers relating to literacy, numeracy, and digital skills, which can limit access to qualifications and career progression. Addressing these foundation skills through workplace-based learning, targeted skill sets, and culturally appropriate support is essential.

Regional challenges also impact workforce stability. Affordable housing is a significant barrier across WA, with high living costs deterring workers from regional placements. Infrastructure shortages, limited access to health and education services, and competition from higher-paying industries such as mining and defence further restrict the supply of workers. Addressing these issues is critical to ensuring regional communities remain attractive and liveable for prospective employees.

To sustain a skilled and resilient workforce, industry has called for continued state government investment in vocational training, flexible training pathways, and mentoring programs. Expanding access to On Country programs, improving foundation skills support, and providing incentives for regional employment will help build workforce resilience. Government action on regional housing, transport, and community services will also play a key role in attracting and retaining rangers.

In summary, Park Rangers are essential to conserving Western Australia's natural and cultural heritage. While current supply generally meets demand, skills shortages in qualifications, experience, and regional workforce retention highlight the need for proactive planning. With the growing pressures of climate change, biodiversity loss, and ecotourism, future demand for skilled rangers is expected to remain high. By strengthening training systems, supporting Indigenous participation, and addressing regional barriers, WA can secure a sustainable and skilled Park Ranger workforce capable of protecting the state's parks and natural heritage for future generations.

244699 Life Scientists nec# (ANZSCO 2345 Life Scientists)

Life Scientists not elsewhere classified (nec) include botanists, marine biologists, zoologists, and other specialists who study living organisms and apply their expertise across sectors such as agriculture, aquaculture, medicine, conservation, and education. While broadly situated within scientific research services, they contribute to industry-specific outcomes with significant environmental, health, and economic impacts.

The 2021 ABS Census recorded 683 Life Scientists in Western Australia, with 89% located in Perth where universities, hospitals, and research institutes are based. The workforce is highly qualified, with 95% holding tertiary qualifications, and shows balanced gender representation (55% female, 45% male).

Current demand for Life Scientists is moderate. Jobs are concentrated in metropolitan WA and mainly within universities, government agencies, and environmental organisations. The key challenge is not widespread shortages but the need for highly specialised expertise in fields such as marine ecology, molecular biology, bioinformatics, and conservation genetics. Recruitment can be difficult when roles demand both advanced research and applied industry knowledge, such as in environmental management or aquaculture.

Future demand is expected to remain steady at moderate levels. Climate change, biodiversity loss, and sustainability challenges will drive the need for ecologists, conservation scientists, and marine specialists. Expanding aquaculture and fisheries industries in regional WA will also create opportunities for aquatic scientists. In medicine and health, growth in genomics, personalised medicine, and biosecurity will require advanced laboratory and data analysis skills. At the same time, new industries such as biotechnology, carbon farming, and renewable energy may generate niche roles blending biology with data science, chemistry, and environmental management.

Immediate skill needs include molecular and cellular biology, GIS and GPS mapping, statistical modelling, and the use of artificial intelligence in biological sciences. Strong digital literacy, project management, and communication skills are also critical for applying research outcomes in policy, industry, and community contexts. Over the longer term, skills in sustainability, environmental compliance, regenerative conservation, and biotechnology will be increasingly important.

Workforce development faces several barriers. The long training pipeline and reliance on tertiary education can delay workforce entry, while limited early career opportunities mean graduates often face insecure contract work. Many move interstate or overseas to secure stable employment. Regional WA faces additional challenges as most Life Scientists are concentrated in Perth, limiting access to expertise in conservation and aquaculture.

In summary, Life Scientists are essential to WA's research, environmental, and health sectors. Current and future demand is moderate, with steady growth shaped by sustainability, climate change, and biotechnology. Ensuring a sustainable workforce will require investment in tertiary pathways, early career support, and incentives to retain and attract researchers across both metropolitan and regional areas.

311199 Agricultural Technicians and Inspection Officers nec# (311112 Agricultural and agritech technician)

Agricultural Technicians provide essential technical and research support to Agricultural Scientists, performing tasks such as field sampling, laboratory testing, crop selection, livestock advice, and the application of modern technologies to improve productivity. Their contribution spans research, production, servicing, and marketing activities, making them critical to the success of Western Australia's agricultural sector. However, despite agriculture's growing reliance on science and technology, demand for Agricultural Technicians in WA remains moderate, with current workforce numbers relatively low.

According to ABS data, only 286 workers identified as Agricultural Technicians in WA, with 72% holding a Certificate III or higher. This demonstrates the occupation's strong qualification profile but also highlights a constrained workforce pipeline. Vacancy data shows a 200% increase in advertised roles over the past five years, though this equates to only around 100 positions annually, most advertised online. Many roles are filled through informal networks, but overall numbers remain modest. This reflects the relatively narrow labour market but also signals potential growth in demand as agriculture evolves.

Employers report persistent challenges in recruiting skilled technicians due to a combination of factors. Limited formal training opportunities in WA, particularly through the VET sector, mean new entrants are scarce. The lack of structured vocational training contrasts with strong industry demand for mid-level skills. At the same time, major infrastructure and mining projects draw labour away from agriculture, creating competition for workers. Regional service shortages, including housing, childcare, and healthcare, also reduce the sector's attractiveness. The result is an undersupply of technicians, particularly in regional WA, despite moderate demand levels.

Industry stakeholders, including DPIRD, are working to address these issues. Strategies include integrating agriculture into school curricula, promoting STEM engagement, and showcasing the diversity of agricultural careers through initiatives such as the Robotics Challenge and career ambassador programs. Efforts are also underway to improve workforce attraction and retention by tackling regional service barriers. However, without targeted investment in training pathways and qualifications, the sector risks ongoing shortages.

Looking ahead, demand for Agricultural Technicians is expected to rise steadily. Regulatory changes linked to emissions reduction and biodiversity protection will require technicians skilled in environmental compliance and sustainable farming practices. Consumer preferences for sustainably produced food will reinforce the need for expertise in precision farming, regenerative agriculture, and supply chain quality assurance. Demographic pressures, including an ageing workforce and regional population shifts, will further intensify the need to attract and train new entrants.

Technological change will be another key driver of demand. Increasing use of robotics, drones, farm management software, and AI-powered analytics will require technicians with strong digital literacy, data analysis, and problem-solving capabilities. Short-term skill needs will focus on precision agriculture, autonomous machinery, and sustainability practices, while long-term requirements will expand into ESG compliance, renewable energy integration, biotechnology, and advanced certification systems. Training must evolve to include micro-credentials, specialised skill sets, and blended learning approaches that keep pace with industry transformation.

Industry strongly supports expanded training delivery, including agricultural science degrees for researchers and TAFE or Certificate IV-level programs for technicians. The absence of qualifications such as Certificate IV in Protected Horticulture in WA highlights a gap that must be addressed. Employers also emphasise the importance of embedding hands-on experience into training, ensuring graduates are job-ready.

In summary, Agricultural Technicians are a small but vital part of WA's agricultural workforce. Current demand is moderate but rising, driven by technological innovation, sustainability

imperatives, and regulatory requirements. Persistent skills shortages are linked to limited training pathways, competition for labour, and regional service barriers. Addressing these challenges requires state government support for vocational training, investment in new qualifications, and career promotion strategies that present agriculture as a modern, technology-rich industry. These steps are essential to building a resilient workforce capable of supporting WA's agriculture sector into the future.

343134 Horticultural Supervisor or Specialist (ANZSCO 363114 Horticultural supervisor or specialist)

Horticultural Supervisors are essential to the success of Western Australia's horticulture industry, both in production and amenity sectors. They coordinate staff, manage harvesting schedules, oversee operations, ensure compliance with food safety and quality assurance standards, and maintain equipment. As horticulture becomes increasingly corporatised and technology-driven, experienced supervisors are critical to optimising efficiency, productivity, and compliance across growing operations.

Despite their importance, the supply of qualified supervisors is extremely limited. ABS 2021 Census data identifies only 116 horticultural supervisors in WA, with over half lacking post-secondary qualifications. Many businesses are compelled to promote internally, often advancing experienced but unqualified staff into supervisory roles. Key growing regions—including Manjimup, Wanneroo, Gingin, and Harvey—consistently report vacancies across production horticulture, gardening, irrigation, and tree planting subsectors. Stakeholders attribute shortages to labour scarcity, gaps in qualifications and experience, licensing requirements, and an ageing workforce. Additionally, horticulture competes with higher-paying sectors such as mining, which challenges the attraction and retention of skilled workers.

Industry has implemented initiatives to address these gaps, including engagement in workforce forums, advocacy for streamlined visa processes, and the development of career promotional materials to inform students, parents, and educators about horticulture career pathways. However, stakeholders emphasise that these measures alone cannot meet demand without stronger government support. Funding for shorter, practical, and workplace-aligned training programs, including micro-credentials, skill sets, and modular courses, is critical to upskilling existing staff. Additional measures such as retention incentives, relocation support, housing assistance, and streamlined migration pathways are also necessary to secure the workforce.

Current and future skill needs are evolving rapidly. In the immediate term (1–2 years), supervisors require enhanced skills in workplace safety, HACCP compliance, forklift operation, chemical handling, and irrigation management. Over the longer term (3–5 years), capabilities must extend to advanced technologies, including vertical farming, precision agriculture, real-time kinematic positioning, advanced irrigation management software, and automation systems. Foundation skills in literacy, numeracy, digital literacy, teamwork, and resilience are also critical, as deficits in these areas constrain productivity, limit training effectiveness, and reduce career progression opportunities. Targeted workplace-based training and foundation skill programs are essential to strengthen the supervisory pipeline.

Regional workforce challenges further exacerbate shortages. Housing scarcity, limited education options, and inadequate medical and infrastructure services make recruitment and retention in

regional areas difficult. Without targeted investment in regional workforce support, including housing, relocation grants, and lifestyle incentives, horticulture businesses will continue to face recruitment constraints.

Looking ahead, demand for horticultural supervisors is expected to remain high to critical. Rising production costs, regulatory compliance requirements, and systemic challenges in the vegetable sector—including one-third of growers considering exit due to cost pressures—underscore the need for skilled supervisors to maintain productivity and support grower retention. Supervisors will also be central to industry transitions toward automation, precision farming, and sustainable practices.

In summary, horticultural supervisors are vital to WA's horticulture sector. Current shortages, coupled with evolving technological and regulatory demands, highlight the urgent need for government-supported training, financial incentives, migration reforms, and regional workforce initiatives to secure the industry's future.

343135 Senior Broadacre crop and Livestock Farm Worker, 343136 Senior Broadacre Crop Farm Worker,343231 Senior Beef Cattle Station Worker, 343232 Senior Cattle and Sheep Farm Worker, 343233 Senior Dairy Cattle Farm Worker, 343235 Senior Piggery Stockperson, 343236 Senior Sheep Farm Worker, 343299 Senior Livestock Farm Workers Nec# (ANZSCO 363115 Senior broadacre crop and livestock farm worker)

Western Australia's broadacre crop, livestock, and dairy sectors are expanding rapidly, driven by record yields, technological innovation, and strong investment. Despite this growth, the industry faces a critical shortage of skilled senior farm workers. Only 36 individuals currently identify in senior roles, while over 100 positions are advertised. Around 20% of these workers lack post-secondary qualifications, highlighting a significant leadership-level skills gap across the sector.

GRDC research projects 43,000 unfilled positions in the grains industry alone by 2030, representing an unprecedented workforce challenge requiring immediate intervention. Current recruitment relies heavily on overseas labour due to local skills shortages. Rapid adoption of technology—including robotics, AI, and precision agriculture—is creating new skill requirements beyond traditional agricultural knowledge. In the dairy sector, WA is seeing accelerated automation, with robotic milking systems being deployed. An 18-robot facility will come online next month, alongside 24 robots planned for another farm within 12 months, potentially the largest adoption in the Southern Hemisphere. Skills are shifting from manual milking to electronics, sensors, animal movement systems, and technical troubleshooting. Previously run Certificate III and IV courses under TAFE have been discontinued due to financial constraints, creating a significant training gap.

The livestock sector faces urgent succession challenges, with over 58% of beef farmers aged 60 or older, increasing demand for experienced overseers, headstock persons, machinery operators, and livestock transport drivers. Seasonal peaks between January and March exacerbate labour shortages, while competition from higher-paying sectors such as mining, infrastructure, and defence further constrains workforce availability. Smaller farms lack the HR infrastructure to deliver formal apprenticeships, while larger operations are positioned to lead pilot programs. A

Group Training Organisation model, ideally not-for-profit, could support smaller businesses through shared apprenticeships.

The sector increasingly depends on international labour. European workers are preferred for their formal qualifications, although sponsorship processes are expensive and time-consuming. South American workers are emerging as a highly skilled alternative. Workforce development has not kept pace with industry needs in farm administration, machinery operation, mechanical maintenance, livestock management, and modern agricultural technologies.

Immediate skill needs over the next one to two years include autonomous machinery operation, robotic harvesters, automated irrigation systems, GPS-guided equipment, drones, data analytics, farm management software, licencing and technical skills such as MC Licence, chemical handling, wool classing, livestock handling, and animal welfare, as well as foundational skills in literacy, numeracy, digital literacy, teamwork, and resilience. Medium- to long-term skill requirements over three to five years will be shaped by green energy and sustainability practices, including regenerative agriculture, carbon farming, biodiversity conservation, and water and waste management. Workers will require advanced digital skills such as AI-driven decision-making, digital traceability, and blockchain-enabled supply chain management, as well as expertise in compliance with electronic livestock identification, ESG, and WorkSafe WA standards.

Regional workforce challenges—including limited housing, inadequate telecommunications, high living costs, and small local populations—affect workforce stability, while a lack of structured career pathways limits progression into senior roles. Industry is addressing these challenges through programs such as the Aboriginal Pastoral Academy, mentoring initiatives, on-the-job training for Certificate III and IV in Agriculture, and engagement in skills network meetings. Where local labour is insufficient, immigration pathways are used to supplement skilled workers, although senior crop and livestock positions remain largely absent from recognised migration lists.

Without immediate strategic intervention, WA's broadacre, livestock, and dairy sectors risk declining productivity, reduced global competitiveness, and compromised sustainability. Addressing shortages in senior roles requires investment in practical, flexible training programs, employer incentives to upskill and retain staff, targeted migration support, regional workforce initiatives, and promotion of agriculture careers in schools. Leveraging workers with transferable skills from mining and other sectors is also critical. Developing a skilled, future-ready senior workforce is essential to meet rising production demands, technological adoption, and evolving environmental standards.

351431 Agricultural Mechanic

Western Australia's broadacre agriculture sector continues to benefit from strong yields and market prices; however, growth is constrained by a critical shortage of skilled Agricultural Mechanical Technicians. These technicians are essential to maintain, service, and operate increasingly sophisticated farm machinery, particularly as farms incorporate more cropping activities in response to livestock market uncertainties. While modern machinery and precision farming technologies present opportunities to improve productivity and reduce labour reliance, the sector currently lacks a workforce with the required mechanical and technological expertise, and the high cost of machinery makes retaining older equipment inevitable on smaller farms.

Consequently, trained Agricultural Mechanical Technicians are increasingly in demand to support the operational needs of farms of all sizes.

The shortage is compounded by an ageing workforce, with 31% of farm managers over the age of 60, compared with 12% across the total WA workforce. This demographic trend, combined with the complexity of modern farming—including precision agriculture and integrated management systems—has driven many smaller farms to sell or outsource management functions. The shift toward corporate and larger-scale operations has further increased the need for technicians capable of servicing a diverse range of machinery and applying advanced technologies.

Precision farming skills are critical in current and future training frameworks, particularly within apprenticeship programs. Upskilling existing workers is also a high priority, as many are currently required to operate and maintain machinery without formal training or sufficient experience, creating potential occupational health and safety risks. Pre-harvest inspections, preventative maintenance, and the integration of autonomous systems, GPS guidance, and variable-rate technologies are now core technical competencies for technicians.

Labour shortages in the sector are driven by multiple factors, including limited specialised training, competition from mining and infrastructure projects, and ongoing agricultural expansion. While there is strong interest in agriculture courses at the secondary school level—particularly at WA College of Agriculture sites—capacity constraints, limited infrastructure, and insufficient qualified trainers hinder the development of the next generation of technicians. RTOs and industry report a critical shortage of lecturers with practical experience in agricultural technologies. Attracting and retaining trainers is further challenged by the geographic dispersion of farms, cost of on-site training, and the rural nature of agricultural work.

The industry has invested in initiatives such as the $9.5 million Agriculture Machinery Training Centre (AMTC), opened in 2023, to enhance training delivery and promote careers in agricultural technology. Strategies to attract students and career changers include farm tours, industry promotion through schools, engagement with parents and career advisors, and programs demonstrating the integration of precision technologies into farming systems. Despite these initiatives, significant skills gaps persist in areas including mechanical and electronics knowledge, precision agriculture practices, operational and strategic planning, safety compliance, leadership, emotional intelligence, and supervisory skills for younger workers.

Apprentice retention remains a challenge, as many newly qualified technicians move to direct farm employment or transition into the mining sector due to higher wages and transferable skill opportunities. To meet both current and future needs, the sector relies on a mix of pathways: local traineeships, on-the-job training, and overseas skilled labour, though the Australian workforce and training system are not fully addressing these gaps.

In summary, Agricultural Mechanical Technicians are essential to the growth and sustainability of WA's broadacre sector. Current shortages are intensified by technological complexity, an ageing workforce, and limited training infrastructure, while future demand will require expertise in precision agriculture, machinery maintenance, digital systems, and leadership. Immediate and sustained investment in targeted education, upskilling, trainer recruitment, and promotional activities is critical to ensure the sector can maintain productivity, safety, and competitiveness.

343137 Vineyard Supervisor (ANZSCO 363117 Vineyard supervisor)

Western Australia's viticulture sector is experiencing strong and sustained demand for Vineyard Supervisors, driven by both industry growth and a critical shortage of skilled professionals. According to the 2021 ABS Census, WA had only 38 vineyard supervisors, with over 63% lacking post-secondary qualifications. The state supports 277 wine and alcoholic beverage manufacturers and 555 grape-growing businesses, underscoring the economic significance of the sector. This limited workforce is insufficient to meet current and projected industry needs, particularly in key wine regions such as Margaret River, Frankland River, and Swan Valley, where the majority of opportunities are concentrated.

As of early 2025, job listings reflect the acute demand, with 108 vacancies advertised on SEEK and 100 on Jora. The average annual salary of around $77,500 signals the value placed on skilled vineyard supervisors and highlights the difficulty wineries face in attracting and retaining qualified staff. Labour shortages are compounded by gaps in formal qualifications and practical experience, as well as competition from other industries offering higher wages, which makes recruitment in regional areas particularly challenging. The ageing workforce further intensifies the shortage, with few young professionals entering vineyard management roles.

To address these gaps, the industry is actively pursuing workforce development strategies. Collaboration with government agencies such as the Department of Primary Industries and Regional Development (DPIRD) and the Food, Fibre and Timber Industry Training Council (FFTITC) is helping shape policy initiatives aimed at long-term workforce sustainability. Key strategies include promoting hands-on training programs, developing targeted skill sets, and exploring structured traineeships such as a Diploma of Viticulture to attract new entrants. Upskilling existing employees through accredited programs is also a priority to ensure that supervisors have the technical knowledge and management skills required for modern vineyard operations.

Migration pathways are considered a critical lever for meeting current and future demand. Industry stakeholders advocate for including Vineyard Supervisors and winemakers on the Skilled Occupation List to attract experienced international professionals. Such measures would help alleviate regional labour shortages, facilitate knowledge transfer, and maintain operational stability during peak production periods. Without access to skilled migrant labour, regional wineries risk reduced productivity and compromised export capacity.

The future skills landscape for vineyard supervisors is evolving rapidly. Short-term requirements (1–2 years) include expertise in sustainable viticulture, water-efficient irrigation practices, regenerative farming, and compliance with increasingly complex labelling and alcohol distribution regulations. Supervisors must also develop proficiency in emerging technologies, including AI-driven vineyard monitoring, automated systems, and digital traceability tools such as blockchain. Digital marketing, direct-to-consumer sales, and wine tourism management are becoming increasingly important, reflecting changing consumer preferences and global market trends.

Over the medium term (3–5 years), vineyard supervisors will need to integrate advanced precision viticulture, climate-adaptive management, and environmentally sustainable practices into their operational expertise. Leadership, team management, and foundation skills—including literacy, numeracy, digital literacy, and employability—will remain essential to maintaining workforce productivity, training effectiveness, and career progression. Regional challenges such as housing

availability, access to professional development, and competition for labour from other sectors will continue to influence recruitment and retention outcomes.

In summary, Vineyard Supervisors are critical to sustaining WA's premium wine industry. Current workforce shortages, combined with high demand driven by export growth, technological advancement, and regulatory complexity, make this occupation a priority for workforce development. Targeted training programs, government support for migration and education initiatives, and industry collaboration are essential to secure a skilled, future-ready workforce. Without such measures, regional wineries face risks to production capacity, innovation, and global competitiveness.

312134 Landscape Designer

In Western Australia, the demand for landscape designers and associated landscaping roles is growing rapidly, driven by urban expansion, sustainability initiatives, and public and private investment in outdoor spaces. The 2025 CSOL survey covers approximately 278 targeted occupations and is not directly comparable to the 2024 CSOL or the 2019 Skilled Migration Occupation List (SMOL), which complicates understanding how positions such as Landscape Construction and Landscaping fit within the consultation framework. Similarly, titles such as Building & Landscape Designer and Landscape Technician are not commonly used within the WA landscape industry, leading to confusion regarding the classification of roles. It is important to note that SMTAFE has confirmed there will be no Landscape Designer courses offered in WA TAFE after 2025 due to low uptake, while LIAWA has been advised that a shortage of suitably qualified trainers means the course will cease at the end of this year.

WA currently faces a significant shortage of skilled landscaping workers, as illustrated by the following vacancies: General Gardening & Landscaping roles across the state total 186 listings; broad landscaping positions number approximately 504; general landscape jobs account for around 550; Perth-specific gardening and landscaping roles are 368; Landscape Construction roles have 158 openings; and additional positions such as trainees, team leaders, construction managers, landscapers, apprentices, and maintenance gardeners are all actively advertised. These figures reflect the ongoing and growing demand for skilled professionals to maintain and develop WA's urban and regional landscapes.

Migration pathways have been used to fill workforce gaps, but recent changes to visa threshold payments as of 1 July 2025 have adversely affected the industry. LIAWA has expressed concern that the ageing workforce and low numbers of new entrants, including the dramatic decline in apprenticeships—with only three enrolments in Landscape Construction in 2025—exacerbate the skills shortage. Apprenticeship programs are critical to building the future workforce; however, feedback from industry leaders highlights low conversion rates from apprenticeship to long-term industry participation, partly due to limited opportunities for recognition of prior learning and insufficient exposure to the realities of landscaping work prior to committing to formal training.

Reports such as *Unlocking a $26 Billion Opportunity* and the MEGT Productivity Prospectus underline the systemic challenges, showing a 30% decline in apprenticeship commencements over the last decade and 60,000 fewer apprentices starting each year compared to historical levels. The decline in apprenticeship participation threatens the long-term viability of the sector, despite government investment, unless pathways are better aligned with industry needs and outcomes.

The current and future demand for landscape designers and landscaping professionals in WA requires workers with skills in sustainable and water-efficient design, project management, horticulture, landscape construction, and urban green infrastructure. Professionals must also have strong foundation skills, including literacy, numeracy, teamwork, and digital competence, to effectively engage with design tools, project planning, and regulatory compliance. Without immediate and targeted workforce development, the shortage of qualified personnel will continue to constrain industry growth, limit innovation, and reduce the ability to deliver high-quality landscaping outcomes in WA.

343131 Aquaculture Supervisor (ANZSCO 363111 Aquaculture supervisor)

The aquaculture industry in Western Australia is experiencing high and growing demand for skilled supervisors, driven by government investment, industry expansion, and increasing global demand for sustainable seafood. Aquaculture Supervisors perform critical roles in operations, including oversight of aquaculture farms, fisheries compliance, and on-water activities, though in many small-scale businesses these duties are often shared or absorbed by Master Fishers, Aquaculture Farmers, Fisheries Technicians, Divers, and Coxswains. With 88% of WA aquaculture businesses employing fewer than four staff, and many facilities located in remote regions, attracting and retaining skilled supervisors is particularly challenging. The sector's growth is also constrained by skills mismatches, competition from higher-paying industries, regional infrastructure limitations, and licensing or regulatory requirements.

Labour shortages are compounded by an ageing workforce, limited formal qualifications, and low numbers of entrants progressing through aquaculture-specific training pathways. Existing training programs have historically misaligned with industry needs, focusing on general aquaculture skills rather than operational competencies required for supervision, such as boat handling, diving, water quality management, disease control, and compliance with occupational health and safety. Workforce development is further impeded by high operational costs in remote areas, housing shortages, and the seasonal or physically demanding nature of aquaculture work, which can deter new entrants.

To address these shortages, industry stakeholders advocate for expanded training opportunities and closer alignment between education providers and industry requirements. Initiatives include targeted supervisor skill sets, micro-credentials, apprenticeships, and pre-apprenticeship programs designed to provide practical, on-the-job experience. Regional training delivery, mentoring programs, and improved Indigenous workforce participation are also key strategies. For migrants, recognition pathways, bridging courses, and regulatory support are essential to overcome barriers related to experience, licensing, and language. Workforce planning frameworks are being promoted to establish clear career pathways from entry-level roles such as deckhands or aquaculture operators to supervisory positions.

Looking ahead, future skill requirements over the next 2–5 years will increasingly incorporate Industry 4.0 technologies, including automation, IoT systems, data analytics, and robotics, as well as enhanced aquatic biosecurity, environmental management, and sustainability practices. Renewable energy integration, carbon reduction strategies, and traceability systems will become critical for compliance and efficiency, particularly as the sector expands into new areas such as seaweed and algae farming. Supervisors will need advanced leadership, problem-solving, and

people management capabilities, including cultural awareness, conflict resolution, and mentorship skills to manage diverse teams effectively.

Despite current workforce challenges, WA's aquaculture industry has strong growth potential. Government investment, strategic planning, and the adoption of emerging technologies are expected to increase employment from current estimates of around 280 direct and indirect jobs to potentially 6,000 as predicted in the DPIRD 2020 Aquaculture Development Plan. To realise this potential, proactive measures are required to address barriers in training, certification, housing, and regional accessibility, while improving career promotion and structured workforce pathways.

In summary, Aquaculture Supervisors in WA are in high demand now and projected to remain so, due to the sector's expansion, regulatory requirements, and the specialised skills needed to manage operations safely and efficiently. Addressing labour shortages requires a coordinated industry-government approach, integrating practical training, supervision-focused upskilling, mentorship, workforce planning, and emerging technology adoption. Without these interventions, the shortage of skilled supervisors could limit the sector's capacity to grow sustainably and meet both domestic and global seafood demand.

343132 Fishing Leading Hand (ANZSCO 363112 Fishing Leading Hand)

The commercial fishing industry in Western Australia (WA) plays a vital role in supporting both local markets and export revenue, with key sectors including rock lobster, prawns, line, and trawl fishing. The industry comprises over 1,000 businesses, predominantly small operators with 1–4 employees. Despite its economic significance—contributing approximately $989 million in gross value added (GVA) in 2017–18 and employing around 2,900 full-time equivalent (FTE) workers directly, with a further 6,281 FTE jobs indirectly—WA's fishing industry faces chronic workforce challenges, particularly in supervisory roles such as Fishing Leading Hands.

A high demand exists for Fishing Leading Hands due to a combination of factors including an ageing workforce, restrictive licensing requirements, and a shortage of workers with requisite maritime and supervisory skills. The scarcity of trained personnel has resulted in vessels remaining tied up at wharves and productivity constraints across the sector. These challenges are compounded by competition from other industries offering higher wages, limited regional housing, and perceptions of fishing as a seasonal, physically demanding occupation. Additionally, the role of Fishing Leading Hand is not entry-level, typically requiring hands-on industry experience, leadership capability, knowledge of species management, vessel handling, compliance, sustainability practices, and often regulatory licensing such as coxswain or marine engine driver certificates.

Currently, data on Fishing Leading Hands is limited, with ABS statistics often unreliable due to confidentiality adjustments. However, anecdotal and industry evidence consistently highlights a persistent high need for skilled supervisory labour. In many smaller operations, supervisory responsibilities are absorbed by other roles, including Master Fishers, fisheries technicians, divers, coxswains, or deckhands, reflecting the multi-tasking nature of WA's fishing workforce.

Industry stakeholders have identified labour, experience, qualification, and licensing shortages, alongside demographic pressures from an ageing workforce, as key contributors to workforce gaps. To address these challenges, WA's fishing sector has partnered with government initiatives such as Job Reconnect and national platforms like seafoodcareers.com.au, designed to attract

mature-aged workers, underrepresented groups, and new entrants. The Fisheries Research and Development Corporation (FRDC) has also developed a Workforce Capability Framework, outlining foundational, intermediate, and advanced competency levels to guide induction, training, and upskilling.

Industry advocates for targeted measures to enhance workforce supply, including alignment of training programs with industry needs, expansion of hands-on skills training, development of supervisory skill sets, increased regional training accessibility, and mentoring initiatives. Programs supporting Indigenous participation, school-based apprenticeships, and pre-apprenticeship pathways are also priorities. These initiatives aim to build a structured career progression from entry-level roles through to supervisory positions.

Looking ahead, demand for Fishing Leading Hands is expected to remain high or reach critical levels, driven by industry expansion, regulatory compliance, sustainability requirements, and growing global seafood demand. Future skill requirements over the next 2–5 years will include proficiency in Industry 4.0 technologies, digital monitoring, automation, aquatic biosecurity, sustainable practices, and renewable energy integration. On-board processing skills, leadership development, and compliance knowledge will also be essential.

Without a coordinated industry-government effort to implement structured workforce planning, the shortage of qualified supervisory staff could disrupt operations, hinder growth, and limit WA's ability to meet increasing international seafood demand. Immediate action to streamline training pathways, enhance licensing access, promote the industry to young and regional workers, and establish clear career progression opportunities is critical to securing the long-term sustainability and productivity of Western Australia's commercial fishing sector.

Other occupations

342431 Irrigation Technician (ANZSCO 362712 Irrigation Technician)

The demand for skilled Irrigation Technicians in Western Australia is currently at a critical level, driven by the growth of agricultural production, urban development, and the increasing emphasis on sustainable water management. Presently, only 283 individuals identify as Irrigation Technicians in WA, with just 55% holding post-secondary qualifications. Industry reports consistently highlight that labour and skill shortages are constraining business expansion, limiting the sector's capacity to meet growing demand across multiple industries.

Irrigation Technicians are essential for installing, maintaining, and servicing systems across agriculture, horticulture, sports grounds, parks, and urban landscaping. WA's expanding role in food production intensifies the need for these professionals, particularly in market gardens, production nurseries, greenhouses, chicken farms, dairy properties, and abattoirs, all of which rely on efficient irrigation systems to maintain productivity. Urban growth and increasing community expectations for green spaces further contribute to demand, as residential and commercial developments require water-efficient landscaping solutions. The state's arid climate and strict water conservation regulations make highly skilled irrigation workers critical for ensuring resource-efficient and compliant water management practices.

Despite the secure employment opportunities available, recruiting qualified, motivated workers remains challenging. Many applicants lack formal qualifications or relevant experience, and limited vocational training over recent years has created significant skill gaps, particularly in areas such as mechanical aptitude, small motor mechanics, fault finding, and equipment servicing. Deficiencies in literacy, numeracy, communication, and digital skills further affect workforce productivity, retention, and the effectiveness of technical training. These foundational skill gaps make it difficult for new entrants to adapt to the demands of modern irrigation systems, particularly as technology increasingly drives system efficiency and automation.

The industry has implemented multiple strategies to address workforce shortages, including school-based traineeships, the development of new apprenticeships, targeted skill set delivery, and collaboration with Registered Training Organisations and Group Training Companies. Recognition of Prior Learning programs and gap training are also being used to formally acknowledge existing skills and accelerate workforce development. Expanding vocational education pathways, including online delivery and accessible regional training, is considered essential to attract new entrants and upskill existing technicians. Increased promotion of career opportunities to school students is seen as a key strategy to build awareness and interest in this technology-driven, outdoor-based profession.

Future demand for Irrigation Technicians is expected to grow due to several factors. Urban development and construction projects continue to incorporate green spaces requiring efficient irrigation, while residential landscaping is increasingly moving toward drought-resistant gardens and water-efficient designs. Regulatory changes around water usage, tighter water allocation policies, and stricter environmental standards will require technicians capable of implementing compliant systems. Advances in irrigation technology, including automated, smart, and IoT-enabled systems, further necessitate a workforce skilled in contemporary technical solutions. Environmental, social, and governance (ESG) considerations, climate change adaptation, and sustainable water practices will shape long-term workforce requirements, integrating precision irrigation and technology-driven water management into routine practice.

Regional areas face additional challenges in attracting and retaining technicians due to competition from mining and defence industries, housing shortages, and limited access to training programs. The Certificate III in Irrigation Technology, currently available only through a metropolitan traineeship, is insufficient to meet the needs of regional horticultural and agricultural businesses.

Without immediate and targeted workforce development interventions, including improved training accessibility, government support for apprenticeships, and structured career pathways, WA risks ongoing skill shortages in irrigation. These shortages have the potential to disrupt agricultural productivity, urban landscaping projects, and broader sustainability goals, highlighting the urgent need for a highly trained, adaptable, and technology-savvy irrigation workforce.

The critical demand for Irrigation Technicians reflects the sector’s central role in water-efficient agriculture, urban development, and sustainable environmental management, with workforce shortages requiring coordinated action from industry, training providers, and government to secure a sustainable pipeline of skilled professionals.

152231 Dairy Cattle Farmer (ANZSCO 121313 Dairy cattle farmer)

The Western Australian dairy industry, generating over $245 million in 2023/24 and contributing 4% of national milk output, remains stable and confident, concentrated in the South West around Harvey, Busselton, and Denmark. The sector comprises 107 registered farms managing approximately 49,000 cows, with an average herd size of 458, reflecting a trend toward larger operations. While the industry currently reports no immediate shortage of farmers, an ageing workforce—with around 20% of farmers approaching retirement—highlights the need for succession planning and attraction of younger, skilled entrants.

Technological advancements and emerging sustainable practices are transforming the sector, placing increasing demand on higher-level skills. Modern dairy farming relies on precision agriculture, automation, and digital technologies, including robotic milking systems, smart feeders, health-monitoring sensors, automated irrigation, GPS-guided machinery, variable rate technology, and drone-based mapping. These innovations require farmers to possess advanced technical competencies, data literacy, and familiarity with Internet of Things (IoT) platforms for real-time monitoring of herd health, pasture conditions, and environmental parameters. Proficiency in farm management software, AI-driven decision-making, and digital analytics is essential to optimise production efficiency, resource use, and compliance with sustainability regulations.

In the immediate future (1–2 years), critical skills include operating and maintaining automated and precision systems, interpreting farm data, integrating sensors and monitoring equipment, and adopting sustainable land and water management practices. Farmers will also need to adapt to Industry 4.0 technologies, including automation in livestock handling, mechanised feeding, and precision milking. Short-term workforce development will require hands-on training, skill sets targeting digital and technical competencies, and programs for leadership in technology adoption.

Over the long term (3–5 years), the industry faces increased expectations around Environmental, Social, and Governance (ESG) compliance, carbon farming, regenerative agriculture, renewable energy integration, and climate adaptation. Farmers will need advanced skills in biosecurity, traceability, digital certification systems, and data-driven farm management to meet regulatory, market, and sustainability requirements. The adoption of emerging technologies, including virtual fencing, blockchain-based supply chain monitoring, and biotechnology, will require continuous upskilling, while evolving workplace safety standards will demand additional training on compliance and risk management.

Current workforce barriers include limited access to formal training, particularly in regional areas, low awareness of structured education pathways, competition for labour from mining and defence sectors, and visa restrictions that prevent international farm workers from undertaking accredited courses. Furthermore, foundation skill gaps—especially in digital literacy, numeracy, and data analysis—hinder the effective adoption of technological solutions, affecting productivity, retention, and career progression.

Industry stakeholders are addressing these challenges through engagement with training networks, recognition of prior learning programs, on-farm apprenticeships, mentoring, and collaborative initiatives with education providers. Government support is needed to expand agricultural education, improve rural training infrastructure, provide incentives for workforce development, and

facilitate access to accredited digital and technical training for both local and international employees.

Meeting these technology-driven skill requirements is critical for the WA dairy industry to maintain productivity, support sustainable growth, and ensure long-term competitiveness. A future-ready workforce proficient in automation, precision agriculture, digital systems, and sustainable practices will be essential to navigate climate challenges, evolving market demands, and regulatory frameworks while preserving the economic and social contributions of the sector.

243999 Engineering Professionals nec (ANZSCO 233912 Agricultural engineers)

Agricultural engineers in Western Australia perform complex roles spanning land management, machinery and equipment operation, environmental sustainability, and the integration of innovative agricultural technologies. Their responsibilities require a combination of vocational and tertiary education, reflecting the diversity of tasks across farm management, infrastructure development, and sustainability initiatives. As of 2021, only 15 agricultural engineers were recorded in WA, most holding post-secondary qualifications, highlighting a limited local workforce.

The sector faces significant skills shortages in technical, professional, and business competencies, driven by insufficient applicants with formal qualifications, practical experience, required licenses, and the ageing of current workers. These shortages constrain innovation, particularly as farms adopt precision agriculture, automated machinery, drones, farmbots, water monitoring systems, AI-driven analytics, and digital farm management platforms. Proficiency in these technologies is increasingly essential to optimise productivity, improve resource efficiency, and meet sustainability targets.

Immediate (1–2 years) skills needs focus on Industry 4.0 technologies, climate adaptation, environmental management, regenerative agriculture, carbon and natural capital accounting, and precision agriculture systems. Workers must rapidly develop expertise in automation, digital data interpretation, and sustainable land management practices to maintain competitiveness and meet growing regulatory expectations. The absence of a local Bachelor of Agricultural Engineering program exacerbates these shortages, limiting access to formally trained graduates.

Over the long term (3–5 years), agricultural engineers will require advanced skills in ESG compliance, renewable energy integration, climate mitigation strategies, landscape ecology, and biotechnology applications. Training programs will need to incorporate micro-credentials, targeted short courses, and certifications in carbon farming, environmental monitoring, and digital analytics. Ongoing upskilling of experienced professionals and the development of new graduates equipped with these competencies are essential to support sustainable growth, environmental stewardship, and global competitiveness.

Regional workforce supply is further constrained by affordable housing shortages, limited childcare, healthcare services, and competition from mining and infrastructure sectors, impacting recruitment and retention. Migration pathways exist via skilled visas, but entry requires rigorous skills assessments and verification of qualifications, with additional concerns around fraudulent credentials.

Government and industry collaboration is critical to address these gaps, including investment in STEM-based agricultural education, career promotion initiatives, hands-on workshops, ambassador programs, and incentives for industry experts to deliver specialised training. Building a technologically proficient, sustainable, and adaptable workforce will be vital for WA's agricultural engineering sector to meet current demands, support innovation, and navigate regulatory and environmental challenges over the next decade.

342931 Nurseryperson (ANZSCO 362411 Nurseryperson)

The Australian Greenlife Production Industry, valued at approximately $2.44 billion and producing around 2.44 billion plants annually, is experiencing rapid growth and plays a critical role in the nation's economic, environmental, and social wellbeing. Nurserypersons—responsible for tasks such as preparing potting media, selecting seeds and cuttings, grafting, watering, and applying pesticides—are in high demand. Current workforce shortages are driven by labour gaps, insufficient qualified and experienced applicants, and an ageing workforce.

To address these shortages, the industry is actively implementing workforce development initiatives, including school-based traineeships, targeted skills training, and collaboration with Registered Training Organisations (RTOs) and Group Training Companies (GTCs). Industry stakeholders have highlighted the need for government support to deliver production horticulture qualifications in both traineeship and institutional settings, increase awareness of nursery careers among students, and attract skilled trainers through competitive remuneration and enhanced training resources.

Demand for nurserypersons is expected to reach critical levels, driven by urban development, greenspace expansion, biophilic design, and sustainability initiatives. Programs like Firewise, Waterwise, and Fertilise Wise, along with the adoption of ESG principles and NIASA certification, are shaping the sector's future, requiring workers to integrate environmental stewardship with plant production expertise.

Immediate skill needs (1–2 years) include occupational health and safety, safe chemical use (e.g., ChemCert), pest management, digital literacy, problem-solving, and adaptation to automation and emerging plant production technologies. Long-term skills (3–5 years) focus on ESG practices, sustainability, accreditation systems, and specialised areas such as tree farming, species propagation, and resilient plant production.

Workforce development is constrained by barriers including low promotion of nursery careers to students, misalignment of training programs with industry-specific skills, high workforce mobility due to transferable horticulture skills, and regional challenges such as affordable housing, transport, and access to community services. Migration pathways via the 407 Training Visa provide short-term relief but do not ensure a stable long-term workforce.

Addressing foundational skills gaps in literacy, numeracy, and digital capabilities is essential to improve productivity, training uptake, and career progression. Overall, meeting the current and future demand for nurserypersons requires coordinated action across training, government support, and industry initiatives to build a skilled, adaptable, and sustainable workforce capable of supporting Australia's growing greenlife production and urban greening objectives.

342231 Arborist (ANZSCO 362511 Arborist)

The arboriculture industry in Western Australia is experiencing critical demand for skilled workers, including arborists, tree workers, and climbers, driven by urban growth, environmental awareness, and regulatory compliance for vegetation management. Over 200 job vacancies indicate the urgency of workforce shortages, which affect tree health, conservation, risk mitigation around infrastructure, and bushfire management.

Current shortages are due to labour gaps, insufficient qualified and experienced applicants, licensing requirements, and an ageing workforce. Limited awareness of career pathways, low promotion of apprenticeships, and regional challenges such as affordable housing and essential services further constrain workforce supply. Migration pathways are underutilised due to complex visa requirements and high administrative burdens, reducing access to skilled overseas workers.

The industry is actively addressing shortages through apprenticeships, job-ready programs, school engagement, and participation in Skills Network Meetings. Government support is sought to expand access to training, modernise curricula with current technologies, fund the Diploma of Arboriculture, and provide mentorship for emerging workers.

Immediate skill needs (1–2 years) include technical arboriculture expertise, resilience for physically demanding work, problem-solving, initiative, theoretical knowledge, and job-ready competencies to ensure safe and effective workforce participation. Long-term skills (3–5 years) will focus on sustainability, carbon accounting, emissions reduction, biodiversity conservation, and Environmental, Social, and Governance (ESG) practices, aligning with net-zero emissions goals and local government contract requirements. Offering the Diploma of Arboriculture as a traineeship will ensure graduates meet industry standards.

Foundation skills gaps in literacy, numeracy, digital proficiency, and employability affect productivity, safety, training uptake, and career progression. Targeted strategies to address these gaps, combined with expanded training pathways and regional workforce support, are essential to prevent disruptions in arboriculture services, maintain urban green spaces, and support environmental sustainability across Western Australia.

342131 Gardener (General) (ANZSCO 363611 Gardeners)

The demand for gardeners in Western Australia is currently at a critical level and is projected to remain strong in the future due to rapid urban expansion, evolving industry standards, and growing community expectations for accessible, well-maintained greenspaces. Urban development, residential densification, and planning frameworks such as the Medium Density Codes require private and communal gardens, while biophilic design in building projects emphasizes the integration of natural elements, further driving the need for skilled gardening professionals. Greenspaces are increasingly valued for enhancing liveability, promoting mental and physical wellbeing, and supporting sustainable urban environments.

Despite over 5,000 individuals identifying as gardeners in WA (ABS 2021), a significant shortage of fully qualified professionals persists. Many workers enter the field through on-the-job training or transition from related sectors such as agriculture, landscaping, or construction, resulting in skill gaps and limited formal qualifications. The workforce is also highly fluid, with frequent movement in and out of gardening roles, creating challenges in maintaining a stable supply of skilled

personnel. Industry reports identify persistent labour shortages due to insufficient applicants with relevant qualifications, workplace experience, and licences, compounded by an ageing workforce leaving the profession without adequate replacements.

To address these shortages, industry stakeholders, including the Landscape Industries Association of WA (LIAWA), are promoting training and workforce development initiatives. These include participation in forums, skills network meetings, and school-based training programs in collaboration with FFTITC and CCI.

Industry also calls for greater state government support to enhance training accessibility, fund workforce development initiatives, and facilitate pathways for skilled migration. Although gardening is included on the Skilled Occupation List, regulatory complexity and limited awareness hinder the use of migration to fill workforce gaps. Regional areas face additional challenges, including limited training infrastructure, affordable housing shortages, constrained essential services, and competition from higher-paying industries such as mining, defence, and large infrastructure projects, all of which affect worker recruitment and retention.

Immediate skill needs (1–2 years) focus on practical competencies, including safe operation of gardening machinery, chemical handling, occupational health and safety, and transport/logistics skills, such as a valid driver's licence. Longer-term requirements (3–5 years) will incorporate advanced technologies, including irrigation systems, computer-aided design (CAD) for landscape planning, and compliance with evolving regulatory standards and environmental best practices. Foundation skills in literacy, numeracy, digital competency, teamwork, and communication are also essential to improve productivity, safety, and career progression within the workforce.

Addressing these challenges will require promoting horticulture as a viable, long-term career, expanding structured apprenticeships and traineeships, and delivering practical, hands-on training to ensure competency and retention. By strengthening workforce development, enhancing skill pathways, and supporting both regional and metropolitan gardening sectors, Western Australia can meet current and future demands while ensuring sustainable management of its urban and community greenspaces.

Conclusion

The WA Food, Fibre, and Timber Industries face ongoing skill and labour shortages that threaten productivity, sustainability, and growth. Critical roles, particularly supervisory and highly skilled positions, remain difficult to fill due to an ageing workforce, licensing requirements, and regional access barriers. Addressing these challenges requires coordinated industry and government action, including migration, targeted training programs, strengthened career pathways, regional workforce support, and initiatives to attract diverse participants. Investment in workforce development is essential to ensure these industries can meet domestic and global demand, maintain operational efficiency, and secure the long-term resilience of Western Australia's vital food, fibre, and timber sectors.