

# Optimising researchers' performance: capacity building for the WA grains industry

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## Key messages

The requirements for building the workforce capacity of the Research and Development (R&D) sector of the grains industry in WA are for researchers to have a tertiary undergraduate qualification, practical hands-on grains industry experience, on the job training, industry events and conferences, self-directed learning and intensive/short courses, postgraduate qualifications, mentoring and leadership development. Of these areas, there is greatest scope for ensuring that all researchers have access to practical hands-on grains industry experience and leadership development opportunities. Ensuring access to the appropriate experiences and opportunities is paramount, especially for people who have not lived in rural communities.

The findings provide a basis upon which to carry out the detailed design and implementation of solutions for optimising researchers' performance and building the workforce capacity of the R&D sector of the grains industry in WA.

## Aims

R&D activities underpin the successful operation of the grain value chain in Western Australia (WA). Without the R&D sector, all stages of the grain value chain from pre-breeding through to loading grain onto export ships are compromised. That is, R, D & E enables a productive and competitive value chain. However, while the importance of R&D is recognised, there have been growing concerns about the diminishing workforce capacity in the areas of grains related R&D in WA.

In response to these growing concerns, the Australian Grain Institute (AGI) Council established the AGI Capacity Building Project, which is funded by 12 organisations. Overall, the project aims to improve ongoing access to job ready and skilled people for the grains industry by developing a comprehensive and sustainable capacity building model. In other words, the project aims to build the workforce capacity of the grains industry. This research paper focusses specifically on building workforce capacity for the R&D sector of the grains industry in WA. Building the workforce capacity of the R&D sector is imperative to achieving the industry's target of doubling the value of production by 2025.

The primary aim of this research is to understand the future workforce capacity requirements for the R&D sector. This will provide the basis for designing solutions to reach the desired capacity.

## Method

### *Selection of research method*

A key decision to be made regarding research method is whether the approach to the research will be qualitative, quantitative or mixed. A fixed or quantitative research design has to be tightly specified before the data collection and the data are almost always numbers (Robson, 2002). Related to this, Creswell (2009) describes quantitative research as testing theories in order to determine the relationship between variables that can be measured, often using instruments.

On the other hand, a qualitative design can evolve during the data collection and the data tend to be in the form of words (Robson, 2002). Qualitative research tends to focus on the perspectives of the participants (Flick, 2009). Importantly, and as highlighted by Flick (2009), qualitative research is not hindered by an inability to identify and isolate variables because the research is not attempting to conduct an experiment. Instead, qualitative research is open to complex topics. Considering the exploratory nature of this research, a qualitative approach was selected. More specifically, semi-structured interviews were conducted by *Agknowledge*<sup>®</sup>. This style of interview tends to yield the most diverse range of data; both explicit knowledge and implicit assumptions from the interviewees are obtained.

The interview data were obtained from 35 interviewees. Each interview was between 30-40 minutes duration and was conducted via telephone between November 2015 and January 2016. The interviewees "had varying roles within the grains industry value chain in Western Australia. Some were contributing in more than one group within the value chain. Respondents ranged from grain producers to input suppliers, researchers, and management consultants, marketers, through to processors and manufacturers plus another eight identified with 'other'. The 'other' groups consisted of agricultural contractors and transporters; technology providers; education, training and extension; industry advocates, lobbyists and representatives; along with grower groups and industry associations" (*Agknowledge*<sup>®</sup>, 2015, p. 47).

## Execution of the research

Following a period of initial research by members of the project team, the majority of this research was performed by consultants, *Agknowledge*<sup>®</sup>. In addition, three students from UWA's Business School also carried out interviews that complemented those conducted by *Agknowledge*<sup>®</sup>.

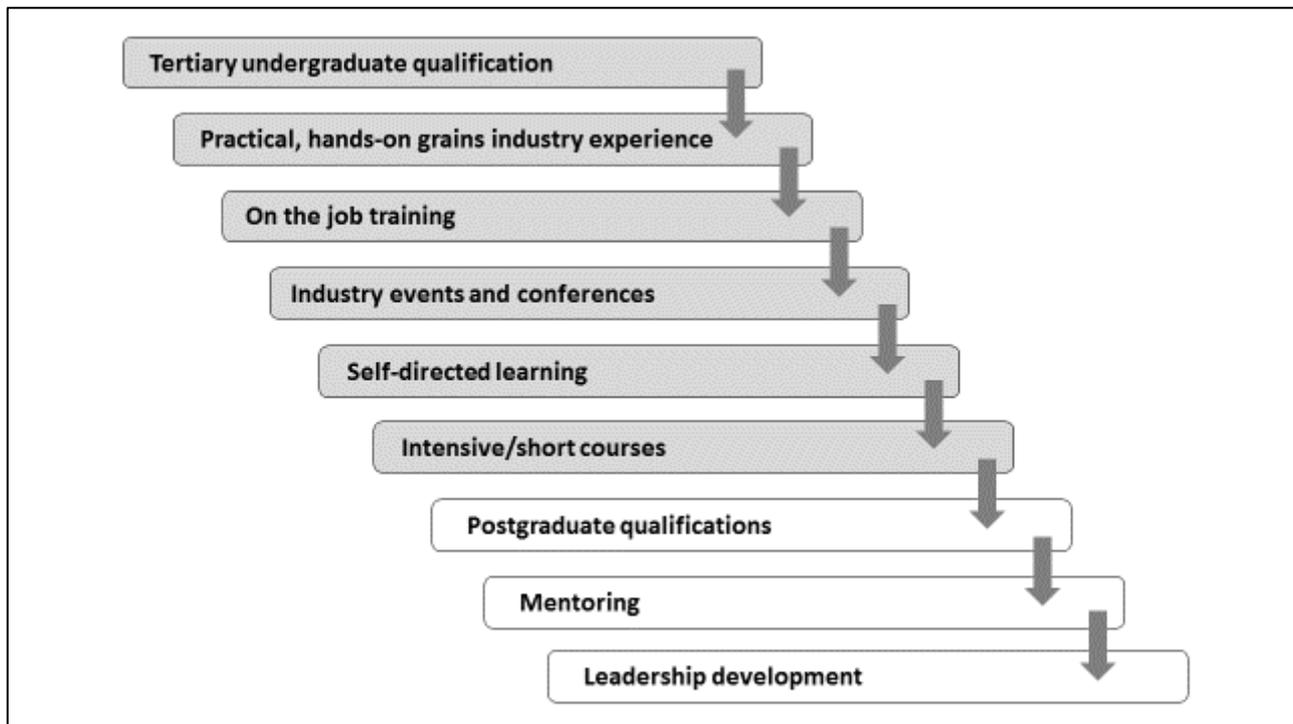
## Results

18 areas of skill and knowledge were identified as being important for carrying out R&D in the grains industry. For each of these areas, there was a further classification into professional skill level (Professional), technical skill level (Technical) and operational skill level (Operational). These findings follow:

Area of skill and knowledge	Professional	Technical	Operational
Business Management	✓	✓	
Project Management	✓	✓	
HR/IR		✓	✓
Communications	✓	✓	
OH&S		✓	✓
Environment	✓	✓	
Statutory and Regulatory	✓	✓	✓
Agronomy	✓	✓	✓
Chemicals	✓	✓	✓
Plant Science	✓	✓	✓
Soil Science	✓	✓	✓
Weather	✓	✓	✓
Finance/Insurance		✓	✓
Marketing		✓	✓
Transport		✓	✓
Extension	✓	✓	✓
Training	✓	✓	✓
Politics	✓	✓	✓

Patterns between the people carrying out R&D activities and their background (education, location, socioeconomic factors, gender, age) could not be identified. This is a key finding in itself. Nonetheless, it was confirmed that people working in R&D in the grains industry in WA are located in both metropolitan and rural areas and that regardless of age, these people tend to hold university, including postgraduate, qualifications.

The grains industry in WA expects its workforce in the R&D sector to be moving through the following career development activities (with the shaded stages considered critical). More detail on each of the stages follows the diagram:



### **Practical, hands-on grains industry experience**

Growing up on a farm, attending an agricultural college, undertaking practical placements on farms as part of an undergraduate degree, holiday or seasonal work on farms or with Cooperative Bulk Handling Group (CBH), working on farms other than those run by your own family, travelling to participate in farming operations overseas; volunteering on farms during holidays and agricultural exchange or study tour opportunities (Rural Youth, Rotary, grower groups).

### **Tertiary undergraduate degree**

Completing a science based (agriculture) degree in agronomy, chemistry, plant sciences, soil sciences, meteorology for research focussed roles, ideally incorporating subjects that promote a commercial understanding. Chemical or mechanical engineering is favoured by manufacturers. A degree indicates you can learn and that you have a set of transferable skills that can be utilised and adapted in many professional fields of endeavour.

### **On the job training**

Learning job specific tasks, knowledge and skills, usually from colleagues. This is expected to involve coaching, mentoring, job rotation and 'buddy' learning.

### **Industry events and conferences**

Keeping abreast of new information, products and technologies, developing a broad industry network and engaging in peer to peer learning and sharing.

### **Self-directed learning**

Identifying Learning job specific tasks, knowledge and skills, usually from colleagues. This is expected to involve coaching, mentoring, job rotation and 'buddy' learning.

### **Intensive/short courses**

Completing both generic and industry specific courses to hone specific skills for depth of understanding and knowledge. Assuming the dominance of a science based tertiary undergraduate degree remains, focus areas for short courses are expected to be business management, project management and communications.

### **Postgraduate qualifications**

Honing specific skills for in depth understanding and knowledge.

### **Mentoring**

Learning successful behaviours by modelling peers, industry leaders and community statesmen. Engaging in reflective practice for continuous learning and participating in formal mentoring programs.

### **Leadership development**

Becoming involved in community, grower and industry groups. Developing leadership skills needed for industry representation at local, regional, state, national and international levels; plus roles in industry mentoring, advocacy and lobbying. Participating in formal leadership programs.

### *Closing the workforce capacity gaps*

The characterisation of the workforce capacity requirements offers direction for carrying out capacity building initiatives. At the same time, it is recognised that some efforts are underway. The following table portrays the areas requiring greatest focus for ensuring that workforce capacity expectations are met for the R&D sector of the WA grains industry in 2025. 1 indicates a pressing need for further effort, 2 indicates a need for effort while 3 denotes that adequate measures are in place. It must be noted that having adequate measures (such as training) in place does not necessarily mean that the measures are being adequately utilised; scope remains to improve access.

Requirement	Priority
Tertiary undergraduate qualification	3
Practical hands-on grains industry experience	1
On the job training	2
Industry events and conferences	2
Self-directed learning	2
Intensive/short courses	2
Postgraduate qualifications	3
Mentoring	2
Leadership development	1

### **Conclusion**

This research has been able to make valuable contributions in identifying the requirements for optimising researchers' performance and building the workforce capacity of the R&D sector of the grains industry in WA.

The requirements are a tertiary undergraduate qualification, practical hands-on grains industry experience, on the job training, industry events and conferences, self-directed learning and intensive/short courses, postgraduate qualifications, mentoring and leadership development. While provision to execute some of these requirements already exists, a number of priority areas needing greatest focus also emerge. In particular, ensuring that all researchers have access to practical hands-on grains industry experience and leadership development opportunities will be important. Ensuring access to these experiences and opportunities is paramount, especially for people who have not lived in rural communities.

These research findings provide a foundation for the AGI Capacity Building Project. At this juncture, the research is still in the design stage with final solutions for optimising the performance of researchers, and the R&D sector of the WA grains industry as a whole, to be finalised and implemented throughout 2016 and 2017. Building the workforce capacity of the R&D sector is fundamental to the grains industry's target of doubling the value of production by 2025 because the outcomes of R&D activities increase the competitiveness of all stages of the grain value chain.

### **Key words**

Workforce capacity building

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