

TEACHER GUIDE

Career Q&A Videos: Robotic Farming

Robotic farming is a broad term used to describe the use of robots and automation to help with farming tasks. This futuristic approach addresses some of the labour shortages on farm, provides a wealth of information to assist in decision making and provides a sustainable approach to farming. In this series of three videos we meet a professor designing robots to work outdoors in paddocks, a young entrepreneur developing a robot to pick apples and a dairy farmer working on a fully automated dairy farm. The videos, include footage of the robots working on farm and footage of a fully automated dairy filmed by Dairy Australia.

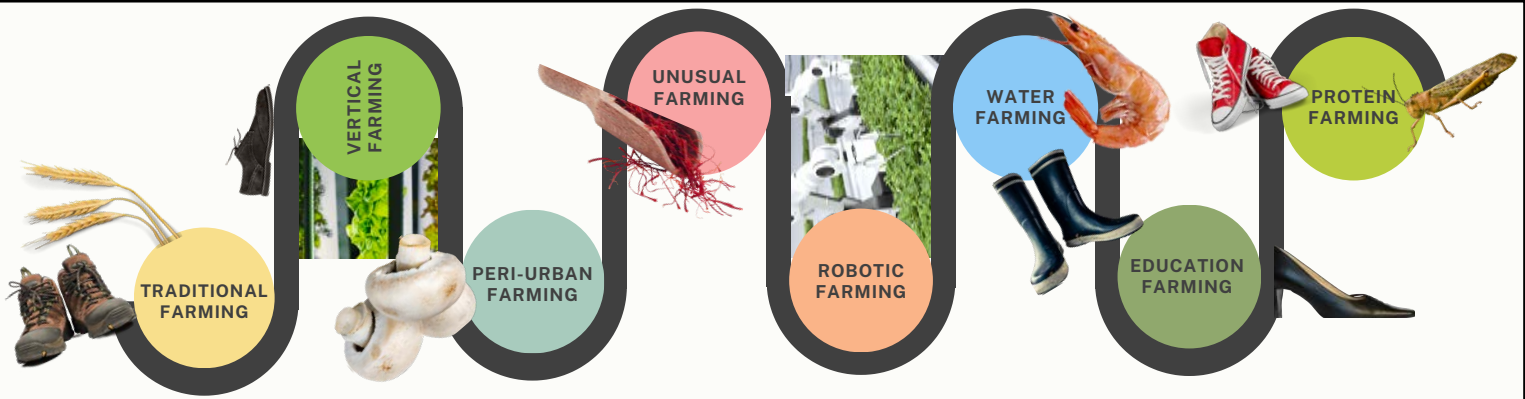
In this series of Career Q&A videos the three candidates are:

- Salah Sukkarieh, Professor of Robotics and Intelligent Systems, Australian Centre for Field Robotics Sydney University
- Hunter Jay, CEO, Riperobotics
- Tori Brindle-Mansell, Dairy Farmer, Lely fully automated dairy

The videos can be watched individually or all three can be watched to discuss the differences between the candidates answers. The candidates are all asked the following questions:

1. Where did you go to school and what was your favourite subject?
2. Describe what you do
3. Describe a typical day
4. Explain how what you do is adapted for Australian agriculture
5. Explain how technology has changed the way you do things
6. Identify something that surprised you about your career
7. Describe the most useful skill you require for your role
8. Identify some of the challenges facing young people starting in your role and explain how they can overcome them
9. What shoes do you wear to work?
10. Where do you sit on the CSU Career Pathway Poster?

A set of worksheets relating to the videos accompanies this resource.



NSW CURRICULUM

Year 7-10 Agricultural Technologies - Stage 5

Objective

Knowledge and understanding of agriculture as a dynamic and interactive system that uses plants and animals to produce food, fibre and other derivatives

AG5-2

Explains the interactions within and between agricultural enterprises and systems

AG5-3

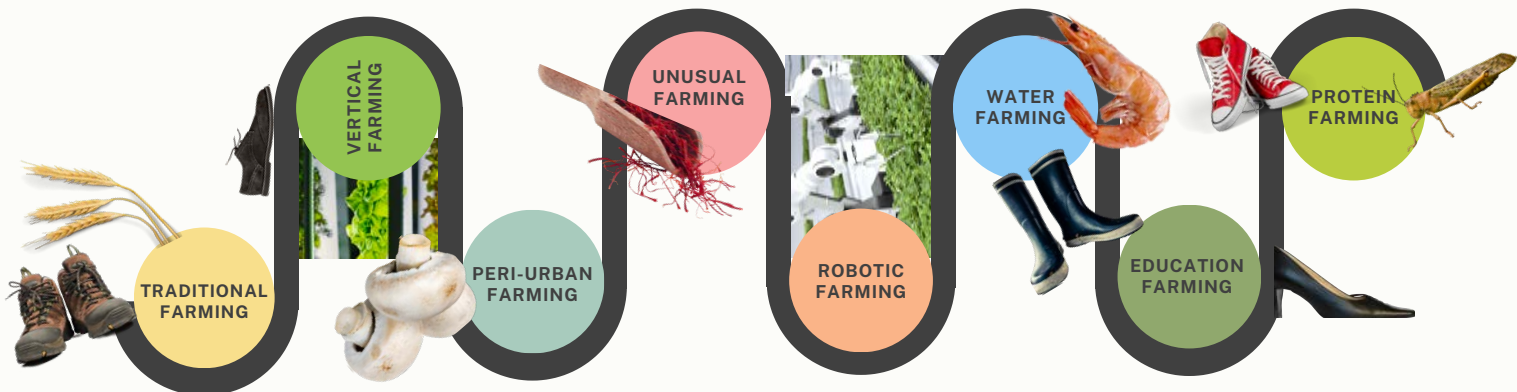
Explains the interactions within and between the agricultural sector and Australia's economy, culture and society

AUSTRALIAN CURRICULUM

YEAR 9/10 Design and Technology

AC9TDE10K01 Analyse how people in design and technologies occupations consider ethical, security and sustainability factors to innovate and improve products, services and environments





1. Student Worksheet: Suggested Answers

(may vary depending on videos and student's ideas)

1. In the video, a person working in agriculture discusses their career. Identify their job title and using the PIEFA Career Paths in Agriculture Poster, explain which category of agriculture they work in (make sure you justify your reasoning).

Salah Sukkarieh Professor of Robotics and Intelligent Systems-Robotic farming, designs agricultural robots

Hunter Jay CEO of Riperobotics-Robotic farming, designs agricultural robots

Tori Brindle-Mansell Dairy Farmer on a Lely fully automated dairy-Robotic farming works on automated dairy

2. Identify their (the person being interviewed) favourite subject at school. Is there a connection between their favourite subject and what they currently do? Justify your answer.

Salah Sukkarieh: Physics-yes, is an entry level subject to engineering

Hunter Jay: Drama and PE-yes, PE involves outdoor activities as does working in agriculture

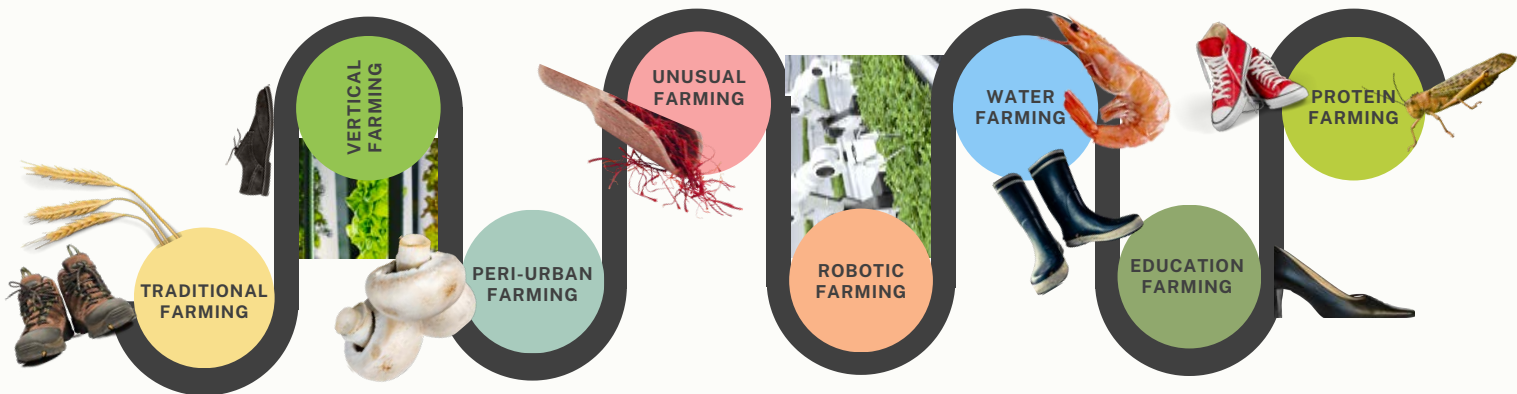
Tori Brindle-Mansell: Agriculture-yes, as she works in agriculture

3. Describe the use or intended use of technology in the video and explain how technology helps to solve the issue(s).

Salah Sukkarieh: Robots are used to address labour shortages, provide accurate information of an entire farm, enable treatments to be adjusted for specific needs of the crop allowing for more sustainable management

Hunter Jay: Fruit needs to be picked when ripe, not always able to have seasonal labour available when it is needed. Robotic pickers are ready to work at any time, can assess the crop and pick continuously.

Tori Brindle-Mansell: Automated milking reduce stress on cattle, improves animal welfare, early detection of diseases and feed can be adjusted to animal needs. It also provides more flexibility for farmers to do other tasks.



4. Technology helps address the labour shortage in agriculture, so whilst it is replacing jobs it is also creating jobs. Do you agree or disagree with this statement? Justify your answer with examples and / or evidence.

Yes, technology is creating jobs - for example people are required to design robots, and show farmers how to use them. Using technology to do other tasks for example monitoring and mapping harvest yield variance across a paddock and frees up time to work on other projects.

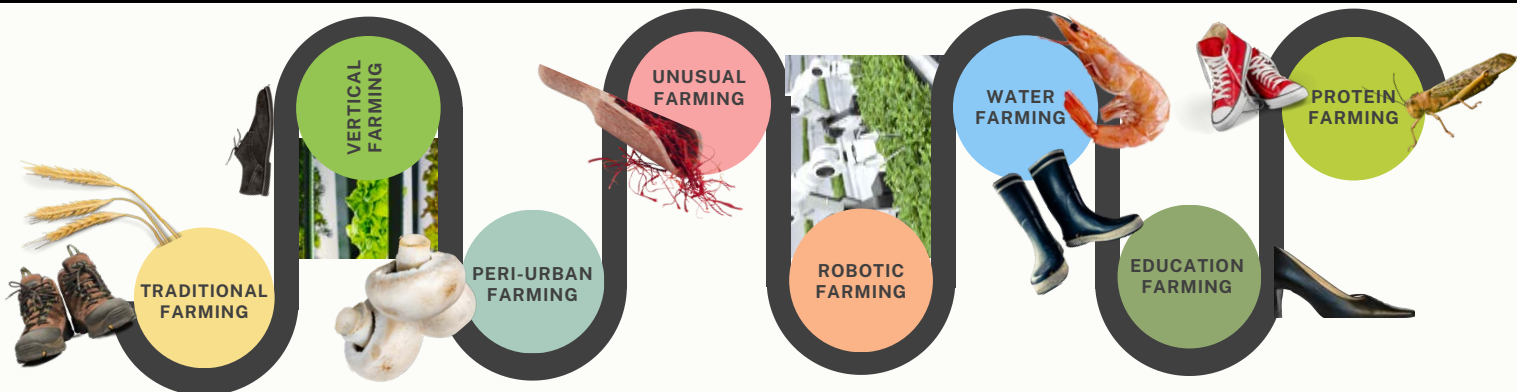
5. There are often challenges when starting a new role. Identify the challenges a young person may face in the role and what strategies does the interviewee suggest to overcome the challenge.

Salah Sukkarieh: Expecting answers to come quickly, sometimes you need to focus on a task and avoid distractions to solve a problem.

Hunter Jay: Not getting disheartened when things don't work out and trying different ways to do things. mmm

Tori Brindle-Mansell: Don't give up at the first hurdle, try asking advice from another farmer or working on a different farm. There is so much support available to help you.

6. Think about a situation at school, or when playing sport, at your part time job or at home where you were faced with a challenge. Describe the situation and explain how you overcame the problem.



7. In the video, the person being interviewed mentions the skills required for their role. List the skills and explain how these skills help them in their role.

Salah Sukkarieh: Different skills required at different stages of his career, early on technical strengths and problem solving (initially had to work on projects), mid-career engaging with others, teamwork building teams (had to work in teams to help solve problems), and late in his career people management and mentoring (working with other engineers and sharing his knowledge with them).

Hunter Jay: Not worrying about making mistakes (you are able to keep trying and push innovation).

Tori Brindle-Mansell: Being flexible and responding to problems (you may need to change plans and processes on the farm, animals and machinery can be unpredictable).

8. Research and describe how the agricultural product discussed in this video is adapted to, or suited for Australian environmental conditions.

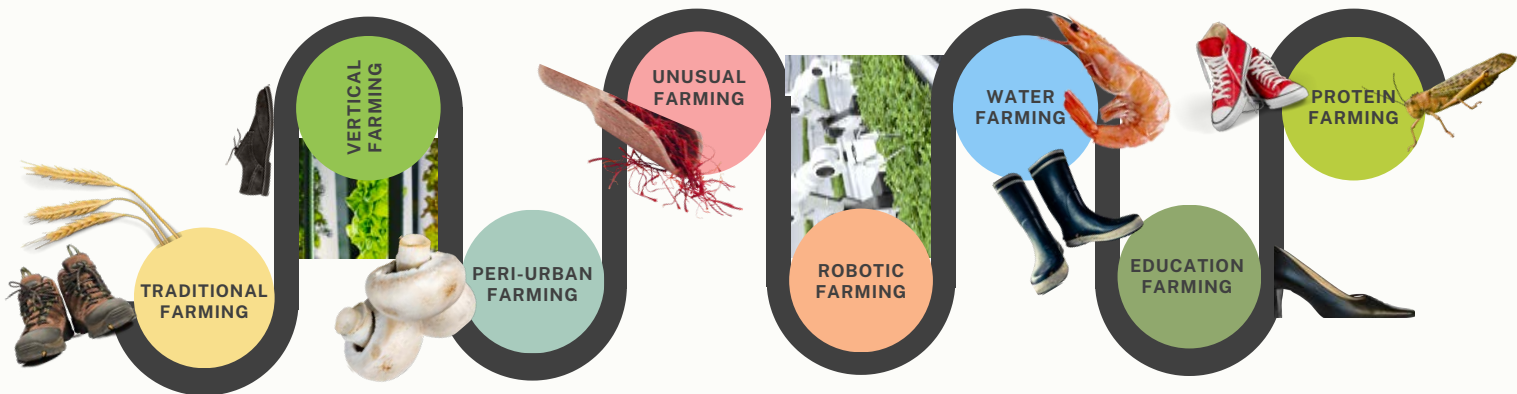
Robots, Pasture reared dairy, automated systems.

9. Does this role promote sustainability in agriculture? Justify your answer.

Salah Sukkarieh: Yes, the robots work out which are weeds and only the weeds get sprayed saving on herbicide applications. The same with fertiliser, application only plants requiring fertiliser get it.

Hunter Jay: The robot ensures ripe fruit is picked at the right time and product quality is maximised.

Tori Brindle-Mansell: The flexibility in the system improves the welfare of the cattle and the added information gathered on each cow ensures they are getting the correct nutrition as it relates to their needs during changes in their lactation/production cycles resulting in a more sustainable approach.



2. Create a Job Description

A job description details the features of a role and is required when you want to advertise for a job position. Select a career from one of the videos you watched and create a job description for this career. Use the following template from the [Australian Government Fair Ombudson Website](#) to write your job description. You will need to research your career to help you answer the questions in the template. [Career Harvest](#) could be a useful starting point.

PRINTABLE TEMPLATE JOB DESCRIPTION

(Refer to page 12 of worksheets for electronic version)

JOB TITLE: (Write the name of the job role) For example, Receptionist

JOB TYPE: (Write the type of employment) For example, Full-time; Part-time; Casual

LOCATION:

(Physical address the employee will work at. If the job requires travel, list the primary location)

For example, Smithton office

SUPERVISOR/MANAGER: (Who the employee will report to?)

For example, Office Manager; Shift Supervisor

MAIN DUTIES/RESPONSIBILITIES:

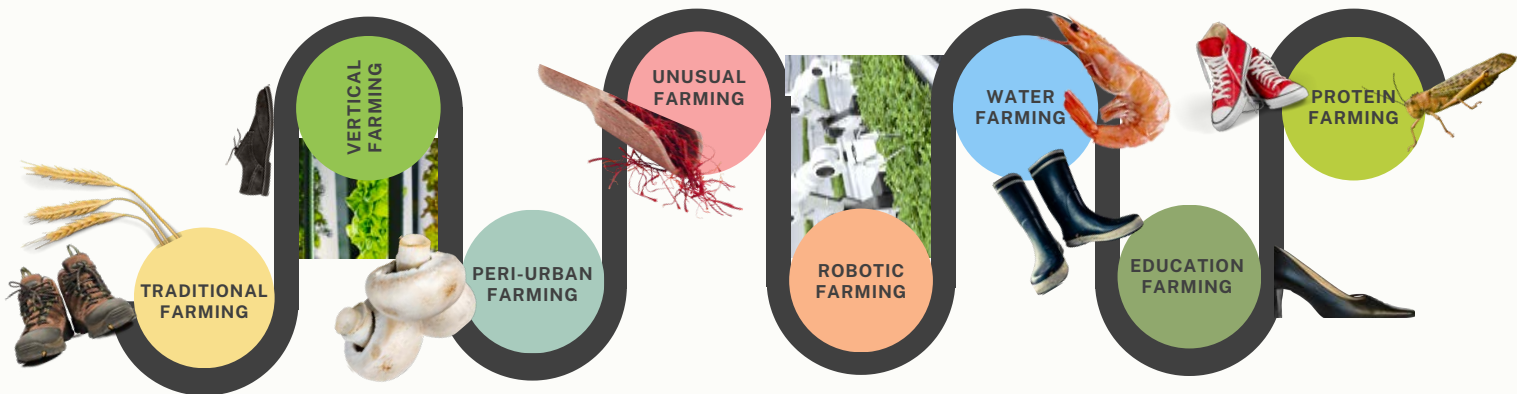
(What are the duties and responsibilities of the position?)

For example,

- Coordinate and carry out all office administration, including reception, mail, couriers, greeting clients and filing

- Maintain a clean and safe workspace, and abide by workplace health and safety policies

- Other tasks as directed



2. Create a Job Description

PRINTABLE TEMPLATE JOB DESCRIPTION

Skills: (What skills are needed for the job? Including any technical or interpersonal skills.)

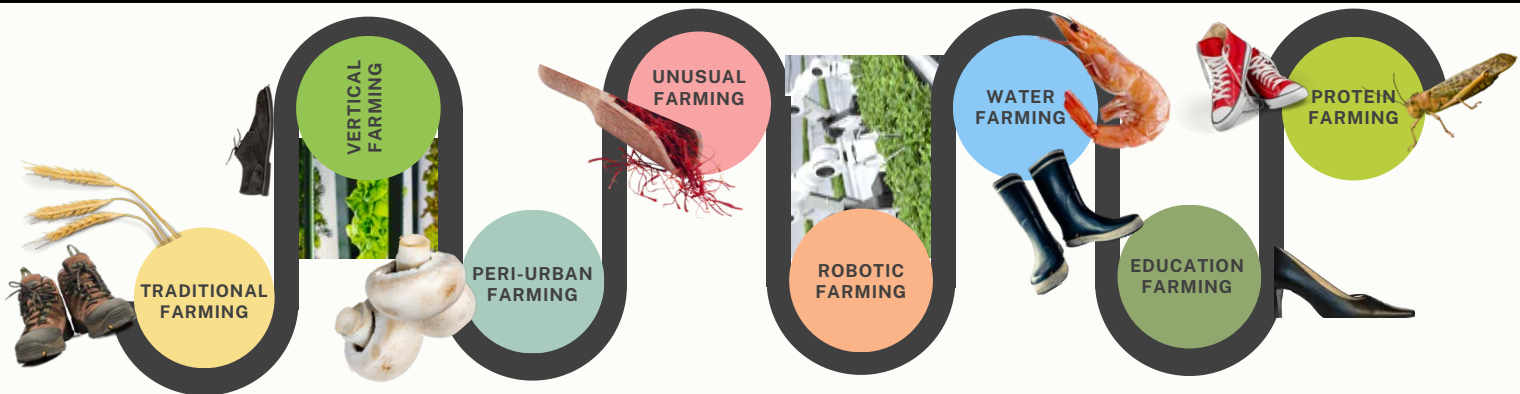
For example,

- Intermediate to advanced Microsoft Office skills (Word, Excel, PowerPoint and Outlook)
- Excellent verbal and written communication
- Organised and able to meet deadlines

PERFORMANCE GOALS: (What level of performance do you expect from the employee?)

For example,

- Complete administration tasks on time
- Ensure office is clean and presentable at all times
- Deal with clients, suppliers and other employees professionally at all times



3. Interview Question

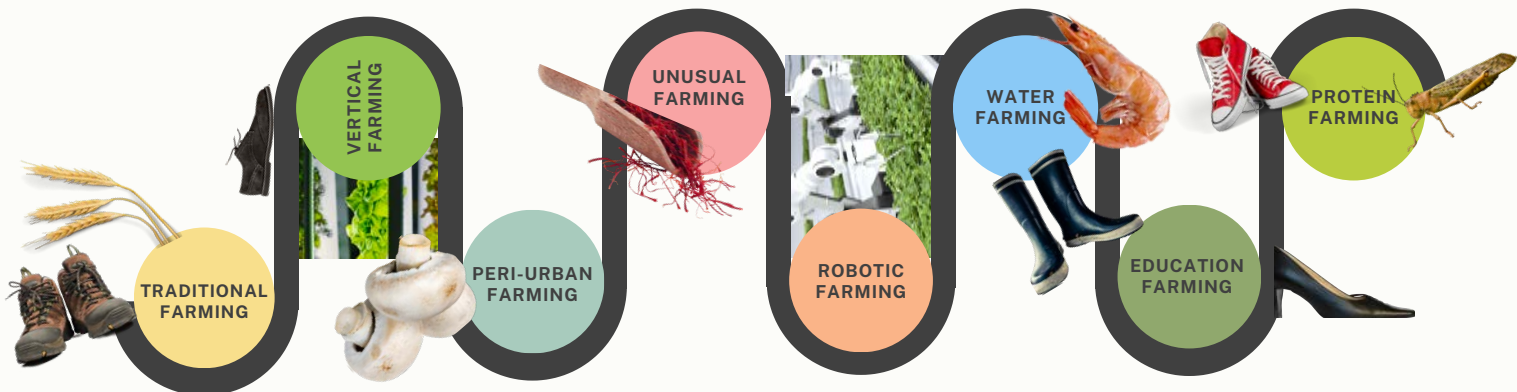
Choose from one of the videos which role best matches your skills, experience and personality. Imagine you have been selected for an interview and explain to the interview panel why you would be a good candidate for this role.

1. Select your role:

2. Explain what interests you about this role:

3. Explain how your skills match this role:

4. Describe how your work/ school experiences matches the role:



2. Create a Job Description-Electronic version

A job description describes a job and is required when you want to advertise for a job position. Select a career from one of the videos you watched and create a job description for this career. Use the following template from the [Australian Government Fair Ombudson Website](#) to write your job description. You will need to research your career to help you answer the questions in the template. [Career Harvest](#) could be a useful starting point.

TEMPLATE JOB DESCRIPTION

IMPORTANT

This template has been colour-coded to assist you to complete it accurately. You will replace the blue < > writing with what applies to your situation.

Example information is shown in purple writing to assist you and should be deleted once you have finished the ad.

JOB TITLE: <Role name> For example, Receptionist; Sales Assistant

JOB TYPE: <Type of employment> For example, Full-time; Part-time; Casual

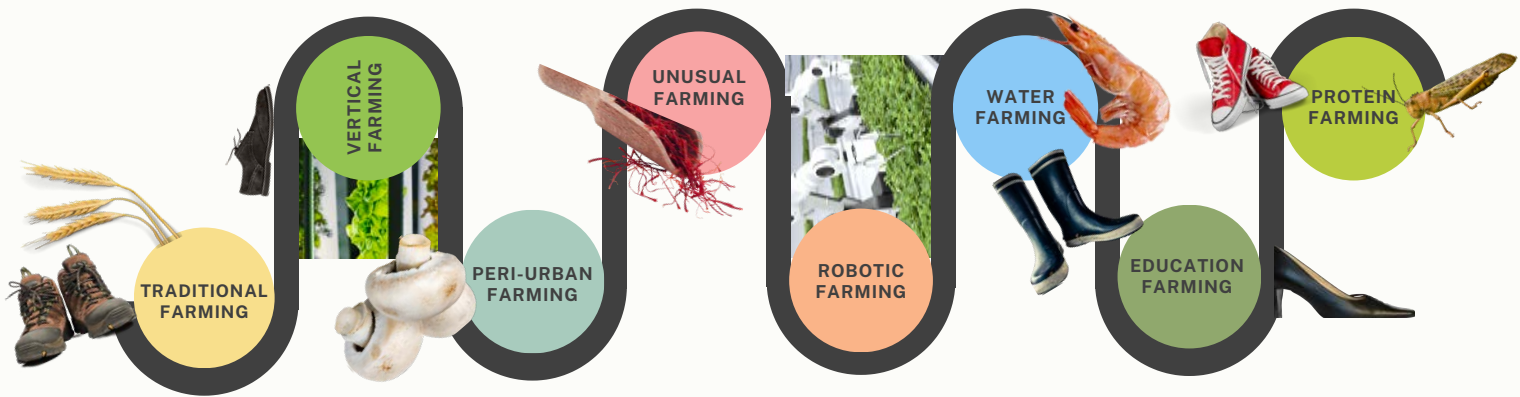
LOCATION: <Physical address the employee will work at. If the job requires travel, list the primary location> For example, Smithton office

SUPERVISOR/MANAGER: <Who the employee will report to> For example, Office Manager; Shift Supervisor

MAIN DUTIES/RESPONSIBILITIES: <What are the duties and responsibilities of the position?>

For example,

- Coordinate and carry out all office administration including reception, mail, couriers, greeting clients and filing
- Maintain a clean and safe workspace, and abide by workplace health and safety policies and procedures
- Other tasks as directed



SKILLS & EXPERIENCE

Qualifications: <What qualifications, licenses or education level does the employee need?>

For example,

- Diploma or Certificate IV in Business Administration or relevant experience
- First aid certificate

Experience: <What type and how much experience is needed?>

For example, 3 years experience in a similar role or industry

Skills: <What skills are needed for the job, including any technical or interpersonal skills?>

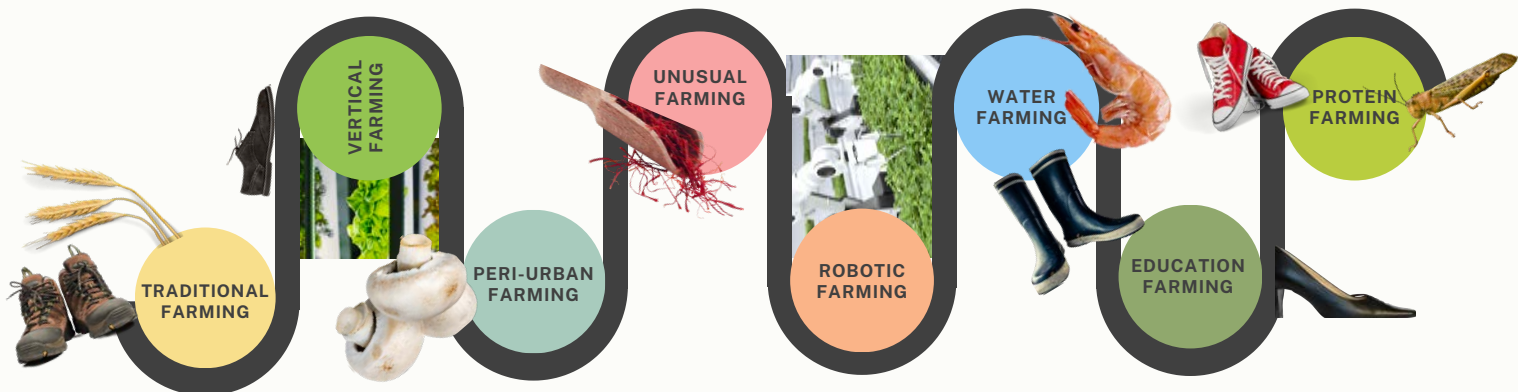
For example,

- Intermediate to advanced Microsoft Office skills (Word, Excel, PowerPoint and Outlook)
- Excellent verbal and written communication
- Organised and able to meet deadlines

PERFORMANCE GOALS: <What level of performance do you expect from the employee?>

For example,

- Complete administration tasks on time
- Ensure office is clean and presentable at all times
- Deal with clients, suppliers and other employees professionally at all times



References

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