



Primary Industries Education
Foundation Australia



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GRDC

GRAINS RESEARCH
& DEVELOPMENT
CORPORATION

GRDC Careers



PIEFA Food & Fibre



CARD GAME



Soil Testing



➤ CONSIDERATIONS:

- A crucial practice in crop production.
- Determines the soil's nutrient content, pH level, and other properties that significantly impact crop growth and yield.
- Test results may influence growers' decisions to apply fertilisers/organic matter to enhance soil quality.



Soil Preparation



➤ CONSIDERATIONS:

- Removal of existing crop residues, weeds, and debris from the field.
- Tillage may be used as the initial step in soil preparation. It involves deep ploughing or discing to break up compacted soil and improve aeration.



Seed Selection



➤ CONSIDERATIONS:

- Suitable seed selection is critical as it directly impacts crop yield, quality, and overall success.
- Crop varieties are chosen based on the region's climate, soil type, and growing conditions.



Sowing



➤ CONSIDERATIONS:

- Sowing practices ensure that seeds are planted at the correct depth, spacing, and time for optimal germination and crop development.
- The crop's recommended planting rate or spacing guidelines should be followed.



Germination



› CONSIDERATIONS:

- The process by which a seed begins to sprout and grow into a new plant.
- Germination rates influence crop establishment, yield potential, and resistance to pests and diseases.
- Maintaining high germination rates leads to the overall success of the growing season.



Crop Growth



› CONSIDERATIONS:

- Determining the optimal application of nitrogen and phosphorus is crucial for maximising grain yield and quality.
- A soil analysis assesses nutrient levels to determine correct application rates for healthy plant development.
- Growers observe the overall appearance, colour, and crop growth stage.



Crop Monitoring



› CONSIDERATIONS:

- Regular crop monitoring allows growers to identify and address potential pest and disease issues. Early detection and diagnosis are essential for crop health.
- Monitoring irrigation rates optimises water use efficiency, preventing water stress, and enhancing overall crop yield and quality.



Harvesting



› CONSIDERATIONS:

- The process of collecting matured and ripened seeds from crops, using specialised machinery.
- Harvesting should occur at the optimal time of year to ensure grains are mature and moisture levels are appropriate for storage.
- Harvest times vary depending on crop variety and local conditions.



Grain Grading



› CONSIDERATIONS:

- The process of evaluating and categorising harvested grain based on quality factors, e.g. size, weight, moisture content, and purity.
- Essential for quality control, determining the end use and value of the grain crop.



Storage



➤ CONSIDERATIONS:

- Silos are designed for efficient storage and handling of large quantities of grain.
- Storing grain preserves quality for various end uses by protecting it from environmental factors, pests and contaminants.



Transport to Mills



➤ CONSIDERATIONS:

- Involves the efficient movement of grain to milling facilities where it will be processed into various products.
- Methods of transport and logistics depend on factors such as distance, quantity of grain, and the available infrastructure.



Milling



➤ CONSIDERATIONS:

- Milling is the process of grinding, crushing, or processing grains to extract their valuable components such as flour, meal, or semolina.
- This process is essential in producing a wide range of grain-based products.



Packaging



➤ CONSIDERATIONS:

- Packaging of wheat/flour ensures protection for transportation and storage of the product.
- The choice of packaging depends on the intended use, storage conditions, transportation methods, and market preferences.



Products



➤ CONSIDERATIONS:

- Wheat is a versatile crop that yields a variety of products, e.g. flour (used for making bread, pastries and pasta), and semolina (a coarser flour for making cous cous and certain types of pasta).
- Grains are also used as stockfeed.



Soil Scientist



➤ CONSIDERATIONS:

- Conducts research and experiments to investigate the health of soil and its impact on plant yield.
- Research is critical for growers to understand the characteristics and types of soil on their property so they can appropriately adjust their inputs and management practices.



Extension Officer



➤ CONSIDERATIONS:

- Communicates science and research information to growers, advising them on techniques and new technology for improving the production of crops.
- Officers collect and analyse data and samples to inform on-farm practice.



Plant Breeder



➤ CONSIDERATIONS:

- Plans, undertakes, supervises, and coordinates the development of new plant varieties.
- Breeders develop and manage breeding programs, linking the company and technology support providers.



Agricultural Engineer



➤ CONSIDERATIONS:

- Plans and designs the manufacturing, construction, modification, improved performance, and maintenance of equipment and machinery.
- For example, designs seeding systems to increase seeding rates with minimal soil disturbance.



Grain Grower



➤ CONSIDERATIONS:

- Australian grain growers are integral to the industry, contributing to its historical achievements and future success. They play a vital role in producing food and contributing to Australia's economy.
- Growers need to understand crop growth requirements, development, and management, including efficient crop cultivation. They must also embrace innovative practices and incorporate new tools and technologies facilitated by research development and extension investments.



Agronomist



➤ CONSIDERATIONS:

- Provides recommendations for soil management, crop selection, and implementing sustainable agricultural practices.
- Arranges and coordinates field days, demonstration trials, and trial sites.



Plant Pathologist



➤ CONSIDERATIONS:

- Identifies, researches, and manages diseases that affect crops.
- Plays a pivotal role in advising growers about disease-resistant varieties, implementing effective management strategies, and contributing to biosecurity measures to ensure the health and productivity of crops.



Entomologist



➤ CONSIDERATIONS:

- Studies the anatomy, physiology, characteristics, ecology, behaviour and environments of insects.
- Time is split between working in the field or a glasshouse, setting up insect traps, or in the laboratory conducting research.



Harvest Contractor



➤ CONSIDERATIONS:

- Manages a fleet of harvesters and staff hired by producers to carry out various tasks associated with the harvest.
- Services include operating combine harvesters, transporting harvested grain to storage facilities, and managing the overall logistics of the harvest season.



Grain Handler



➤ CONSIDERATIONS:

- Obtains samples for testing to determine the quality and grade against a set standard (specifications).
- Performs onsite inspections at grain handling facilities and laboratories to determine grain quality.



Logistics Manager



➤ CONSIDERATIONS:

- Records and coordinates the workflow and materials, examines orders for goods, and prepares production schedules.
- Establishes and coordinates grain contracts, the operating procedures for receiving, handling, storing, and shipping of goods.



Flour Miller



➤ CONSIDERATIONS:

- Operates machinery and performs routine tasks involved with running the flour mill including mixing, milling, and treating grains and by-products to make flour, meal, and stockfeed.



Baker



➤ CONSIDERATIONS:

- Prepares dough and bakes bread loaves, rolls, buns, cakes, biscuits, and pastry goods.
- Operates machinery that rolls and moulds dough and cuts biscuits.
- Manages the baking ovens.



Brett Tucker: Farm Manager



➤ CONSIDERATIONS:

- A young grower with an agricultural college background managing his family's farm.
- Focused on adopting new technologies, including no-till farming, new crop varieties, and precision agriculture, resulting in increased productivity and improved soil health.



Alli Elliot: Extension & Communication Officer



➤ CONSIDERATIONS:

- Responsible for transforming the latest research findings into user-friendly formats for growers and agronomists.
- Focused on communicating best practices in crop nutrition management.



Professor Rachel Burton: Molecular Biologist



➤ CONSIDERATIONS:

- A molecular biologist focused on understanding plant genes, specifically those involved in cell wall development in barley.
- The research emphasises the nutritional significance of the cell wall, containing beta-glucan, a dietary fibre with health benefits.



Dr Dan Muller: Plant Breeder



➤ CONSIDERATIONS:

- Develops new wheat varieties with disease resistance and improved tolerance to environmental stress.
- The research aims to provide innovative solutions for sustainable farming practices and enhance export opportunities.



Dr James Barr: Agricultural Engineer



➤ CONSIDERATIONS:

- Invested in research focusing on soil movement and designing a novel seeding system, utilising computer simulation models to predict soil throw and improve soil-tool interaction.
- The research will assist growers in increasing seeding speed while minimising soil disturbance.



Sarah McDonnell: Education Specialist



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➤ CONSIDERATIONS:

- Promotes the science of food and fibre production, transforming the latest grain and agricultural research into classroom activities.
- Responsible for developing workshops, competitions, and outreach programs to connect with students and communities.



Kate Wilson: Agronomist



➤ CONSIDERATIONS:

- Focuses on no-till cropping systems and supports growers in adopting farm management software.
- Invested in enhancing decision-making for more productive and sustainable agricultural businesses.



Leighton Wilksch: Precision Ag



➤ CONSIDERATIONS:

- An agricultural innovator specialising in precision technologies to help growers navigate the risks of farming amid climate variability.
- Focused on utilising soil moisture probes to assist growers in making informed decisions.



Dr Grant Halloway: Plant Pathologist



➤ CONSIDERATIONS:

- Researches integrated disease management.
- Advises growers on strategies such as selecting resistant varieties, applying treatments, and implementing crop rotations to mitigate the impact of more than 15 known diseases.



PIEFA Food & Fibre



CARD GAME



Autosteer Machinery

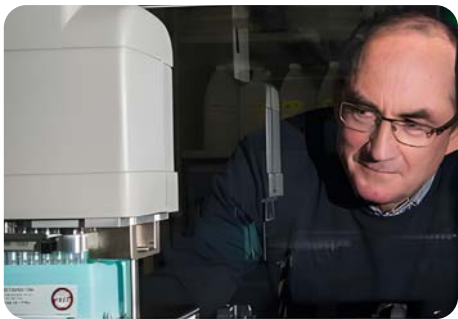


➤ CONSIDERATIONS:

- Computer programming combined with GPS technology ensures the tractor autonomously steers itself down a mapped pathway.
- Autosteer allows precise inter-row sowing, a feature of a no-till farming system. This technology enables grain production to be safer, more efficient and precise.



Genetics - DNA Polymerase Chain Reaction



➤ CONSIDERATIONS:

- Genetic research and breeding programs aim to enhance crop yield, quality, and resistance.
- These aims include identifying and selecting desirable traits, e.g. high yield, drought tolerance, resistance to pests and diseases, nutritional content, and adaptation to specific environments.



Machine Seeder: Air Drill



➤ CONSIDERATIONS:

- Machinery designed for precision seeding and planting.
- Part of a series of air drills developed for grain farming operations, including precise seed placement, efficient fertiliser application, and improved productivity.



Combine Harvester



➤ CONSIDERATIONS:

- Multifunctional machines used to harvest grain crops like wheat, barley, and corn.
- They can cut, thresh, and clean the grain in a single pass.



Grains Research & Development Corporation

Scan the QR code to learn about a range of careers and opportunities available in the Australian grains industry. If you would like to find out more, please visit:

**[www.careerharvest.com.au/
careers-in-grain](http://www.careerharvest.com.au/careers-in-grain)**

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Instructions for the

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PIEFA Food & Fibre Card Game



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game instructions.

[https://primezone.edu.au/
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