



Royal Agricultural Society of NSW

Agricultural Technology
Workbook 7-10

Sydney Royal Easter
Show Education

Sydney Showground
Sydney Olympic Park
www.rasnsw.com.au



Beef Cattle



BEEF CATTLE TERMS

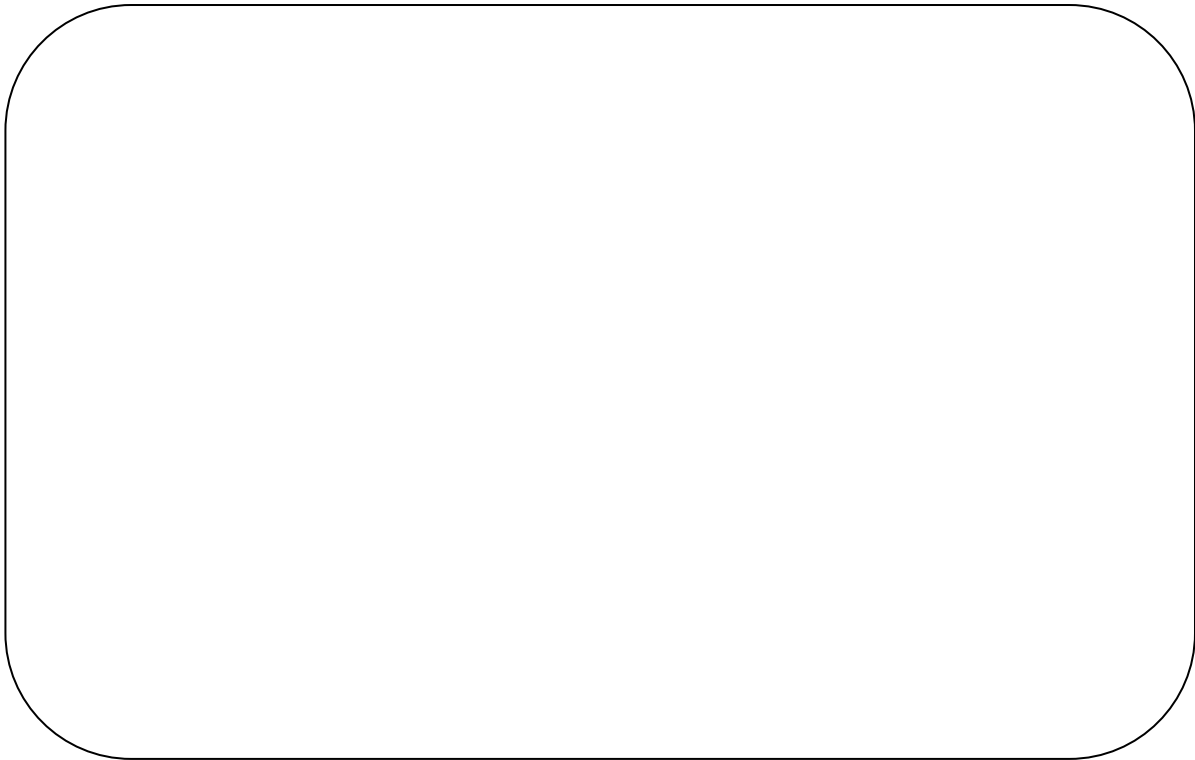
1. Draw a line between the following beef cattle terms and their definitions.

Bull	Calf of either sex being fattened on its mother
Cow	Female animal
Calf	Young animal of either sex, birth to 10 months
Steer	Male animal
Vealer	Young castrated male
Polled	Genetically without horns
'Marbled' meat	Fine flecks of fat, visible within muscle



3. Explain the muscle scoring systems for beef cattle.

Include a diagram to accompany your explanation.



Beef Cattle

BEEF CATTLE AT THE SHOW

Location: Cattle Judging Lawns

1. Name the beef cattle that are being judged today.

2. For three beef cattle you see in the cattle pavilion, complete the table below.

(Hint: Look above the cattle stalls for Header Cards like the one below to help you)

Spring Park Charolais Stud

Name: Spring Park Butter Cup

Dam: **Spring Park Butter Kate**

Sire: **Spring Park Cup Winner**

Weight (kg): 776

D.O.B: 31/5/2012

	<i>Example</i>	Animal 1	Animal 2	Animal 3
Name	<i>Spring Park Butter Cup</i>			
Breed	<i>Charolais</i>			
Dam	<i>Spring Park Butter Kate</i>			
Sire	<i>Spring Park Cup Winner</i>			
Weight (kg)	<i>776</i>			
Date of Birth	<i>31/5/12</i>			



3. Watch at least two classes of beef cattle judging for two different age groups (e.g. under 14 months bull class and 24 month and over bull class). Record the differences in body structure, carriage and body proportions. The following terms and criteria may be useful.

- Size
- Muscling – very heavy, heavy, medium, moderate or light
- Body proportions – notice leg length, body length, size of head, girth
- Movement – bouncy, easy. Slow or restricted
- Gender characteristics – e.g. udder development, crest of bull, scrotal size

	Animal 1	Animal 2
Description:		



Beef Cattle



MEAT PRODUCTS AT THE SHOW

Instructions: Visit the Sydney Royal Easter Show exhibits or website to collect the competition results and answer the following questions.

1. Which school won Champion School Steer in the 'Hoof and Hook' competition at the Sydney Royal Easter Show?

2. Explain the *Hoof and Hook* competition.

3. Record the score card results from the Hoof and Hook competition schools champion.



4. The market specifications for three possible markets are given below. Use the market specifications to decide which market the winning 'Hoof and Hook' carcass should meet.

Market Specifications	Carcass Weight	Fat range at P8 rump site	Fat colour	Muscle Colour	Muscle Score
Supermarket	160 – 220	6 - 12	White	Bright pink	C
Export trade – Japan	300 – 400	8 - 18	White	Bright	A, B, C
Export trade - Korea	180 - 280	5 - 12	White	Bright red	A, B, C

Carcass
#: _____

School/Breeder: _____

Market
Specification: _____

5. List five manufactured meat products.

1. _____
2. _____
3. _____
4. _____
5. _____



THE VALUE OF A CARCASS

2. Use the market reports for various Beef markets and the 'Hoof and Hook' carcass information collected above to determine its value. Using the example to guide you, complete your workings below.

(Hint: You will be able to access information about the Beef markets through the industry body, Meat and Livestock Australia)

$$\text{Carcass weight (kg)} = \text{Live weight (kg)} \times 60\% \text{ useable meat}$$

$$\text{Carcass value (c)} = \text{Carcass weight (kg)} \times \text{EYCI c/kg cwt}$$

(EYCI is the Eastern Young Cattle Indicator value)

$$\text{Carcass value (\$)} = \frac{\text{Carcass value (c)}}{100}$$

Example:

What is the value of the carcass (\$/kg) of a 400 kg beast with last month's Eastern Young Cattle Indicator closing at 320 c/kg cwt?

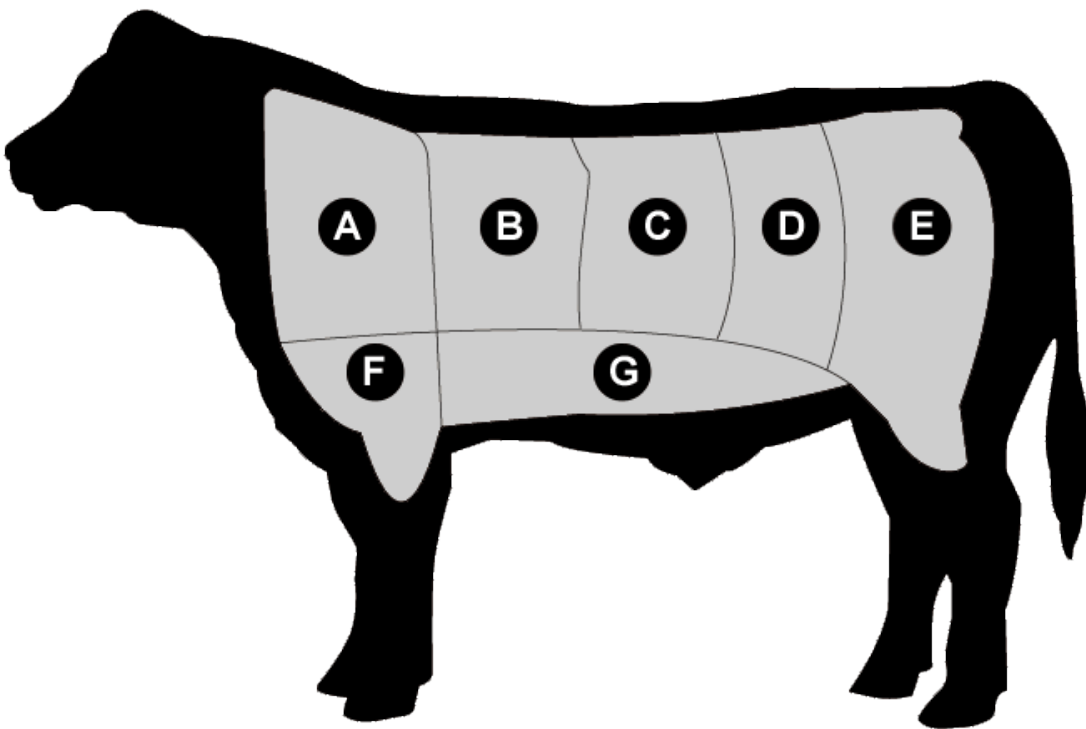
$$\begin{aligned} 400 \times 0.60 &= 240 \text{ kg} \\ 240 \times 320 &= 76\,800 \text{ c} \\ \frac{76\,800}{100} &= \$768.00 \end{aligned}$$

Therefore the value of the carcass the carcass is \$768.00.



6. Identify three cuts of meat and explain where they are found on the beef carcass. You may need to use diagrams.

Beef Cut	Explanation
A)	
B)	
C)	
D)	
E)	
F)	
G)	



Beef Cattle

MULTIPLE CHOICE QUIZ

1. Complete the following multiple choice quiz by circling the most correct answer.

1. A beef cattle breed that is most likely to produce 'marbled' meat.
 - a. Hereford
 - b. Angus
 - c. Limousin
 - d. Brahman
2. The Bos indicus cattle originate from:
 - a. America
 - b. The Pacific Region
 - c. Europe
 - d. Asia
3. Young castrated male grown to produce meat.
 - a. Bull
 - b. Heifer
 - c. Steer
 - d. Bullock
4. Beef cattle are ruminants. This means:
 - a. They have a rumen
 - b. They chew continuously
 - c. They have micro-organisms in their digestive system
 - d. They have one stomach
5. In the show ring, bulls must be fitted with a nose ring:
 - a. As a safety precaution.
 - b. Because all beef cattle must wear one.
 - c. So that the handler has a lead for each hand.
 - d. It's the fashion for bulls.
6. A polled animal
 - a. Is castrated
 - b. Naturally has no horns
 - c. Is disease free
 - d. Produces rich red meat
7. Smaller breeds such as the Galloway and Lowline:
 - a. Eat less than larger breeds
 - b. Can be stocked at a slightly higher rate
 - c. Produce a good meat carcass
 - d. All of the above
8. The group that contains inexpensive cuts of beef is:
 - a. Topside, mince and T-bone
 - b. Blade, chuck and brisket
 - c. Rump, sirloin and silverside
 - d. Round, medall and shin
9. The group which contains **only** Bos Taurus cattle is:
 - a. Poll Hereford, Galloway, Highland
 - b. Angus, Sindi, Limousin
 - c. Shorthorn, Belgium Blue, Sahiwal
 - d. Brahman, Simmental, Shorthorn
10. Beef cattle are used to produce:
 - a. Meat and bone meal
 - b. Leather and glue
 - c. Hormones and vitamin extract
 - d. All of the above



Dairy Cattle



VISIT THE WORKING DAIRY AT THE SHOW

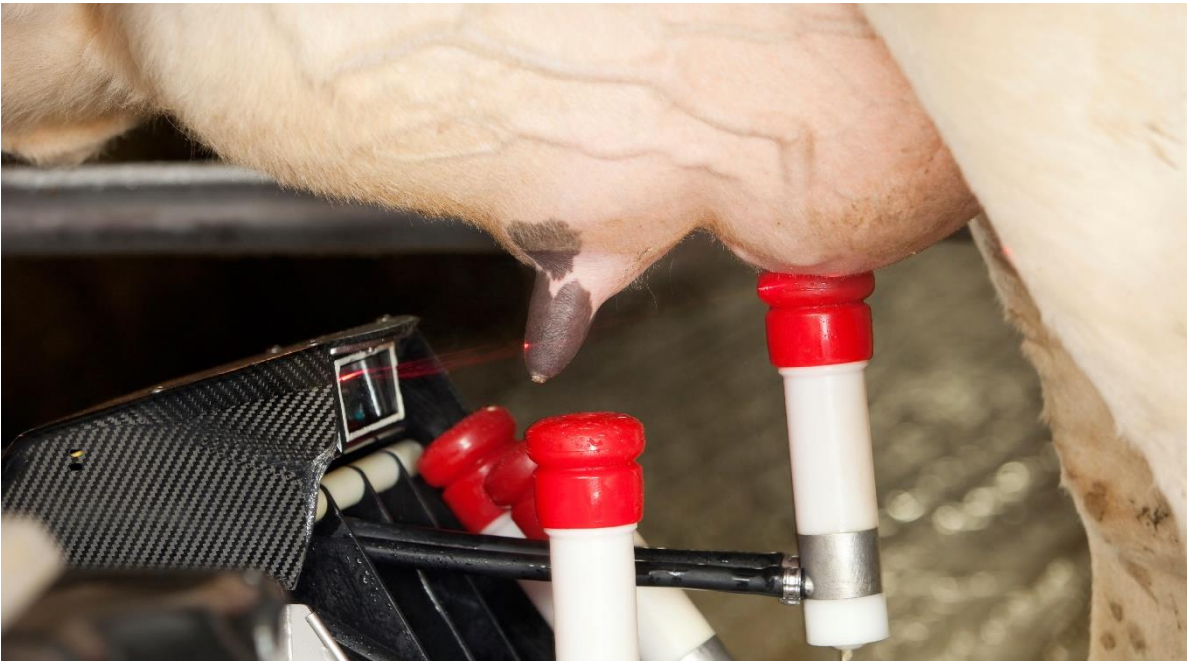
1. How many Dairy Cattle are there in Australia?

2. How many Dairy Farms are there currently in NSW?

3. How many Dairy Farms were there in NSW in 1990?

4. What is the average herd size?





5. What components make up milk and how are farmers paid for this?

6. What do the farmers feed their cattle?

7. How are calves fed after they are born?





8. What type of climatic environmental conditions do Dairy Cattle prefer?

9. What impact does hot weather have on Dairy Cattle milk production?

10. How do most farmers sell their milk?

11. How much milk and other dairy products do we export overseas?



Storing Milk Scientific Investigation

The following classroom experiment will help you discover how milk needs to be stored to prevent it going sour.

You will need:

- 3 Large beakers (or plastic cups approx. 100 mL)
- 300 mL fresh milk
- Cling wrap to cover each of the beakers

What to do:

1. Put 100ml of milk into each of the 3 beakers and label them 1, 2 & 3
2. Leave beaker 1 in a warm, dry, light place.
3. Leave beaker 2 in a warm, dry, dark place.
4. Leave beaker 3 in a cool, dry, dark place like a fridge.
5. Monitor each of the beakers every day for 5 days and record details
6. Record your observations each week on the table below. You may also like to include illustrations or take photos to display in the classroom.

	Beaker 1	Beaker 2	Beaker 3
Day 1			
Day 2			
Day 3			
Day 4			
Day 5			



Which milk sample began to smell bad first?

Did any fail to go sour?

What conclusions can you make about how milk is best stored to prevent it going sour?

Conduct some research to discover how milk is kept fresh once it is collected from the cow up until you buy the milk in a shop. You can record your answer below in a couple of sentences or draw a diagram with labels.



Sheep



SHEEP INDUSTRY TERMS

1. How many sheep were recorded to be in Australia in 2018?

2. Name the most significant breed of sheep in Australia.

3. Identify the four major strains of Merino sheep.

- a.

- b.

- c.

- d.



4. Define the following sheep terms:

Ram	
Ewe	
Mutton	
Lamb	
Tender Wool	
Texture	
Yarn	
Micron	
Hogget	
Hunger Fine	
Evenness	
Character	
Classing	
Overshot	
Brightness	



Sheep



ALL ABOUT SHEEP AT THE SHOW

Find a farmer in the **Sheep and Wool Pavilion** (identifiable by a green 'Ask a Farmer vest'). Ask the farmer to help you complete the following questions about sheep in Australia.

1. Ask for the following skills to be demonstrated or explained:

- **Catching and turning**
- **Sheep mouthing**
- **Sheep drenching**

2. How do farmers use mouthing to determine the age of their sheep?

3. Explain what drenching is and why it may be carried out.



4. Name the breed of sheep your farmer grows on their farm. What are the three biggest challenges for your farmer in growing this type of sheep?

Sheep Breed	Biggest Challenges
	1.
	2.
	3.

5. Complete the following table:

SHEEP BREED	COLOUR	IMPORTANT TO THE SHEEP INDUSTRY BECAUSE...
<i>Suffolk</i>	<i>White and black</i>	<i>Meat carcass traits</i>

6. For one of the breeds of sheep, name four exhibitor studs and where they are from.

Exhibitor Stud	Location
1.	
2.	
3.	
4.	



Wool

THE SHEEP PAVILION

Visit the sheep and wool displays in the **Sheep and Wool Pavilion** and complete the worksheet

1. Describe how wool is processed.

FROM FARM TO FASHION

1 Growing

Every year sheep grow wool on their body naturally. All they need is water, sunshine and grass.



2 Shearing - Bale



3 Washing

The greasy wool is scoured (cleaned) to remove any contaminants – dirt, lanolin (grease) and vegetable matter (plant material).



4 Carding



7 Spinning

Small fibres of the wool are twisted together to make a longer and stronger fibre called yarn.



6 Dyeing



5 Combing

Combing removes any vegetable matter and shorter fibres to produce a top.



8 Weaving or Knitting

Machines join the yarns together and turn them into clothes.



9 Final Garment



10 Recycling

Your wool clothes, they can be recycled and made into new ones.



2. Identify five properties of wool.

- _____
- _____
- _____
- _____
- _____



3. Explain what the crimp pattern of Merino wool indicates.

4. Describe three common faults found in wool.

a.

b.

c.

5. Look at the products on sale in the **Sheep and Wool Pavilion** and identify and draw eight products made with wool.

1.	5.
2.	6.
3.	7.
4.	8.



Goats



GOATS ON DISPLAY

5. List three main products harvested from goats.

- a. _____

- b. _____

- c. _____



6. List two breed examples of the following products:

GOAT TYPE	BREED EXAMPLES
Dairy Goats	
Fibre Producing Goats	
Meat Goats	

7. What is goat meat called?

8. What is the fleece of an Angora goat called?

9. Explain why goat milk is easier to digest than cow's milk.

10. Is sheep or goat meat more popular around the world?

11. When were goats introduced to Australia?



Goats & Pigs

EXPLORE GOATS AND PIGS AT THE SHOW

12. Complete the following table by recording the correct terms for each animal:

ANIMAL TYPE	GOATS	PIGS
Male		
Female		
Baby		

13. Watch a session of judging (dairy goats).

a) Identify the breed and type of animal being judged.

Breed: _____

Type: _____

b) Describe how the animals are led and presented to the judge.

c) Listen to the judges' comments and record the distinguishing features of the animals that win ribbons. Which of these features relate to production characteristics?



Pigs



1. How long is a sow pregnant for?

2. Fill in the table below to correctly match a pig's age and name.

AGE	NAME
0-4	
4-12	
12-18	
18-26	

3. How many litres of milk does a sow produce each day to feed her litter of piglets?

4. Describe how pigs grow?

5. What is the average size of a litter?



6. What does a pig's foot look like? Include a drawing to help you explain.



7. Why is a pig's sense of taste so much better than a human's?

8. Why do pigs roll in mud?

9. Are pigs really unclean? Explain your answer.

10. Who has more teeth? A pig or a human?

11. Name 2 products that from pigs.

a. _____

b. _____



12. Describe the three different housing systems pigs are grown under in Australia.
Describe the pros and cons.

Housing System	Pros	Cons
1.		
2.		
3.		



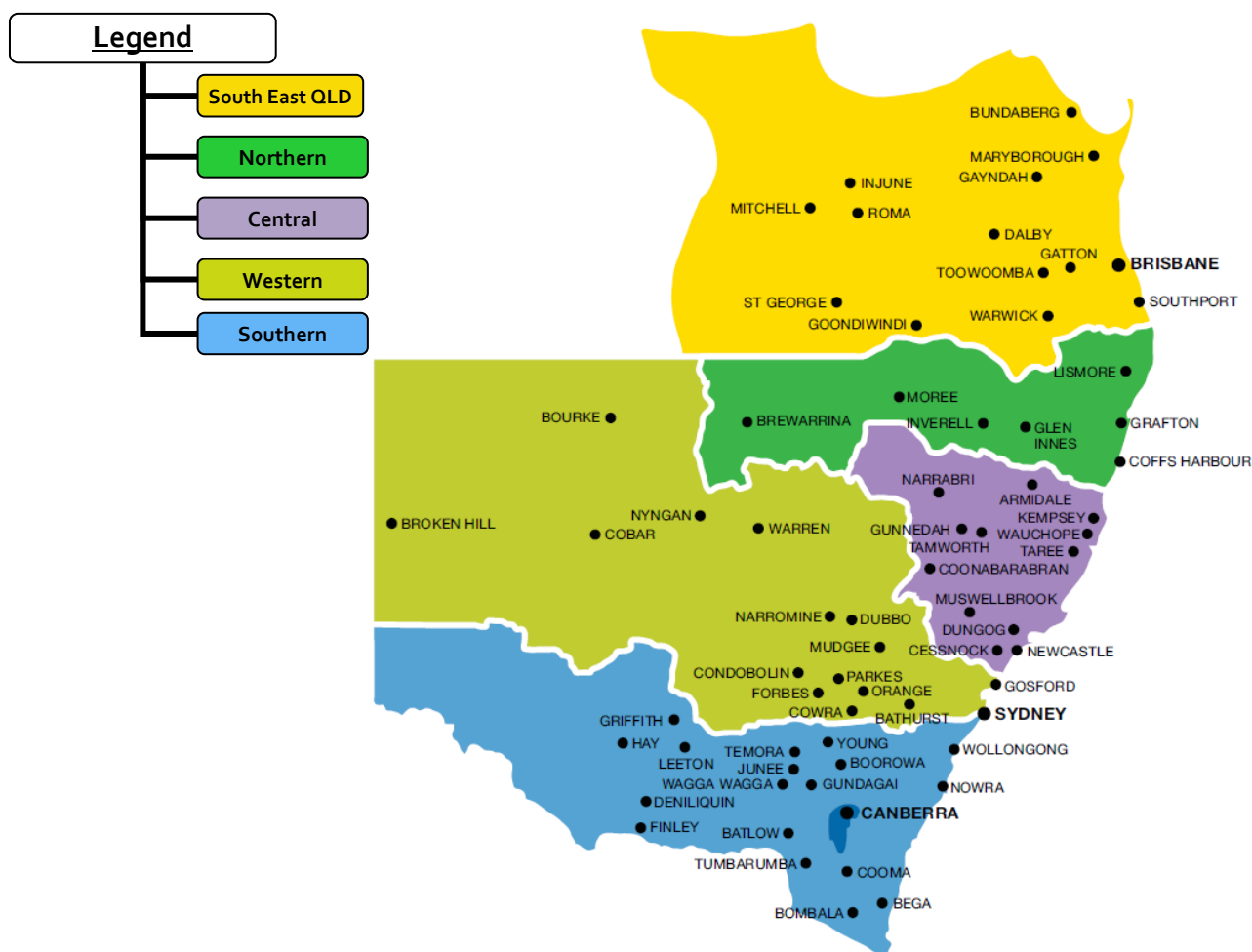
District Exhibits

DISTRICT EXHIBITS – DISPLAY AND JUDGING

One of the highlights of The Sydney Royal Easter Show, The District Exhibits is a cooperative works by growers that reflect the diversity and excellence of their regional produce. Each consists of more than 10,000 pieces of fresh produce from five agricultural districts throughout NSW and South East Queensland. The District Exhibit Displays consists of five regions known as Courts that represent Southern, Northern, Western, Central NSW and South East Queensland. The Courts each source produce from local competitions and leading farmers within their areas to compete in Sydney. They bring only the best of the best produce to Sydney for judging.

These spectacular constructions of agricultural produce are judged over a number of days by a team of judges. Everything is judged individually - fruit, vegetables, grains, pulses, oils and fibres - to determine who has the best in each region. They are awarded points based on the produce, display and design. The overall winner is awarded to the Court with the highest point score across these categories.

The breakdown of the Districts can be found below.



1. Research each district to make a list of the produce (fruits, vegetables, grains, preserves & fibres) found in that region.

District	Produced in this region
Northern	
Southern	
Western	
Central	
South East Qld	

2. Select a District - colour your choice on the map on the first page. Use the fruits, vegetables, fibres and grains from this region to design & sketch a display. *Label your sketch noting the type of produce used. For example wool to make clouds or grains to make soil.*



3. Using your sketch, produce a grain/seed picture from different coloured and textured grains and seeds. Draw the design onto an A4 page and glue different grains in different areas to make up the picture.

TIP: Glue one grain-type at a time. Put the glue onto the page, pour on the grain and remove excess grain when the glue dries.



District Exhibits



DISTRICT EXHIBITS ON DISPLAY

The District Exhibits are designed and built around regional agricultural production in NSW. Each exhibit only uses produce that is grown in their region.

4. Visit the District Exhibits, investigate (by asking the farmer representatives at the front of the District Exhibits displays) the procedures used by District Exhibit volunteers to plan and present their display.



5. Select your favourite District Exhibit and sketch the display. Label your sketch noting the type of produce used. For example wool to make clouds or potatoes to make soil.

