Australia's agriculture: Teaching notes

Did you know that Australia's cows produce about 9 billion litres of milk each year, worth $4 billion? And that there are about 68 million sheep in Australia but only 22.3 million people?

What are the eight main 'commodities' (agricultural products) that Australia produces?

Begin with a class brainstorm on the sorts of agricultural products Australia produces. Which ones do students think would belong in the top eight?

Look at the entries for wheat on the *Australia's agriculture: Student worksheet*. What do you notice?

How can there be more exports of wheat in 2011 than wheat produced?

Challenge students to think about the actual process. Much of any annual wheat harvest goes into storage, and is used, or exported, in later years. Discuss the role of wheat silos in this. The assumption that everything produced in 2011 is either used in Australia or exported in 2011 is not justified.

What percentage of the total of each of the eight main commodities is used in Australia?

Students could work in groups to complete the percentage table on the worksheet. You may find it necessary to discuss the procedure for finding 100% from a given percentage (such as the case with dairy). A good way to start this is to use the lamb meat data as a teaching example.

50% of lamb meat is exported. So 50% is used in Australia. What is the total? We need to multiply the $513 million by 2, which is the same as dividing by 50%.

The questions get more complex, and require careful thinking and analysis.

The value of Australian use of beef ($2942 million) can be obtained by either subtraction 7270 − 4328 = 2942 or finding 40% (100% − 60%) of 7270.

For wine and for sugar, you need to add the local and exported quantities to get the total, and then find the percentages.

For dairy, 1614 is 45% of the total. Dividing by 9 gives us 5%, and then multiplying by 20 gives us 100%.

Of course we are multiplying by $\frac{20}{9}$ which is the same as dividing by $\frac{9}{20}$ or dividing by 45%. So the method for finding the 100% value is to divide any particular value by its percentage: such as $\frac{1614}{45\%}$.

Almost all (96%) of the barley crop goes overseas. Use the same method as for dairy and sugar.

What percentage of the total of each of the eight main commodities is used in Australia?

Product	Total value (100%) ($ million)	Value of exports ($ million)	Percentage of total exported	Value of Australian use ($ million)	Percentage of total used in Australia
Wheat	4 765	5 526	116%	-	-
Beef	7 270	4 328	60%	2942	40%
Wool	1 900	2 376*	125%	-	-
Wine	3132	1 887	60%	1 245	40%
Dairy (not cheese)	3587	1 614**	45%	1973	55%
Sugar	2366	1 492***	63%	874	37%
Barley	1356	1 295	96%	61	4.5%
Lamb meat	626	513	50%	513	50%

Data source: *Farm Facts 2012*. www.nff.org.au/get/2107.pdf

Some questions: Answers

* Of the exported wool, 73% goes to China. How many dollars does this earn? **AU$1734m**

** Of the exported dairy products, 19% goes to Japan. How many dollars does this earn? **AU$307m**

*** Of the exported sugar, 34% goes to Korea. How many dollars does this earn? **AU$507m**
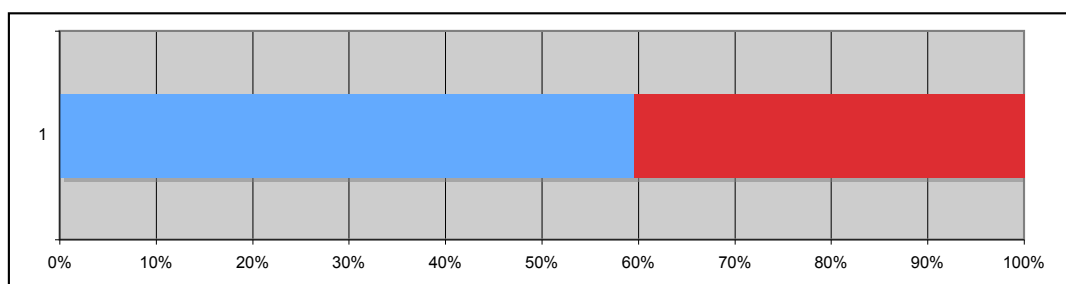
How could you explain the values for wool?

Which commodity is used most in Australia? **Dairy**

Which commodity has the greatest value of Australian use? **Beef**

Extension

Students can construct a 100% stacked bar graph to compare Australian use with exports. Here is an example created on Excel for the beef data.

Method

Students may work in groups to complete the sheet and explore the PDF. You may find it necessary to discuss with students the procedure for finding 100% from a given percentage (such as the case with dairy. A good way to start this is to use the lab meat as a teaching example.

50% of lamb meat is exported. So 50% is used in Australia. What is the total? Clearly we need to multiply the $513 million by 2, the same as dividing by 50%. So we find 513 ÷ 50%.

Australian Curriculum links

Year 6

Make connections between equivalent fractions, decimals and percentages (ACMNA131)

Interpret and compare a range of data displays, including side-by-side column graphs for two categorical variables (ACMSP147)

Interpret secondary data presented in digital media and elsewhere (ACMSP148)

Construct and compare a range of data displays including stem-and-leaf plots and dot plots (ACMNA170)

Year 7

Connect fractions, decimals and percentages and carry out simple conversions (ACMNA157)

Find percentages of quantities and express one quantity as a percentage of another, with and without digital technologies (ACMNA158)

Solve problems involving the use of percentages, including percentage increases and decreases, with and without digital technologies (ACMNA187)