

Where do breakfast cereals come from?

Introduction

Wheat has always been important in Australia. It has been with us since the First Fleet. Planting wheat was one of the first tasks of the convicts who were brought here. Not that it did them much good because all the wheat they planted died without producing any crop. So did the next crop of wheat that was planted. It was a hard way for settlers to learn that different wheat is needed for different conditions.

Background

The yield from wheat crops we now achieve in Australia is the result of scientists who have studied wheat and experimented with different breeds to find types that are suitable for our soils and climate. People such as William Farrer (1845-1906) taught us how to develop suitable types of wheat. The wheat we have today is the result of hundreds of years of farming and experimenting.

Wheat is a type of grass – but it is different from the grass in our lawn. Lawn doesn't die after it has seeded each year. Wheat does. Like all other cereal crops, the parent plant dies when it has produced its crop of seeds

Think about this question: how is a grain of wheat like an egg? Not in size, shape, texture, taste.

Answer: it's like an egg because there's plenty of food inside it for the baby. To make

sure that the new seeds have a good chance to grow strongly, the wheat seeds are filled with food. The seed has plenty to feed on, a bit like a chicken feeding inside the egg as it grows.

Why is that good for us? Wheat seeds grow more quickly than other plant crops and the grain seeds are very nutritious. That's one reason why wheat is grown around the world. What other food crops do you know? Find out about the different nutritional things we get from whole grains of wheat. Look on the back of a box of Wheaties, Weet Bix or Vita Brits, or your favourite breakfast cereal.



Investigation 1 Growing Wheat

Where can we buy wheat? Visit a grain store or farm. Look carefully at different wheat grains. How many different types of wheat can you find? Grow different types of wheat in plant boxes or saucers of cotton wool/soil/sand. Water well. Place in the sunlight or a warm spot. Watch how wheat grows. Which grow best? Record the rate at which each grows. Design a sheet for recording growing patterns over several days.

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Investigation 2 Cereal Nutrition



You will need
Cereal boxes

Compare the lists of nutritional information of the back of different cereal boxes. Include the cereals made from whole grains of wheat and compare them with cereals made from corn (corn flakes) and oats (porridge). Decide together which of the cereal boxes has the healthiest breakfast, with the most carbohydrate and protein and fibre, and the least sugar and fat.

Investigation 3

Make your own Wheat Flakes and Corn Flake Cereals



You will need
Grains of wheat and corn

Soak whole grains of wheat and corn in warm water. Flatten them with a mortar and pestle or the back of a spoon. Place onto foil and bake in a moderate oven for a few minutes until golden. Add milk for a taste test in a cereal bowl.

Investigation 4 Wild Bird Mix



You will need
One packet of Wild Bird Mix
Digital measuring scales

Weigh a small container of Wild Bird Mix from your pet shop. Spread the seed onto a large sheet of paper and sort the different seeds into their different types. Use the ingredients list on the back of the seed packet to guess the names of the different seeds. Then calculate the percentage of each type of seed in the amount you have measured. Does wheat make up most of the bird mix?

Investigation 5 Grinding Wheat

Give each pair of students a small container of wheat from a grain store. Ask them to find a clean and successful way to grind the wheat. Ask for suggestions and suggest that pairs or small groups work together, trying several approaches and rating each method on its effectiveness. The easiest way will probably be with a mortar and pestle from the science room. Supply your favorite damper or scone recipe and allow time for a feast to be prepared, with plenty of butter and jam for everyone.

RECORD SHEET

Investigation 2 Cereal Nutrition

	Carbohydrate	Protein	Fibre	Sugar	Fats
Wheeties					
Weet Bix					
Vita Brits					
Corn Flakes					
Rolled Oats					
Other					

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RECORD SHEET

Investigation 3 Make Your Own Cereal

	Time Taken in Preparation	Difficulty in Pressing Flat	Appearance	Taste
Wheat Flakes				
Corn Flakes				

RECORD SHEET

Investigation 4 Wild Bird Mix

	Sketch	Description	Number of Seeds	Mass (weight) of seed types	Percentage of Total Mass
Wheat					
Corn					
Sunflower					
Others					

RECORD SHEET

Investigation 5 Grinding Wheat

Grinding	Time Taken in Preparation	Difficulty in Grinding	Appearance after baking	Taste
First method				
Second method				

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William Farrer

William James Farrer was born in England, the son of a tenant farmer, and emigrated at the age of 25 to Australia. Qualifying as a surveyor in 1875, Farrer worked with the NSW Department of Lands until 1886. He then settled, at his own expense, to research into wheat varieties near what later became Canberra. In 1898 he was appointed to the NSW Department of Agriculture as a wheat experimentalist on a salary of 350 pounds a year.

His research was prompted by the evident unsuitability of the (basically European) varieties of wheat used in Australia at the time. They were unsuited to drier conditions, were especially prone to fungal disease, rust, and did not produce particularly good grains for milling or good straw for harvesting.

His first successes (in 1889) came from selecting outstanding individual plants from imported strains and breeding from them. By writing to agricultural colleagues in several countries he was able to collect a wide range of strains, which formed the basis of his work. In the first years of this century he had many successes. His grain, 'Federation', was the leading variety for the whole of Australia between 1910 and 1925; and, of the 29 varieties recommended for growing in NSW during the same period, 22 were his. In fact, his wheats were largely responsible for the expansion of wheat cultivation into drier or dust-prone areas in NSW. (Between 1897 and 1915 the area under wheat increased fourfold.)

Apparently, William Farrer's neighbours thought he acted a little strangely. He used to plant only a few acres of wheat each year, but spent hours walking around the wheat field examining the plants, tying little pieces of coloured rag to them, and then writing details about them in his notebook.

Source: Adapted from the Monash University website – <http://www.monash.edu.au/halls/farrer/info.shtml>



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Review Activities

WORDSEARCH

W	I	L	L	I	A	M	J	A	M	E	S
H	N	A	U	S	T	R	A	L	I	A	U
E	H	N	E	U	R	O	P	E	A	N	R
A	E	D	R	I	E	R	W	O	R	K	V
T	R	S	E	L	E	C	T	I	N	G	E
D	I	S	E	A	S	E	Y	E	A	R	Y
S	T	R	A	W	U	N	D	E	R	A	O
F	E	D	E	R	A	T	I	O	N	I	R
A	E	A	R	P	O	U	N	D	S	N	W
R	R	E	S	E	A	R	C	H	U	S	H
R	E	T	U	R	N	Y	R	U	S	T	E
E	X	P	E	N	S	E	L	A	T	E	R
R	E	C	O	M	M	E	N	D	E	D	E

► Find these words about William Farrer:

WHEAT
WORK
NEAR
RESEARCH
RUST
CENTURY

WILLIAM
DISEASE
EUROPE
WHERE
LANDS
LATER

JAMES
INHERIT
RETURN
EXPENSE
YEAR
RECOMMENDED

FARRER
POUNDS
AUSTRALIA
FEDERATION
SURVEYOR

Key Learning Areas

SOSE

Investigate the story of migration to Australia in the 19th Century.
Who came? Why did they come? What did they do?
Trace the history of wheat in Australia. What part did Farrer play?
Research the life of William Farrer.
Find out about different types of wheat. What are the differences?
What conditions does each prefer?