

THE NSW SUGAR INDUSTRY

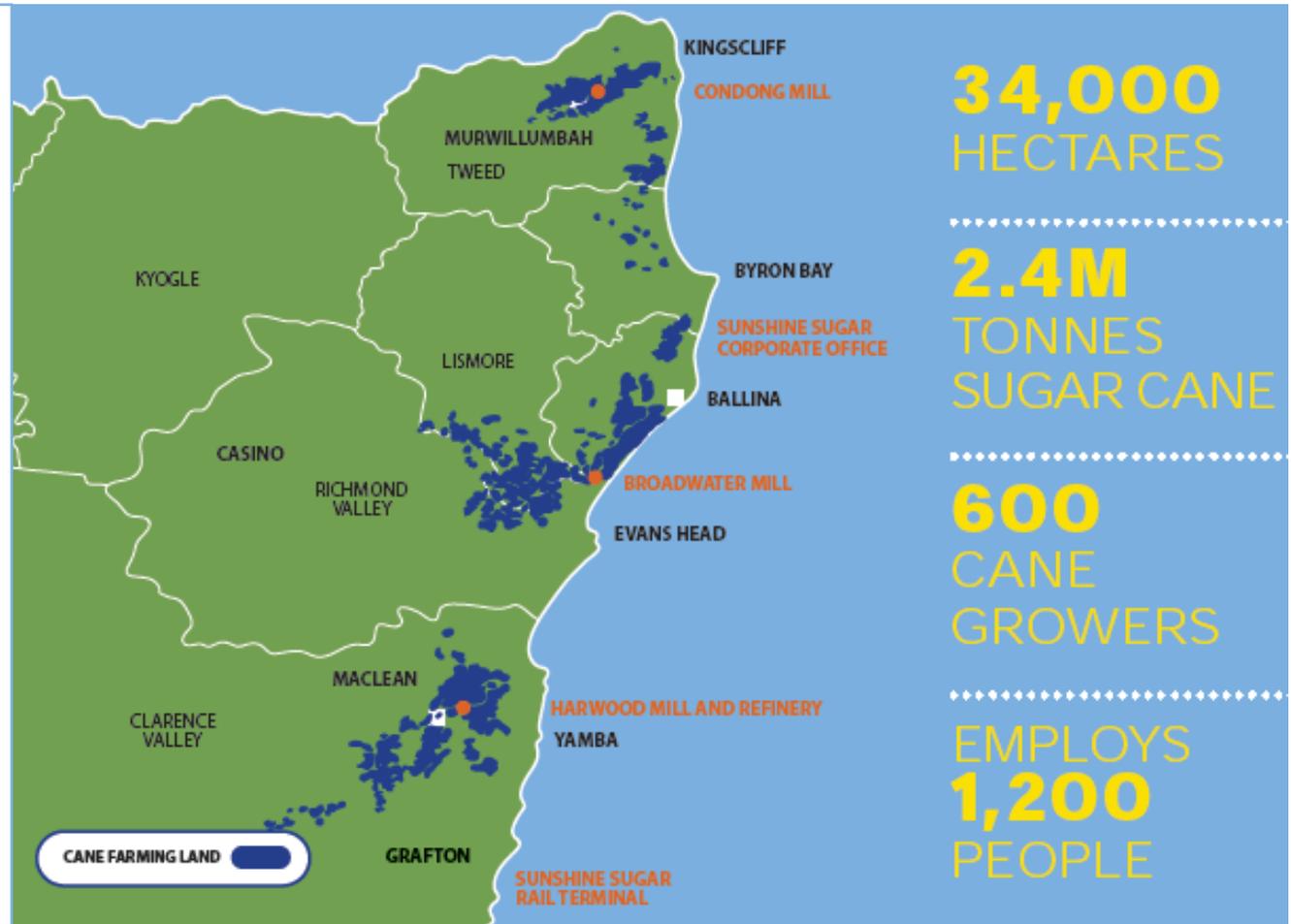
Sugar cane production in the Tweed, Richmond and Clarence Valleys dates back to the 1860's and is one of the oldest and largest employers in the Northern Rivers.

Each year, some 500 farming families across the Northern Rivers produce up to two million tonnes of sugar cane. The three sugar mills and refinery turn this into around 200,000 tonnes of sugar. The NSW sugar industry employs over 1,200 people and generates more than \$200m into the Northern Rivers economy.

The Condong Sugar Mill on the Tweed River commenced operation in 1880.

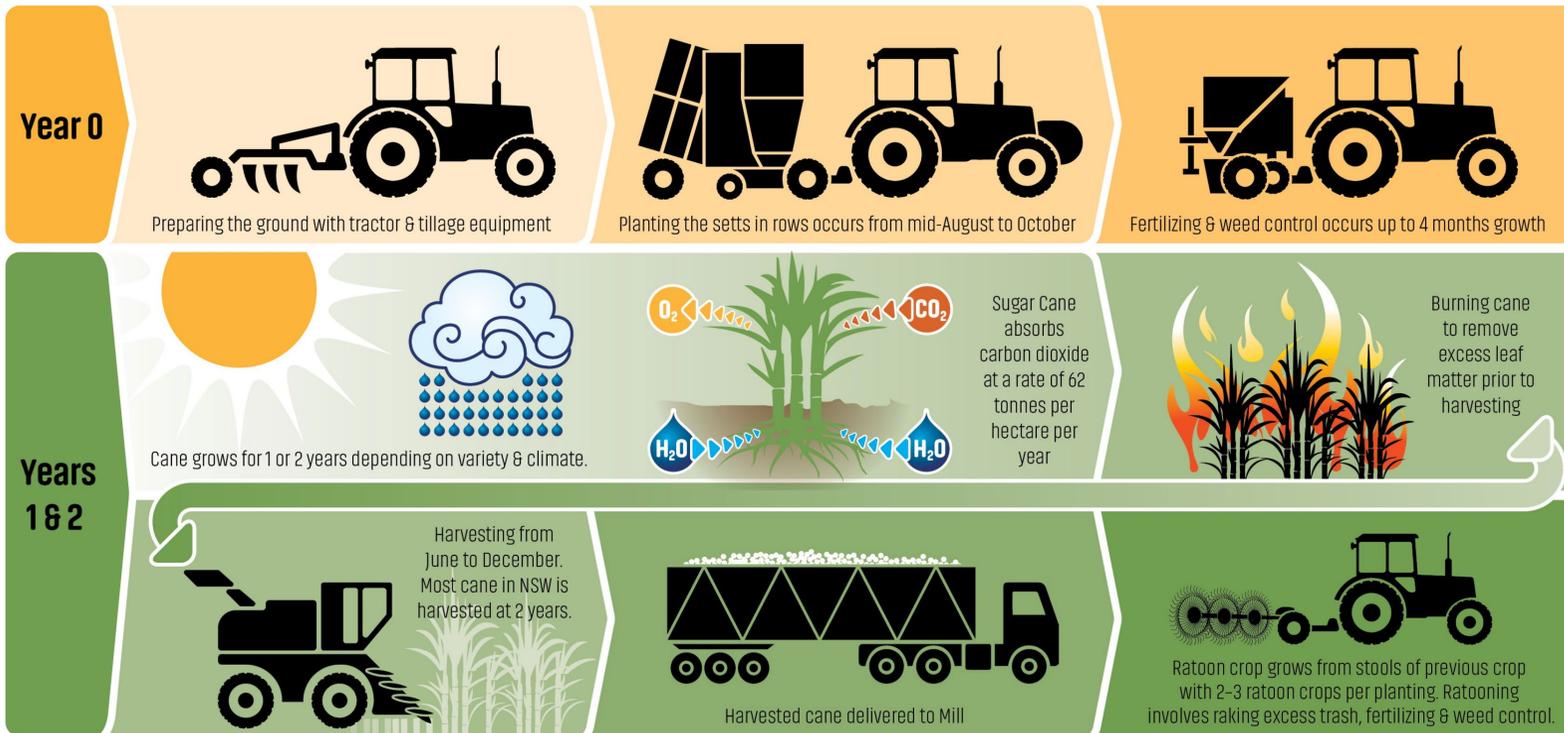
The Broadwater Sugar Mill on the Richmond River commenced operation in 1881.

The Harwood Sugar Mill on the Clarence River commenced operation in 1874 – it is the oldest continuously operating sugar mill in Australia.



GROWING SUGAR CANE

- Sugar cane grows best in warm weather, fertile soil and 1,500mm annual rainfall.
- It is planted from pieces of sugar cane stalk about 300mm long – called setts.
- Planting usually occurs between August and October using a billet planter that buries the setts below the soil surface.
- Fertiliser is added and weeds controlled for the next few months as the new plant develops.
- Sugar cane grows for 12 to 18 months and reaches up to 4 metres tall.
- It is mechanically harvested between June and December.
- Most sugar cane in NSW is burnt before harvesting to remove excessive amounts of leaf matter.
- After harvesting, the sugar cane grows new shoots to produce a “ratoon” crop.
- Two or three ratoon crops can be grown before it has to be replanted.



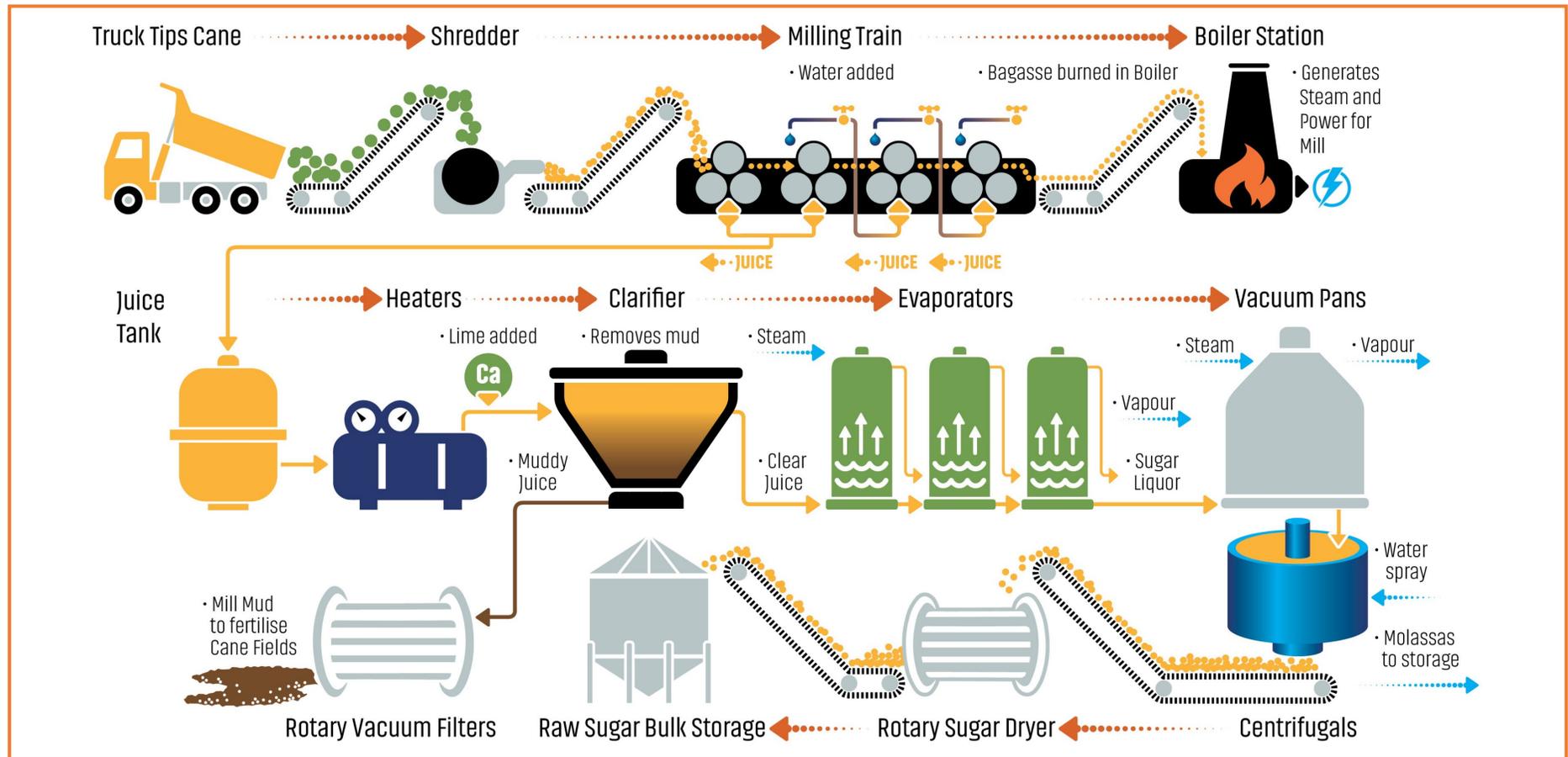
Sugar cane absorbs carbon dioxide at a rate of 62 tonnes per hectare per year, making cane paddocks greenhouse sinks where CO₂ is absorbed.

SUGAR MILLING

- When loaded cane trucks arrive at the Mill they are weighed.
- The truck then tips its load into a shredder that breaks apart the cane.
- Rollers squeeze out the sugar juice.
- The juice is made into raw sugar through a set of steps including clarification, evaporation, crystallisation and separation by centrifuge and drying.
- The only by-product of this process is molasses which is sold as animal feed.
- Raw sugar is then stored.



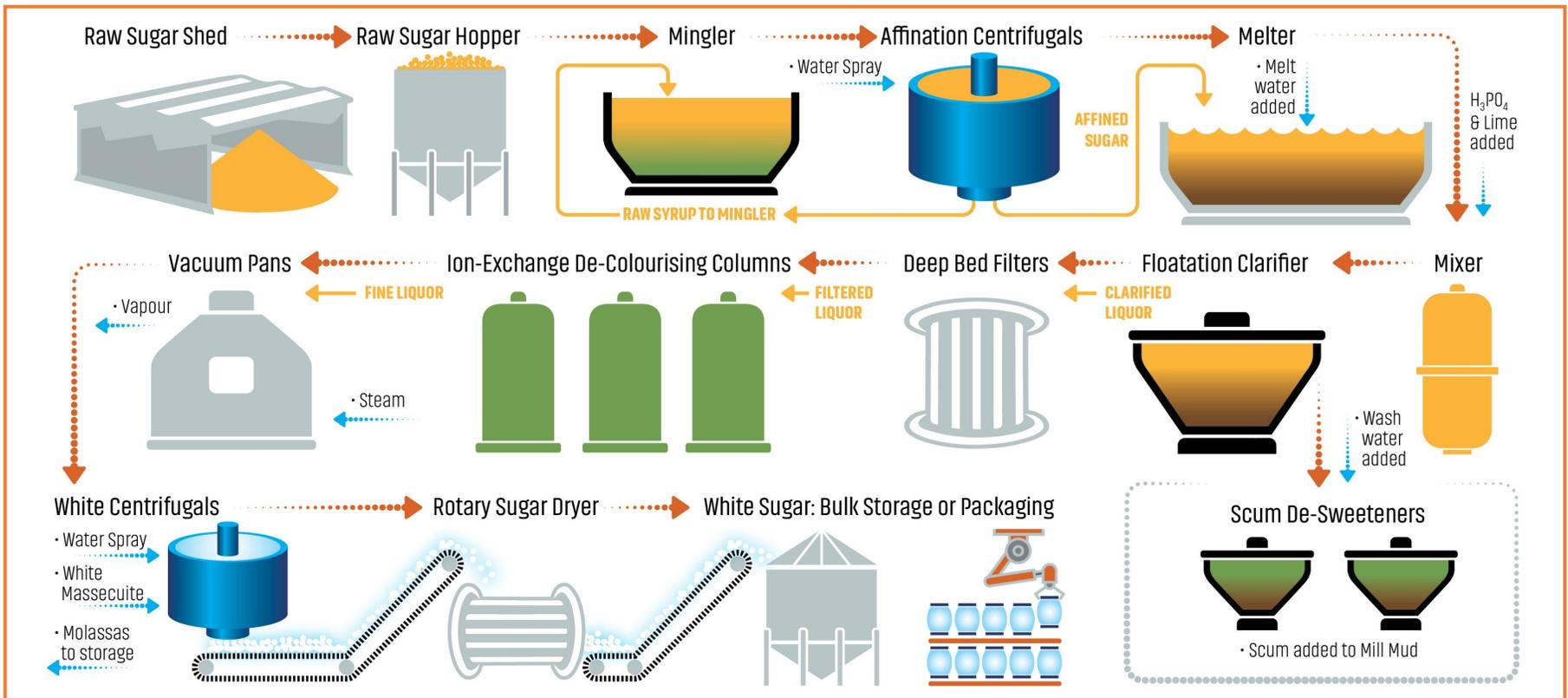
Sunshine Sugar is 'Bonsucro Certified Sustainable' under the international Bonsucro Standard. The aim of the Bonsucro Standard is to promote measurable standards in the environmental and social impacts of sugarcane production and primary processing while recognizing the need for economic viability.



SUGAR REFINING

The Harwood Refinery operates all year round and produces refined sugar under the name 'Sunshine Sugar.' The refining process is effectively a purification stage that removes any final impurities from the raw sugar, leaving only pure sucrose.

Sunshine Sugar supplies approximately 25% of the Australian domestic sugar market.



AUSTRALIAN SUGAR INDUSTRY

- Around 95% of Australian sugar is grown in Queensland, and some 5% here in Northern New South Wales.
- About 80% of the raw sugar produced is exported to overseas markets including Japan, Indonesia, South Korea and Malaysia (four of the world's six largest importers).
- The remaining 20% is refined at one of 4 domestic refineries into other products including white and caster sugar, icing and brown sugar as well as syrups such as golden syrup and treacle.
- Sunshine Sugar supplies 25% of Australia's refined sugar market.



SUGAR – A NATURAL PART OF LIFE

Sugar receives blame for many health problems, but without it, your body would cease to function properly.

Sugars are carbohydrates, which serve as the main energy source for the body.

Naturally occurring sugars, such as that from sugarcane, fruit, honey etc. come from sources that actually benefit your diet.

During digestion, sugars such as sucrose and lactose and other carbohydrates such as starches break down into simple (or single) sugars. Simple sugars then travel through the blood stream to body cells where they provide energy and help form proteins, or are stored for future use.

As part of a balanced plan for healthy eating, you can enjoy natural sugars in moderation.



In cooking, sugars are used for many things including to help preserve jams, cereals, cakes, candies, cookies and drinks. Sugars also help produce the tender, moist texture of cakes and the golden-brown finish of many biscuits.

ACTIVITY: COLOUR ME

PRECISION FARMING SYSTEMS

Tractors play an important role in Australian agriculture and have been used on farms to mechanise many farming tasks.

They are used for ploughing, tilling, planting and fertilising fields.

Space technology has been incorporated into agriculture in the form of Global Positioning Systems (GPS) devices, and on-board computers installed in farm tractors.

These technologies are used in modern, precision farming techniques, and have facilitated the use of autosteer systems. Several tractor companies have also been working on producing a driverless tractor.

Sunshine Sugar owns and operates a network of 11 GPS base stations that allow for 2.5cm accurate precision farming operations.

The network provides coverage to farmers and harvesting co-operatives in each of our three mill areas.



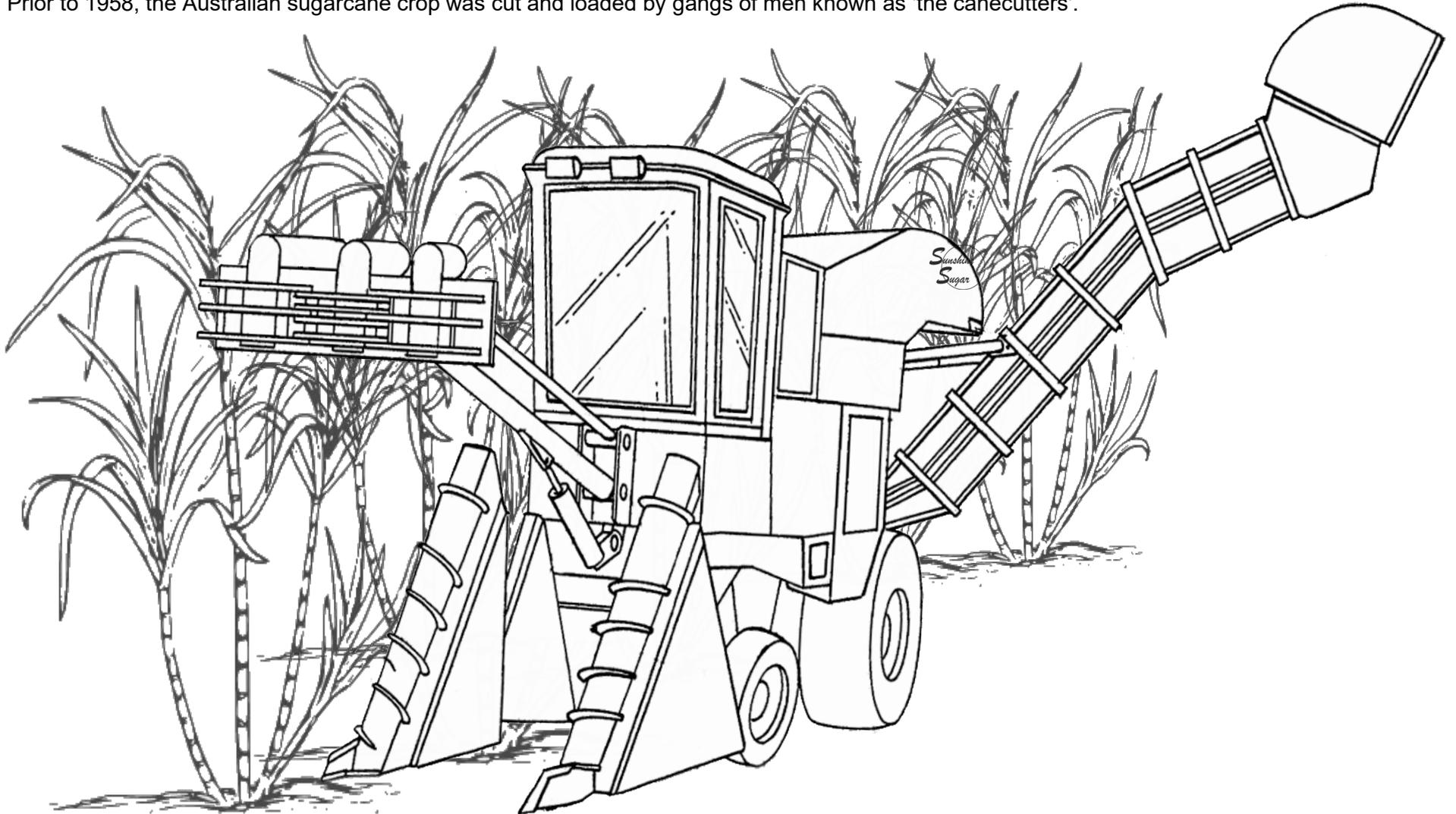
ACTIVITY: COLOUR ME

MECHANICAL HARVESTING

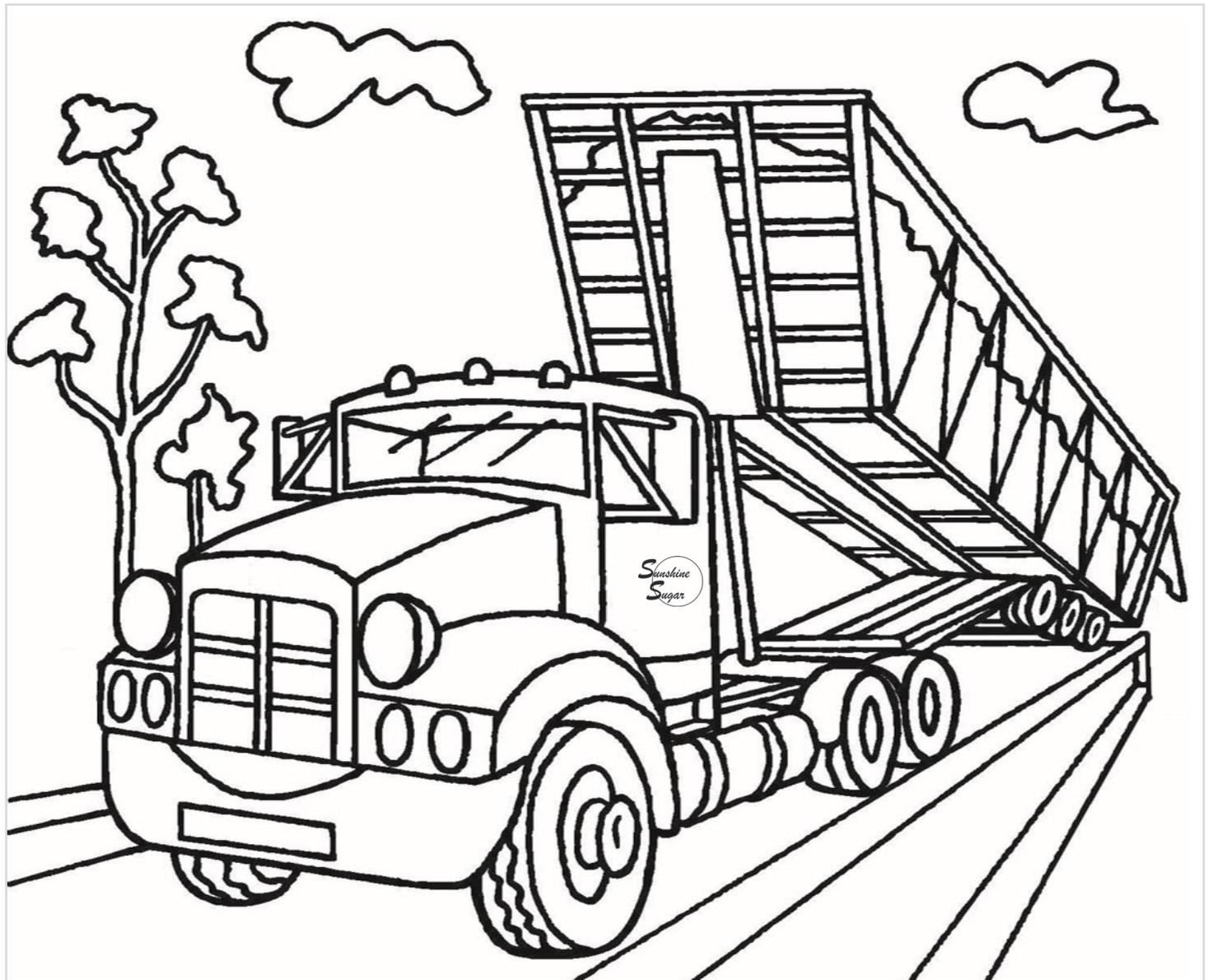
The sugar cane plant grows for 12 to 18 months and reaches up to four metres tall before being mechanically harvested between June and December. Modern harvesters cut the cane stalks at the base, strips the leaves off, and then cut the cane into segments. These are then deposited into either the on-board container, or a separate vehicle traveling alongside.

Waste material such as excess leaf matter is then ejected back onto the field.

Prior to 1958, the Australian sugarcane crop was cut and loaded by gangs of men known as 'the canecutters'.



ACTIVITY: COLOUR ME

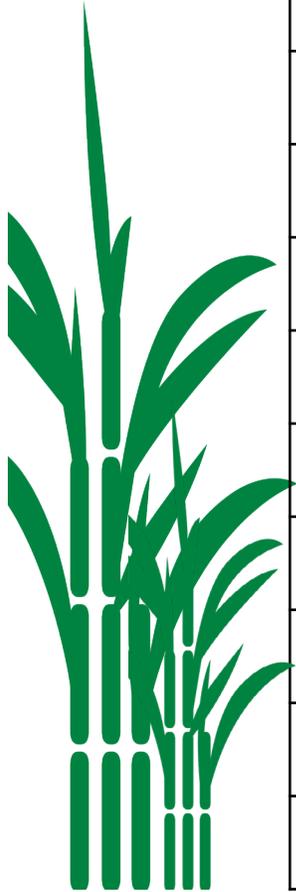


TRANSPORT

In New South Wales, road transport is used to move harvested sugar cane from the farm to the sugar mill.

NSW boasts a highly efficient harvesting system, with a fleet of modern harvesters and in-field transporters, supported by a just-in-time supply program that optimises the hauling of cane by road to the mill with the minimum number of trucks. On arrival at the Mill, the cane truck is weighed before it delivers its load into the cane shredder.

ACTIVITY: SOLVE ME



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

FIND A WORD



BROWN

NATURAL

CANE

RAW

CASTER

SUGAR

GOLDEN SYRUP

SWEET

ICING

TREACLE

MOLASSES

WHITE

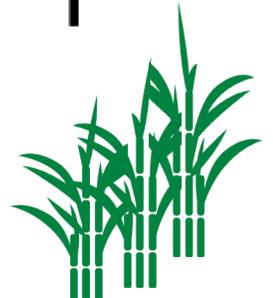
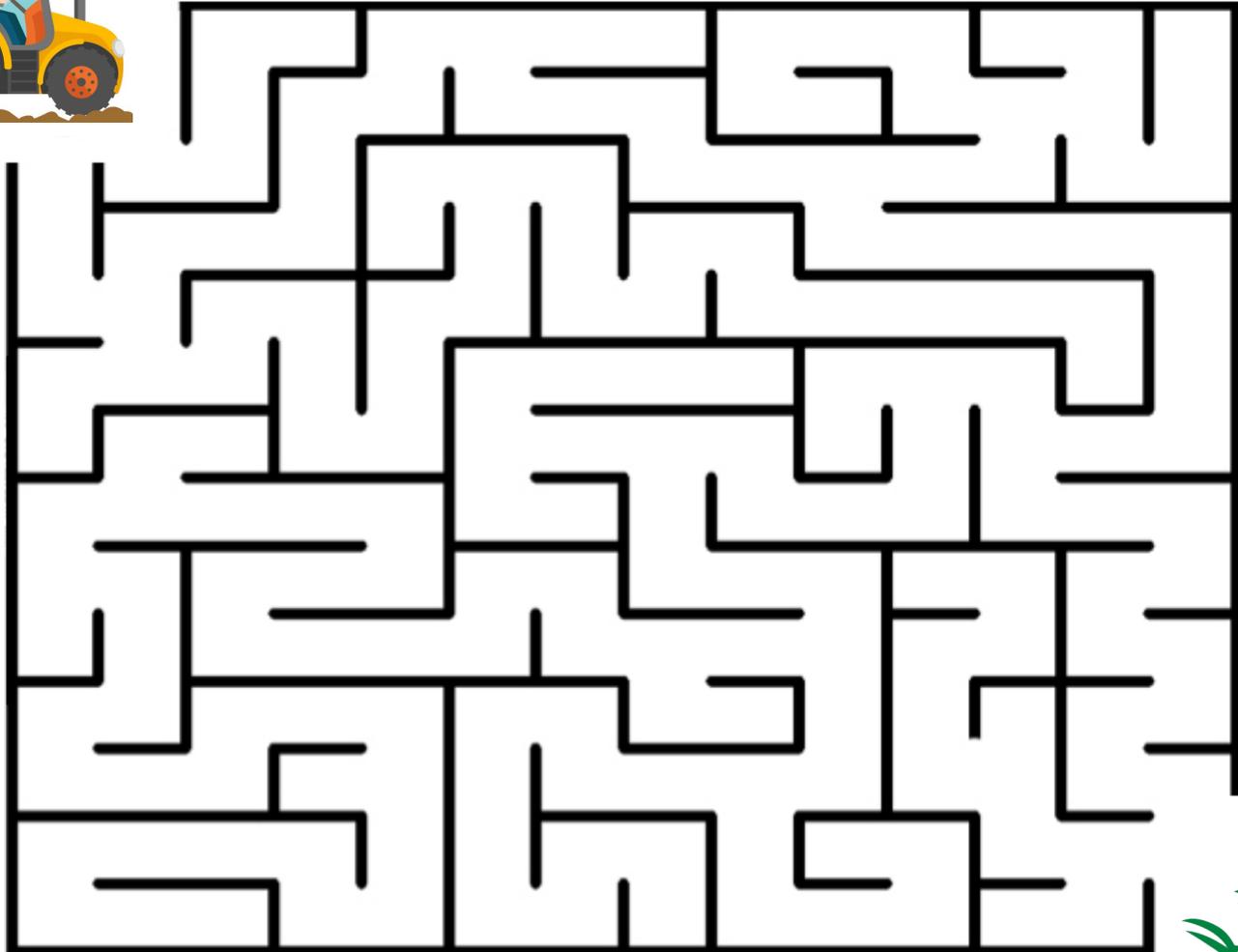


ACTIVITY: SOLVE ME (EASY)

START HERE



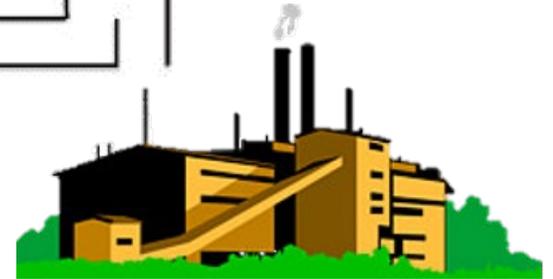
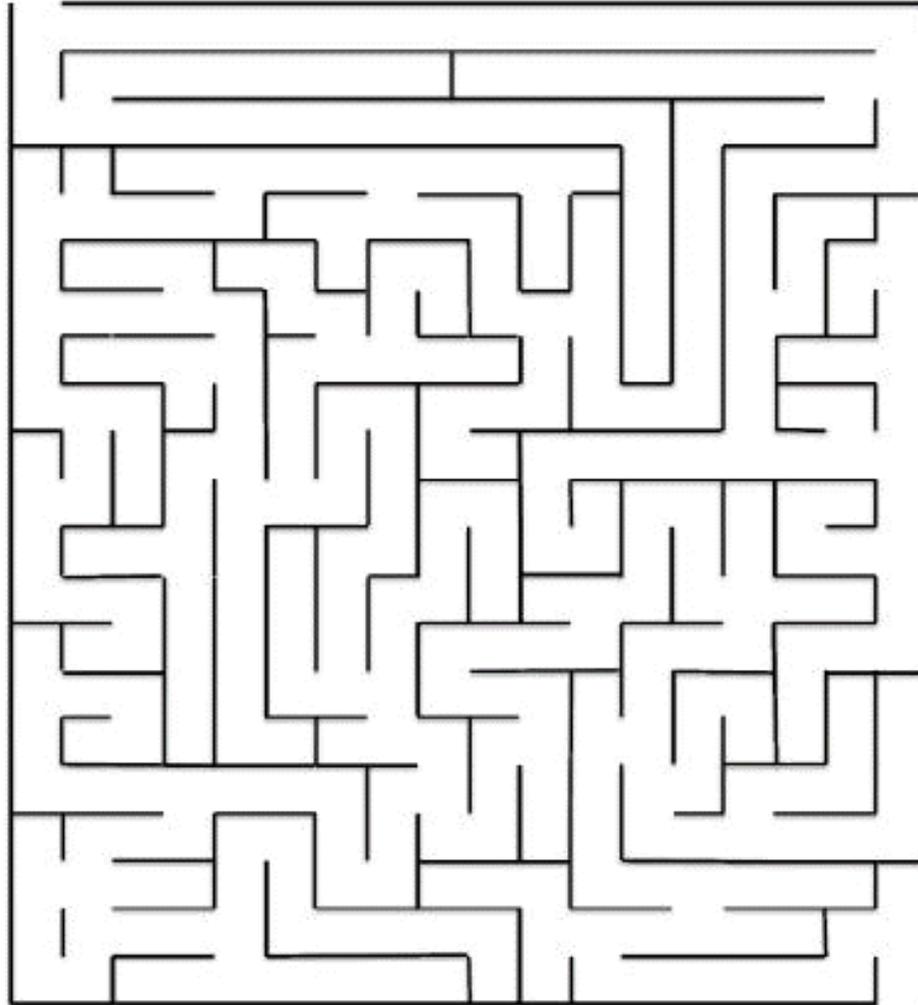
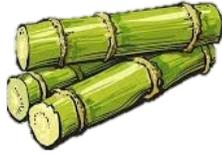
Help the farmer
drive his tractor
through the maze
to find his sugar
cane plants



ACTIVITY: SOLVE ME (MEDIUM)

START HERE

Help the billets of
sugar cane find
their way to the
sugar mill

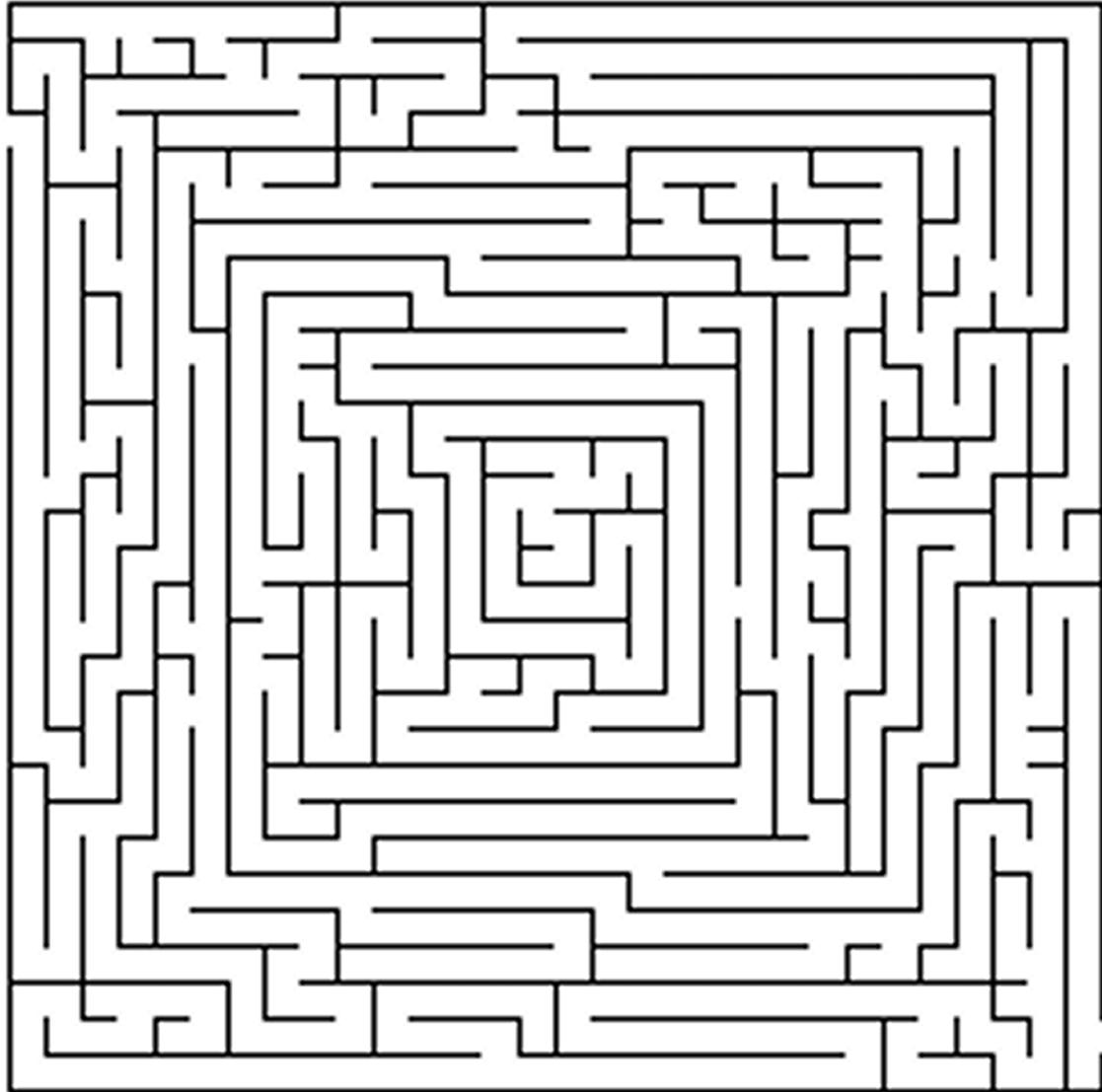


ACTIVITY: SOLVE ME (HARD)

START HERE



Help the shopping
trolley find the
sugar pack





QUICK QUIZ...

What is the name of the sugar mill in your local area?

Do you know where the other two NSW sugar mills are located?

What is the main type of vehicle a cane farmer uses on their farm?

In NSW, how tall does sugar cane plant grow?

What is the name of the machine that cuts the cane?

In NSW, how is harvested sugar cane transported from the farm to the mill?

Can you name the black syrup that is made during the sugar milling process?

Can you name the different types of sugar made by Sunshine Sugar?



QUICK QUIZ ANSWERS

What is the name of the sugar mill in your local area?

Harwood Sugar Mill on the Clarence River

Do you know where the other two NSW sugar mills are located?

Broadwater on the Richmond River
Condong on the Tweed River

What is the main type of vehicle a cane farmer uses on their farm?

Tractor

In NSW, how tall does sugar cane plant grow?

Up to 4 metres

What is the name of the machine that cuts the cane?

Cane Harvester

In NSW, how is harvested sugar cane transported from the farm to the mill?

In cane bins, loaded onto trucks and transported by road

Can you name the black syrup that is made during the sugar milling process?

Molasses

Can you name the different types of sugar made by Sunshine Sugar?

Raw, Low GI, White, Caster
(plus Icing and Brown)