Frequently Asked Questions
QCAV-4 and genetic modification

Does the ABGC support GM bananas?

- The ABGC represents all banana growers and has always supported any research and development that could contribute to a sustainable and robust future for our growers and wider industry.

- We trust that Australia has a strong and rigorous food safety regulatory system.

- The submission of the QCAV-4 to the OGTR and FSANZ was firstly to determine if the genetically modified variety is safe to eat and grow. This allows for further and more detailed studies to be undertaken, in areas such as cultivation in different environments, consumer acceptance and marketing.

- The ABGC will watch this process with interest. Ultimately, we will be guided by our growers, supply chain and the consumers who love Australian bananas.

- QUT have advised us that they currently have **no plan to commercialize GM bananas in Australia. This means GM bananas will not be grown to sell to consumers in Australia at this time.**

Why would you support such research?

The ABGC has always supported, and invested in, innovative research projects that support a prosperous future for the Australian banana industry.

Outcomes from research and development projects have helped build bananas into the strong and vibrant industry it is today.

We want to have safeguards in place to ensure Australian banana farms remain profitable and sustainable well into the future. We are fortunate to have highly regarded and innovative researchers working alongside growers and industry more broadly on a range of projects to achieve this.

When are we likely to see GM bananas produced and sold in Australia?

The Australian banana industry is well and truly capable of meeting consumer demands without a genetically modified variety, at this time.

A regulatory-approved TR4 resistant GM banana could potentially offer a safety net, if a disease like Panama tropical race 4 (TR4) took hold in the future and destroyed the majority of commercial growing areas. We would emphasise that there are no plans for QCAV-4 to be commercialised at this time. This approval process is simply the 'next step' for researchers, allowing more work to be undertaken.

In addition, the need and market for a GM banana in Australia does not currently exist. Our industry has clearly demonstrated a capability of successfully containing TR4 - in fact more successfully than any other country in the world.

There are currently a range of other R&D projects under way, looking at slowing the spread and developing TR4-resistant banana varieties (that do not involve GM). These are showing great promise. They also have the potential to offer a commercially viable option to Cavendish, if TR4 takes hold.

How will I know if I am buying a GM banana?

The ABGC is not a regulator, so you would have to ask this question of the Office of the Gene Technology Regulator (OGTR). However, the ABGC understands that all GM products are required to be clearly labelled in Australia.

But again: there are no plans currently to commercialise any GM banana in Australia, so it's simply something consumers don't have to worry about presently.

Will they be safe to eat?

This is what was determined by FSANZ. All products that go through the assessment processes of both regulators are put through rigorous and stringent testing methods.

Could GM bananas infect other farms?

No. Bananas do not pollinate or have seeds. The plant is effectively sterile. Therefore, genes from one banana plant cannot be transferred to another.

Will GM bananas affect prices for consumers?

The price of bananas is generally dictated by supply, which is impacted by many variables including severe weather events. Unless a large portion of the industry had supply issues, we do not believe that QCAV-4 entering the market would have significant impact on retail prices.

If approved by food safety regulators, how long would it take for a GM banana to be commercialised?

At the moment, we understand that there are no plans to commercialise QCAV-4.

However, you would have to ask QUT for a timeframe if they decided to proceed with commercialisation.

The difference in varietal research programs

What is genetic modification?

Gene technology is a process that can be used to genetically modify a plant, animal or other organism and is widely used in Australia: in agriculture, in research, in health and medicine, in education, and in industry. Gene technology is regulated in Australia under the *Gene Technology Act 2000*, the *Gene Technology Regulations 2001* and corresponding state and territory legislation.

Further information on gene technology can be found on the Office of the Gene Technology Regulator (OGTR) website: https://www.ogtr.gov.au/about-ogtr/what-are-genetically-modified-organisms-gmos

What is classical or conventional plant breeding?

Classical or conventional plant breeding involves the selection and propagation of plants with desirable characteristics and the culling of those with less desirable characteristics. It can also involve the deliberate interbreeding (or crossing) of closely or distantly related parental lines to produce new crop varieties with more desirable characteristics. Both techniques involve multiple generations and can often take 5 years or more to achieve a crop with desirable traits and eliminate unwanted characteristics.

What is mutation breeding?

Each time cells divide and DNA is copied, there is a natural chance that a mistake (or a mutation) will be made. This process occurs naturally during evolution. Mutation breeding is based on deliberate processes that induce random genetic mutations in the plant's own DNA, to develop plants with new and useful traits. Mutations may be induced by radiation or by chemical means, or even through the use of tissue culture.

QCAV-4 Frequently Asked Questions (From QUT)

What is QCAV-4?

QCAV-4 is a genetically modified Cavendish banana. QUT researchers have taken a gene from a wild banana that is resistant to Panama Disease TR4 and transferred it to a Cavendish banana. Field testing for the past 6 years has demonstrated that QCAV-4 is highly resistant to TR4.

What is Panama Disease TR4?

Panama Disease TR4, or Fusarium wilt tropical race 4, is a devastating soil-borne disease that kills Cavendish plants and many other banana cultivars. It is caused by a fungus that can survive in soil for more than 50 years.

Where is Panama Disease TR4 found?

Panama Disease TR4 has already heavily impacted the international banana export markets for the Philippines, the production in China, is prevalent through most of south-east and south Asia, has a foothold in Africa, and was recently recorded in three countries in South America.

Is Panama Disease TR4 in Australia?

Panama Disease TR4 has almost wiped-out commercial banana production in the Northern Territory and has also been discovered on a few plantations in north Queensland where more than 90 per cent of Australian bananas are grown. Significant on farm biosecurity measures adopted by Australian banana growers have so far contained and limited the spread of Panama Disease TR4.

Why does Australia need a banana that is resistant to Panama Disease TR4?

While current on farm biosecurity measures are slowing the spread of the disease, this might not always be the case. Therefore, additional measures, strategies, and options are required to ensure the future sustainability of Australia's banana industry.

How long have QUT been working on developing new types of bananas?

For more than 20 years, QUT researchers have been developing Cavendish bananas genetically modified to be resistant to Panama Disease TR4. The research has reached a significant milestone where a resistant line, called QCAV-4, has been developed.

What is QUT doing with QCAV-4?

After extensive field and laboratory evaluation, the next stage in the development of QCAV-4 is assessment by Australia's internationally renowned regulatory agencies, the Office of the Gene Technology Regulator (OGTR) and Food Standards Australia New Zealand (FSANZ). The Regulators assessed extensive data package prepared on QCAV-4 for environmental and food safety.

Update (February 2024): The Australian Government has issued QUT a licence to commercially release QCAV-4, a genetically modified (GM) variety of Cavendish banana.

What happens after these regulatory assessments?

Independent regulatory approval by OGTR and FSANZ would support the environmental and food safety of QCAV-4. It would also allow for the commercial cultivation, sale, and consumption of QCAV-4 bananas in Australia. There are no plans to commercialise QCAV-4 in Australia at this stage. On farm biosecurity measures have been successful in limiting the spread of the disease across the banana growing regions of Australia and remains an effective protection strategy.

Will QCAV-4 bananas taste the same as our current Cavendish bananas?

So far we have been unable to taste test QCAV-4 bananas. Regulatory approval will allow us to establish independent panels to evaluate the smell, texture and flavour of QCAV-4 bananas compared to Cavendish bananas. We have, however, extensively analysed a range of nutritional parameters of our QCAV-4 bananas and compared them with Cavendish bananas. We have found them to be substantially equivalent to each other and therefore we don't expect them to taste any different.

Will these QCAV-4 bananas have a similar shelf life?

Except for disease resistance, QCAV-4 bananas are equivalent to Cavendish bananas. With regulatory approvals we will be able to examine a range of post-harvest and supply chain attributes such as shelf life.

How is QUT working with the banana industry?

QUT has and will continue to work with the banana industry's peak body, the Australian Banana Growers' Council, to keep industry and consumers well informed of all outcomes of this research and the regulatory assessment processes by OGTR and FSANZ.

What other research is QUT doing with bananas?

QUT continues to research other innovative approaches to safeguard Australia's much-loved Cavendish banana industry. We are also providing vital solutions for the international market to save the Cavendish banana export industry worldwide.

What bananas do we eat in Australia?

The vast majority of bananas eaten in Australia are Cavendish bananas. The next most popular is Lady finger with much smaller amounts of other varieties consumed such as Ducasse, Goldfinger and plantains.

How big is the Australian banana industry?

Domestically, Australia's banana industry contributes AUD$1.3 billion annually to the Australian economy and generates in excess of 18,000 full-time equivalent jobs.

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Who are the OGTR?

The Gene Technology Regulator is an independent statutory office holder responsible for administering the *Gene Technology Act 2000* and corresponding state and territory laws.
The Regulator is appointed by the governor-general only with the agreement of the majority of all jurisdictions.
The Office of the Gene Technology Regulator (OGTR) supports the Regulator. The OGTR and its staff are part of the Department of Health and Aged Care.
The OGTR assesses risks to human health and safety and the environment relating to dealings with GMOs.

Who is FSANZ?

Food Standards Australia New Zealand (FSANZ) is a statutory authority in the Australian Government Health portfolio. FSANZ develops food standards for Australia and New Zealand.
FSANZ conducts a thorough safety assessment of all GM foods before they are allowed in the food supply. This assessment ensures that any approved GM foods are as safe and nutritious as comparable conventional foods already in the Australian and New Zealand food supply.
Further information on FSANZ can be found on the Food Standards Australia New Zealand (FSANZ) website: https://www.foodstandards.gov.au/Pages/default.aspx