Speech By

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GENE TECHNOLOGY (QUEENSLAND) BILL

Mrs GILBERT (Mackay—ALP) (4.32 pm): I rise to contribute to the debate on the Gene Technology (Queensland) Bill. Gene technology has a powerful capability, with wide potential and application. Government, industries and communities understand that this technology has the potential to bring benefits to the community and environment but requires the appropriate controls, checks and balances to reassure the community and our export markets that the risks and benefits are investigated and managed appropriately. Diligent regulation of gene technology application allows capabilities to be fully explored while protecting against potential harmful risks. Queensland legislation needs to keep in step with Commonwealth legislation. Queensland legislation has been amended four times since 2007 to mirror the Commonwealth legislation. The Gene Technology (Queensland) Bill 2016 is effectively introducing the latest Commonwealth amendments. This bill will establish a lock-step opt-out approach so that consistency with the Commonwealth legislation is automatically maintained while the Queensland parliament's ability to block any Commonwealth amendments that are not in Queensland's interests is still preserved.

My electorate of Mackay is surrounded by agriculture. The wider Mackay region is home to sugar research at the BSES, the QUT sugar research laboratory at Racecourse Sugar Mill and the Sarina ethanol plant at Plane Creek Mill. Queensland's sugar industry is evolving rapidly. Application for cane products, once limited to raw and processed sugar and molasses, are expanding to include some of the world's most advanced and important technologies. Biofuel is becoming more commonly spoken than the words 'two sugars please'. Research and development is critical to developing new cutting-edge innovations that are integral to the success of Queensland's biotechnology industry and, as such, our state's continued economic prosperity.

Drawing upon growing expertise in genetics, molecular biology and management, research and industry groups are able to produce better sugarcane varieties. Sugar cane produces most of the world's sugar and is being increasingly used for renewable energy supply throughout the production of ethanol and electricity. Modern commercial sugarcane varieties are derived from two species: original sugar cane has brought the genes for high sugar content and the other, a wild relative of sugar cane, provides a hardiness to harsh environments and the ability to ratoon or to produce additional profitable crops from regrowth after harvest. Using cultivated and wild varieties, scientists are developing new sugarcane varieties with increased yield, sugar content and smut resistance. There are also many varieties of these two species and other related species that may be crossed with sugar cane that have not been used in breeding programs. These species are expected to provide a rich source of untapped genes for breeding programs that may provide beneficial traits to cultivated sugar cane.

Sugarcane researchers are now evaluating plant material produced in collaboration with Sugar Research Australia. The aim is to identify favourable traits in genes such as resistance to pests and disease, including sugarcane smut; biomass yield, offering potential for renewable energy production

in the future; and more efficient water use, which is important for sustainable production of sugar cane. DNA markers can flag the presence and location of useful genes or detrimental genes and help breeders select the best combination of genes. Scientists have identified a number of DNA markers associated with smut resistance, high sugar content and cane yield. Along with the SRA, they are now testing the reliability of these markers for speeding up progress in the breeding program. The markers have also been used to produce a detailed map of the sugarcane genome that shows how genes are linked to each other. An international consortium is currently working to sequence the entire genome of sugar cane. This exciting initiative makes use of cutting-edge technologies that will eventually revolutionise sugarcane breeding.

Under natural conditions, sugar cane flowers once a year and only at some locations, which reduces opportunities for crossing. Using gene technology, scientists are studying the flowering of sugar cane to identify ways of controlling the process. By studying the unique features of the sugarcane stalk that allow it to store very high concentrations of sugar, scientists are able to identify ways of increasing the yield. A model for the pathways of sugarcane movement into the storage of tissue has been developed and is now being tested to identify the control points. Scientists have also discovered new ways of directing proteins into this storage tissue using experimental genetically modified sugarcane plants. As in many other crop species, genetically modified varieties of sugar cane are forecast to improve profitability by reducing input costs, increasing yield or introducing novel products. GM sugar cane is being developed by a number of Australian and international research organisations and companies. Studies are also being undertaken as to why wild canes are a weed problem in some parts of the world. This information will help Australia to safely manage GM sugar cane in the future.

The safeguard for the gene research industry is the Commonwealth Gene Technology Regulator. It administers and enforces the national regulatory scheme. The scheme aims to protect the health and safety of people and the environment by identifying and managing the risks associated with gene technology. We have to make sure that, if we are trialling genetically modified plants, we have the necessary safeguards in place to ensure that we do not have the situation where GM plants escape into the natural environment until they are assessed as not posing an environmental risk. We must also ensure that the genetically modified organisms created in the development of new therapeutics, which are really important in the fight against disease, are developed and handled safely and securely to minimise risk to human health.

Gene technology is developing at a rapid rate and the legislation needs to keep up. Gene technology is pivotal to the future of the Queensland sugar industry. That is why it is imperative to have legislation in place to ensure that the regulation and management of these processes is relevant, compliant with current standards and is ethical and safe. I commend the bill to the House.