15 March 2019

Committee Secretary
Innovation, Tourism Development and Environment Committee
Parliament House
George Street
Brisbane Qld 4000

Dear Committee Secretary

Please find attached the submission from the Australian Banana Growers' Council (ABGC) to assist the Committee in its deliberations of the Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019.

I would be happy for the ABGC staff to provide you with further information about the banana industry and the impact of the proposed regulations on the industry to help increase the Committee's knowledge and understanding. In summary, while the industry does not welcome additional regulation, it is prepared to work collaboratively with the government to achieve regulation that is practical, fair and reasonable. The ABGC is still in discussions with officers from the Department of Environment and Science on a number of points outlined in the attached submission. The ABGC is convening a meeting between departmental officers and banana growers in an effort to work though the points of difference.

Please do not hesitate to contact Michelle McKinlay, Industry Strategy Manager, ABGC on [redacted] or by email [redacted] should you require further information.

This submission has been written by Michelle McKinlay and is endorsed by the ABGC Board.

S. C. Lowe

Stephen Lowe
Chair
Australian Banana Growers' Council

Introduction

Compared to other agricultural industries, the banana industry has compared to other industries, had a relatively short relationship with water quality issues and the regulation of certain farming practices. Since the 1990's the banana industry has significantly improved practices and reduced the amount of nutrients leaving farms. In more recent times, it has been the recipient of grants funded by the Australian Government to help implement best practice on farm as well as receiving Queensland Government funding for BMP projects and research trials. The industry is proud of this achievement – all of which has been done voluntarily and without regulation. Ideally, further change would be encouraged by working with growers to educate them about best practice and assist them to voluntarily implement improved practice. No banana grower wants more regulation.

While it is disappointing that the banana industry now faces regulation, there is an acknowledgement that the industry needs to continue its active participation in improving the water quality on the Great Barrier Reef (GBR). The Australian Banana Growers' Council (ABGC) has been in discussions about the draft regulations and minimum standards with officers from the Department of Environment and Science (DES) since 2016. These discussions have been constructive and the ABGC has been impressed by the staff's preparedness to listen and modify their view. It is hoped that this open approach continues while the regulations and minimum standards are finalised and implemented.

There remains, however, a number of provisions within the draft minimum standards that are not supported by the ABGC and the reasons for which are explained in this submission. Essentially the industry believes that there is a lack of evidence to underpin the strong regulatory position about nutrient application rates as designed by the government. While work is underway to fill knowledge gaps, results are several years away. Hard regulations must be based on hard evidence and not a 'best guess' because it is growers who will literally pay the price if, in the long-term, it is a bad guess.

It is the ABGC Board's desire to keep an open dialogue with DES officers so that a middle ground can be achieved. The banana industry is prepared to make a fair contribution to improving the water quality on the GBR as long as the minimum standards are reasonable and practical and able to be incorporated into farming systems. The ABGC Board believes that the Queensland Government should be striving for minimum standards that can be easily adopted by growers because they appreciate the benefits derived from using tests, reducing the loss of top soil and seeking good agronomic advice to improve production and profitability. If the regulated system fails to mesh with the existing farming system, then the regulations will not deliver water quality improvements.

Background facts about the banana industry

It is important to understand the basics about the banana industry in order to assess the potential impact of the proposed regulations. The key facts include:

- 94 percent of Australian banana production occurs in Far North Queensland, predominately around Tully, Innisfail, Mareeba and Lakeland. Production land covers approximately 11,300 hectares made up of approximately 260 farms.
- The three main banana growing catchments are the Tully, the Johnstone and to a lesser extent, the Mulgrave-Russell.

- For the year ending June 2018, the value of production (across Australia) was $484.2m, while the wholesale value was $586.8m.
- The banana industry is a major employer in north Queensland and it is estimated to employ more than 12,000 people (including flow on). The majority of workers on farms are locals with low skills. A reduction in productivity at an industry level will have a large socio economic impact on the region.
- There is no season to banana farming with bananas being grown and picked 52 weeks of the year.

Industry involvement in improving water quality

The ABGC Board and staff have worked consistently over the past decade to raise awareness amongst growers of best practice management standards and continue to actively participate in activities to help deliver improved practices. Banana growers have embraced the opportunities provided and are generally keen participants in such initiatives and activities. This work includes:

- Significant reduction in nutrient application rates across the entire industry over the last 20 years
- Creation of the Banana BMP Environmental Guidelines in 2013
- Supporting and delivering BMP training
- Development of the BetterBunch electronic record management app
- Delivery of BetterBunch training to banana growers
- Initiation and participation in the development of a project examining banana nutrient trials
- Running an innovation trial that is experimenting with modified equipment to reduce sediment and nutrient loss from banana farms
- Running grants programs to assist growers to improve farming practices to control sediment and nutrient run off (these have been oversubscribed by farmers in recent years)
- Designing and delivering workshops on sediment management and nutrient management
- Constructively participating in discussions and negotiations that have contributed to the development of the draft minimum standards.

Banana Cultivation in the Great Barrier Reef catchment (Environmentally Relevant Activity Standard)

Nutrient application rates (Standards B1 and B2)

The government proposes to introduce a maximum annual rate method and an adjustment method that is capped. The details supporting these provisions are outlined in the Agricultural Environmentally Relevant Activity (ERA) standard for banana cultivation in the Great Barrier Reef catchment.

ABGC Board response

The ABGC Board accepts the proposed maximum annual rates for N and P on the condition that the adjustment method can be triggered by soil and leaf test results and that the rates can be topped up to meet the plant's needs. There must be no maximum cap on the adjustment method.

While the majority of growers are unlikely to need to go beyond the cap, the ABGC Board believes that growers must be able to apply more than the regulated cap where there is reliable evidence provided through leaf and soil tests. The minimum standards need to provide a mechanism that introduces an element of flexibility to allow growers to apply the amount of nutrition required by the plants – even when it is an amount higher than the cap. If the regulations forbid the application of additional nutrients then the government will be penalising growers by reducing production and grower profitability.

- **Soil and left tests**

Soil and leaf testing will be key tools to deciding the amount of nutrients to be applied. Paired soil and leaf tests are strongly encouraged in the Banana Best Management Practice Environmental Guidelines (Banana BMP) and by extension staff when working with growers. BMP data suggested soil and leaf tests are used regularly across approximately 60% of banana production land that has completed the BMP checklist. Soil and leaf samples are taken by growers or more commonly by professional agronomists and processed in accredited laboratories. They provide reliable, scientifically robust information about plant nutritional needs.

Discussions with DES officers suggest that the cap on the adjustment method is being used as an 'insurance policy' to guard against the use of 'fake samples' thereby allowing growers to apply more nitrogen than may be required by the plant. For example, they claim that growers and agronomists could lie about the origin of soil and use samples that are taken from sites with known low nitrogen rates. This view casts doubt on the integrity of all professional agronomists and banana growers in the region. Given the government's concerns about growers manipulating a system, perhaps the solution might rely on more robust oversight or scrutiny of the selection of soil samples rather than a cap on fertiliser (and the consequent reduction in fruit production). The ABGC believes that banana growers should not have reduced profitability because of the potential misuse (and government's general distrust) of test results by a tiny number of growers. The ABGC is keen to convene a meeting with the relevant professionals, growers and DES officers to examine ways to reduce the government's concerns about the use of fake samples and to strengthen the confidence about the use of soil and leaf testing in determining nutrient application rates.

In addition to the belief that soil and leaf tests should provide adequate evidence to determine fertiliser rates, the ABGC Board opposes the cap on the adjustment method for a number of other reasons: These are articulated below.

- **Lack of research**

A banana plant commonly has a productive life of seven ratoons before it is destroyed and replanting occurs. It has different nutritional needs at different stage of its life.

The current proposed minimum rates are based on results from one research trial that examined the nutritional needs for the plant and first three ratoon crops for Cavendish bananas. While not disputing the trial results, it must be remembered that:

- no part of the trial looked at a reduced N rate in the plant crop followed by a higher rate through the ratoon (ie the model established by the minimum standards);
- the rate of 300kg/N/hectare for ratoon growth has been determined from plants that also received 300kg N/hectare/year for the plant crop (more than the proposed regulations allow);
- the plant phase grown using 100kg N/hectare/ year did not continue on to ratoon so it is not known how the low plant nitrogen rate would impact the yield, growth vigour and time to bunch of the following ratoon crops;
- the trial stopped half way through the productive life of a banana plant (ie three ratoons not seven); and
- the trial was conducted under research conditions and not on commercial farms.

There are critical knowledge gaps about the nutritional needs of banana plants and as a consequence the ABGC Board does not believe there is enough evidence to justify a hard cap. This position can be reviewed when there are results from the commercial farms involved in the current nutrition trials.

In the absence of long term scientific data, ABGC staff are attempting to gather information from growers who reduced their nitrogen rates over the last 10 years in an attempt to quantify any impact this may have had on production. Early results are indicating that some of those growers who significantly reduced their N rates are finding that their production levels have suffered and have begun to increase their applied rates. For example, at the rate of 275 kg N per hectare/year, a grower's production dropped to 2500 cartons/hectare/year. At 420 kg N/hectare/year production is now at 3700 cartons/ hectare/year. The ABGC Board is interested to know if this is a general trend across industry and as this information becomes available, it will be provided to DES officers to further inform the discussions.

A final point to consider in relation to nitrogen rates for plant crops is that after a paddock is cultivated, there are levels of nitrogen in the soil – prior to the application of any fertiliser. This existing level will be different pending a number of variables including the type of crop that was previously grown or amount of fallow that has occurred on the site. Anecdotal evidence from some banana growers indicate that land that has previously grown cane is very deficient in nitrogen and therefore high levels of nitrogen need to be applied prior to planting bananas. Soil tests are vitally important to help growers determine the amount of fertiliser they need to apply to maximise growth of the plant crop. These tests may reveal that the amount of nitrogen required is beyond the cap or equally that small amounts of nitrogen is required. Growers must have flexibility and be able to adjust the rate in order to give the plants what they need.

- **Complexity of banana production systems**

Banana farming is underpinned by a complex production system making the successful application of a blanket nutrition rate very difficult. Examples of the complexity a banana production system include:

- Growth rates and time of planting: Banana plants will have different production cycles depending upon where and how they are grown. The time from planting to bunch harvest can vary between 9 and 12 months. In the Cassowary Coast, plants take approximately 9 months to bunch. This means that in every 3 years, a banana plant will produce four bunches of bananas. In relation to the regulations, this means that in some years, plants will require more fertiliser than other years because they will be producing two bunches of bananas (higher rates of fertiliser are applied up until the banana bell (flower) emerges).In these years, growers will exceed the maximum annual rate. By allowing growers to use an uncapped adjustment method, this problem can be negated as soil and leaf tests will determine the need of the plant.

- Density of planting: The number of plants per row and therefore per hectare varies amongst growers. There are many reasons for this that include experience, fertigation systems, block size, soil type, innovation etc. This means that the nutritional requirements per hectare will also change. The trial that underpins the proposed regulations worked on a plant population density of 1681 plants per hectare. Therefore any plant population that has a higher per hectare density than this will be severely impacted if they are not allowed to adjust the regulated rate to account for the extra plants that need to be fed. Planting density can range from 1500 to 2200 per hectare across the industry. An uncapped adjustment method would resolve this problem and allow growers to plant in the manner that best suits them and their farm.

- Frequency of fertiliser application: A banana grower will apply fertiliser frequently during the life of a plant. Best practice is to apply smaller amounts more often to reduce the risk of run off. Many growers fertigate (apply fertiliser to plants using the irrigation system) fortnightly. If a grower detects that the nutrient level is not sufficient or too much, it can be easily adjusted. This is a very different approach to the cane industry where cane growers apply fertiliser once and in very large volumes as the fertiliser must last for the life of the crop. Applying fertiliser in this way presents a very high risk off run off. The lower risk of run off is another reason to allow banana growers to apply beyond the cap if test results indicate it is required.

- Different varieties: Cavendish bananas are the most common banana grown in the Wet Tropics however there are a number of other varieties grown in smaller volumes. Growers can make higher returns for supplying these niche products such as Lady Fingers, Ducass, plantain, etc. Each variety has different growing patterns and therefore different nutritional requirements. Given the lack of data on these varieties it is unclear how the annual maximum rates for nutrients will impact on these varieties. An uncapped adjustment method would solve this problem and allow growers to continue to grow the less common varieties while complying with the regulations. The ABGC would like to discuss with DES how these growers can try to comply with the regulations while meeting the ‘undocumented’ nutritional needs of their plants. This will be an issue across many horticulture crops and will need addressing as the regulations are rolled out to other horticulture production in the future.

- New varieties: Panama tropical race 4 (TR4) is a highly destructive, easily spread plant disease that was detected in Tully in 2015. The most common variety of bananas grown in north Queensland – Cavendish –is highly susceptible to the disease. New resistant varieties are being sought from overseas and millions of dollars are being spent on R&D in Australia to breed a resistant variety but it will be some years before there is a TR4 resistant variety grown commercially in north Queensland. Agronomic research will need to be undertaken to support the new varieties. It is obviously too early to make comment about how the regulated maximum cap will impact on these varieties but given new varieties are critical to the industry's future, discussions on this issue will continue with DES so that the regulations and new varieties can coexist.

In summary, the Board acknowledges that the limited research has provided useful data but, through this submission, it is highlighting the inadequacy of the information that is underpinning the proposed regulations and particularly the cap on nutrients. It believes that the government is being unreasonable in enforcing the proposed cap without sufficient evidence. The Queensland Government is forcing banana growers to carry the full financial risk if the proposed nutrition rates are too low. Instead, the ABGC Board strongly urges the government to acknowledge the lack of agronomic evidence required to confidently set a hard cap on the adjustment method and delay the establishment of this cap until there are results from trials established on commercial banana farms.

Crop stages and fertiliser application rates

As mentioned in the discussion above, the first phase of a banana crop is a 'plant crop'. At some point, often when the grower has selected a 'follower' plant for the next crop, the plant moves from being a 'plant crop' to a 'ratoon crop'. This point has no agronomic definition ie a neither a 'plant crop' nor a 'ratoon crop' can be categorised by a period of time or plant size or plant age. When 15 growers were asked by ABGC staff how they differentiated between their plant crop and their ratoon crop, there were 10 different answers ranging from three to 9 months. This means that there will be a plant crop and first ratoon plant standing side by side in the same block – and when this occurs the grower is technically growing two crops. This happens every time a grower plants a new crop – ie it is part of the production cycle and cannot be farmed differently.

According to the regulations, the plant crop can receive 250K N/ hectare/year while the first ratoon crop can receive 350kg N/hectare/year. From a plant growth point of view, it is important to recognise that different stages of plant growth will have different nutritional needs. However it is not clear how a grower will be able to comply with the regulation as the plant crop will receive the same amount as the first ratoon when a grower applies fertiliser (either by fertigtion or broadcast). The only way around this would be to apply fertiliser by hand to individual plants. It is not possible to grow a productive ratoon crop on 250kg/hectare/year. Further, it is not clear how compliance will be audited by government officers.

One solution would be to have the ratoon crop rate apply to both ratoons and plant crop but it is acknowledged that the research trial identified greater nitrogen losses below the root zone for the plant phase of the crop. This requires further discussion with industry to try to determine a practical way forward.

Nutrient application method (Standard B3)

The ABGC Board supports the draft provision relating to broadcast application and the exemptions provided. This is consistent with the information contained in the Banana BMP. It is worth noting that fertigation is an efficient fertiliser application method that applies fertiliser directly to the plants' roots (when the weather is favourable). During periods of heavy or prolonged rain, fertigation may lead to greater leaching losses and so it is important for growers to have a choice in application method. In early March 2019, it is estimated that two-thirds of the north Queensland industry have fertigation systems in place and almost all of these growers fertigated fortnightly. This means a smaller amount of fertiliser being applied more often to reduce run off.

Erosion and sediment control (Standards B4 and B5)

Importantly the ABGC Board believes that growers will deliver better water quality outcomes for the Reef by having effective systems in place to keep soil and nutrients on their farm rather than being forced to reduce the amount of nutrients being applied to crops. Sediment loss has been identified as a major issue in the Water Quality Report cards. Therefore the ABGC Board supports the practice of having covered ground between the inter-rows as a sediment control measure for plant and ratoon crops. It also supports blocks having a grassy fallow or cover crop to reduce run off. This is in line with best practice. Nearly 80% of production land that has been covered by the Banana BMP has inter-rows at either 'best' or 'OK' standard. It is estimated that a tiny proportion of production land would have bare soil or sprayed out inter-rows (as was tested in the trial mentioned above). The industry has embraced grassed inter-rows in recent years and the ABGC extension staff will continue to drive this message home in all extension activities. However the ABGC Board has identified that there are issues with the current draft provisions that require further discussions. These issues are described below.

<u>Inter-row maintenance</u>

It is possible that from time- to- time, it may be difficult for growers to have inter-rows on ratoon blocks with 60% covered ground. This is because growers may need to undertake maintenance of their inter-rows – known as 'inter-row renovation'. Renovation entails using a V blade on a tractor to make the centre of the inter-row the lowest point rather than the wheel tacks. This repair makes the surface of the inter-row more even and removes holes, uneven ground and wheel ruts.

It is important that growers maintain their inter-rows from both a safety and water quality perspective. Inter-rows that are highly rutted or have large bog holes can be dangerous and damaging for vehicles and tend to develop during times of prolonged rainfall. According to the Banana BMP, rutted inter-rows are not encouraged as they can also act as channels that produce high velocity water flows – resulting in soil leaving the farm. Once ruts are established in a block, they are hard to manage.

Renovating is an activity that is done ideally in low rainfall periods (eg winter to spring) because successful renovation requires dry ground. However this is not always possible – particularly given unseasonal wet conditions. Importantly renovating inter-rows does not necessarily result in the loss of all grass from the inter-row. The extent of loss will depend upon the extent of renovation required but if renovation is undertaken before significant rutting occurs then the impact on the cover of the inter-row should be minimal. Currently the draft minimum standards

could restrict inter-row renovation from occurring. It would be a perverse outcome of the regulations if they facilitated the loss of soil from farms. The ABGC would like to see provision for maintenance of inter-rows to occur – perhaps as an exemption to the 60% ground cover. This issue requires further consideration by DES in consultation with banana growers.

Covered ground in the wet season

It is likely to be difficult for some growers to comply with the current provision that there be 60% covered ground in the inter-rows during the plant crop phase by the commencement of the wet season (ie 1 November). The plant phase can occur at any time of year with the majority of growers planting into permanent beds to preserve as much of the inter-row cover as possible. Growers may also have to cultivate the whole block if they are wanting to introduce contoured rows, change the direction of the rows or widen a row – to allow for more sunlight to filter through the leaf canopy to help grass to grow in the inter-rows. Changes of this nature are significant, take time to complete and costly but will achieve best practice. Again, the wet season is not an ideal time to implement this type of change but the grower may have no choice – and if it is not done pre-planting – the grower will not be able to complete this work for another seven years.

At the time of planting the crop, a grower may also use grass seed to encourage growth in the inter-rows (or just allow the natural vegetation to grow). Depending on the weather – rainfall, temperature, sunshine etc – it may take several weeks to achieve 60% cover. However if the planting has occurred during the wet season, the weather conditions will hopefully encourage fast growth of vegetation. Additionally there will be no leaf trash available to place in the inter-row during a plant crop. There needs to be further discussion about the practicalities of growers being able to achieve 60% covered ground if the plant crop is planted close to or during the defined wet season.

Existing blocks vs new blocks

It is not clear from the current draft minimum standards whether the requirement to address 'high risk erosion areas' applies to blocks with existing plants or only new blocks (ie will growers be required to implement these mitigation measures on blocks with existing plants?). This point requires urgent clarification as there will be industry turmoil if growers are expected to retrofit paddocks with sediment control measures if they are already planted. Such mitigation measures will result in significant additional expense for growers. For example:

- a sediment trap draining an area of six hectares recently cost a grower $50,000 to construct (and he used his own machinery and operator so no hire costs included);
- the repair of two drains that catch water from three hectares (to stabilise and reshape) cost a grower $5,000;
- the installation of permanent beds, gravel and reshaping of headlands, grading the inter-row and installing a grassed waterway for a 5 hectare block cost a grower $25,000.

Expert Advice

It must be noted that the installation of many of these mitigation measures will require expert advice. While it is a positive initiative for the government to provide $10M to help growers access this advice, the sticking points will be the availability of skilled expertise and earth moving

equipment in the region. It is currently at a crisis point in the Wet Tropics and these regulations, when approved, will exacerbate this demand. This is an acute problem for all industries in the Wet Tropics. Lack of expertise and earth moving will be a barrier to growers' capacity to comply with the sediment and erosion aspects of the minimum standards. (Note: the additional biosecurity risks and decontamination costs associated with TR4 means the availability of earth moving equipment is limited.)

Increased monitoring

Finally in relation to sediment run off, the ABGC Board would like to see more monitoring conducted in banana catchments and sub-catchments so that reliable data can be distributed to growers to inform them of the impacts of their practices. The Board sees very little value in monitoring sub catchments that receive water from a mix of cropping. The power of educating growers is being able to link run off results to an industry. It is also important to advise growers on the sediment loss from rainforest. Without data of this type, growers can refute evidence that they are contributing. The ABGC Board would be happy to work with DES on advancing the monitoring of water quality leaving banana farms.

Recognising industry best management practice

Approximately 30% of banana farms are already accredited to privately-operated environmental accreditation programs. These programs are third party accredited and closely aligned to the Banana BMP – with some elements requiring farming standards that are superior to the BMP. Some retailers require growers to have an environmental certification in order for them to be able to supply fruit. The ABGC is currently working on a project that will see a closer relationship between the BMP and the environmental accreditation programs as a measure to further strengthen the water quality commitment within the banana industry and remove the need for an additional BMP based audit. Growers who have completed their BMP training will be supported to make farming improvements where required so that they are farming at best practice. They will also be encouraged to pursue accreditation of these programs – though it should be acknowledged that there is a significant cost associated with this accreditation and it will always be the growers' choice to obtain and retain accreditation. The ABGC believes that those growers with third party accreditation should be exempt from DES compliance audits.

New measures for new cropping land

The ABGC Board remains opposed to the draft regulatory provisions that will relate to the development of new cropping land. The detection of TR4, a devastating banana disease in the Tully Valley has been widely covered in the media. As this disease spreads, banana growers will need to find land to crop that has not grown bananas in the last decade – or ever. This land will most likely have been previously used for cane or grazing. It is understood that converting cane land to banana production will not trigger the New Cropping Test but that converting grazing land to banana production will trigger the test. This then means growers will require environmental approvals on farm design before farming can proceed. This additional approval process is concerning to the ABGC as it will impose additional costs and potentially long delays to establishing new farms. Further, the ABGC Board also questions why blocks within existing farms must be subject to such development approvals if the existing block does not satisfy the New Cropping Test. As TR4 spreads across the Tully Valley, growers may be forced to use land they have not farmed in many years. This land should not be subject to the same additional provisions

or approval processes as brand new farms. It is making new regulatory requirements apply retrospectively to land already owned by growers. The ABGC does not want these proposed regulations to reduce the future farming options available to banana growers.

Record keeping

The ABGC accepts the new requirements under the regulations in relation to record keeping. Banana growers already record a number of practices to comply with various food safety standards and other forms of regulation. However, many growers will find the additional record keeping requirements for this regulation particularly onerous when it comes to collecting and keeping data for each block. While difficult to generalise, a representative figure of the average size block is approximately 6 hectares and farms range in size from 20 hectares to 450 hectares. The ABGC believes that the increased cost estimates included in the Decision Regulatory Impact Statement significantly underestimate the additional amount of time (and commensurate costs) that growers will spend on record keeping arising from the new regulations.

Conclusion

The banana industry is a modern and progressive industry that collectively understands that it must take responsibility to reduce the run off from farms. While the banana industry would prefer an industry led approach to improving the adoption of farming practices, it accepts that the government has a role in making sure that there is progress made towards water quality targets. That said, the regulations and minimum standards must be practical and readily able to be incorporated into farming systems. As identified in the body of this submission, elements of the current draft regulations require further discussion and DES officers have demonstrated a willingness to find a workable middle ground. The ABGC appreciates that time for these discussions is running out and is planning a meeting between DES officers and growers within the next few weeks to ‘ground truth’ the draft provisions.