24 September 2024

Office of the Great Barrier Reef and World Heritage
Queensland Department of Environment, Science and Innovation
GPO Box 2454
Brisbane QLD 4001

By Email: OfficeoftheGBR@des.qld.gov.au

Dear Departmental Officer,

**Re: The Reef 2050 Water Quality Improvement Plan (Reef 2050 WQIP)**

This letter confirms Sunn Hemp Australia Ltd support for Agforce submission to the Reef 2050 Water Quality Improvement Plan (Reef 2050 WQIP). Sunn Hemp Australia directors have made contributions to the Agforce submission and we provide this letter as support.

Sunn Hemp (*Crotalaria juncea*), one of the fastest growing, high biomass legumes known. Sunn Hemp is called this because of its bright yellow flowers and that it can be a source of fibre (hemp). It is an erect, branching, annual summer legume. It is a rapid, vigorous grower with a strong taproot and branching root system. Sunn Hemp is drought hardy, fast growing, a huge producer of nitrogen, not fussy with soil types, diseases, water and nutrition.

Sunn hemp continues to show its value as a fast growing, high biomass legume cover crop. It grows that fast and tall; it shades out effectively 100% of potential weeds, giving an excellent fallow option for both conventional and potential organic cropping systems. It has grown to a height of approximately 3.0m in a sugarcane rotation. It delivers a large amount of organic material that could be mulched and added to the soil to improve soil structure and carbon content (Figure 1). One cane farmer from Gordonvale, south of Cairns, lifted his organic carbon by 0.4 to 0.6% after one crop (in absolute terms from say 0.8% to 1.4%). This additional carbon still present after 2 cane crop cycles (ratoons).

This crop has the ability to massively reduce N rates and one cane farmer from Ingham has recorded up to 271 kg/N/ha fixed and a noticeable change in soil tilth following a crop. No N response to applied nitrogen fertilisers (rates up to 120kg/N/ha normally applied) in cane, following a crop of Sunn Hemp – potential game changer with cane and BMP. Found no reduction in growth of cane or content cane sugar (CCS). Another use, would be as a companion plant with forage Sorghum to enhance the protein of the final fodder and compliment the energy and digestibility of the product. 24% protein for animal feed.

Figure 1. Sunn hemp

So, what does this mean for feedstocks to power generation? Large Fibre potential. 2MT of Sunn Hemp would produce about 26-27MW of energy with the Calorific Value (net) MJ/Kg of Sunn Hemp at 17.4% Moisture is 13.4MJ/KG. A company called Feedbank has put Sunn Hemp through mills and had great success with flow and burn-ability.

Sunn hemp has a good fit into reef catchment farming systems that could deliver a whole range of benefits to an intensive sustainable cropping system through soil health, insulation, nutrition and biology. It would have a fit to enhance native soils as they are brought into production, or slotted in to short periods between rotational crops to deliver the above benefits in as little as 6-8 weeks.

**With the potential of new crops, and emerging industries, like with Sunn Hemp, we need policy settings around reef regulation that is flexible to achieve the purposes of the Act.**

The Purpose of the Company is to support and promote the development of a clean, integrated and environmentally responsible Sunn hemp industry across Australia. The Company pursues the Purpose through a range of activities and services that may include:

a) Supporting Sunn hemp growers across Australia to sustainably and responsibly produce a high-quality end product with multiple beneficial applications;
b) Embracing and supporting best management practices and advocating for policies that facilitate production of Sunn hemp;
c) Supporting innovation and continual improvement of Sunn hemp farming and manufacturing processes to ensure the validity of the industry and provide viable and cost-effective alternatives to fertiliser, energy and pasturage businesses;

d) Supporting the rehabilitation and replenishment of marginal or degraded soils across Australia through the incorporation of Sunn hemp and Sunn hemp compost into these soils;
e) Facilitating the marketing and trade of Sunn hemp and Sunn hemp products across Australia and overseas, and promoting the sourcing of improved Sunn hemp genetic material via collaboration with overseas entities;
f) Promoting the use of Sunn hemp as an alternative, cost-effective source of nitrogen within agricultural industries across Australia;
g) Promoting research, development and extension (RD&E) activities with the aim of improving the Sunn hemp industry and its derivative products in Australia;
h) Supporting value-added processing of Sunn hemp and working in partnership with major agricultural and manufacturing industries within Australia and overseas to ensure the production of clean energy, fibre, animal feed and organic fertilisers and other future applications including pharmaceuticals, textile and building materials; and
i) Undertaking such other actions as may foster the achievement of the Purpose.

In particular, with the key points made, we support: -

1. **Human-induced climate change is the primary threat to the Great Barrier Reef and poor water quality can exacerbate climate-related impact**. This is acknowledged in the 2022 Scientific Consensus Statement. It is essential that the WQIP recognises that climate change can itself change water quality outcomes by increasing temperatures and changing rainfall patterns that can affect nutrient runoff and soil erosion, eutrophication, and the release of nutrients from sediments into the water column.

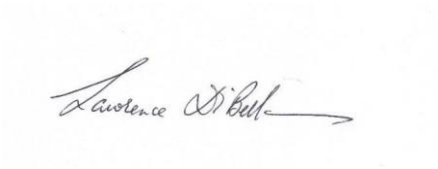
2. **Scientific evidence is a fundamental basis on which to build sound policy.** Good science starts with a null hypothesis and is either proven or disproven – but all outcomes contribute to a 'pool of science' (often ruling out causal effects). Monitoring, modelling and reporting programs that inform water quality could be strengthened and refined by increasing their spatial and temporal coverage to capture regional and local differences and provide more balanced coverage across land uses and ecosystems. For instance, what is the baseload of sediment that comes out of Wet Tropics rainforests, that do not have grass cover, following large Tropical Cyclone events and rain depressions. Sunn Hemp Australia Ltd would welcome a more thorough approach and hopes it will lead to fewer assumptions about the role of agriculture as the driver of poor water quality. Policy decisions must be based on empirical evidence rather than modelling.

3. **Recognition of existing best practices**: Many agricultural producers are already implementing best practices that contribute to water quality improvement. Departmental staff liaising with primary producers are encouraged to consider that they are addressing highly capable operators of complex agroecological systems. Also new best management practice and farming systems, developed by industry. For instance, cover cropping, integrated tree/pasture cropping and tree/cropping Agro-silviculture operations.

4. **Genuine and balanced stakeholder engagement**: Agricultural industry has a long history of engagement with Government around reef regulations and there is a sense of disillusionment within the farming sector when their efforts to adopt environmentally beneficial practices are sometime ignored or failed to be recognised. The farming sector seeks genuine feedback provided in good faith from the government to enable open and transparent dialogue to resolve environmental concerns going forward.
5. **Fair and Effective Compliance**: Compliance measures need to be fair, non-punitive, and only used as a last resort after careful consideration and clear communication. Our experience has, unfortunately, seen where-by some 'heavy-handed' officers enact stressful and sometimes devastating measures with insufficient understanding of primary production, personal situations impacting on a grower to respond to compliance officers request without compassion for complexities and mitigating circumstances.
6. **Role of third-party facilitation**: Frustration builds in response to mounting communication failures. When done correctly using trusted agents, utilising third-party facilitation can improve the relationship between government and industry.
7. **Catchment based approaches and impact of other land use types**: The preoccupation with agricultural land users is not only unfair but is ultimately unlikely to improve water quality: There are multiple land use types in GBR catchment areas, with poorly understood impacts. We continue to ask that areas not under agricultural land management get equal focus – including national and state government managed areas.
8. **Legislative conflicts**: Conflicts between different pieces of legislation need to be resolved to provide clear and achievable guidelines for Industry, both new investors within the biofuel/ bioenergy sector and producers alike. This is particularly relevant in the context of vegetation management, reef regulations, energy policies, water availability and biosecurity.
9. **Role of vegetation management for quality groundcover**: We firmly believe that it is groundcover– whether that be through deep-rooted perennial grasses and legumes, or crop cover, stubble or trash blanketing, that allows for maximum infiltration following large rainfall events, and minimises runoff – through root channels etc.

Government is welcome to contact our organisation to discuss further opportunities to seek improved environmental and industry outcomes through the use of Sunn hemp as a part of an integrated component of farming, pastoral and bio-energy industries.

Yours sincerely,



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