



QUEENSLAND FARMERS' FEDERATION

Primary Producers House, Level 3, 183 North Quay, Brisbane QLD 4000
PO Box 12009 George Street, Brisbane QLD 4003
qfarmers@qff.org.au | (07) 3837 4720
ABN 44 055 764 488

Submission

31 March 2017

Isha Sharma
Industry Sector Regulation and Support
Department of Environment and Heritage Protection
Level 8, 400 George Street
GPO Box 2454
BRISBANE QLD 4001

Via email: ISRS.Consultation@ehp.qld.gov.au

Dear Ms Sharma

Re: Submission for an End of Waste Code: Manures Generated from Agricultural Activities

The Queensland Farmers' Federation (QFF) is the united voice of intensive agriculture in Queensland. It is a federation that represents the interests of 15 of Queensland's peak rural industry organisations, which in turn collectively represent more than 13,000 primary producers across the state. QFF engages in a broad range of economic, social, environmental and regional issues of strategic importance to the productivity, sustainability and growth of the agricultural sector. QFF's mission is to secure a strong and sustainable future for Queensland primary producers by representing the common interests of our member organisations:

- CANEGROWERS
- Cotton Australia
- Growcom
- Nursery & Garden Industry Queensland
- Queensland Chicken Growers Association
- Queensland Dairyfarmers' Organisation
- Burdekin River Irrigation Area Irrigators
- Central Downs Irrigators Ltd
- Bundaberg Regional Irrigators Group
- Flower Association
- Pioneer Valley Water Cooperative Ltd
- Pork Queensland Inc.
- Queensland Chicken Meat Council
- Queensland United Egg Producers
- Australian Organic

QFF welcomes the opportunity to submit an application for an End of Waste Code for 'Manures Generated from Agricultural Activities'. QFF provides this submission without prejudice to any additional submission provided by our members or individual farmers.

The united voice of intensive agriculture



Background

In 2014-15 there were 384.6 million hectares of land owned or operated by 123,000 agricultural businesses in Australia¹. Almost half of Australia's total land area is used for agriculture. Queensland has the highest proportion of agricultural land with 83 per cent (almost 144 million hectares) of the state used for agricultural production². Nearly 2.5 million hectares is cropped (including broadacre crops, hay and silage, nurseries, cut flowers and cultivated turf, fruit and nuts, and vegetables)³.

Approximately 30,500 businesses carry out agricultural activity in Queensland⁴. The total value of Queensland's primary industry commodities for 2016-17 is estimated to be \$18.55 billion. Queensland's agricultural industries are made up of:

- plant industries, including field crops (sugarcane, cotton, grains and pulses); production horticulture (nuts, fruit and vegetables); lifestyle horticulture (turf, flowers, nursery and landscaping); and forestry
- animal industries, including livestock and livestock products (including cattle, sheep and pigs, poultry, kangaroos, fish/aquaculture) and livestock products, such as wool, dairy, bees/honey and eggs.

Whilst Queensland's agricultural sector is currently facing several major challenges – including climate change, competing land-use demands and environmental objectives such as protecting the Great Barrier Reef – the sector is growing. It is also seeing diversification across commodities, particularly a move to high-value products and technological innovation. An increasing global population will drive an increasing global demand for food, fibre, foliage and other higher value products including bioproducts (including biofuels and chemicals). These trends are set to continue as farms embrace the impacts of climate change, sector economics, new and growing export opportunities and technological advances.

As at 10 March 2017, 43 councils and three-part council areas were drought declared, with 53 Individually Droughted Properties in a further nine council areas. The current declarations bring the total drought declared area of Queensland to 87.47%. This is the highest ever proportion of the state to be drought declared and there are still outstanding recommendations from the appointed drought committees.

Currently, manures in Queensland are considered to be a regulated and trackable waste.

- Schedule 1 (EP Reg 2008) lists trackable wastes – 'animal effluent and residues, including abattoir effluent and poultry and fish processing waste'. Code K100
- Under Schedule 7 – list of Regulated Wastes – # 2. 'animal effluent and residues, including abattoir effluent and poultry and fish processing waste'.

QFF does not support the current classification of regulated and trackable waste for animal manures which are generated from agricultural activities. The current regulatory framework imposed by the Department of Environment and Heritage Protection (DEHP) imposes administrative burden and increasingly excessive costs through the revised and more complex waste tracking system, which continues to deter the development of organic markets and beneficial reuses.

¹ ABS (2016). Australian Bureau of Statistics. Land Management and Farming in Australia, 2014-15. Report Number 4627.0. Released 25/05/2016.

² DAF (2015). Queensland AgTrends 2015–16. Department of Agriculture and Fisheries, Queensland Government.

³ ABS (2016a). Australian Bureau of Statistics. Agricultural Commodities, Australia, 2014-15. Report Number 7121.0. Released 23/03/2016.

⁴ Queensland Government (2016). Business and Industry Portal.

<https://www.business.qld.gov.au/industry/agriculture/agriculture/plant-industries>. Retrieved 30 December 2016.

Government Projects Including Manures

QFF actively participates in various projects involving finding optimal applications and maximum 'value' for manures (and other organic resources).

1. Developing Agricultural Markets for Organic Wastes

SEQ Organics Waste Action Plan is a collaborative effort between the Council of Mayors (SEQ) and its member councils, Queensland Government, Queensland Farmers' Federation (QFF), Australian Organics Recycling Association (AORA), Queensland Urban Utilities, Unitywater, Gold Coast Water, University of Queensland, and Healthy Waterways and Catchments Ltd to build markets for organics waste in the SEQ region. Delegates from the Department of Science, Information Technology and Innovation (DSITI), the Department of State Development (DSD) and DEHP are also members.

The aim of the plan is to develop agricultural and horticultural markets and complimentary investigations into emerging biofutures markets, within the context of the Queensland Biofutures 10-Year Roadmap and Action Plan. QFF notes that as the biofutures markets expand, there may be consequently less organic substrate for agricultural/horticultural markets.

2. Australian Biomass for Bioenergy Assessment

QFF has been in dialogue with, and provided input to DSITI regarding the Australian Biomass for Bioenergy Assessment (ABBA) project. The purpose of ABBA is to catalyse investment in the renewable energy sector through the provision of detailed information about biomass resources, including manures amongst other agricultural wastes, across Australia. This information will assist in project development and decision making for new bioenergy projects, and provide linkages between biomass supply, through the supply chain, to the end user.

To achieve this, the project is collecting data on the location, volumes and availability of biomass, for inclusion on the Australian Renewable Energy Mapping Infrastructure (AREMI) platform.

3. Centre for Recycling of Organic Waste and Nutrients

QFF has provided support for the new University of Queensland Centre for Recycling of Organic Waste and Nutrients (CROWN) at Gatton, which seeks to provide high-quality independent research, training, extension and support services for organic application and recycling supply chains, including manures.

4. Queensland's BioFutures Roadmap and Action Plan

The Advance Queensland Biofutures 10-Year Roadmap and Action Plan supports the establishment of a biofutures industry to unlock the state's potential to produce advanced biofuels, biochemicals, bioplastics and other biomaterials from sustainable organic (including manures) and/or waste resources, rather than fossil fuels. Agriculture, plantation forestry, algae, organic and carbon-rich 'waste' streams could all be used as feedstocks in the future to generate a wide range of sustainable chemicals, fuels, synthetic rubber, cosmetics, detergents and textiles. Bioproducts offer a renewable and environmentally beneficial alternative to existing conventional chemical and fossil fuel refining processes. Many of the potential feedstocks are the by-products of agricultural processes. There is increasing interest and research into the conversion of manures into biochar and carbon black.

5. Biochar Opportunities

In December 2016, QFF was approached by the Dairy and Intensive Livestock Industries Unit of the NSW Department of Primary Industries to assist in facilitating the transportation of Queensland generated poultry litter to a large-scale biochar facility in New South Wales. Due to the current requirements for regulated waste transport and waste tracking for poultry litter in Queensland, this resulted in the project becoming 'too difficult' for the biochar manufacturer.

In New South Wales, manures do not require tracking within the state, only requiring tracking if the manure is moved interstate.

The Use of the Manures

Organics and recycled organics generated from intensive livestock operations (e.g. cattle feedlots, poultry sheds and piggeries) contain nutrients, organic matter and water which can:

- improve physical, chemical and biological characteristics of soil (soil health factors)
- increase crop and pasture productivity
- reduce reliance on inorganic fertilisers
- control acidification, salinity and sodicity
- sustain soil nutrients and improve soil structure which is critical during drought conditions
- rebuild and recover significantly depleted/declined soils following over-use or following storm events such as cyclonic winds and flooding events where top soil is removed and nutrients are leached out.

Manures are currently beneficially applied to pasture and a range of soils for crop production (food, fibre and fuel) – noting that there are mandatory requirements preventing the direct application of manures onto food crops. Manures are also a critical component in the manufacture of soil conditioner/composts/potting mixes and soil ameliorants, fuel production (through anaerobic digestion and other bio-processing technologies), and for the manufacture of other bioproducts including, but not limited to biochar.

Risks: Environmental Nuisance and Environmental Harm

The nutrient content of manures varies. Manures contain the macro nutrients nitrogen, phosphorus and potassium, and may, if incorrectly applied above optimal rates, result in negative impacts to soil quality. Nutrients in manures are in both mineral and organic forms. This means a proportion of the nitrogen, phosphorus and potassium is immediately available to plants while the remainder (organic) must react in the soil to change into a form which is available for plant use. Most of the nitrogen in manure is available soon after spreading. The ammonia form can be lost to the atmosphere unless cultivated or washed into the soil within a few days of spreading. If washed or incorporated into the soil by rain or irrigation, the nitrogen soon becomes available for plant growth.

Farmers manage these risks through industry best practice and their accredited best management practice (BMP) programs, where nutrient budgeting (i.e. knowing what nutrients are being used and removed from a paddock) and appropriate soil testing (to check that the desired soil nutrient levels are being achieved) is undertaken.

Some of the other nitrogen becomes urea within a short time of spreading and, from then on, acts similarly to urea fertiliser. Excessive nitrogen may leach into groundwater or wash into surface waters causing eutrophication. Excessively high nitrogen levels in pasture may also be a poisoning risk for grazing animals and any sensitive native vegetation. Manures may also contain undesirable elements and compounds. However, due to improved consistency in feeding practices across the intensive animal sectors, often mandated under commercial contracts; manures and their characteristics are highly consistent, which assists in determining their most appropriate application.

Some manures such as poultry litter, is light and may be washed off paddocks easily during periods of heavy rainfall. These risks are managed through appropriate storage and application/spreading practices to prevent it entering watercourses or moving to 'off-target areas'.

To manage issues around the quality and consistency of materials, their agronomic and soil conditioning benefits, and potential environmental risks; intensive animal industries have developed codes of practices to manage issues including on-farm storage to localised applications. There are numerous operational standards pertaining to the application of manures to paddocks, and food and fibre crops which are detailed further in the submission. The Queensland Government (through the Department of Agriculture and Fisheries – DAF) has also developed guidelines for utilising manures in agriculture.

Markets and Sustainability

Organic forms of fertiliser provide the agricultural sector opportunities for the substitution of chemical fertilisers and, in some circumstances provide an improved product offering, particularly accounting for the addition of humus and moisture to soils as well as nutrients.

The generation of animal manures from agricultural activities will continue to increase in Queensland, and indeed across Australia as animal intensive industries thrive. The egg industry has seen sustained growth of around 5%; poultry meat 4%; pork around 5%, and estimates for future growth looking to exceed these figures.

There has also been substantial growth in the production of food and fibre crops which require fertiliser (all forms) application to maintain yield and drive productivity in an increasingly challenging environment impacted by climate change and progressively intensive weather events. The sugar cane industry for example, has seen sustained growth of nearly 10% whilst the horticulture sector has seen growth of between 0.4 to 6.8% across a diverse range of produce.

Besides the direct-application in agricultural markets for manures, there is growing opportunities in the recycled organics sectors (composts etc.) through to biochar and bioenergy applications.

Reuse and Waste Recovery Principles

This application supports the principles and policy objectives outlined in Queensland's Waste Avoidance and Resource Productivity Strategy (2014-2024).

- Principle 1: Protecting human health and the environment to secure our future prosperity. The good management of manures protects the environment whilst their utilisation benefits soil health improving agricultural productivity, which is critical to maintain food security considering increasing population pressures.
- Principle 2: Sharing responsibility for avoiding unnecessary consumption and improving resource management. The ability to freely (without administrative burden and cost) move manures from the farms they are generated on will lead to their optimal resource/best use. Manure use also displaces the utilisation of inorganic fertilisers (to varying extents depending on soil, farm and crop factors, and financial indicators).
- Principle 3: Recognising the economic, environmental and social costs of waste generation and disposal. The ability to optimally utilise manure resources will have financial and environmentally beneficial outcomes. The existing administrative and cost burden imposed by the regulated waste and waste tracking frameworks have already resulted in unintended consequences associated with the inability to access available resources.
- Principle 4: Recognising regional differences and opportunities. Queensland's agricultural communities are diverse, ranging from peri-urban enterprises to highly remote locations. Queensland has the highest proportion of agricultural land in Australia with 83% of the state used for agricultural production, equating to nearly 144 million hectares of farming area, of which nearly 2.5 million hectares is cropped. Opportunities for manure application and value-

add processes for manures vary across the state, as such, there needs to be flexibility to select the best value-add and least-cost externality option.

- Principle 5: Full lifecycle management of resources. The use of manures (direct or processed) on-farm provides an example of closed-loop recycling within the agricultural sector.

A significant proportion/critical mass of animal intensive industries are based in SEQ and, as such, there are collaborative project opportunities with New South Wales. Streamlining of waste management objectives in eastern Australia will ensure potential markets achieve economies of scale and maximise long term project sustainability. Continuing the alignment between New South Wales and Queensland's regulatory framework with regards to wastes (for example, as already in the planned new Container Refund System and plastic bag tax) is essential for market development.

In New South Wales, manures do not require tracking within the state, only requiring tracking if the manure is moved interstate. By streamlining the regulation for manures within, and between the two states, the current artificial boundary/boarder can be removed, allowing for greater resource recovery.

The NSW Environmental Protection Agency has determined a Resource Recovery Exemption under Part 9, Clauses 91 and 92 of the Protection of the Environment Operations (Waste) Regulation 2014 and the accompanying Resource Recovery Order for Manures - see the Manure Order 2014, established under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014.

Relevant Standards and Certifications

There are current operational standards pertaining to the generation of, and use/application of manures to pasture and soils used for the production of food, fibre and fuel crops:

Freshcare Food Safety and Quality Assurance Code of Practice

Freshcare is currently the largest Australian assurance program for fresh produce; providing food safety, quality and environmental certification services to over 5,000 businesses nationally. Freshcare operates the COP to ensure safe fruit and vegetables. Over 60% of the Australian vegetable industry are Freshcare members and over 90% of produce at retail stores is grown under Freshcare or an equivalent food safety certification.

The environmental section of the Freshcare ENV3 Code, includes codes of practice and guidance on environmental action planning; land and soil; biosecurity; chemicals, fertilisers and soil additives; water; biodiversity; waste; air; energy and fuel.

QFF members also operate best practice management systems which contain manure management plans where relevant to their operations. For example:

- Smartcane BMP and Bonsucro
- Hort360
- National Environmental Management System for the Meat Chicken Industry (Meat Chicken EMS).

These codes and accredited systems cover both the generation and handling side of manures (for the intensive animal industries) through to the beneficial application of manures and soil improvement products (including chemical fertilizers) by pasture, food and fibre growers.

QFF notes the significant volume of literature and existing research relating to the use of organics and recycling organics in agriculture. The Queensland Government, other state governments, industry

bodies, CSIRO and the relevant agricultural CRC's and RIRDC's (including, UQ's Queensland's Alliance for Agriculture and Food Innovation) have also undertaken research in this area, for example:

- The Grains Research and Development Corporation – a case study on manure application (poultry litter) at <https://grdc.com.au/Media-Centre/Ground-Cover/Ground-Cover-issue-100/Manure-benefits-a-case-study-in-patience>
- Research on the beneficial use of pig bedding australianpork.com.au/wp-content/uploads/.../2010_1015.338-FINAL-REPORT.pdf

DAF can provide data and reports to support this application. DAF supports the spreading of manures to agricultural land as it has beneficial outcomes on soil and plant productivity. DAF has produced resources for manure utilisation including, but not limited to, production data; best practice storage; the application criteria for manures during different weather events to reduce nuisance (odour to dust control); preferential application rates through possible environmental impacts from incorrect application; and nutrient monitoring. These resources are available at:

- <https://www.daf.qld.gov.au/animal-industries/dairy/feed-and-nutrition/chicken-litter>
- <https://www.daf.qld.gov.au/environment/intensive-livestock/piggeries/managing-environmental-impacts/managing-effluent-and-sludge-application>
- <https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/livestock/cattle/feedlots/techniques> (this page includes lists to accompanying resources).

If you have any further questions regarding this submission, please contact Dr Georgina Davis at georgina@qff.org.au. QFF looks forward to working with DEHP to develop an End of Waste Code for manures generated from agricultural activities.

Yours sincerely

Travis Tobin
Chief Executive Officer