

ASC Responsible Feed Project

White paper – Fish Feed Manufacturing Plants

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Within the ASC Responsible Feed Project several Technical Working Groups (TWGs) will focus on what “responsible” should mean for their areas of expertise.

These TWGs address the main aqua feed ingredients groups: 1) marine ingredients, 2) terrestrial plant ingredients, 3) terrestrial animal ingredients, 4) micro ingredients and one working group on 5) feed mill requirements and supply chain.

As a starting point for the group discussions on what “responsible” should mean, a number of White Papers are drafted (one per TWG). These papers will present an overview of the current environmental and social issues per ingredient group, as well as proposed steps forwards and points of attention. The reason for the development of these papers is to make sure that all members of the relevant TWG have the same starting information. Depending on their stakeholder background and/or expertise, members analyses of, and additions to this information are expected.

The key role of the TWGs is to develop draft criteria and indicators for the Feed Standard based on the starting point of these WP’s.

Please keep in mind that the points addressed in the WPs should start the discussion, not define its boundaries.

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This White Paper, together with the WP on Supply Chain and Micro Ingredients, has the following content:

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The section of an ASC Feed standard related to responsible operation of a feed company (feed mill) could contain (this list is not exhaustive and should be revised by the technical working group in this area) – this sentence needs rewording or it is missing something

1. Scope of standard

The ASC feed dialogue needs to decide on the scope of its standard relating to **Responsible operations of fish feed manufacturing plants**. In principle a standard relating to this area could refer to a number of issues in general related to operating a responsible manufacturing standard. This include topics like

- Compliance with official licences to operate
- Compliance with specific environmental legislation and regulation relevant to their activities
- Emissions to land, air and water
- Waste management
- Water use
- Energy efficiency of operations
- Requirements to conduct environmental assessments of products along their lifecycle
- Efficient use of natural resources (raw materials)
- Occupational health and safety at work - Environmental, Health and Safety
- Good manufacturing practices
- Traceability
- Human rights and social issues relating to work force
- Engagement with local community
- Environmental sourcing policy and criteria (including regulations related to GM raw materials)

As the definition of sustainability covers a wide range of topics, all the above could be justified as being relevant to cover in a standard relating to **Responsible operations of fish feed manufacturing plants**. This paper will not deal with the last topic – Environmental sourcing policy and criteria – as this topic will be covered by other white papers.

In defining the scope it is also important to balance what could be considered specific sustainability issues and criteria related to aquaculture feeds up against general requirements. The “sustainability” issues listed above can be regarded as generic for any manufacturing business. As such they will be applicable to all producers delivering input to a fish farming operation. One then needs to evaluate whether creating a detailed standard specific to fish feed manufacturers creates in the farming standard a bias towards other suppliers to the farming activity (fishnets, cages, equipment of different kinds) – which will not be required to demonstrate the same level of compliance to a standard.

The standard also need to be clear on when compliance is required of **the company** that delivers materials to an ASC certified farm , and when the standard requires compliance for the **products** delivered to the farm. (noting that the standard can also of course define when one or the other scope is applicable).

2. Existing standards

Today there are a number of standards that will more or less overlap with the sustainability issues that we have identified. One can divide these standards into four main categories

- Specific standards addressing feed production and aquaculture feed production (for example GlobalGAP compound feed manufacturing standard and BAP feedmill standard)
- ISO – International Standards which ensure that products and services are safe, reliable and of good quality. They are also valuable strategic tools that reduce costs by minimizing waste and errors and increasing productivity.
- General manufacturing practices like Good Manufacturing practices (**GMP**) and Hazard Analysis and Critical Control Points, or **HACCP**.
- General feed quality schemes like GMP+, FEMAS and UFAS (this is not an exhaustive list of such standards).

Also many topics relevant under the sustainability umbrella should take into account international conventions like those of the International Labour Organisation (ILO), as well as mainstream human rights treaties, most prominently, the International Bill of Human Rights.

GlobalGAP compound feed manufacturing standard

This standard relates to compound feed manufacturing regardless of the species farmed (so the same requirements are valid for agricultural farmers as for aquaculture farmers). In general the standard sufficiently covers issues related to food and safety, workers health and safety, and traceability. The standard has one section which covers some sourcing criteria.

BAP feedmill standard

This standard relates to compound feed manufacturing specific to aquaculture feeds. In general the standard sufficiently covers issues related to food and safety, workers health and safety, and traceability. The standard has one section which provides some criteria related to the origin of marine raw materials in feed.

Industry practice regarding certification

Most aquaculture feedmills will have general quality systems like ISO 9001 and then in some cases also specific ISO standards like ISO 14000 (environment) and ISO 22000 (food safety). It is also common to implement HACCP principles. Some companies also implement specific schemes like GMP+ and FEMAS. Often implementation of specific schemes are based on the requirements of certain markets or regions. Certification according to GlobalGAP and BAP is also common as this is often demanded by customers as the specific feed certification is demanded as part of the overall farming standard.

3. Important clarifications

Before developing a feed standard in all details, it is important to make some clarifications on how comprehensive one wants the feed standard to be. Many of the general requirements related to sustainability are to lesser or larger extent already covered by a number of existing standards. One needs to decide whether the ASC feed standard should



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cover these parts or whether ASC should develop a standard that focuses more on what is considered the most critical and important issues. Looking at today's ASC standards they are very much focused on sustainability criteria related to the sourcing of defined key commodities.

But there are also other issues one could consider as part of the standard

- Requirements to conduct environmental assessments of products along their lifecycle
- Efficient use of natural resources (raw materials)

It is also very important to decide if the standard should be primarily applicable to products and not the production company. One can also decide to put forward requirements for the feed company to have some general certification schemes in place or that they be able to demonstrate compliance to a number of general principles.

4. The section of an ASC Feed standard related to responsible operation of a feed company (feed mill) could contain (this list is not exhaustive and should be revised by the technical working group in this area):

Principle 1: General requirements

The purpose of Principle 1 is to ensure that all companies uphold their license to operate by meeting the legal obligations set by relevant government bodies.

What should be considered:

The company should have, on request, documentation to confirm they are in compliance with relevant environmental emissions regulations as the legislation relates to:

- Emissions to air
- Discharge to water
- Release of toxic or hazardous substances
- Noise, smell and dust pollution
- Ground pollution
- Other relevant pollution

The laws and regulations set by authorities provide businesses with a license to operate in a way that does not compromise the surrounding social and environmental conditions.

Therefore it is important that all companies work within these boundaries to avoid causing any harm or dissatisfaction amongst the local communities within which they operate. In



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cases where this is not possible, corrective action should be taken within a reasonable timeframe to avoid problems in the future.

Principle 2: Manufacture feeds in a responsible way

The purpose of Principle 2 is to ensure that all companies understand the environmental, social and economic consequences of their operations and take appropriate action to mitigate any associated negative outcomes.

To be considered:

- The company should have focus on energy efficiency
- Carbon footprint of manufacturing
- Presence and evidence of a functioning policy for proper and responsible treatment of non-biological waste from production (e.g., disposal and recycling)
- Incidences of uncontrolled discharges of waste and effluents into the environment are recorded and corrective actions taken when necessary
- Waste materials that contain hazardous levels of contaminants are disposed of properly
- Offer customers packaging solutions that reduce the amount of post-sale packaging material used and/or increase the amount that is recycled post-use

The industrial energy used in the production of feeds is not only a source of economic costs for companies, but in most cases it also involves the use of finite natural resources and the emissions of pollutants such as greenhouse gases (GHG). Therefore it is important that energy is used as efficiently as possible to minimize the associated economic and environmental costs.

The disposal of wastes and effluents created from the production of feeds can create problems for human and environmental health if not managed correctly. As such, it is important that companies have policies and procedures in place that avoid such incidences from occurring. In the case where breaches do occur, they should be recorded and appropriate actions taken to remedy the situation and prevent it from occurring again.

Particular care should be taken to select an appropriate disposal method for wastes that contain substances known to be hazardous so as to avoid harm.

It is also important that companies are aware of the implications that product packaging decisions have on the amount and type of waste generated at customers operations. To do so, each company should encourage customers to minimise waste by provide packaging solutions that reduce the amount of packaging used, and/or increase the volume that is recycled post use.

Principle 3: Increase flexibility of formulations in order to reduce dependency of scarce raw materials



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The purpose of Principle 4 is to ensure that companies utilize the knowledge, skills and technology it has developed to reduce reliance on limited marine resources through increasing the flexibility of feed formulations.

Reduce dependency on marine raw materials

To be considered:

- Use marine resources sparingly

As aquaculture grows, so too does demand for the finite marine resources used to make the feeds. This not only places pressure on the wild capture fisheries and the associated ecosystems from which these are sourced, but it also translates into higher market prices.

Over the years the industry has invested in research and development to enable the replacement of these ingredients without detracting from feed performance, fish welfare or end product quality.

Developments in the industry enable marine resources to be shared across the expanding aquaculture industry, enabling further growth whilst simultaneously taking pressure off the finite marine resources and reducing the costs of production. In order to realize these benefits, products formulated based on best knowledge should be made available in the market place, and the sustainability benefits clearly communicated to encourage further uptake.

Further research is currently being conducted to find alternatives to fish oil and the valuable omega-3 fatty acids (EPA and DHA) they contain. In the meantime it is important that this is used sparingly to enable to maximum output from this valuable, finite resource. To do this, the minimum inclusion levels should be used where possible.

Marine raw material dependency

To be considered:

- Calculate FFDR numbers

Companies should continue to work hard to reduce its reliance on marine materials through developing nutritional solutions that substitute these materials with land based ones. There are a number of metrics used to measure the progress made in this area that are collectively referred to as the fish in fish out ratios. One of the more accurate calculations is the forage fish dependency ratios (FFDR) which compares the weight of forage fish used to produce a quantity of aquaculture fish harvested. This metric not only captures changes made to inclusion rate, but it also accounts for improvements in feed conversion efficiency as well as the use of materials sourced from by-products as these are not included. There are separate calculations for fishmeal (FFDR_m) and fish oil (FFDR_o) to account for the different requirements each species has for these materials.

Principle 4: Employee rights



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The purpose of Principle 5 is to ensure that all companies understand and respect basic human rights and employee rights.

To be considered:

- Address child labor
- Evidence that workers are free to form organizations, including unions that provide opportunity to advocate for and protect their rights
- Harassment or discrimination of employees based on personal background, race, gender, nationality, age, sexual preference or belief

Companies should aim to provide a workplace that upholds the basic rights of all employees as outlined in the International Labor Organization’s (ILO) *Declaration on Fundamental Principles and Rights at Work*. This refers to the abolition of forced and child labour, elimination of discrimination of any kind and the freedom to the right to collective bargaining.

Principle 5: Engagement in local community and stakeholder engagement

The purpose of Principle 5 is to ensure companies engage with their local communities in a good way.

To be considered:

- Local community engagement
- Engage with stakeholders to determine important sustainability issues for the business

A feed company must respond to human concerns that arise in communities located near the production sites and to concerns related to the companies’ operations. In particular, appropriate consultation must be undertaken within local communities so that risks, impacts and potential conflicts are properly identified, avoided, minimized and/or mitigated through open and transparent negotiations. Communities shall have the opportunity to be part of the assessment process (e.g., by including them in the discussion of any social investments and contributions by companies to neighbouring communities).