



Best Aquaculture Practices Certification Program

Global Aquaculture Alliance

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Comments on BAP Standards

Feed Mill Standards

Comments concluded October 2009

American Feed Industry Association

Arlington, Virginia, USA

GENERAL/SPECIFIC COMMENTS:

6. HACCP Process Controls, Good Manufacturing Practices

AFIA commends your efforts to create a BAP system for aquaculture feed mills and offers these comments to aid your efforts. The comments submitted in this letter are concerned only with the feed safety aspects of the program (Standard 6) and do not offer comments on other areas mentioned, although we applaud your holistic attempts.

There are very few specific comments, as AFIA believes development of your program needs considerable re-review to be in line with several regional, national and international feed safety programs. In addition to AFIA's SF/SF program, FEFAC (European Feed Manufacturers Association), the Codex Alimentarius Commission, and the International Feed Industry Federation, all have programs worthy of review for incorporation into your proposed program.

In addition, AFIA strongly urges a reference or adoption of the Codex's veterinary residues documents, as accepted international residue standards under the World Trade Organization auspices and treaties.

BAP: *A reference to the documents has been added.*

Although Standard 6 mentions "HACCP process control," the document and guide do not list any specific HACCP principles. AFIA urges the deletion of the term "HACCP," which is well defined by Codex and for which this is not a specific HACCP feed standard within Codex.

Instead, AFIA recommends the title, "Hazard Identification and Risk Management of Identified Hazards for Feed and Feed Manufacturing Facilities."

BAP: *The term HACCP (Hazard Analysis, Critical Control Points) is preferred to the alternative proposed here by AFIA (Hazard Identification and Risk Management of Identified Hazards for Feed and Feed Manufacturing Facilities) simply because HACCP is more widely recognized (even though the AFIA terminology is more precise).*

The BAP feed mill standards hope to promote the application of HACCP in feed mills because this tool has already developed a solid reputation for delivering food safety assurance in the aquaculture and seafood processing industries. The standard does not insist that a feed mill apply HACCP terminology in its documentation, but it must go through the process of hazard identification and risk management of identified hazards, as recommended by AFIA.

A statement has been added to the standard: "Food safety hazards shall be identified and corresponding risk managed effectively through a HACCP-based or equivalent system."

As for dioxins and related compounds, AFIA objects to the use of the EU dioxin maximum tolerances, as they are not based on an international feed standard. Neither Codex nor any other world body has adopted such tolerances. The US Government contends in several letters to the EU that these tolerances are not based on adequate evidence of risk science and were established with very few samples. References to these in your guide should be removed.

For the SF/SF Certification Program, the entire checklist and auditor review program is listed at the SF/SF website here: <http://www.safefeedsafefood.org/main/home.cfm?Category=Join&Section=Join>. We particularly ask you to review the hazards required as a minimum to be reviewed.

BAP: *Agreed. References to the EU limits have been removed, and the list of hazards has been aligned with AFIA's dioxin/PCBs, medicinal substances, feed additives, heavy metals (including lead, mercury and cadmium), mycotoxins, pesticides and industrial contaminants. Additional Codex and AIFA references for information on contaminants and good practices have been added.*

For FEFAC's Code of Practice, click here: <http://www.fefac.org/code.aspx?EntryID=265>.

The Codex's *Code of Practice for Good Animal Feeding* can be found here: http://www.codexalimentarius.net/download/standards/10080/CXP_054e.pdf. This Code was adopted in 2004 and the International Feed Industry Federation has just accepted final edits on a compliance guide and will be publishing this guide very soon with FAO. AFIA urges your guide to be similar or identical to this guide, as it also addresses on-farm feed mixing and takes into account worldwide feed manufacturing, including in developing nations.

AFIA believes the existing FEFAC, IFIF and AFIA "codes" are time-tested and deserving of review and incorporation into your guide.

Although AFIA's SF/SF program is copyrighted, AFIA would be pleased to discuss use or reference to the guidelines with your organization, as we view your efforts as important in promotion of safe aquaculture products worldwide.

We trust these comments will be of assistance to you in addressing your guidelines and continue to applaud your efforts and those of other groups and worldwide organizations to raise the standard of feed safety for the world's consumers and animals.

AFIA appreciates the opportunity to offer these suggestions and the agency's consideration.

Marine Conservation Society

United Kingdom

SPECIFIC COMMENTS:

3. Fishmeal and Fish Oil Conservation (Audit)

3.1. The fisheries would need to be segregated at delivery for this information to be of use, as some may not be GAA Feed Mill compliant.

BAP: *The requirement is for all sources of fishmeal and fish oil to be identified at the fishery and species level for all batches that are included in BAP-compliant feed.*

3.2. Sustainable Fisheries Partnership does not apply a designation to fisheries, they provide a series of sources that apply to a number of key issues but do not provide an evaluation or judgment of sustainability based on these scores.

BAP: Agreed. SFP does not judge sustainability, but a new clause has been inserted in the BAP feed mill standards to promote SFP's Fishsource as an independent source of information on the subject. The clause, which is scored, specifies:

Does your facility obtain fishmeal and fish oil from sources for which available scores assigned by SFP (Fishsource) for management quality and fish stock are 6.0 or higher? (Confirmed during inspection.)

The guidelines have been modified to include the statement: In 2015, the use of fishmeal and fish oil from sources certified as sustainable or responsible will become a critical requirement.

"Data deficient or stock status unknown" should also be included in adherence to the FAO Code of Conduct for Responsible Fisheries precautionary approach.

BAP: Question 3.2 now includes reference to IUCN.

3.3. How will the information and assurances be sought to ensure IUU is eliminated?

BAP: *The BAP feed mill standards encourage sourcing from IFFO RS-certified sources and will eventually make this, or equivalent standards, an essential requirement. The auditor will inspect supplier declarations and assess veracity based on available information regarding which species, stocks, ports and boats are compliant and which are non-compliant or suspect.*

3.4. FAO or IFFO DO NOT certify fisheries as being sustainable. FAO does not do any certification and the IFFO Global Supply Responsibility Standard certifies fisheries as being RESPONSIBLY sourced, produced and traceable to the individual fishery. It is imperative that this wording is changed.

BAP: Agreed. 3.4 has been reworded.

Would suggest that the IFFO standard will achieve point 3.3 above.

BAP: Agreed.

3.5. It is important to include fishmeal and fish oil inclusion on feed documentation for aquaculture feeds to enable accurate calculation of wild fish usage at farm level. As aquaculture diets vary considerably in oil inclusion rates dependent on country of use, level of substitution and customer requirements, accuracy can only be assured if this information is provided. In the absence of such information, maximum inclusion % of oil would have to be assumed as a precaution.

BAP: *BAP does not require separate declaration of fishmeal and fish oil inclusion rates, and produces a more meaningful fish in:fish out ratio than the alternative FFER method, which bases its calculation on either the fish oil or the fishmeal inputs (but not both).*

Equation 1 estimates the fishmeal plus fish oil concentration of the feed on a dry-weight basis, relative to the wild fish and, multiplied by FCR, it enables the calculation of a fish in:fish out ratio. It does assume that excess oil or meal will be used productively in other feeds. This is considered to be a more realistic assumption than that underpinning the proposed alternative FFER method, which, whether based on the oil input or the meal input, does make the assumption that excess oil and meal go to waste.

As such, FFER is not strictly a fish in:fish out ratio, but a "dependency" ratio that tries to gauge the "pressure" that aquaculture places on wild fisheries. The BAP feed standards aim to contain such "pressure" by promoting responsible sourcing from well-managed fisheries. The fish in:fish out ratio, calculated on the basis of the FFIF in Equation 1, is a tool to promote efficient usage of fishmeal and fish oil. Calculating the fish in:fish out ratio in this way creates an incentive to reduce both fishmeal and fish oil inclusion rates, whereas, in most cases, the FFER method only creates an incentive to reduce either oil or meal levels, but not both.

More precision in determining FFIF is needed, so the guidelines have been reworded to clarify the explanation of accuracy. "FFIF ... must be declared with enough precision that the sum of fishmeal and fish oil percentages in the aquafeed does not vary by more than +/- 2 percentage points from its actual value calculated on an average monthly basis.

Traceability Requirement

Will the tracing of inputs back to origin include traceability back to the vessels of capture for wild-capture fisheries?

BAP: *No, the traceability component does not go any deeper than the requirement in 3.1 for the feed mill to obtain declarations on species and fishery origins of each batch of fishmeal and fish oil. This may not require vessels to be identified. The IFFO RS, supported in this BAP standard (but not yet a critical requirement), can deliver this level of traceability. In the future, the BAP feed mill standards will require IFFO RS-compliant or equivalent fishmeal and fish oil.*

3. Fishmeal and Fish Oil Conservation (Guidelines)

Need to define "sustainable sources" at some point in this standard. MSC is currently the only third-party, independent certifier of sustainability for feed fisheries. Will MSC be the definition used? If not, then a comprehensive descriptor is required.

BAP: This has been clarified in the guidelines and the audit form, such that IFFO RS defines "responsible" sourcing and MSC defines "sustainable" sourcing.

Suggested rewording: Marine ingredients from wild-capture fisheries should come from sustainable sources, as should terrestrially sourced ingredients.

BAP: *In this version of the BAP feed mill standards, the focus is on the sustainability and efficient usage of marine meals and oils. This does not preclude a more comprehensive approach covering both marine and terrestrial sources in the future.*

Sustainable Fisheries Partnership does not classify or define sustainability.

BAP: *Agreed. Correction made.*

IFFO has developed a Global Standard for Responsible Supply. This certifies responsible production, sourcing and traceability, not sustainability.

BAP: *Agreed. Correction made.*

New England Aquarium

Michael Tlusty, Katie Hladki, Matthew Thompson
Boston, Massachusetts, USA

GENERAL COMMENTS:

These comments are provided to the Global Aquaculture Alliance on the guidelines and inspection form for the Best Aquaculture Practices draft feed mill standards by the New England Aquarium. Founded in 1969, the New England Aquarium is a global leader in ocean exploration and marine conservation and is committed to building awareness and finding innovative solutions through our marine conservation and research initiatives.

The Aquarium's Sustainable Seafood Advisory Services aims to foster long-term sustainability of seafood resources and their supporting ecosystems by raising public awareness and working with the seafood industry to promote certification and best practices within wild-capture fisheries and aquaculture operations.

We appreciate the opportunity to review and comment on these draft standards. These comments should not be considered an endorsement of the Global Aquaculture Alliance or its standards; neither should the suggestions made be considered conditions to obtain that endorsement.

The Aquarium recognizes the challenges and potential benefits of certification schemes, especially in regard to aquaculture feeds, and often offers comments and suggestions. These comments are presented from a general perspective and not prescriptive, as the Global Aquaculture Alliance technical committees should generate the specific technical values.

General Comments

The New England Aquarium Sustainable Seafood Advisory Services is primarily concerned with improving the overall sustainability of seafood production; as such, our comments are primarily directed at aquaculture feed production, labeling and raw material sourcing.

Feed plants should be required to be appropriately sited and operated with regard to their environment, thus required to meet the goals of a suitable environmental impact assessment (EIA) and protection of sensitive environments. The Best Aquaculture Practices feed mill standards should include a standard similar to the Global Aquaculture Alliance Tilapia Standards, Standard 4. Wetland Conservation and Biodiversity Protection, prohibiting the construction of any facilities within sensitive or critical habitats.

At a minimum siting should be consistent with other GAA standards (shrimp, tilapia, etc.) with regard to wetlands. Furthermore, the destruction of any IUCN endangered, critically endangered, or threatened species for the purpose of pest/predator management should be prohibited.

BAP: *The standard does not include any siting requirements beyond compliance with existing legal requirements.*

Raw material usage in aquaculture production is becoming increasingly important, especially in terms of the use of reduction fisheries resources. Standards for efficiency of feed creation and responsible sourcing of materials have been proposed for standards directed at aquaculture farms, such as in the draft International Standards for Responsible Tilapia Aquaculture, created by the Tilapia Aquaculture Dialogue (<http://www.worldwildlife.org/what/globalmarkets/aquaculture/WWFBinaryitem12468.pdf>).

BAP: *The BAP feed mill standards require responsible and transparent sourcing of fishmeal and fish oil. Sources must be identified to the species and fishery level. Sourcing from identified overexploited fish stocks and from IUU sources is banned. Sourcing from responsible sources (as defined by IFFO RS) and from sustainable sources (as defined by MSC) is a scored criterion. Reference to SFP (Fishsource) is also included. These provisions will be progressively strengthened as more sources become certified.*

Ultimately, the accountability for responsible sourcing of feed components lies with feed manufacturers and thus should form a strong component of this standard. The requirement and market for feeds that meet responsible sourcing standards will likely increase rapidly over the next few years and therefore offers incentive for both the Global Aquaculture Alliance and feed manufacturers to require responsible sourcing now. As such, we strongly recommend that responsible sourcing of raw materials features heavily in this standard.

SPECIFIC COMMENTS:

3. Fishmeal and Fish Oil Conservation (Guidelines)

Responsible sourcing solutions are not always clear cut, thus we recommend feed plants be required to develop a responsible sourcing plan for each feed ingredient (not just fishmeal and oil) with reference to social, environmental and economic issues relating to that ingredient and potential alternatives, such as the use of trimmings from a fishery used for human consumption rather than from an overfished reduction fishery.

BAP: *In this version of the BAP feed mill standards, the focus is on the sustainability and efficient usage of marine meals and oils. This does not preclude a more comprehensive approach covering both marine and terrestrial sources in the future.*

The audit should require verification that the responsible sourcing plan is up-to-date, used to make responsible sourcing decisions and used to improve overall responsibility of feed formulation over time. For sources of fishmeal and fish oil specifically, prohibiting any species that is reported a recommendation of no fishing, unsustainable harvesting, closed fisheries, overexploitation, or identified a stock as being in critical condition by ICES, FAO or SFP is a positive. However, this standard could be improved through requiring more stringent goals.

As an organization that evaluates fisheries for environmental responsibility, we are aware that establishing whether fisheries meet sustainability goals is not always straightforward, thus a number of aspects of sustainable sourcing should be required to be reviewed in any responsible sourcing program. We have detailed some of these below.

- All krill and krill products (at this time there are no appropriate management systems or sufficient scientific knowledge to support the responsible harvest of krill)

BAP: *The standards now make reference to the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) regarding the sustainability of krill.*

- Unregulated fisheries bycatch
- A fishery classified as threatened, endangered or critically endangered by IUCN
- A fishery associated with bycatch of IUCN threatened, endangered or critically endangered species

BAP: *The standards now make reference to IUCN designations of endangered or critically endangered species.*

- Fisheries that utilize gear in critical or sensitive environments (i.e. nursery areas, coral reef habitats) that is known to negatively impact habitat; fisheries that employ destructive fishing practices (e.g. dynamite, poison fishing).
- All fisheries without formal management plans, except where fishery health is effectively maintained through restrictions and output controls (e.g. no take of “berried” females and precautionary size limits)
- Any products of the same genus to the species for which the feed is intended.
- Preferential Sourcing for Responsible Feeds: Preferentially source fish byproducts and trimmings from farms and fisheries that are certified by (MSC, GLOBALGAP, GAA, ASC, EU/US Organic) standards - in 5 years all sourced fish products should be certified.

BAP: *Agreed. The guidelines document has been modified to state that the use of fishmeal and fish oil from sources certified as sustainable or responsible will become a critical requirement in 2015.*

Responsible Raw Material Inclusion:

- Feed inclusion rates of fishmeal and fish oil must not be excessive (i.e. set a maximum inclusion percentage) for the species for which feed is designed. Levels should be region appropriate, such that when animal byproducts are not legal then an increased maximum inclusion rate of marine resources is allowed.

BAP: *There is no intention at this point to set maximum inclusion rates. Instead, the emphasis is on responsible and sustainable sourcing, and on placing downward pressure on fish in:fish out ratios at the farm level.*

Additional Responsible Feed Considerations:

- New England Aquarium is primarily focused on protecting aquatic and marine environments and ensuring the sustainability of their resources. As such, the majority of our comments reflect this

focus. It should be noted that other common feed ingredients also have environmental concerns, such as soy production being linked to sensitive habitat destruction and GMO usage.

Responsible feed producers must also address these concerns. Our overall interest pertaining to feed is to decrease the total environmental impact of the products. We recommend contacting professionals or organizations involved with these items to develop best sourcing practices.

IUU fishing:

The language pertaining to IUU fishing should be changed to “products from illegal, underreported, and unregulated fishing shall also be prohibited.”

Marine product labeling:

Feed mills should include the following detail on labels or be required to disclose this information at farmers’ request to access this data.

- Separate inclusion rates for total fishmeal and fish oil in feed

BAP: *Currently the requirement is for the declaration of a feed fish inclusion factor rather than separate declarations of fishmeal and fish oil. Rather than being based on total meal and oil, the FFIF calculation is based on fish oil and meal that does not come from trimmings or by-products.*

- Though wild-capture fishery by-products and aquaculture byproducts will not be included in the feed fish inclusion factor, labels should indicate their occurrence and amount in feed
- Species, country of origin and gear type (or farm type) of all marine products used in feed.

BAP: This level of detail is being required by the IFFO RS, a standard that is actively supported in the BAP feed mill standards.

Feed Fish Inclusion Factor:

Separate reporting of inclusion factors for total fishmeal and fish oil in feed must be a requirement of this standard, since the current method of calculating fish in:fish out in the tilapia and catfish standards underplays the relative ecological importance of fish oil vs. fishmeal, since fishmeal can be heavily substituted compared to fish oils, thus oils are often the limiting factor in aquaculture production. Separate reporting also enables farmers to use alternative calculations, such as Feed Fish Equivalence Ratios (FFER) and Fishmeal/Fish oil in and out calculations, and make more informed buy decisions with regard to feed.

BAP: *BAP does not require separate declaration of fishmeal and fish oil inclusion rates, and produces a more meaningful fish in:fish out ratio than the alternative FFER method, which bases its calculation on either the fish oil or the fishmeal inputs (but not both).*

Equation 1 estimates the fishmeal plus fish oil concentration of the feed on a dry-weight basis, relative to the wild fish and, multiplied by FCR, it enables the calculation of a fish in:fish out ratio. It does assume that excess oil or meal will be used productively in other feeds. This is considered to be a more realistic assumption than that underpinning the proposed alternative FFER method, which, whether based on the oil input or the meal input, does make the assumption that excess oil and meal go to waste.

As such, FFER is not strictly a fish in:fish out ratio, but a “dependency” ratio that tries to gauge the “pressure” that aquaculture places on wild fisheries. The BAP feed standards aim to contain such “pressure” by promoting responsible sourcing from well-managed fisheries. The fish in:fish out ratio, calculated on the basis of the FFIF in Equation 1, is a tool to promote efficient usage of fishmeal and fish oil. Calculating the fish in:fish out ratio in this way creates an incentive to reduce both fishmeal and fish oil inclusion rates, whereas, in most cases, the FFER method only creates an incentive to reduce either oil or meal levels, but not both.

Application/Audit Form:

3.1: Does your facility obtain declarations from suppliers at a minimum on the species of origin, country of origin for aquaculture products and wild-capture fisheries, as well as statistical reporting area (i.e., FAO reporting area), and country landed for wild-capture fisheries.

3.2: Include all other provisions from above comments in this audit point.

BAP: 3.2 has been modified to read: "Is it true that your facility does not use fishmeal or fish oil sourced from fisheries or fish species designated by ICES, FAO, NMFS, IUCN or CCAMLR as "subject to overfishing," "overfished," "harvested unsustainably," "fishery closed," "stock overexploited," "no fishing recommended," or "stock critical," "endangered" or "critically endangered"? (Confirmed during inspection.)

1. Property Rights and Regulatory Compliance

1.2. All business and operating licenses should be acquired and up-to-date

2. Community Relations, Worker Safety and Employee Relations

Guidelines:

Throughout the implementation section of standard 2, change "should" to "shall."

Application/Audit Form:

Points 2.7 and 2.9 should be elevated to critical.

BAP: *Comment 2.9 is already a critical requirement. 2.11 and 2.12 are both now critical.*

2.10. Specific, identified employees shall be trained in general health, safety, first aid, contamination risks and proper disposal of potentially dangerous compounds. This point should be elevated to critical.

It should be a critical point that protective gear and equipment are provided to employees, including but not limited to eye protection, gloves and boots.

BAP: *The question was reworded to reference ear protection and made critical.*

Points 2.12 and 2.13 should be elevated to critical

BAP: *2.12 is now critical.*

4. Storage and Disposal of Supplies

Application/Audit Form:

Points 4.2, 4.3 and 4.5 should be elevated to critical.

5. Waste Management

Guidelines:

The disposal and/or discharge of sewage, solid and liquid waste and rain water shall meet all legal requirements and avoid unacceptable contamination as well as be in line with regulations pursuant to the EIA performed prior to building construction. This disposal shall also be prohibited in areas of critical or sensitive habitat. This point shall be critical.

6. HACCP Process Controls, Good Manufacturing Practices

Guidelines:

- The killing of any pest or predator classified as IUCN threatened, endangered or critically endangered shall be prohibited.
- Records shall be kept of approximate number and species of all predators and pests killed.

Application/Audit form:

- Points 6.15, 6.16, 6.19, 6.22, 6.23 and 6.26-6.29 should be elevated to critical.
- Point 6.20. The justification for 90% complete is unclear, as is how an auditor would determine whether an incomplete report complies with this standard. Since this is a critical question, the records should be required to be complete.

Traceability Requirement

Guidelines:

- Ingredient source(s), including all additives and respective inclusion rates, should be required to be entered into the online traceability system

Additional Concerns

Since BAP feed mills will likely be producing feed for aquaculture products entering both EU and US markets, the GAA should ensure complete separation of animal product components and EU-acceptable actions for flushing and cleaning of equipment prior and after use. Additionally, labeling feed to reflect these considerations could be made. Feed companies should demonstrate that feed is pathogen-free.

Dave Anderson

Aquarium of the Pacific
Long Beach, California, USA

GENERAL COMMENTS:

I was puzzled by the use of the FI:FO ratio as a metric of feed sustainability. I think it makes more sense to focus on the management of the baitfish stocks (and perhaps the use of fishmeal relative to the protein profile of the feed).

For example, NMFS distributes a quarterly report of US fisheries scored according to fishing pressure, biomass, and estimate of maximum sustainable yield. On it, you can find that Pacific sardine stocks have not been overfished, are not currently experiencing overfishing, the ratio of biomass:biomass at MSY is 6.50, and thus it has the maximum Fish Stock Sustainability Index (FSSI) of 4. This, to me, is as good as any FAO or WWF certification of the fishery.

As the seafood officer of Seafood for the Future, it should be my job is to see that BAP-supported feed mills have access to well-managed fisheries products like these for use in feeds. Let me know what I can do to help connect the dots with issues like this.

BAP: *Please see comments made to Teresa Ish below.*

Brad Hicks

SPECIFIC COMMENTS:

1. Property Rights and Regulatory Compliance

The Reasons for Standard section says "Certified feed mills shall comply with applicable business-related laws and environmental regulations. ... Facilities shall also meet established standards for product safety. ... The BAP program requires compliance because it recognizes that not all governmental agencies have sufficient resources to effectively enforce laws."

Are you sure you mean regulation here and not standard? It looks like BAP is setting itself up as an international policing force (on enforcing regulations) to the feed manufacturing industry. This appears to be overstepping the mandate of most standard setting organizations.

BAP: *In this paragraph, we do mean "regulations" and not "standards." Although BAP standards are voluntary, they do require feed mills to obey the law, and they intend to encourage compliance by the use of carrot rather than stick.*

2. Community Relations, Worker Safety and Employee Relations

The standard says: "Feed mills can represent considerable sources of employment and tax revenue for local communities and national governments. Certified facilities should demonstrate management commitment to fiscal responsibility and community well-being." This may be true but is it the intent of GAA to be another policing force? This is a lot of Big Brother activity. It sounds a lot like ISEAL.

BAP: *The reference to fiscal responsibility has been deleted. GAA is the standard setter for a market-driven, voluntary program. GAA is not a member of ISEAL, but it follows the WTO's SPSS Code on standard setting.*

"Feed plants in developing countries may operate in weakly regulated business environments in which pay scales may be low and wage or labor laws may not be consistently enforced." This sentence appears to be out of place. Also not sure what the relevance is. Different countries develop at different paces, and at one time the same could be said of both the EU and the US -- and it was not that long ago. Or was the industrial revolution in these countries just a myth?

A fundamental part of becoming developed is to go through a period of "exploitation" of laborers. Does GAA plan on setting itself up as the global union for the workers of the world? This is strictly social engineering and should not be part of the standard. Standard setting for social conditions belongs elsewhere.

BAP: *Disagree. Social accountability is a valuable component of a voluntary certification program. There is no requirement to raise working conditions to those of developed countries, but some basic requirements can be included. BAP will not undermine the comparative advantage that developing nations have in relatively cheap labor.*

"To receive BAP certification, feed mill management shall show both compliance with labor laws and a commitment to worker safety. Certified feed mills shall provide legal wages and a safe working environment, and efforts should be made to exceed these minimum requirements." How does GAA plan to implement this? The labor laws and definitions of safe working conditions vary widely from one country to another. Does GAA have a goal standard they are working toward? If so, it should be clearly stated in the standard.

BAP: *Please refer to the specifics of the audit sheet to understand how the standard is implemented.*

"If meals are provided for workers they should be wholesome, with food storage and preparation performed in a responsible manner." I have no idea what this means. This is not a standard but a vague suggestion of what should be done and only the author knows what is meant.

BAP: *Agreed. There is a significant amount of subjectivity here, but the intention is clear. The auditor will need to apply his or her judgment based on in-country experience.*

"Routine maintenance has an important bearing on the safety of employees. Worn chain and belt drives, for example, can become dangerous, so maintenance procedures are needed to keep workers safe." Where is this from? These are platitudes and may be guidelines, but they are not standards. Standards need to be more specific.

BAP: *Correct. These are guidelines. It seems you have not seen the application form/audit that contains the specifics.*

"The evaluator will also interview a random sample of workers to obtain their opinions about wages and safety conditions." Due to privacy legislation and union contracts this may not be possible at some mills.

3. Fishmeal and Fish Oil Conservation

The guidelines mention farmed marine polychaetes and algae meals as emerging alternatives to fishmeal and fish oil for proteins and oils. At this time, these products are at the primitive academic development stage. These products are not commercially viable at this time and it is doubtful that they will ever be

viable on a significant commercial scale. The inputs (thermodynamically) are too high to be competitive with other sources of feed ingredients. I would suggest reference to these examples be deleted.

BAP: *Agreed. Reference to these two sources has been deleted.*

The guidelines say that feed mills shall not source fishmeal and fish oil from fish stocks that do not pass ICES, FAO or SFP recommendations. In some cases, there are political motivations for some of these groups to exclude specific fish stocks. How is GAA going to manage politically driven decisions to exclude some fish sources?

There is a battle currently amongst NGOs over the validity of the MSC certifications. (Greenpeace and Ecojustice/Sierra Club are both at odds with MSC.) SFP is a very new organization manned primarily with academics and civil society professionals with little or no industry representation and no proven track record. It is too early to include this group as an authoritative organization.

BAP: *GAA takes the view that international bodies like ICES and FAO are respectable and will designate fishery status on the basis of scientific evidence rather than politics. SFP will not be used as a judge on sustainability, and the wording of the standard has been adjusted accordingly.*

However, SFP is still a reference point in the standard because it is able to provide independent insights into the availability and quality of information on fish stocks and management. Its reputation is better than you suggest. We recognize MSC certification as the leading indicator of fishery sustainability, but also accept IFFO for responsible sourcing. Greenpeace is not considered a provider of unbiased expertise.

“Feed mills shall indicate on product labels, packaging, shipping documents or invoices for all aquaculture feeds the relative content of marine proteins and oils derived from industrial capture fisheries in the feeds.” Does this standard contain a definition for industrial capture fisheries? What other kind of fisheries are there? Do you mean a particular type of fishing gear, a particular type of fish, or a particular fishing region? It is not clear what is meant here.

BAP: *Capture fishery refers to all kinds of harvesting of naturally occurring living resources in both marine and freshwater environments. On a broad level, capture fisheries can be classified as industrial, small-scale/artisanal and recreational.*

The guidelines call for determining a feed fish inclusion factor defined by an equation. This will be next to impossible to comply with. Many fishmeals are blended products, and without specific definitions of what constitutes “wild-caught fish,” – i.e., are ranch salmon wild fish? -- it is also unlikely that the 2% accuracy will apply in many regions because the level resolution of the machinery may be less than 2%. Is there a reference for the 2% tolerance?

BAP: *It will not be easy, but big feed manufacturers such as EWOS, Skretting and Cargill are already contemplating giving even more precise formulation data in response to demand for transparency. This section has now been reworded to make it clearer.*

“To protect proprietary information, feed mills are not required to provide physical or digital copies of documents such as feed formulas. Auditors recognize that such information is confidential and will not make copies or share confidential information with third parties.” There will need to be a legal document to back up this requirement, and the evaluators will need to carry malpractice insurance as part of the requirement to get this kind of access.

BAP: *Auditors will have to deal with such issues, but GAA is the BAP standard owner only. Separate certification bodies will conduct the audits.*

6. HACCP Process Controls, Good Manufacturing Practices

“The hazard analysis shall address ... risks of chemical contamination of ingredients and/or finished product with dioxin/PCBs, medicinal substances, pesticides, heavy metals or mycotoxins, with levels for PCB and dioxin contamination as defined in European Community Council Directive 2001/102/EEC.” This makes this standard EU-centric. Is that the intention of this standard? Usually, standards do not refer

to government documents but actually state what the standard is. Why was the EU chosen and not the USFDA?

BAP: *This reference has been removed, also at the request of AFIA.*

“Ingredients should meet applicable statutory standards for levels of pathogens, mycotoxins, herbicides, pesticides and other contaminants that may give rise to human health hazards.” Do the statutory standards in this case refer to the standards in the country where the feed is being made? How is this consistent with the earlier requirement that contaminants must meet an EU standard?

BAP: *The EU standard has been dropped.*

“All incoming ingredients should be verified for correct labeling, purchasing specification, cargo destination, lot number/date and regulatory compliance, as appropriate, especially for medicated feeds.” What regulations? Local EU, UDSA or other?

BAP: *All applicable, existing regulations.*

Traceability Requirement

“For feeds for the United States market, the record-keeping provisions of the Public Health Security and Bioterrorism and Response Act of 2002 need to be satisfied. The U.S. Food and Drug Administration is currently defining the precise implications of these provisions as they relate to feed, ingredients and pet food.” Is this meant to be part of the standard? If not, it should be removed, as the standard already states that there is a requirement to comply with local laws.

BAP: *These are the guidelines rather than the standards, so such references can be helpful even if they are not applicable to all situations.*

“To participate in the traceability system, the feed mill shall pay a basic annual fee and an incremental fee for each registered traceability document.” Will this be a requirement for certification? It should be clearly stated whether or not this is a requirement.

BAP: *It's a requirement, as stated in the “Traceability Requirement” of the standard.*

“A single clerk could then be given the task of collecting the data and transferring it to a computer database.” Is GAA actually planning on micromanaging individual plants? This sentence should be deleted unless GAA is going to be part of the day-to-day management of the plants for which it will be awarding certifications.

BAP: *This is only a suggestion in the guidelines, not a requirement. GAA does not award the certifications – the certification bodies take on that role.*

Teresa Ish

Ku'ula-kai Consulting
Brooklyn, New York, USA

GENERAL COMMENTS:

Thank you for the opportunity to comment on the feed mill standards. These standards are a critical part of ensuring that aquaculture operations certified by the BAP standards are truly environmentally preferable. Applying and requiring a uniform standard for sourcing, disclosure and production of feed ingredients across BAP-certified species will lend an important level of credibility to the BAP mark and contribute to consistency and a level playing field between species.

Recognizing that this is the first iteration of these standards, there is great opportunity to improve them over time and work to harmonize them with feed sourcing and disclosure requirements of other certification efforts. Harmonization would not only ease the burden of implementation for feed mills, but also increase the market demand for products from BAP-certified feed mills.

My comments will be broken into two sections, starting with comments on the narrative standards. I have made every effort to align wording in the narrative that implies whether or not a standard is critical or scored with the requirements in the application. I would encourage the technical committee to ensure that the language between the two documents is consistent.

General Comments

The scope of these standards is appropriate for their intended use. Currently, the standards lack sourcing requirements for terrestrial feeds and their sustainability. This should be considered. The growing importance of terrestrial agricultural products in aquaculture feeds, combined with the environmental impacts of growing corn, soy, and other ingredients, requires that their impacts and use be addressed.

This can be achieved through a sourcing policy similar to the marine-derived ingredients sourcing requirement, and should address habitat conversion and pesticide and fertilizer use. Both this future terrestrial feed ingredient standard and the marine ingredient standard should eventually include labor standards.

BAP: *In this version of the BAP feed mill standards, the focus is on the sustainability and efficient usage of marine meals and oils. This does not preclude a more comprehensive approach covering both marine and terrestrial sources in the future.*

2. Community Relations, Worker Safety and Employee Relations

This standard lacks a guarantee of basic workers' rights, such as limits on hours worked, freedom from harassment and the right to collective bargaining. At a minimum, this standard should require compliance with the ILO recommended standards.

BAP: *The Standards Oversight Committee is reviewing social accountability clauses in the BAP standards, ahead of a meeting in March 2010, to ensure a consistent and appropriate set of criteria across the whole program. Social criteria will be strengthened, and ILO will be a key reference.*

3. Fishmeal and Fish Oil Conservation

The wording in the standard needs to extend beyond just fishmeal and fish oil to all marine-derived ingredients, including krill and squid.

BAP: *Agreed.*

Remove statement about not generally being utilized for human consumption. While there are some species with little use for human consumption, unless a requirement of the standard is that no more than a certain percentage of the fishery be consumed directly by people, this is ultimately irrelevant to the issue. Furthermore, in many fisheries for small pelagic or forage fish species, there are efforts under way to increase direct human consumption and add value to the fishery.

BAP: *The reference to human consumption has been removed.*

The standard requires that fisheries must meet certain stock requirements determined by International Council for the Exploration of the Sea (www.ices.dk), Food and Agriculture Organization (FAO) of the United Nations or the Sustainable Fisheries Partnership (SFP, www.fishsource.org). However, other national, regional or international bodies should be able to make determinations on the health of a fish stock. For example, CCMLAR manages the krill fisheries. However, as a precautionary measure, I would encourage a ban on the use of Southern Ocean Krill in certified feeds.

Furthermore, FishSource is not a management body, and therefore has no credibility as a source to define overfishing, etc. What FishSource is valuable for is for compiling the information about these

fisheries and is simply a tool that can be used to identify if a fishery meets the requirements set forth in the standards. This should be a resource feed mills are encouraged to use to identify stock status based on assessments created by government bodies and international fisheries management agencies, but is not an appropriate source of stock assessments in its own right.

If FishSource is to be accepted as a source of sustainability rankings, then the Monterey Bay Aquarium's Seafood Watch rankings should also be considered appropriate. By only banning overfished species, we create a loophole for fisheries that haven't been assessed. Given that many forage fisheries or small pelagics come from unassessed fisheries, this loophole is significant, and actually creates disincentives for governments to assess their fisheries.

Therefore, the standard for sourcing should be fisheries that have been assessed to be above BMSY, not undergoing overfishing, not overfished, moderately exploited, or similar designation of stock health. Additional scoring should be considered for stock assessments that include ecosystem impacts such as habitat impacts, bycatch and predator-prey interactions.

BAP: *The references to Fishsource have been changed to reflect its role as an information source rather than a judge of fishery sustainability. References to NMFS and CCAMLR have been added.*

To avoid creating an incentive to source fishmeal and fish oil from data deficient fisheries, the requirement to source responsibly or sustainably, as defined by IFFO or MSC, is not set as a critical requirement at this stage but as a scored requirement. This is a response to the absence of reliable fishery data, particularly in Asia.

The feed standard does, however, require transparency (all fishmeal and fish oil sources must be declared) to help shine a spotlight on fisheries and improve incentives for effective fishery management. As such fisheries become properly assessed, the BAP feed standards will need to be revised to make IFFO (RS) or MSC compliance (or equivalent) a critical requirement.

While it is good to see that the standard encourages the use of by-products by not counting by-products in the FFER calculations, it is important that sustainability standards for marine-derived by-products also be included. By-products should only come from processing of fish for human consumption, and should come from legally caught sources. Sustainability requirements similar to those for reduction fisheries should be considered.

BAP: *See above, audit working modified.*

Equation 1 is inappropriate. The standards a farm level or feed mill level standards, and Equation 1 measures the efficiency of the entire industrial forage fish industry. Our intent is to reduce the impact aquaculture has on marine resources, and therefore should not give credit to oil or meal that is used by other industries. Furthermore, to ensure that the oil and meal are being used by other industries, therefore making the equation accurate, the feed mill would need to trace forward to other industries utilizing the meal and oil.

This is an unfair burden on the feed mills because it requires tracing forward from the fishmeal-processing plants. Instead, a calculation that provides the amount of whole fish in whichever is greater, meal or oil, is provided as the inclusion rate.

BAP: *Equation 1 estimates the fishmeal plus fish oil concentration of the feed on a dry-weight basis, relative to the wild fish and, multiplied by FCR, it enables the calculation of a fish in:fish out ratio. It does assume that excess oil or meal will be used productively in other feeds. This is considered to be a more realistic assumption than that underpinning the proposed alternative FFER method, which, whether based on the oil input or the meal input, does make the assumption that excess oil and meal go to waste.*

As such, FFER is not strictly a fish in:fish out ratio, but a "dependency" ratio that tries to gauge the "pressure" that aquaculture places on wild fisheries. The BAP feed standards aim to contain such "pressure" by promoting responsible sourcing from well-managed fisheries. The fish in:fish out ratio, calculated on the basis of the FFIF in Equation 1, is a tool to promote efficient usage of fishmeal and fish

oil. Calculating the fish in:fish out ratio in this way creates an incentive to reduce both fishmeal and fish oil inclusion rates, whereas, in most cases, the FFER method only creates an incentive to reduce either oil or meal levels, but not both.

More precision in determining FFIF is needed, so the guidelines have been reworded to clarify the explanation of accuracy. "FFIF ... must be declared with enough precision that the sum of fishmeal and fish oil percentages in the aquafeed does not vary by more than +/- 2 percentage points from its actual value calculated on an average monthly basis.

Additionally, this standard states that certain ingredients "should" be included in the equation, such as squid, krill and other marine derived ingredients. Including these is required and the standard must be changed to a "shall."

BAP: Noted and changed.

5. Waste Management

Burning trash may not be the most responsible way to dispose of wastes, especially if plastics or other materials that create toxic fumes are burned. To encourage this may be a worker safety hazard.

BAP: Statement changed to "Trash, garbage and other wastes may not be dumped on vacant land. Instead it should be dealt with according to local law and by composting, putting in a landfill or burning after excluding plastics."

Traceability Requirement

For agricultural and marine-derived ingredients, traceability needs to go back to the point of origin. To avoid IUU marine products or agricultural products from protected habitats, both should be tracked back to the fishing boat or farm.

BAP: For fishmeal and fish oil, the standards require traceability to the supplier, the fishery and the species, but not down to the level of the boat. Precision down to boat level is only being delivered by the IFFO RS, a newly available standard that the BAP standard refers to and supports. Traceability of terrestrial ingredients back to the level of individual farms is not included in the standard, but is a logical objective that will need to be discussed with ingredient suppliers before a realistic requirement can be set.

COMMENTS ON AUDIT:

Comments on the application section are focused on consistency between the narrative and the questions, clarification of wording and comments on scored versus critical questions. There are many questions in this section that are insufficient, however the comments and recommendations are made in the narrative comments section.

2.3 and 2.4 are redundant.

BAP: This section of the standards is the same for the existing suite of BAP standards. BAP social clauses are to be overhauled by the SOC in March 2010. Up to now, verifying compliance with national wage and labor laws has been considered beneficial. In some countries, enforcement capacity is limited, and BAP can make a positive contribution.

Standard 2 states that mills "should demonstrate management commitment to fiscal responsibility and community well-being," but there are not any scored criteria requiring this.

2.7 requires "wholesome" food. This is totally subjective. The standard should ensure that workers receive food that is not rancid or old, and provides for their nutritional and caloric needs (and choose the government-recommended daily allowances to follow). If the site provides money for employees to purchase their own food, employees should receive enough to buy quality food in the required amounts. Furthermore, the narrative lists this standard as a "should" when it is, and should remain, a critical standard.

BAP: *This clause, 2.7, encourages attention to overall meal quality without going into such detail. SOC will assess this point.*

2.11. Providing protective gear should be critical, not scored, and the language changed appropriately in the narrative.

BAP: *2.11 has been reworded and changed to critical.*

2.12. First aid kits should be critical, not scored.

BAP: *Agreed.*

2.13. Manuals need to be in written in the employees' main language and be available for illiterate employees.

BAP: *The audit has been changed to read, "Does your facility have manuals in the employees' main language that identify standard operating procedures?"*

The standards state that "Feed mill operators should appoint an employee safety committee to review work practices and work conditions, and hold regular safety meetings where employees can draw attention to safety problems in need of correction." However, there is no audit question addressing this.

BAP: *See 2.15.*

3.1. Declarations are unenforceable unless there is traceability back to the boats.

BAP: *From above... For fishmeal and fish oil, the standards require traceability to the supplier, the fishery and the species but not down to the level of the boat. Precision down to boat level is only being delivered by the IFFO RS, a newly available standard that the BAP standard refers to and supports.*

3.4. FAO does not certify fisheries for sustainability, and the quality of certifications is not specified. Any certification program needs to demonstrate that they are compliant with the FAO ecolabelling guidelines. This standard is referred to as a "should" in multiple places in the narrative, and must be changed to a shall.

BAP: *We prefer to name the particular standards that are acceptable. There are other schemes that claim to be FAO compliant but have less credibility. To make MSC or IFFO RS certification a critical rather than a scored requirement at this stage would create an unrealistic hurdle.*

Consider adding a scored standard for including trimmings and by-products as a replacement for other marine derived ingredients.

BAP: *Question 3.6 has been added: "Does your facility make use of meal or oil derived from fishery by-products such as trimmings, offal and their derivatives, or aquaculture by-products such as shrimp head meal in feed formulations? (Confirmed during inspection)."*

5.4. How are the different disposal methods scored? Does composting have higher value than recycling, burning or landfill disposal? More guidance is needed.

5.5. This scored question is not referred to in the standard.

BAP: *5.5 was removed. This aspect is effectively dealt with in Standard 6 covering HACCP-based process controls and GMPs.*

Palma Jordan

Intervet/Schering-Plough Animal Health
Roseland, New Jersey, USA

SPECIFIC COMMENTS:

6. HACCP Process Controls, Good Manufacturing Practices

What is GAA definition of "reputable" manufacturer? Suggest changing to: "Only licensed therapeutic products, manufactured in accordance with good manufacturing practices (GMPs) may be used." (GMPs will address traceability and accountability for all ingredients used in the product.)

Use licensed medicinal products, not chemicals. Pharma manufacturer to certify availability or provide certificates of analysis for pharmaceutical products used

BAP: *The guidelines were changed to read "Minerals, supplements and other additives should be obtained from reputable manufacturers that guarantee the concentration and purity of ingredients, and provide instructions for correct use. For veterinary drugs, only licensed therapeutic products manufactured in accordance with good manufacturing practices should be used, with the manufacturer certifying the availability of or providing certificates of analysis."*

Finished Product

The guidelines on page 12 reference US FDA GMPs for medicated feed manufacture. These GMPs require testing of three batches of medicated feed (for each type) per year, including the first batch in a calendar year. Suggest this, or similar checks, of drug concentration vs. target concentration in medicated feeds to ensure proper mixing and manufacture of the medicated feed.

BAP: *Your suggestion has been incorporated into the guidelines.*

Medicated Feeds

An issue that is always of concern is cross-contamination. Mills should be required/able to demonstrate acceptable cleaning procedures between batches or medicated feed types.

Need to address proper storage of medicated feeds suggest medicated feed should be stored under conditions approved by the local regulatory authorities and specified on the pharmaceutical product label.

Labels and tags... Warnings should be clearly evident, along with specific instructions (including approved withdrawal times), for the species being fed. Suggest adding text in parentheses above.

BAP: The guidelines were changed to address your comments:

"To avoid cross-contamination, all medicinal feed additives shall be stored separately..."

"Mills should demonstrate acceptable cleaning procedures between batches of medicated feeds."

"Warnings should be clearly evident, along with specific instructions, including approved withdrawal time, for the species being fed. Medicated feed should be stored under conditions specified on the pharmaceutical product label."

Traceability

Finished Product

Add expiration date for medicated feed as required data, if applicable.

BAP: *Requirement added.*

Joseph Kearns

Wenger Manufacturing, Inc.
Sabetha, Kansas, USA

SPECIFIC COMMENTS:

6. HACCP Process Controls, Good Manufacturing Practices

“Pathogen control procedures, such as pasteurization to eliminate *Salmonella enterica*, *Toxoplasma gondii* and *Trichinella spiralis*, or the addition of an organic acid to inhibit mold growth, should be used where appropriate. Results of treatments should be monitored.”

“Pathogen control procedures, such as pasteurization to eliminate *Salmonella enterica*, *Toxoplasma gondii* and *Trichinella spiralis*, or the addition of an organic acid to inhibit mold growth, should be used where appropriate. Results of treatments should be monitored. Pasteurization is also achievable by production methods such as elevated temperatures over time. Consult your equipment manufacturer to determine what is required for pathogen control measures. Work and reports to meet these standards should be developed and used.”

Because it can be defined and should be defined if you wish to know if feeds sold and delivered reach a minimum set standard centered around the equipment and its manufacturer.

BAP: *Your suggestions have been incorporated into the standard.*

Hsuan-yu Ko

Grobest Group
Taoyuan, Taiwan

SPECIFIC COMMENTS:

3. Fishmeal and Fish Oil Conservation

“Feed mills shall indicate on product labels, packaging, shipping documents or invoices for all aquaculture feeds the relative content of marine proteins and oils derived from industrial capture fisheries in the feeds. Encourage feed mills to indicate on product labels, packaging, ...”

For some local fishmeal produced in Southeast Asia, it is difficult to obtain declarations from suppliers for the species and fishery origin of each batch of fishmeal and fish oil.

BAP: *We are aware of this difficulty. Hopefully, the BAP feed mill standard will promote transparency and accountability in this regard. The critical importance of accurate traceability has been illustrated by major food safety incidents such as melamine adulteration. If fishmeal and fish oil suppliers cannot indicate where their products come from, there can be little confidence about quality and purity. At the same time, information on fishmeal origin will be used to promote sustainable sourcing.*

Jim Landry

Lyons Seafoods Ltd.

Warminster, Wilts, United Kingdom

SPECIFIC COMMENTS:

3. Fishmeal and Fish Oil Conservation

This whole section should be part of a BAP sustainable standard (not currently existing).

The reason is to look in much more detail at what sustainable requirements are worldwide. A dialogue with big (to include European) retailers is crucial here, as many requirements are simply missed or overlooked.

Being too strict on the sustainability criteria in the feed mill standards risks excluding many worthy smaller producers in developing countries. However, a stand-alone sustainability BAP standard with retailers' involvement would be a great move, as none are currently in place for aquaculture. Producers will have to apply for sustainability certification separately (creating a fourth star rating, for example)

BAP: *Agreed. This is a good objective for BAP. Sustainable fishmeal and fish oil could be defined by BAP or by others such as IFFO in its RS standard.*

"Fishery-based ingredients from wild sources should come from sustainable sources." Include minimum acceptable inclusion levels of barred ingredients. There should be reasonable minimum level (1%?) below which inclusion of otherwise banned material is acceptable. The reason is to have a more realistic view of what is achievable with current trawling/fishing methods.

BAP: *BAP is encouraging other standards setters (MSC and IFFO) to define what is sustainable and responsible in this regard.*

"Important substitutes for proteins and oils from feed fisheries include meals and oils from plants, rendered animal proteins, fish-processing by-products and emerging sources such as farmed marine polychaetes and algae meals."

Suggested: "Important substitutes for proteins and oil from plants, rendered animal proteins, fish-processing by-products from sustainable or non-threatened fisheries and emerging sources such as farmed marine polychaetes and algae meals."

BAP: *Agreed. The wording of the guidelines has been changed to include "from sustainable or non-threatened fisheries." The reference to algae meals and polychaetes has been deleted.*

In Equation 1, the measurement of a feed fish inclusion factor, fishmeal and fish oil need to be assessed separately, and whichever has the greater impact should be taken as the measure for greater transparency.

BAP: *BAP does not require separate declaration of fishmeal and fish oil inclusion rates, and produces a more meaningful fish in:fish out ratio than the alternative FFER method, which bases its calculation on either the fish oil or the fishmeal inputs (but not both).*

Equation 1 estimates the fishmeal plus fish oil concentration of the feed on a dry-weight basis, relative to the wild fish and, multiplied by FCR, it enables the calculation of a fish in:fish out ratio. It does assume that excess oil or meal will be used productively in other feeds. This is considered to be a more realistic assumption than that underpinning the proposed alternative FFER method, which, whether based on the oil input or the meal input, does make the assumption that excess oil and meal go to waste.

As such, FFER is not strictly a fish in:fish out ratio, but a "dependency" ratio that tries to gauge the "pressure" that aquaculture places on wild fisheries. The BAP feed standards aim to contain such "pressure" by promoting responsible sourcing from well-managed fisheries. The fish in:fish out ratio,

calculated on the basis of the FFIF in Equation 1, is a tool to promote efficient usage of fishmeal and fish oil. Calculating the fish in:fish out ratio in this way creates an incentive to reduce both fishmeal and fish oil inclusion rates, whereas, in most cases, the FFER method only creates an incentive to reduce either oil or meal levels, but not both.

David Merriweather

Cargill Animal Nutrition
Minneapolis, Minnesota, USA

SPECIFIC COMMENTS:

3. Fishmeal and Fish Oil Conservation

3.5: Feed fish inclusion factor. We would request clarification on “Declared inclusion factors must be accurate to +/- 2%.” We assume this actually means the fishmeal and fish oil inclusion percentages used in the calculation must be accurate to +/- 2%, but it could be interpreted that the calculated Feed Fish Inclusion Factor must be accurate to +/- 2%.

BAP: *Agreed. More precision is needed, so the guidelines have been reworded to clarify the explanation of accuracy. “FFIF ... must be declared with enough precision that the sum of fishmeal and fish oil percentages in the aquafeed does not vary by more than +/- 2 percentage points from its actual value calculated on an average monthly basis.*

3.5: We suggest the BAP standard focus on usage of sustainable fishmeal and fish oil, rather than prescribing reporting of fishmeal and fish oil inclusion levels. The latter approach creates logistical complexities in reporting the information and intellectual property concerns in potentially revealing proprietary formulation information.

BAP: *To this end, the requirements for sustainable sourcing of fishmeal and fish oil have been specified with greater detail. The BAP program also aims to promote efficient usage of renewable marine resources, so accounting for wild fishmeal and fish oil inputs is considered necessary to encourage and monitor improvements.*

3.5: If the BAP standard is to include reporting of fishmeal and fish oil inclusion levels, some logistical issues and intellectual property concerns for feed companies would be reduced by allowing the reporting of maximum inclusion factors for these materials, rather than a 2% range. This approach would also be consistent with the apparent intent of the requirement, which would be to publish the maximum, or worst-case, scenario and encourage reduction of use of these materials.

BAP: *Feed manufacturers are required to report a combined wild fishmeal + wild fish oil inclusion with a precision of +/- 2%. This allows for some proprietary formulation details to be concealed, but still allows a meaningful fish in:fish out calculation to be made. The setting of maximum inclusion rates is considered to be too inflexible and could potentially undermine innovation in feed formulation.*

The overall objective within BAP is to reduce fish in:fish out ratios rather than to reduce fishmeal and fish oil inclusion rates. Thus, the onus on feed makers is on transparency, and the onus to meet FIFO targets will fall on fish and shrimp farmers. Meeting an FIFO target requires getting efficient FCRs, so a fish farmer will select a feed for achieving good FCRs as well for its fishmeal and fish oil content (and price, of course).

3.5: A clarification on requirements for reporting frequency for this item would be helpful. For example, it should be acceptable to report to the farmer the average Feed Fish Inclusion Factor over a period of time, e.g., a month.

BAP: *Agreed. See changes above – rewording of guidelines.*

Traceability Requirement

The standard calls for using a single, online system for recording traceability information that can be linked throughout the supply chain.

One of the key principles of the BAP process, in general, is that the standards should be performance based. In this case, the standard should require the firm have the capacity to identify actors in the supply chain one step back and one step forward. In the case of a recall, this should be adequate to identify affected entities in the supply chain. This capacity can be verified through recall drills. This is common practice in the terrestrial food industry. The first concern around this item is that identifying a specific online system that must be used for this requirement is not a performance-based approach, but rather is prescriptive as to how recall capacity will be maintained.

The second concern is that there will be cost and effort in entering data into the system. The purported countervailing benefit -- of having the capacity to identify supply chain entities in the case of a recall -- can be achieved without the uniform online system and, in any case, will be needed only on a rare, infrequent basis.

The third concern is around intellectual property protection. There needs to be more clarity in the standard as to the type of information that will be stored in this system and how it will be protected. Regardless, the information will likely constitute intellectual property of the organization, specifically customer information, shipment volumes and frequency, among others. It may also create uncontrollable regulatory exposure for the company, if the data in the system were to be used by regulatory entities in any of the many countries across which this system operates.

Our recommendation is that the standard rely on commonly used traceability systems that are maintained within the feed company, and that it require the firm have the capacity to participate effectively in a recall in a reasonable time frame.

BAP: *The BAP program has its own traceability system, currently managed by an independent agent. This system is a requirement because the BAP program does not rely on separate (and costly) “chain of custody” audits. Instead, compliance with traceability requirements is assessed at the time the plant is inspected and subsequently through the use of the online database.*

BAP provides food safety assurance right up to the consumer, so a centralized traceability system is needed to create links that go further than one up, one down. All information remains confidential. Without compromising these principles, there is flexibility to achieve synergies with operators that have established traceability systems.

Certification Scope

It is our recommendation that the standard is allowed to be applied to specific products rather than an entire feed mill. In most cases, each product batch has a unique formulation, and following the labeling and other requirements for all products will create unnecessary logistical complexities and cost.

BAP: *Agreed. There is a parallel here with seafood processing plants, many of which are certified to BAP. Thus, BAP-certified feed mills must meet the BAP criteria, but not all production lines/runs need produce BAP-compliant feed. However, BAP-compliant fish and shrimp farmers will be required to obtain BAP compliant feed.*

Fee Structure

We would suggest more clarity on the fee structure. If a per-facility fee is required, the non-BAP-certified product produced at the mill must carry an unfair burden of certification costs. The economic disadvantage of such an approach would be magnified for mills that produce a smaller fraction of feed for BAP-certified use, e.g., mills that typically produce a substantial portion of their product for fish destined for local consumption. This would include a large number of feed mills that are not part of an integrated aquaculture operation.

We suggest the fee be structured around volume of BAP-certified feed produced. Validating this volume will be part of the auditing process.

BAP: *The costs imposed by the BAP program will be proportionate to the benefits and will not be onerous. Exact cost structures are yet to be defined.*

Eric De Muylder

CreveTec
Flanders, Belgium

SPECIFIC COMMENTS:

2. Community Relations, Worker Safety and Employee Relations

“Appropriate protective gear should be provided for workers according to task, including items such as overalls, eye protectors, dust masks, gloves and boots.” Change to “Appropriate protective gear should be provided for workers according to task, including items such as overalls, eye protectors, dust masks, ear protectors, gloves and boots.”

There is a lot of noise in a feed mill, especially near hammermills and pulverizers. Suggestion: Limit DB to a certain level in the feed mill if there is no national standard.

BAP: *The reference to ear protectors has been added, as well as the following:*

“Noise levels in feed mills can be high, particularly due to hammermills and pulverizers. Exposure for more than eight hours a day to sound in excess of 85 dB is potentially hazardous.

Noise levels can be lowered by the use of noise-control enclosures, absorbers, silencers and baffles, and by the use of personal protective equipment, such as earmuffs. Where technical methods are insufficient, noise exposure may be reduced by use of hearing protection and administrative controls such as limiting the time spent in noisy environments and scheduling noisy operations outside normal shifts or at distant locations.”

A question that asks, “Does your facility limit worker exposure to sound in excess of 85 dB to less than eight hours a day or apply a stricter national standard?” has been added to the audit.

Change “Routine maintenance has an important bearing on the safety of employees. Worn chain and belt drives, for example, can become dangerous, so maintenance procedures are needed to keep workers safe.” to:

“Routine maintenance has an important bearing on the safety of employees. Worn chain and belt drives, for example, can become dangerous, so maintenance procedures are needed to keep workers safe. Uncovered belts or chains are prohibited.”

To avoid the work of taking covers on and off, they often are not put on. This is the case in a lot of smaller feed mills.

BAP: *The reference to uncovered belts and chains has been added in the guidelines and audit.*

6. HACCP Process Controls, Good Manufacturing Practices

I am surprised that there is no list of prohibited products: certain antibiotics, melamine ... Or at least that they are mentioned on the label. I would also suggest to add a standard on proper labeling, so that there is a minimum amount of information available to the farmer

BAP: *Although there is no detailed labeling standard for finished product, the standard does include labeling requirements for finished product with regard to medicinal ingredients and fishmeal and fish oil content. In addition, the traceability requirements are strict and detailed for the finished products.*

There is no list of banned antibiotics or dangerous adulterants such as melamine, but the standard does lay down the requirements to exclude these hazards in the audit. Additionally, the guidelines specify that feed plants consider banned chemicals or antibiotics in their hazard analyses and show that possible adulteration with these substances is verifiably monitored and controlled in raw materials.

Stephen Newman

AqualnTech Inc.

Lynnwood, Washington, USA

GENERAL COMMENTS:

I have reviewed the proposed standards and think that they are not wholly adequate. The fact that there are no concerns regarding potability of water used in the process (contaminated water can introduce heavy metals and pesticides into the feed), as well as what happens to waste water from the plant is a bit of concern.

While this process is not as intense as that of the processing plant, by far, cleaning water is discharged that can contain antibiotics and residues from other drugs that might be used, not to mention some significant amounts of organic material on occasion.

BAP: *The proper application of HACCP-based process controls, as required in the BAP standards requires that the risk of contamination by heavy metals and pesticides, from whatever source, be dealt with. Waste water is not heavily addressed. The main environmental focus has been on sustainable sourcing of fishmeal and fish oil.*

I also do not understand why the standards talk about approving specific feed lines and not the plant as a whole. While a plant may produce dozens of different types of feed, it seems to me that we should be approving the plant in general and not trying to dissect out just those feeds that are used in the few aquaculture species that we currently audit for.

How can these standards have meaning if we are not focused on the mill practices in general? Of course, some items make sense in terms of targeted species such as FIFO.

BAP: *The whole plant must satisfy the requirements of the standards, but the plant is still free to produce batches of feed that are not intended to be BAP-compliant (e.g., destined for species other than fish or fish species that are not yet in the BAP program). This is a necessary concession for a voluntary standard. When market forces and demand for BAP feed are adequate, then feed makers will switch all production batches to BAP compliance.*