

21. ISSUES RAISED IN GENERAL DISCUSSION AT THE HATCHERY FEEDS WORKSHOP

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The aim of this session was to capture industry needs and concerns with respect to hatchery feeds issues raised in general discussion on 10 March 2000. The following list was raised by participants.

GENERAL

- What does the aquaculture industry need with regard to live feed?
- Efficiency, reliability, quality.
- Reduce cost; maintain quality.
- Quality diets formulated for specific species.
- Need short- and long-term solutions:
- Short term: copepods, alternative live prey items;
- Long term, micro-particulate diets.
- We should aim to promote best practice by benchmarking the more cost-effective procedures for using hatchery feeds. These benchmark values should be periodically reviewed to take into account improvements.

MICROALGAE

- Microalgae tend to get 'bad press' because they are perceived as being difficult to grow reliably in quantity, and thus expensive. Some participants indicated that microalgae were in fact relatively easy to mass-culture, but most hatchery operators would prefer an off-the-shelf substitute.
- Australia should adopt tested technology for mass production of algae.

¹ QDPI Northern Fisheries Centre. (See details in appendix.)

- A larger suite of microalgae, and microalgal products (such as concentrated Chlorella), would be available if import restrictions were less onerous. Existing quarantine procedures restrict progress in this regard — need to involve AQIS in modifying quarantine protocols.

ROTIFERS

- Hatcheries would like a large rotifer, to reduce brine shrimp usage.
- Australia has the world's largest rotifer (freshwater).

BRINE SHRIMP

- Highest priority is to overcome the brine shrimp shortage.
- Hatcheries need to improve efficiency of use of *Artemia*, to make the best of the existing supply.
- A good way to improve hatchery efficiency is to benchmark best practice
- Australian *Artemia* market is currently around four tonnes.
- Major *Artemia* users are prawn hatcheries, but they are not particularly efficient.
- The worldwide *Artemia* shortage provides opportunities for Australian industry to produce brine shrimp, possibly utilising saline water sources, to take advantage of world demand and increasing prices.
- There may be opportunities to combine desalination projects with *Artemia* production.
- *Parartemia* is expected to be commercially available in about one year.

COPEPODS

- Copepods may provide a replacement for brine shrimp.
- Need a production system that can be used by farmers. Current methods are too labour-intensive or still experimental.
- Need culture technique that can be used for a wide range of copepods.

ARTIFICIAL FEEDS

- Need weaning diets to co-feed or replace *Artemia*.
- Existing artificial feeds are not as good as live feeds but economics will change this.
- Research needs to focus on diets for a limited number of species.
- Most hatchery diet work has taken place overseas, although some work has been done locally.
- Lack of local diet development reflects the limited local market for these products.
- Combination of artificial substrates and liquid diets was given as an example of an innovative approach to improving the efficiency of live feeds in prawn and finfish hatcheries.

EXTENSION AND TECHNOLOGY TRANSFER

- Industry feels that there is a lack of transfer of information. Technology transfer tends to be overlooked in the ongoing fight for research funding.
- There is a gap between research and technology — not enough transfer between researcher and aquaculture operators, and between operators themselves.
- Need more industry and research meetings to transfer technology.
- Hands-on workshops preferred by industry.
- On-the-ground extension work is needed to transfer research results.
- Use overseas experience to increase the range of live food and to shortcut research (for example, look at Chinese experience).
- Exchange programs targeted at industry technicians are most useful.
- Most benefit is from hands-on overseas visits by industry personnel.
- Who scales up the technology from research scale to commercial production scale?
- Post-graduate degrees are a cheap way of funding research. Industry feels that Masters degrees are more productive in that they provide more industry-relevant information in a shorter time frame than PhD degrees which tend to take longer and be more academic.

INDUSTRY DEVELOPMENT AND ECONOMICS

- Industry would be strengthened by broadening its base.
- Existing industry sectors are seen as having less need for new feed species; whereas emerging sectors have more need for development of new or alternative hatchery feeds.
- Methods to assess the economics of new systems and/or technologies would be valuable: dedicated special business units are one option.
- Underdevelopment of our own resources (not enough research funding to go around).
- Collaborative approach, involving other funding bodies, would be more efficient.
- More research needed on widespread problem of land salinity (inland-based marine aquaculture). This is being addressed through several Inland Saline Aquaculture projects, funded by FRDC, ACIAR, RIRDC and the CRC Aquaculture.

EXTENSIVE PRODUCTION

- Provides an alternative method to reliance on traditional live feeds, such as *Artemia*.
- However, there are seasonal limitations to supply of live feed in extensive systems.
- Need to develop extensive techniques for different climatic zones.