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SUMMARY – Since its inception in 1992, the NAC Malta, has adopted Quality as the major item in its mission objectives. One of the major tools of quality were the setting up of laboratories to carry out Microbiological, Chemical and Histological Analysis. Laboratories on their own cannot improve Quality but they have been put to maximum use to contribute towards the set objectives. This, together with training and technical advice on systems set-ups, have been the best contribution the Centre could give to the Industry.

Key words: Aquaculture, quality, Malta.

RESUME – *"La contribution du Centre National d'Aquaculture de Malte à la qualité dans l'industrie aquacole locale". Depuis ses débuts en 1992, le NAC de Malte a adopté la qualité comme l'élément majeur parmi les objectifs de sa mission. L'un des grands instruments pour la qualité a été l'établissement de laboratoires pour effectuer des analyses microbiologiques, chimiques et histologiques. Les laboratoires à eux seuls ne peuvent pas améliorer la qualité mais on peut en tirer la plus grande utilité pour contribuer aux objectifs fixés. Ceci, avec la formation et l'assistance technique pour l'établissement de systèmes, a été la meilleure contribution que le Centre pouvait apporter à l'industrie.*

Mots-clés : *Aquaculture, qualité, Malte.*

The Planning Authority's Aquaculture Policy

The Malta Planning Authority in conjunction with the NAC issued a document called "Policy and Design Guidance – FISHFARMING". One of the major requisites for good quality is good planning. These guidelines also impose a monitoring programme for farms. This monitoring programme starts from the hatchery to the point of harvesting and packaging. In the latter case HACCP principles are employed and monitored by the local Veterinary Service. The buyer is invited to observe this process should he wish to. Unfortunately, since most of the fish end up in foreign markets there is absolutely no control at the point of sale to the final consumer.

The initial stages start off at the overseas hatcheries. These are audited for quality and hygiene once a year by the NAC's consultant pathologist who is also a qualified hygienist. Once the hatchery is approved, the local farms are allowed to import fish from these hatcheries. The farm's fish health biologist also visits the hatchery before the fingerlings are dispatched. On arrival, the fish are screened for parasites and kept in the lab for a minimum of 15days to see whether there are any developments. If there are any developments of any abnormal behaviour, the fingerlings are fixed and sectioned. The brain and eyes, the gills/heart and digestive system are the prime sections for examination following staining.

Since almost all farms are sea based floating cages, then the fish are monitored regularly at last every fifteen days. Sampling is not done at random one examines the weakest fish. The chances of picking the parasites in these fish is usually higher. In a way these are used as monitors of the cage. The level of parasitic infestation is normally associated with the health status of the fish. It is not the first time that "healthy" fish are found to be heavily infested with some form of endozoic parasites, e.g. *Ceratomyxa* sp. In this case manipulation of the fish is kept to a minimum and the fish are treated with vitamins. Since in most cases there is no form of corrective action, the only way is to try out chemotherapeutic agents which have been tried on other animals. The Centre is equipped with trial facilities to carry out such trials.

Besides the normal monitoring, the NAC offers a rapid diagnostic pathology service for any disease

that might appear from time to time. This rapid service permits the farmers to treat their fish before the disease spreads out. Such treatments have resulted in cost reduction and hence a good quality input.

The best cost effective investment though has been found to be the training of the people on the cages. Many short courses are held on hygiene, diseases and their symptoms. This is above the training received on their normal routine work. The ISO 9000 model has not been applied yet on the farms because it has not been felt that this gives any advantages. This is not the case in the hatchery because it is being implemented gradually in the NAC's hatchery. The main objective is a culture change. Here the staff are invited to be involved in Process Control Models and are taught to write their own SOPs. Naturally these are supervised and approved by the hatchery manager. With the help of the laboratory, the SOPs are validated and the people from different sections do each other's auditing. Further verification of conformity to the systems manual is carried out by the laboratory which acts as a quality assurance department. Section personnel carry out the day to day monitoring. This includes the calibration of instruments against standards prepared by the laboratory. The records and SOPs are all traceable and every person knows that he is accountable for his actions.

The raw materials of a hatchery are water, eggs, dry food and the enrichment. Every effort is made to ensure that the water is treated, filtered and UV disinfected. The eggs are produced from our own broodstock which are also monitored regularly and kept in borehole water. The food is frozen to –20°C to ensure that no parasites end up in the water. There is no control on the viral and bacterial load of these frozen seafood. The use of dry food is being considered in the future. The communication between the hatchery and the suppliers are maintained at a customer/customer relationship to ensure the best dialogue for improvement.

Another important aspect within the "Guidelines" is the monitoring of effluents and the areas under the cages. This is another requisite that the farm must observe. The fish farming industry in Malta has to compete with the major local industry, i.e. tourism. But this is also done because the environment has always been considered as a stakeholder in the list of customers. Besides the bentic surveys, the farms are obliged to conduct analysis of water in and around the cages. Besides the normal physio-chemical parameters water is analysed for pesticides and heavy metals by the local Veterinary Services. In a way this has a double benefit, i.e. both for the environment and as part of the process control of the farm. The results are passed to the Veterinary Services and the planning authority.

A very constructive input to the local scene is the ongoing permanent dialogue between the local fish farm health biologists. When one farm has a disease the others are informed immediately so that they can take the necessary precautions. Commercial matters are left out of the discussions but biological problems and problems with customers and suppliers are discussed especially the quality of the feeds, effectiveness of certain and that of the various hatcheries. This also helps in the continuous improvement aspect of the industry.

By no means is the industry a bed of roses. The drop in prices, extra tariffs and the stiff competition is making everyone work harder and harder. It seems that the local industry, like that of the Mediterranean ones, was riding the success crest when supply was much shorter then demand without thinking much of the future. But now this trend seems to have reversed. The customer was forgotten. This is not because he was not given a good quality product but because no one studied his needs and all of a sudden it seems that supply has exceeded demand. What about marketing? The island is too small to embark on such a project on its own. Professional marketing to discover new needs, new niche markets, new added value products. They must be addressed to exceed customer's expectations by creating a need for the product hence increasing the size of the market. Knowing the size of the market will then help the industry to grow in a more controlled way like the other farming sectors.