PARTICULARITIES OF ACCOUNTING IN ORGANIC AQUACULTURE INDUSTRY

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The purpose of this paper is to present our own vision about some general aspects of aquaculture and oyster farming expanded pearlite and their accounting implication. In our references we took into consideration the role of aquaculture as well as the benefits and drawbacks of it. Through this article we aimed to highlight a series of theoretical aspects regarding the role and importance of developing aquaculture national and international as well as a number of practical aspects about involved costs and profit. We intended that the results of the paper and the individual documentaries to materialize in a easy structure product so as to be a informing way on a general vision about aquaculture and oyster farming expanded pearlite.

Keywords: ostreiculture, periculture, oyster, aquaculture, economy, costs

Introduction

Aquaculture is a branch of agriculture which aims the growth of aquatic plants and animals for marketing. Aquaculture includes several sub-branches: pisciculture (raising fish), conchiliculture, ostreiculture (raising oysters), perliculture (oyster farming expanded pearlite), miticulture (raising mussels), raising shellfish, algoculture (raising algae)

One of the aquaculture branches that we chose to talk about in this material is conchiliculture, more accurate, ostreiculture closely related to perliculture because from the pearlite shells obtains significant income. Ostreiculture is a branch of aquaculture that deals with raising oysters in special marine farms. They may be grown pearl-producing oysters and edible oysters. Perliculture is the culture of bivalve shells with the purpose to obtain cultured pearls. Pearl farms may be positioned in saltwater (in waters near the shore seas) and in freshwater (in lakes or rivers).

The Evolution of Aquaculture Worldwide

Worldwide aquaculture experienced a flourishing development due to continuing demand of seafood and low reserves across the world's oceans. Aquaculture meets a considerable increase in the last 60 years, from a production of less than 1 million tons in 1950 to approximately 60 million tons in present. While fishing production is declining, aquaculture continues to grow faster than any other sector from animal food production.

Food market of marine origin form EU is supplied in proportion of 25 % from fishing sector, 65% from imports and 10 % from aquaculture field. Despite the fact that aquaculture represents a relatively small part from the EU economy, it has the potential to stimulate growth and employment, creating about 3000-4000 full-time jobs.

In Romania, in 2013 were 748 aquaculture licences in an area of 102,356 ha of wich 6,673 ha nurseries (6,5%)and 95,682 ha fanciers (93,5%).

Due to increasingly high demand, oyster producing pearls have developed greatly in perliculture marine farms. An oyster produces a pearl that looks similar with one naturally produced in 3 to 6 years and only 3-4 oysters from 3 tons produce perfect pearls.

It was estimaded that on 1 ha can be obtain 1,8 million oysters wich can filter between 57.000-150.000 m3 of water a day ,having a major impact in water ecology.

Nowadays, ostreiculture is a traditional activity in some EU countries like France (90% EU production) and Netherlands. In France there are over 15.000 oysters producers and worldwide China

it is by far the biggest producer with 80% of the total production, followed by South Corea,Japan and USA.

Process of Growing Oysters Expanded Pearlite

Raising oysters expanded pearlite is a sub-branch with high economic value.

For best results in terms of biological and ecological it is necessary to know more details about the conditions of life and growth of the species. This is because no matter how it is, directed growth or artificial must be within the corresponding ecological parameters. Otherwise will be recorded loss of exemplary productions.

The process is quite complicated and durable because oysters are placed in baskets or nets to protect them from predators. The baskets are hung vertically at a distance of one meter on a horizontal rope stretching two kilometers offshore, where is anchored either with a cement block or directly linked to a coral.

With the help of a vertical stabilizer, expanded pearlite oysters are kept at a water depth of 6 meters.

Oysters are then "seeded" carefully with a piece of pearl from a dead oyster shell, that constitutes the nucleus of the future pearl, wich is covered by the mollusk carefully with nacre.

The first small pearl, is harvested, then the process starts again with a nucleu that becomes a larger pearl.

After the harvest, the oyster is generally sacrificed because only produces a pearl as beautiful.

Bunches of oysters stacked in baskets and nets gets crowded quickly with all kinds of marine organism and creates no more large pearls , so it must follow a cleansing process.

Generally oysters producing pearls are drawn on the deck of a ship and washed with a strong jet of water, which contaminates water and can cause dead zones.

But it was discovered an ecological method and and beneficial to the cleaning process. Oysters are moved from deep water in the shallow water, where there are other type of fish, which for a few days are busy cleaning baskets loaded with organisms.

The Cost Production Structure of Oysters Expanded Pearlite

The total costs of oysters are determined by taking into account material costs, employment costs, overheads plus the repayment. The price is determined by the cost of production plus profit, the market price represents the cost of production, plus sales tax, plus value added tax. Total costs are divided at the amount of biological product obtained at the end of a life cycle.

Knowing the individual inner valve weight is determined the number of exemplary at 1 kg of meat. The price of 1 kg of meat is determined by dividing the price of total costs of achieved production (Turliu, 2008).

Table 1: Incoming and spending structure

<table>
<tr><td rowspan="15">TOTAL INCONME</td><td rowspan="2">FACTORIAL INCOME</td><td rowspan="15">TOTAL COSTS</td><td>PROFIT</td><td></td><td></td><td></td><td rowspan="13">GROSS ADDED VALUE</td><td rowspan="2">NET ADDED VALUE</td></tr>
<tr><td rowspan="5">FACTORIAL COSTS</td><td rowspan="8">COST STRUCTURE</td><td rowspan="3">WORKFORCE</td><td>MANAGER'S EXPLOATATIONS</td></tr>
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<tr><td colspan="2">FUELS AND LUBRICANTS</td></tr>
<tr><td colspan="2">FEED</td></tr>
<tr><td colspan="2">WORK PERFORMED BY THIIRD PARTIES</td></tr>
<tr><td colspan="2">MAINTENANCE AND REPAIR</td></tr>
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Source: Technology of growing oysters

Tabel 2 : Actual costs for oysters care (production capacity : 500 tons/year /10ha; employees:12)

	INVESTMENT	QUANTITY	UNIT COST	TOTAL COST
BREEDERS STRUCTURE	Metal table	10.000	28 €	280.000€
	Plastic bags	50.000	5€	250.000€
	TOTAL COST	60.000	33€	530.000€
EQUIPMENTS	Tractor	1	18.600€	18.600€
	Sorting machine	1	29.900€	27.900€
	TOTAL COST			46.500€
PURIFICATION	Field	300 m2	140€/m2	42.000€
	Constructions	200 m2	233€/m2	46.600€
	Water pumps	2	1.395€	2.790€
	Oxygen pumps	1	1.172€	1.172€
	Pool of stabling capacity (10 tons)	1	6.510€	6.510€
	Tubing	-	-	7.440€
	Sand filter	1	1.116€	1.116€
	UV sterilizer	1	3.255€	3.255€
	Stainless steel packaging table	2	465€	930€
	Stainless steel sink unit	2	279€	558€
	Total cost			112.371€
PACKAGING UNIT		250 m2	140€/m2	35.000€
	Constructions	200 m2	233€/m2	46.600€
	Insulation and Insulating doors	2 rooms		7.440€
	Stainless tables	4	279€	1.116€
	Sorting boxes of plastic material	6	186€	1.116€
	Stainless steel trolley	1	558€	558€
	Stainless steel sink unit	2	186€	372€
	Stainless steel gutters 4 m	4	93€	372€
	Washing holder boxes	2	465€	930€
	Stainless steel scale	1	372€	372€
	Transport			26.970€
	Total cost			120.846€
	GLOBAL COST			809.717€

Source : www.ispf.pf (processed by authors)

Tabel 3: Effective costs of an oyster farms

FUNCTIONALITY	TOTAL COST	TOTAL SHARE %
Repayment (>7 ani)	105.090€	30,96
Energy	5.580€	1,64
Workforce	37.200€	10,96
Maintenance	37.200€	10,96
Financial expenses	37.200€	10,96
Transport	93.000€	27,40
Various	24.180€	7,12
Production cost/ /Cycle	339.450€	100

Source:www.ispf.pf (processed by authors)

Cultured pearl industry is very expensive, besides the permanently special care of the scallops, the mortality rate is very high. Only 10% of mussels from a culture produce pearls that can be marketed. The average weight of an oyster is about 130 grams. Given that for a total quantity of 500 tons costs are EUR 1,149,167, indicates that the total investment is 0.30 cents / oyster.

At EU level the price of an oysters rises to 2.5 € /pcs. and the cost of oysters in Romania is of 80-90 cents. The prices vary according to quality pearls between 250-500 Euro for high quality pearls. However, oyster farming expanded pearlite can be a business idea with substantial future benefits. Pearl farms can bring benefits to marine life and try to change the way international pearl market works.

This cultivation process is quite difficult and durable, but with impact on the economy.

Australia is the largest global producer of pearls from South Sea and France is the main supplier of black pearls. Expanded pearlite oyster industry has experienced substantial economic changes in the last 50 years. It has gone from an industry based on wild catches to cultivated oysters. Japan is a major importer of raw pearls (241 millions USD , with a market share of 51.5%), while being the top exporter of processed pearls ,with a market share of 25.7% followed by Australia (23.3%), China, Hong Kong and France. New technologies and wider cultivation technologies have played an important role in changing the structure of industry expanded pearlite oyster economy. Australian pearl production peaked in the early 1920s and ceased to fall during the Second World War. In France culture pearls was initiated i n 1993 with the help of Australia and Japan. Pearlite production really began to grow in the 1980s and stopped abruptly in 2000-2001 as world prices fell and imports were affected by a number of adverse events (ex. Earthquake, war etc.).

Accountancy Particularities in Organic Aqaculture Industry

From an accounting perspective, oysters fall into the category of biological assets. In IAS 41 the biological asset is defined as "a living animal or a living plant". Because oysters to be recognized as biological assets must meet the following conditions:
(a) the entity controls the asset as a result of past events;
(b) it is probable that future economic benefits associated with the asset will flow to the entity; and
(c) the fair value or cost of the asset can be measured reliably. "

Oysters rating is at initial recognition and at each balance sheet date indicating its fair value less estimated point of sale (these costs relate to: taxes imposed by the authorities covered and comodity exchanges, commisions to brokers and dealers, transfer taxes). If the fair value of the oyster is not reliably measured, it must be valued at its cost minus any cumulated amortization and any cumulated depreciation. Accounting records relating to this branch of aquaculture, respectively perliculture are diverified depending on the purpose for which it is used.

If we look at ways of producing pearls we'll find that they involve many costs starting from oysters acquisition , oysters seeding for pearl production, transport costs, employee expenses, the purchase of vehicles, equipment, its maintenance and other expenses such as the extraction of the beads, finishing and other processes.

Pearl production requires a long time (3-5 years)seeding oysters costs can vary from 5000 to 10,000 dollars / year, not knowing their exact number after completing this process. In accounting terms perlier production may be registered in various ways: Assets, Half-product, Finished product, Manufacture in progress, Merchandise.

Assessment of Pearls

Pearls that are extracted are evaluated taking as a basis of appreciation the following physical factors: gloss, coloring, surface perfection, size, shape, and last but not least is appreciated including defects. The spherical shape is the most valuable, followed by hemispherical, pear-shaped and eventually irregular shapes (called baroque forms). The pearl that has as few marks and imperfections has a higher value. Regarding the colors, the most popular are the golden and peacock green color pearls. The nacre and glow appearance is less valued. The largest pearl in the world weighs 6.4 kg, a white pearl without nacre glow but porcelained. For assessment is given a qualifying note taking into account the appreciation defects beads examined. There are weigh and assess karat (1 kt = 200 mg). It is customary to use subunits of Karat, evaluation settling, multiplying the taken note with the squared weight (note * G2).

Evaluation after collecting shellfish production is expressed in kilograms.

There are companies that cultivate exquisite and rare golden pearls that attract many investors.

These pearls are found in the clean waters of the Philippine Sea, the island of Palawan. Worldwide there is one producer of natural gold-colored pearls. The pearls are grown by transplanting a small piece of tissue from a shell in other younger shell. The producing pearls methodology involves the following actions: choosing and preparing shellfish stock, graft preparation, graft implantation shells ,maintenance for the operated convalescence mussels. The process takes between two and five years until a golden pearl is growing, cultivation process is extremely meticulous and needs a long time. The duration of marketable pearls training is 3-4 years. A pearl that measures 3-4.5 mm in diameter is formed in 5-10 years.

Each exemplary is sold for 500 euros, but the pearls of the highest class can cost several thousand times more. On their turn oysters are cleaned and sold to restaurants.

Perlier culture has the potential to provide enhanced opportunities for economic growth. One advantage may be that they have a much higher value compared to their weight and are easy to store.

These two factors reduce transport problems and lead to a smooth trading.

Many development organizations such as the World Fish and the Australian Agricultural Research center supported pearl cultivation projects in developing countries as a mean to improve livelihoods; Such communities have usually few economic opportunities.

The main problem of aquaculture sector is represented by the stagnating production growth, a completely opposite situation from the rest of the world, which recorded high growth rate. However, the sector has made progress in terms of matter and ensures the availability to consumers of quality products and ensuring environmental sustainability.

Conclusions

We can conclude that the future growth will be reserved to molluscs, oysters and perliculture knowing a flourishing development, being possible the initiation of sustainable business perspective and with a major impact on the market, bringing significant economic benefits despite the economic crisis. Oyster farming is profitable because per unit of product are obtained prices as more than satisfactory for farmers. An important income comes from pearlite cultures, this activity is important because the world consumes about 5 million tons of shellfish per year, mollusks being used for other purposes: pharmaceuticals, paint, shells or valves in construction of buildings, roads, etc. It is very important and that for the shells and pearls delivery there is no imposed quota by the EU.

Aquaculture in Europe is awaiting some challenging times and looks to a bright future, is estimated that in 2015 production will increase with 40%. The economic importance of oysters growth and pearls production are due to their qualities , achieving big productions with the opportunity to value high profit with products and half-product of agriculture.

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