

Vol 3 Issue 5 Feb 2014

ISSN No : 2249-894X

*Monthly Multidisciplinary
Research Journal*

*Review Of
Research Journal*

Chief Editors

Ashok Yakkaldevi
A R Burla College, India

Flávio de São Pedro Filho
Federal University of Rondonia, Brazil

Ecaterina Patrascu
Spiru Haret University, Bucharest

Kamani Perera
Regional Centre For Strategic Studies,
Sri Lanka

Welcome to Review Of Research

RNI MAHMUL/2011/38595

ISSN No.2249-894X

Review Of Research Journal is a multidisciplinary research journal, published monthly in English, Hindi & Marathi Language. All research papers submitted to the journal will be double - blind peer reviewed referred by members of the editorial Board readers will include investigator in universities, research institutes government and industry with research interest in the general subjects.

Advisory Board

Flávio de São Pedro Filho Federal University of Rondonia, Brazil	Horia Patrascu Spiru Haret University, Bucharest, Romania	Mabel Miao Center for China and Globalization, China
Kamani Perera Regional Centre For Strategic Studies, Sri Lanka	Delia Serbescu Spiru Haret University, Bucharest, Romania	Ruth Wolf University Walla, Israel
Ecaterina Patrascu Spiru Haret University, Bucharest	Xiaohua Yang University of San Francisco, San Francisco	Jie Hao University of Sydney, Australia
Fabricio Moraes de Almeida Federal University of Rondonia, Brazil	Karina Xavier Massachusetts Institute of Technology (MIT), USA	Pei-Shan Kao Andrea University of Essex, United Kingdom
Catalina Neculai University of Coventry, UK	May Hongmei Gao Kennesaw State University, USA	Loredana Bosca Spiru Haret University, Romania
Anna Maria Constantinovici AL. I. Cuza University, Romania	Marc Fetscherin Rollins College, USA	Ilie Pinte Spiru Haret University, Romania
Romona Mihaila Spiru Haret University, Romania	Liu Chen Beijing Foreign Studies University, China	
Mahdi Moharrampour Islamic Azad University buinzahra Branch, Qazvin, Iran	Nimita Khanna Director, Isara Institute of Management, New Delhi	Govind P. Shinde Bharati Vidyapeeth School of Distance Education Center, Navi Mumbai
Titus Pop PhD, Partium Christian University, Oradea, Romania	Salve R. N. Department of Sociology, Shivaji University, Kolhapur	Sonal Singh Vikram University, Ujjain
J. K. VIJAYAKUMAR King Abdullah University of Science & Technology, Saudi Arabia.	P. Malyadri Government Degree College, Tandur, A.P.	Jayashree Patil-Dake MBA Department of Badruka College Commerce and Arts Post Graduate Centre (BCCAPGC), Kachiguda, Hyderabad
George - Calin SERITAN Postdoctoral Researcher Faculty of Philosophy and Socio-Political Sciences Al. I. Cuza University, Iasi	S. D. Sindkhedkar PSGVP Mandal's Arts, Science and Commerce College, Shahada [M.S.]	Maj. Dr. S. Bakhtiar Choudhary Director, Hyderabad AP India.
REZA KAFIPOUR Shiraz University of Medical Sciences Shiraz, Iran	Anurag Misra DBS College, Kanpur	AR. SARAVANAKUMARALAGAPPA UNIVERSITY, KARAIKUDI, TN
Rajendra Shendge Director, B.C.U.D. Solapur University, Solapur	C. D. Balaji Panimalar Engineering College, Chennai	V.MAHALAKSHMI Dean, Panimalar Engineering College
	Bhavana vivek patole PhD, Elphinstone college mumbai-32	S.KANNAN Ph.D , Annamalai University
	Awadhesh Kumar Shirotriya Secretary, Play India Play (Trust), Meerut (U.P.)	Kanwar Dinesh Singh Dept.English, Government Postgraduate College , solan

More.....

Address:-Ashok Yakkaldevi 258/34, Raviwar Peth, Solapur - 413 005 Maharashtra, India
Cell : 9595 359 435, Ph No: 02172372010 Email: ayisrj@yahoo.in Website: www.ror.isrj.net



ECONOMIC RETURNS OF EXISTING VARIOUS SHRIMP FARMING PRACTICE IN SOUTHWEST REGION OF BANGLADESH

Aksya Kumar Sarkar and M. Nazrul Islam

Joint Managing Director, WAB Trading International (Asia) Limited.
Department of Zoology, University of Rajshahi, Rajshahi, Bangladesh.

Abstract:

Shrimp is one of the leading exportable seafood products from where Bangladesh is earning about UD\$ 500 million yearly contributing 3.78% to the GDP. Farmer follows the traditional and extensive farming practices and average production is 275 kg/ha which is the lowest compared to other countries producing shrimp around the world. Reasons of this low production are lack better technology, dearth of quality seed and feed and effect of shrimp disease. Small-scale organic shrimp farming practice introduced recently has shown better production and profitability under four coastal sub district (Upazila) of Sathkira district in the southwest part in the country.

Three different farming practices were studied: (i) organic (ii) traditional and (iii) extensive or control farming where farmers were interviewed to collect data. Study found organic farmer producing average 451 kg/ha which is 10.64% higher than the traditional farmers and 20.84% higher than extensive or control farming system. Cost-benefit analysis showed organic farming is more profitable compared to other practices because of low input cost and premium price received for organic shrimp. Percentage of gross sell of organic is 10% higher than traditional and 19.37% higher than control shrimp farming.

KEYWORDS:

Organic, Traditional, Extensive Shrimp farming, production, income.

INTRODUCTION

Shrimp culture is expected to continue to play an important role in ensuring food security and poverty alleviation, particularly for the rural poor. The urban population will be benefited from the improvement in processing, value adding, and marketing of the shrimp industry as a whole.

There is a long tradition in Bangladesh of allowing the tidal waters to flood low lying fields, holding the water, and allowing the fish and shrimp which come in with the tide to grow. The production was naturally low and the productivity of the most desired species, *P. monodon* rarely exceeded 30 kg/ha, contributing about 15 -20% of the total production.

Traditional gher(enclosure) aquaculture had been practiced in the coastal areas of Bangladesh long before the introduction of current shrimp culture practices (DDP 1985). In the early 1960s, the government constructed a large number of coastal embankments to protect agricultural land in the coastal areas from tidal waves and saline water intrusion. This process brought an end to traditional shrimp aquaculture in these areas. However, since the 1970s, strong international market demand and high prices

Title: "ECONOMIC RETURNS OF EXISTING VARIOUS SHRIMP FARMING PRACTICE IN SOUTHWEST REGION OF BANGLADESH", Source: Review of Research [2249-894X] Aksya Kumar Sarkar and M. Nazrul Islam yr:2014 | vol:3 | iss:5

ECONOMIC RETURNS OF EXISTING VARIOUS SHRIMP FARMING PRACTICE.....

for this product have encouraged farmers to resume shrimp farming in polders within the embanked areas. Equally important was the fact that it was no longer financially viable to cultivate rice because the polders had become waterlogged due to poor drainage. These two factors together provided a catalyst to the process of accelerated shrimp farming (Karim 1986).

Social economic changes and problems occurred in the past due to conflicts about land rights and investment of rich 'outsiders' in the order to use large areas for shrimp farming. Studies on the southwest region completed between 1998 and 2002 suggest that 'outsider' control is in decline in the areas of brackish water production as smallholders from rural middle class begin to farm for themselves rather than leasing out to larger landowners and city based investors (AAtiq Rahaman,2006).

In the south-western coastal areas (i.e. greater Khulna region) the cropping pattern is for brackish water shrimp culture in dry months (December–July), followed by transplanted aman rice during July through to December. In some areas with year round higher salinity, shrimp farming is characterized by year round polyculture with other crustacean and fish for local markets or home consumption. In fertilizer and pesticides used like among others pyrethroids, organo-phosphates, carbamates, carbofuran, diazinon, and phosphamidon. The main concerns connected with use of such chemicals are the south-eastern coastal areas (i.e. Cox's Bazaar region) shrimp are grown from May to November and for the rest of the year, the land is used for salt production. In some parts of the south-eastern tidal area, rice alternates with shrimp and fish production (ESCAP, 1988).

Nowadays the land is cropped again with rice paddies and shrimp ponds by locals in small scale farming method. Rice cropping includes use of chemical impairment of human health, water contamination and loss of biodiversity (PAGIOLA 1995). The traditionally managed shrimp farms are becoming rare in Bangladesh since they are gradually improved in order to increase the crop yield. Quite often chemical fertilizers and pesticides from rice paddy culture are added beside or instead of cow dung and organic fertilizer (ALAM 2002). Wild catch larvae are introduced in order to increase the yield, what causes severe environmental problems in Bangladesh. The larvae is caught by pulling a very fine mesh net (>1mm) through the costal or river water. The by-catch harvested with shrimp fry *Penaeus monodon* makes 56,2% of the catch (AHMEDETAL 2002, ISLAMAND HAQUE 2004) and dies unused on the river banks. Both cropping systems, rice as improved shrimp farming have certain demands and supplies of ecosystem services. On the one hand they are essential nutrition providers on the other hand they pose some environmental problems.

Before hatcheries were developed in BD, shrimp farming had to rely on wild caught PL with negative impacts on the environment, because of the so called 'by catch' that is dominated by cnidarians, molluscs, other crustaceans than *P. monodon* and fish larvae (Peterson, 2002).

This was the reason for the DOF (department of fisheries) to ban the wild fry collection in Bangladesh in Sept. 2000 (DOF, 2002). In the last decade hatcheries for *P.mondon* have successfully developed in Bangladesh's South east region (Coxs Bazar) promoted by the ban for wild fry collection and the demand for fry by the shrimp farmer.

The Organic Shrimp Project was established in 2007 in the south-western part (Khulna division) of Bangladesh. The production of Naturland organically certified shrimps for western markets while supporting the local farmers are some of the goals of the project. It helps the farmers understand the positive values of the organic and sustainable small scale aquaculture. Farms participating in this project are managed extensively, economically as well as ecologically sustainable and according to Naturland standards (NATURLAND 2005). The farmers are not allowed to use wild catch, but larvae from hatcheries. No additional feed is allowed instead the natural food chain is induced by organic fertilizers. Chemical fertilizers are not allowed, but the farmers are trained in the production of compost and the use of organic fertilizers. Increasing the yield by using sustainable methods as well as the transfer of knowledge from recent research conclusions are the basis of the project. According to Naturland standards the project meets economical well as environmental sustainable production in regard to social aspects.

Study time and Spot:

The survey was conducted 2013 shrimp culture season and total 45 farmer selected in the 3 different sub district Kaliganj, Syamnagar and Assasunit under the Satkhira district. Total 45 farmers were interviewed during survey in the 3 sub district and each category 15 farmer were selected. The information was collected through questionnaire interview& farm visit, Focus Group Discussion (FGD), and case study analysis methods. The information were collected quarterly basis like January to April, May to August and September to December in 2013. During the interview GPS machine used for taking the measurement of the farm which will help to display farm location in the Goggle earth program as well as calculation of farming area.

ECONOMIC RETURNS OF EXISTING VARIOUS SHRIMP FARMING PRACTICE.....

Land ownership:

In terms of traditional farmer, among the 15 farmer 13 farmer doing shrimp culture in their own farm and 2 farmers doing shrimp farming both his own land and lease land. In terms of control farming among the 15 farmer 10 farmer doing shrimp farming in their own land and 5 farmers doing shrimp farming of their own & lease land. According to the survey it was found that in terms of organic farmer 2 farmer has been taken lease from other and rest of the 13 farmer are doing shrimp farming their own land.

Survey area of 3 different sub districts

Name of Sub district	Total Traditional farm no	Total Traditional farm Area(ha)	Total Control farm no	Total Control farm Area(ha)	Total organic farm no	Total organic farm area(ha)
Assasuni	5	2.6	5	4.2	5	3.1
Kaliganj	5	7.5	5	7.6	5	8.3
Shyamnagar	5	4.2	5	6.6	5	3.4
Total	15	14.3	15	18.4	15	14.8

MATERIALS AND METHODS

Baseline survey

Questionnaire was develop for baseline survey and data were entry in XL sheet accordingly. Field test were carried out with first developed questionnaire and after that it was corrected according to the practical situation. The correction was done through the local fisheries expert opinion and consultation with organic shrimp project extension people. 45 farmer were selected in the three Sub district (Kaliganj, SyamNagar, Asasuni) under Sathkira district. Among the 45 farmer each sub district 15 farmer has been selected. Equal number of the farmer selected each sub district (15 farmer each Sub district) for different farming practice like organic, traditional and extensive or control shrimp farming. Organic project extension people were help to select the farmer. Before conduct the questionnaire interview farmer informed through mobile phone for fix the date & time for conduct the survey. Time was fixed according to the convenience of the farmers. During interview openly discussed with farmer and accordingly filed up the questionnaire and survey were completed after pond visit of selected pond. After field up the questionnaire it checked properly in the field and even if any problem then over the mobile the information was corrected. After that the information was entry in the computer in the XL sheet for analysis.

Focus Group Discussion (FGD)

FGD Conducted through open group discussion in the field. Three groups were selected in the three sub district with three different culture practices such as Organic, Traditional and extension or Control farming farmers. Each group 10-15 farmer was present in the each focus group discussion. Participants were selected with different age between 19-58. In the group three different culture practice farmer were present. During the FGD open question were asked to the all participant to understanding the present shrimp farming practice in their community. It was also asked them about the benefit of the shrimp farming. Then it was ask them which farming practice they are thinking was benefit for them and why. Farmer was discussed by themselves and sometimes they argue with their fellow farmer opinion and after the long discussion they come to a consensus.

Key informant

To understand the expert opinion key informant were select in the different sub district with different category of people. The Sub district (Upazila) Fisheries officer, NGOs representative and social elite person were selected as key informant. At first personally meet with them and later on after mobile talk connivance time were selected for the discussion with key informant. Same questionnaire were follows during collection the information from the key informant which use for farmer survey. In addition supplementary question were asked to the key informant to know and understand their opinion about the different farming practice income and production. Department of Fisheries (DoF) keeps the document on yearly basis regarding the production and average income of the total upazila farm. The NGOs representative also has the aquaculture activities in the field so they had also the idea about the farming

ECONOMIC RETURNS OF EXISTING VARIOUS SHRIMP FARMING PRACTICE.....

operation. The social elite person had their own farm and they also suggest the local fellow farmer about the production of shrimp.

Case study

Case study conducted each of three different category of farmer from each three of Upazila. Educated and proper understanding farmer were selected as case study purpose. Semi structure interview process were follow during conduct the case study.

RESULT AND OBSERVATION

Definition Traditional Farming in Bangladesh:

Use Inorganic and organic Fertilizer during pond preparation and culture period
Use insecticide and Pesticide as require
Farmer are allow to stock wild catch PL
There is no obligatory for the greening the dike
No proper post harvest treatment for the maintain the quality of the product
Not maintain the traceability
No proper documentation

Input used for the traditional shrimp production

-
- | | |
|--------------------|--------------------------|
| ▪ Cowdung | ▪ Indian oil |
| ▪ Mustard oil cake | ▪ Tobacco dust |
| ▪ Poultry drop | ▪ Potassium permanganate |
| ▪ Urea | ▪ Kartap Neem oil cake |
| ▪ TSP | ▪ Wooddust |
| ▪ DAP | ▪ Wheat |
| ▪ Haledon | ▪ Indian oil |
| ▪ Thiodine | ▪ Tobacco dust |
-

Organic Shrimp Farming (OSF)

Organic Shrimp farming does not allow any chemical treatment, even artificial feed of shrimps and wild caught PL (post larvae) are used for stocking. This method rather supports the farmers to prepare natural compost, Bokashi for regular use in the shrimp farm which dose not affect the overall production of shrimp, farmers make profit due to saving of the input cost (chemical fertilizers and hazardous chemicals) and this method is safe for the biodiversity as well.

Input used for the organic shrimp Production:

-
- | | |
|--------------------|-----------------|
| ▪ Cow dung | ▪ Rotenone |
| ▪ Compost | ▪ Broken rice |
| ▪ Mustard Oil Cake | ▪ Flat rice |
| ▪ Molasses | ▪ Zeolite |
| ▪ Rice Polish | ▪ Bokasi |
| ▪ Yeast | ▪ Rotenone |
| ▪ Lime | ▪ Broken rice |
| | ▪ Liquid Bokasi |
-

Control Shrimp Farming
Farmer are not used any input in his pond
Stocked both hatchery and wild catch PL
Farmer not bound to greening the dike
No proper post harvest treatment
No maintain the traceability
Only stocking and harvesting

ECONOMIC RETURNS OF EXISTING VARIOUS SHRIMP FARMING PRACTICE.....

Note: The control farmer does not use anything in his farm only stocking and harvesting.

Working strategy

A questionnaire was developed and conducted survey
Farmer were selected randomly in 3 upazila
FGD were conducted for getting mass people opinion
Key informant were selected from related work experience and collect information
Case study were conducted with interested and educated farmers

Result and observation:

According to the survey report the highest input used in the traditional shrimp farming, then organic shrimp farming and control no input used only the stocking and harvesting. Traditional farming use various kind of input, organic farmer use limited number of input but the control farmer not use any input. The traditional farmer expense 11.72% higher than the organic farmer and 3% higher compare to the extensive or control farmer. The extensive or control farmer expense 9% higher than the organic farmer. (Table -01 shown the details)

Table -01 Operating Cost/ha/yr

Operating cost Tk	Organic	Traditional	Control
Input	820	2410	0
lease	59000	65000	71000
PL cost	31300	35800	29600
Maintenance cost	15000	17000	16000
Total	106120	120210	116600

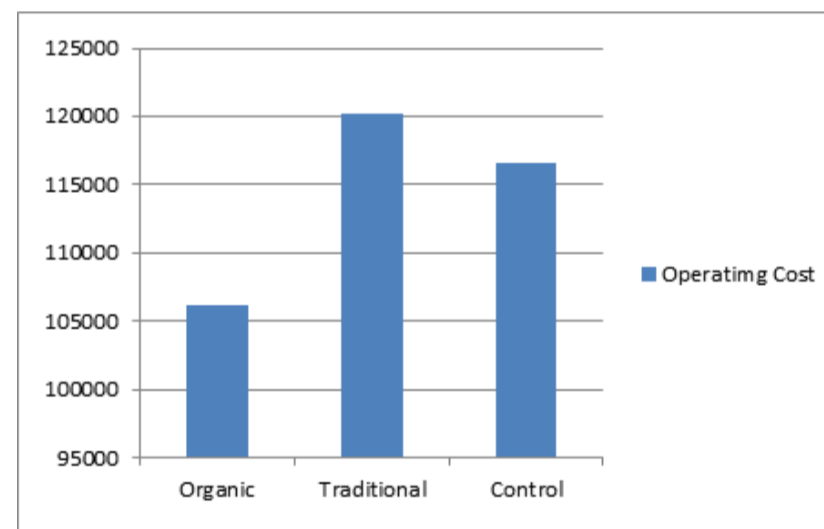


Figure 1: Comparison of total Operating Cost

Regarding the overall production the research find out that the organic production is 10.64% higher compare to the traditional and 20.84% higher compare to extensive or control technique shrimp farming production. But the extensive or control production is too much lower compare to the organic and traditional shrimp farming. The production is more or less same of organic & traditional shrimp farming but extensive or control farming is lower than organic & traditional farming. (Table -02 shown the details)

ECONOMIC RETURNS OF EXISTING VARIOUS SHRIMP FARMING PRACTICE.....

Table -02 Shrimp production kg/ha/yr

	Organic	Traditional	Control
<i>P. Monodon</i>	320	290	260
Other shrimp	45	48	38
Finfish	81	60	55
Crabs	5	5	4
Total	451	403	357

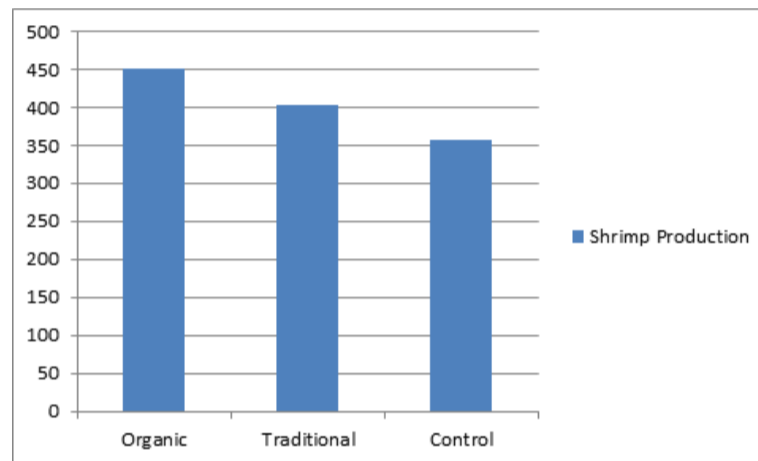


Figure 2: Comparison of Production kg/ha/yr.

Farmer only stock the *P. monodon* post larvae but other shrimp and fish larvae come through the natural water flow which is very important for the local common people consumption. Number of Post larvae(PL)/ha stock traditional is higher compare to the organic and control farming practice. In case of organic production of *P. monodon* 9.37% higher than the traditional farming and 18.75% higher than the control farming.

For overall production kg/ha/yr. is 1% higher in traditional & control than organic shrimp farming. (Table -03 shown the details)

Table -03 Shrimp farm production parameters.

	Organic	Traditional	Control
Average farm size (ha)	1	1	1
Stocking density (PL/ha/yr.)	70300	79100	71100
Gross yield (kg/ha)	451	403	357
Percentage of <i>P. monodon</i> (total biomass)	71 %	72 %	72 %
<i>P. monodon</i> production kg/ha/yr.	320	290	260
Average size at harvest (g)	25	25	25

ECONOMIC RETURNS OF EXISTING VARIOUS SHRIMP FARMING PRACTICE.....

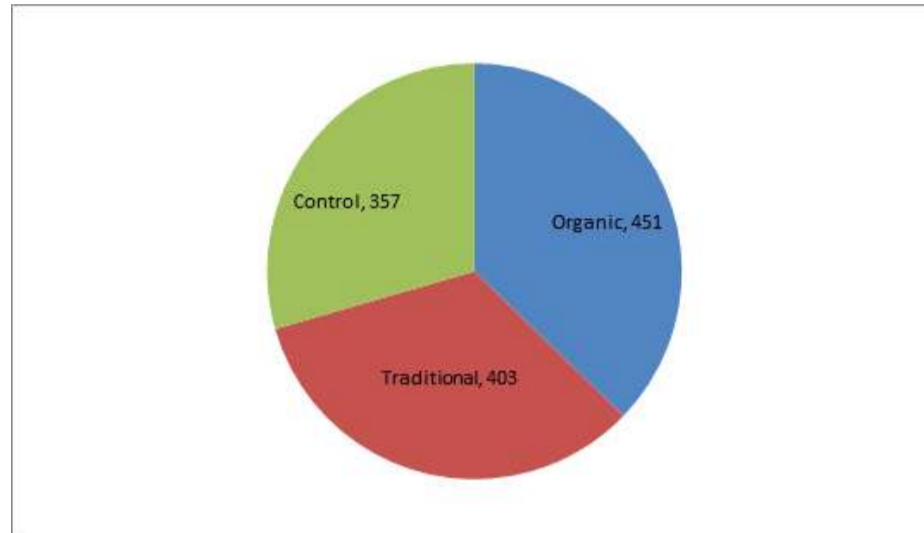


Figure 3: *P. monodon* production kg/ha/yr.

The result also shows that ha/yr. income organic is higher compare to the traditional and control shrimp farming practices. Percentage of gross sell of organic is 10% higher than traditional and 19.37% higher than control shrimp farming (Table -04 shown the details)

Table -04 Shrimp Gross sells in Taka

	Organic	Traditional	Control
P. Monodon	192000	174000	156000
Other shrimp	9765	10752	8550
Finfish	11502	7500	7425
Crabs	1300	1400	1120
Totals	214567	193652	173095

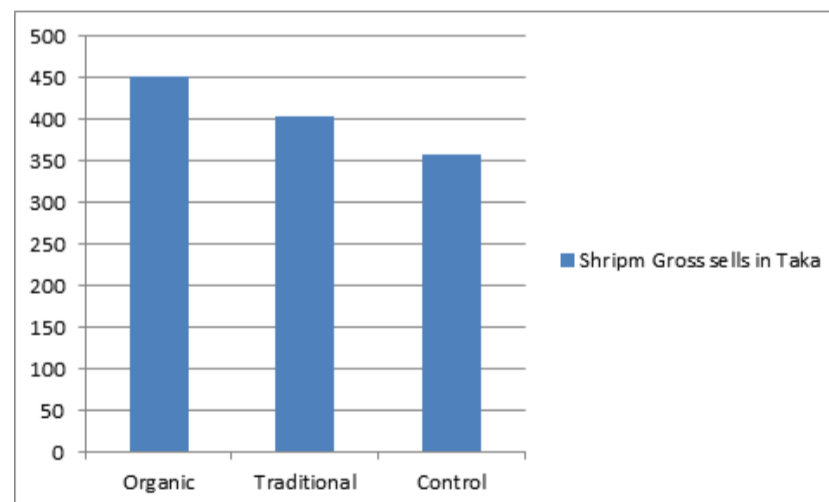


Figure 4: Shrimp Gross sells in Taka /ha/yr

CONCLUSION

The present research find out that organic farming technique is cost effect for the shrimp farmers of the coastal belt of Bangladesh. Considering to the overall production organic is higher production compare to the traditional and control farming practices. On the other hand tradition farming need more invest compare to the organic and control shrimp farming. Regarding the environment and sustainability point of view organic and control shrimp farming is better than the traditional shrimp farming because of environment friendly input use or not use input at all.

Organic farming is less input cost and higher production with high product value
Organic and control farming protect the environment and biodiversity
Organic farming is the sustainable production process.

REFERENCES

1. Alam SMN (2002) Shrimp based farming systems in south-western coastal zone of Bangladesh. Master degree thesis (AQ 02-20). Integrated tropical coastal zone management. Asian Institute of Technology, Bangkok, Thailand, p 102
2. Alam SMN, Phillips MJ, Lin CK (2003) Shrimp harvesting technology on the southwest coast of Bangladesh. *Aquaculture Asia* VIII(3):29-30
3. Caritas (1997) Ownership and participation in shrimp culture under Third Fisheries Project (Shrimp component), 2-Outer Circular Road, Shantibagh, Dhaka, Bangladesh, p 56
4. Chowdhury MBR, Muniruzzaman M (2003) Shrimp disease and its consequences on the coastal shrimp farming in Bangladesh.
5. In: Wahab MA (ed) Environmental and socio-economic impacts of shrimp farming in Bangladesh. Technical proceeding. BAU-NORAD Workshop, Dhaka Bangladesh, pp 39-48
6. Department of Fisheries (DOF) (2001) The dynamics and diversity of the shrimp farming in Bangladesh. shrimp sector technical review. Draft Final Report, Fourth Fisheries Project, Department of Fisheries, Ramna, Dhaka, Bangladesh, p 63
7. Department of Fisheries (DOF) (2002) National fish fortnight publication 2002.
8. Department of fisheries. Ministry of Fisheries and Livestock, Dhaka, Bangladesh
9. Food and Agriculture Organization (FAO) (1997) Disease prevention and health management of coastal shrimp culture. TCP/BGD/6714, Field document 1. Food and Agriculture Organization of the United Nations, Bangkok, Thailand
10. Hoq ME, Majid MA, Halder GC (1995) Socio-economic impact and constraints of shrimp culture in Bangladesh. Bangladesh Fisheries Research Institute Technical Reports 11, Mymensingh, Bangladesh
11. Hossain MS, Lin CK (2001) Land use zoning for integrated coastal zone management: remote sensing, GIS and RRA approach in Cox's Bazar Coast, Bangladesh. ITCZM Publication Series No 3. Integrated Tropical Coastal Zone Management, Asian Institute of Technology, Thailand, p25
12. Islam MS (1999) Social and institutional aspects of shrimp-rice farming in Bangladesh. Paper presented in the workshop on Economic, social and environmental implications of shrimp-rice integrated farming system in Bangladesh. Dhaka, Bangladesh
13. Ling BH, Leung PS, Shang YC (2001) Comparative Asian shrimp farming: the domestic resource cost (DRC) approach. In: Leung PS, Sharma KR (eds) Economics and management of shrimp and carp farming in Asia: a collection of research papers based on the ADB/NACA Farm Performance Survey. Network of Aquaculture Centres in Asia-Pacific, Bangkok, Thailand, pp 13-20
14. Rahman A, Islam MA, Roy I, Azad L et al (1994) Shrimp culture and the environment in the coastal region. Bangladesh Institute of Development Studies. E-17, Agargaon, Sher-e-Bangla Nagar, GPO Box 3854, Dhaka, Bangladesh, p 124
15. Shah WA, Phillips MJ, Kamal S, Jahan I et al (2000) The economics of bagda shrimp (*Penaeus monodon*) farming in coastal areas of Bangladesh. In: Sen S (ed) Grassroots voice Volume-III. Bangladesh Resource Centre for indigenous knowledge. Dhaka, Bangladesh, pp 10-15
16. Shang YC (1990) Aquaculture economic analysis: an introduction. World Aquaculture Society, Baton Rouge, Louisiana, USA
17. WB/NACA/WWF/FAO (2002) Shrimp farming and the environment. A World Bank, NACA, WWF, FAO consortium program to analyze and share experiences on the better management of shrimp aquaculture in coastal areas. The World Bank, Washington, DC

Publish Research Article International Level Multidisciplinary Research Journal For All Subjects

Dear Sir/Mam,

We invite unpublished Research Paper, Summary of Research Project, Theses, Books and Books Review for publication, you will be pleased to know that our journals are

Associated and Indexed, India

- ★ Directory Of Research Journal Indexing
- ★ International Scientific Journal Consortium Scientific
- ★ OPEN J-GATE

Associated and Indexed, USA

- DOAJ
- EBSCO
- Crossref DOI
- Index Copernicus
- Publication Index
- Academic Journal Database
- Contemporary Research Index
- Academic Paper Database
- Digital Journals Database
- Current Index to Scholarly Journals
- Elite Scientific Journal Archive
- Directory Of Academic Resources
- Scholar Journal Index
- Recent Science Index
- Scientific Resources Database

Review Of Research Journal
258/34 Raviwar Peth Solapur-413005, Maharashtra
Contact-9595359435
E-Mail-ayisrj@yahoo.in/ayisrj2011@gmail.com
Website : www.ror.isrj.net