APPENDICES

INTERVIEW SCHEDULE
A STUDY ON THE PRODUCTION AND MARKETING OF AQUACULTURE PRODUCTS IN KERALA

I  FARMER DETAILS

Name of the farmer:

3. Age: 1. Below 20 2. 21-30 3. 31-40 4. 41-50 5. 51-60 6. Above 60
4. Sex: 1. Male 2. Female
8. Are you the first entrant into this business from your family?: 1. First Generation 2. Second Generation 3. Third Generation
9. Experience in fish farming: 1. 0-10 yrs 2. 11-20 3. 21-30 4. 31-40 5. Above 40

II  FARMING DETAILS

11. Type of water body used: 1. Brackish water 2. Fresh water
12. Type of land:  
1. Natural pond  
2. Land excavated  
3. Canals in Coconut groves  
4. Panchayath ponds  
5. Quarry ponds  
6. Holy ponds  
7. Irrigation tanks  
8. Paddy cum filtration field  
9. Rivers (freshwater)  
10. Backwaters  
11. Reservoirs  
12. Mangrove area  
13. Others (Specify)  

13. Type of land ownership:  
1. Own  
2. Leased  

14. In the case of leased land, the actual owner of the land:  
1. Private Individual  
2. Private institution  
3. Local bodies  
4. Government Departments  
5. Others (Specify)  

15. Period of lease:  
1. Less than 6 months  
2. 6 months to 12 months  
3. 12 months to 24 months  
4. 24 months to 36 months  
5. More than 36 months  

16. Type of farming:  
1. Mono Culture  
2. Poly culture  

17. Farming Species (General)  
1. Fish (Specify):  
2. Crustaceans (Specify):  

18. Source of Seed:  
1. Wild  
2. Hatchery produced  

19. If hatchery produced, from where?:  
1. Public sector hatchery  
2. Private Sector hatchery  
3. Own hatchery  

20. Whether keeping nursery in the farm?:  
1. Yes  
2. No  

21. Whether keeping hatchery in the farm?:  
1. Yes  
2. No  

22. Type of feed:  
1. Wild  
2. Home produced  
3. Factory produced  

23. Supplier of Feed:  
1. Public sector supplier  
2. Private sector supplier  

24. Type of manure:  
1. Wild  
2. Home produced  
3. Factory produced  

25. Supplier of manure:  
1. Public Sector supplier  
2. Private sector supplier  

26. Do you practice integrated farming?:  
1. Yes  
2. No
27. If yes, your supplementary crop
   1. Rice
   2. Mushroom
   3. Horticulture
   4. Dairy
   5. Duck
   6. Poultry
   7. Pig
   8. Sericulture
   9. Rabbit
   10. Other crops (Specify)

28. Area under farming (in the case of fish and crustaceans)
   1. Less than 2.5 ha
   2. 2.5 – 8 ha
   3. Above 8 ha

29. Are you trained in aquaculture?
   1. Yes
   2. No

30. If not trained why?
   1. No need for training
   2. Not aware about such agencies
   3. No guidance from local self government
   4. Training centres are located far away

31. If trained give the following details

<table>
<thead>
<tr>
<th>SI No.</th>
<th>Training Programme</th>
<th>Training Agency</th>
<th>Period</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

III PRODUCTION PRACTICES

32. Are you practicing aquaculture in ponds?
   1. Yes
   2. No

33. If practicing culture in ponds rank the following problems in pond construction
   1. High cost for construction
   2. Water Scarcity
   3. Water pollution
   4. Land Scarcity

34. The method used for clearance of aquatic weeds?
   1. Hand picking
   2. Use weedicides
   3. Any other (Specify)
Appendices

35. Rank the following problems in connection with antiweeding
   1. High labour cost
   2. Recurring nature of cost
   3. High cost of pesticides
   4. Lack of training

36. The frequency of checking the Ph level of water to test water quality
   1. Daily
   2. Once in two days
   3. Weekly
   4. Fortnightly
   5. Once in a month

37. Rank the following problems in connection with liming in ponds
   1. Cost of lime to be used is high
   2. Huge labour cost
   3. Recurring cost
   4. Continuous checking of Ph level and adjust the level with lime is complicated
   5. Lack of training

38. Manure used for preparation of pond?
   1. Organic (Specify)
   2. Inorganic (Specify)

39. The method used for eradication of predators and unwanted trash fishes?
   1. Repeated drag netting
   2. Dewatering
   3. Use fish toxicants
   4. Any other (Specify)

40. The method used for determining stocking density of a pond?
   1. Through Experience
   2. As practiced by other farmers
   3. As directed by training centres
   4. Any other (Specify)
41. If practicing poly culture or by culture how will you determine the species combination ratio?
   1. Through experience
   2. Practiced by other farmers
   3. As directed by the training centres
   4. Any other (Specify)

42. The type of supplementary feed used
   1. Rice bran
   2. Ground nut oil cakes
   3. Coconut oil cakes
   4. Mustard oil cakes
   5. Leaves
   6. Aquatic weeds
   7. Tuber roots
   8. Silkworm pupae
   9. Egg
   10. Fish meal
   11. Snail meal
   12. Animal offal
   13. Factory produced seeds

43. Do you practice periodic sampling to check weight and quality? 1. Yes 2. No

44. If yes the frequency of sampling?  1. Weekly 2. Once in a fortnight 3. Once in a month 4. Others (Specify)

45. How will mange the incidence of diseases in species 1. Use of antibiotics 2. Use of organic medicines 3. Any others (Specify)

IV HARVESTING DETAILS

46. Harvesting time for different species

<table>
<thead>
<tr>
<th>Fish variety</th>
<th>Harvest Period (from stocking)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3-6 months</td>
</tr>
<tr>
<td>Fishes</td>
<td></td>
</tr>
<tr>
<td>Crustaceans</td>
<td></td>
</tr>
</tbody>
</table>
47. Mortality Rate from stocking to harvesting

<table>
<thead>
<tr>
<th>Fish Variety</th>
<th>Rate of Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishes</td>
<td></td>
</tr>
<tr>
<td>Crustaceans</td>
<td></td>
</tr>
</tbody>
</table>


1. Sudden change of weather [ ]
2. Water pollution [ ]
3. Flood [ ]
4. Inferior quality of seed supplied [ ]
5. Mishandling [ ]
6. Distance from hatchery to pond [ ]
7. Poor transportation [ ]
8. Predators [ ]

49. No. of harvest per crop

<table>
<thead>
<tr>
<th>Fish Variety</th>
<th>No. of harvests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishes</td>
<td></td>
</tr>
<tr>
<td>Crustaceans</td>
<td></td>
</tr>
</tbody>
</table>

50. Reasons for harvesting schedule
1. To optimize production
2. To get highest price
3. Availability of fry for restocking
4. Others (Specify)

51. Method of harvesting:
1. Total drainage of pond
2. Using net
3. Collecting ropes
4. Others (Specify)
52. Species wise production in quantity and revenue

<table>
<thead>
<tr>
<th>Species</th>
<th>Qty sold (Kg)</th>
<th>Price/Kg</th>
<th>Revenue</th>
<th>Eaten(Qty)</th>
<th>Given Away(Qty)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crustaceans</td>
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<tr>
<td>Total</td>
<td></td>
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</tbody>
</table>

V PRODUCTION PROBLEMS

53. Mark your response in the following statements relating to production on a five point scale

53.1.1 The external predators should be controlled through netting and fencing □
53.1.2 The entry of predators and trash fishes is uncontrollable □
53.2.1 Use of manures hinders sustainable aquaculture □
53.2.2 Inorganic manure usage reduces water quality in future □
53.2.3 Manure is easily available □
53.3.1 The traditional method of trapping wild seed is not possible due to depletion of wild seed □
53.3.2 The brooded (hatchery grown) seeds are productive □
53.3.3 Government agencies are issuing seeds free of cost □
53.3.4 It is better to maintain and manage own hatchery □
53.4.1 Stocking density is determined based on the area of water body □
53.4.2 Guidance was given by agencies to determine the stocking density □
53.4.3 Farmers practice definite ratios in combined fish culture □
53.5.1 Rearing of species in the water bodies is difficult □
53.5.2 Wild feeds are not sufficient for species growth □
53.5.3 The cost of rearing is high □
53.5.4 Species can grow only through supplementary feeds □
53.5.5 Farmers are trained in feeding practices □
53.5.6 Integrated farming supplements feeds □
53.5.7 Feeding should be done regularly □
53.5.8 Permanent labour is required for feeding
53.5.9 Cost of feed varies over period
53.5.10 Periodical sampling is essential to check weight and quality
53.5.11 Feeding pattern will be changed after regular sampling
53.6.1 Day and night watchmen are required to control poaching
53.6.2 Constructed watchman shed in the fish farm
53.7.1 Incidence of fish diseases is a major threat
53.7.2 The management of diseases is difficult
53.8.1 Insurance offered by insurance companies for crop insurance is not known
53.8.2 Agencies provide free insurance cover to farmers
53.9.1 Pre harvest contractors determine the time of harvesting
53.9.2 Market conditions are not considered while harvesting
53.10.1 Huge capital is required for aquaculture practices
53.10.2 Many procedure delays in getting subsidies
53.10.3 Farmers can repay the loan amount on time
53.11.1 Training given but not effective
53.11.2 Modern technologies boost aquaculture production.
53.11.3 Training is not given on the site
53.11.4 Regular feed back is not collected by agencies
53.11.5 Continuous training is not given in all stages
53.11.6 Lack of skilled labour is a problem for practicing modern technology
53.11.7 Finance is the basic threat in adapting modern practices

54. **Evaluation of agencies promoting aquaculture in Kerala**


1. Specialised Training Programmes provided
2. Model Aqua farms of Agencies to motivate farmers
3. Working Demonstration projects for Transfer of technology
4. Support during project initialisation
5. Extension work of officers at different stages
6. Monitoring and periodic assessment by agencies
7. Financial support through subsidies
8. Projects initiated by govt. like *Malsyakeralam, Janakeeya Matsyakrishi* etc.
9. Policies formulated by the govt. to promote culture
10. Regulations framed for sustainable aquaculture
11. Formation of fish farmers club at local levels
12. Working of fish farmers clubs
13. Mutual help through clubs
14. Intervention of agencies during diseases
15. Solutions to common problems

55. **VI COST DETAILS**

1. Operational Expenses

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Amount (Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>57.1 Human Labour</td>
<td></td>
</tr>
<tr>
<td>57.2 Seed</td>
<td></td>
</tr>
<tr>
<td>57.3 Feed</td>
<td></td>
</tr>
<tr>
<td>57.4 Fertilizers and manures</td>
<td></td>
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<tr>
<td>57.5 Fuel and Electricity</td>
<td></td>
</tr>
<tr>
<td>57.6 Annual maintenance and repairs</td>
<td></td>
</tr>
<tr>
<td>57.7 Lease rentals</td>
<td></td>
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<tr>
<td>57.8 Interest on loan</td>
<td></td>
</tr>
<tr>
<td>57.9 Insurance premium</td>
<td></td>
</tr>
<tr>
<td>57.10 Miscellaneous Expenses</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
</tbody>
</table>
### 57. Inventory of Assets

<table>
<thead>
<tr>
<th>Items</th>
<th>Acquisition</th>
<th>Economic life</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year</td>
<td>Cost</td>
</tr>
<tr>
<td><strong>1. Pond</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>57.1 Pond Excavation</td>
<td></td>
<td></td>
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<tr>
<td>57.2 Water Canal</td>
<td></td>
<td></td>
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<tr>
<td>57.3 Sluice Gates</td>
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<tr>
<td>57.4 Well</td>
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<tr>
<td>57.5 Others (Specify)</td>
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<tr>
<td><strong>2. Buildings</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>57.6 Office</td>
<td></td>
<td></td>
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<tr>
<td>57.7 Processing Room</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57.8 Watchmen shed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57.9 Storage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57.10 Others (Specify)</td>
<td></td>
<td></td>
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<tr>
<td><strong>3. Transportation</strong></td>
<td></td>
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<tr>
<td>57.11 Truck</td>
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<tr>
<td>57.12 Motor cycle</td>
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<td></td>
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<tr>
<td>57.13 Others (Specify)</td>
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<tr>
<td><strong>4. Nets</strong></td>
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<tr>
<td>57.14 Gill</td>
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<td>57.15 Seine</td>
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<td>57.16 Hapas</td>
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<tr>
<td>57.17 Others (Specify)</td>
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<td></td>
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<tr>
<td><strong>5. Equipments</strong></td>
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<tr>
<td>57.18 Pump Sets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57.19 Generator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57.20 Feeding equipments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57.21 Refrigerator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57.22 Feed Mixture Compressor</td>
<td></td>
<td></td>
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<tr>
<td>57.23 Others (Specify)</td>
<td></td>
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</tr>
</tbody>
</table>
VI  MARKETING DETAILS
A.  PRICING OF PRODUCE

58. Pricing methods followed
   1. Fixed amount per pond
   2. Fixed price at pond by variety and weight
   3. Fixed price at market by variety and weight
   4. Auction at pond
   5. Auction at market
   6. Others (Specify)

59. What are the market factors that influence the price of the produce (Rank)
   1. Quality of the produce
   2. Demand and supply conditions
   3. Middlemen influence
   4. Category of species

60. Opinion about current prices

<table>
<thead>
<tr>
<th>Product categories (Species)</th>
<th>Better than Earlier</th>
<th>Good</th>
<th>No response</th>
<th>Bad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishes</td>
<td></td>
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<tr>
<td>Crustaceans</td>
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</tbody>
</table>

61. Management of fish tanks when fish reached optimum size under no market conditions
   1. Sell to the price whatever existing
   2. Wait for some time till price increase
   3. Take produce to other state market and sell it
   4. Sell in the local market in a number of phases
Appendices

62. Sources of information to the farmers about the price
   1. Co-farmers
   2. Middlemen
   3. Agents of fish company
   4. Fish processing company
   5. Fishery related periodicals
   6. Govt. Publications/Agencies

B. MARKETING CHANNELS

63. Specify the market segment you cater to in fish marketing
   1. Domestic market
   2. Export Market
   3. Export and domestic market

64. Quantity of fish supplied to different markets

<table>
<thead>
<tr>
<th>Fish Species</th>
<th>Local</th>
<th>Within the state</th>
<th>Out of state</th>
<th>Export</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishes</td>
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<tr>
<td>Crustaceans</td>
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<tr>
<td>Total</td>
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65. Channel of distribution opted in the domestic market (Species-wise)
   1. Farmer – Consumer (Direct)
   2. Farmer – Wholesaler- Retailer-Consumer
   3. Farmer- Retailer- Consumer
   4. Farmer- Commission agent – Retailer- Consumer
   5. Farmer- Worker cum retailer- Consumer
   6. Farmer – Pre-harvest contractor- Retailer- Consumer
   7. Farmer- Commission agent cum Wholesaler- Retailer- Consumer
66. Channel of distribution opted in the export market
   1. Fish farmer- Processing Company
   2. Fish farmer- Commission Agent- Processing company
   3. Fish farmer- Wholesaler- Processing Company

67. Methods of transportation used for distribution of fish to the markets by the farmer
   (Direct marketing)
   1. Motor Cycle
   2. Tractor
   3. Lorry
   4. Containers
   5. Others (Specify)

68. Transportation Cost

<table>
<thead>
<tr>
<th>Item of cost</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tractor hire charges</td>
<td></td>
</tr>
<tr>
<td>Lorry hire charges</td>
<td></td>
</tr>
<tr>
<td>Container hire charges</td>
<td></td>
</tr>
<tr>
<td>Petrol and maintenance of owned vehicles</td>
<td></td>
</tr>
<tr>
<td>Others (Specify)</td>
<td></td>
</tr>
</tbody>
</table>

69. Nature of problems in the transportation of fish to the market (Rank)
   1. No proper roads to reach the market
   2. No proper approach road from tanks to the main road
   3. Means of transport not readily available

C. SALES PROMOTION PRACTICES

70. Employed Sales people
    1. Yes
    2. No

71. If yes number of sales people
    1. One
    2. Two
    3. Three
    4. Four
    5. more than four
Appendices

72. Nature of task assigned to the sales people
   1. Sampling   2. Grading   3. Negotiation with the purchase staff
   4. Handling objections   5.locating prospects   6.display of fish
   7. Fixation of price   8.collection of sale proceeds

73. Other promotion practices followed
   1. Trade fair   2. Exhibition   3. Special Events

D. MARKETING PROBLEMS

74. What are the problems encountered in marketing the products
   (Mark your response in a five point scale
   1. Strongly disagree   2. Disagree   3. Indifferent
   4. Agree   5. Strongly Agree

74.1.1 Price is fixed by the middlemen
74.1.2 Marketing is not a problem in aquaculture
74.1.3 In export pricing, processing centres determines the prices
74.2.1 Domestic market concentrates on the local market only
74.2.2 Direct selling is difficult
74.2.3 Middlemen bear the transportation cost of product
74.2.4 Owned transportation is impracticable
74.2.5 Wholesaling cum farming is profitable
74.2.6 Farmers are ignorant about the technologies in processing
74.3.1 Cold storage cost is high
74.3.2 Farmers are trained to maintain cold storage facility
74.3.3 Farmers prefer icing for storage
74.4.1 Grading products is a major problem
74.4.2 Farmers have technical knowledge in grading
74.4.3 Agencies provide training for grading
Appendices

74.4.4 Skilled labour is not available for grading
74.5.1 Advertisements in bulletins and publications are of no use
74.5.2 Agencies promote inland fish products
74.6.1 Crustaceans and mollusks are preferred in the international market
74.6.2 Exportable products requires higher quality standards
74.6.3 HACCP and EU standards are unattainable
74.6.4 Training is given to farmers regarding maintenance of quality standards
74.6.5 Periodic evaluation is done by consultants for maintaining quality
74.6.6 Export procedure is complicated

EVALUATION OF AGENCIES IN MARKETING PRODUCTS OF AQUACULTURE


1. Regulation of prices
2. Help farmers in finding Markets
3. Popularising the inland fish products
4. Help in Export trade
5. Help in Transportation
6. Constitution of fish markets/fish stalls
7. Help farmers to create value added fish products
8. Checking exploitation by middlemen
9. Marketing through co-operatives
10. Training given to farmers to develop marketing strategy
Appendices

Appendix -2

Research Paper Published

*Causes of Mortality in Aquaculture Production – An Application of Factor Analysis*,