

AQUACULTURE I

10. WEEK



RUNNING WATER CULTURE

WEEKLY TOPICS


WEEK	TOPICS
1. WEEK	WHAT IS AQUACULTURE?
2. WEEK	IMPORTANCE OF AQUACULTURE
3. WEEK	AQUACULTURE: ANIMAL PROTEIN
4. WEEK	HISTORY OF AQUACULTURE
5. WEEK	ORGANISATION OF AQUACULTURE
6. WEEK	CHARACTERISTICS OF AQUACULTURE
7. WEEK	POND CULTURE
8. WEEK	IN STATIC FRESHWATER PONDS
9. WEEK	IN BRACKISH-WATER PONDS
10. WEEK	RUNNING WATER CULTURE
11. WEEK	CULTURE IN RE-CIRCULATORY SYSTEMS (RAS)
12. WEEK	AQUACULTURE IN RACEWAYS, CAGES, AND ENCLOSURES
13. WEEK	MONOCULTURE AND POLYCULTURE
14. WEEK	RECENT ADVANCES IN AQUACULTURE

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- SITEREQUIREMENT
 - Water
 - Supply
 - Quality
 - Quantity
 - Topography
 - Soil
 - Vegetation
 - Market
 - Other requirements

<http://www.fao.org/docrep/field/003/ac415e/AC415E00.htm#ch1>

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- LAYOUT AND DESIGN
 - General water distribution system
 - Water inlet and outlet
 - Layout and design
 - Rectangular-shaped pond
 - Triangular-shaped pond
 - Raceway-shaped pond
 - Oval-shaped pond
 - Polyethelene drums as running water culture tank

<http://www.fao.org/docrep/field/003/ac415e/AC415E00.htm#ch1>

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- POND CONSTRUCTION
 - Mechanized method
 - Manual construction method and requirement
 - Rectangular-shaped pond
 - Triangular-shaped pond
 - Raceway-shaped pond
 - Oval-shaped pond
 - Polyethylene culture drum


<http://www.fao.org/docrep/field/003/ac415e/AC415E00.htm#ch1>

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- POND MANAGEMENT
 - Species used and its biology
 - Seed supply
 - Stocking rate
 - Feeding
 - Feed type
 - Feeding rate
 - Equipment for monitoring and operations
 - Disease and other causes of mortality
 - Management and maintenance
 - Harvesting, marketing and processing



<http://www.fao.org/docrep/field/003/ac415e/AC415E00.htm#ch1>

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- COST AND BENEFIT ANALYSIS OF PRODUCTION
 - Capital cost
 - Operational costs
 - Fingerlings
 - Feed
 - Labour
 - Miscellaneous items
 - Production costs per kg of fish
 - One crop versus four crops per year
 - Scale of operation and benefit



<http://www.fao.org/docrep/field/003/ac415e/AC415E00.htm#ch1>

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- Prerequisites
 - Adequate supply of well-oxygenated water and inexpensive and nutritious feed. Advantages: very dense stocking, abundant supply of dissolved oxygen, easy removal of waste products, high rates of production. Disadvantages: requirement of large volumes of water, dependence on artificial feed, high initial cost, energy wastage in swimming against currents.
 - Different types of structures used in running water culture for seed rearing and growing to market size
 - Raceways, ponds, tunnels, troughs, vats and tanks; materials used in their construction; their shape and dimensions.
 - Raceways
 - (a) Different designs - long, narrow, rectangular brick or concrete channels, circular channels and flat spirals; semi-raceways; "open" or "flow-through" systems and "closed" systems;
 - (b) Criteria for selection of site for location of raceways; topography, soil characteristics, erosion control and water supply;
 - (c) Construction; excavation and/or level building; slide slopes; construction of water control structures or weirs - materials used (concrete, wood, sheet metal, etc.); functions of water control structures (regulation of flow and depth of water, aeration, etc.); effects of shape and slope of raceways on water flow;
 - (d) Sources of water for raceways; determination of flow rates; methods of filtration/purification in closed systems.

<http://www.fao.org/docrep/19805e/19805e08.htm#vii. running water culture>

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- Culture operation
 - Species culture in running waters; stage and size of seed used; rates of stocking in relation to flow of water, temperature and feed; feeds, rates and methods of feeding; rate of production and its relation to rate of water flow.
 - Economics of running water culture compared to pond culture and other systems of culture
 - Practicals
 - Designing of raceways and other running water culture systems; experimental culture of selected species in running water systems.

<http://www.fao.org/docrep/19805e/19805e08.htm#vii. running water culture>

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- References
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 - Aquaculture: An Introductory Text, 2005, Robert R. Stickney
 - Aquaculture Farming Aquatic Animals And Plants, 2012, John S. Lucas