

Mussel seed resources of India and seeding methods

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Introduction

The mussel seed settlement intensity and pattern may vary from year to year according to changes in environmental conditions which in turn influences the spawning of mussels.

Spat collection methods

Commercial farming of mussel is dependent on the availability of seed. The natural spat fall is considered to be the primary source of seed. Although technology for production of mussel seed in hatchery has been perfected but it is not economically viable for commercial farming.

A wide variety of spat collectors like frilled ropes, roof tiles, old fish net, shading materials, bamboo splits etc are used for collection of spat. The selection of the appropriate material as spat collector depends on the efficiency, local availability, durability and cost of the material. The efficiency of spat collection depends on forecasting the accurate time of spat fall. The spat fall can be expected when the gonad ripeness corresponding with an extended dry period broken by a spell of heavy rains. Usually the spat fall occurs during the months of July-August. Spat collectors are suspended at least two weeks prior to spawning. The spat collection period can be decided by putting test panels and plankton sampling in the natural spat collection sites and daily examination of spat collectors for the highest number of metamorphosed pediveliger on the test collectors. If the test collectors taken daily and favourable number of spat are there, then immediate suspension of large number of spat collectors for maximum spat collection from the spat collection centres can be done. In Thailand this method is followed as a festival where in all farmers put the spat collectors in the setting areas.

Table.1. Month-wise mussel seeding and farming activities for different maritime states of India.

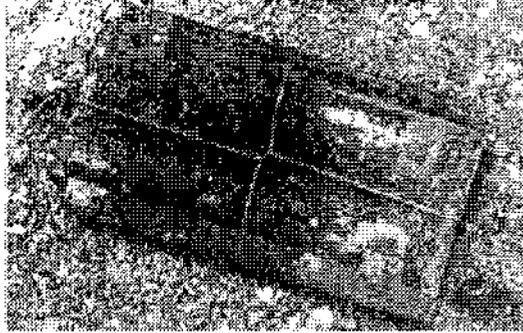
Maharashtra												
Goa												
Karnataka												
Kerala												
Tamil Nadu												
Pondicherry												
Andhra Pradesh												
Months	J	F	M	A	M	J	J	A	S	O	N	D
	Seeding			Grow out				Harvest				

Table 2 .State wise mussel seed resource

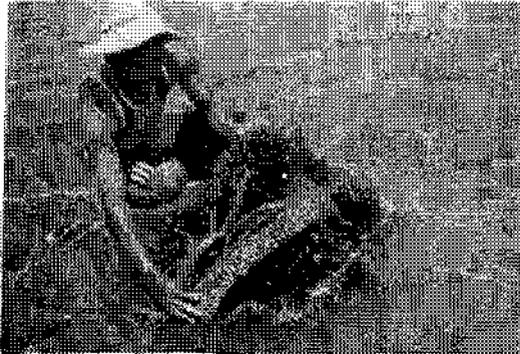
Mussel Seed Resources				
State	Area (Sq.m)	Biomass (t)	Avg.no. of seed/SqM	Length range (mm)
Orissa	61092	44.2	45	15-117
Andaman & Nicobar	1980	14.2	10	35 - 201
Kerala	5889820	8934	1582	16 - 20
Karnataka	877695	1746	832	15 -34
Tamil Nadu	107706	1508	500	23 -112
Pondicherry	116200	37	525	20 - 112
Andhra Pradesh	21714	6	12	37 - 197
Maharashtra & Goa	7230	2849	744	13 - 40
Gujarat	2000	0.03	7	82 - 134
TOTAL.	7083437	15138.4	7-1582	15-201

Fig 1. The seed settlement on velon screen, frilled nylon rope and old fish net were 5237, 2287 and 675 nos per 50cm² respectively. The number of spat (avg. length 2.9mm, avg. wt 0.02 g) settled was highest, 20614 nos per 2500cm² on the tiles.

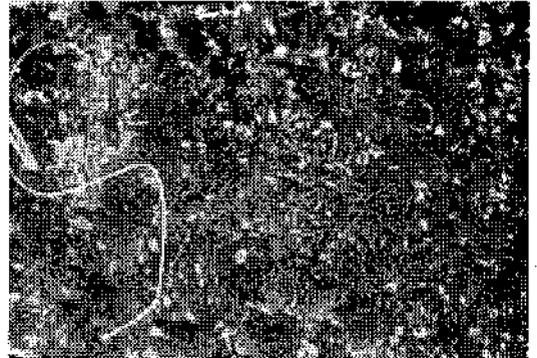
Seed on tiles



Mussel spat on velon screen



Spat on frilled nylon material



Seeding

Seeds collected from the natural bed or spat collectors are thoroughly cleaned off epifauna and other organisms. The ideal size of the seed for seeding is 15-25mm, with 1-2g weight per 1m length rope.

The detached mussel seed are seeded on to the culture ropes. The length of the seeding rope depends on the depth of culture area. The seed are placed on a cotton mosquito netting and stitched tightly around the culture rope. The cloth will disintegrate within 2-3 days and by this time the seed gets attached to the culture rope by means of byssus thread. For avoiding slippage of mussels, knots are made or 10-15 cm length or bamboo pegs are inserted horizontally in between the twists of the seeded ropes at regular intervals of 25cm. On an average 1kg of seed is seeded on to a culture rope of 1m length.

The advantage of spat transfer technique is that culture can be done in areas other than natural spat fall. The spat will remain live for 1 or 2 days if kept cool and damp. This facilitates the transfer of seed to new culture areas.

The Molluscan Fisheries Division of CMFRI, Cochin has designed a semi automated seeding machine. A biodegradable wrapping material (cotton mosquito net) was stitched into tubes of 20 to 25 cm width and 1.25m length. During seeding the nylon rope was placed within the pre-stitched tube and filled with mussel seed. The ends were tied and these seeded ropes were suspended from the rack. This method resulted in reducing the manpower needed for seeding.

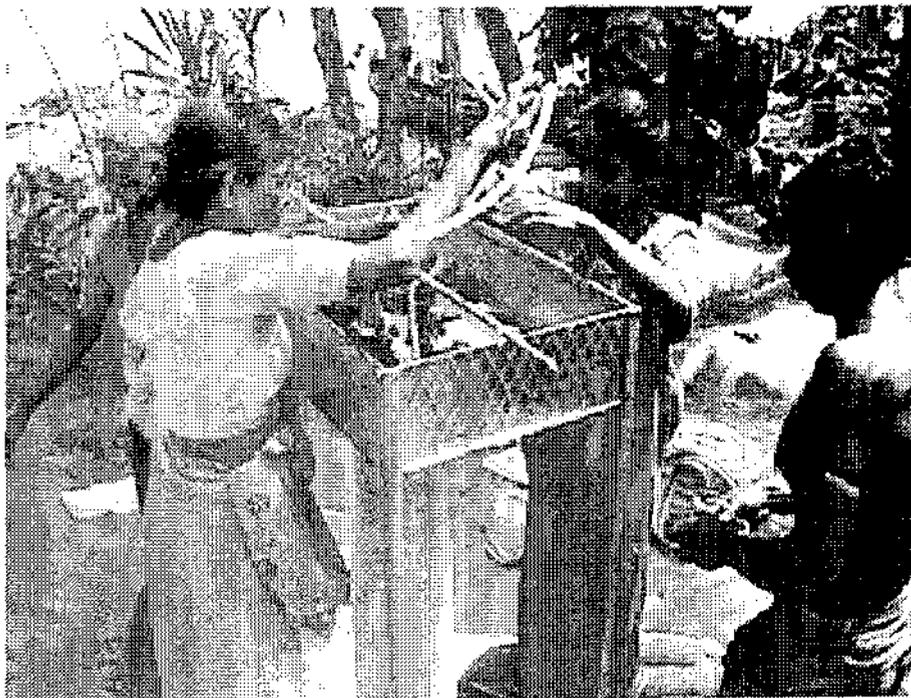


Fig 2. Semi automated Seeding machine