

FILIPINO ENGINEER MAKES BIG STRIDES IN FRESHWATER PRAWN CULTURE



Luis Lina, owner of the first ulang hatchery in the country shows adult-sized ulang. He urges tilapia growers to try ulang farming which he says sell at P400-P700 per kilogram



The freshwater shrimp *Macrobrachium rosenbergii*

Holding tanks for breeders (big tank) and postlarvae (other smaller tanks)



Engineer Luis Lina says that *ulang* farming is profitable (freshwater prawn, *Macrobrachium rosenbergii*). Who can better assure us than this engineer who owns the first commercial hatchery of *ulang*?

Ulang sells P400-700 per kg. With the inspiring price, he established a hatchery so that he can assure farmers of steady fry supply and eventually encourage grow-out production. His *ulang* hatchery is in MBL Farms, where he raises other aquaculture crops, in the town of Pangatlan, Mexico, Pampanga.

Hatchery

He initially got his breeders from the Central Luzon State University in Nueva Ecija. Now he raises his own breeders from eggs that he allows to hatch and grow for 6-7 months. After this time, *ulang* has reached sexual maturity. He stocks 20 females and 1 male in a 2-m diameter circular tank, 2.5 m deep with freshwater. After spawning is detected, and as soon as the prawn larvae detaches itself, the female is returned to the broodstock tank. Saltwater is slowly added in the larval rearing tank to reach a salinity of 12 ppt. This salinity is maintained during the larval stage only. At PL1 until 20, freshwater is gradually added to decrease the salinity to 6, then to nil. The PL20 is now ready for the freshwater grow-out ponds.

Lina feeds with *Artemia*. It takes about 45 days for *ulang* to develop from eggs to PL 20 when the fry is ready to be stocked in ponds. Lina says that the first 10 days are the most tedious.

With his 1,500 breeders, he continues to produce fry. Lina mentions a few things to remember in *ulang* hatchery. "It is important to provide shelters in the breeding tanks because during the day, they hide in the shelters," Lina says. Further, it must be kept in mind that the *ulang* hatchery technology is not well developed. Survival from hatching to PL20 is at 12.5%, Lina said.

Grow-out

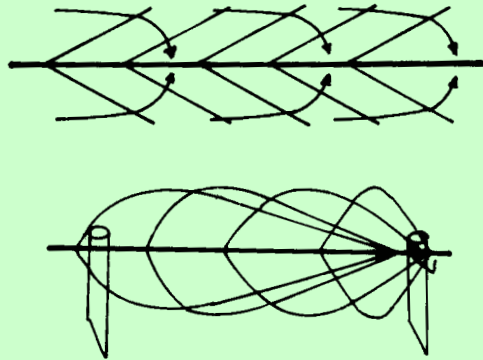
But Lina says that growing the fry in ponds is not as tedious as growing PLs and likens *ulang* to tilapia in ease of culture. In the seminars he conducts on grow-out culture, Lina emphasizes that a farmer should have sufficient knowledge of *ulang* before starting. For site selection, it is good to have an excellent supply of good water and having a kind of soil with strong water retention. He recommends the use of well water in ponds with a minimum depth of 2-3 ft on the shallow end and 3.5-5 ft on the deep end.

Pond preparation is much like that of the brackishwater giant tiger shrimp (*Penaeus monodon*) pond preparation. One has to eradicate predators, screen in the ponds inlets and outlets, sun dry until the land cracks, and maintain a water depth of 0.8 - 1.2 m. Apply lime when needed (1,000 kg per ha), fertilize with 16-20-0 or chicken manure (1,000 - 2,000 kg per ha). After the pond preparation, scatter shelter all over the pond to allow *ulang* to have

FRESHWATER PRAWN *MACROBRACHIUM ROSENBERGII*

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sufficient protection during molting when their skins are soft and susceptible to injuries and diseases. The shelter may be made of small bamboo sticks tied together in several ways, some of them designed as follows:



Observe care in stocking the postlarvae into the ponds. PLs should be stocked at 5-30 or 10-40 per m². Polyculture with tilapia may also be done. It is advisable that *ulang* is first stocked, followed by tilapia after two weeks. When stocking PLs, it is good to do it during early morning or late afternoon when the weather is cool. Acclimatize first before releasing the PLs into the ponds. On the first day after stocking, do not feed the stock. Feed on the second day following the feeding management:

Size of fry	Amount of feed (% body weight)	Feeding frequency	Protein requirement
Fry (PL)	5-10	2x (am, pm)	35-40
Juvenile	3-5	2x (am, pm)	30-35
Adult	3-5	2x (am, pm)	25-30

With the above scheme, the amount and kind of feed is determined by using Table 1 as feeding guide.

Ulang may also be fed with chopped golden snail, carrots, and kitchen refuse. Make sure that the size of the chopped parts fit the size of the stock to allow ingestion.

Ulang can be harvested after 4-5 months from stocking. Harvest all or a part of the stock. Either way a net may be used for harvesting. It may also be handpicked, depending on the amount of harvest.

Maintenance activities should be undertaken such as: fertilize the ponds weekly, maintain water quality (greenish, dissolved oxygen of 5 ppm; pH 6.5-8.5; 25-30°C; water hardness <100 ppm, CaCO₃ >40 ppm), keep the ponds clean, supplement feeding, use sinking feeds, and do not use chemical sprays near the ponds.

A simple cost-profit computation shows that with 10,000 PL stock in a 2,000 m² pond, a farmer's total sale is P66,000. With P32,300 expenses, he'll make a net profit of P33,700.

Prospects

Through time, Lina predicts that the Thai variety would be cross-bred with the Philippine native. He says that the Philippine native is more difficult to grow than the Thai but is bigger and faster growing. The cross-bred *ulang* would hopefully be as easy to farm as the Thai and as big and fast growing as the Philippine native. He is also aware that people prefer marine species to freshwater but he has gone into an information campaign for acceptability, whether for farming or for food. For farming, he conducts training for grow-out production six times a year in his office, and for food, he has already started to hold

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Table 1. Feeding guide for the freshwater prawn based on Lina's experience

Days culture	Number per kg	ABW (g)	Feed rate	Feed type	Feed amount	% feed rate	Total feed (kg)
1-30	10 000	0.01	3	Crumbles	0.01	10	3
31-40	625	2.28	3	Crumbles	1.00	10	10
41-50	296	3.37	3	Crumbles	1.48	10	15
51-60	200	4.99	3	Crumbles	2.19	10	22
61-70	135	7.39	2	Grower	3.24	10	32
71-80	91	10.94	2	Grower	1.44	5	14
81-90	62	16.19	2	Grower	2.13	5	21
91-100	42	23.97	2	Grower	5.52	4	25
101-110	28	35.48	2	Grower	3.74	4	37
111-120	43	23.5	2	Finisher	5.53	4	55
121-130	29	34.12	2	Finisher	8.19	4	82
131-140	20	50.50	2	Finisher	9.09	3	91



Breeding tank substrate: small white stones and rolled plastic mesh



Lina (in blue shirt) conducts grow-out training every two months

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ulang cooking contests or foodfests in business schools in Metro Manila to encourage and inform future and present investors and perhaps gourmets. Lastly, to make sure that the producers know exactly where they may sell their *ulang*, he provides market information to his clients. All these he does to ease production problems.

No doubt Lina faces a daunting future, but for him, nothing can be too difficult for the progress of *ulang* culture. -- MBS

[PHOTOS FOR THIS ARTICLE COURTESY OF L. LINA]

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feeds; (5) Dr. Wenresti Gallardo, *Development of strategies for stock enhancement for priority species like abalone, top shell, giant clam, window-pane shell, and sea horse*; (6) Dr. Jurgenne Primavera, *Mangrove-friendly shrimp culture project*; (7) Ms. Ma. Lourdes Aralar, *Development of appropriate technologies for use in lakes*; (8) Dr. Yasuo Inui, *Aquaculture disease management and SEAFDEC-JIRCAS Collaboration*; (9) Dr. Zubaida Basiao, *Plans on freshwater species (tilapia and carps)*; and (10) Dr. Corazon Santiago (in behalf of Josefa Tan-Fermin), *Catfish proposed plans*.

Training and Information Head Mr. Pastor Torres Jr. reported on the status of training courses, fellowships, and information dissemination programs. Last year, AQD was able to offer nine short courses, two online courses and accommodate 130 on the job trainees (OJT) and 27 interns. Due to the shift in priority of the Government of Japan, which funds the fellowship grants, there will be less regular training courses in 2003. Strategies for training include intensification of specialized internships, addition of more online courses, continuation of regular courses that are popular (based on demand), course and material development for self-instruction, and the Rural Aquaculture Development (RAD) Training Demo Project.

For the information program, there will be minimal changes: the aquaculture newsletter will still be published albeit with limited pages, manuals will be printed and sold as materials become available, *Aquafarmers' Corner* in the official website (www.seafdec.org.ph) will be maintained, the in-house newsletter for the AQD family published weekly, two-thirds of the journal subscriptions of the AQD Library will be retained, and the Internet server upgraded.

AQD will likewise continue its current thrusts on technology verification, extension, and commercialization programs. For more information, email: aqdchief@aqd.seafdec.org.ph. ###

One sea, one industry 1st Philippine Aquafarming Congress and Exhibition (PACE 2003) 7-10 May 2003, Bacolod City

- more than 35 papers on the latest developments in major cultured species and farming systems
- one full day devoted to tiger shrimp farming
- trade exhibition of leading aquaculture implements and services
- industry-sponsored poster exhibition and competition
- workshop on making sustainable aquaculture work for local government units

Organized by Cruz Aquaculture Corporation in partnership with the U.P. Aquaculture Society. Supported by the Philippine Aquaculture Society, the Society of Aquaculture Engineers of the Philippines. Sponsored by Vitarich, Floatech, SEAFDEC/AQD, DA-BFAR, DOST-PCAMRD, Association of Philippine Aquafeed Millers Inc and Santeh Feeds Corp.

Contact: PACE Secretariat- 158 C Araneta St, Singang, Bacolod City. Tel/fax- (034) 434 7264, 435 4107; (0920) 531 1568. Email- pace@lasaltech.com; www.pace.com.ph