

**Sustainable Aquaculture – Global perspectives.** B. B. Jana and Carl D. Webster (eds). Food Products Press, Imprint of the Harworth Press Inc., 10 Alice Street, Binghamton, NY 13904-1580, USA. 2003. 365 pp. Price: US \$ 34.95.

The book under review elucidates comprehensively the global perspectives towards achieving sustainable aquaculture. The book covers thirteen contributed papers, including Indian aquaculture in general, soil and water quality management, pond fertilization, nutrient recycling in temperate climate, nutrition and larval fish feeding of marine fish, fish breeding, indigenous hormonal sex-reversal, diseases of tropical fish, applied nutrition aspects of freshwater prawn culture and with a coverage on grow-out production and carp and the potential and sustainable aquaculture in India. The paper by K. Gopakumar on Indian aquaculture discusses in brief the status and future needs of various production systems of which the crustacean fishery has been dealt with systematically. However, mention on non-fishery resources like seaweed culture has not been attempted.

The paper on soil and water quality management in shrimp pond by C. E. Boyd, is highly informative. Suggestions to overcome the problems are 'good tips' for the farming community. The state-of-the-art on pond fertilization regimen written S. K. Das and B. B. Jana summarizes the role of various nutrients like NPK and P : N, C : N and C : N : P ratio on the pond productivity via administering both the organic and inorganic fertilizers. The paper on recycling of nutrients from wastewater by Juerg Staudenmann and Ranka Junge-Berberovic, on the otel-fingen pilot project-recycling of nutrients from wastewater in a temperate climate, Switzerland gives an insight into treatment of wastewater and subsequent use for fish culture. Considering the growing awareness on aquatic pollution from fish culture as such, this paper has succeeded in demonstrating wastewater recycling for aquaculture in temperate climate.

A review on nutrition of marine fish larvae has been made by Akio Kanazawa, on proteins, lipids, carbohydrates, vitamins and the importance of microencapsulated diets in fish larval rearing. A review is available on important ecological and ethological perspectives in larval fish feeding by T. Ramakrishna Rao. An

account of nutritional requirements of freshwater prawn (Scampi), *Macrobrachium rosenbergii* has been provided by Mukhopadhyay *et al.*, in their paper on 'Applied nutrition in freshwater prawn *Macrobrachium rosenbergii* culture'.

The need for long-term biologically, ecologically and sociologically sound breeding goal is the key factor for sustainable aquaculture. A review on responses of fish and shellfish in temperate and tropical climate is a welcome addition in this book by Olesen *et al.*, in their paper on 'Breeding programs for sustainable aquaculture'. The paper by T. J. Pandian and S. Kirankumar on 'Recent advances in hormonal induction of sex-reversal in fish' drew attention towards the immersion technique of administering steroids, which is cost-effective compared with administering through diets.

The book covers a good deal about diseases affecting fish in tropical environment. Karunasagar and his co-workers have covered many diseases caused by bacteria, fungi and virus, with a note on immunoprophylaxis of fish diseases.

Ayyappan and Jena, in their paper on 'Grow-out production of carps in India', have provided the present status of carp culture in ponds and tanks, cages and pen-integrated fish farming and sewage-fed fish culture.

World aquaculture is in the doldrums owing to heavy capital inputs and intensification in farming practices for sustainable production. Aquaculture wastes generated and consequent aquatic pollution have threatened the existence of farming systems. Issues pertaining to sustainability and strategies for judicious use of its potentiality are well-addressed in the paper on 'The potential and sustainability of aquaculture in India' by Jana and Santhana Jana. The book closes with a paper on 'Freshwater pearl culture technology development in India' by Janakiram. The much-needed topics like edible oysters, clams and mussel farming, however, have not been dealt with.

The appealing cover page, well-set readable font size and well-documented adequate citations of references are the highlights of this book.

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**Dangerous Liaisons? When Cultivated Plants Mate with their Wild Relatives.** Norman C. Ellstrand. The Johns Hopkins University Press, 271S, North Charles Street, Baltimore, Maryland 21218-4363 USA. 2003. 244 pp. Price: US \$ 65.

Plants are fixed to the location where they start their life with sprouting of the seed, and unlike animals, cannot freely roam around to disperse their genes to distant populations. Conversely, the flowering plants produce pollen grains that are the male sex cells with haploid chromosome number, carrying the unique combination of genes present in the individuals. Plants have evolved different mechanisms to disperse their pollen far and wide. They attract insects by brightly coloured flowers, fragrances or nectar. Some attract birds or even bats. These visitors carry with them the pollen when they leave, and deposit the same on the stigma of the flower(s) on the next call. Others produce large amount of pollen that is blown away with the wind, to reach the counterpart haploid female embryo sac in the ovule, to enable the formation of diploid seed. Many species are self-pollinated, while others are cross-pollinated. However, out-crossing is ubiquitous in both self and cross-pollinated species. In the past out-crossing received little attention, except from those engaged in seed production.

In recent years, with the development of transgenic genetically engineered (GE) or erroneously referred to as genetically modified (GM) crop plants, the possibilities of out-crossing and consequent gene flow, defined as the movement of genes from one population to another, have drawn the attention of plant scientists in different disciplines. The book under review is the first comprehensive scientific account of an old phenomenon of out-crossing, well known to plant breeders. The book mainly deals with natural crossing between crop plants and their wild relatives. Gene flow between different cultivars of the same species is not considered. The book is aimed to provide scientific information on the question of gene flow in the highly emotional and controversial issue of GE crops. The author has clearly pointed out in the Preface, 'the simple fact that any new technology has the potential for solving problems, but no technology is without the potential for some negative impact'. This is the real message