

ECONOMICS OF PIG-FISH INTEGRATED FARMING IN KOKRAJHAR DISTRICT OF ASSAM

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ABSTRACT

An investigation was undertaken under NAIP (Component – 3) sub project with 40 farm households for evaluation of small scale farm economics under integrated farming system in Kokrajhar district of Assam. Farmers were provided with 2 local female and one Hampshire male piglets of two months old. Fish species like catla, rohu, mrigal, grass carp and silver carp were released in the ponds @8,888 per ha. Semi permanent pig-sty on pond embankment with floor of the pig-sty designed in such a way that sludge flow to the fish pond during washing and cleaning. The fishes did not receive any extra feed and fish pond did not receive any extraneous fertilizers. Pig sludge is recycled to produce table fish. The pig (Hampshire) was introduced as for crossing with local female pig as an integral component of the pig-fish farming system. An average of 2.17±0.75 quintal of fish was produced after one year in a pond area of 450 m² which was lacking in traditional practices. The study indicated that integrated farming system was found much better over traditional system when benefit cost ratio (BCR) was calculated to be 3.2:1 vs 1.4:1 respectively. Another significant additional source of income was that the non-beneficiary farm families in the project sites were hiring the service of the male Hampshire pigs provided under the NAIP project with a precondition that one piglet borne out of the total would be given to the owner of the male who is a beneficiary farmer of the NAIP in the mode of payment in kind for the service by his male pig. Thus two distinct benefits are accrued- there is a continuous horizontal extension through pig breed improvement activity and additional income generation for the farm families of the NAIP sub- project.

Key words: Integrated farming system, pig-fish, economics, benefit cost ratio

Integrated farming system is a resource management strategy to achieve economic and

sustained agricultural production to meet diverse requirement of the farm household while preserving the resource base and maintaining high environmental quality. Pigs are key component in the farming system and these play a major role in the rural livelihood. Integrated farming system modifies conventional farming system or monoculture into a multiculture farming system where one component integrates another⁴. Well targeted interventions to improve pig production

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could deliver significant livelihood benefits for tribal and other marginal groups and there are ample potential for fish production in the state of Assam. Moreover, integrated pig-fish farming is compatible with the state's agro-climatic conditions. Keeping the points in view, the project was envisaged to augment more income using rural resources and ensuring livelihood security.

MATERIALS AND METHODS

The investigation was undertaken under NAIP (Component – 3) sub project with 40 farm households for evaluation of small scale farm economics under integrated farming system in Kokrajhar district of Assam. This package of technology released by the University involved integration of 2 pigs of local breed along with one exotic Hampshire breed to 450 m² water surface area. Two months old piglets were reared for six months. Thus two batches of pigs were reared in integration with one crop of fish in a year. Fish species like catla, rohu, mrigal, grass carp and silver carp were released in the ponds @8,888 per ha. Semi permanent pig-sty was constructed on the pond embankment. The floor of the pig-sty was designed especially so that sludge of the sty flowed to the fish pond during washing and flushig. A control mechanism was devised in the drain for controlling the flow of pig sludge to prevent deterioration of water quality in the fish pond. While intensive care in terms of feed and health was taken for pigs, the fishes did not receive any feed and fish pond did not receive any extraneous fertilizers. Pig sludge was recycled to produce table fish.

The pig (Hampshire) was introduced as for crossing with local female pig as an integral component of the pig-fish farming system. One male piglet of Hampshire breed and two local

female piglets were given to each farm household as standard number to recycle the waste as feed for the fish in the pond as well as to breed improved piglets. At present, the piglets given in the first to the beneficiaries have just started producing piglets.

RESULTS AND DISCUSSION

Table 1 revealed that after the end of one year when two reproductive cycles were completed by each sow/gilt, an average of only 16 numbers of piglets were born from 2 numbers of sows in one year. However, with the introduction of scientific management and integrated farming system the average number of piglets from 2 sows was increased to 32.23 ±0.30.

One of the significant additional achievements was that the non-beneficiary farm families in the project sites were hiring the service of the male Hampshire pigs provided under the NAIP project with a precondition that one piglet borne from this would be given to the owner of the male Hampshire who was a beneficiary farmer of the NAIP in the mode of payment in kind for the service by his male Hampshire pig. Thus two distinct benefits were accrued- there is a continuous horizontal extension through pig breed improvement activity and additional income generation for the farm families of the NAIP sub-project. An average of 2.73±0.23 numbers of piglets were owned from 2 sows per service henceforth the total return. In the traditional rearing practices, aquaculture was not given attention however, in integrated farming system the entire fish feed was met up by the pig waste and thereby input in the name of fish feed was zero. Studies revealed that considerable potential exists for further aquaculture integration in Asia, with notable improvements in the livelihoods of rural small-scale farmers³.

An average of 2.17 ± 0.75 quintal of fish was produced after one year in a pond area of 450 m^2 which was lacking in traditional practices. Studies reported that integrated pond systems using grass carp seem to be useful for pig manure recycling². The cost of labour was slightly higher in integrated farming system compared to traditional system as because skilled labourers were used in the former system.

The study indicated that integrated farming system was found much better over traditional system when benefit cost ratio (BCR) was calculated to be 3.2:1 vs 1.4:1 respectively. It was reported that pig fish integrated farming generated Rs. 2, 60,000/- from one hectre of pond¹.

Table 1: Income generated from pig-fish integrated farming

SI No.	Item (Average)	Traditional practice			IFS with improved practice		
		Production	Cost (Rs)	Income (Rs)	Production	Cost (Rs)	Income (Rs)
1	Piglets (Nos/cycle/2 females)	16	8,000.00	19,000.00	32.23 ± 0.30	24,208.00	64,450.00
2	Piglets charged for servicing	-	-	-	2.73 ± 0.23		10,900.00
3	*FFEW (q)	-	-	-	2.5	-	4,125.00
4	Fish (pond area 450 m^2) q	-	-	-	2.17 ± 0.75	2,320.00	32,522.00
5	Labour employed (man days)	45			159		
6	Benefit cost ratio	1.4 : 1			3.2 : 1		

*FFEW : Fish feed equivalent waste, q: quintal

CONCLUSION

The field trial revealed that pig-fish integrated farming system yielded higher income and ensures livelihood security and eco-friendly environment by recycling pig slurry through better management of rural assets coupled with technology intervention for judicious use of inputs.

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