

# **Growth Performance of Longfin Pompano on Extruded Feed in Coastal Cages at Hainan, China**

## **Results of ASA/China Feeding Trial 35-02-125**

Michael C. Cremer, Zhang Jian and Hsiang Pin Lan  
American Soybean Association  
Room 902, China World Tower 2  
No. 1 Jianguomenwai Avenue  
Beijing 100004, P.R. China

### **ABSTRACT**

Longfin pompano (*Trachinotus blochii*) growth performance in coastal cages was evaluated from fingerling to sub-market size using the ASA LVHD cage production model and ASA extruded, marine fish feeds. The cage trial was conducted at Ling Shui, Hainan, China. Pompano were stocked in three, 8.0-m<sup>3</sup> cages at a density of 2,000 fish per cage (250 fish/m<sup>3</sup>). Pompano were fed to satiation daily with a 47% crude protein and 15% crude fat feed (47/15) to fish size 25 g, and with a 43% crude protein and 12% crude fat feed (43/12) from fish size >25 g. Both feeds were fed in extruded, floating pellet form. Fish in all trial cages were fed to satiation, three times daily for the first month, and twice daily thereafter. Pompano grew from 5 g to 208 g in 144 days of feeding. Average FCR with the combination of 47/15 and 43/12 feeds was 1.92:1. Average fish survival was 65.8%. Net economic return and return on investment were RMB 3,754/cage (RMB 469/m<sup>3</sup>) and 62%, respectively, at a fish market price of RMB 36/kg. Results of the trial indicate that longfin pompano perform well on extruded feed and yield high economic gain. Feed cost with the ASA extruded feeds was RMB 10.4 per kilogram of fish growth. While longfin pompano exhibited a better FCR than ovate (goldenfin) pompano cultured in 2001, the trial cooperator felt overall growth performance and survival of longfin pompano was not as good as with ovate pompano.

### **INTRODUCTION**

The American Soybean Association (ASA), in cooperation with Mr. Liang Xing Xui of Cage Farm No. 0601, Ling Shui, Hainan and the Hainan Provincial Fisheries Extension Station, conducted a cage feeding trial with longfin pompano (*Trachinotus blochii*) in 2002. The objective of the trial was to evaluate longfin pompano growth performance and economic return from fingerling to sub-market stages using the ASA LVHD cage production model and ASA extruded, marine fish feeds.

### **MATERIALS AND METHODS**

Three, 8.0-m<sup>3</sup> cages at Cage Farm No. 0601 in the bay at Ling Shui, Hainan Province, were used for the trial. Cages were constructed of nylon mesh netting with a rigid top frame, opaque covers and a feed enclosure to contain floating, extruded feed pellets. Cages were arranged on the perimeter of the farm with a minimum of two meters of open water on all sides of each cage to facilitate water exchange. The cages were stocked in early June with longfin pompano at a density of 250 fish per m<sup>3</sup> and the trial commenced on June 10.

Fish in all cages were fed the ASA 47/15 (47% crude protein and 15% crude fat) marine fingerling feed in extruded, floating pellet form from fish size 5 g to fish size 25 g (Table 1). When fish reached size 25 g, they were weaned to the ASA 43/12 (43% crude protein and 12% crude fat) marine growout feed (Table 2). The 43/12 growout feed was formulated with 35% dehulled soybean meal, as a partial replacement for fish meal, to reduce feed cost. Both feeds were formulated by ASA and produced by the Shanghai DaJiang aquafeed mill. Pompano were fed to satiation three times daily for the first month, and twice daily thereafter. Fish in all cages were fed identically at each feeding.

Trial management was based on the ASA LVHD cage production model. Fish in all cages were sampled once per month on approximately the same date each month. All cages were harvested at the conclusion of the trial to determine average fish weight, gross and net production, feed conversion ratio (FCR) and survival.

## **RESULTS**

Longfin pompano were fed for 144 days between 10 June and 1 November 2002. Pompano grew from 5 g to an average weight of 207.5 g in the 144-day feeding period (Figure 1; Table 3). Average FCR with the combination of 47/15 and 43/12 feeds was 1.92:1 for pompano in the three replicate cages. Average fish survival was 65.8%. Carrying capacity at harvest averaged 34 kg of pompano per m<sup>3</sup> (272 kg/cage) for the three cages (Table 3).

Net income and return on investment (ROI) averaged RMB 469/m<sup>3</sup> (RMB 3,754/cage) and 62%, respectively, for the three cages, at a market price of RMB 36/kg for pompano (Table 3). Average feed cost with the ASA extruded feeds was RMB 10.40 per kilogram of fish growth, at a feed cost for the 43/12 feed of RMB 5.4/kg. Soybean meal is used as a partial replacement for fishmeal in the 43/12 feed to reduce feed cost.

## **SUMMARY AND CONCLUSIONS**

Results of the trial indicate that growth performance and FCR for longfin pompano were acceptable and yielded high economic return. FCR was 9% lower (better) than for ovate (goldenfin) pompano cultured in the 2001 ASA trial, but survival of longfin pompano was poorer than with ovate pompano (65.8% for longfin pompano vs. 92.5% for ovate pompano). The farm cooperator's experience indicates that longfin pompano exhibit slower growth than ovate pompano, but that longfin growth in 2002 was abnormally slow. The cooperator believes this is the result of declining water quality within the bay where the fish were cultured. Nonetheless, the 65.8% survival rate of longfin pompano in the ASA trial was reported to be nearly twice that of average pompano survival rate of approximately 35% in Xinchun Bay in 2002, indicating better performance with the ASA feed and LVHD management strategy.

High feed shipping costs and management of feed shipments from Shanghai limit feed availability to most farmers in the Hainan region. Local production of ASA feeds is recommended to improve feed availability and reduce feed cost for Hainan marine fish producers.

## ACKNOWLEDGEMENTS

ASA gratefully acknowledges Mr. Liang Sing Xiu of Ling Shui Cage Farm No. 0601, the Hainan Provincial Fisheries Extension Station, and the Director and staff of the National Fisheries Extension Center for their assistance and support for this aquaculture trial.

### Chinese Currency and Production Unit Conversions:

RMB 8.26 = US\$1.00

1.0 kg = 2.2 lb

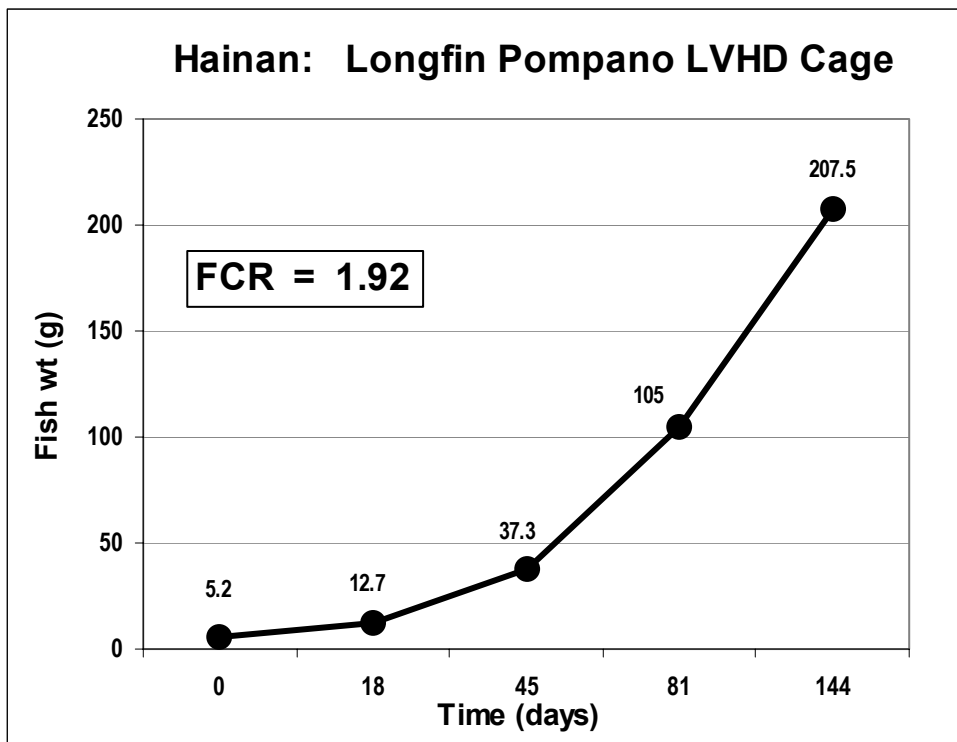


FIGURE 1. Growth curve for longfin pompano fed ASA extruded feeds in a cage production trial conducted at Ling Shui, Hainan, China. Pompano exhibited good growth performance and FCR and yielded a high economic return when fed extruded aquafeeds. Dehulled soybean meal is used as a partial replacement for fishmeal in the ASA feeds to reduce feed cost.

Table 1. Formula for the ASA 47/15 marine fingerling feed used in the 2002 longfin pompano trial conducted at Ling Shui, Hainan Province, China.<sup>1</sup>

Ingredient	Percentage of feed
Fishmeal, anchovy 67/7-8	48.70
Wheat flour 10	20.00
Soybean Meal	10.00
Wheat gluten 68	10.00
Fish Oil, Unspecified PV=10<20	10.50
Min PMX T&S 1	0.25
Vit PMX F2	0.50
Stable Vit C35	0.03
Ethoxyquin 66	0.02
TOTAL	100.00

<sup>1</sup>The numerical component of the feed description refers to the percentage of protein and fat, respectively, in the ration, i.e. 47/15 indicates 47% crude protein and 15% crude fat.

Table 2. Formula for the ASA 43/12 marine fish growout feed used in the 2002 longfin pompano trial conducted at Ling Shui, Hainan Province, China.<sup>1</sup>

Ingredient	Percentage of feed
Soybean Meal	35.00
Fishmeal, anchovy 63/6.5	37.00
Wheat Flour 10	14.20
Wheat Gluten	4.60
Fish Oil, Unspec.	8.40
Vit PMX	0.50
Min PMX	0.25
Stable Vitamin C35	0.03
Ethoxyquin	0.02
TOTAL	100.00

<sup>1</sup>The numerical component of the feed description refers to the percentage of protein and fat, respectively, in the ration, i.e. 43/12 indicates 43% crude protein and 12% crude fat.

Table 3. Results of the 2002 ASA aquaculture trial that evaluated longfin pompano growth performance in 8.0-m<sup>3</sup> cages with 47/15 and 43/12 extruded aquafeeds at Ling Shui, Hainan Province, China.

Cage No.	Feeds <sup>1</sup>	Stocking rate (fish/m <sup>3</sup> )	Initial fish weight (g)	No. days fed	Fish harvest weight (g)	Survival (%)	P <sub>G</sub> <sup>2</sup> (kg/m <sup>3</sup> )	FCR	Net income (RMB/m <sup>3</sup> )	ROI (%)
1	ASA	250	5.3	144	213.9	61.8	33.0	2.0:1	430.8	57
2	ASA	250	5.2	144	211.3	66.4	35.1	1.9:1	506.4	67
3	ASA	250	5.1	144	197.3	69.2	34.1	1.9:1	470.4	62
Mean	ASA	250	5.2	144	207.5	65.8	34.1	1.92:1	469.2	62

<sup>1</sup> Pompano were fed a combination of the ASA 47/15 marine fingerling and 43/12 marine growout feeds in extruded, floating pellet form

<sup>2</sup> P<sub>G</sub> = Gross Production, expressed as fish weight per cubic meter of cage