



# Fry Stocking Rates for the Production of Channel Catfish Fingerlings

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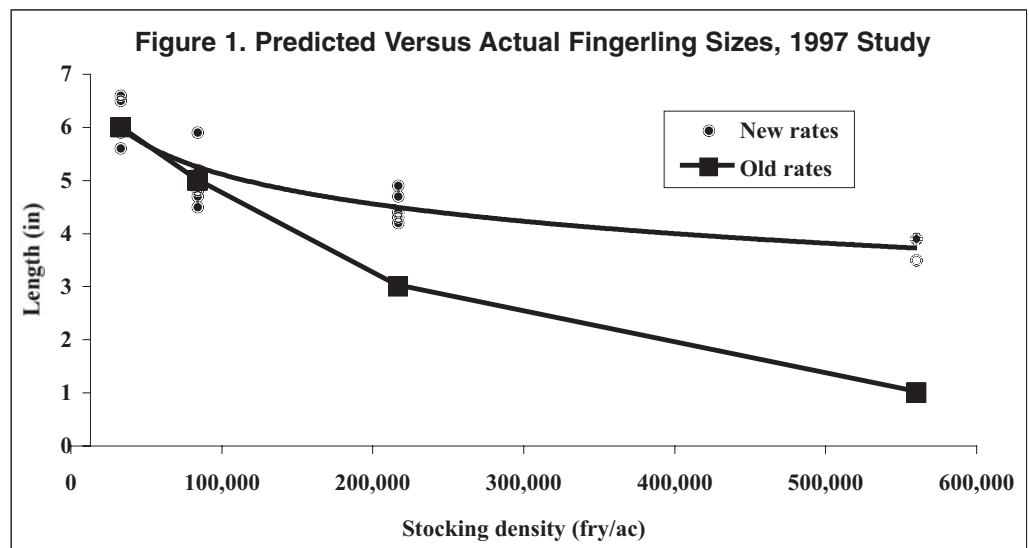
Many commercial catfish farmers produce fingerlings to stock growout ponds. Costs associated with acquiring fingerlings can represent as much as 12 to 13 percent of the total variable costs of production. However, there is little standardization of production methods because there is little research-based information on the survival, growth, yield, costs and risk associated with on-farm production of different sizes of fingerling catfish.

## Fry Stocking Rates to Produce Catfish Fingerlings Without Thinning

Extension publications from a number of states contain tables listing recommended fry stocking rates to produce different sizes of fingerlings. These tables assume that there will be no thinning during the growing season. These tables were developed

with wide ranges of recommended fry stocking rates to produce fingerlings of a given size.

New research tested these fry stocking rates with contemporary aeration rates (2.5 hp/acre) and commercial feeds. Fingerlings stocked at the lower densities reached sizes similar to those predicted by existing fry stocking rate tables. However, there were important differences in the average size of fingerlings produced at the higher densities. The old predicted tables showed that a stocking rate of 217,000 fry/acre would produce fingerlings averaging only 3 inches in length. In fact, the new research (Figure 1) shows that stocking densities of about 200,000 to 500,000 fry/acre will produce 4-inch fingerlings if fed to satiation with commercially available feeds and aerated nightly. While the previous recommendations showed that a fry stocking rate of



**Table 1. Recommended Fry Stocking Rates to Produce Fingerlings of Varying Average Lengths and Weights Without Thinning**

Target Fingerling Length	Average Weight	Recommended Fry Stocking Rate	Expected Yield
(inches)	(pounds/1,000 fish)	(fry/acre)	(pounds/acre)
4.0	17.6	379,000	3,687
4.5	29.7	203,000	2,525
5.0	41.8	108,000	1,898
5.5	53.8	58,000	1,568
6.0	65.9	31,000	1,390

560,000 fry/acre would only produce 1-inch fingerlings, the new studies have shown that, with current practices (without thinning), a fry stocking rate of 500,000/acre will produce fingerlings over 3 inches.

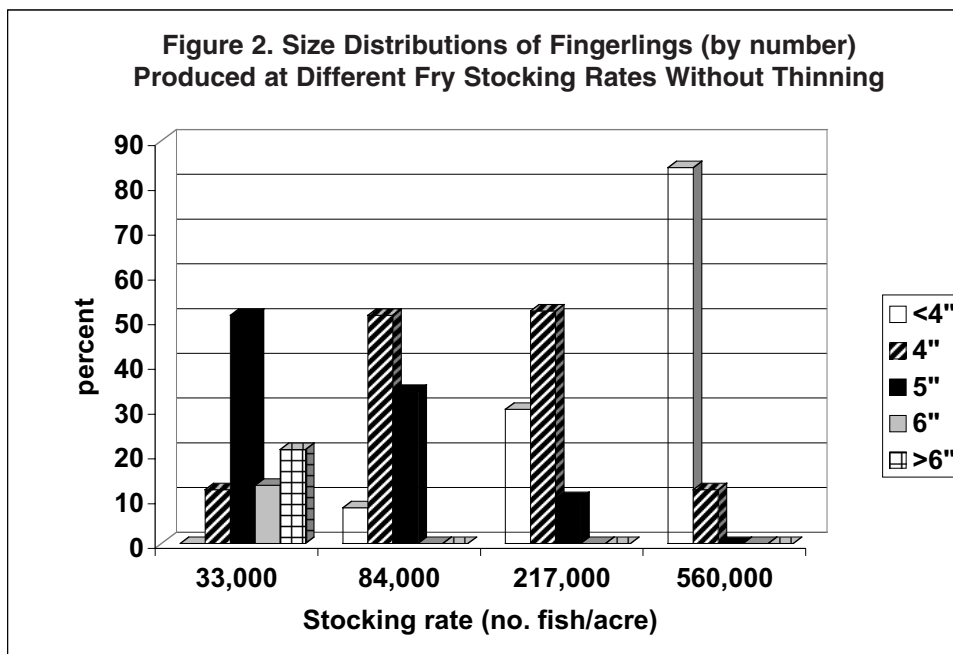
Table 1 presents new recommended stocking rates. To produce a 4-inch fingerling without thinning requires a fry stocking rate of 379,000 fry/acre; for a 5-inch fingerling, the stocking rate is 108,000 fry/acre; and for a 6-inch fingerling, the stocking rate would be 31,000 fry/acre. Corresponding yields would be 3,687 pounds/acre for production of 4-inch fingerlings, 1,898 pounds/acre for 5-inch fish and 1,390 pounds/acre for 6-inch fish. The fingerlings produced will vary in size (Figure 2). For example, at 33,000/acre, 51 percent of the fingerlings will be 5-inch, 12 percent will be 4-inch, 13 percent will be

6-inch and 21 percent will be greater than 6 inches. At a higher stocking rate of 217,000/acre, 30 percent of the fish (by head count, not weight) will be less than 4 inches, 52 percent will be 4 inches and 10 percent will be 5 inches.

Actual fish sizes and yields will vary from pond to pond and from year to year. In addition, feeding, aeration and other management practices will also influence final fish sizes. Fingerlings in these studies were fed seven days a week to satiation.

### Stocking Rates to Produce Catfish Fingerlings With Thinning

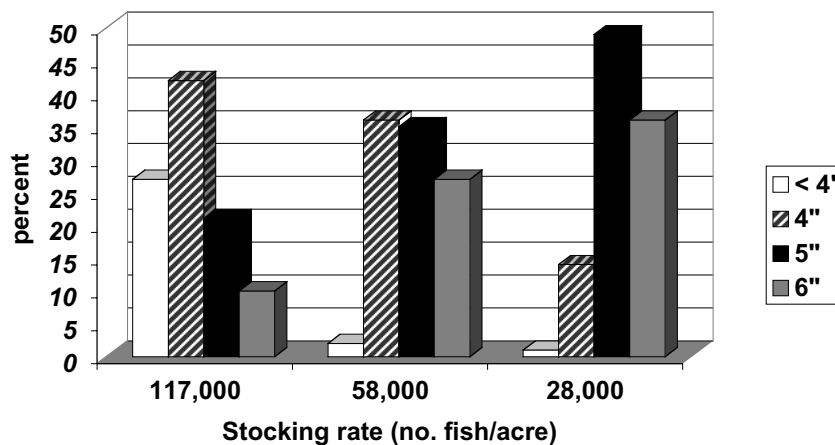
Many commercial hatcheries stock fry at rates over 250,000/acre and then thin fingerlings when they reach a size of approximately 2 inches. This



**Table 2. Recommended Stocking Rates for 2-Inch Fry to Grow to Larger Fingerling Sizes**

Target Fingerling Length	Average Weight	Recommended Fry Stocking Rate	Expected Yield
(inches)	(pounds/1,000 fish)	(fry/acre)	(pounds/acre)
4.0	11	213,000	4,652
4.5	25	135,000	3,258
5.0	39	86,000	2,383
5.5	54	54,000	1,811
6.0	68	34,000	1,454
6.5	82	22,000	1,240

**Figure 3. Size Distributions of Fingerlings (by number) Produced at Different Stocking Rates After Thinning**



typically takes about a month of growth for the fry to reach 2 inches in length. The thinned fry then are re-stocked for their growout. New studies developed recommended stocking rates for 2-inch fingerlings.

Tables of recommended fry stocking rates were prepared for targeted sizes of 4.0, 4.5, 5.0, 5.5, 6.0 and 6.5 inches (Table 2). The corresponding stocking rates for 2-inch fingerlings ranged from 213,000 to 22,000 fry/acre, and expected yields ranged from 4,652 to 1,240 pounds/acre. Figure 3 presents the variation of fingerling sizes produced at each stocking density. At a low stocking rate of 28,000/acre, only 1 percent of the fingerlings produced were less than 4 inches, 14 percent were 4 inches, 49 percent were 5 inches and 36 percent were 6 inches. At a higher

stocking rate of 117,000/acre, 27 percent of the fingerlings produced were less than 4 inches, 42 percent were 4 inches, 21 percent were 5 inches and 10 percent were 6 inches.

## Information Sources

Engle, C. R., and D. Valderrama. 2001. Effect of stocking density on production characteristics, costs and risk of producing fingerling channel catfish. *North American Journal of Aquaculture* 63(3):201-207.

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