

Financial Analyses for Various
Alligator Enterprises

by Robert L. Degner*

INTRODUCTION

Raising alligators for commercial slaughter is not a new idea, but it is one that is receiving renewed interest in Florida. Since the Florida Game and Fresh Water Fish Commission (GFC) set up regulations for commercial production of alligators in 1975, about 15 firms have gone into business. Many enquiries have been received about the technical and economic aspects of production.

Novelty may attract some producers into alligator production, but it is the promise of financial reward that entices most into the business. Financial success will be the catalyst that will create a "new" cold-blooded livestock industry. On the other hand, if numerous new entrants with the alligator business are met with financial disaster because of unsound economic planning and unrealistic expectations, adverse publicity could retard the development of an industry which appears to have considerable potential.

The lack of economic data has made it extremely difficult for prospective new alligator farmers to determine their capital requirements and assess their likelihood for success. Because of this information gap, the Florida Agricultural Market Research Center was asked to research production costs and analyze the financial aspects of alligator production. This paper presents the results of this research. The Center also conducted research to determine the market potential for alligator products, especially meat,

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and these findings will be reported elsewhere.

PROCEDURE

Research on production costs began early in 1984 and was completed in July. Technical production data were taken from published sources whenever possible, but such sources were generally rare and incomplete. Therefore, most data used to construct our production budgets were obtained through personal interviews with commercial alligator farmers, research veterinarians, and a team of agricultural engineers at the University of Florida.

BASIC ASSUMPTIONS

Types of Alligator Enterprises

We defined two general approaches to raising alligators. The one which we termed an alligator "farm" is an integrated operation which has its own breeding stock. After eggs are laid, they are artificially incubated, and the resulting hatchlings are grown to the optimum marketable size, usually six to seven feet.

The second approach we termed an alligator "feedlot." With the feedlot operation, no breeders are maintained. Hatchlings are purchased and fed to marketable size. Hatchlings are assumed to be available from the wild through GFC regulated and supervised programs or through individuals specializing in hatchling production. Hatchling production in the wild or in extensive natural environments (commonly called "ranching" by GFC) may be the most efficient method of producing hatchlings, given the degree of reproductive problems in intensive confinement breeder operations. Finally, an enterprise which only produced hatchlings was also evaluated in order to estimate the value of hatchlings produced under commercial conditions.

Production Technology

Alligators are cold-blooded animals and become very inactive or even dormant during the winter in much of Florida. Alligators being fed for market may be kept in outdoor pens and subjected to the natural environment, or they may be raised indoors under a controlled environment. Indoors they may be kept heated year-round, which keeps their metabolic rates high and allows them to grow to a marketable size sooner. Breeders are always kept outdoors in a natural setting to maximize breeding activity. Currently, most alligator operations in Florida have their own breeding stock and supplement these with "ranch" eggs and hatchlings obtained through the GFC. Commercial alligator farms use both indoor and outdoor feeding systems. All enterprises evaluated used heated indoor feeding, because the consensus among research team members was that heated facilities are essential for economical production.

Alligator reproduction specifications were taken primarily from estimates of wild alligator reproduction rates. While most farms have not achieved these reproduction rates, many are optimistic that these rates will be reached soon. For the breeding operation, it was assumed that 70 percent of the females will nest each year and lay 35 eggs per nest. The eggs should have a 60 percent hatching success rate. Given these figures, 68 female and 23 male breeders will be required to produce 1,000 hatchlings. Thus, the two farms and the hatchling enterprise will produce 1,000 hatchlings every year, while the feedlot will require 1,000 hatchlings per year.

Over the three years required to grow seven-foot alligators, the expected mortality rates are seven percent the first year, two percent the second, and one percent the third year. Starting with 1,000 alligators, 930 will remain at the end of the first year, 911 at the end of the second, and

902 at the end of the third year. For calculating feed, vitamin and medical needs, it is assumed that there will be an average of 965 alligators living during the first year, 920 the second, and 906 the third year. All building requirements were based upon space requirements for 1,000 animals because reductions in mortality rates are likely.

Alligators are carnivorous animals that eat a variety of foods. Farmers in Florida feed alligators mostly waste meat or spoiled meat, such as chicken, beef livers, fish, and nutria. In early 1984, they paid an average of 15 cents per pound for feed. In an indoor heated environment, an alligator will eat approximately 30 pounds of meat during its first year of life, 120 pounds its second, and 250 pounds its third year. Each breeder requires an average of 450 pounds of meat per year.

It was assumed that the two farms and the feedlot would raise alligators to a length of seven feet and a weight of 100 pounds, with a boneless meat yield of 30 pounds. Based on limited experience with growing alligators in heated environments, it was assumed that this can be done in three years. The hatchling farm was assumed to breed alligators, hatch the eggs, and sell hatchlings at the end of the first year of operation. For all enterprises which feed young alligators, buildings and support facilities were assumed to be added only as needed. For example, the third grow out building would be added in the third year.

FINDINGS

A summary of the research findings are presented here, but detailed annual operating budgets, a five-year financial summary, and 20-year financial analyses for each of the four types of operations are presented in a Florida Agricultural Market Research Center Industry Report 84-3 (Dodson and

Degner, 1984).

The four operations analyzed were (1) a high-cost farm with indoor feeding, (2) a low-cost farm with indoor feeding, (3) a high-cost indoor feedlot, and (4) an enterprise which only produces hatchling. All of the animals are assumed to be sold live because it was judged uneconomical for an enterprise to have its own slaughtering facility. The high-cost facilities were developed primarily by team members from the Agricultural Engineering Department and the College of Veterinary Medicine. However, the labor requirements and operating costs were based primarily on actual farm practices. The low-cost specifications are based largely on actual practices observed on many Florida alligator farms. Most cost differences are due to doing construction work with family labor, using lower cost building designs, and allowing less space per alligator.

Revenues were assumed to be the same for both the high-cost and the low-cost operations. In reality, this may not be true, but data which show greater productivity under the high-cost system do not presently exist. The seven-foot hides were valued at three levels: \$12, \$18 and \$24 per foot. Boneless meat was valued at \$4, \$6 and \$8 per pound. Slaughtering and butchering was estimated to cost \$50 per animal, resulting in live animal values ranging from \$154 to \$358.

The High-Cost Farm

Total costs increase from \$52,296 the first year to \$276,344 the fifth year for a five-year total of \$854,001. With the low and middle sales values, net income is negative in every year, but with the high sales value, net income becomes positive in the fourth year. In the fifth year and each subsequent year, net income is about \$47,000. With middle product values, the farm loses \$45,000. With low prices, losses are \$137,000 per year

(Table 1). Even with the high sales value, though, the five-year total for net income is -\$208,169. Both the five-year budget analysis and the 20-year financial analyses show that the high-cost farm will only make money with the high sales value.

Table 1.--A comparison of annual net incomes generated by various types of alligator enterprises using three sales values.^a

Type of Enterprise	Annual Net Income ^b		
	Low Sales Value	Middle Sales Value	High Sales Value
	-----Dollars-----		
High-cost farm	-137,436	-45,432	46,572
Low-cost farm	-62,899	29,105	121,109
High-cost feedlot	-124,577	-32,573	59,431

^aThe three sales values--low, middle, and high--are \$138,908, \$230,912, and \$322,916, respectively.

^bThe annual net incomes are for all years after reaching full production and after carry-over interest from development years has been paid. For the high- and low-cost farms, this occurs in year five. For the high-cost feedlot, it occurs in year four.

Low-Cost Farm

Total costs increase from \$40,003 the first year to \$201,807 the fifth year, for a five-year total of \$621,672. For this farm, net income is negative in every year only with the low sales value (Table 1). The five-year budget analysis and the 20-year financial analyses show that the low-cost farm will make about \$29,000 per year with the middle product values and about \$121,000 per year with the high sales values (Table 1).

High-Cost Feedlot

The feedlot differs from the high-cost farm only in that there is no breeding operation. Instead, the feedlot obtains hatchlings from outside sources and does not require one year to establish a breeding operation. Thus, it only takes three years to get into full production. Total costs increase from \$67,547 the first year to \$263,485 the fourth year for a four-year total of \$745,471. No sales are made until the end of the third year. With the low and middle sales values, net income is negative in every year. The high sales value produces a positive net income of \$59,431 the fourth year (Table 1). Both the five-year budget analysis and the 20-year financial analyses show that the high-cost feedlot will only make money with the high sales value.

Alligator Hatchling Enterprise

The specifications for the hatchling enterprise are based about equally on information from the Agricultural Engineering Department and from existing farms. This enterprise only takes one year to get into full production because it consists solely of a breeding operation. The goal is to produce and sell 1,000 hatchlings every year.

At a price of \$15.00 per hatchling, the approximate cost of hatchlings available through the GFC, the enterprise loses almost \$35,000 per year, or \$35.00 per hatchling. For the hatchling operation to break even, hatchlings would have to be sold at a price of approximately \$50 each.

CONCLUSIONS

Operating an alligator enterprise is very expensive. Large capital investments are required over a period of three to four years while no income is being generated. Because of the newness of the industry, there is

no certainty that the production methods used will achieve the goals desired. For this reason, four different enterprises were evaluated with a range of sales values.

All three enterprises have positive incomes with the high sales value. However, only the low-cost farm has a positive net income with the middle sales value, and none has a positive net income with the low sales value. For each sales value, the low-cost farm has the highest income, and feedlot the second highest, and the high-cost farm has the lowest net income.

The hatchling enterprise can only break even at a price of approximately \$50 per hatchling. However, a feedlot could add a breeder operation and produce hatchlings at a cost of approximately \$29.00 each, based upon the difference between a high-cost farm and a high-cost feedlot. This suggests that an alligator enterprise would do better to raise its own hatchlings or to obtain them from the GFC at a lower price.

In the alligator industry, there appears to be potential for making money, provided that production efficiencies are improved and costs are minimized. Every effort must be made to increase efficiency by improving reproduction rates. Also, records must be kept in order to selectively breed animals for good hide and meat qualities and improved feed conversion rates.

While there appear to be opportunities for profit in alligator production, it must be recognized that additional quantities of meat and hides may depress prices unless efforts are made to develop the markets for these products. This is especially true for alligator meat. The American consumer is not accustomed to eating alligator meat, so market development activities may have to be undertaken to ensure adequate demand at a good price. For hides, apparently, a larger market already exists, although some market development may be necessary to maintain good prices.