

How to Use the Maine Aquaculture Association's Financial Benchmarking Studies

For Producers:

Background

- Benchmarks are business tools often used in other business sectors, including farming, as a way for farms to compare the performance of their farm to that of other similar farms for any given year, as well as over a period of years.
- Benchmarks provide a basis for a business to track which aspects of its business (i.e., various production and cost efficiencies) meet, exceed, or fall below industry averages.
- A particular farm may be well above average for some metrics but below average in others. Such comparisons suggest areas for improvement that can be quite beneficial.

How to Use this Report

- Use the benchmarks calculated in the report as a general guide for metrics that you should be tracking on your farm
 - Track and calculate important metrics from the groupings included in the report such as production, expense, cost and breakeven price/yield, profitability, financial and repayment, and efficiency benchmarks
 - Compare your performance to that of similar farms – those shown in the benchmarking studies
 - Focus on key profit indicators
 - Gross revenue
 - Gross margin
 - Ownership (fixed or overhead) expenses as a percentage of sales
 - Production capacity
 - Cost of production (e.g. per piece, per lb.)
 - Time from spat to market size
 - Percent of seed that survives to harvest
 - Identify areas where you meet, exceed, or fall below industry performance
 - Draft a plan to address areas that need improvement
 - Include a SWOT analysis and written goals
 - Think of ways to highlight or capitalize on the strengths of your farm
 - Improve or modify your financial records and production records so you can continue to calculate these specific benchmarks and track how they change from year-to-year
- If you are applying for a commercial loan, expect to need 3 years of financial records (balance sheets, profit and loss or earnings statement, and statement of cash flow). They will need to be accurate, so do not hesitate to seek help in preparing and reviewing them. Consider reaching out to SCORE, Extension, Small Business Development Centers, CEI, or Farm Credit East.
 - Use the benchmarking studies to present a strong case for your application based on the performance of the industry, and how your performance compares to that of the industry

For Financial Lenders and Investors

Maine Aquaculture Benchmarking Overview

- Financial lenders and investors can use benchmarks to identify thresholds likely to predict financial success or failure of a startup business
- Aquaculture continues to be viewed as a new, high-risk type of farming despite a history of economic success that extends for more than a century
- Due to a lack of readily available benchmarking information, most applicants for financing have been forced to develop their own information or use information from a different geographic region, often with conditions that differ substantially from those in Maine
 - The difficulty of obtaining sufficient capital has long been a barrier to entry to many prospective aquaculture businesses in Maine
- The full report includes information important to lenders and investors, including details of the various types of risk (i.e., weather, diseases, theft, etc.) and degree of risk (frequency and severity of losses for each type)
- Lenders must take into consideration a variety of factors when deciding whether to approve a loan proposal or not. Two of the most critical factors, however, are:
 - 1) Whether the business overall is profitable and likely to survive in the long term; and
 - 2) Whether there is sufficient cash flow for the business to be able to pay bills when they come due, including principal and interest payments on loans
- Thus, a series of graphical analyses were conducted on the benchmarks for each species that searched for benchmarks that showed some relationship to
 - Profitability (net margins, or net farm income)
 - Cash flow (working capital)
- Managing financial position and the associated financial risk is also important for long-term success of businesses.
- Unfortunately, the survey data included small numbers of observations of farms that borrowed money. Thus, in most cases, there were too few observations to adequately assess financial position and the related financial risk; thus, the analysis focused on profitability and cash flow benchmarks.
- Lenders will need to ensure that yield estimates are conservative and that contingency financial plans are in place for an occasional complete crop loss.

Maine Aquaculture Benchmarking Studies – Tips for Use

- The benchmarks developed in this analysis should be used with caution.
 - As with many types of aquaculture, there is a great deal of variability in farm-level data due to different business models, different management practices, likely differences in the lease sites in terms of productivity, different labor patterns on farms (unpaid family versus hired employees), and other factors.
 - This inherent variability among farms is compounded by the small sample sizes in this study that reflect overall small numbers of producers of these various aquaculture products. When consulting the benchmark values, attention should also be paid to the coefficient of variation (CV). The higher the CV, the greater the variability, and the less reliable are the specific values.
 - The range of values reported provides additional detail on the potential variability for each benchmark for each species.

- It is critical that the benchmark values calculated **NOT** be used as absolute thresholds for decisions made related to approval of loan applications.
 - The range of benchmark values developed in this analysis provide some indication of which loan applications may be more feasible than others.
 - The bottom line in terms of whether the prospective borrower will be able to pay off a loan and maintain a profitable and feasible shellfish or seaweed farm will depend more on the interaction of a series of factors rather than a single benchmark value.
 - Each loan application must be scrutinized for its financial viability across a set of benchmark values.
- The benchmarks calculated in this study can also be used to suggest ways to improve profitability, cash flow, or financial position on the farm going forward.

Species-Specific Recommendations

Established Oyster Farms

- Established oyster farms will have historical data that can be scrutinized, and the evaluation of their application should be relatively straight forward
- The complete loan application should include the previous three years of
 - Balance sheets,
 - Profit and loss statements
 - 3-year monthly cash flow budget
 - Lenders can quickly look at the profitability of the farm over the past several years, identify cash flow patterns - with an eye towards those months in which there typically are cash deficits, and use the cash flow statement to assess the feasibility of having cash available to meet scheduled loan payments.
 - The degree of financial risk already present in the farm business can be readily assessed with the debt-to-asset ratio calculated from the balance sheet.
- Look at the percentage of labor, depreciation, and any other major costs for the farm under consideration.
 - In this study, labor accounted for 62% of total costs on suspended culture oyster farms and 48% of total costs on bottom culture farms.
- Depreciation costs that are relatively greater than the percentage costs estimated in this analysis could be a sign that a farm is over-capitalized
- Marketing expenses should be evaluated based on the overall marketing strategy for the business; some strategies require greater levels of direct marketing costs than others with a strategy of selling primarily to wholesalers and distributors
- Examining other costs that compose a noticeably greater percentage of total costs than those measured in this study may indicate areas where greater cost control may be important.
- This study showed that few established oyster farms had borrowed capital; most used equity capital and built their businesses slowly

Startup Oyster Farms

- The benchmark values provide some indication of the amount of investment capital that will be required for a successful farm
- Loan applications with investment capital levels less than those presented in this study likely will be under-capitalized and suffer from various types of inefficiencies and higher costs as a result.
- An over-capitalized farm will have greater repair and depreciation costs
 - This may result in financial difficulties, particularly if a substantial portion of the capital is debt capital
- Farmers should purchase a moderate amount of seed in the early years, incurring a bit less expense while they are moving up the learning curve and more likely to experience setbacks and challenges
- The costs per pound of various inputs should be compared with the average, minimum and maximum levels measured in the benchmark values, to see if any particular costs may be under-estimated.
- It is vital that a startup oyster farm adequately account for all capital that is needed to operate at an efficient level and not under-estimate costs when planning for the financial resources needed for the early years.
- Estimates of breakeven prices above total costs should be compared with expected market prices to evaluate the potential profitability of the farm.
- Additional important benchmarks to examine for startup oyster farms include:
 - Anticipated length of time from seed to market size, and
 - Projected working capital
 - These both appear to be related to the profitability of a startup oyster farm
- A comprehensive cash flow budget will show:
 - The likelihood of making loan payments
 - The debt-to-asset ratio will indicate the extent of financial risk that will be imposed on the business for the level of borrowing proposed.
- Once the farm begins to grow oysters, it will be important to:
 - Monitor mortalities and harvest quantities per acre
 - Track actual harvests over time with those proposed in the initial loan application
 - This will provide information on how well the farm is performing versus projections from a production point of view
 - The benchmarks for established oyster producers can be used as guidance for monitoring production performance over time

Mussel farms

- Only one mussel farm responding to the survey was profitable
 - Note -- this measure of profitability includes non-cash depreciation costs that must be covered for a business to be profitable in the long run.
 - In the short run without consideration of the need for sufficient profit to be able to replace capital assets when they wear out, mussel farms on average were profitable (short-run profitability was measured as gross margins).
- There appeared to be substantial economies of scale in mussel production related primarily to the type of boats required to handle the harvesting.

- It appears that, to take advantage of economies of scale, that a minimum production scale will be about 50,000 lbs. a year.
 - In this study, only the very largest farm in the dataset was profitable.
- Other benchmark values that would be important to review include the weight of mussels harvested per foot of line.
 - The profitable farm in this dataset harvested 2.3 pounds of mussels per growout foot of line
 - The next best farm harvested only 1.3 pounds of mussels per foot of growout line -- and was unprofitable.
- Given the importance of labor as the greatest cost of producing mussels, the labor efficiency benchmarks are important.
 - An easy way to develop an initial estimate of the efficiency of labor is to calculate the sales revenue per hour of labor.
 - If this value is less than the hourly wages paid, then the farm will lose more money with every hour of labor used.
- Working capital, as a measure of cash flow, was related to the total weight of mussels harvested per farm and to the labor efficiency benchmarks as well

Seaweed farms

- Background
 - The seaweed benchmarks are based on data from 6 respondents who reported on the 2017 harvest season.
 - The 2017 seaweed aquaculture industry in Maine consisted of 8 producers who harvested a total of 45,023 wet lbs. of seaweed
 - Several of these growers were new entrants into the seaweed sector, and operated on a small scale with only a handful of lines.
 - Maine's 2020 seaweed sector consists of at least 28 growers, many of whom have scaled up to larger operations.
 - The 2020 sector is estimated to have harvested over 500,000 wet lbs. of seaweed
 - It is expected that economies of scale have been achieved through this growth, and that the economics of the industry have likely shifted significantly.
 - Since 2017, efficiencies have been found that may have significantly reduced the cost of setting up farming operations
 - Given the industry's nascency, and the anecdotal evidence that we have received that suggests profitability on many of the new and larger farms, we believe that the data received from the 2017 growing season may no longer represent the current trends of the industry writ-large in Maine.
 - As a result, we plan to revisit this benchmarking study to analyze the new economic realities in this growing industry.

How to use the seaweed benchmarks

- The analysis of seaweed farm benchmarks shows that seaweed farming currently entails a number of risks that include that of total crop loss.
 - It would strongly behoove anyone considering seaweed farming to enter slowly
 - Try out a few lines in different locations to get a good feel as to what production levels are likely to be
 - Expansion should be very slow at first.

- Low levels of investment would be preferable until the farmer develops a good basis of understanding what costs and production volumes are likely to be over time.
 - Assuming debt capital at a time when seaweed farming is clearly in a developmental stage with many un-answered production and marketing questions appears to be unwise.
 - This is especially true for an individual whose family income would depend on such a new and risky crop.
 - The data from this study do not support going into seaweed production on a full-time basis to support a family until yields on the lease stabilize at a level that, on average, is much greater than those reported in this study.
 - Seaweed production may have potential as a secondary source of income for fishermen and lobstermen who own most of the equipment required
 - This is highlighted by growth in the industry since 2017
 - Long-term planning for repairs and replacement costs for major capital expenses of boats, buoys, rope, and mooring gear would still be needed
 - Approaching seaweed production as an experimental crop would still be advisable, with an initial step of gaining experience with several test lines in the first year or two
- **Scallop farms**
 - Several individuals in Maine have been raising scallops on an experimental basis.
 - Scallops have potential to be a high-value shellfish product, but:
 - Production and marketing technologies are still in a developmental phase with producers working to develop the best way to grow and market scallops.
 - Technological assistance and support services are available to scallop producers from a variety of sources, including the Maine Aquaculture Association, Maine Sea Grant, and Coastal Enterprises, Inc.
 - Several producers have been cooperating with each other in their efforts to develop scallop farming businesses.
 - Cooperative efforts have supported technology transfer from other countries, sharing of expensive equipment, and more rapid movement of producers along the learning curve for scallop production.
 - In terms of production costs relative to other types of shellfish, scallops likely will require greater labor and possibly greater capital investment than do oysters or mussel production.
 - In addition to risks expressed by shellfish producers in this report, scallops also are more susceptible to biofouling, which can pose challenges for the business.
 - Prospective scallop producers should further be aware that testing for biotoxins will require additional expense to ensure the safety of scallops raised, especially if planning to sell animals in the live market.
 - Prospective scallop producers will need to either own or acquire a vessel with a hoist or winch for harvesting heavy loads as well as equipment to clean and remove biofouling of scallops, typically done onboard.
 - In addition, previous experience farming shellfish would be advantageous because scallops require more careful handling than do oysters or mussels.