

Reports

11-1-2012

2012 Cultchless (Single seed) Oyster Crop Budgets for Virginia User Manual

Karen Hudson
Virginia Institute of Marine Science

Dan Kauffman
Virginia Tech

Thomas J. Murray
Virginia Institute of Marine Science

Alexander Solomon

Follow this and additional works at: <https://scholarworks.wm.edu/reports>



Part of the [Aquaculture and Fisheries Commons](#)

Recommended Citation

Hudson, K., Kauffman, D., Murray, T. J., & Solomon, A. (2012) 2012 Cultchless (Single seed) Oyster Crop Budgets for Virginia User Manual. Marine Resource Report No. 2012-10; VSG-12-13. Virginia Institute of Marine Science, William & Mary. <http://dx.doi.org/doi:10.21220/m2-apt1-dp78>

This Report is brought to you for free and open access by W&M ScholarWorks. It has been accepted for inclusion in Reports by an authorized administrator of W&M ScholarWorks. For more information, please contact scholarworks@wm.edu.

2012 Cultchless (Single seed) Oyster Crop Budgets for Virginia

User Manual



Karen Hudson¹, Dan Kauffman², Thomas J. Murray¹ and Alexander Solomon³

¹Virginia Institute of Marine Science, Virginia Sea Grant Marine Extension Program

²Virginia Tech, Virginia Seafood Agriculture Research and Extension Center

³Independent Economic Consultant

VIMS | WILLIAM
& MARY
VIRGINIA INSTITUTE OF MARINE SCIENCE


Sea Grant
Virginia

 **Virginia Tech**

Virginia Oyster Culture Background

There are two aquaculture production methods for oysters in Virginia; intensive culture (off bottom, containerized) and extensive culture (loose on bottom). Intensive culture is also referred to as cultchless production, because the oyster seed used is single seed. Cultchless production is containerized for predator protection. Containerization varies but most commonly consists of oysters deployed at first in bags within cages that sit off the bottom. When the oysters are bigger, they are placed in cages without bags. Some producers grow their nursery oysters big enough so to go directly in cages without bags. Other methods include bags attached to rebar racks or bags within oyster floats. Intensive culture is more expensive because it requires more labor used for gear and product maintenance. However, the end result is a single, more uniform product selling at a higher price in the “boxed” or “half shell” markets.

The second aquaculture production method, extensive culture, is referred to as spat-on-shell or cultched production. This method is more traditional in that oyster larvae from a hatchery are set on clean oyster shell (cultch), planted directly on the bottom, and grown out in clusters. This production method is considered relatively less expensive because once planted, there is little to no maintenance. However, mortality is higher overall for extensive culture, and the product is destined for the shucked market which generally garners a lower price.

Both production methods typically use sterile (triploid) oysters, which achieve fast growth, making the time to first harvest approximately twelve to eighteen months. For the purposes of these crop budgets, only the intensive or cultchless method is considered.

What is an Oyster Crop Enterprise Budget?

Farm enterprise budgets have long agricultural history. They are projections of costs and revenue for single activities on a farm like raising corn or calves. Many different kinds of enterprise budgets can be found on the websites of nearly all land grant universities. On most state agricultural college websites, there are budgets adapted to local conditions that contain representative costs obtained from farmer surveys, interviews and other sources. As the name suggests, enterprise budgets help plan for only for one type of production on the farm. Farms generally produce more than one product, so the enterprise budget helps financial planning for only a portion of the farm activities.

Because of their long history, agricultural enterprise budgets have some unique features not found in pro forma (projected) income statements. For instance, they are constructed on a per unit basis—like a cow producing calves or an acre of wheat—and then scaled up appropriately. However, they are essentially a representative projected income statement for one enterprise on the farm. These enterprise budgets are designed to be modified by individual users to more accurately depict their costs and financial situation. These budgets not only help the farmer project whether or not his or her enterprise might be profitable, but will also produce a document that may be helpful in seeking operating lines of credit and capital financing from financial institutions. Lenders may also require a monthly cash-flow budget. If the farmer knows the timing of his costs and revenues, the enterprise budget can be a great help in constructing the cash-flow budget.

Growing single (cultchless) oysters from seed to maturity is a relatively new enterprise. While there have been other discussions of oyster aquaculture enterprise budgets, to our knowledge this is the first time an oyster enterprise budget in the more or less standardized agricultural enterprise budget format has been produced. It likely to change in the future as methods of production become more standardized and better information becomes available.

Budget Introduction

The cultchless oyster crop enterprise budgets are intended as guidelines in the estimation of production costs and returns for Virginia aqua-farmers growing triploid oysters and were designed using industry input. The authors would like to thank industry for their valuable guidance in the development of this tool. These budgets should be used as a guide for decision making and to reinforce the importance of budgeting for individual enterprises. It is important to recognize that farm operations vary considerably and the budgets developed do not describe every situation. Cost of production will vary from farm to farm based on location (e.g. fuel), management (e.g. labor & mortality), product sales channels (e.g. market price) and grow out practices (e.g. gear). These budgets can be used as a guide to the standard costs incurred with oyster production in Virginia. The spreadsheets are designed to encourage users to make changes based on their own farm practices. The user has the option of changing any of the variables on the spreadsheet; however those that have the most impact and those considered most variable from farm to farm are noted by maroon shading or font and diagonal line hatch.

*An important note of caution to the user—these budgets stop at the “farm gate” and do not include marketing costs. The budgets assume that a wholesale distributor does the marketing. Thus marketing costs, such as additional refrigerated transportation, shipping costs and packaging materials, are not considered in the budgets. Also not included is the sales time dedicated to establishing and retaining markets. Growers should consider these costs in addition to budget costs presented here if targeting markets beyond the farm gate. It is reasonable to expect a retail sales channel for the lower end of the small-scale budget; however, as production increases, a percentage of products will likely be diverted to the wholesale channel.

Budget Worksheets

Each spreadsheet has a total of four worksheets: *Menu*, *Oyster Crop Budget*, *Line Item Notes* and *Budget Evaluation*. You will find tabs with these names at the bottom of the screen. To open a worksheet or move between worksheets, simply select the tab of choice at the bottom of the screen.

Menu is an abbreviated set of instructions and *Oyster Crop Budget* is the main budget spreadsheet. *Line Item Notes* further breaks down costs of specific line items in the budget spreadsheet; operating costs such as labor, fuel and supplies and fixed costs such as capital expenses to be depreciated are itemized. Changes to the cost of capital items will need to be made in the *Line Item Notes* worksheet and those changes will in turn update the depreciation value in the main budget worksheet. Places where changes can be made are noted by maroon shading with diagonal line hatch. The *Budget Evaluation* worksheet shows the percentage of the total budget each line item represents, as well as the cost of the line items per market oyster sold.

This worksheet is a helpful tool to determine the biggest expenses in the farm budget. In both representative farm budgets, labor is the by far the largest expense. This worksheet will automatically update based on user inputs from the budget worksheet, so it is recommended that this worksheet be evaluated after all the necessary changes have been made.

Tools Needed to Use the Budgets

The budget spreadsheets were designed to use Microsoft® Excel® version 97-2003. This software allows the user to make changes which will be reflected automatically throughout the spreadsheet. If you don't have Microsoft® Excel®, a pdf version of the spreadsheets can be printed. The user can fill out this spreadsheet the old fashioned way using a pencil and a calculator.

STEP 1: Choosing the Spreadsheet to Use—Small-scale or Medium-scale?

The user must first determine the target number of oysters to market each year and then download the appropriate budget spreadsheet from www.vims.edu/map/aquaculture. Two different budget sheets are provided based on two scales of cultchless production. Small-scale production is defined as selling 50,000 to 250,000 market oysters per year and medium-scale selling 250,000 to 1,000,000 market oysters per year. Production on a larger scale is not considered in these spreadsheets.

The main differences between the two budgets are the size of seed purchased and infrastructure required with production scale. The small scale budget assumes purchasing larger (6-12 millimeter), more expensive seed. The larger seed means the small-scale grower does not need nursery equipment like upwellers. The medium-scale budget assumes purchasing smaller (2-4 millimeter), less expensive seed but requires nursery equipment as well as other infrastructure such as an automated sorting system to cut down on handling time (labor). Both budgets change based on increases or decreases in production.

STEP 2: Enter the Target Annual Oyster Sales

Open the *Oyster Crop Budget* worksheet by selecting that tab at the bottom of the screen and enter the "Target Annual Oyster Sales" located in the upper right-hand cell shaded in blue with diagonal line hatch. This single entry will produce revenues and costs for a representative farm vetted by industry. However, if the user knows his or her costs or revenues are different than those for the representative farm, changes should be made to reflect this information by using the steps below.

STEP 3: Adjust Key Assumptions

Key assumptions are located in the box at the top left of the budget worksheet and are shaded in maroon with diagonal line hatch. These variables drive the budget worksheet, and changes made will result in changes to the budget calculations. The variables are explained on the next page:

¹ Average wholesale price reported by industry in the 2011 Virginia Shellfish Aquaculture Crop Reporting Survey (VIMS/Virginia Sea Grant Marine Extension Program)

Average Market Price

The budget assumes that harvested oysters are sold to a distributor for the wholesale market, and are estimated at \$0.25 per oyster¹. It is reasonable to expect a higher price for product sold retail at the farm gate or in nearby markets; however, as production increases, it is likely that a larger percentage of products will be distributed in wholesale channels. These budgets are based on selling to someone who does the marketing. Direct marketing costs are not included.

Oyster Mortality Rate

Oyster mortality rates vary year to year and are dependent on a variety of factors that are both husbandry-based (e.g. experience) and environmental. Some examples to consider are quality of seed, stocking densities in both nursery and grow-out, and weather events. A rate of 50% mortality was chosen for both production scales because of industry recommendations. While the mortality rate of an experienced farmer can be lower than 50%, experienced industry participants say prudence requires limited optimism when it comes to mortality. Mortality higher than 50% is not uncommon.

The small-scale budget mortality rate only considers grow-out-associated mortality, since seed purchased is large enough to be deployed directly to grow-out. Mortality in the medium-scale budget includes both nursery- and grow-out-associated mortality. Seed in this case is starting much smaller. It is assumed the medium-scale user would have adequate experience in nursery and grow-out to minimize mortality. Experience plays an important part in the mortality rate. To keep oyster mortality low, it is critical to provide enough gear and labor to maintain adequate stocking densities throughout the process. Trying to get by with too much product in too little gear is a common “rookie” mistake and will result in mortalities that can exceed 50%.

Percent of Total Oysters Harvested—Year 1 & Year 2

Both budgets assume 20% of the surviving crop will be harvested in year one with the remaining 80% in year two. The majority of the Virginia culture industry uses triploid (sterile) oyster seed which grows faster than diploid (natural) and does not diminish in quality with seasonal spawning. The typical grow-out timeline for triploids is 12-18 months from planting versus the 24-36 months it takes diploids. Timing of seed purchases, environmental site conditions, farm management and marketing strategy all play a factor in the percent ready for harvest in year one. As production increases, seed purchases are typically staggered throughout the season and therefore the crop is at different stages of growth.

Some farms report a percentage of the crop may not be ready for market until year three. This is not accounted for in these budgets but may occur with triploid culture and would certainly be the case if the grower were using diploids. If product is held into year three, it is even more crucial to ensure that enough gear is purchased to account for the additional animals on the farm.

STEP 4: Adjust Critical Variables to Fit Your Farm

The most critical variables that drive the budget costs and those considered most variable farm-by-farm should be adjusted first. They can be found on both the *Oyster Crop Budget* worksheet

and *Line Item Notes* worksheet. On the *Oyster Crop Budget* worksheet, these are operating expenses noted in maroon font with diagonal line hatch. On the *Line Item Notes* worksheet, these are “Capital Items to be Depreciated” and “Recovery Periods” denoted in maroon shading with diagonal line hatch. They are described below:

*Note that while many cells are changeable, some are locked to protect the integrity of the formulas and proper functioning of the spreadsheet. If you encounter a locked cell, you will receive an error message stating the cell that you are trying to change is protected and read-only. Locked cells are only used in areas where changes are not recommended.

*Changes to the *Oyster Crop Budget* worksheet will primarily take place in columns C and D under the items “Operating Expenses” and “Fixed Costs.” Changes to the *Line Item Notes* worksheet will take place in columns C and G under “Capital Items to be Depreciated.” Changes are not recommended elsewhere and in most cases will not be possible. However, if you are an experienced spreadsheet user you may remove the cell protection, as cells are not protected by a password.

Operating Expense—Triploid Oyster Seed

The price of seed is an important factor in the budget. As noted, the small-scale budget assumes that the grower is purchasing quarter- to half-inch seed (6-12 mm) at the 2012 average market price of \$20 per thousand. The medium-scale budget assumes the grower is purchasing two- to four-millimeter seed at the 2012 average market price of \$8 per thousand. The cost of seed can be changed by entering your cost per thousand in the “Price/Cost per Unit” column. Once the user enters the target annual oyster sales and projects oyster mortality in the key assumptions, the spreadsheet model automatically generates the quantity of seed that needs to be planted / purchased. Please note that the quantity of seed is rounded up to the nearest thousand to reflect industry selling practices with the method of measurement using volumetric counts.

Operating Expense—Labor

Both budgets consider full-time employment to include management salary.

In both representative farm oyster enterprise budgets, labor is by far the costliest item. The user will likely have a better idea of labor hours needed. The total number of hours for full- and part-time labor can be entered on the budget spreadsheet in the “Quantity of Units” column. Also, the hourly wage will be particular to each operation and can be entered under the column “Price/Cost per Unit.”

The labor hours used in the budgets were based on four years (2008-2011) of grower data from the Virginia Sea Grant Marine Extension Program’s annual shellfish aquaculture crop reporting survey. The number of oysters planted, along with the number of full- and part-time employees, was compiled, and a range of hours was determined for a given unit of oysters planted. These data were further broken down into labor hours per block of production. The breakdown of labor hours used in the budgets is outlined on the next page (this list is also found in the *Line Item Notes* worksheet). Full time is calculated as 40 hours a week multiplied by 52 weeks in a year, or a total of 2,080 hours. Part time is calculated as 40 hours a week multiplied by 4 weeks a month for 6 months, or a total of 960 hours.

Oysters planted	Full-time hours	Part-time hours	Total hours
1 to 100,000	0	960	960
100,000 to 200,000	2,080	0	2,080
200,000 to 300,000	2,080	960	3,040
300,000 to 400,000	2,080	1,920	4,000
400,000 to 700,000	4,160	960	5,120
700,000 to 800,000	4,160	2,000	6,160
800,000 to 1,000,000	6,240	960	7,200
1,000,000 to 1,500,000	6,240	3,840	10,080
1,500,000 to 2,000,000	6,240	5,760	12,000

Operating Expense—Workers’ Compensation

It is important to note that while workers’ compensation is a considerable cost in the budget, “Virginia law requires every employer who regularly employs three or more full-time or part-time employees to purchase and maintain workers’ compensation insurance. Employers with fewer than three employees may voluntarily come under the Act.” (Virginia Workers’ Compensation Commission www.vwc.state.va.us/portal/vwc-website). Both representative farm budgets include workers’ compensation, regardless of the number of employees. The small-scale budget user with fewer than three employees may wish to remove this cost by entering a zero in the “Quantity of Units” column.

Operating Expense—Social Security and Medicare (FICA)

The employer must also pay 7.65% of employee wages to the Federal Government to cover Social Security and Medicare tax. No changes need to be made to this line item as the total wages are automatically calculated based on values entered for the full- and part-time labor hour line items.

Operating Expense—Fuel

The truck and boat fuel estimates, are static meaning they do not change with the production scale. These numbers are placeholders and need to be changed by the user. The amount of fuel per farm is difficult to estimate because of unknowns such as distance to the growing grounds for both truck and boat travel and number of vehicles used. If known, the user can enter the number of gallons used in a year in the column, “Quantity of Units.” Otherwise, in order to calculate, open the *Line Item Notes* worksheet by selecting that tab at the bottom of the screen and scroll down to “Fuel Calculations.” Enter the number of miles per week for both the boat and truck and the spreadsheet will automatically calculate your total annual gallons and populate the budget sheet. To return to the budget, select the *Oyster Crop Budget* tab at the bottom of the screen.

Fixed Costs, Capital Expenditures, and Depreciation

Fixed costs are generally costs the business must bear or wants to bear regardless of whether it operates or not.

Capital expenditure choices are critical in determining the success of the oyster business. Everyone wants to keep capital costs down because upfront money is required to purchase capital items. However, it is often possible to substitute capital for labor and this is usually the less costly longterm choice. The problem with capital, which is in the fixed cost section of the budget, is that it must be paid for even if it is not used. If it is financed, the bank will demand payment even if the capital is not being used. Labor costs, which are in the variable cost section of the budget, are only owed for the time worked and can generally be terminated without further costs. Thus in the short run, variable costs will change as the activity of the enterprise changes and capital costs will not.

An example of this capital-variable cost tradeoff is whether a flat bottom skiff or a barge should be used. It is possible, with more labor, to get by with the skiff, which is less costly than a barge. However, long-time oyster growers say that barges have real labor advantages over skiffs. It is assumed that both representative farms use skiffs, but the user may choose to substitute a more expensive barge in the line item section of the budget. That substitution should decrease labor costs.

Other major capital budget items to be considered, in addition to the boat, include the upweller, the cold room, the sorter and the cages. Successful growers advise new growers not to skimp on the number of cages in order to reduce costs. Maintaining appropriate densities avoids overcrowding, which in turn will reduce oyster mortality. New growers will want to carefully consider their capital expenditure choices and make sure they are entered correctly in the spreadsheet. These choices will help determine how the farm operates and determine the fixed and operating costs.

Depreciation is not a cash cost but it must be accounted for if the enterprise is to be an ongoing business and able to determine profit and loss. Depreciation in this budget is calculated using the I.R.S. “straight-line” formula assuming no salvage value. The recovery periods assumed here may be altered for specialized equipment where the I.R.S. provides no recovery period guidelines². For example, oyster cages typically last longer than one year so they may not be “expensed.” Personal property assets with no I.R.S. designated class life are assigned a 7 year class life under the I.R.S. “General Depreciation System.” Since oyster cages have no designated class life, they are depreciated over 7 years using the appropriate convention and method. That recovery period may be adjusted based upon experience and the spreadsheet will adjust the calculations. Some economists argue that the I.R.S. schedules depreciate machinery too rapidly and therefore may dissuade new operators from going into business because they make yearly costs higher than need be. For instance, the skiffs in the budget are depreciated to zero in 7 years. Often the useful life of a skiff is longer than that. If the user wants to use longer depreciation times and thus lower annual depreciation costs, the recovery periods can easily be changed in column G of the *Line Item Notes* worksheet³.

2 Currently, the I.R.S. utilizes the Modified Accelerated Cost Recovery System (MACRS) as the proper depreciation method for most property. Additional information about MACRS and other components of depreciation are in I.R.S. Publication 946 “How to Depreciate Property.” It is wise to consult with an accounting professional when establishing depreciation schedules for assets.

3 The authors would like to thank Gordon Groover of the Virginia Tech Agriculture and Applied Economics Department for his valuable comments in this section and throughout the document.

The bottom line is that machinery costs are substantial, and accurate estimates (and control) of them are important. While depreciation is not a cash expense, it is a cost that the enterprise must support from net income once all cash expenses have been paid. Unless the enterprise generates sufficient income to cover all fixed costs, then income from other sources (off-farm or other enterprises) will be required to meet these total costs. If the enterprise does not cover all costs it is not profitable and should not be initiated.

Fixed Costs / Depreciation Expense

The user will need to open the *Line Item Notes* worksheet tab at the bottom of the screen in order to make edits to this section. The capital costs to be depreciated are based on purchasing new equipment. The item description, cost estimate and recovery period (useful life) chosen for the representative farms can be viewed and edited in columns B, C and G.

Money can be saved by purchasing used equipment or buying gear such as cages or bags in bulk. Some growers may choose to build their own grow-out cages or floating upwellers to save money. In these cases, the capital cost of these items can be changed in column C (*Line Item Notes* worksheet), shaded maroon with diagonal line hatch. Changes here will carry over to the budget sheet.

Stocking densities for the cages and bags are listed in column B of the *Line Item Notes* worksheet and determine the “Quantity of Units” on the main *Oyster Crop Budget* worksheet. These densities can be changed, for instance if your farm uses a different cage size. Another common change would be the elimination of grow-out bags altogether, a farm practice mentioned in the background section. If this is the case, simply open the *Oyster Crop Budget* worksheet and change the “Quantity of Units” in column C to a zero. This will remove the depreciation cost of grow-out bags.

Note that a refrigeration unit for a truck bed is listed in both the small-scale and medium-scale budgets but not included in the budget calculations. Since these budgets stop at the farm gate, refrigerated transport is not considered a necessity. The user must abide by the Virginia Marine Resources Commission warm water harvest regulations⁴ and if refrigerated transport is needed, the depreciation expense can be included by changing the “Quantity of Units” column to 1 in the *Oyster Crop Budget* worksheet.

Land-based refrigeration is considered a requirement and included in the budget for medium-scale operations. It is listed in the small-scale budget but not included in the budget calculations because small operations may be able to use less costly refrigeration devices like a household refrigerator or reach-in cooler. In order to include this depreciation expense in the small-scale budget, change the “Quantity of Units” to 1 in the *Oyster Crop Budget* worksheet.

Note that the upwelling system chosen is floating rather than land-based. Land-based upwellers can be used; however, there are county zoning regulations to be considered, which may or may not restrict their use. Floating upweller systems are more common,

⁴ <http://www.mrc.state.va.us/regulations/frl230.shtm>

but they do require a Joint Permit Application⁵. As mentioned previously, the small-scale budget does not include the cost of an upweller, however it is listed. If a small-scale farmer wants to consider upwelling capabilities, the depreciation expense can be added by changing the “Quantity of Units” column to 1 in the *Oyster Crop Budget* worksheet.

Permitting & Ground Leasing Costs—Number of Acres of Leased Bottom

While the number of acres of leased bottom won't significantly change the budget, the user should enter the correct number of acres leased. The placeholder works on the assumption of 2 acres per 100,000 oysters planted, which is merely an estimate.

STEP 5: Adjust Other Variables to Fit Your Farm

The user can adjust other costs in the budget spreadsheets, although they are not considered to have a critical impact to the overall budget. Some of the remaining variables not previously addressed are explained below.

Operating Expenses—Maintenance

Remaining costs under operating expenses cover annual maintenance on vehicles and equipment such as upwellers, sorters, pumps etc. These estimates may not represent any given individual's costs. Differences in buying power, repair programs, average annual use, and overall replacement programs should be considered when making adjustments. It may be useful to record actual expenses for at least the major pieces of equipment and compare your costs to these estimates. These estimates will differ from the growers actual records because they are estimates, but also because they are averaged over the use period and are expressed in today's dollars⁶.

The small-scale budget does not include nursery equipment so this cost is not included in the representative farm, but can be added if the grower chooses as described in the *Fixed Costs/Depreciation Expenses* section of *Step 4*. To include equipment maintenance cost in the small-scale budget, enter the number 1 in the “Quantity of Units” column and adjust the “Price/Cost per Unit” if needed.

Operating Expenses—Supplies

Supply costs have been broken into two parts—expendable supplies and miscellaneous supplies. To see the detailed breakdown of these costs select the *Line Item Notes* worksheet tab at the bottom of the screen. Expendable supplies are considered a start-up cost and include items like bushel baskets, protective gear, coolers etc. It is understood that these items will need to be replaced over time but not necessarily every year. Replacement costs along with supplies purchased on an annual basis for repairing and securing gear and tagging at harvest (e.g. cable ties, hog rings, line, tags etc) fall under the category of miscellaneous supplies. These cost estimates are important to include when considering your farm budget.

⁵ Details can be found at the VMRC web site home page at the Habitat Permits link at <http://www.mrc.virginia.gov/forms/index.shtml>

⁶ If these estimates are compared to recorded costs that include repairs or depreciation based on historical costs, one adjustment that would be required for comparability would be to index the historical cost to current prices.

Operating Expenses—Ice for Summer Harvest

This category was left open for those that may use ice in order to comply with the Virginia Marine Resources Commission warm water harvest regulations. Depending on how the grower chooses to harvest in the summer, ice may or may not be required to cool the oysters. Growers should evaluate the regulations and determine whether or not ice is necessary for their situation. If ice is required, the total cost of ice for the year should be estimated and entered under “Price/cost per Unit.”

Operating Expenses—Other

This category was left open for those users who choose to enter costs such as office supplies and electricity. These were not included in the budget due to farm-to-farm variability.

Fixed Costs—Insurance

The authors would like to thank McCaleb-Metzler Insurance for providing guidance on the cost estimates of insurance and workers’ compensation. While these will vary by individual operations, the costs indicated are good ballpark estimates. It is important to stress that underwriting standards will vary by company and their disposition for risk. Finding an insurance agent who understands the shellfish aquaculture business is critical.

STEP 6: Review the Sensitivity Table

At the end of the *Oyster Crop Budget* worksheet is a “Sensitivity Table.” This table outlines the year two returns based on mortality rate and market price. Red numbers in parenthesis refer to negative returns.

STEP 7: Review the Budget Evaluation

To open the *Budget Evaluation* worksheet, select that tab at the bottom of the screen. There are two tables to review that show percentage of the total cost of the budget per line item (i.e. where the major costs are incurred in your revised budget) and cost of production per market oyster.

References for Budget Assumptions

Operating Expenses:

- Virginia Shellfish Aquaculture Crop Reporting Survey http://web.vims.edu/adv/aqua/MRR2012_4.pdf
- Employment tax (FICA) <http://www.irs.gov/pub/irs-pdf/p926.pdf>
- Virginia Workers’ Compensation Commission <http://www.vwc.state.va.us/portal/vwc-website>

Fixed Costs:

- IRS http://www.irs.gov/publications/p225/ch07.html#en_US_2010_publink1000218238 (Table 7.1 for recovery period)
- McCaleb-Metzler Insurance <http://www.mccaleb-metzler.com/>
- Virginia State Corporate Commission <http://www.scc.virginia.gov/publicforms/170/scc544.pdf>

Depreciation Expenses (gear):

- Jett's Marine <http://www.jettsmarine.com/>
 - Southern Tool http://www.southern-tool.com/store/davit-5124_crane.php
 - Chesapeake Bay Oyster Company
 - * <http://chesbayoysterco.blogspot.com/2009/12/specials-deals-used-gearbottom-line-its.html>
 - * http://bayoyster.com/equip_go.html
 - * <http://chesbayoysterco.blogspot.com/2010/02/upwelling-and-upwellers.html>
 - * <http://chesbayoysterco.blogspot.com/2009/03/quicktube-sorter.html>
 - Thermo King <http://www.thermoking.com/dealerlocator/NADresults.asp?state=VA&c=USA>
 - Kolpack <http://www.kolpak.com/products/chill-walk-ins/coolers-freezers/polar-pak-walk-in>
-

This work is a result of research sponsored in part by NOAA Office of Sea Grant, U.S. Department of Commerce, under Grant No. NA10OAR4170085 to the Virginia Institute of Marine Science and Virginia Sea Grant. The views expressed herein do not necessarily reflect the views of any of those organizations.

VSG-12-13

VIMS Marine Resource Report No. 2012-10

Additional copies of this publication are available from:

Virginia Sea Grant Communications
Virginia Institute of Marine Science

P.O. Box 1346

Gloucester Point, VA 23062

804-684-7167

vsgpubs@vims.edu

www.vims.edu/map/aquaculture

Cover Photo ©Margaret Pizer/VASG