

SMALL-SCALE CULTCHLESS OYSTER CROP BUDGET

For growers marketing 50,000 to 250,000 oysters per year
November 2012: VIMS Marine Resource Report No. 2012-10

INTRODUCTION

This small-scale cultchless oyster enterprise budget is intended to characterize a typical operation since the numbers are based on industry surveys and interviews. However, each oyster farm is different and numbers need to be modified to account for those differences. Capital structure, production practices, location, etc. vary and affect costs and returns. In particular, labor estimates should be carefully considered so these costs reflect your operation. Labor is the costliest budget item and therefore affects profit more than other categories.

**An important note of caution - this budget stops at the "farm gate" and does not include marketing costs. The budget assumes that a wholesale distributor does the marketing. Thus costs, such as additional refrigerated transportation, shipping costs and packaging materials, are not considered.*

For a complete guide to understanding this budget spreadsheet, refer to the User Manual.

BASIC STEPS for using this spreadsheet

- Step 1 Open the Oyster Crop Budget worksheet and Enter your target oyster sales
- Step 2 Modify the Key variables if needed (upper left hand box in maroon)
- Step 3 Review your year 1 and 2 revenue (based on inputs so far)
- Step 4 Review and Modify operating expenses (columns C and D) as needed
- Step 5 Review and Modify fixed costs (columns C and D) as needed
- Step 6 Review depreciation expenses by opening the Line Item Notes worksheet
**changes in capital costs and depreciation should be made in Line Item sheet only*
- Step 7 Return to the Oyster Crop Budget worksheet
- Step 8 Review and Modify permitting/lease costs (columns C and D) as needed
- Step 9 Examine the sensitivity table at the bottom of the Oyster Crop Budget
** shows year 2 returns given different mortality rates and sales prices*
- Step 10 Open and Examine the Budget Evaluation worksheet
**shows % of total costs per line item * shows cost of production per oyster*

TO START MODIFYING YOUR BUDGET

Click on the "start" box

or select the Oyster Crop Budget Tab at the bottom of the screen



START

GENERAL GUIDELINES

- **This budget is for growers marketing 50,000 to 250,000 oysters per year**
 - ❖ If marketing > 250,000 per year - use the medium-scale budget
 - ❖ The basic difference: Small-scale: purchase 6-12 mm seed with no nursery (upwelling) investment. Medium-scale: purchase 1-2 mm seed with nursery investment
- **Changing cells**
 - ❖ Cells with the most impact & most variable farm-to-farm are noted in maroon and diagonal line fill
 - ❖ Some cells are locked in order to protect formulas
 - ❖ Changes to capital costs of the depreciation items must be made on Line Item Notes worksheet (not on the main budget sheet)
- **Worksheets - Oyster Crop Budget, Line Item Notes and Budget Evaluation**
 - ❖ to move between them -select tab at the bottom of the screen
 - Oyster Crop Budget - your main budget spreadsheet Line Item Notes - explanation of certain line items (labor, fuel & capital costs-gear) *Changes here will carry over to the main budget
 - Budget Evaluation - outlines your specific budget in terms of percentage of items per total budget and cost of production per oyster
- **Hovering your mouse pointer over cells with red triangles in the corner shows explanations**

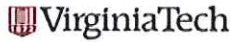
FOR QUESTIONS, CONTACT

Karen Hudson
Commercial Shellfish Aquaculture Extension Specialist, VIMS
khudson@vims.edu 804-684-7742

Tom Murray
Associate Director of Advisory Services, VIMS
tjm@vims.edu 804-684-7190

Dan Kauffman
Extension Specialist Seafood, Virginia Seafood AREC
dkauffma@vt.edu 757-727-4861

Spreadsheet was developed by: Karen Hudson (VIMS), Dan Kauffman (VT),
Alexander Solomon (Indep. Consultant), Tom Murray (VIMS)



CULTCHLESS (SINGLE SEED) OYSTER CROP BUDGET
SMALL SCALE- Marketing 50,000 to 250,000 oysters per year

November 2012

VIMS Marine Resource Report No. 2012-10

Instructions: Start by entering the target annual oyster sales. This sales number will be the basis to calculate expected costs and returns for years 1 and 2 for a representative farm based on variables chosen with industry guidance. If you choose, most other variables in this worksheet (columns C & D) can be changed however, those that have the most impact are identified by maroon-color w/ diagonal line hatch. Changes to the depreciation expenses must be made in the Line Item Notes worksheet by selecting that tab at the bottom of the screen. Many cells are locked to protect proper functioning of the spreadsheet. For a complete set of instructions please see the user manual.

ESTIMATED COSTS AND RETURNS PER CROP OF OYSTERS

| Item | Key Assumptions |
|--|-----------------|
| Avg Market Price | \$0.26 |
| Oyster Mortality Rate | 50% |
| % of Total Oysters Harvested in year 1 | 20% |
| % of Total Oysters Harvested in year 2 | 80% |

| Target Annual Oyster Sales | 200,000 |
|------------------------------|---------|
| Oyster Seed Planted | 400,000 |
| Year 1 Harvest (crop 1) | 40,000 |
| Year 2 Harvest (crops 1 & 2) | 200,000 |

MY FARM

| ITEM | UNIT | QUANTITY of UNITS | PRICE/Cost per Unit | YEAR 1 | YEAR 2 |
|--|-------------------------------------|-------------------|---------------------|-----------------------|-----------------------|
| 1. Gross Receipts | | | | | |
| Market Oyster Revenue | Single Oyster | 200,000 | \$0.25 | \$ 10,000.00 | \$ 50,000.00 |
| 2. Operating Expenses | | | | | |
| Triploid Oyster Seed | 1,000 | 400 | \$ 20.00 | \$ 8,000.00 | \$ 8,000.00 |
| Full Time Labor | Hours | 2,080 | \$ 12.00 | \$ 24,960.00 | \$ 24,960.00 |
| Part Time Labor | Hours | 1,920 | \$ 9.00 | \$ 17,280.00 | \$ 17,280.00 |
| Employment Tax (FICA) | Taxable Total Wages (\$) | 42,240 | 7.65% | \$ 3,232.00 | \$ 3,232.00 |
| Workers Compensation | Annual Expense per \$100 of payroll | 422 | \$ 4.00 | \$ 1,689.60 | \$ 1,689.60 |
| Boat Fuel | Annual Gallons | 208 | \$ 3.50 | \$ 728.00 | \$ 728.00 |
| Truck Fuel | Annual Gallons | 347 | \$ 3.50 | \$ 1,215.00 | \$ 1,215.00 |
| Boat Maintenance | Annual | 1 | \$ 500.00 | \$ 500.00 | \$ 500.00 |
| Truck Maintenance | Annual | 1 | \$ 200.00 | \$ 200.00 | \$ 200.00 |
| Misc. Equipment Maintenance (upweller, sorter, pumps, etc) | Annual | 0 | \$ 500.00 | \$ - | \$ - |
| Expendable Supplies (baskets etc) | Start-Up Cost | 1 | \$ 2,940.00 | \$ 2,940.00 | \$ - |
| Misc. Supplies | 1 lot per cage | 167 | \$ 1.00 | \$ 167.00 | \$ 167.00 |
| Ice for summer harvesting | Annual | 1 | \$ - | \$ - | \$ - |
| Other (office supplies, electricity, etc) | Annual | 1 | \$ - | \$ - | \$ - |
| Total Operating Expenses | | | | \$ 60,911.60 | \$ 57,971.60 |
| 3. Return over Operating Expenses | | | | | |
| | | | | \$ (60,911.60) | \$ (7,971.60) |
| 4. Fixed Costs | | | | | |
| Annual interest on loan (Boat, Motor, Trailer) | Sum of 12 monthly payments | 1 | | \$705.00 | \$ 611.00 |
| Boat Insurance | Annual Expense | 1 | \$ 884.00 | \$ 884.00 | \$ 884.00 |
| Truck Insurance | Annual Expense | 1 | \$ 400.00 | \$ 400.00 | \$ 400.00 |
| Business Liability Insurance | Annual Expense | 1 | \$ 400.00 | \$ 400.00 | \$ 400.00 |
| Legal Fee (Business Entity Structuring) | Start-Up Cost | 1 | \$ 500.00 | \$ 500.00 | \$ - |
| LLC Registration Fee | Annual Expense | 1 | \$ 50.00 | \$ 50.00 | \$ 50.00 |
| Accounting Fees (Tax Accounting) | Annual Expense (est) | 1 | \$ 300.00 | \$ 300.00 | \$ 300.00 |
| Business Property Tax (Boat) | Annual Expense | 1 | \$ 400.00 | \$ 400.00 | \$ 400.00 |
| Depreciation Expense (Non - Cash) | | | | | |
| Boat (includes motor & trailer) | Annual Expense (non-cash) | 1 | \$ 2,806.00 | \$ 2,806.00 | \$ 2,806.00 |
| Hoist -hand winch | Annual Expense (non-cash) | 1 | \$ 343.00 | \$ 343.00 | \$ 343.00 |
| Truck | Annual Expense (non-cash) | 1 | \$ 5,000.00 | \$ 5,000.00 | \$ 5,000.00 |
| Cages | Annual Expense (non-cash) | 167 | \$ 20.00 | \$ 3,340.00 | \$ 3,340.00 |
| Bags - seed | Annual Expense (non-cash) | 400 | \$ 1.00 | \$ 400.00 | \$ 400.00 |
| Bags - grow out | Annual Expense (non-cash) | 400 | \$ 1.00 | \$ 400.00 | \$ 400.00 |
| Refrigeration Unit - truck | Annual Expense (non-cash) | 0 | \$ 1,815.00 | \$ - | \$ - |
| Refrigeration Unit - cold room (10'x10') | Annual Expense (non-cash) | 0 | \$ 1,352.00 | \$ - | \$ - |
| Floating Upweller | Annual Expense (non-cash) | 0 | \$ 1,215.00 | \$ - | \$ - |
| Sorter | Annual Expense (non-cash) | 0 | \$ 1,429.00 | \$ - | \$ - |
| Total Fixed Costs | | | | \$ 16,928.00 | \$ 15,334.00 |
| 5. Permitting & Ground Leasing Costs (start-up costs) | | | | | |
| Shellfish Ground Leasing | | | | | |
| Application Fee (NONREFUNDABLE) | | 1 | \$ 25.00 | \$ 25.00 | \$ - |
| Advertising Cost In the Newspaper | | 1 | cost varies | \$ 35.00 | \$ - |
| Surveying - VMRC Survey for Lease Assignment | | 1 | \$ 510.00 | \$ 510.00 | \$ - |
| Additional Plat Charge (if needed) | | 1 | \$ 75.00 | \$ - | \$ - |
| Recording Fee for Each Assignment & Plat | | 1 | \$ 12.00 | \$ - | \$ - |
| Assignment Fee for Each Assignment & Plat | | 1 | \$ 1.50 | \$ - | \$ - |
| Rental Amount (Per Acre/Per Yr) | | 8 | \$ 1.50 | \$ 12.00 | \$ 12.00 |
| Shellfish Aquaculture Permits | | | | | |
| Commercial Fisherman Registration License | per year | 1 | \$ 190.00 | \$ 190.00 | \$ 190.00 |
| Oyster Aquaculture Product Owner's Permit | per year | 1 | \$ 10.00 | \$ 10.00 | \$ 10.00 |
| Oyster Aquaculture Harvester's Permit | per person per year (hired labor) | 1 | \$ 5.00 | \$ 5.00 | \$ 5.00 |
| Joint Permit Application for Floating Upweller | | 0 | \$ 25.00 | \$ - | \$ - |
| Total Permitting & Ground Leasing Expenses | | | | \$ 787.00 | \$ 217.00 |
| Total Annual Expenses | | | | \$ 77,626.60 | \$ 73,522.60 |
| 6. Estimated Pre-Tax Return to Land, Risk, and Management | | | | | |
| | | | | \$ (67,626.60) | \$ (23,522.60) |

SENSITIVITY TABLE

The following table uses the information in the spreadsheet to provide a range of returns in year two based on mortality and market price. Red numbers in parenthesis refer to negative returns. Keep in mind cost for marketing is not included in the calculations.

Year 2 Pre-tax Return Sensitivity: Mortality and Market Price

| Mkt Price | Mortality Rate | Mortality Rate | | | | |
|-----------|----------------|----------------|------------|------------|------------|------------|
| | | 30% | 35% | 40% | 45% | 50% |
| \$ | 0.10 | (\$39,256) | (\$49,787) | (\$50,848) | (\$52,064) | (\$53,523) |
| \$ | 0.11 | (\$37,256) | (\$47,787) | (\$48,848) | (\$50,064) | (\$51,523) |
| \$ | 0.12 | (\$35,256) | (\$45,787) | (\$46,848) | (\$48,064) | (\$49,523) |
| \$ | 0.13 | (\$33,256) | (\$43,787) | (\$44,848) | (\$46,064) | (\$47,523) |
| \$ | 0.14 | (\$31,256) | (\$41,787) | (\$42,848) | (\$44,064) | (\$45,523) |
| \$ | 0.15 | (\$29,256) | (\$39,787) | (\$40,848) | (\$42,064) | (\$43,523) |
| \$ | 0.16 | (\$27,256) | (\$37,787) | (\$38,848) | (\$40,064) | (\$41,523) |
| \$ | 0.17 | (\$25,256) | (\$35,787) | (\$36,848) | (\$38,064) | (\$39,523) |
| \$ | 0.18 | (\$23,256) | (\$33,787) | (\$34,848) | (\$36,064) | (\$37,523) |
| \$ | 0.19 | (\$21,256) | (\$31,787) | (\$32,848) | (\$34,064) | (\$35,523) |
| \$ | 0.20 | (\$19,256) | (\$29,787) | (\$30,848) | (\$32,064) | (\$33,523) |
| \$ | 0.21 | (\$17,256) | (\$27,787) | (\$28,848) | (\$30,064) | (\$31,523) |
| \$ | 0.22 | (\$15,256) | (\$25,787) | (\$26,848) | (\$28,064) | (\$29,523) |
| \$ | 0.23 | (\$13,256) | (\$23,787) | (\$24,848) | (\$26,064) | (\$27,523) |
| \$ | 0.24 | (\$11,256) | (\$21,787) | (\$22,848) | (\$24,064) | (\$25,523) |
| \$ | 0.25 | (\$9,256) | (\$19,787) | (\$20,848) | (\$22,064) | (\$23,523) |
| \$ | 0.26 | (\$7,256) | (\$17,787) | (\$18,848) | (\$20,064) | (\$21,523) |
| \$ | 0.27 | (\$5,256) | (\$15,787) | (\$16,848) | (\$18,064) | (\$19,523) |
| \$ | 0.28 | (\$3,256) | (\$13,787) | (\$14,848) | (\$16,064) | (\$17,523) |
| \$ | 0.29 | (\$1,256) | (\$11,787) | (\$12,848) | (\$14,064) | (\$15,523) |
| \$ | 0.30 | \$744 | (\$9,787) | (\$10,848) | (\$12,064) | (\$13,523) |
| \$ | 0.31 | \$2,744 | (\$7,787) | (\$8,848) | (\$10,064) | (\$11,523) |
| \$ | 0.32 | \$4,744 | (\$5,787) | (\$6,848) | (\$8,064) | (\$9,523) |
| \$ | 0.33 | \$6,744 | (\$3,787) | (\$4,848) | (\$6,064) | (\$7,523) |
| \$ | 0.34 | \$8,744 | (\$1,787) | (\$2,848) | (\$4,064) | (\$5,523) |
| \$ | 0.35 | \$10,744 | \$213 | (\$848) | (\$2,064) | (\$3,523) |
| \$ | 0.36 | \$12,744 | \$2,213 | \$1,152 | (\$64) | (\$1,523) |
| \$ | 0.37 | \$14,744 | \$4,213 | \$3,152 | \$1,936 | \$477 |
| \$ | 0.38 | \$16,744 | \$6,213 | \$5,152 | \$3,936 | \$2,477 |
| \$ | 0.39 | \$18,744 | \$8,213 | \$7,152 | \$5,936 | \$4,477 |
| \$ | 0.40 | \$20,744 | \$10,213 | \$9,152 | \$7,936 | \$6,477 |
| \$ | 0.41 | \$22,744 | \$12,213 | \$11,152 | \$9,936 | \$8,477 |
| \$ | 0.42 | \$24,744 | \$14,213 | \$13,152 | \$11,936 | \$10,477 |
| \$ | 0.43 | \$26,744 | \$16,213 | \$15,152 | \$13,936 | \$12,477 |
| \$ | 0.44 | \$28,744 | \$18,213 | \$17,152 | \$15,936 | \$14,477 |
| \$ | 0.45 | \$30,744 | \$20,213 | \$19,152 | \$17,936 | \$16,477 |
| \$ | 0.46 | \$32,744 | \$22,213 | \$21,152 | \$19,936 | \$18,477 |
| \$ | 0.47 | \$34,744 | \$24,213 | \$23,152 | \$21,936 | \$20,477 |
| \$ | 0.48 | \$36,744 | \$26,213 | \$25,152 | \$23,936 | \$22,477 |
| \$ | 0.49 | \$38,744 | \$28,213 | \$27,152 | \$25,936 | \$24,477 |
| \$ | 0.50 | \$40,744 | \$30,213 | \$29,152 | \$27,936 | \$26,477 |

Line Item
2. Operating Expenses

| | | No. hrs. per yr | | FT = 2080 hrs, PT = 960 hrs | | | | | |
|--|--------------------|-----------------|------------|-----------------------------|--------------------|--------------------------|--|--|--|
| | No. Planted | no. hrs FT | no. hrs PT | Total Number | No. Planted | No. Employees | | | |
| | 1 to 100,000 | 0 | 960 | 960 | 1 to 100,000 | 1 part time | | | |
| | 100,000 to 200,000 | 2080 | 0 | 2080 | 100,000 to 200,000 | 1 full time | | | |
| | 200,000 to 300,000 | 2080 | 960 | 3040 | 200,000 to 300,000 | 1 full time, 1 part time | | | |
| | 300,000 to 400,000 | 2080 | 1920 | 4000 | 300,000 to 400,000 | 1 full time, 2 part time | | | |
| | 400,000 to 700,000 | 4160 | 960 | 5120 | 400,000 to 700,000 | 2 full time, 1 part time | | | |

Fuel Calculations

| | Annual expense for small farm | miles per week | miles per gallon | no. gallons | cost per gallon | weeks per year | weekly cost | annual cost | annual gallons |
|------------|-------------------------------|----------------|------------------|-------------|-----------------|----------------|-------------|-------------|----------------|
| Boat Fuel | | 60 | 15 | 4 | \$3.50 | 52 | \$14.00 | \$728 | 208 |
| Truck Fuel | | 100 | 15 | 7 | \$3.50 | 52 | \$23.33 | \$1,213 | 347 |

Expendable Supplies

| Item | approx cost | Number units | Total |
|--|-------------|--------------|----------------|
| Bushel Baskets | \$17 | 20 | \$340 |
| Protective Gear: Gloves, foul weather, etc | \$200 | 1 | \$200 |
| Power washer | \$1,500 | 1 | \$1,500 |
| 12 volt Coolers (warm water harvest) | \$600 | 1 | \$600 |
| Other Misc. (tags, thermometers, pumps, etc) | \$300 | 1 | \$300 |
| TOTAL | | | \$2,940 |

Misc. Supplies

| | cost per cage |
|---|---------------|
| Includes: cable ties, hog rings, pvc, replacement protective gear (waders, gloves), small tools, replacement baskets or totes | \$1 |

Small-scale cultchless oyster crop budget - LINE ITEM NOTES WORKSHEET

November 2012: VIMS MRR No. 2012-10

4. Fixed Costs

| Interest (Boat, Motor, Trailer) | Cost/Price | % Down Payment | PV of Loan Amount | APR | Periods (Yrs) | Annual Interest Payments YR 1 | Annual Interest Payments YR 2 |
|---|------------|----------------|-------------------|-------|---------------|-------------------------------|-------------------------------|
| Capital item includes 21' Carolina Skiff, Yamaha 90 hp, venture trailer | \$19,640 | 20% | \$15,712 | 4.75% | 7 | \$704.48 | 610.38 |

Capital Items to be Depreciated

| Unit | Cost/Price | Volume | Total Capital Investment | Cost Basis | Recovery Period (years) | Annual Depreciation Expense |
|---|-------------|--------|--------------------------|-------------|-------------------------|-----------------------------|
| 21' Carolina skiff with small console, stainless steel steering wheel and 12 gal tank, Yamaha 90hp, & venture trailer | \$19,640 | 1 | \$19,640.00 | \$19,640.00 | 7 | 2,806.00 |
| Davit crane with hand winch hoist | \$2,400.00 | 1 | \$2,400.00 | \$2,400.00 | 7 | 343.00 |
| Truck | \$25,000.00 | 1 | \$25,000.00 | \$25,000.00 | 5 | 5,000.00 |
| Cages - (3' x 4' LowPro double stack, 1" mesh, with bridle) | \$135.00 | 1 | \$135.00 | \$135.00 | 7 | 20.00 |
| Bags -seed (3/16") | \$4.50 | 1 | \$4.50 | \$4.50 | 5 | 1.00 |
| Bags -grow out (3/8") | \$4.50 | 1 | \$4.50 | \$4.50 | 5 | 1.00 |
| Refrigeration Unit for 8ft Truck | \$12,700.00 | 1 | \$12,700.00 | \$12,700.00 | 7 | 1,815.00 |
| Bed | | | | | | |
| Basic model, 7x6" H, 9-8" W, 9-8" L, w/ floor, 1hp. Medium temp top mounted unit, 26 gauge embossed galvanized interior & exterior, .100 smooth aluminum floor, 2-1/2" dial thermometer | \$9,460.50 | 1 | \$9,460.50 | \$9,460.50 | 7 | 1,352.00 |
| Walk-in cooler - modular, self contained, outside 10x10 unit | | | | | | |
| Floating Upweller | \$8,500.00 | 1 | \$8,500.00 | \$8,500.00 | 7 | 1,215.00 |
| Sorter | \$10,000.00 | 1 | \$10,000.00 | \$10,000.00 | 7 | 1,429.00 |

Table 1. Evaluating the Line items based on Percentage of Total Cost of the budget

**Shows that Labor (including workers comp) and seed are the two biggest expenses*

| | Percentage of Total Annual Expenses |
|--|--|
| YEAR 2 | |
| 2. Operating Expenses | |
| Triploid Oyster Seed | 10.9% |
| Labor (FT &PT, FICA & Workers comp) | 64.1% |
| Fuel (boat and truck) | 2.6% |
| Manitenance (vehicle and equipment) | 1.0% |
| Misc Supplies | 0.2% |
| TOTAL | 78.8% |
| 4. Fixed Costs | |
| Debt Servicing (Barge, Motor, Hoist) | 0.8% |
| Insurance (boat, truck, business) | 2.3% |
| Legal Fees (structuring, LLC, accounting) | 0.5% |
| Business Property Tax (Boat) | 0.5% |
| Depreciation Expense (Non - Cash) | |
| Barge, Motor, Hoist | 4.3% |
| Truck | 6.8% |
| Gear (cages and bags) | 5.6% |
| Refrigeration Unit - truck | |
| Walk-In Cold Room (10'x24') | |
| Nursery Equip (flupsy, sorter) | |
| TOTAL | 20.9% |
| 5. Permitting & Ground Leasing Costs (start-up costs) | |

Table 2. Cost of line items per market oyster

Total cost of production based on budget = \$ 0.37

| | Cost per market oyster |
|--|---------------------------------------|
| 2. Operating Expenses | |
| Triploid Oyster Seed | \$ 0.04 |
| Labor (FT &PT plus FICA) | \$ 0.24 |
| Fuel (boat and truck) | \$ 0.01 |
| Manitenance (vehicle and equipment) | \$ 0.00 |
| Misc. Supplies | \$ 0.00 |
| TOTAL | \$ 0.29 |
| 4. Fixed Costs | |
| Debt Servicing (Barge, Motor, Hoist) | \$ 0.00 |
| Insurance (boat,truck,business) | \$ 0.01 |
| Legal Fees (structuring, LLC, accounting) | \$ 0.00 |
| Business Property Tax (Boat) | \$ 0.00 |
| Depreciation Expense (Non - Cash) | |
| Barge, Motor, Hoist | \$ 0.02 |
| Truck | \$ 0.03 |
| Gear (cages and bags) | \$ 0.02 |
| Refrigeration Unit - truck | |
| Walk-In Cold Room (10'x24') | |
| Nursery Equip (flupsy, sorter) | |
| TOTAL | \$ 0.08 |
| 5. Permitting & Ground Leasing Costs (start-up costs) | \$ 0.00 |