

## MEDIUM-SCALE CULTCHLESS OYSTER CROP BUDGET

For growers marketing 250,000 to 1,000,000 oysters per year  
November 2012: VIMS Marine Resource Report No. 2012-10

### INTRODUCTION

This medium-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

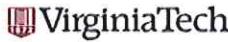
#### GENERAL GUIDELINES

- **This budget is for growers marketing 250,000 to 1,000,000 oysters per year**
  - ❖ If marketing < 250,000 per year - use the small-scale budget  
*\*marketing >1,000,000 per year is not considered in this 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**  
**MEDIUM SCALE - Marketing 250,000 to 1,000,000 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	\$0.25
Oyster Mortality Rate	50%
% of Total Oysters Harvested in year 1	20%
% of Total Oysters Harvested in year 2	80%

**Target Annual Oyster Sales**

	1,000,000
Oyster Seed Planted	2,000,000
Year 1 Harvest (crop 1)	200,000
Year 2 Harvest (crops 1 & 2)	1,000,000

**MY FARM**

ITEM	UNIT	QUANTITY of UNITS	PRICE/Cost per Unit	YEAR 1	YEAR 2
<b>1. Gross Receipts</b>					
Market Oyster Revenue	Single Oyster	1,000,000	\$0.25	\$ 50,000.00	\$ 250,000.00
<b>2. Operating Expenses</b>					
Triploid Oyster Seed	1,000	2,000	\$ 8.00	\$ 16,000.00	\$ 16,000.00
Full Time Labor	Hours	6,240	\$ 12.00	\$ 74,880.00	\$ 74,880.00
Part Time Labor	Hours	5,760	\$ 9.00	\$ 51,840.00	\$ 51,840.00
Employment Tax (FICA)	Taxable Total Wages (\$)	126,720	7.65%	\$ 9,695.00	\$ 9,695.00
Workers Compensation	Annual Expense per \$100 of payroll	1,267	\$ 4.00	\$ 5,069.00	\$ 5,069.00
Boat Fuel	Gallons	416	\$ 3.50	\$ 1,456.00	\$ 1,456.00
Truck Fuel	Gallons	693	\$ 3.50	\$ 2,427.00	\$ 2,427.00
Boat Maintenance	1 lot	1	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00
Truck Maintenance	1 lot	1	\$ 750.00	\$ 750.00	\$ 750.00
Misc. Equipment Maintenance (upweller, sorter, pumps, etc)	1 lot	1	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00
Expendable Supplies (baskets or totes etc)	Start-Up Cost	1	\$ 5,550.00	\$ 5,550.00	
Misc. Supplies	1 lot per cage	834	\$ 1.00	\$ 834.00	\$ 834.00
Ice for summer harvesting	1 lot	1	\$ -	\$ -	\$ -
Other (office supplies, electricity, etc)	1 lot	1	\$ -	\$ -	\$ -
<b>Total Operating Expenses</b>				<b>\$ 170,501.00</b>	<b>\$ 164,951.00</b>
<b>3. Return over Operating Expenses</b>					
				<b>\$ (120,501.00)</b>	<b>\$ 85,049.00</b>
<b>4. Fixed Costs</b>					
Annual Interest on boat, motor, hoist & trailer	Sum of 12 monthly payments			\$930.00	\$805.00
Boat Insurance	Annual Expense	1	\$ 750.00	\$ 750.00	\$ 750.00
Truck Insurance	Annual Expense	1	\$ 400.00	\$ 400.00	\$ 400.00
Business Liability Insurance	Annual Expense per \$1000 of sales	250	\$ 4.00	\$ 1,000.00	\$ 1,000.00
Legal Fee (Business Entity Structuring)	Start-Up Cost	1	\$ 1,500.00	\$ 1,500.00	
LLC Registration Fee	Annual Expense	1	\$ 50.00	\$ 50.00	\$ 50.00
Legal & Accounting Fees	Annual Expense (est)	1	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00
Business Property Tax (Boat)	Annual Expense	1	\$ 400.00	\$ 400.00	\$ 400.00
<b>Depreciation Expense (Non - Cash)</b>					
Barge, Motor, Hoist	Annual Expense (non-cash)	1	\$ 3,700.00	\$ 3,700.00	\$ 3,700.00
Truck	Annual Expense (non-cash)	1	\$ 8,000.00	\$ 8,000.00	\$ 8,000.00
Cages - seed	Annual Expense (non-cash)	167	\$ 22.00	\$ 3,670.00	\$ 3,670.00
Cages - grow out	Annual Expense (non-cash)	667	\$ 20.00	\$ 13,340.00	\$ 13,340.00
Bags - seed	Annual Expense (non-cash)	400	\$ 1.00	\$ 400.00	\$ 400.00
Bags - grow out	Annual Expense (non-cash)	2,000	\$ 1.00	\$ 2,000.00	\$ 2,000.00
Refrigeration Unit - truck	Annual Expense (non-cash)	0	\$ 1,815.00	\$ -	\$ -
Walk-In Cold Room (10'x24')	Annual Expense (non-cash)	1	\$ 1,751.00	\$ 1,751.00	\$ 1,751.00
Floating Upweller	Annual Expense (non-cash)	1	\$ 1,063.00	\$ 1,063.00	\$ 1,063.00
Sorter, Hopper, Conveyor	Annual Expense (non-cash)	1	\$ 1,300.00	\$ 1,300.00	\$ 1,300.00
<b>Total Fixed Costs</b>				<b>\$ 41,268.00</b>	<b>\$ 39,633.00</b>
<b>5. Permitting &amp; Ground Leasing Costs (start-up costs)</b>					
<b>Shellfish Ground Leasing</b>					
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)		40	\$ 1.50	\$ 60.00	\$ 60.00
<b>Shellfish Aquaculture Permits</b>					
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)	5	\$ 5.00	\$ 25.00	\$ 25.00
Joint Permit Application for Floating Upweller		1	\$ 25.00	\$ 25.00	\$ -
<b>Total Permitting &amp; Ground Leasing Expenses</b>				<b>\$ 880.00</b>	<b>\$ 285.00</b>
<b>Total Annual Expenses</b>				<b>\$ 212,639.00</b>	<b>\$ 204,869.00</b>
<b>6. Estimated Pre-Tax Return to Land, Risk, and Management</b>					
				<b>\$ (162,639.00)</b>	<b>\$ 45,131.00</b>

**SENSITIVITY TABLE:** *The following table uses the information in the spreadsheet to provide a range of returns in year two based on mortality rate and market price. Red numbers in parenthesis refer to negative returns. Keep in mind costs associated with marketing are not included.*

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

Mkt Price	Mortality Rate	Mortality Rate				
		30%	35%	40%	45%	50%
\$	0.10	(68,949)	(91,314)	(94,914)	(99,187)	(104,269)
\$	0.11	(58,989)	(81,354)	(84,954)	(89,227)	(94,309)
\$	0.12	(49,029)	(71,394)	(74,994)	(79,267)	(84,349)
\$	0.13	(39,069)	(61,434)	(65,034)	(69,307)	(74,389)
\$	0.14	(29,109)	(51,474)	(55,074)	(59,347)	(64,429)
\$	0.15	(19,149)	(41,514)	(45,114)	(49,387)	(54,469)
\$	0.16	(9,189)	(31,554)	(35,154)	(39,427)	(44,509)
\$	0.17	771	(21,594)	(25,194)	(29,467)	(34,549)
\$	0.18	10,731	(11,634)	(15,234)	(19,507)	(24,589)
\$	0.19	20,691	(1,674)	(5,274)	(9,547)	(14,629)
\$	0.20	30,651	8,286	4,686	413	(4,669)
\$	0.21	40,611	18,246	14,646	10,373	5,291
\$	0.22	50,571	28,206	24,606	20,333	15,251
\$	0.23	60,531	38,166	34,566	30,293	25,211
\$	0.24	70,491	48,126	44,526	40,253	35,171
\$	0.25	80,451	58,086	54,486	50,213	45,131
\$	0.26	90,411	68,046	64,446	60,173	55,091
\$	0.27	100,371	78,006	74,406	70,133	65,051
\$	0.28	110,331	87,966	84,366	80,093	75,011
\$	0.29	120,291	97,926	94,326	90,053	84,971
\$	0.30	130,251	107,886	104,286	100,013	94,931

Line Item

**2. Operating Expenses**

	<u>No. hrs per yr.</u>				<u>total no. hrs used in budget</u>	<u>No. employees</u>
	<u>no. full time hrs</u>	<u>no. part time hours</u>	<u>FT = 2080 hrs, PT = 960 hrs</u>	<u>hours</u>		
<u>No. Planted</u>						
400,000 to 700,000	4160	960		5120	2 full time, 1 part time	
700,000 to 800,000	4160	1920		6160	2 full time, 2 part time	
800,000 to 1,000,000	6240	960		7200	3 full time, 1 part time	
1,000,000 to 1,500,000	6240	3840		10080	3 full time, 4 part time	
1,500,000 to 2,000,000	6240	5760		12000	3 full time, 6 part time	

	<u>approx. miles per week</u>	<u>miles per gallon</u>	<u>no. gallons</u>	<u>cost per gallon</u>	<u>weeks per year</u>	<u>weekly cost</u>	<u>annual cost</u>	<u>annual gallons</u>
<b>Fuel Calculations</b>								
Boat Fuel	120		15	8	\$3.50	\$28.00	\$1,456	416
Truck Fuel	200		15	13	\$3.50	\$46.67	\$2,427	693

<u>Expendable Supplies</u>	<u>Item</u>	<u>approx cost</u>	<u>Number units</u>	<u>Total</u>
	Bushel Baskets	\$17	50	\$850
	Protective Gear: Gloves, foul weather, etc	\$200	7	\$1,400
	Power washer	\$1,500	2	\$3,000
	Other Misc (tags, thermometers, pumps etc)	\$300	1	\$300
	<b>TOTAL</b>			<b>\$5,550</b>

<u>Misc. Supplies</u>	<u>Cost per cage</u>
Includes: line, anchors, pvc, buoys, replacement protective gear (waders, gloves), small tools, replacement baskets or totes	\$1.00

#### 4. Fixed Costs

Capital Item	Cost/Price	% Down Payment	PV of Loan Amount	APR	Period (yrs)	Annual Interest Payments YR 1	Annual Interest Payments YR 2
Interest - boat, motor, hoist, trailer:							
Includes boat, motor, hoist, trailer	\$ 25,900.00	20%	\$ 20,720.00	4.75%	7	\$929.03	\$804.94

Capital Items to be Depreciated	Unit	Cost/Price	Volume	Total Capital Investment	Cost Basis	Recovery Period (years)	Annual Depreciation Expense
24' Carolina Skiff with small console, stainless steel steering wheel & 12 gal tank, 150 hp Yamaha, davit crane with mechanized hoist, trailer		\$ 25,900.00	1	\$ 25,900.00	\$ 25,900.00	7	\$ 3,700.00
Boat, Motor, Hoist, Trailer		\$ 40,000.00	1	\$ 40,000.00	\$ 40,000.00	5	\$ 8,000.00
Truck		\$ 148.00	1	\$ 148.00	\$ 148.00	7	\$ 22.00
Cages - seed (3' x 4' LowPro double stack, 1/2" mesh, bridled)	Each	\$ 1.200	1	\$ 1.200	\$ 1.200	7	\$ 20.00
Cages - grow out (3' x 4' LowPro doublestack, 1" mesh, bridled)		\$ 1,000	1	\$ 4.50	\$ 4.50	5	\$ 1.00
Bags - seed (3/16")		\$ 500	1	\$ 4.50	\$ 4.50	5	\$ 1.00
Bags - grow out (3/8")		\$ 12,700.00	1	\$ 12,700.00	\$ 12,700.00	7	\$ 1,815.00
Refrigeration Unit for 8ft. Truck Bed		\$ 17,506.35	1	\$ 17,506.35	\$ 17,506.35	10	\$ 1,751.00
Walk- in cooler - modular, self contained, outside 10x24 unit		\$ 8,500.00	1	\$ 8,500.00	\$ 8,500.00	8	\$ 1,063.00
Floating Upweller		\$ 13,000.00	1	\$ 13,000.00	\$ 13,000.00	10	\$ 1,300.00
Sorter, Hopper, Conveyor							

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

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

	<b>Percentage of Total Annual Expenses</b>
	<b>YEAR 2</b>
<b>2. Operating Expenses</b>	
Triploid Oyster Seed	7.8%
Labor (FT &PT, FICA, workers comp)	69.1%
Fuel (boat and truck)	1.9%
Manitenance (vehicle and equipment)	1.3%
Misc. Supplies	0.4%
<b>TOTAL</b>	<b>80.5%</b>
<b>4. Fixed Costs</b>	
<b>Debt Servicing (Barge, Motor, Hoist)</b>	<b>0.4%</b>
Insurance (boat, truck, business)	1.0%
Legal Fees (structuring, LLC, accounting)	0.5%
Business Property Tax (Boat)	0.2%
<b>Depreciation Expense (Non - Cash)</b>	
Barge, Motor, Hoist	1.8%
Truck	3.9%
Gear (cages and bags)	9.5%
Refrigeration Unit - truck	
Walk-In Cold Room (10'x24')	0.9%
Nursery Equip (flupsy, sorter)	1.2%
<b>TOTAL</b>	<b>19.3%</b>
<b>5. Permitting &amp; Ground Leasing Costs (start- up costs)</b>	<b>0.1%</b>

**Table 2. Cost of line items per market oyster**

**Total cost of production based on budget = \$ 0.20**

	Cost per market oyster	
<b>2. Operating Expenses</b>		
Triploid Oyster Seed	\$	0.02
Labor (FT &PT, FICA, workers comp)	\$	0.14
Fuel (boat and truck)	\$	0.00
Maintenance (vehicle and equipment)	\$	0.00
Misc. Supplies	\$	0.00
<b>TOTAL</b>	<b>\$</b>	<b>0.16</b>
<b>4. Fixed Costs</b>		
<b>Debt Servicing (Barge, Motor, Hoist)</b>	<b>\$</b>	<b>0.00</b>
Insurance (boat, truck, business)	\$	0.00
Legal Fees (structuring, LLC, accounting)	\$	0.00
Business Property Tax (Boat)		
<b>Depreciation Expense (Non - Cash)</b>		
Barge, Motor, Hoist	\$	0.00
Truck	\$	0.01
Gear (cages and bags)	\$	0.02
Refrigeration Unit - truck		
Walk-In Cold Room (10'x24')	\$	0.00
Nursery Equip (flupsy, sorter)	\$	0.00
<b>TOTAL</b>	<b>\$</b>	<b>0.04</b>
<b>5. Permitting &amp; Ground Leasing Costs (start- up costs)</b>		
	\$	0.00