



# Economic Model for Optimum Alaska Shellfish Oyster Farm –

## Review of Assumptions and Conclusions

Anchorage Alaska  
November 2007

Alaska Sea Grant Marine Advisory Program

# Optimum Farm Model – Review of Assumptions and Calculations

## Profit and Loss Statement

Item	Year										
	1	2	3	4	5	6	7	8	9	10	
<b>A. Cost</b>											
Farm Equipment	\$ 694	\$ 1,388	\$ 5,550	\$ 7,632	\$ 12,488	\$ 16,651	\$ 19,426	\$ 19,426	\$ 19,426	\$ 19,426	\$ 19,426
Boat (30')	\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750	\$ 3,750
Work Platform	\$ 144	\$ 144	\$ 144	\$ 144	\$ 144	\$ 144	\$ 144	\$ 144	\$ 144	\$ 144	\$ 144
Packing Facility	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000
Refrigeration Unit	\$ 275	\$ 275	\$ 275	\$ 275	\$ 275	\$ 275	\$ 275	\$ 275	\$ 275	\$ 275	\$ 275
Truck	\$ 750	\$ 750	\$ 750	\$ 750	\$ 750	\$ 750	\$ 750	\$ 750	\$ 750	\$ 750	\$ 750
Owner/Operator Opportunity Cost	\$ 42,000	\$ 42,000	\$ 42,000	\$ 42,000	\$ 42,000	\$ 42,000	\$ 42,000	\$ 42,000	\$ 42,000	\$ 42,000	\$ 42,000
Half-Time Employee	\$ -	\$ 23,780	\$ 23,780	\$ 23,780	\$ 23,780	\$ 23,780	\$ 23,780	\$ 23,780	\$ 23,780	\$ 23,780	\$ 23,780
Supply/Maintenance/Telecommunications	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000
Fuel	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000
Seed Cost	\$ 3,094	\$ 6,188	\$ 12,375	\$ 18,563	\$ 24,750	\$ 24,750	\$ 24,750	\$ 24,750	\$ 24,750	\$ 24,750	\$ 24,750
Packing Supplies	\$ -	\$ -	\$ 1,004	\$ 2,007	\$ 4,015	\$ 6,022	\$ 8,029	\$ 8,029	\$ 8,029	\$ 8,029	\$ 8,029
Application and Bond Fee	\$ 2,600	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Lease	\$ 1,575	\$ 1,575	\$ 1,575	\$ 1,575	\$ 1,575	\$ 1,575	\$ 1,575	\$ 1,575	\$ 1,575	\$ 1,575	\$ 1,575
PSP Testing Fees	\$ -	\$ -	\$ 5,124	\$ 5,124	\$ 5,124	\$ 5,124	\$ 5,124	\$ 5,124	\$ 5,124	\$ 5,124	\$ 5,124
Freight	\$ -	\$ -	\$ 5,451	\$ 10,901	\$ 21,803	\$ 32,704	\$ 43,605	\$ 43,605	\$ 43,605	\$ 43,605	\$ 43,605
<b>Total Cost Per Year</b>	<b>\$ 71,882</b>	<b>\$ 96,849</b>	<b>\$ 118,778</b>	<b>\$ 133,501</b>	<b>\$ 157,454</b>	<b>\$ 174,525</b>	<b>\$ 190,209</b>	<b>\$ 190,209</b>	<b>\$ 190,209</b>	<b>\$ 190,209</b>	<b>\$ 190,209</b>
<b>B. Gross Revenue</b>											
1. Oyster Sales	\$ -	\$ -	\$ 32,174	\$ 64,348	\$ 128,695	\$ 193,043	\$ 257,391	\$ 257,391	\$ 257,391	\$ 257,391	\$ 257,391
2. Salvage Value	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total Gross Revenue</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 32,174</b>	<b>\$ 64,348</b>	<b>\$ 128,695</b>	<b>\$ 193,043</b>	<b>\$ 257,391</b>	<b>\$ 257,391</b>	<b>\$ 257,391</b>	<b>\$ 257,391</b>	<b>\$ 257,391</b>
<b>Profit/Loss</b>	<b>\$ (71,882)</b>	<b>\$ (96,849)</b>	<b>\$ (86,604)</b>	<b>\$ (69,153)</b>	<b>\$ (28,758)</b>	<b>\$ 18,518</b>	<b>\$ 67,182</b>	<b>\$ 67,182</b>	<b>\$ 67,182</b>	<b>\$ 67,182</b>	<b>\$ 67,182</b>

### Baseline Model

Item/Year	\$ 1	\$ 2	\$ 3	\$ 4	\$ 5	\$ 6	\$ 7	\$ 8	\$ 9	\$ 10
Total Gross Revenue	\$ -	\$ -	\$ 32,174	\$ 64,348	\$ 128,695	\$ 193,043	\$ 257,391	\$ 257,391	\$ 257,391	\$ 257,391
Total Cost Per Year	\$ 71,882	\$ 96,849	\$ 118,778	\$ 133,501	\$ 157,454	\$ 174,525	\$ 190,209	\$ 190,209	\$ 190,209	\$ 190,209
<b>Profit/Loss</b>	<b>\$ (71,882)</b>	<b>\$ (96,849)</b>	<b>\$ (86,604)</b>	<b>\$ (69,153)</b>	<b>\$ (28,758)</b>	<b>\$ 18,518</b>	<b>\$ 67,182</b>	<b>\$ 67,182</b>	<b>\$ 67,182</b>	<b>\$ 67,182</b>



# Optimum Farm Model – Review of Assumptions and Calculations

## Seed Cost and Value Production

Harvest value of \$5.10 FOB at city

Finished product			75,703	151,406	302,813	454,219	605,625	605,625	605,625	605,625
		<b>Income \$</b>	<b>32,173.83 \$</b>	<b>64,348 \$</b>	<b>128,695 \$</b>	<b>193,043 \$</b>	<b>257,391</b>	<b>257,391</b>		
Initial seed planted	93,750	187,500	375,000	562,500	750,000	750,000	750,000			
1 year seed	0	79,688	159,375	318,750	478,125	637,500	637,500			
2 year seed	0	0	75,703	151,406	302,813	454,219	605,625			
	93,750	267,188	610,078	1,032,656	1,530,938	1,841,719	1,993,125			
<b>PSP testing</b>			<b>15.14</b>	<b>30.28</b>	<b>27.00</b>	<b>27.00</b>	<b>27.00</b>	<b>27.00</b>		
		<b>\$</b>	<b>1,892.58</b>	<b>3,785.16 \$</b>	<b>3,375.00</b>	<b>3,375.00</b>	<b>3,375.00</b>	<b>3,375.00</b>		
Farm help	0.43	1.24	2.82	4.78	7.09	8.53	9.23			

### Assumptions

Regulations require batch harvesting until the beginning of three years of operation  
 The shellfish passes all of the PSP tests  
 The farmer will provide PSP samples during the times required  
 The start time for the operational years is 1  
 Number of longlines with 75 lantern nets for each longline (initial seed stock 250 seed per tier, final density after two years 75 oysters per tier)  
 2 year growout cycle and into full production of 605,525 after 7 years  
 Operator and one part time person from March through September  
 The model assumes that an owner/operator can manage a farm size of 28 longlines with 75 nets per line  
 Starts with 0.5 longlines of seed purchase , progressing to one line after one year, then adding one seed line every year

	1	2	3	4	5	6	7	8	9	10
<b>Yearly seed cost</b>	\$ 3,094	\$ 6,188	\$ 12,375	\$ 18,563	\$ 24,750	\$ 24,750	\$ 24,750	\$ 24,750	\$ 24,750	\$ 24,750
<b>Yearly longline cost</b>	\$ 6,941	\$ 6,941	\$ 41,646	\$ 20,823	\$ 48,587	\$ 41,646	\$ 27,764	\$ -	\$ -	\$ -
<b>Total annual cost</b>	\$ 10,035	\$ 13,129	\$ 54,021	\$ 39,386	\$ 73,337	\$ 66,396	\$ 52,514	\$ 24,750	\$ 24,750	\$ 24,750

<b>Sales income</b>	0	0 \$	32,173.83 \$	64,347.66 \$	128,695.31 \$	193,042.97 \$	257,390.63 \$	257,390.63 \$	257,390.63 \$	257,390.63 \$
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Assumptions  
 Seed cost/1000 \$ 33.00  
 Longline cost \$6,941  
 Price per doz. \$ 5.10

	Square feet	Acres
<b>Surface acres needed</b>	128,000	3
Bottom lease should be double	256,000	6

# Optimum Farm Model – Review of Assumptions and Calculations

## Individual Long Line cohort Cycle and Years of Operation

Note: This is used to determine in 20 years of operation, when is the last harvest for a line that is put in from year 1 to 8. The objective is to help determine salvage values

Line/Year	1	2	3	4	5	6	7	8	9	10
1	Line Installed		H1		H2		H3		H4	
2		Line Installed		H1		H2		H3		H4
3			Line Installed		H1		H2		H3	
4				Line Installed		H1		H2		H3
3					Line Installed		H1		H2	
4						Line Installed		H1		H2
5							Line Installed		H1	
6								Line Installed		H1
7										

10	11	12	13	14	15	16	17	18	19	20	Years in Operation	
	H5		H6		H7		H8		H9		19	\$ 1,318.80
H4		H5		H6		H7		H8		H9	19	\$ 1,318.80
	H4		H5		H6		H7		H8		17	\$ 2,706.40
H3		H4		H5		H6		H7		H8	17	\$ 2,706.40
	H3		H4		H5		H6		H7		15	\$ 2,824.00
H2		H3		H4		H5		H6		H7	15	\$ 2,824.00
	H2		H3		H4		H5		H6		13	\$ 4,211.60
H1		H2		H3		H4		H5		H6	13	\$ 4,211.60

## Optimum Farm Model – Review of Assumptions and Calculations

### Equipment Costs

Item	Useful Life (Years)	Unit Cost (US\$)	Quantity	Cost (US\$)	Annual Cost
<b>A. Farm Equipment List</b>					
1" Polyethylene Rope	20	\$ 1.60	620	\$ 992.00	\$ 49.60
Concrete Anchors (1800lb.)	20	\$ 165.00	2	\$ 330.00	\$ 16.50
Scope line weights	20	\$ 12.00	2	\$ 24.00	\$ 1.20
Anchor chain for each end	20	\$ 200.00	2	\$ 400.00	\$ 20.00
Lantern Nets	20	\$ 23.00	75	\$ 1,725.00	\$ 86.25
Buoys	12	\$ 25.00	75	\$ 1,875.00	\$ 156.25
Shackles	10	\$ 11.00	75	\$ 825.00	\$ 82.50
Droplines (75x6')	5	\$ 1.60	450	\$ 720.00	\$ 144.00
Water Pump	4	\$ 550.00	1	\$ 550.00	\$ 137.50
<b>Total</b>				\$ 7,441.00	\$ 693.80

### **B. Longline System**

\*items, costs, and useful life for a 300 foot longline of lantern nets

\*to be deployed on a 10 acre square bottom lease with side length of 660ft. And 60ft. Depth

Item	Cost	Unit	No. of Units	Total Cost	Useful Life
1" Polyethylene Rope	\$ 1.60	feet	620	\$ 992.00	20
Concrete Anchors (1800lb.)	\$ 165.00	1800lb.	2	\$ 330.00	20
Scope line weights	\$ 12.00	50lb.	2	\$ 24.00	20
Droplines (75x6')	\$ 1.60	feet	450	\$ 720.00	5
Anchor chain for each end	\$ 200.00	per chain	2	\$ 400.00	20
Shackles (attach lantern nets to	\$ 11.00	per shackle	75	\$ 825.00	10
Buoys	\$ 25.00	each	75	\$ 1,875.00	12
Lantern Nets	\$ 23.00	each	75	\$ 1,725.00	20
				\$ 6,891.00	



## Optimum Farm Model – Review of Assumptions and Calculations

### Year One Capital Outlay and Annualized Depreciation

Item	Useful Life (Years)	Unit Cost (US\$)	Quantity	Cost (US\$)	Annual Cost	% of Annual Cost
<u>A. Farm Equipment List</u>						
1" Polyethylene Rope	20	\$ 1.60	620	\$ 992.00	\$ 49.60	
Concrete Anchors (1800lb.)	20	\$ 165.00	2	\$ 330.00	\$ 16.50	
Scope line weights	20	\$ 12.00	2	\$ 24.00	\$ 1.20	
Droplines (75x6')	5	\$ 1.60	450	\$ 720.00	\$ 144.00	
Anchor chain for each end	20	\$ 200.00	2	\$ 400.00	\$ 20.00	
Shackles	10	\$ 11.00	75	\$ 825.00	\$ 82.50	
Buoys	12	\$ 25.00	75	\$ 1,875.00	\$ 156.25	
Lantern Nets	20	\$ 23.00	75	\$ 1,725.00	\$ 86.25	
Water Pump	4	\$ 550.00	1	\$ 550.00	\$ 137.50	
Total Farm Equipment		\$ 989.20		\$ 7,441.00	\$ 693.80	
<u>B. Water Support Equipment</u>						
Boat (30')	20	\$ 75,000.00	1	\$ 75,000.00	\$ 3,750.00	
Work Platform	10	\$ 1,940.00	1	\$ 1,940.00	\$ 194.00	
Total Water Support		\$ 76,940.00		\$ 76,940.00	\$ 3,944.00	
<u>C. Land Infrastructure</u>						
Packing Facility	20	\$ 20,000.00	1	\$ 20,000.00	\$ 1,000.00	
Refrigeration Unit	20	\$ 5,500.00	1	\$ 5,500.00	\$ 275.00	
Total Land Infrastructure		\$ 25,500.00		\$ 25,500.00	\$ 1,275.00	
<u>D. Logistics Support</u>						
Pick-up Truck	10	\$ 7,500.00	1	\$ 7,500.00	\$ 750.00	



# Optimum Farm Model – Review of Assumptions and Calculations

## Fuel

**Assumption:** \$6000 fuel consumption per year

## Regulatory Costs

### *One-Time Fees*

\*ADNR application fee -- \$100 included with application

\*ADNR bond -- \$2500 per farm site (may increase with facilities)

**Assumption:** \$2,600 one time charge

### *Annual Fees*

#### \* Lease Fees

\$450 up to 1 acre plus \$125 each additional acre -- in our model, we noted a 10 acre bottom lease = \$1575 per year

**Assumption:** \$1575 per year lease

#### \*PSP Sampling

First 2 years no. Then weekly for 26 weeks, then monthly for 6 months. Plus 3 extra for re-test

Item	Frequency	Cost	Subtotal
Testing	35	\$ 125.00	\$4,375.00
Freight	35	\$ 21.40	\$ 749.00
Total			\$ 5,124.00

**Assumption:** \$5124 per year for PSP testing starting year 3

# Optimum Farm Model – Review of Assumptions and Calculations

## Packing Supplies

\*each 50 lb. wet lock box can hold 20 dozen mediums and 25 dozen smalls

### Assumption:

•each box cost \$2.30 for 22 dozen i.e. 264 oysters

•\*\$2.3 per box and liner, average 3 gel packs. Total = \$2.3 + \$1.2 = \$3.5

\*\$3.5 X (no. of oysters produced per year/264)=annual total cost for packing supplies

## Annual Cost for Packing Supplies

Item/Year	1	2	3	4	5	6	7	8	9
Marketable Oysters	0	0	75,703	151,406	302,813	454,219	605,625	605,625	605,625
No. of Boxes	0	0	287	574	1,147	1,721	2,294	2,294	2,294
Annual Cost	0	0	\$1,003	\$2,007	\$4,014	\$6,021	\$8,029	\$8,029	\$8,029

## Packing Facility

a. 20x20 shed with concrete floor -- shed has small storage space with boxes on site - sink, stainless table

b. Refrigeration unit, walk in cooler -- \$5500 20 years use including refrigeration unit

### Assumption:

**\$20,000 for structure, \$5500 for refrigeration unit and walk in cooler; useful life 20 years.**

# Optimum Farm Model – Review of Assumptions and Calculations

## Freight to FOB Point

from farm to city

### 1. Freight \$/lb.

•use \$0.4 per pound

### 2. Lbs. per year shipped

\*the following table shows weight in lbs per dozen and per oyster

## 2. Lbs. per year shipped

\*the following table shows weight in lbs per dozen and per oyster

Oyster Size	Avg Wt./Doz	Avg Wt./Oyster
Small (3-4")	1.8	0.15
Medium (4-5")	2.19	0.18
Large (>5")	2.74	0.23

**Assumption:** \$0.40 per lb. freight

Table C1 Freight Cost per Year

Item/Year	1	2	3	4	5	6	7	8	9
Average Weight/Oyster (lb.)	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Marketable Oysters	0	0	75,703	151,406	302,813	454,219	605,625	605,625	605,625
Oyster Produced (lb.)	0	0	13,627	27,253	54,506	81,759	109,013	109,013	109,013
Freight Cost Per Year	\$ -	\$ -	\$ 5,450.62	\$ 10,901.23	\$ 21,802.54	\$ 32,703.77	\$ 43,605.00	\$ 43,605.00	\$ 43,605.00

# Optimum Farm Model – Review of Assumptions and Calculations

## Farm Structure

### A. Work Platform

- \* use for storage, washing oysters, and for bad weather workplace
- \* Cost: \$500 for about 16'x32'; a combination of new and old lumber, floatation by using logs on beach; useful life = 10 years
- \* Labor cost to build platform: 3 x 8 hour days, \$20 per person per hour, for 3 persons = \$1,440
- \*washing pump needed to wash oysters. Cost: \$575; useful life 4 year
- \*fuel: use to run washer. Usage: 12 gallons fuel per week for 7 months = 28 weeks x 12 gallons x \$4.00 = \$1344 per season i.e. per year

**Assumptions:**                    **\$1440 work platform; useful life 10 years**

**\$550 Water pump: useful life 4 years -- this is included in *farm equipment* cost category.**

### Transportation

- \* commuting to the grounds and stay there to work
- \*Farmer A options -- • 29ft. landing craft, got it for \$50,000 used to run back and forth to the farm, as dwelling, and work platform when low wind. A brand new one would cost \$180,000. Useful life for hull, 20 years. Has a diesel engine that rated for 30,000 hours, he does not use the engine much, only 4 hours roundtrip to farm. In 10 years, he put 2500 hours in it.
- \*Farmer b options -- 40 foot seiner; bought used for USD 90,000 including a seine permit; old boat so no insurance; 20 years useful life fuel use \$120 per week
- \*Farmer C -- lives on houseboat -- but said that if he does it again, he would consider commuting

Note: we assume that the boat costs \$75000 used that has a useful life of 20 years, including a diesel engine that also has a useful life of 20 years that rated 30,000 hours.

**Assumption:**                    **\$75,000 boat cost including engine; useful life 20 years**

### Location

- farm is located about 10 to 15 miles from town
- \* secure because there are nobody around
- \* commute to farm by boat, stay there for 3, 4 days or so.

# Optimum Farm Model – Review of Assumptions and Calculations

## Labor

\*Farm owner opportunity cost -- \$42,000

\* help for 6 months -- \$700 per week x 26 weeks plus \$475 per month insurance plus 15% pay roll tax

## Annual Labor Cost

Item	Cost (USD)
Owner/Manager Opportunity Cost*	\$ 42,000.00
Farm Help (6 months)	\$ 18,200.00
Farm Help Insurance	\$ 2,850.00
Payroll Tax for Help	\$ 2,730.00
<b>Total</b>	<b>\$ 65,780.00</b>

\*Note: include insurance etc.

**Assumption:** \$65,780 labor cost per year

## Office and Marketing

### a. Marketing

\*currently, demand exceeds supply, all 3 farmers have very little marketing costs

## Maintenance, replacement costs, and other supplies

### General Supplies

**Assumption:** \$10,000 for general supplies and maintenance per year.

# Optimum Farm Model – Review of Assumptions and Calculations

## Recast – Pro Forma – Farm Only

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
<b>Gross Revenues</b>	\$ -	\$ -	\$ 32,174	\$ 64,348	\$ 128,695	\$ 193,043	\$ 257,391	\$ 270,260	\$ 283,773	\$ 297,962	\$ 312,860	\$ 328,503	\$ 344,928	\$ 362,174	\$ 380,283	\$ 399,297	\$ 419,262	\$ 440,225	\$ 462,237	\$ 485,348
Returns	\$ -	\$ -	\$ 322	\$ 643	\$ 1,287	\$ 1,930	\$ 2,574	\$ 2,703	\$ 2,838	\$ 2,980	\$ 3,129	\$ 3,285	\$ 3,449	\$ 3,622	\$ 3,803	\$ 3,993	\$ 4,193	\$ 4,402	\$ 4,622	\$ 4,853
<b>Net Revenues</b>	\$ -	\$ -	\$ 31,852	\$ 63,704	\$ 127,408	\$ 191,113	\$ 254,817	\$ 267,558	\$ 280,935	\$ 294,982	\$ 309,731	\$ 325,218	\$ 341,479	\$ 358,553	\$ 376,480	\$ 395,304	\$ 415,070	\$ 435,823	\$ 457,614	\$ 480,495
<b>Cost of Production</b>																				
<b>Farm Expense</b>																				
Seed purchases	\$ 3,094	\$ 6,188	\$ 12,375	\$ 18,563	\$ 24,750	\$ 24,008	\$ 23,287	\$ 22,589	\$ 21,911	\$ 21,254	\$ 20,616	\$ 19,998	\$ 19,398	\$ 18,816	\$ 18,251	\$ 18,708	\$ 19,175	\$ 19,655	\$ 20,146	\$ 20,650
Farm labor	\$ 30,000	\$ 36,090	\$ 42,984	\$ 33,809	\$ 34,654	\$ 35,521	\$ 36,409	\$ 37,319	\$ 38,252	\$ 39,208	\$ 40,188	\$ 41,193	\$ 42,223	\$ 43,278	\$ 44,360	\$ 45,469	\$ 46,606	\$ 47,771	\$ 48,965	\$ 50,190
Farm insurance	\$ 356	\$ 365	\$ 749	\$ 767	\$ 786	\$ 806	\$ 826	\$ 847	\$ 868	\$ 890	\$ 912	\$ 935	\$ 958	\$ 982	\$ 1,007	\$ 1,032	\$ 1,058	\$ 1,084	\$ 1,111	\$ 1,139
Farm supplies	\$ 50	\$ 103	\$ 420	\$ 592	\$ 993	\$ 1,358	\$ 1,624	\$ 1,664	\$ 1,706	\$ 1,748	\$ 1,792	\$ 1,837	\$ 1,883	\$ 1,930	\$ 1,978	\$ 2,028	\$ 2,078	\$ 2,130	\$ 2,184	\$ 2,238
Water support maintenance	\$ 250	\$ 256	\$ 263	\$ 269	\$ 276	\$ 283	\$ 290	\$ 297	\$ 305	\$ 312	\$ 320	\$ 328	\$ 336	\$ 345	\$ 353	\$ 362	\$ 371	\$ 380	\$ 390	\$ 400
Food provisions	\$ 1,500	\$ 1,538	\$ 3,152	\$ 3,231	\$ 3,311	\$ 3,394	\$ 3,479	\$ 3,566	\$ 3,655	\$ 3,747	\$ 3,840	\$ 3,936	\$ 4,035	\$ 4,136	\$ 4,239	\$ 4,345	\$ 4,454	\$ 4,565	\$ 4,679	\$ 4,796
Fuel cost	\$ 4,080	\$ 4,788	\$ 8,203	\$ 10,280	\$ 14,878	\$ 19,297	\$ 22,835	\$ 23,977	\$ 25,176	\$ 26,435	\$ 27,756	\$ 29,144	\$ 30,601	\$ 32,131	\$ 33,738	\$ 35,425	\$ 37,196	\$ 39,056	\$ 41,009	\$ 43,059
<b>Total Farm Expense</b>	\$ 39,330	\$ 49,327	\$ 68,145	\$ 67,511	\$ 79,649	\$ 84,666	\$ 88,750	\$ 90,259	\$ 91,872	\$ 93,593	\$ 95,425	\$ 97,371	\$ 99,434	\$ 101,618	\$ 103,927	\$ 107,368	\$ 110,938	\$ 114,641	\$ 118,484	\$ 122,471
<b>Gross Profit after Farm Production</b>	\$ (39,330)	\$ (49,327)	\$ (36,293)	\$ (3,806)	\$ 47,759	\$ 106,446	\$ 166,067	\$ 177,299	\$ 189,063	\$ 201,389	\$ 214,306	\$ 227,847	\$ 242,045	\$ 256,935	\$ 272,554	\$ 287,936	\$ 304,131	\$ 321,182	\$ 339,130	\$ 358,024
<b>General and Administrative</b>																				
PSP testing	\$ -	\$ -	\$ 1,940	\$ 3,880	\$ 3,459	\$ 3,546	\$ 3,635	\$ 3,725	\$ 3,819	\$ 3,914	\$ 4,012	\$ 4,112	\$ 4,215	\$ 4,320	\$ 4,428	\$ 4,539	\$ 4,652	\$ 4,769	\$ 4,888	\$ 5,010
DNR lease costs	\$ 1,575	\$ 1,614	\$ 1,655	\$ 1,696	\$ 1,739	\$ 1,782	\$ 1,827	\$ 1,872	\$ 1,919	\$ 1,967	\$ 2,016	\$ 2,067	\$ 2,118	\$ 2,171	\$ 2,225	\$ 2,281	\$ 2,338	\$ 2,397	\$ 2,456	\$ 2,518
DNR application and bond	\$ 2,600	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Management	\$ 10,000	\$ 20,000	\$ 30,000	\$ 40,000	\$ 41,000	\$ 42,025	\$ 43,076	\$ 44,153	\$ 45,256	\$ 46,388	\$ 47,547	\$ 48,736	\$ 49,955	\$ 51,203	\$ 52,483	\$ 53,796	\$ 55,140	\$ 56,519	\$ 57,932	\$ 59,380
Office Supplies	\$ 500	\$ 513	\$ 525	\$ 538	\$ 552	\$ 566	\$ 580	\$ 594	\$ 609	\$ 624	\$ 640	\$ 656	\$ 672	\$ 689	\$ 706	\$ 724	\$ 742	\$ 761	\$ 780	\$ 799
Office Rent	\$ 1,000	\$ 1,025	\$ 1,051	\$ 1,077	\$ 1,104	\$ 1,131	\$ 1,160	\$ 1,189	\$ 1,218	\$ 1,249	\$ 1,280	\$ 1,312	\$ 1,345	\$ 1,379	\$ 1,413	\$ 1,448	\$ 1,485	\$ 1,522	\$ 1,560	\$ 1,599
Phone/Communications	\$ 1,200	\$ 1,230	\$ 1,261	\$ 1,292	\$ 1,325	\$ 1,358	\$ 1,392	\$ 1,426	\$ 1,462	\$ 1,499	\$ 1,536	\$ 1,575	\$ 1,614	\$ 1,654	\$ 1,696	\$ 1,738	\$ 1,781	\$ 1,826	\$ 1,872	\$ 1,918
Debt Service																				
<b>Total G&amp;A</b>	\$ 16,875	\$ 24,382	\$ 36,431	\$ 48,483	\$ 49,178	\$ 50,408	\$ 51,668	\$ 52,960	\$ 54,284	\$ 55,641	\$ 57,032	\$ 58,457	\$ 59,919	\$ 61,417	\$ 62,952	\$ 64,526	\$ 66,139	\$ 67,793	\$ 69,487	\$ 71,225
<b>Net Income Before Taxes</b>	\$ (56,205)	\$ (73,709)	\$ (72,725)	\$ (52,290)	\$ (1,419)	\$ 56,039	\$ 114,399	\$ 124,339	\$ 134,780	\$ 145,748	\$ 157,275	\$ 169,390	\$ 182,126	\$ 195,518	\$ 209,601	\$ 223,410	\$ 237,992	\$ 253,389	\$ 269,643	\$ 286,799
<b>Investing Activities</b>																				
Longlines	\$ 6,891	\$ 7,063	\$ 43,439	\$ 22,263	\$ 54,039	\$ 47,594	\$ 36,976	\$ 2,568	\$ 6,141	\$ 7,325	\$ 5,664	\$ 14,623	\$ 8,755	\$ 30,417	\$ 22,064	\$ 29,002	\$ 23,114	\$ 14,699	\$ 7,861	\$ 17,922
Water pump	\$ 550	\$ -	\$ -	\$ 592	\$ -	\$ -	\$ -	\$ 654	\$ -	\$ -	\$ -	\$ 722	\$ -	\$ -	\$ -	\$ 797	\$ -	\$ -	\$ -	\$ 879
Water support	\$ 76,940	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,940	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Truck	\$ 7,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Office Equipment	\$ 3,000	\$ -	\$ -	\$ -	\$ 1,000	\$ -	\$ -	\$ -	\$ 1,000	\$ -	\$ -	\$ -	\$ 1,000	\$ -	\$ -	\$ -	\$ 1,000	\$ -	\$ -	\$ -
<b>Total Investments</b>	\$ 94,881	\$ 7,063	\$ 43,439	\$ 22,855	\$ 55,039	\$ 47,594	\$ 36,976	\$ 3,221	\$ 7,141	\$ 16,765	\$ 5,664	\$ 15,345	\$ 9,755	\$ 30,417	\$ 22,064	\$ 29,799	\$ 24,114	\$ 14,699	\$ 7,861	\$ 18,802
<b>Cash Flow After Investments</b>	\$(151,086)	\$(80,772)	\$(116,164)	\$(75,145)	\$(56,458)	\$ 8,445	\$ 77,423	\$ 121,118	\$ 127,639	\$ 128,984	\$ 151,610	\$ 154,045	\$ 172,371	\$ 165,101	\$ 187,538	\$ 193,611	\$ 213,879	\$ 238,690	\$ 261,782	\$ 267,997
<b>Financing Activities</b>																				
Equipment	\$ 85,393	\$ 6,357	\$ 39,095	\$ 20,569	\$ 49,535	\$ 42,834														
Operating Loan	\$ 50,585	\$ 66,338	\$ 65,452	\$ 47,061	\$ 1,277	\$(50,435)														
<b>Net Financing Activity</b>	\$ 135,977	\$ 72,695	\$ 104,547	\$ 67,630	\$ 50,813	\$(7,600)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Debt service - Interest and Principal	\$ 8,159	\$ 13,721	\$ 32,614	\$ 50,772	\$ 72,137	\$ 84,981	\$ 95,008	\$ 82,999	\$ 67,251	\$ 47,291	\$ 30,103	\$ 20,588	\$ 20,588	\$ 20,588	\$ 20,588	\$ 20,588	\$ 20,588	\$ 20,588	\$ 20,588	\$ 20,588
<b>Cash Surplus (Shortfall)</b>	\$(23,267)	\$(21,799)	\$(44,230)	\$(58,286)	\$(77,782)	\$(84,136)	\$(17,584)	\$ 38,119	\$ 60,388	\$ 81,692	\$ 121,507	\$ 133,457	\$ 151,783	\$ 144,513	\$ 166,950	\$ 173,023	\$ 193,290	\$ 218,102	\$ 241,194	\$ 247,409

# Optimum Farm Model – Review of Assumptions and Calculations

## Recast – Pro Forma – Farm and Processing Facility

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
<b>Gross Revenues</b>	\$ -	\$ -	\$ 32,174	\$ 64,348	\$ 128,695	\$ 193,043	\$ 257,391	\$ 270,260	\$ 283,773	\$ 297,962	\$ 312,860	\$ 328,503	\$ 344,928	\$ 362,174	\$ 380,283	\$ 399,297	\$ 419,262	\$ 440,225	\$ 462,237	\$ 485,348
Returns	\$ -	\$ -	\$ 322	\$ 643	\$ 1,287	\$ 1,930	\$ 2,574	\$ 2,703	\$ 2,838	\$ 2,980	\$ 3,129	\$ 3,285	\$ 3,449	\$ 3,622	\$ 3,803	\$ 3,993	\$ 4,193	\$ 4,402	\$ 4,622	\$ 4,853
<b>Net Revenues</b>	\$ -	\$ -	\$ 31,852	\$ 63,704	\$ 127,408	\$ 191,113	\$ 254,817	\$ 267,558	\$ 280,935	\$ 294,982	\$ 309,731	\$ 325,218	\$ 341,479	\$ 358,553	\$ 376,480	\$ 395,304	\$ 415,070	\$ 435,823	\$ 457,614	\$ 480,495
<b>Cost of Production</b>																				
<b>Farm Expense</b>																				
Seed purchases	\$ 3,094	\$ 6,188	\$ 12,375	\$ 18,563	\$ 24,750	\$ 24,008	\$ 23,287	\$ 22,589	\$ 21,911	\$ 21,254	\$ 20,616	\$ 19,998	\$ 19,398	\$ 18,816	\$ 18,251	\$ 18,708	\$ 19,175	\$ 19,655	\$ 20,146	\$ 20,650
Farm labor	\$ 30,000	\$ 36,090	\$ 42,984	\$ 33,809	\$ 34,654	\$ 35,521	\$ 36,409	\$ 37,319	\$ 38,252	\$ 39,208	\$ 40,188	\$ 41,193	\$ 42,223	\$ 43,278	\$ 44,360	\$ 45,469	\$ 46,606	\$ 47,771	\$ 48,965	\$ 50,190
Farm insurance	\$ 356	\$ 365	\$ 749	\$ 767	\$ 786	\$ 806	\$ 826	\$ 847	\$ 868	\$ 890	\$ 912	\$ 935	\$ 958	\$ 982	\$ 1,007	\$ 1,032	\$ 1,058	\$ 1,084	\$ 1,111	\$ 1,139
Farm supplies	\$ 50	\$ 103	\$ 420	\$ 592	\$ 993	\$ 1,358	\$ 1,624	\$ 1,664	\$ 1,706	\$ 1,748	\$ 1,792	\$ 1,837	\$ 1,883	\$ 1,930	\$ 1,978	\$ 2,028	\$ 2,078	\$ 2,130	\$ 2,184	\$ 2,238
Water support maintenance	\$ 250	\$ 256	\$ 263	\$ 269	\$ 276	\$ 283	\$ 290	\$ 297	\$ 305	\$ 312	\$ 320	\$ 328	\$ 336	\$ 345	\$ 353	\$ 362	\$ 371	\$ 380	\$ 390	\$ 400
Food provisions	\$ 1,500	\$ 1,538	\$ 3,152	\$ 3,231	\$ 3,311	\$ 3,394	\$ 3,479	\$ 3,566	\$ 3,655	\$ 3,747	\$ 3,840	\$ 3,936	\$ 4,035	\$ 4,136	\$ 4,239	\$ 4,345	\$ 4,454	\$ 4,565	\$ 4,679	\$ 4,796
Fuel cost	\$ 4,080	\$ 4,788	\$ 8,203	\$ 10,280	\$ 14,878	\$ 19,297	\$ 22,835	\$ 23,977	\$ 25,176	\$ 26,435	\$ 27,756	\$ 29,144	\$ 30,601	\$ 32,131	\$ 33,738	\$ 35,425	\$ 37,196	\$ 39,056	\$ 41,009	\$ 43,059
<b>Total Farm Expense</b>	\$ 39,330	\$ 49,327	\$ 68,145	\$ 67,511	\$ 79,649	\$ 84,666	\$ 88,750	\$ 90,259	\$ 91,872	\$ 93,593	\$ 95,425	\$ 97,371	\$ 99,434	\$ 101,618	\$ 103,927	\$ 107,368	\$ 110,938	\$ 114,641	\$ 118,484	\$ 122,471
<b>Gross Profit after Farm Production</b>	\$ (39,330)	\$ (49,327)	\$ (36,293)	\$ (3,806)	\$ 47,759	\$ 106,446	\$ 166,067	\$ 177,299	\$ 189,063	\$ 201,389	\$ 214,306	\$ 227,847	\$ 242,045	\$ 256,935	\$ 272,554	\$ 287,936	\$ 304,131	\$ 321,182	\$ 339,130	\$ 358,024
<b>Processing Expense</b>																				
Processing labor	\$ -	\$ -	\$ 10,995	\$ 11,270	\$ 11,551	\$ 11,840	\$ 12,136	\$ 12,440	\$ 12,751	\$ 13,069	\$ 13,396	\$ 13,731	\$ 14,074	\$ 14,426	\$ 14,787	\$ 15,156	\$ 15,535	\$ 15,924	\$ 16,322	\$ 16,730
Processing insurance	\$ -	\$ -	\$ 250	\$ 256	\$ 262	\$ 269	\$ 275	\$ 282	\$ 289	\$ 297	\$ 304	\$ 312	\$ 319	\$ 327	\$ 336	\$ 344	\$ 353	\$ 361	\$ 370	\$ 380
Freight	\$ -	\$ -	\$ 5,727	\$ 11,739	\$ 24,066	\$ 37,001	\$ 50,568	\$ 51,833	\$ 53,128	\$ 54,457	\$ 55,818	\$ 57,214	\$ 58,644	\$ 60,110	\$ 61,613	\$ 63,153	\$ 64,732	\$ 66,350	\$ 68,009	\$ 69,709
Packaging	\$ -	\$ -	\$ 1,054	\$ 2,162	\$ 4,431	\$ 6,813	\$ 9,311	\$ 9,544	\$ 9,783	\$ 10,027	\$ 10,278	\$ 10,535	\$ 10,798	\$ 11,068	\$ 11,345	\$ 11,629	\$ 11,919	\$ 12,217	\$ 12,523	\$ 12,836
Processing supplies	\$ -	\$ -	\$ 1,051	\$ 1,077	\$ 1,104	\$ 1,131	\$ 1,160	\$ 1,189	\$ 1,218	\$ 1,249	\$ 1,280	\$ 1,312	\$ 1,345	\$ 1,379	\$ 1,413	\$ 1,448	\$ 1,485	\$ 1,522	\$ 1,560	\$ 1,599
Processing maintenance	\$ -	\$ -	\$ 525	\$ 538	\$ 552	\$ 566	\$ 580	\$ 594	\$ 609	\$ 624	\$ 640	\$ 656	\$ 672	\$ 689	\$ 706	\$ 724	\$ 742	\$ 761	\$ 780	\$ 799
Processing overhead	\$ -	\$ -	\$ 1,091	\$ 1,118	\$ 1,146	\$ 1,175	\$ 1,204	\$ 1,234	\$ 1,265	\$ 1,297	\$ 1,329	\$ 1,363	\$ 1,397	\$ 1,432	\$ 1,467	\$ 1,504	\$ 1,542	\$ 1,580	\$ 1,620	\$ 1,660
<b>Total Processing Expense</b>	\$ -	\$ -	\$ 20,692	\$ 28,160	\$ 43,113	\$ 58,795	\$ 75,235	\$ 77,116	\$ 79,044	\$ 81,020	\$ 83,046	\$ 85,122	\$ 87,250	\$ 89,431	\$ 91,667	\$ 93,958	\$ 96,307	\$ 98,715	\$ 101,183	\$ 103,713
<b>Gross Profit After Farm and Product</b>	\$ (39,330)	\$ (49,327)	\$ (56,986)	\$ (31,967)	\$ 4,646	\$ 47,651	\$ 90,832	\$ 100,183	\$ 110,019	\$ 120,369	\$ 131,261	\$ 142,725	\$ 154,795	\$ 167,504	\$ 180,887	\$ 193,978	\$ 207,824	\$ 222,466	\$ 237,947	\$ 254,311
<b>General and Administrative</b>																				
PSP testing	\$ -	\$ -	\$ 1,940	\$ 3,880	\$ 3,459	\$ 3,546	\$ 3,635	\$ 3,725	\$ 3,819	\$ 3,914	\$ 4,012	\$ 4,112	\$ 4,215	\$ 4,320	\$ 4,428	\$ 4,539	\$ 4,652	\$ 4,769	\$ 4,888	\$ 5,010
DNR lease costs	\$ 1,575	\$ 1,614	\$ 1,655	\$ 1,696	\$ 1,739	\$ 1,782	\$ 1,827	\$ 1,872	\$ 1,919	\$ 1,967	\$ 2,016	\$ 2,067	\$ 2,118	\$ 2,171	\$ 2,225	\$ 2,281	\$ 2,338	\$ 2,397	\$ 2,456	\$ 2,518
DNR application and bond	\$ 2,600	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Management	\$ 10,000	\$ 20,000	\$ 30,000	\$ 40,000	\$ 41,000	\$ 42,025	\$ 43,076	\$ 44,153	\$ 45,256	\$ 46,388	\$ 47,547	\$ 48,736	\$ 49,955	\$ 51,203	\$ 52,483	\$ 53,796	\$ 55,140	\$ 56,519	\$ 57,932	\$ 59,380
Office Supplies	\$ 500	\$ 513	\$ 525	\$ 538	\$ 552	\$ 566	\$ 580	\$ 594	\$ 609	\$ 624	\$ 640	\$ 656	\$ 672	\$ 689	\$ 706	\$ 724	\$ 742	\$ 761	\$ 780	\$ 799
Office Rent	\$ 1,000	\$ 1,025	\$ 1,051	\$ 1,077	\$ 1,104	\$ 1,131	\$ 1,160	\$ 1,189	\$ 1,218	\$ 1,249	\$ 1,280	\$ 1,312	\$ 1,345	\$ 1,379	\$ 1,413	\$ 1,448	\$ 1,485	\$ 1,522	\$ 1,560	\$ 1,599
Phone/Communications	\$ 1,200	\$ 1,230	\$ 1,261	\$ 1,292	\$ 1,325	\$ 1,358	\$ 1,392	\$ 1,426	\$ 1,462	\$ 1,499	\$ 1,536	\$ 1,575	\$ 1,614	\$ 1,654	\$ 1,696	\$ 1,738	\$ 1,781	\$ 1,826	\$ 1,872	\$ 1,918
Debt Service																				
<b>Total G&amp;A</b>	\$ 16,875	\$ 24,382	\$ 36,431	\$ 48,483	\$ 49,178	\$ 50,408	\$ 51,668	\$ 52,960	\$ 54,284	\$ 55,641	\$ 57,032	\$ 58,457	\$ 59,919	\$ 61,417	\$ 62,952	\$ 64,526	\$ 66,139	\$ 67,793	\$ 69,487	\$ 71,225
<b>Net Income Before Taxes</b>	\$ (56,205)	\$ (73,709)	\$ (93,417)	\$ (80,450)	\$ (44,532)	\$ (2,757)	\$ 39,164	\$ 47,223	\$ 55,736	\$ 64,728	\$ 74,229	\$ 84,268	\$ 94,876	\$ 106,087	\$ 117,935	\$ 129,452	\$ 141,685	\$ 154,674	\$ 168,460	\$ 183,086
<b>Investing Activities</b>																				
Longlines	\$ 6,891	\$ 7,063	\$ 43,439	\$ 22,263	\$ 54,039	\$ 47,594	\$ 36,976	\$ 2,568	\$ 6,141	\$ 7,325	\$ 5,664	\$ 14,623	\$ 8,755	\$ 30,417	\$ 22,064	\$ 29,002	\$ 23,114	\$ 14,699	\$ 7,861	\$ 17,922
Water pump	\$ 550	\$ -	\$ -	\$ 592	\$ -	\$ -	\$ -	\$ 654	\$ -	\$ -	\$ -	\$ 722	\$ -	\$ -	\$ -	\$ 797	\$ -	\$ -	\$ -	\$ 879
Water support	\$ 76,940	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,940	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Processing facility	\$ -	\$ 25,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Truck	\$ 7,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Office Equipment	\$ 3,000	\$ -	\$ -	\$ -	\$ 1,000	\$ -	\$ -	\$ -	\$ 1,000	\$ -	\$ -	\$ -	\$ 1,000	\$ -	\$ -	\$ -	\$ 1,000	\$ -	\$ -	\$ -
<b>Total Investments</b>	\$ 94,881	\$ 32,563	\$ 43,439	\$ 22,855	\$ 55,039	\$ 47,594	\$ 36,976	\$ 3,221	\$ 7,141	\$ 16,765	\$ 5,664	\$ 15,345	\$ 9,755	\$ 30,417	\$ 22,064	\$ 29,799	\$ 24,114	\$ 14,699	\$ 7,861	\$ 18,802
<b>Cash Flow After Investments</b>	\$ (151,086)	\$ (106,272)	#####	\$ (103,305)	\$ (99,571)	\$ (50,351)	\$ 2,188	\$ 44,002	\$ 48,595	\$ 47,964	\$ 68,565	\$ 68,923	\$ 85,121	\$ 75,670	\$ 95,871	\$ 99,653	\$ 117,571	\$ 139,975	\$ 160,599	\$ 164,285
<b>Financing Activities</b>																				
Equipment	\$ 85,393	\$ 29,307	\$ 39,095	\$ 20,569	\$ 49,535	\$ 42,834														
Operating Loan	\$ 50,585	\$ 66,338	\$ 84,075	\$ 72,405	\$ 40,079	\$ 2,481														
<b>Net Financing Activity</b>	\$ 135,977	\$ 95,645	\$ 123,170	\$ 92,974	\$ 89,614	\$ 45,316	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Debt service - Interest and Principal	\$ 8,159	\$ 13,721	\$ 32,614	\$ 50,772	\$ 72,137	\$ 84,981	\$ 95,008	\$ 82,999	\$ 67,251	\$ 47,291	\$ 30,103	\$ 20,588	\$ 20,588	\$ 20,588	\$ 20,588	\$ 20,588	\$ 20,588	\$ 20,588	\$ 20,588	\$ 20,588
<b>Cash Surplus (Shortfall)</b>	\$ (23,267)	\$ (24,349)	\$ (46,299)	\$ (61,102)	\$ (82,094)	\$ (90,016)	\$ (92,819)	\$ (38,997)	\$ (18,656)	\$ 672	\$ 38,462	\$ 48,335	\$ 64,533	\$ 55,082	\$ 75,283	\$ 79,065	\$ 96,983	\$ 119,387	\$ 140,011	\$ 143,697

# Optimum Farm Model – Review of Assumptions and Calculations

## Recast – Pro Forma – Farm Only

### Assumptions

Work begins January 1 of Year 1 to have gear and seed ready for initial planting in April  
 Returns & allowances set at 1% of total gross. Assumes recalls and loss from delays from PSP testing.  
 Gross revenues calculated at \$5.10/doz.

Gross revenues calculated to move at projected growth rate through Year 7 to account for inflation and gains through branding/marketing.  
 Seed costs projected at \$0.33/1000

Seed costs projected to decline at 3% annually from declining cost of seed production after year 5 through year 15. Cost reduction comes from greater volumes produced statewide thereby lowering costs and general reduction for single farm based on larger purchases and improving relations.

Projected rate of inflation.

Most expenses increase annually based on the projected rate of inflation.

Fuel usage on farm site is 4 gallons of fuel per longline per week for washing oysters and estimated at 30 gallons for transportation.

Fuel costs will increase at a greater rate than inflation.

Gas price is set at \$4 for Year 1.

Weeks of activity in a season.

Gallons of gas per longline per week

Cost of gasoline for transport back and forth to farm for each trip

Farm help labor begins in year 2. Production increments in excess of 500,000 brings another employee up to 3.

Employees

75% of employee help is farm, 25% is production

Insurance per person

Inflation

Water support maintenance, including engine repair, is estimated at \$250 annually for the life of the vessel

Food provisions for the farm site set at \$50/week/per person.

Farm supplies listed at \$50 per longline

Office supply at \$500 a year

Office rent and overhead at \$1000 annually

Communications at \$100 a month

Processing supplies at \$1000 annually

Processing maintenance at \$500 annually

Processing overhead, utilities, water, etc at \$150/month, running for 6 months

Loan assumes payment on interest for three years and then begin principal for five years.

Present value of investments through Year 7

Present value of working capital through Year 7

Loan to Value percentage

Loan to Value percentage

Measure

\$ 5.10 Value per dozen

5% Increase in gross revenues

\$ 33.00 Cost for 1000 seed

3% price reduction on seed cost  
2.5%

	Year 2	Year 3
	5%	1.05 1.1025

\$ 4.00

30

4

\$120

500,000

1

1

2

0.75 % of labor allocated to farm

\$ 475

1

1.025

1.050625

\$ 250 water support maintenance  
50

\$50 per longline

\$500 Annual office supply

\$1,000 annual office rent

\$1,200 communications

\$1,000

\$500

\$150

\$234,217

(\$177,053) (\$411,270)

90% for equipment loan

90% for operating loan



# Alaska Sea Grant Marine Advisory Program (MAP)

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