

# Capitalization Options for New Apple Plantings in Bayfield

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# Context and Assumptions

- There are fruit growers in Bayfield seeking to maintain, expand, and/or build profitable fruit-based enterprises
- There are existing and potential markets sufficient to sustain expanded fruit production in Bayfield
- The future of a Bayfield fruit industry will depend on more productive and more efficient production systems

# Why New Plantings?

- To meet new market demand
- To renovate old plantings for more efficient production
- To change to new varieties

## High-Density Production Systems

<b>System Characteristics</b>	<b>Central Leader</b>	<b>Vertical Axe</b>	<b>Tall Spindle</b>
Row Length	500	500	500
Rows/acre	4.8	6.2	7.3
Tree spacing	12	5	3
Row spacing	18	14	12
Sq.ft.	216	70	36
Trees/acre	202	622	1210
Row Length/Acre	2420	3111	3630
Tree Width	12	9	7
Tree Height	18	12	10
Tree Row Volume	100	80	60

<b>Yields</b>	The yield for different systems @ 42# bushels.			
	Year	Central Leader	Vertical Axe	Tall Spindle
	0	0	0	0
	1	0	0	0
	2	0	0	50
	3	0	150	200
	4	100	300	500
	5	150	600	1000
	6	300	700	1000
	7	400	750	1000
	8	500	750	1000
	9	650	750	1000
	10	650	750	1000
	11	650	750	1000
	12	650	750	1000
	13	650	750	1000
	14	650	750	1000
	15	650	750	1000
	16	650	750	1000
	17	650	750	1000
	18	650	750	1000
	19	650	750	1000
	20	650	750	1000

# How Much Does it Cost?

<b>Costs Per Acre</b>												
	<b>Central Leader</b>				<b>Vertical Axe</b>				<b>Tall Spindle</b>			
Activity	Labor	Equipment	Labor	Total	Labor	Equipment	Labor	Total	Labor	Equipment	Labor	Total
Year	hours	cost	cost	cost	hours	cost	cost	cost	hours	cost	cost	cost
0	1	\$ 224	\$ 15	\$ 794	\$ 1	\$ 224	\$ 15	\$ 794	\$ 1	\$ 224	\$ 15	\$ 794
1	21	\$ 151	\$ 221	\$ 2,266	\$ 88	\$ 187	\$ 820	\$ 8,431	\$ 208	\$ 190	\$ 1,902	\$ 15,071
<b>Total</b>	<b>22</b>	<b>\$ 375</b>	<b>\$ 236</b>	<b>\$ 3,060</b>	<b>\$ 89</b>	<b>\$ 411</b>	<b>\$ 835</b>	<b>\$ 9,225</b>	<b>\$ 209</b>	<b>\$ 414</b>	<b>\$ 1,917</b>	<b>\$ 15,865</b>

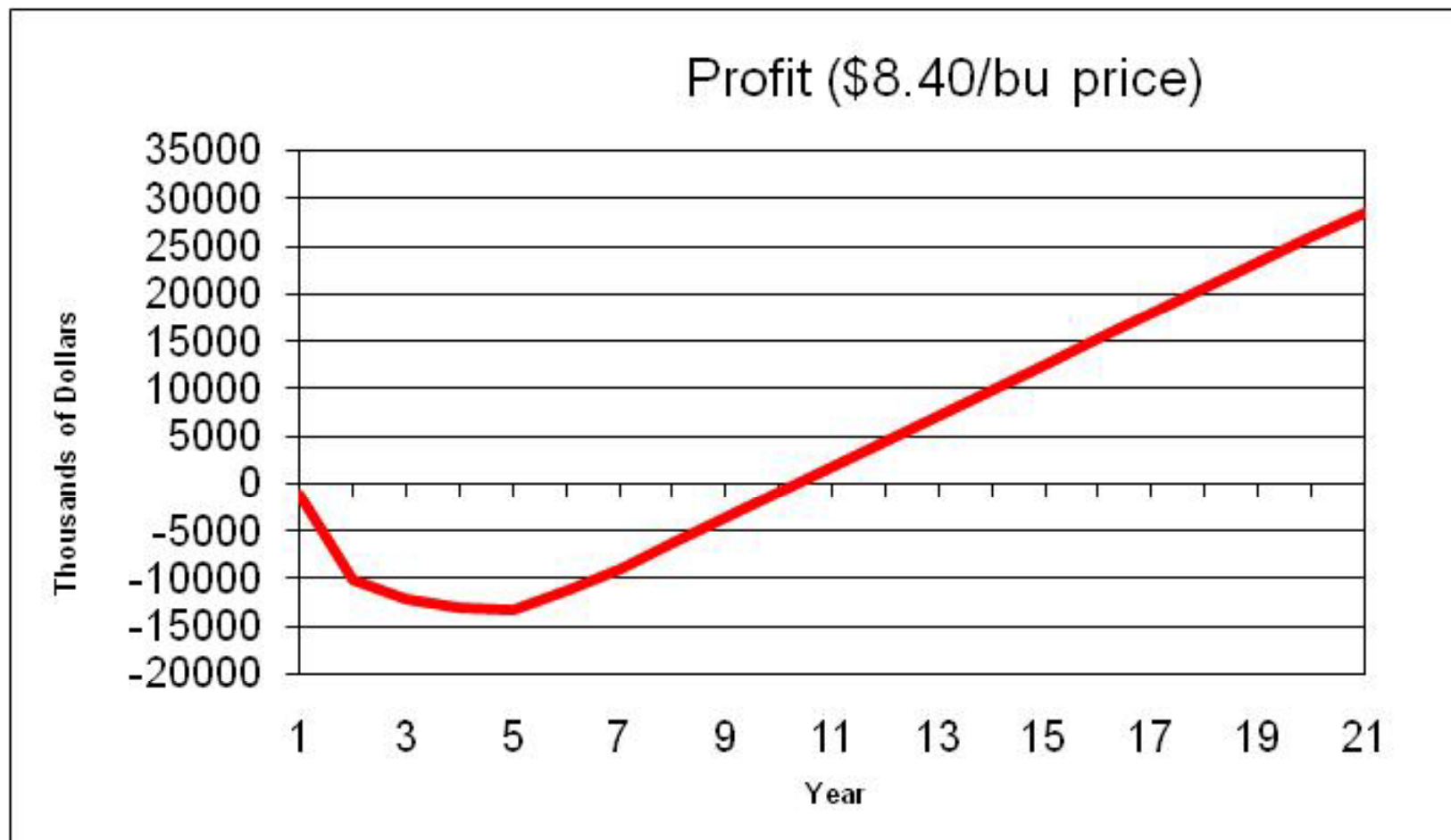
## Year 0, Year 1 Establishment Costs

Central Leader	\$ 3,060.00
Vertical Axis	\$ 9,225.00
Tall Spindle	\$ 15,865.00

# Vertical Axe Profit Potential

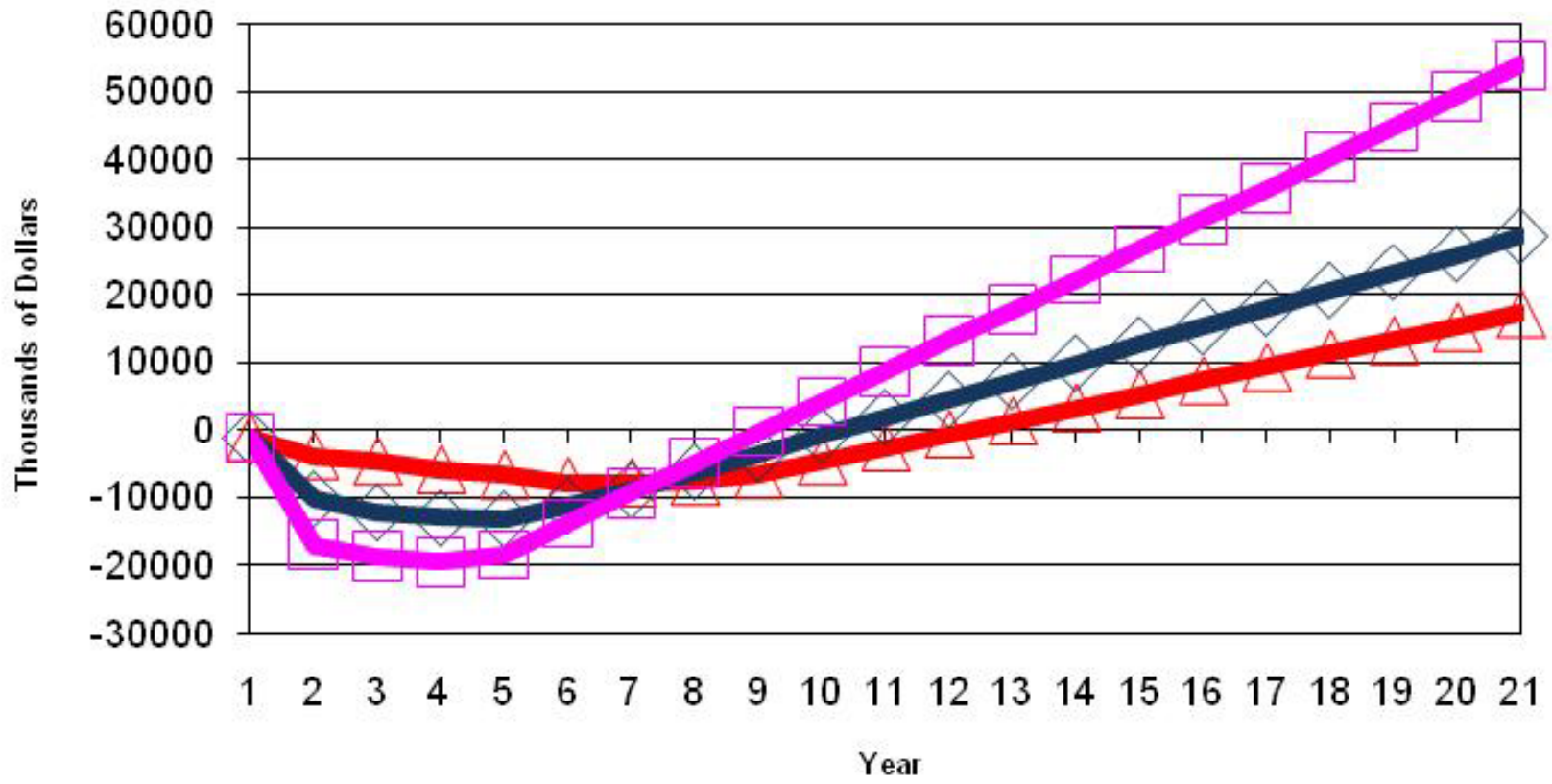
Year	Bushel Yield	Gross Income	Annual Costs	Harvest Costs	Interest	Total Cost	Annual Profit	Accum Profit
0	0	0	794	0	384	1178	-1178	-1178
1	0	0	8431	0	613	9044	-9044	-10221
2	0	0	1546	0	406	1953	-1953	-12174
3	150	1260	1457	238	411	2105	-845	-13019
4	300	2520	1753	475	427	2655	-135	-13154
5	600	5040	1733	950	440	3124	1916	-11238
6	700	5880	1979	1109	453	3540	2340	-8898
7	750	6300	1979	1188	455	3622	2678	-6220
8	750	6300	1979	1188	455	3622	2678	-3542
9	750	6300	1979	1188	455	3622	2678	-864
10	750	6300	1979	1188	455	3622	2678	1815
11	750	6300	1979	1188	455	3622	2678	4493
12	750	6300	1979	1188	455	3622	2678	7171
13	750	6300	1979	1188	455	3622	2678	9849
14	750	6300	1979	1188	455	3622	2678	12527
15	750	6300	1979	1188	455	3622	2678	15205
16	750	6300	1979	1188	455	3622	2678	17883
17	750	6300	1979	1188	455	3622	2678	20562
18	750	6300	1979	1188	455	3622	2678	23240
19	750	6300	1979	1188	455	3622	2678	25918
20	750	6300	1979	1188	455	3622	2678	28596
	12250	102900	45394	19406	9504	74304	28596	28596

## Vertical Axe Accumulated Profit (MSU Numbers)





# Profit of Systems



# Traditional Capitalization Options

- Cash out-of-pocket
  - Pros: No hassles, no liens, no borrowing costs
  - Cons: Cash?, opportunity cost
- Borrow from a lender
  - Banks may be an option with a good business plan
  - Usually require immediate payments
  - FSA loan options:
    - Operating Loan (7yr, 2.25%)
    - Real Estate Improvement Loan (40yr, 4.75%)

# Alternative Options

- Lease trees from an orchard owner
- Sell apple shares
  - Customer buys a share up front in exchange for a set quantity of apples or apple products over a given number of years
- Sell apple investment units (slow money)
  - Investor buys a “unit” and receives a return on the investment

# Renting Apple Trees

- Long enough term to re-coup pruning costs
- Written agreement to clarify pesticide use
- Rental rate should cover ownership costs of the landowner (mortgage, taxes, apple establishment costs, insurance)
- Rental payments can be flexible
  - Flat per acre or per tree rate
  - Per bushel payment
  - Deferred payments in exchange for tree improvements (pests, pruning)

# Apple Shares

- Customer buys a share with an up-front lump-sum purchase (capital)
- Customer receives apple products each year for X years with total value equal to the lump-sum purchase
- Could combine with a per bushel payment to the customer in good years
- Customer shares some risk and doesn't receive anything in bare or lean years
- Customer isn't necessarily guaranteed a particular product, just a share of the production
- Requires targeted marketing and probably requires shipping product to customers

# Slow Money

- The 20<sup>th</sup> Century was the era of Buy Low/Sell High and Wealth Now/Philanthropy Later – what one venture capitalist called “the largest legal accumulation of wealth in history.” The 21<sup>st</sup> Century will be the era of nurture capital built around principles of carrying capacity, care of the commons and sense of place.
- Sustainable returns through sustainable growth

# Apple Investment Units

- Landowner pays for establishing 1 acre of high density apples on their own land
- Landowner (silent partner) enters into joint venture agreement with a grower
  - Agreements should be 10+ years
  - Grower does all farming operations
  - Landowner receives a return on the investment, but with no guaranteed return
  - Landowner assumes some risk, but owns real estate and apples

# Apple Investment Units

- Possible returns to investor/landowner
  - Annual lump-sum “lease” payment, possibly deferred
  - Per bushel yield-based payments
    - Straight-line or sliding scale
  - Percentage of profits
  - A combination



# Apple Investment Units

- Advantages to Grower:
  - Access to capital, avoid land costs
  - Establishment costs amortized, payments delayed
- Advantages to Landowner/Investor:
  - Reduced property taxes (ag use assessment)
  - Diversify portfolio while supporting local economy
  - Possibly higher returns than savings accounts, CDs, bonds
  - Feel good aspects of being a farmer

# Apple Investment Units

- Disadvantages to Grower:
  - Higher total cost compared to traditional loans
  - Beholden to the investor/landowner
- Disadvantages to Landowner/Investor:
  - Higher risk investment (non-collateralized loan, not FDIC insured)
  - Dependent on business plan and skill of grower
  - Likelihood of farm succession during 20 year period

# Apple Investment Unit – Example Scenario

- Landowner installs one acre of apples at a cost of \$9225
- Grower makes \$512 annual payments to landowner for 18 years starting in year 3 (payback of initial investment)
- Grower pays landowner per bushel on a sliding scale 0-100 (\$.00), 101-200 (\$1), 201-600 (\$2), 601+ (\$3)
- Actual return is variable based on yield
- Grower must be able to make money paying for all management costs, annual payments, and bushel payments
- Target average annual yield for the investor is 6%
- Term of agreement is 20 years

**Apple Investment Unit  
Example Numbers**

- Annual payments for 18 years
- Sliding Scale Bushel Payments
  - 0-100 (\$0)
  - 101-200 (\$1)
  - 201-600 (\$2)
  - 601+ (\$3)

Payment Schedule					
Year	Projected Yld (bu)	Bushel Payments	Annual Payment	Total Payment	Cost/Bushel
0	0	\$ -	\$ -	\$ -	
1	0	\$ -	\$ -	\$ -	
2	0	\$ -	\$ -	\$ -	
3	150	\$ 50.00	\$ 512.50	\$ 562.50	\$ 3.75
4	300	\$ 300.00	\$ 512.50	\$ 812.50	\$ 2.71
5	600	\$ 900.00	\$ 512.50	\$ 1,412.50	\$ 2.35
6	700	\$ 1,200.00	\$ 512.50	\$ 1,712.50	\$ 2.45
7	750	\$ 1,350.00	\$ 512.50	\$ 1,862.50	\$ 2.48
8	750	\$ 1,350.00	\$ 512.50	\$ 1,862.50	\$ 2.48
9	750	\$ 1,350.00	\$ 512.50	\$ 1,862.50	\$ 2.48
10	750	\$ 1,350.00	\$ 512.50	\$ 1,862.50	\$ 2.48
<b>Totals:</b>		<b>\$ 7,850.00</b>	<b>\$ 4,100.00</b>	<b>\$ 11,950.00</b>	
Year	Projected Yld (bu)	Bushel Payments	Annual Payment	Total Payment	Cost/Bushel
11	750	\$ 1,350.00	\$ 512.50	\$ 1,862.50	\$ 2.48
12	750	\$ 1,350.00	\$ 512.50	\$ 1,862.50	\$ 2.48
13	750	\$ 1,350.00	\$ 512.50	\$ 1,862.50	\$ 2.48
14	750	\$ 1,350.00	\$ 512.50	\$ 1,862.50	\$ 2.48
15	750	\$ 1,350.00	\$ 512.50	\$ 1,862.50	\$ 2.48
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18	750	\$ 1,350.00	\$ 512.50	\$ 1,862.50	\$ 2.48
19	750	\$ 1,350.00	\$ 512.50	\$ 1,862.50	\$ 2.48
20	750	\$ 1,350.00	\$ 512.50	\$ 1,862.50	\$ 2.48
<b>Totals:</b>		<b>\$ 13,500.00</b>	<b>\$ 5,125.00</b>	<b>\$ 18,625.00</b>	
<b>20 Yr Totals:</b>		<b>\$ 21,350.00</b>	<b>\$ 9,225.00</b>	<b>\$ 30,575.00</b>	

Rate	20 Yr
3%	\$ 7,436
4%	\$ 10,988
5%	\$ 15,252
6%	\$ 20,361
7%	\$ 26,473
8%	\$ 33,772
9%	\$ 42,476
10%	\$ 52,836

Return to Investor					
Year	Investment Costs	Property Taxes	Total Payments	Annual Profit	Accum Return
0	\$ (798.00)	\$ (15.00)	\$ -	\$ (813.00)	\$ (813.00)
1	\$ (8,427.00)	\$ (15.60)	\$ -	\$ (8,442.60)	\$ (9,255.60)
2		\$ (16.22)	\$ -	\$ (16.22)	\$ (9,271.82)
3		\$ (16.87)	\$ 562.50	\$ 545.63	\$ (8,726.20)
4		\$ (17.55)	\$ 812.50	\$ 794.95	\$ (7,931.24)
5		\$ (18.25)	\$ 1,412.50	\$ 1,394.25	\$ (6,536.99)
6		\$ (18.98)	\$ 1,712.50	\$ 1,693.52	\$ (4,843.47)
7		\$ (19.74)	\$ 1,862.50	\$ 1,842.76	\$ (3,000.71)
8		\$ (20.53)	\$ 1,862.50	\$ 1,841.97	\$ (1,158.74)
9		\$ (21.35)	\$ 1,862.50	\$ 1,841.15	\$ 682.41
10		\$ (22.20)	\$ 1,862.50	\$ 1,840.30	\$ 2,522.70
<b>Totals:</b>	<b>\$ (9,225.00)</b>	<b>\$ (202.30)</b>	<b>\$ 11,950.00</b>	<b>\$ 2,522.70</b>	
Year	Investment Costs	Property Taxes	Total Payments	Annual Profit	Accum Return
11		\$ (23.09)	\$ 1,862.50	\$ 1,839.41	\$ 4,362.11
12		\$ (24.02)	\$ 1,862.50	\$ 1,838.48	\$ 6,200.60
13		\$ (24.98)	\$ 1,862.50	\$ 1,837.52	\$ 8,038.12
14		\$ (25.98)	\$ 1,862.50	\$ 1,836.52	\$ 9,874.65
15		\$ (27.01)	\$ 1,862.50	\$ 1,835.49	\$ 11,710.13
16		\$ (28.09)	\$ 1,862.50	\$ 1,834.41	\$ 13,544.54
17		\$ (29.22)	\$ 1,862.50	\$ 1,833.28	\$ 15,377.82
18		\$ (30.39)	\$ 1,862.50	\$ 1,832.11	\$ 17,209.93
19		\$ (31.60)	\$ 1,862.50	\$ 1,830.90	\$ 19,040.83
20		\$ (32.87)	\$ 1,862.50	\$ 1,829.63	\$ 20,870.46
<b>Totals:</b>	<b>\$ -</b>	<b>\$ (277.24)</b>	<b>\$ 18,625.00</b>	<b>\$ 18,347.76</b>	

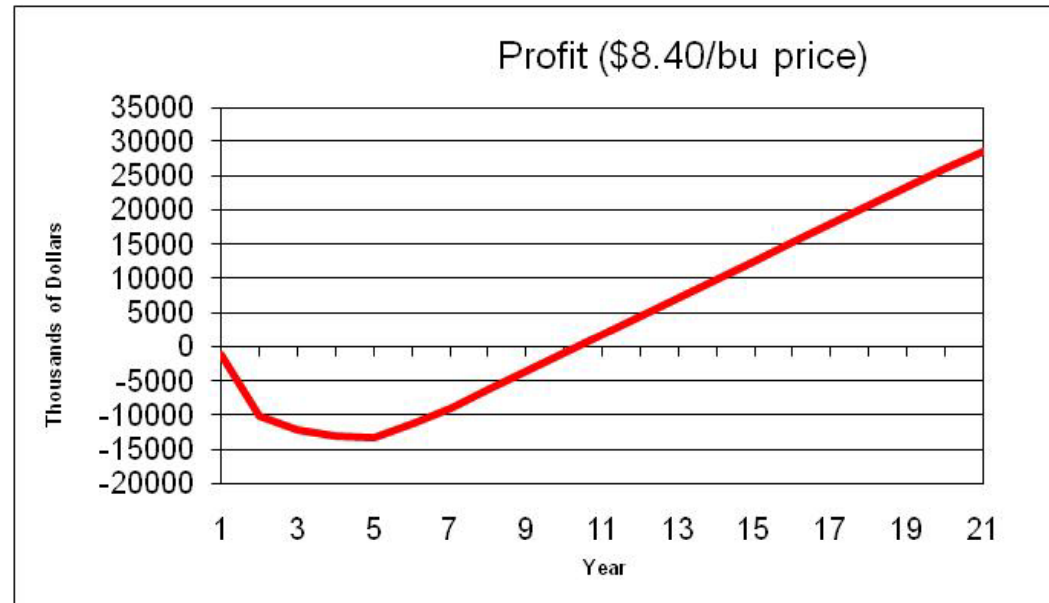
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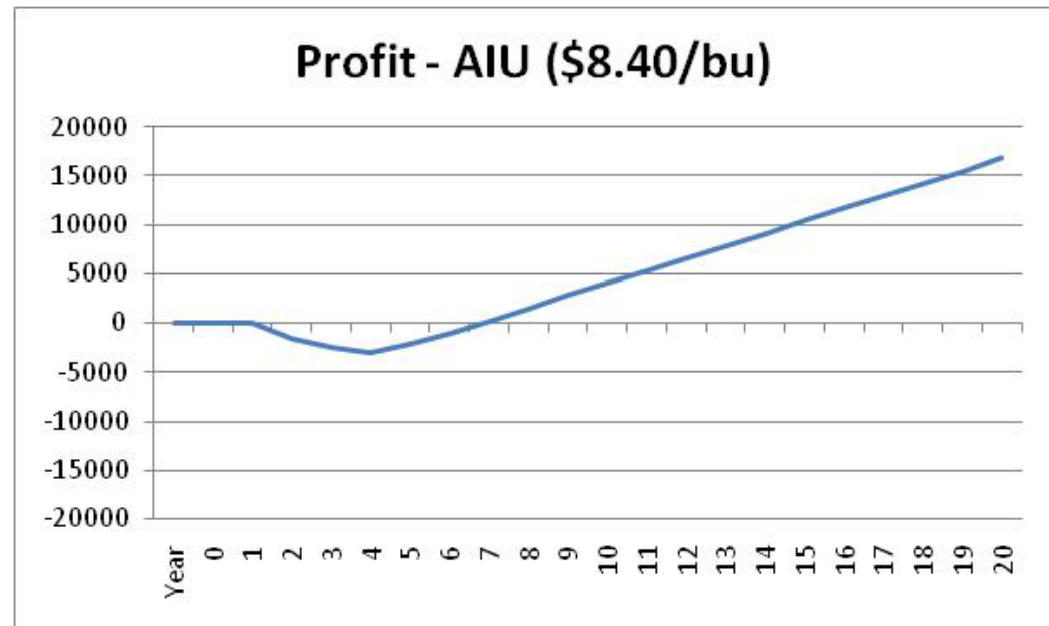
# Vertical Axe Profit Potential - AIU

Year	Bushel Yield	Gross Income	Annual Costs	Harvest Costs	Payments	Total Cost	Annual Profit	Accum Profit
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0
2	0	0	1546	0	0	1546	-1546	-1546
3	150	1260	1457	238	562.5	2257	-997	-2543
4	300	2520	1753	475	812.5	3041	-521	-3064
5	600	5040	1733	950	1412.5	4096	944	-2119
6	700	5880	1979	1109	1712.5	4800	1080	-1040
7	750	6300	1979	1188	1862.5	5029	1271	231
8	750	6300	1979	1188	1862.5	5029	1271	1502
9	750	6300	1979	1188	1862.5	5029	1271	2772
10	750	6300	1979	1188	1862.5	5029	1271	4043
11	750	6300	1979	1188	1862.5	5029	1271	5314
12	750	6300	1979	1188	1862.5	5029	1271	6584
13	750	6300	1979	1188	1862.5	5029	1271	7855
14	750	6300	1979	1188	1862.5	5029	1271	9126
15	750	6300	1979	1188	1862.5	5029	1271	10396
16	750	6300	1979	1188	1862.5	5029	1271	11667
17	750	6300	1979	1188	1862.5	5029	1271	12938
18	750	6300	1979	1188	1862.5	5029	1271	14208
19	750	6300	1979	1188	1862.5	5029	1271	15479
20	750	6300	1979	1188	1862.5	5029	1271	16750
	12250	102900	36169	19406	30575	86150	16750	16750

Cash Out-of-Pocket



Investor Financed





# Bayfield Development Fund

- An investment fund with the mission to capitalize fruit production, marketing, and value-added processing enterprises
- Target retirees and others looking to diversify portfolios, find socially-responsible investments, and invest in the long-term viability of a place they call home
- Operated and managed by a Board of Trustees
- ADD grant for a feasibility study to develop?