



## Smith Apple Farms

*A 300-acre family business producing apples for the fresh market.*

### **Introduction:**

John and Mary Smith own Smith Apple Farms. The business is an S-Corporation and John and Mary are the principal owners/shareholders, accounting for 52% of the business shares. They have owned and leased orchards for almost 35 years and hope to retire in 10 years. Together, John and Mary have an annual salary of \$80,000. They are diligent in taking 5% of profits, after taxes each year, to set aside as an emergency fund or a retirement account. To date that account is \$200,000.

John and Mary have two children, a son, Tim, and a daughter, Alice. When they established the corporation John wanted to keep control of the business while Mary wanted to be equitable towards Tim and Alice. Tim and Alice's share in the business makes up 24% each. Alice lives in the city and currently has no direct ties to the day-to-day operation. Alice has two children and is recently divorced. Tim works alongside John, and together they make the day-to-day orchard decisions. Mary handles the records and books. With Tim and his family on the farm and the recent downturn in the economy, John and Mary recently decided to begin gearing up for retirement by purchasing a reasonably priced second home in Hawaii.

Tim went to college for four years and studied horticulture. He then worked for eight years as a fieldman for one of the state's most innovative apple growing and packing operations. Four years ago, Tim returned to the family farm to work alongside his father with the hope of someday taking over the farm. Tim and his wife, Susan, have two children. Susan has a job in town and Tim has an annual salary of \$60,000 from the farm.

After being away from the farm for 12 years, Tim has numerous ideas to innovate the orchards by introducing new varieties into high density cropping systems and by introducing technologies that will enhance Smith Apple Farms long-term financial sustainability, such as labor-saving technologies, increased input efficiencies, etc.

Contrary to Tim's ideas, John's primary interest in innovation involves his farm machinery and equipment, which he keeps in top shape. John realizes there may be potential value in establishing newer varieties and higher density cropping systems; however, he is a realist who understands market volatility. He also has an emotional tie to the traditional orchards he has spent the majority of his years caring for; in particular are his Fuji and Golden Delicious varieties, which he is reluctant to replace, despite decreasing demand and higher labor costs. As a result of John's philosophy, there is no systematic orchard renewal plans and a high percent of older blocks on the farm (200 acres of the 300 are greater than 20 years old).

### **Tim and Susan's Challenge:**

Currently, Smith Apple Farms does not keep accurate records of their cost of production; however, they know costs have been rising over the last several years and will continue to do so. Tim's wife, Susan, generally stays out of the finer details of the family business; however she can't help but be concerned with the direction the operation has been going, based on her husband's frustrated conversations at the dinner table. Susan has convinced Tim to attend an AgTools™ workshop and evaluate the farm's financial situation in



greater detail. Both Susan and Tim want to increase John's confidence in their ability to competently take over the business with his impending retirement in the coming years.

After attending the AgTools™ workshop, Tim is convinced that the tools available to analyze their farm's financial position will either give him the ammunition to develop an orchard renewal strategy to revitalize the business or perhaps face the fact that he may need to return to work somewhere else in the industry. He believes that they need to be replacing current orchards at a rate of 6% to 7% annually to keep pace with the changes in new apple varieties, training systems, and technologies applied efficiently in newer, high density systems.

Tim spent several hours working with his dad developing yield, packout and cost information for each of their apple blocks. He also met with their lender and the managers of the two packinghouses they currently deliver fruit to, to obtain the most current loan and balance sheet information, past production records for each of their varieties, current packing costs, and estimates for future trends in FOB prices for each of their varieties. Tim believes he has enough information to begin an AgTools™ analysis.

*The following information in this case study is the result of Tim's diligence to dissect the farm's apple production, major input costs, labor requirements, equipment usage, and packout information and prices. Tim also made assumptions for production and price fluctuations while building future crop budgets.*

**Description of the Farm:**

Smith Apple Farms own 250 of their 300 acres of apples, which are good producing orchards. The 50 acres of leased ground belongs to Mary's family. The terms of the lease are \$500 per acre per year cash rent and Smith Apple Farms pay the property taxes and irrigation water costs. Mary receives 25% of the rental payment each year.

Table 1 describes the orchard blocks at Smith Apple Farms. The farm consists of 85 acres of Gala, 50 acres of Golden Delicious, 55 acres of BC2 Fuji, 50 acres of Granny Smith, 40 acres of Cripps Pink, 10 acres of Honeycrisp, and 10 acres of bare land to be planted sometime in the near future. The five-year average orchard renewal rate to plant new trees has been 2% per year.

Table 1. Description of orchard blocks, acres, age of block, support system, and trees/acre.

Block	Variety	Acres	Years of Age	System	Trees/Acre
A	Gala	45	Mature >20	2- wire trellis	550
B	Gala	30	Mature 10	5- wire trellis	550
C	Gala	10	Mature 7	5- wire trellis	800
D <sup>1</sup>	Golden Delicious	50	Mature >30	Free Standing	200
E <sup>2</sup>	BC2 Fuji	55	Mature >30	3- wire trellis	518
F	Granny Smith	50	Mature >20	4- wire trellis	600
G	Cripps Pink	30	Mature 8	5- wire trellis	550
H	Cripps Pink	10	5	5- wire trellis	800
I	Honeycrisp	10	2	5- wire trellis	1,089
J	Idle Land	10	0	n/a	n/a

<sup>1</sup>25 acres of Golden Delicious apples are leased

<sup>2</sup>25 acres of Fuji apples are leased



**Labor:**

Smith Apple Farms employs a foreman, who manages the crews that perform the day-to-day tasks. The foreman is supplied a house, paid utilities, a pickup, and an annual salary of \$35,000. They depend on a base crew of 10 workers who prune, thin and assist in harvesting the crops. The farm also provides temporary housing with paid utilities for these workers for about nine months of the year.

Smith Apple Farms hires an additional 12 workers to prune (2,110 days), 23 additional workers to thin (1,966 days) and 18 additional workers to pick fruit during the harvest season, which amounts to about 18,000 bins of apples in a good year. They anticipate another 600 additional bins of fruit when the Honeycrisp reach full production. The harvest window is approximately six to eight weeks, beginning in Mid-August and culminating in Mid-October.

Figure 1 shows the labor requirements by month in “person-days” for the major operations to grow apples. Pruning occurs in November through March, which requires about 22 people to complete the work on time. For thinning in the months of June, July and August 33 people are required. Harvest requires 24 workers to pick the fruit, 2 tractor drivers, and 2 supervisors checking the quality of the fruit as it’s placed in the bin and providing picking tickets for each bin harvested.

Figure 1. Pruning, thinning and harvest labor requirements by month, based on Person Days.

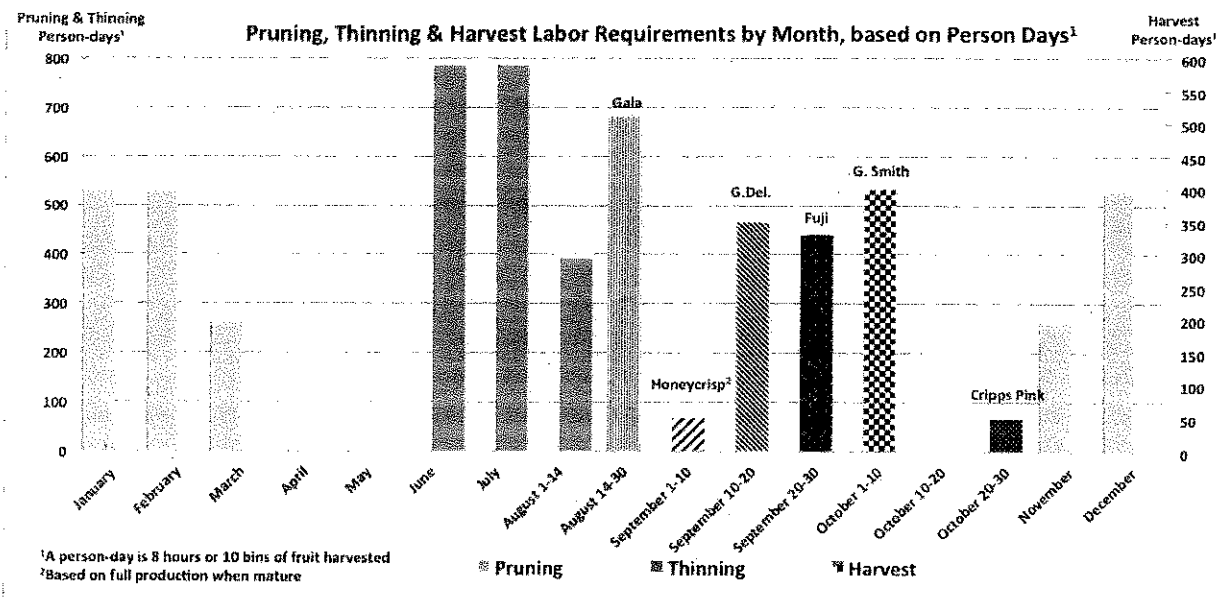


Table 2 shows the major labor tasks in the orchard by pruning, thinning, and harvest. Most pruning and thinning tasks are paid by the hour except for the newer planting of Honeycrisp, which is paid by the tree. The Gala’s and Honeycrisp are color picked, which results in higher per bin harvest costs.



Table 2. Pruning, thinning and harvest requirements and labor rates by block.

Block	Variety	Pruning		Thinning		Harvesting - Labor & Equipment -	
		Units/Acre	Rate/ Unit	Units/Acre	Rate/ Unit	Units/Acre	Rate/Unit
A	Gala - ON Year	55 hours	\$13.00	55 hours	\$13.00	60 bins	\$31.86
	- OFF Year	55 hours	\$13.00	27.5 hours	\$13.00	30 bins	\$31.86
B	Gala	55 hours	\$13.00	55 hours	\$13.00	60 bins	\$31.86
C	Gala	55 hours	\$13.00	55 hours	\$13.00	60 bins	\$28.80
D	G. Delicious - ON Year	66 hours	\$13.00	55 hours	\$13.00	70 bins	\$28.80
	- OFF Year	66 hours	\$13.00	27.5 hours	\$13.00	35 bins	\$28.80
E	BC2 Fuji - ON Year	66 hours	\$13.00	55 hours	\$13.00	60 bins	\$28.80
	- OFF Year	55 hours	\$13.00	27.5 hours	\$13.00	30 bins	\$28.80
F	G. Smith - ON Year	55 hours	\$13.00	55 hours	\$13.00	80 bins	\$28.80
	- OFF Year	55 hours	\$13.00	27.5 hours	\$13.00	40 bins	\$28.80
G	Cripps Pink	55 hours	\$13.00	55 hours	\$13.00	40 bins	\$28.80
H	Cripps Pink - 5 YOA	800 trees	\$0.55	800 trees	\$0.60	50 bins	\$28.80
	- 6 YOA	800 trees	\$0.55	800 trees	\$0.60	60 bins	\$28.80
I	Honeycrisp - 2 YOA	1,089 trees	\$0.46	1,089 trees	n/a	n/a	n/a
	- 3 YOA	1,089 trees	\$0.55	1,089 trees	n/a	n/a	n/a
	- 4 YOA	1,089 trees	\$0.55	1,089 trees	\$0.60	35 bins	\$31.86
	- 5 YOA	1,089 trees	\$0.55	1,089 trees	\$0.60	50 bins	\$31.86
	- 6 YOA	1,089 trees	\$0.55	1,089 trees	\$0.60	60 bins	\$31.86
	- 7 YOA	1,089 trees	\$0.55	1,089 trees	\$0.60	60 bins	\$31.86

**Equipment Use:**

Table 3 is a summary of the tractors and field equipment used on the farm. The business has five tractors, two air-blast sprayers, a flail mower, fertilizer spreader, weed sprayer and gopher machine. The hours per year are shown as well, based on the description of the above blocks and times for each operation to pass through the orchard.

Table 3. Summary of Tractor and Field Equipment Use, Hours/Unit.

SUMMARY OF TRACTORS AND FIELD EQUIPMENT USE			
	Total Hours	No of Units	No. of Hours/Unit
Tractors	3,939	5	788
Air-blast Sprayer	1,300	2	650
Flail Mower	412	1	412
Fertilizer Spreader	68	1	68
Weed Sprayer	218	1	218
Gopher Machine	80	1	80
Total Number of Bins	18,600		
Tractor Hours per Bin	0.10	6.00	minutes/bin
Tractor Harvest Hours	1,860	5	372
Acres in Farm	300		



**Production Estimates and Marketing Plan:**

Tables 4 and 5 show the details of the packout information Tim acquired from the packinghouses and estimates of production by block from his dad, which resulted in calculations for returns to the grower per bin harvested.

The marketing plan for Smith Apple Farms is selling all apples for the fresh market. They sell their apples through two different packinghouses. The older varieties, including Golden and BC2 Fuji, are shipped to one packinghouse because John feels they do a better job at handling these varieties. The newer varieties are then shipped to another packinghouse in the area.

Table 4: A three-year average of yields, prices, and packout information.

Block	Variety	% Size		Grade 1			Grade 2			Grade 3			Culls	
		> 88's	< 100's	\$/Box FOB, Size > 88's	\$/Box FOB, Size < 100's	%	\$/Box FOB, Size > 88's	\$/Box FOB, Size < 100's	%	\$/Box FOB, Size > 88's	\$/Box FOB, Size < 100's	%	%	
A	Gala	40	60	\$25	\$21	5	\$24	\$20	55	\$18	\$15	20	20	
B	Gala	60	40	\$25	\$21	72	\$24	\$20	12	\$18	\$15	5	11	
C	Gala	90	10	\$25	\$21	79	\$24	\$20	5	\$18	\$15	5	11	
D	G. Delicious	50	50	\$17	\$15	35	\$13	\$11	35	\$10	\$9	5	25	
E	BC2 Fuji	40	60	\$20	\$18	32	\$16	\$14	32	\$14	\$13	16	20	
F	Granny Smith	50	50	\$22	\$18	61	\$17	\$14	10	\$13	\$11	10	19	
G	Cripps Pink	60	40	\$28	\$22	83	\$25	\$20	10	n/a	n/a	0	7	
H	Cripps Pink	40	60	\$28	\$22	83	\$25	\$20	10	n/a	n/a	0	7	
I	Honeycrisp	75	25	\$60	\$35	25	\$50	\$25	25	\$18	\$15	20	30	
	Mature > 7	75	25	\$60	\$35	60	\$50	\$25	20	\$18	\$15	10	10	

Table 5. Projected Harvested Yields, Packed Units, Packing Costs and Returns to Grower.

Block	Variety	Yields Harvested Bins/acre	Packed Boxes/acre	Packing Costs/Box Sold	Return To Grower/Bin Harvested
A	Gala - ON Year	60	1,020.00	\$10.09	\$179.18
	- OFF Year	30	510.00	\$10.09	\$179.18
B	Gala	60	1,134.75	\$9.54	\$255.60
C	Gala	60	1,134.75	\$9.54	\$279.46
D	G. Delicious - ON Year	70	1,115.63	\$10.45	\$58.47
	- OFF Year	35	669.38	\$9.33	\$99.52
E	BC2 Fuji - ON Year	60	1,020.00	\$10.09	\$107.91
	- OFF Year	30	573.75	\$9.48	\$159.02
F	G. Smith - ON Year	80	1,377.00	\$10.02	\$150.31
	- OFF Year	40	765.00	\$9.48	\$203.85
G	Cripps Pink	40	790.50	\$9.32	\$317.99
H	Cripps Pink - 5 YOA	50	988.13	\$9.32	\$294.70
	- 6 YOA	60	1,185.75	\$9.32	\$294.70
I	Honeycrisp - 2 YOA	n/a	n/a	n/a	n/a
	- 3 YOA	n/a	n/a	n/a	n/a
	- 4 YOA	35	520.63	\$10.87	\$437.67
	- 5 YOA	50	743.75	\$10.87	\$437.67
	- 6 YOA	60	892.50	\$10.87	\$437.67
	- 7 YOA	60	1,147.50	\$9.48	\$729.26



### **Sensitivity Analysis:**

Although growers would like to produce a crop or livestock enterprise without the year-to-year fluctuations of prices and yields, they do occur. Smith Apple Farms is no different in that 110-acres in apple production do receive hail about every five years. Blocks A, C, and E seem to get hit the most often in that when it does hail on these blocks, the farm receives only 50 percent of the average price, and the harvesting costs increase by 25% due to the time invested in harvesting damaged fruit. While forecasting returns and costs for the next 10-years, Tim will account for any future occurrences of hail by decreasing the price in years three and eight for these three blocks by 50 percent, and increasing harvest costs by 25%.

Tim also wonders how long prices on new varieties stay at current levels. Estimates for price were established at \$437.67 per bin return to the grower (Table 5). This is a significant premium over the other varieties planted on the farm. The trend for new varieties has been that after their introduction into the market, prices begin to decline. Tim believes that prices for two newer varieties on the farm—Cripps Pink and Honeycrisp—may decline over time.

Cripps Pink is not necessarily considered a new variety but does sell for a premium that Tim believes will be lost soon enough. Tim lowered the price by five percent from current levels in years one through three in Blocks G and H and decreased price by 10 percent for years four through 10.

The Honeycrisp apples planted in Block I will be in production in three more years. To account for price decline, FOB prices will decrease by 20 percent from projected levels in years three through five, and continue to decrease an additional five percent every three years thereafter. However, Tim believes the price for Honeycrisp will never be lower than the price for Gala apples. Tim believes that this adjustment in Cripps Pink and Honeycrisp prices will bring reality into play and make his case for a more believable analysis for his parents.

### **Financial Information:**

The business model of John and Mary has been to keep Smith Apple Farms as a low debt operation and only invest back in the farm when cash was available. They have worked very hard during the past 30-years to accomplish this goal.

In 1985 John and Mary inherited 50 acres from John's parents, which was the home place with the house, barns, etc. They bought the remaining 200 acres from John's family estate for \$600,000, or \$3,000 per acre. The estate financed the sale with a 30-year loan at 4% interest. They have six years remaining on the loan. The 250 acres they own is valued at \$7,500 per acre for bare land for a total of \$1,875,000. The trees and infrastructure add another \$3,000 per acre average for a total value of land and trees of \$2,625,000.

The tractors, vehicles, and other equipment have a market value of \$320,000 and all are in good shape. A foreman house is valued at \$80,000 and seasonal housing at \$150,000. The eight wind machines have a market value of \$120,000. A shop is also on site with a value of \$20,000.

Smith Apple Farms have an annual operation loan for \$500,000 at an interest rate of 6%, with the full loan amount borrowed for an average of six months per year. They also have two machinery loans. The first has five years remaining before it expires and the second loan two years. The first loan was originally for \$75,000 with an 8% interest rate and the term of the



loan was for seven years. The second loan's original amount was \$55,000 with an interest rate of 7% and for seven years in length as well. The pickup was recently leased for a five year period with a \$4,000 annual lease payment. There is no special buyout package when the lease expires.

To keep intermediate assets current, Tim decided that as loans expire on the two equipment loans, Smith Apple Farms will take out new equipment loans for the same loan amount, assuming a 2% increase in inflation each year. Thus, a loan will be obtained for \$55,000 in year three and another equipment loan for \$75,000 in year six. As new equipment loans are acquired, Tim plans to sell older equipment outright rather than trade them in to offset the loan amounts. Therefore, he plans to have two capital sales for \$20,000 each, in years three and six. Tim also plans to continue leasing the pickup that the foreman drives, but purchase a new pickup for himself in year six, financing 100% of the purchase.

Figure 2 displays the annual loan and capital lease payments, capital sales, replacement costs and annual family withdrawals from the business. Figures 3 through 5 show the output data from an AgFinance™ analysis – cash flow by block and by year, farm net income, and 18 financial ratios and performance measures.

#### **Discussion Questions:**

The results of this analysis have created much angst for Tim and Susan. Although the results show they have a strong cash flow position, in eight years the farm business will have consistently negative annual net returns. The Golden Delicious and BC2 Fuji apple blocks are a cash drain on the business, making no contributions at all to the fixed costs of the business. The land lease is also a problem because it too is a cash drain. Their belief is that if the farm doesn't start a more vigorous replanting program they will be in financial trouble. Tim and Susan want to get started on a strategic replanting program but wonder how they can best approach John and Mary about removing the older blocks that Dad is emotionally attached to. With that in mind, Tim and Susan visited the business' lender about his views and suggestions as to what financial margins John and Mary might feel comfortable with.

Based on a long-term relationship between their parents and the bank, and looking at a historical perspective, the lender came up with these criteria:

- a) Although annual net income can be negative, cash on hand cannot fall below \$100,000 in any year.
- b) The current ratio cannot drop below 2.
- c) Working capital must be above 40% of annual expenses, including principal payments on term debt.
- d) The debt-to-asset ratio cannot exceed 35%.
- f) Term Debt Coverage Ratio must remain above 1.35

These criteria helped Tim establish the financial boundaries that he needed to develop an orchard renewal strategy and options within that strategy.

Tim's new innovative ideas, paired with John's reluctance to pull away from traditional methods have begun to induce a conflict between their ideas of running the farm. Although



the ultimate goal is for Tim to take over the farm, John still makes the majority of the business decisions and holds the advantage in being the principle shareholder. Tim and Susan feel that if they are not successful in achieving change, they will not have a farm to purchase in 10 years.

Given what you know about this family business, what would be your suggestions to Smith Apple Farms and their long-term success?

What would be a reasonable planting plan with the financial resources available?

Should the family remove the trees from the leased property first?

Should Tim and Susan take over the leased property and establish the orchard to get them started in the business?

Should the family diversify into other crops, such as cherries, pears, wine grapes, and/or blueberries?





Figure 2. Smith Apple Farms annual loan and capital lease payments, capital sales, replacement costs and annual family withdrawals from the business.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 5	Year 5	Year 7	Year 8	Year 9	Year 10
<b>Acres</b>											
Gala, >20 YOA, 45 ac	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Gala, 10 YOA, 30 ac	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Gala, 7 YOA, 10 ac	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
GD Owned, >30, 25 ac	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Fuji Own, >30, 30 ac	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
GSmith, >20 YOA, 50 a	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
C Pink, 8 YOA, 30 ac	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
C Pink, 5 YOA, 10 ac	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
HChisp, 2 YOA, 10 ac	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Bare Land, 10 acres	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
GD Lease, >30, 25 ac	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Fuji leas, >30, 25 a	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
<b>Total Acres</b>	<b>300.0</b>	<b>300.0</b>	<b>300.0</b>	<b>300.0</b>	<b>300.0</b>	<b>300.0</b>	<b>300.0</b>	<b>300.0</b>	<b>300.0</b>	<b>300.0</b>	<b>300.0</b>
<b>Operating Loans:</b>											
Operating Loan #1											
Principal	\$515,000	\$530,450	\$546,364	\$562,754	\$579,637	\$597,026	\$614,937	\$633,385	\$652,387	\$671,958	
Interest	\$15,450	\$15,914	\$16,391	\$16,883	\$17,389	\$17,911	\$18,448	\$19,002	\$19,572	\$20,159	
<b>Current Loans:</b>											
Estate Loan											
Principal	\$27,422	\$28,519	\$29,660	\$30,846	\$32,080	\$33,364					
Interest	\$7,276	\$6,179	\$5,038	\$3,852	\$2,618	\$1,335					
Machine Loan #1											
Principal	\$9,804	\$10,588	\$11,436	\$12,350	\$13,338						
Interest	\$4,601	\$3,817	\$2,970	\$2,055	\$1,067						
Machine Loan #2											
Principal	\$8,914	\$9,538									
Interest	\$1,292	\$668									



Figure 2. Smith Apple Farms annual loan and capital lease payments, capital sales, replacement costs and annual withdrawals from the business (continued).

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<b>Capital Purchases:</b>										
New Machine Loan #3										
Principal			\$5,563	\$5,897	\$6,250	\$6,625	\$7,023	\$7,444	\$7,891	
Interest			\$2,802	\$2,468	\$2,114	\$1,739	\$1,341	\$920	\$473	
Cash Payment			\$11,673							
New Machine Loan #4										
Principal						\$8,050	\$8,533	\$9,045	\$9,588	\$10,163
Interest						\$4,054	\$3,571	\$3,059	\$2,517	\$1,941
Cash Payment						\$16,892				
New Pickup Loan #5										
Principal						\$4,395	\$4,659	\$4,936	\$5,235	\$5,549
Interest						\$1,487	\$1,223	\$943	\$647	\$333
Cash Payment						\$0				
<b>Capital Sales:</b>										
Equipment Sale #1			\$21,224							
Equipment Sale #2						\$22,623				
<b>Capital Leases:</b>										
Pickup #1	\$4,000	\$4,000	\$4,000	\$4,000	\$4,000	\$0	\$4,505	\$4,505	\$4,505	\$4,505
Annual Payment:										
Pickup #2										
Down Payment:										
Annual Payment:										
<b>Replacement Costs of Equipment and Facilities:</b>										
Annual Payment:	\$61,610	\$62,834	\$66,693	\$65,296	\$66,355	\$67,446	\$68,569	\$69,726	\$70,919	\$72,145
<b>Withdrawals:</b>	\$144,200	\$146,526	\$152,982	\$157,571	\$162,298	\$167,167	\$172,182	\$177,348	\$182,688	\$188,148



Figure 3. Net Returns by Block and total farm for 10 years.

Title: Smith Apple Farms - Base Operation

Page Number: 5

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Cash Flow by Block and by Year

Year	Gala, >20 YOA, 45 ac	Gala, 10 YOA, 30 ac	Gala, 7 YOA, 10 ac	GD, >30 YOA, 25 ac	Fuji, >30 YOA, 30 ac	GS, 20 YOA, 50 ac
1	\$225,866	\$287,588	\$110,181	-\$48,440	\$23,434	\$288,943
2	\$127,364	\$271,970	\$104,975	-\$33,014	\$5,306	\$164,650
3	-\$278,503	\$257,010	-\$55,890	-\$75,645	-\$65,643	\$227,295
4	\$100,953	\$240,827	\$94,594	-\$49,946	-\$12,977	\$127,858
5	\$135,451	\$225,246	\$89,400	-\$103,904	-\$36,699	\$163,259
6	\$72,885	\$207,729	\$83,561	-\$67,940	-\$32,408	\$88,757
7	\$86,046	\$191,181	\$78,045	-\$134,212	-\$69,557	\$94,583
8	-\$235,322	\$172,186	-\$70,418	-\$67,264	-\$89,431	\$46,768
9	\$33,625	\$155,036	\$65,997	-\$166,369	-\$104,421	\$21,714
10	\$11,474	\$135,314	\$59,423	-\$107,310	-\$74,921	\$3,208

Year	GD, >30 YOA, 25 ac	Fuji, >30 YOA, 25 ac	CPink, 8 YOA, 30 ac	CPink, 5 YOA, 10 ac	HCRisp, 2 YOA, 10 ac	Idle Land, 10 ac
1	-\$60,981	\$6,987	\$205,491	\$86,913	-\$17,359	-\$33,734
2	-\$45,572	-\$8,136	\$193,958	\$105,033	-\$21,693	-\$6,164
3	-\$88,193	-\$182,243	\$182,910	\$100,131	\$57,796	-\$6,344
4	-\$62,502	-\$23,371	\$140,823	\$80,460	\$106,567	-\$6,538
5	-\$116,444	-\$43,122	\$129,317	\$75,355	\$134,142	-\$6,726
6	-\$80,496	-\$39,562	\$116,381	\$69,615	\$250,337	-\$6,936
7	-\$146,752	-\$70,504	\$104,160	\$64,194	\$250,468	-\$7,135
8	-\$99,828	-\$157,163	\$90,133	\$67,970	\$249,872	-\$7,363
9	-\$178,909	-\$99,557	\$77,468	\$52,351	\$219,379	-\$7,570
10	-\$119,866	-\$74,990	\$62,904	\$45,889	\$218,322	-\$7,807

Year	Total
1	\$1,074,889
2	\$858,676
3	\$72,681
4	\$736,747
5	\$645,275
6	\$661,923
7	\$440,516
8	-\$129,858
9	\$68,743
10	\$151,641



Figure 4. Farm and Ranch Net Income for 10 years

Title: Smith Apple Farms - Base Operation

Page Number: 6

Date Analysis created: March 25, 2011

Date Analysis last changed: November 21, 2011

Farm/Ranch Net Income

Year	Farm/Ranch Gross Income	Farm/Ranch Costs	Annual Net Income	Accumulated Net Income
1	\$5,782,701	\$4,750,761	\$1,031,940	\$1,031,940
2	\$4,265,709	\$3,447,992	\$817,717	\$1,849,657
3	\$4,313,313	\$4,282,263	\$31,050	\$1,880,707
4	\$4,472,044	\$3,775,020	\$697,024	\$2,577,731
5	\$6,087,654	\$5,480,065	\$607,589	\$3,185,320
6	\$4,660,856	\$4,040,490	\$620,366	\$3,805,686
7	\$6,227,901	\$5,826,988	\$400,913	\$4,206,599
8	\$3,561,258	\$3,730,051	-\$168,793	\$4,037,806
9	\$6,207,646	\$6,177,113	\$30,532	\$4,068,338
10	\$4,650,550	\$4,536,380	\$114,170	\$4,182,508



Figure 5. AgFinance™ Pro-forma Balance Sheets

Balance Sheet Information:

	Beginning	Year 1	Year 2	Year 3	Year 4	Year 5
<b>Assets</b>						
<b>Current Assets</b>						
Cash balance:	\$50,000	\$872,600	\$1,475,207	\$1,299,195	\$1,773,794	\$2,152,939
Prepaid expenses and supplies:	\$1,000	\$1,020	\$1,040	\$1,061	\$1,082	\$1,104
Products on hand or not sold	\$1,250,000	\$1,275,000	\$1,300,500	\$1,326,510	\$1,353,040	\$1,380,101
Invest in growing crops:	\$10,000	\$10,200	\$10,404	\$10,612	\$10,824	\$11,041
Accounts receivable:	\$0	\$0	\$0	\$0	\$0	\$0
Other current assets:	\$25,000	\$25,500	\$26,010	\$26,530	\$27,061	\$27,602
<b>Intermediate Assets:</b>						
Market value of equipment and breeding livestock:	\$320,000	\$318,521	\$316,858	\$350,996	\$349,693	\$348,312
<b>Long term Assets:</b>						
Market value of facilities and other improvements:	\$1,120,000	\$1,107,837	\$1,094,743	\$1,079,279	\$1,064,234	\$1,048,293
Market value of real estate:	\$1,875,000	\$1,875,000	\$1,875,000	\$1,875,000	\$1,875,000	\$1,875,000
<b>Total Assets:</b>	<b>\$4,651,000</b>	<b>\$5,485,677</b>	<b>\$6,099,763</b>	<b>\$5,969,183</b>	<b>\$6,454,729</b>	<b>\$6,844,392</b>
<b>Liabilities</b>						
<b>Current Liabilities</b>						
Accrued interest:	\$0	\$0	\$0	\$0	\$0	\$0
Accounts payable and accrued expenses:	\$25,000	\$25,500	\$26,010	\$26,530	\$27,061	\$27,602
Principal due over the next 12 months on term liabilities:		\$46,140	\$48,645	\$46,820	\$49,236	\$51,791
Value of operating loans:		\$0	\$0	\$0	\$0	\$0
<b>Intermediate Liabilities</b>						
Value of loans on intermediate assets:	\$75,968	\$57,250	\$37,124	\$66,657	\$48,268	\$28,558
<b>Long Term Liabilities</b>						
Value of loans on long term assets:	\$181,892	\$154,470	\$125,950	\$96,290	\$65,444	\$33,364
<b>Total Liabilities:</b>	<b>\$282,860</b>	<b>\$283,360</b>	<b>\$237,730</b>	<b>\$236,298</b>	<b>\$190,009</b>	<b>\$141,314</b>
<b>Net Worth:</b>	<b>\$4,368,140</b>	<b>\$5,202,317</b>	<b>\$5,862,033</b>	<b>\$5,732,885</b>	<b>\$6,264,721</b>	<b>\$6,703,078</b>



Figure 5. AgFinance™ Pro-forma Balance Sheets (continued)

	Year 6	Year 7	Year 8	Year 9	Year 10
<b>Assets</b>					
<b>Current Assets</b>					
Cash balance:	\$2,568,118	\$2,787,386	\$2,432,632	\$2,272,756	\$2,200,301
Prepaid expenses and supplies:	\$1,126	\$1,149	\$1,172	\$1,195	\$1,219
Products on hand or not sold	\$1,407,703	\$1,435,857	\$1,464,574	\$1,493,866	\$1,523,743
Invest in growing crops:	\$11,262	\$11,487	\$11,717	\$11,951	\$12,190
Accounts receivable:	\$0	\$0	\$0	\$0	\$0
Other current assets:	\$28,154	\$28,717	\$29,291	\$29,877	\$30,475
<b>Intermediate Assets:</b>					
Market value of equipment and breeding livestock:	\$411,035	\$387,783	\$363,534	\$338,253	\$311,904
<b>Long term Assets:</b>					
Market value of facilities and other improvements:	\$1,031,422	\$1,013,583	\$994,739	\$974,849	\$953,872
Market value of real estate:	\$1,875,000	\$1,875,000	\$1,875,000	\$1,875,000	\$1,875,000
<b>Total Assets:</b>	<b>\$7,333,821</b>	<b>\$7,540,962</b>	<b>\$7,172,658</b>	<b>\$6,997,747</b>	<b>\$6,908,703</b>
<b>Liabilities</b>					
<b>Current Liabilities</b>					
Accrued interest:	\$0	\$0	\$0	\$0	\$0
Accounts payable and accrued expenses:	\$28,154	\$28,717	\$29,291	\$29,877	\$30,475
Principal due over the next 12 months on term liabilities:	\$53,155	\$20,829	\$21,929	\$23,095	\$15,966
Value of operating loans:	\$0	\$0	\$0	\$0	\$0
<b>Intermediate Liabilities</b>					
Value of loans on intermediate assets:	\$101,112	\$80,282	\$58,353	\$35,259	\$19,976
<b>Long Term Liabilities</b>					
Value of loans on long term assets:	\$0	\$0	\$0	\$0	\$0
<b>Total Liabilities:</b>	<b>\$182,420</b>	<b>\$129,829</b>	<b>\$109,574</b>	<b>\$88,231</b>	<b>\$66,417</b>
<b>Net Worth:</b>	<b>\$7,151,400</b>	<b>\$7,411,133</b>	<b>\$7,063,085</b>	<b>\$6,909,516</b>	<b>\$6,842,286</b>



Figure 6. AgFinance™ output of 18 financial ratios and performance measures

Title: Smith Apple Farms - Base Operation

Page Number: 7

Date Analysis created: March 25, 2011

Date Analysis last changed: November 21, 2011

Financial Ratios and Performance Measures

Year	Liquidity			Solvency		
	Current Ratio	Quick Ratio	Working Capital (\$)	Debt/Asset Ratio	Equity/Asset Ratio	Debt/Equity Ratio
1	30.49	12.69	\$2,112,679	5.17	94.83	0.05
2	37.68	20.26	\$2,738,506	3.90	96.10	0.04
3	36.32	18.23	\$2,590,558	3.96	96.04	0.04
4	41.49	23.76	\$3,089,506	2.94	97.06	0.03
5	45.00	27.62	\$3,493,394	2.06	97.94	0.02
6	49.40	32.08	\$3,935,054	2.49	97.51	0.03
7	86.07	57.09	\$4,215,050	1.72	98.28	0.02
8	76.91	48.32	\$3,888,165	1.53	98.47	0.02
9	71.92	43.72	\$3,756,673	1.26	98.74	0.01
10	81.13	48.32	\$3,721,486	0.96	99.04	0.01

Year	Profitability			
	Rate of Return on Assets	Rate of Return on Equity	Operating Profit Margin	Net Income
1	20.62	21.57	18.07	\$1,031,940
2	14.30	14.78	19.42	\$817,717
3	0.69	0.54	0.97	\$31,050
4	11.36	11.62	15.77	\$697,024
5	9.22	9.37	10.08	\$607,589
6	8.87	8.96	13.49	\$620,366
7	5.47	5.51	6.53	\$400,913
8	-2.23	-2.33	-4.60	-\$168,793
9	0.48	0.44	0.55	\$30,532
10	1.67	1.66	2.50	\$114,170



Figure 6. AgFinance™ output of 18 financial ratios and performance measures (continued)

----- Repayment Capacity -----			
Year	Capital Lease and Term Debt Coverage Ratio	Capital Debt Repayment Capacity	Capital Debt Repayment Margin
1	31.50	\$966,719	\$936,029
2	22.95	\$751,215	\$718,483
3	-1.04	-\$31,547	-\$61,976
4	19.49	\$630,685	\$598,332
5	15.69	\$539,724	\$505,323
6	15.79	\$556,400	\$521,156
7	140.93	\$335,548	\$333,167
8	-80.02	-\$234,250	-\$237,177
9	-9.95	-\$35,049	-\$38,572
10	0.00	\$48,472	\$52,664

----- Efficiency -----					
Year	Asset Turnover Ratio	Operating Expense Ratio	Depreciation Expense Ratio	Interest Expense Ratio	Net Income from Operations Ratio
1	114.09	80.86	1.07	0.23	17.85
2	73.64	79.11	1.47	0.25	19.17
3	71.48	97.49	1.54	0.25	0.72
4	71.99	82.77	1.46	0.19	15.59
5	91.55	88.83	1.09	0.09	9.98
6	65.75	85.06	1.45	0.18	13.31
7	83.74	92.36	1.10	0.10	6.44
8	48.41	102.65	1.96	0.14	-4.74
9	87.61	98.31	1.14	0.06	0.49
10	66.88	95.95	1.55	0.05	2.45