



# Business Plans for Organic Dairy Transition

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# Stepwise Strategy



- Where should Capital be invested?
- How many assets can you purchase at one time?
- What is the preferred order for investments?
  - Cows, heifers and essential equipment
  - Machinery and equipment
  - Land



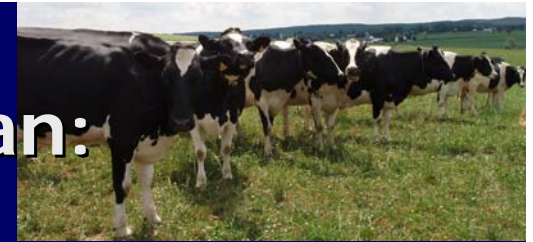
# Business Plan Essential Components



- Cow Flow – Herd Inventory Plan
- Feed and Cropping Plan
- Detailed Crop and Dairy Budgets
- Multiple Year Cash Flow



# Sample Herd Expansion Plan: Good Strategy



## HERD EXPANSION CALCULATOR

Farm

Plans No.:

### HERD DATA:

	Future**	Now
Cows at beginning of year	75	
Heifers 0-12 mo. at beginning of year		23
Heifers >12 mo. at beginning of year		25
Involuntary cull rate (% including dead & downer)	30.0	32.0
Calving interval		14.0
Age at first calving		24.0
% of cows present 1/1 that will deliver a live calf by 12/31		95.0
% of replacement heifers that will deliver a live calf		95.0
% calf mortality (exclude abortions, stillbirths, etc.)		5.0
% of calves born that are heifers		45.0
% of excess heifer calves sold for dairy		
Check when purch. cattle enter milking herd:	(Jan-Dec <input checked="" type="checkbox"/> )	(Jan-Apr <input checked="" type="checkbox"/> )

Cattle Sold for Breeding:	Value	No. of Head	
		Now	Future**
Dairy cow	1850		
Dairy calf	500		
Dairy heifer	1850		
Dairy bull	1000		

Cull and Veal Sales:		**NOTE: "Future" is the years after desired herd size has been reached.
Cull & dead cow avg	500	
Cull yearling	400	
Cull calf	125	
Replacement Cost:	1850	

### RESULTS by Yrs. (Enter current yr.):

	2007	2008	2009	2010	2011	2012	2013	2014
* Cows in place at beginning of year		75	72	73	75	75	75	75
Cattle purchases - no. cows	70							
- no. late-bred heifers								
Raised heifers - no. calved	24	21	25	28	28	25	24	24
Breeder sales - no. cows								
- no. heifers								
Cows culled - total number	19	23	24	25	24	23	23	23
* No. of cows at end of year	75	72	73	75	75	75	75	75
Excess cows/fresh heifers (sold for 2x cull value)				1	4	2	1	1
* Avg herd size (milking & dry cows fed /yr.)	34		73	74	75	75	75	75
<b>Cows Milking at 85% in Milk</b>	<b>63</b>	<b>62</b>	<b>62</b>	<b>64</b>	<b>64</b>	<b>64</b>	<b>64</b>	<b>64</b>



# Sample Herd Expansion Plan: Poor Strategy



## HERD EXPANSION CALCULATOR

Farmer: \_\_\_\_\_

s No.: \_\_\_\_\_

### HERD DATA:

	Future**	Now
Cows at beginning of year	75	12
Heifers 0-12 mo. at beginning of year		13
Heifers >12 mo. at beginning of year		
Involuntary cull rate (% including dead & downers)	30.0	32.0
Calving interval		14.0
Age at first calving		24.0
% of cows present 1/1 that will deliver a live calf by 12/31		95.0
% of replacement heifers that will deliver a live calf		95.0
% calf mortality (exclude abortions, stillbirths, etc.)		5.0
% of calves born that are heifers		45.0
% of excess heifer calves sold for dairy		
Check when purch. cattle enter milking herd:	(Jan-Dec <input checked="" type="checkbox"/> )	(Jan-Apr <input checked="" type="checkbox"/> ) (May-Aug <input checked="" type="checkbox"/> ) (Sep-Dec <input checked="" type="checkbox"/> )

Cattle Sold for Breeding:	Value	No. of Head	
		Now	Future**
Dairy cow	1850		
Dairy calf	500		
Dairy heifer	1850		
Dairy bull	1000		
Cull and Veal Sales:			
Cull & dead cow avg	500		
Cull yearling	400		
Cull calf	125		
Replacement Cost:	1850		

\*\*NOTE: "Future" is the years after desired herd size has been reached.

### RESULTS by Yrs. (Enter current yr.):

	2007	2008	2009	2010	2011	2012	2013	2014
* Cows in place at beginning of year		67	60	61	64	68	72	75
Cattle purchases - no. cows	70							
- no. late-bred heifers								
Raised heifers - no. calved	12	11	21	26	27	29	31	30
Breeder sales - no. cows								
- no. heifers								
Cows culled - total number	15	18	20	22	23	25	26	25
* No. of cows at end of year	67	60	61	64	68	72	75	75
Excess cows/fresh heifers (sold for 2x cull value)							2	6
* Avg herd size (milking & dry cows fed / yr.)	30		60	62	66	70	73	75
<b>Cows Milking at 85% in Milk</b>	<b>57</b>	<b>51</b>	<b>52</b>	<b>54</b>	<b>58</b>	<b>61</b>	<b>64</b>	<b>64</b>



# Financial Impact of "Good" Cow Flow



	2007 <i>Jan-Dec</i>	2008 <i>Jan-Dec</i>	2009 <i>Jan-Dec</i>	2010 <i>Jan-Dec</i>	2011 <i>Jan-Dec</i>	2012 <i>Jan-Dec</i>	2013 <i>Jan-Dec</i>
<b>CASH INFLOWS</b>							
Beg cash bal		8052	18100	27162	26218	45272	54228
Milk	212836	212836	212836	212836	212836	212836	212836
Cull stock	9979	9979	9979	9979	9979	9979	9979
Misc. Ivstk	3559	3559	3559	3559	3559	3559	3559
Other farm	15000	15000	15000	15000	15000	15000	15000
Total inflow	241374	250428	259483	268538	277593	286648	295702
Min end bal	1000	1000	1000	1000	1000	1000	1000
Tot. outflow	198274	198274	198274	198274	198274	198274	198274
Opr. surplus	43100	52154	61209	70263	79318	88373	97428
<b>LOAN PAYMENTS</b>							
Bank	35045	35045	35045	35045	35045	35045	35045
Tot loan pay	35045	35045	35045	35045	35045	35045	35045
Surp. or def	8055	17109	26163	35218	44273	53328	62383



# Financial Impact of "Poor" Cow Flow



## CASH INFLOWS

Beg cash bal		5126	7241	6610	7827	11000	20075
Milk	200674	191553	182431	188512	197634	209796	221958
Cull stock	9409	8981	8554	8839	9266	9837	10407
Misc. Ivstk	3355	3203	3050	3152	3305	3508	3711
Other farm	15000	15000	15000	15000	15000	15000	15000
Total inflow	228439	223873	216376	222113	233041	250139	271151

Min end bal	1000	1000	1000	1000	1000	1000	1000
Tot. outflow	189253	182487	175721	180232	186998	196019	205040
Opr. surplus	39186	41386	40655	41882	46044	54120	66111

## LOAN PAYMENTS

Bank	35045	35045	35045	35045	35045	35045	35045
Tot loan pay	35045	35045	35045	35045	35045	35045	35045
Surp. or def	4141	6341	5610	6837	10999	19075	31065



**Essential parts for the  
plan:  
Feeding plan  
Cow Flow plan**





## HERD EXPANSION CALCULATOR

Farmer : Organic\_Transition

Plans No.:           

### HERD DATA:

	Future**	Now		Value	No. of Head	
					Now	Future**
Cows at beginning of year	60		Cattle Sold for Breeding:			
Heifers 0-12 mo. at beginning of year			Dairy cow	2200		
Heifers >12 mo. at beginning of year			Dairy calf			
Involuntary cull rate (% , including dead & downers)	28.0	38.0	Dairy heifer	2200		
Calving interval		14.0	Dairy bull			
Age at first calving		24.0	Cull and Veal Sales:			
% of cows present 1/1 that will deliver a live calf by 12/31		95.0	Cull & dead cow av	500	<b>**NOTE:</b> "Future" is the years after desired herd size has been reached.	
% of replacement heifers that will deliver a live calf		94.0	Cull yearling	450		
% calf mortality (exclude abortions, stillbirths, etc.)		8.0	Cull calf	100		
% of calves born that are heifers		50.0	Replacement Cost:	2400		
% of excess heifer calves sold for dairy						
Check when purch. cattle enter milking herd:	(Jan-Dec <u>x</u> )	(Jan-Apr <u>          </u> )	(May-Aug <u>          </u> )	(Sep-Dec <u>          </u> )		

### RESULTS by Yrs. (Enter current yr.):

	2008	2009	2010	2011	2012	2013	2014	2015
* Cows in place at beginning of year		60	60	60	56	57	60	60
Cattle purchases - no. cows	60							
- no. late-bred heifers	9	16	8					
Raised heifers - no. calved			10	19	24	28	28	20
Breeder sales - no. cows								
- no. heifers								
Cows culled - total number	9	16	18	23	23	24	20	18
* No. of cows at end of year	60	60	60	56	57	60	60	60
Excess cows/fresh heifrs (sold for 2x cull value)		0				1	8	3
* Avg herd size (milking & dry cows fed / yr.)		56	58	58	57	59	60	60
<b>Cows Milking</b>	<b>51</b>	<b>51</b>	<b>51</b>	<b>48</b>	<b>49</b>	<b>51</b>	<b>51</b>	<b>51</b>
No. of heifer calves born and survived per year:								
From cows in herd at beginning of year		22	22	22	21	22	22	22
From raised and purchased replacements	10	3	6	9	11	13	13	9
Total heifer calves born and survived	10	26	29	31	32	34	35	32



**Feed per Head per Day -- and Feed Prices**

**Organic Feed Costs**

Farm Identification: **Organic Feed Example**

Feeding Plan: **Years 3 and Following**

Length of Feeding Season (days): **365**

Herd Data: Days in Milk -- and Days Fed Milk / Cow / Day -- and Age Range for Heifer Groups (mo.)							Lactating Cows		Dry Cows		Calves on Liquid Feeds	Weaned Calves		Older Heifers		Horses		
	Raised "R" Purchased "P"	% DM	Unit of Measure	Price / Unit	Lbs. / Unit	Price / Lb	Spring Cows	Summer Cows	Close Up	Far Off		Group #1	Group #2	Group #3	Group #4		Fall Cows	Winter Cows
Number of Head:							51	51	3	6	4	14	12	30	51	51		
Feed Ingredients:	<b>Days on Ration</b>						<b>75</b>	<b>75</b>							<b>70</b>	<b>145</b>		
Corn Silage	r		33 tons	38	2000	0.018	24	33	30	30								
	p		tons	50	2000	0.025												
	p		tons	150	2000	0.075												
Pasture Surplus Baleage	r		50 tons	85	2000	0.0425										8		
Triticale / Rye	r		32 tons	50	2000	0.025	12.5	17.2							15.6	25.0		
Grass hay	r		90 tons	132	2000	0.068	2.2	2.2	8.0	13.0			10.0		2.2	2.2		
Grass pasture	r		20 tons	22	2000	0.011	100	60							80	0		
Corn Grain	r		87 tons	572	2000	0.286	13.8	13.8	2.0	1.0					12.6	12.6		
Soybean Meal	p		90 tons	825	2000	0.4125	1.1	4.4	3.0	1.5					3.3	8.9		
S-Concentrate	p		90 tons	1200	2000	0.6	2.2	2.2							2.2	2.2		
HM Shelled Corn	p		tons	90	2000	0.045												
Soybeans	p		bushels	18	60	0.2887												
Wheat	p		bushels	3	60	0.05												
Barley	p		bushels	2.5	48	0.0521												
Milk	p					0					1.5							
Milk Replacer	p		bag	77	50	1.54												
Calf starter	p		tons	743	2000	0.3714					3							
Calf Grower	p		tons	739	2000	0.3695						6		2				
Heifer Feed	p		tons	739	2000	0.3695							3	2				
Heifer Grass Hay	p		tons	132	2000	0.068									8			
Dry Cow Feed	p		tons	900	2000	0.45			0.6	0.4								
Dry Cow Feed	p					0												
Fresh Cow Feed	p					0												
Fresh Cow Feed	p					0												
CS HI-O 36%	p		tons	1000	2000	0.5												
Lactating Feed	p		tons	370	2000	0.185												
Freshstart Mega	p		tons			0												
Cornerstone	p		tons			0												
Energy Supp #1	p					0												
Energy Supp #2	p					0												
Vit/Min Supp #1	p					0												
Vit/Min Supp #2	p					0												
Vit/Min Supp #3	p					0												
Other Ingredients:						0												
	p					0												
	p					0												
	p					0												
	p					0												
	p					0												
	p					0												
	p					0												
	p					0												
<b>Total Lbs. Per Animal Group</b>							<b>166</b>	<b>133</b>	<b>44</b>	<b>46</b>	<b>5</b>	<b>6</b>	<b>0</b>	<b>15</b>	<b>35</b>	<b>146</b>	<b>107</b>	<b>0</b>



# Dairy feeding totals



- **Non-organic feed (cows and heifers):**
  - Raised feed value: \$54,555
  - Purchased feed: \$54,032
    - \$900/cow (milking + dry)
  
- **Organic feed (cows and heifers):**
  - Raised feed value: \$123,195
  - Purchased feed: \$115,324
    - \$1,922/cow (milking + dry)



**Is this a good business  
decision?**

**FINLRB: FINPACK Long-  
Range Budgeting Tool**



# Is this a good business decision?



**Long-Range Budget Assumption:**  
 These plans are fully operational. Transition has been completed and the cash flow needed to make these changes was available.

Organic\_Dairy\_Transition

**FINLRB:** Options

User: Tim Beck, Penn State Cooperative Extension

**FINPACK**

File: Organic\_Dairy\_Transition

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PLAN DESCRIPTION	Raised Corn Grain		Raised Corn Grain				
	Base Plan Conventio	Alt. 1 Organic Startup Buy Corn	Alt. 2 Organic Startup \$25 Milk	Alt. 3 Organic Startup \$27 Milk	Alt. 4 Organic Startup \$29 Milk	Alt. 5 Owned Cows to Organic	
Total crop acres	58	28	58	58	58	58	
Total pasture acres	30	30	30	30	30	30	
Total labor hours	3,850	3,850	3,850	3,850	3,850	3,850	
Change in farm assets	225,200	245,200	245,200	245,200	245,200	245,000	
Change in farm liabilities	245,200	245,200	245,200	245,200	245,200	-	
Crop Plan	Yield/Acre	Share					
Hay, Grass	4.0 ton	100 %	4.0	4.0	4.0	4.0	4.0
Pasture, Feed Intensive	15.0 ton	100 %	30.0	30.0	30.0	30.0	30.0
Corn Silage	22.5 ton	100 %	24.0	24.0	24.0	24.0	24.0
Fd Com, HM, HMSC	5.1 ton	100 %	30.0	-	30.0	30.0	30.0
Livestock Plan	Unit	Sales/Unit					
Dairy, Conventional	Cow	20000 lb.	60	-	-	-	-
Dairy, Organic, Buy Corn	Cow	18000 lb.	-	60	-	-	-
Dairy, Organic \$25	Cow	18000 lb.	-	-	60	-	-
Dairy, Organic \$27	Cow	18000 lb.	-	-	-	60	60
Dairy, Organic \$29	Cow	18000 lb.	-	-	-	60	-
Dairy Replac, Conventional	head	1.00 head	55	-	-	-	-
Dairy Replac, Organic	head	1.00 head	-	55	55	55	55

## PROFITABILITY

		Base Plan Conventio	Alt. 1 Organic Startup Buy Corn	Alt. 2 Organic Startup \$25 Milk	Alt. 3 Organic Startup \$27 Milk	Alt. 4 Organic Startup \$29 Milk	Alt. 5 Owned Cows to Organic
<b>INCOME STATEMENT (Typical Year)</b>							
Corn, Feed HM	\$ 149/ton	45	-	45	45	45	45
Milk	\$ 15.75/cwt.	189,000	-	-	-	-	-
Milk	\$ 27.00/cwt.	-	291,600	-	-	-	-
Milk	\$ 25.00/cwt.	-	-	270,000	-	-	-
Milk	\$ 27.00/cwt.	-	-	-	291,600	-	291,600
Milk	\$ 29.00/cwt.	-	-	-	-	313,200	-
Cull breeding livestock		10,752	10,752	10,752	10,752	10,752	10,752
Misc. livestock income		3,240	3,240	3,240	3,240	3,240	3,240
(A) Gross farm income		203,037	305,592	284,037	305,637	327,237	305,637
Crop seed		5,182	2,563	5,182	5,182	5,182	5,182
Crop fertilizer		6,603	3,492	6,603	6,603	6,603	6,603
Crop custom hire		9,406	7,996	9,406	9,406	9,406	9,406
Crop land rent		4,500	-	4,500	4,500	4,500	4,500
Purchased Fd Corn, HM	\$ 575/ton	-	87,285	-	-	-	-
Purchased Grass Hay	\$ 72.60/ton	1,452	1,452	1,452	1,452	1,452	1,452
Purchased feed		52,275	115,470	115,470	115,470	115,470	115,470
Breeding fees		3,600	1,200	1,200	1,200	1,200	1,200
Veterinary		9,490	6,850	6,850	6,850	6,850	6,850
Livestock supplies		3,840	3,840	3,840	3,840	3,840	3,840
DHIA		1,680	1,680	1,680	1,680	1,680	1,680
Livestock marketing		12,843	12,843	12,843	12,843	12,843	12,843
Bedding		4,600	4,600	4,600	4,600	4,600	4,600
Livestock miscellaneous		1,100	1,100	1,100	1,100	1,100	1,100
Interest		12,958	12,958	12,958	12,958	12,958	85
Fuel & oil		1,500	1,500	1,500	1,500	1,500	1,500
Repairs		1,500	1,500	1,500	1,500	1,500	1,500
Hired labor		6,000	6,000	6,000	6,000	6,000	6,000
Land rent		6,000	6,000	6,000	6,000	6,000	6,000
Building leases		15,000	15,000	15,000	15,000	15,000	15,000
Farm insurance		600	600	600	600	600	600
Utilities		3,600	3,600	3,600	3,600	3,600	3,600
Dues & professional fees		1,200	1,200	1,200	1,200	1,200	1,200
Miscellaneous		3,240	3,240	3,240	3,240	3,240	3,240
(B) Total cash farm expense		168,169	301,970	226,324	226,324	226,324	213,451
(C) Net cash farm income		34,868	3,622	57,713	79,313	100,913	92,186
Depreciation		-	-	-	-	-	-
(D) Net farm income		34,868	3,622	57,713	79,313	100,913	92,186



# How do the plans look on profitability measures?



		<i>Base Plan Conventio</i>	<i>Alt. 1 Organic Startup Buy Corn</i>	<i>Alt. 2 Organic Startup \$25 Milk</i>	<i>Alt. 3 Organic Startup \$27 Milk</i>	<i>Alt. 4 Organic Startup \$29 Milk</i>	<i>Alt. 5 Owned Cows to Organic</i>
<i>PROFITABILITY MEASURES (Market)</i>							
Netfarm income	(D)	34,868	3,622	57,713	79,313	100,913	92,186
Labor & management earnings	(D-E)	34,868	3,562	57,653	79,253	100,853	77,426
<b>Rate of return on farm assets</b>	(H/I)	<b>10.1 %</b>	<b>-2.4 %</b>	<b>18.2 %</b>	<b>26.5 %</b>	<b>34.9 %</b>	<b>26.6 %</b>
Rate of return on farm equity	(J/K)	- %	-1,894. %	3,185.7 %	5,237.7 %	7,289.7 %	26.5 %
Rate of return on added investment	(L/M)		-144.2 %	109.8 %	212.4 %	315.0 %	214.5 %
Operating profit margin	(H/N)	15.3 %	-5.9 %	26.8 %	34.6 %	40.8 %	34.6 %
Asset turnover	(N/I)	66.0 %	41.2 %	67.9 %	76.7 %	85.4 %	76.7 %

# How do the plans compare on cash flow?



## LIQUIDITY

### CASH FLOW (Typical Year)

Net cash farm income	(C)	34,868	3,622	57,713	79,313	100,913	92,186
Nonfarm income	(+)	-	-	-	-	-	-
Net cash available	(=)	34,868	3,622	57,713	79,313	100,913	92,186
Family living	(-)	30,000	30,000	30,000	30,000	30,000	30,000
Income taxes and social security	(-)	5,701	101	12,953	19,932	28,626	25,329
(R) Cash available for principal payments	(=)	-833	-26,479	14,759	29,381	42,287	36,856
Farm interest paid	(+)	12,958	12,958	12,958	12,958	12,958	85
Cash avail. for principal and interest	(=)	12,125	-13,521	27,717	42,339	55,245	36,941
Bank		32,785	32,785	32,785	32,785	32,785	-
Bank 2		8,838	8,838	8,838	8,838	8,838	-
Bank 3		4,465	4,465	4,465	4,465	4,465	-
Operating loan interest		85	85	85	85	85	85
(S) Total scheduled principal and interest	(-)	46,173	46,173	46,173	46,173	46,173	85
Cash available after loan payments	(=)	-34,048	-59,694	-18,456	-3,834	9,072	36,856
Annual capital replacement		-	-	-	-	-	-
Principal paid on intermediate debts		33,215	33,215	33,215	33,215	33,215	-
(T) Cash required for replacement	(-)	-	-	-	-	-	-
(U) <b>Cash surplus or deficit</b>	(=)	<b>-34,048</b>	<b>-59,694</b>	<b>-18,456</b>	<b>-3,834</b>	<b>9,072</b>	<b>36,856</b>





# What is the risk associated with each plan?



	<i>Base Plan Conventio</i>	<i>Alt. 1 Organic Startup Buy Corn</i>	<i>Alt. 2 Organic Startup \$25 Milk</i>	<i>Alt. 3 Organic Startup \$27 Milk</i>	<i>Alt. 4 Organic Startup \$29 Milk</i>	<i>Alt. 5 Owned Cows to Organic</i>
<b>SENSITIVITY ANALYSIS</b>						
<b>Effect Of A 2 % Decrease In All Enterprises</b>						
Netfarm income	28,454	-3,222	49,679	70,847	92,015	83,720
Cash surplus or deficit	-38,734	-66,437	-23,924	-9,515	3,543	31,941
Net worth change per year	-5,519	-33,222	9,291	23,700	36,758	31,941
<b>Effect Of A 10 % Decrease In All Enterprises</b>						
Netfarm income	2,290	-30,598	17,035	36,475	55,915	49,348
Cash surplus or deficit	-60,989	-93,813	-47,545	-32,912	-19,679	9,066
Net worth change per year	-27,774	-60,598	-14,330	303	13,536	9,066



# Startup Operation Projected Cash Flow



# Notice the peak operating loan balance



Startup Dairy operation purchasing 60 cows (50 milking), buying heifers as needed. Dairy facility and cropland are cash rented. All cropping operations are custom hire. Corn for grain and silage is raised.

Organic\_Dairy\_Transition

FINFLO: Startup Operation

User: Tim Beck, Penn State Cooperative Extension

FINPACK

File: Organic\_Dairy\_Transition

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## PROJECTED CASH FLOW SUMMARY

	Beg	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total operating inflow		205992	205992	205992	208392	305592	305592	305592	305592	305592
Total operating outflow	(-)	181484	167280	185941	236598	255942	253625	247718	244417	243316
Capital purchases	(-)	166000	38400	19200	-	-	-	-	-	-
Capital sales	(+)	-	-	-	-	-	-	-	-	-
New credit	(+)	186000	38400	19200	-	-	-	-	-	-
Loan payments	(-)	31810	40559	45306	48913	52553	52768	43523	4552	367
<b>Net cash flow</b>	<b>(=)</b>	<b>12698</b>	<b>-1847</b>	<b>-25255</b>	<b>-77119</b>	<b>-2903</b>	<b>-801</b>	<b>14351</b>	<b>56624</b>	<b>61909</b>
Beginning cash balance	(+)	1000	13698	11851	1000	1000	1000	1000	1000	1000
Operating loan borrowings	(+)	-	-	14404	77119	17978	17069	12658	4920	-
Operating loan prin pymts	(-)	0	-	-	-	15075	16267	27009	61544	24253
Ending cash balance	<b>(=)</b>	<b>13698</b>	<b>11851</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>1000</b>	<b>38656</b>
Beg operating loan bal		-	-	-	14404	91523	94426	95227	80876	24253
<b>Peak operating loan bal</b>		-	-	<b>14404</b>	<b>91523</b>	<b>99341</b>	<b>101383</b>	<b>95227</b>	<b>80876</b>	<b>24253</b>
End operating loan bal		-	-	14404	91523	94426	95227	80876	24253	-



# How do financial standards change over the life of the plan?



## FARM FINANCIAL STANDARDS MEASURES

### Liquidity

Current ratio	999.0	1.4	1.9	1.5	0.7	0.7	0.7	1.1	3.7	999.0
Working capital	1000	11484	30794	25069	-38622	-35406	-34442	7741	65420	128385

### Solvency (market)

Debt to asset ratio	-	78.5	63.1	56.2	65.9	52.8	40.8	25.9	7.7	0.0
Equity to asset ratio	100.0	21.5	36.9	43.8	34.1	47.2	59.2	74.1	92.3	100.0
Debt to equity ratio	-	365.1	171.4	128.1	193.0	112.1	68.9	35.0	8.4	0.0

### Profitability (market)

Rate of return on assets		36.3	20.9	9.3	-9.0	18.1	14.6	16.0	19.9	19.0
Rate of return on equity		125.7	55.5	14.7	-32.5	34.6	21.1	20.1	22.2	19.6
Operating profit margin		21.6	26.9	16.2	-26.4	30.3	26.1	27.6	32.0	32.4
Net farm income		68762	80104	56995	1056	85101	76139	82183	97680	102965

### Repayment Capacity

Term debt coverage		166.6	160.2	91.5	-37.2	111.9	87.2	119.4	-	-
Cap replacement margin		21179	24409	-3799	-61663	5353	-5745	7007	57680	62965

### Efficiency

Asset turnover (mkt)		167.9	77.5	57.2	34.0	59.6	55.9	57.9	62.1	58.7
Operating expense ratio		66.7	61.3	70.8	94.5	68.8	71.1	69.6	66.7	66.3
Depreciation ratio		-	-	-	-	-	-	-	-	-
Interest expense ratio		3.9	4.2	4.2	5.0	4.1	3.6	2.8	1.5	0.1
Net farm income ratio		29.3	34.5	25.1	0.5	27.1	25.3	27.6	31.9	33.6



# "Transitional" Year Cash Flow



	2008 Jan-Dec	2009 Jan-Dec	2010 Jan-Dec	2011 Jan-Dec	2012 Jan-Dec	2013 Jan-Dec	2014 Jan-Dec	2015 Jan-Dec	2016 Jan-Dec
<b>CASH INFLOWS</b>									
Beg cash bal	1000	13698	11851	1000	1000	1000	1000	1000	1000
Milk	192000	192000	192000	194400	291600	291600	291600	291600	291600
Cull stock	10752	10752	10752	10752	10752	10752	10752	10752	10752
Misc. Ivstk	3240	3240	3240	3240	3240	3240	3240	3240	3240
Total inflow	206992	219690	217843	209392	306592	306592	306592	306592	306592
<b>CASH OUTFLOWS</b>									
C. Seed	8059	5182	5182	5182	5182	5182	5182	5182	5182
C. Fertilize	6603	6603	6603	6603	6603	6603	6603	6603	6603
C. Cust hire	9406	9406	9406	9406	9406	9406	9406	9406	9406
C. Land rent	4500	4500	4500	4500	4500	4500	4500	4500	4500
Pur. Hay	4752	4752	4752	4752	4752	4752	4752	4752	4752
Pur. Silage	18835	1050	1050	1050	1050	1050	1050	1050	1050
Purch. feed	35313	40746	58238	113040	116978	114878	109523	106530	105533



# What happens to the operating loan?



## LOAN PAYMENTS

Cows	31810	31810	31810	31810	31810	31810	31810	-	-
Cows 2	-	8749	8749	8749	8749	8748	-	-	-
Cows 3	-	-	4374	4374	4374	4374	4374	-	-
Tot loan pay	31810	40559	44933	44933	44933	44932	36184	-	-
Surp. or def	12698	10851	-14031	-73139	4717	7034	21690	61175	62276

## OPERATING LOAN

Beg AO bal	-	-	-	14404	91523	94426	95227	80876	24253
AO int. pay	-	-	374	3980	7620	7836	7339	4552	367
AO prin. pay	-	-	-	-	15075	16267	27009	61544	24253
<b>End AO bal.</b>	-	-	<b>14404</b>	<b>91523</b>	<b>94426</b>	<b>95227</b>	<b>80876</b>	<b>24253</b>	-
Accrued int.	-	-	-	-	-	-	-	-	-
End cash bal	13698	11851	1000	1000	1000	1000	1000	1000	38656

## What happens to profitability?

<b>Net Farm Income</b>	<b>68762</b>	<b>80104</b>	<b>56995</b>	<b>1056</b>	<b>85101</b>	<b>76139</b>	<b>82183</b>	<b>97680</b>	<b>102965</b>
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# Established Operation (owned cows and heifers)



# Established Operation



Established Operation: the producer owns cows and heifers without debt. The dairy facility and crop land are cash rented. All cropping operations are custom hire. Corn is grown for grain and silage.

Organic\_Dairy\_Transition

FINFLO: Established Operation

User: Tim Beck, Penn State Cooperative Extension

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## PROJECTED CASH FLOW SUMMARY

	Beg	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total operating inflow		205992	205992	208392	305592	305592	305592	305592	305592	305592
Total operating outflow	(-)	207349	197458	237286	236012	251012	251012	251012	251012	247826
Capital purchases	(-)	-	-	-	-	-	-	-	-	-
Capital sales	(+)	-	-	-	-	-	-	-	-	-
New credit	(+)	-	-	-	-	-	-	-	-	-
Loan payments	(-)	735	22	794	320	-	-	-	-	-
<b>Net cash flow</b>	<b>(=)</b>	<b>-2092</b>	<b>8511</b>	<b>-29687</b>	<b>69260</b>	<b>54580</b>	<b>54580</b>	<b>54580</b>	<b>54580</b>	<b>57766</b>
Beginning cash balance	(+)	1000	1000	7420	1000	46992	101573	156153	210733	265314
Operating loan borrowings	(+)	25754	1179	23268	-	-	-	-	-	-
Operating loan prin pymts	(-)	23663	3271	-	23268	-	-	-	-	-
Ending cash balance	(=)	1000	7420	1000	46992	101573	156153	210733	265314	323079
Beg operating loan bal		-	2092	-	23268	-	-	-	-	-
<b>Peak operating loan bal</b>		<b>14244</b>	<b>2092</b>	<b>23268</b>	<b>23268</b>	-	-	-	-	-
End operating loan bal		2092	-	23268	-	-	-	-	-	-





# Financial Standards over the life of the plan



## FARM FINANCIAL STANDARDS MEASURES

Liquidity										
Current ratio	999.0	39.9	999.0	3.7	999.0	999.0	999.0	999.0	999.0	999.0
Working capital	1000	81389	91107	62625	133091	188878	244664	300450	356237	415208
Solvency (market)										
Debt to asset ratio	-	2.5	-	27.1	-	-	-	-	-	-
Equity to asset ratio	100.0	97.5	100.0	72.9	100.0	100.0	100.0	100.0	100.0	100.0
Debt to equity ratio	-	2.6	-	37.2	-	-	-	-	-	-
Profitability (market)										
Rate of return on assets		156.5	-6.0	-48.2	50.9	34.7	25.7	20.5	17.0	15.3
Rate of return on equity		158.7	-6.1	-56.6	56.7	34.7	25.7	20.5	17.0	15.3
Operating profit margin		31.8	-3.9	-47.3	29.6	29.6	29.6	29.6	29.6	30.8
Net farm income		105389	34717	-3481	95466	95786	95786	95786	95786	98972
Repayment Capacity										
Term debt coverage		-	-	-	-	-	-	-	-	-
Cap replacement margin		80389	9717	-28481	70466	55786	55786	55786	55786	58972
Efficiency										
Asset turnover (mkt)		492.0	155.1	102.0	172.2	117.1	87.0	69.2	57.4	49.6
Operating expense ratio		63.2	83.2	101.3	68.8	68.8	68.8	68.8	68.8	67.7
Depreciation ratio		-	-	-	-	-	-	-	-	-
Interest expense ratio		0.3	0.0	0.4	0.1	-	-	-	-	-
Net farm income ratio		36.5	16.8	-1.7	31.1	31.2	31.2	31.2	31.2	32.3





# Operating Loan Balance



## LOAN PAYMENTS

Tot loan pay	-	-	-	-	-	-	-	-	-
Surp. or def	-1357	8534	-22474	69580	100573	155153	209733	264314	322079

## OPERATING LOAN

Beg AO bal	-	2092	-	23268	-	-	-	-	-
AO int. pay	735	22	794	320	-	-	-	-	-
AO prin. pay	23663	3271	-	23268	-	-	-	-	-
<b>End AO bal.</b>	<b>2092</b>	<b>-</b>	<b>23268</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Accrued int.	-	-	-	-	-	-	-	-	-
End cash bal	1000	7420	1000	46992	101573	156153	210733	265314	323079

What happens to profitability?

<b>Net Farm Income</b>	<b>105389</b>	<b>34717</b>	<b>-3481</b>	<b>95466</b>	<b>95786</b>	<b>95786</b>	<b>95786</b>	<b>95786</b>	<b>98972</b>
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## Farm Finance Scorecard--Startup Organic Operation

45 Farms, FINBIN

### Startup Operation Ratios

#### Liquidity

	During Transition	After Operating Loan Re-Paid	Vulnerable 1.1	Strong 1.7	Avg of All Farms	High 20%
1. Current ratio	0.7	3.7			2.5	2.86
2. Working capital	\$ (38,622)	\$ 65,420			\$ 43,600	\$ 68,034

#### Solvency

3. Farm debt-to-asset ratio	65.9	7.7 %	60%	30%	31 %	27 %
4. Farm equity-to-asset ratio	34.1	92.3 %	40%	70%	69 %	73 %
5. Farm debt-to-equity ratio	193	8.4 %	150%	43%	44 %	38 %

#### Profitability

6. Net farm income - cost	\$ 1,056	\$ 97,680			\$ 62,388	\$ 125,301
7. Rate of return on farm assets -cost	-9	19.9 %	4%	8%	10.8 %	15.7 %
8. Rate of return on farm equity--cost	-32.5	22.2 %	3%	10%	13.5 %	19.3 %
9. Operating profit margin--cost	-26.4	32 %	15%	25%	24.9 %	32.9 %

#### Repayment capacity

10. Term-debt coverage ratio--cash	-37.2	999 %	110%	140%	178 %	273 %
Term-debt coverage ratio-accrual		%				
11. Capital-replacement margin--cash	\$ (61,663)	\$ 57,680			\$ 23,581	\$ 68,492
Capital-replacement margin-accrual		\$				

#### Financial efficiency

12. Asset-turnover rate - market	34	62.1 %	30%	45%	43.6 %	47.8 %
13. Operating-expense ratio	94.5	66.7 %	80%	60%	65.2 %	60.2 %
14. Depreciation-expense ratio	0	0 %	15%	5%	1.6 %	1.2 %
15. Interest-expense ratio	5.0	1.5 %	10%	5%	4.8 %	3.0 %
16. Net farm income ratio	0.5	31.9 %	10%	20%	28.4 %	35.6 %

### Farm Finance Scorecard--Established Operation (Owned Cows)

#### Established Operation Ratios

#### 45 Farms, FINBIN

#### Liquidity

	During Transition	After Transition	Vulnerable 1.1	Strong 1.7	Avg of All Farms	High 20%
1. Current ratio	3.7	999	60%	30%	2.5	2.86
2. Working capital	\$ 62,625	\$ 188,878			\$ 43,600	\$ 68,034

#### Solvency

3. Farm debt-to-asset ratio	27.1	0 %	60%	30%	31 %	27 %
4. Farm equity-to-asset ratio	72.9	100 %	40%	70%	69 %	73 %
5. Farm debt-to-equity ratio	37.2	0 %	150%	43%	44 %	38 %

#### Profitability

6. Net farm income - cost	\$ (3,481)	\$ 95,786			\$ 62,388	\$ 125,301
7. Rate of return on farm assets -cost	-48.2	34.7 %	4%	8%	10.8 %	15.7 %
8. Rate of return on farm equity--cost	-56.6	34.7 %	3%	10%	13.5 %	19.3 %
9. Operating profit margin--cost	-47.3	29.6 %	15%	25%	24.9 %	32.9 %

#### Repayment capacity

10. Term-debt coverage ratio--cash	999	999 %	110%	140%	178 %	273 %
Term-debt coverage ratio-accrual		%				
11. Capital-replacement margin--cash	\$ (28,481)	\$ 55,786			\$ 23,581	\$ 68,492
Capital-replacement margin-accrual		\$				

#### Financial efficiency

12. Asset-turnover rate - market	102	117.1 %	30%	45%	43.6 %	47.8 %
13. Operating-expense ratio	101.3	68.8 %	80%	60%	65.2 %	60.2 %
14. Depreciation-expense ratio	0	0 %	15%	5%	1.6 %	1.2 %
15. Interest-expense ratio	0.4	0.0 %	10%	5%	4.8 %	3.0 %
16. Net farm income ratio	-1.7	31.2 %	10%	20%	28.4 %	35.6 %



# Business Planning Tips



# Cow Flow "Controls"



- Buy already assembled herds of "known" health and vaccination status
  - Talk to herd veterinarian
  - Request test results
- Buy DHIA-tested herds that have SCC records that are available for scrutiny
- Avoid sale barn cows
- Request selection privilege if paying "top-price" for all cows



# Startup Costs



- Initial inventories of forages and grains
  - Specialty feeds
- Milk house or parlor supplies and cleaners
- Vet equipment for simple tasks:
  - Dehorner, chains, syringes, calving equipment
- Calf hutches, feeding equipment





# Warning Signs



## **Problem**

### **Poor Liquidity**

(cash flow)

## **Problem Signs**

Unable to pay bills as due

Growing outstanding feed bill

Unable to pay planting expenses

Rising & high credit card balances

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### **Low Profit**

(income statement)

Not making progress on goals

Sales barely cover expenses

Live off spouse's salary

Unable to replace old machinery

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### **Poor Solvency**

(balance sheet)

Declining net worth

Unable to borrow additional funds

Interest expense becomes large



# Conduct Year-End Business Analysis



- Hire a records service
- Use tools available:
  - Dairy Cost of Production Analyzer
  - FINAN Year End Analysis Tool
  - PA Dairy Tool
- Benchmark your operation with others



# Summary



- Start with a comprehensive farm plan
  - Feed and Crop
  - Cow Flow
  - Detailed Crop and Livestock Budgets
  - Multiple Year Cash Flow
- Know the risk factors for each of the plan assumptions—manage them
  - Feed prices
  - Forage quality
  - Milk production
  - Milk price



# Summary



- Establish a complete record system
  - Business Analysis and Tax records
  - Be sure to complete a balance sheet every year
- Consider a profit team to advise you
- Recognize problems early—don't ignore them
- Seek assistance from Extension and industry