

Food

Processing

Optimization



Darrell Froud
Consultant - Owner

Base Cost Model

How to Calculate \$ Variables in your Process

September 7 , 2019

Food Processing Optimization – Darrell Froud



- Leader and General Manager, with broad experience in Operations, Capital Expenditures, Cost Accounting, Commodities, Logistics and Personnel Management.
- Experienced Food Service Professional leading multiple production facilities and diverse teams both internationally and the US.
- Familiar with all phases of food production from capital expenditure, procuring raw commodities, packaging of finished goods, warehousing and logistics.

Darrell L. Froud
Consultant – Owner
1750 Steele Road
Springdale, AR 72762
479-841-9651
darrell9651@yahoo.com

Open Pool for \$20 Gambling Money

HOW BIG A COWBOY HAT SIZE DOES TOMMY MCCALED WEAR ?

Objectives

At the end of the presentation one should be able to:

- Understand Plant Base and Fixed Costs
- Quantify Indirect Labor and Variable Overhead Impacts
- Learn How Different Variables Effect Cost
- Navigate Cost Model Structure

**What we don't measure or quantify one can not manage ,
tracking cost is a wonderful tool to measure variable scenarios
impact to your bottom line. Any questions any time.
See me after presentation and I can e mail you the base excel file and PowerPoint.**

Definition of Terminology

Direct Labor: Labor directly associated to the product line

- Examples: Machine Operator, Packer

Indirect Labor: Labor indirectly associated with the product line

- Examples: Management, Quality Personnel, Warehousing, Shipping

Variable Overhead: Overhead that can be controlled

- Examples: Chemical Use, Electricity

Fixed Overhead: Capital that does not change month to month

- Example: Building depreciation

Conversion Costs: Cost of converting product into finished goods without packaging and ingredients

Waste: Non salable product / not finished goods

Yield: Salable goods pounds vs. ingredient pounds through the production line

Cost/Line Hour: Annual dollars spend divided by line hours scheduled

Output/Hour: Finished goods pounds produced

Runs/Year: Amount of time product is ran per year

Cycle Rate: Presses or cuts per cycle

Walking Through The Cost Model

- Base Cost
- Fixed Cost
- Variable Cost
- Indirect Labor

Base Cost: 1 Shift Operation - 40-50hrs/wk./process

Plant Layout	
1 Press Line	
1 Corn Line	
Products	
1 6 "Press Flour Tortilla	24 drop
1 10"Press Flour Tortilla	16 drop
1 Corn Tortilla 4 row	
1 Hand Cut Chip 4 row	

	Annual Lbs	Lbs Week Output	Lbs. Hr	Hrs week	Hrs Year
6 "Press Flour Tortilla	1,500,000	28,846	1,266	22.79	1,185
10"Press Flour Tortilla	1,500,000	28,846	2,025	14.25	741
Total Press Lbs	3,000,000	57,692	1,558	37.04	1,926
Corn Tortilla	1,500,000	28,846	1,519	18.99	988
Hand Cut Chip	1,500,000	28,846	911	31.66	1,646
Total Corn Lbs	3,000,000	57,692	1,139	50.65	2,634
Total Lbs.	6,000,000	115,385	1,316	87.69	4,560
% Lbs. 50.00% Press Flour 50.00% Corn Process					

Notes

Why use lbs. instead of Units for cost - can equally be used across all types of packs and sizes
 Allocations can be by plant sq. ft ,line hours or lbs. ran , for this exercise we used lbs. of volume
 Goal of this slide is to get accurate line hour cost

Fixed Cost – Cost that would be there if you ran or didn't

Capital	Capital	Depreciation Schedule Years	Depreciation \$ Per Year	depreciation \$ per lb	Cost per Line HR
Press line	\$ 2,000,000	7	\$ 285,714	\$ 0.0952	\$ 148.35
Corn Line	\$ 1,000,000	7	\$ 142,857	\$ 0.0476	\$ 54.24
Building and Support Equipment	\$ 1,000,000	30	\$ 33,333	\$ 0.0056	\$ 7.31
Totals	\$ 4,000,000		\$ 461,905	\$ 0.0770	\$ 101.30
Annual Cost		Cost per Lb			
Rent	\$ 50,000			\$ 0.0083	\$ 10.97
Employee Benefits	\$ 60,000			\$ 0.0100	\$ 13.16
Legal Fees	\$ 10,000			\$ 0.0017	\$ 2.19
Office and Postage	\$ 15,000			\$ 0.0025	\$ 3.29
Maintenance Parts	\$ 125,000			\$ 0.0208	\$ 27.41
Taxes	\$ 50,000			\$ 0.0083	\$ 10.97
Insurance	\$ 45,000			\$ 0.0075	\$ 9.87
Telephone	\$ 6,000			\$ 0.0010	\$ 1.32
Trash Service	\$ 5,000			\$ 0.0008	\$ 1.10
Misc.	\$ 10,000			\$ 0.0017	\$ 2.19
				\$ -	\$ -
Total	\$ 376,000			\$ 0.0627	\$ 82.46

Press Line Fixed Cost Per Hr			
Line	Building	Other	Total
\$ 148.35	\$ 7.31	\$ 82.46	\$ 238.12
Corn Line Fixed Cost Per Hr			
Line	Building	Other	Total
\$ 54.24	\$ 7.31	\$ 82.46	\$ 144.01

Variable Costs – Cost to Run production

Enter in
Variable
Costs

<u>Category</u>	<u>Annual Cost</u>	<u>Cost per Lb</u>	<u>Cost per line Hr</u>
Fuel/Gas	\$ 125,000	\$ 0.0208	\$ 27.41
Electricity	\$ 50,000	\$ 0.0083	\$ 10.97
Water	\$ 10,000	\$ 0.0017	\$ 2.19
Wastewater	\$ 15,000	\$ 0.0025	\$ 3.29
Pallets	\$ 50,000	\$ 0.0083	\$ 10.97
Inbound Frieght	\$ 40,000	\$ 0.0067	\$ 8.77
Other	\$ -	\$ -	\$ -
Total	\$ 290,000	\$ 0.0483	\$ 63.60

Indirect Labor- Labor not directly tied to production

Enter in
Labor

Labor	Annual Cost	Cost per Lb	Cost per line Hr
Management	\$ 150,000	\$ 0.0250	\$ 32.90
Quality	\$ 50,000	\$ 0.0083	\$ 10.97
Sanatation	\$ 30,000	\$ 0.0050	\$ 6.58
Mechanics	\$ 75,000	\$ 0.0125	\$ 16.45
Total	\$ 305,000	\$ 0.0508	\$ 66.89

Cost Model – Examples of theoretical products produced

- Press 6.5 Inch
- Press 10 Inch
- Corn 6 Inch
- Hand Cut Chips

Press Flour 6.5 Inch Tortilla Example

Data to Enter:

Product Specification:

- Oz per Dozen
- Packages per case
- Tortillas Per Package

Production Metrics:

- Runs Per Year
- Drops Per Cycle
- Cycles Per Minute
- Uptime Ratio
- Staffing # of People
- Labor Rate Per Hour
- Total Waste
- Theoretical Yield % of Flour

Ingredients:

- Flour
- Water
- Shorting
- Premix
- Dough Relaxer Tabs
- Other Ingredients

	Per Case	Per Package	Per Pound
Ingredients	3.8028	\$ 0.190	\$ 0.2434
Direct Labor	\$ 1.33	\$ 0.067	\$ 0.0853
Indirect Labor	\$ 0.74	\$ 0.037	\$ 0.0476
Variable Overhead	\$ 0.71	\$ 0.035	\$ 0.0452
Fixed Overhead	\$ 2.65	\$ 0.132	\$ 0.1693
Conversion (w/o pkg.)	\$ 5.43	\$ 0.271	\$ 0.3475
Packaging Material <i>Qty/Case</i>			
Box	1 \$ 0.75	\$ 0.038	\$ 0.0480
Bag	20 \$ 1.60	\$ 0.080	\$ 0.1024
Packaging Cost	\$ 2.35	\$ 0.118	\$ 0.1504
Production Cost	\$ 11.58	\$ 0.579	\$ 0.7412

Press Cost per Line Hr

\$ 66.89	Indirect Labor \$ per line hour
\$ 63.60	Variable \$ per line hour
\$ 238.12	Fixed \$ per line hour

Cost Tortilla
\$ 0.0483

Press 10 Inch Flour Tortilla Example

Data to Enter:

Product Specification:

- Oz per Dozen
- Packages per case
- Tortillas Per Package

Production Metrics:

- Runs Per Year
- Drops Per Cycle
- Cycles Per Minute
- Uptime Ratio
- Staffing # of People
- Labor Rate Per Hour
- Total Waste
- Theoretical Yield % of Flour

Ingredients:

- Flour
- Water
- Shorting
- Premix
- Dough Relaxer Tabs
- Other Ingredients

	Per Case	Per Package	Per Pound
Ingredients	6.0845	\$ 0.380	\$ 0.2434
Direct Labor	\$ 1.33	\$ 0.083	\$ 0.0533
Indirect Labor	\$ 0.74	\$ 0.046	\$ 0.0297
Variable Overhead	\$ 0.71	\$ 0.044	\$ 0.0283
Fixed Overhead	\$ 2.65	\$ 0.165	\$ 0.1058
Conversion (w/o pkg.)	\$ 5.43	\$ 0.339	\$ 0.2172
Packaging Material <i>Qty/Case</i>			
Box	1 \$ 0.85	\$ 0.053	\$ 0.0340
Bag	16 \$ 1.52	\$ 0.095	\$ 0.0608
Packaging Cost	\$ 2.37	\$ 0.148	\$ 0.0948
Production Cost	\$ 13.88	\$ 0.868	\$ 0.5553

Press Cost per Line Hr

\$ 66.89	Indirect Labor \$ per line hour
\$ 63.60	Variable \$ per line hour
\$ 238.12	Fixed \$ per line hour

Cost Tortilla
\$ 0.0868

Corn 6 Inch Tortilla

Data to Enter:

Product Specification:

- Oz per Dozen
- Packages per case
- Tortillas Per Package

Ingredients:

- Masa Flour
- Water
- Premix
- Other Ingredients

Production Metrics:

- Runs Per Year
- Drops Per Cycle
- Cycles Per Minute
- Uptime Ratio
- Staffing # of People
- Labor Rate Per Hour
- Total Waste
- Theoretical Yield % of Flour

	Per Case	Per Package	Per Pound
Ingredients	4.1290	\$ 0.258	\$ 0.2065
Direct Labor	\$ 0.85	\$ 0.053	\$ 0.0427
Indirect Labor	\$ 0.79	\$ 0.050	\$ 0.0396
Variable Overhead	\$ 0.75	\$ 0.047	\$ 0.0377
Fixed Overhead	\$ 1.71	\$ 0.107	\$ 0.0853
Conversion (w/o pkg.)	\$ 4.11	\$ 0.257	\$ 0.2053
Packaging Material <i>Qty/Case</i>			
Box	1 \$ 0.50	\$ 0.031	\$ 0.0250
Bag	16 \$ 0.72	\$ 0.045	\$ 0.0360
Packaging Cost	\$ 1.22	\$ 0.076	\$ 0.0610
Production Cost	\$ 9.46	\$ 0.591	\$ 0.4728

Corn Cost per Line Hr

\$ 66.89 Indirect Labor \$ per line hour
 \$ 63.60 Variable \$ per line hour
 \$ 144.01 Fixed \$ per line hour

Cost Tortilla
\$ 0.0246

6 Inch baked Corn Hand Cut Chips

Data to Enter:

Product Specification:

- Oz per Dozen
- Packages per case
- Tortillas Per Package

Production Metrics:

- Runs Per Year
- Cuts Per Cycle
- Cycles Per Minute
- Uptime Ratio
- Staffing # of People
- Labor Rate Per Hour
- Total Waste
- Theoretical Yield % of Flour

Ingredients:

- Masa Flour
- Water
- Premix
- Other Ingredients

	Per Case	Per Package	Per Pound
Ingredients	3.0720	\$ 0.384	\$ 0.2560
Direct Labor	\$ 1.14	\$ 0.142	\$ 0.0948
Indirect Labor	\$ 0.79	\$ 0.099	\$ 0.0661
Variable Overhead	\$ 0.75	\$ 0.094	\$ 0.0628
Fixed Overhead	\$ 1.71	\$ 0.213	\$ 0.1422
Conversion (w/o pkg.)	\$ 4.39	\$ 0.549	\$ 0.3659
Packaging Material <i>Qty/Case</i>			
Box	1 \$ 0.50	\$ 0.063	\$ 0.0417
Bag	8 \$ 0.36	\$ 0.045	\$ 0.0300
Packaging Cost	\$ 0.86	\$ 0.108	\$ 0.0717
Production Cost	\$ 8.32	\$ 1.040	\$ 0.6936

Corn Cost per Line Hr

\$ 66.89	Indirect Labor \$ per line hour
\$ 63.60	Variable \$ per line hour
\$ 144.01	Fixed \$ per line hour

Cost Tortilla

\$ 0.0217
Cost 1/4 cut chip
\$ 0.0054

Cost Model – Examples of theoretical production changes

- Cube vs. Shorting Liquid
- Tighten Giveaway
- Removing Headcount
- Increase Cycle Rate
- Double Volume Within Plant
- Convert Hard Cut Chips to Head Count

Cube vs. Shorting Liquid: Base cost is \$.55 lb. for cubed

<u>Ingredients</u>	<u>Batch Lbs.</u>	<u>% Flour</u>	<u>Unit Cost</u>	<u>Batch Cost</u>		<u>Yielded Lb</u>
Flour	300.00	100.00%	0.1800	\$ 54.00	\$	0.1233
				\$ -	\$	-
				\$ -	\$	-
Water	150.00	50.00%	0.0000	\$ -	\$	-
→ Shortening	30.00	10.00%	0.4800	\$ 14.40	\$	0.0329 from .55
Premix	24.00	8.00%	1.5000	\$ 36.00	\$	0.0822
Dough Relaxer Tabs	0.10	0.03%	1.0000	\$ 0.10	\$	0.0002
Other Ingredients		0.00%		\$ -	\$	-

Total Press Lbs		3,000,000
Base price lbs.	\$	0.7412
Adjusted Price per Lb	\$	0.7364
Savings Lb.	\$	(0.0048)
Annual Savings	\$	(14,383.56)

Tighten Giveaway .25oz on 6" press: Increase yield 2%

Total Waste	4.00%
Yield to Flour Lbs	444.00
→ Theoretical Yield % to Flour	152%
Yield % with waste	148.0%

Total Press Lbs	3,000,000
Base price lbs.	\$ 0.7412
Adjusted Price per Lb	\$ 0.7380
Savings Lb.	\$ (0.0033)
Annual Savings	\$ (9,867)

Removing 1 Person: Increase from base of 140 lbs. man hr.

Pounds per man hour		156.25	Total Press Lbs		3,000,000
→ Staffing		9.00	Base price lbs.	\$	0.7412
Labor rate per hour	\$	12.00	Adjusted Price per Lb	\$	0.7327
Bags per minute		30.00	Savings Lb.	\$	(0.0085)
Lbs Demand Per Week		28,846	Annual Savings	\$	(25,600)

Increase Cycle Rate by 1 from 15 to 16 cycles

Annual Lbs	1,500,000
Runs per Year	52
Lbs per Run	28,846
Hours Actual Used year	1,111
Hours Scheduled year	1,000
Hours Week	19.23
Drops per Cycle	24.00
→ Cycles Per Minute	16
Tortillas per Minute	384.0
Pounds per hour used	1,500
Run Rate Lbs per hr	1,350
Uptime ratio	90.00%

Total Press Lbs		3,000,000
Base price lbs.	\$	0.7412
Adjusted Price per Lb	\$	0.7195
Savings Lb.	\$	(0.0217)
Annual Savings	\$	(65,149)

Double Volume Within Plant: 6 to 12MM lbs. add second shift

→ Annual Lbs	3,000,000
Runs per Year	52
Lbs per Run	57,692
Hours Actual Used year	2,370
Hours Scheduled year	2,133
Hours Week	41.03
Drops per Cycle	24.00
Cycles Per Minute	15
Tortillas per Minute	360.0
Run Rate Lbs per hr	1,406
Actual run rate with Downtime	1,266
Uptime ratio	90.00%

Total Press Lbs	6,000,000	Total Corn Lbs	6,000,000
Base price lbs.	\$ 0.7412	Base price lbs.	\$ 0.4728
Adjusted Price per Lb	\$ 0.6328	Adjusted Price per Lb	\$ 0.4103
Savings Lb.	\$ (0.1084)	Savings Lb.	\$ (0.0625)
Annual Savings	\$ (650,699)	Annual Savings	\$ (374,929)

Convert baked corn Hand Cut Chips To Head Cut

Chips per Cycle	80.00
Cycles Per Minute	45
Chips per Minute	3,600.0
→ Run Rate lbs. per hr.	1,686 from 1,013
Actual run rate with Downtime	1,517
Uptime ratio	90.00%
Pounds per man hour	337.14 from 126
→ Staffing	5.00 from 8
Labor rate per hour	\$ 12.00
Bags per minute	2.34
Lbs. Demand Per Week	28,846

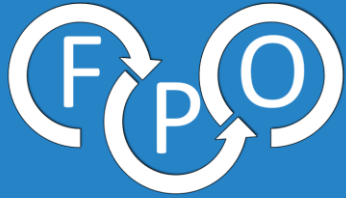
Total Chip Lbs		1,500,000
Base price lbs.	\$	0.6936
Adjusted Price per Lb	\$	0.4986
Savings Lb.	\$	(0.1950)
Annual Savings	\$	(292,541)

→ Total Waste	2.50% from 5 %
Yield to Flour Lbs.	637.50
Theoretical Yield % to Flour	130%
Yield % with waste	127.5%

Objectives

At the end of the presentation one should be able to:

- Understand Plant Base and Fixed Costs
- Quantify Indirect Labor and Variable Overhead Impacts
- Learn How Different Variables Effect Cost
- Navigate Cost Model Structure



Food
Processing
Optimization



Darrell Froud
Consultant - Owner

*Any Questions
Thank you!*

Darrell L. Froud
Consultant – Owner
1750 Steele Road
Springdale, AR 72762
479-841-9651
darrell9651@yahoo.com

Full Cost Model Examples

Product **6" Corn Tortilla**
 Case weight (lbs) **20.00**
 OZ per Dozen **10.00**
 Packages per case: **16**
 Tortillas Per Package **24**

Annual Lbs 1,500,000
 Runs per Year **52**
 Lbs per Run 28,846
 Hours Actual Used year 988
 Hours Scheduled year 889
 Hours Week 17.09
 Cuts per Cycle **12.00**
 Cycles Per Minute **45**
 Tortillas per Minute 540.0
 Run Rate Lbs per hr 1,688
 Actual run rate with Downtime 1,519
Uptime ratio 90.00%
 Pounds per man hour 281.25
 Staffing **6.00**
 Labor rate per hour **\$ 12.00**
 Bags per minute 22.50
 Lbs Demand Per Week 28,846
 Total Waste **5.00%**
 Yield to Flour Lbs 775.00
 Theoretical Yield % to Flour **160%**
 Yield % with waste 155.0%

Cases per Minute
 1.41

Ingredients	Batch Lbs.	% Flour	Unit Cost	Batch Cost	Yielded Lb.
Masa Flour	500.00	100.00%	0.3000	\$ 150.00	\$ 0.1935
				\$ -	\$ -
				\$ -	\$ -
Water	350.00	70.00%	0.0000	\$ -	\$ -
	0.00	0.00%	0.5500	\$ -	\$ -
Premix	5.00	1.00%	2.0000	\$ 10.00	\$ 0.0129
	0.00	0.00%	1.0000	\$ -	\$ -
Other Ingredients		0.00%		\$ -	\$ -
				\$ -	\$ -
				\$ -	\$ -
				\$ -	\$ -
				\$ -	\$ -
Totals	855.00			\$ 160.00	\$ 0.2065

	Per Case	Per Package	Per Pound
Ingredients	4.1290	\$ 0.258	\$ 0.2065
Direct Labor	\$ 0.85	\$ 0.053	\$ 0.0427
Indirect Labor	\$ 0.79	\$ 0.050	\$ 0.0396
Variable Overhead	\$ 0.75	\$ 0.047	\$ 0.0377
Fixed Overhead	\$ 1.71	\$ 0.107	\$ 0.0853
Conversion (w/o pkg.)	\$ 4.11	\$ 0.257	\$ 0.2053
Packaging Material Qty/Case			
Box	1 \$ 0.50	\$ 0.031	\$ 0.0250
Bag	16 \$ 0.72	\$ 0.045	\$ 0.0360
Packaging Cost	\$ 1.22	\$ 0.076	\$ 0.0610
Production Cost	\$ 9.46	\$ 0.591	\$ 0.4728

Corn Cost per Line Hr
\$ 66.89 Indirect Labor \$ per line hour
\$ 63.60 Variable \$ per line hour
\$ 144.01 Fixed \$ per line hour

Cost Tortilla
\$ 0.0246

Product **6" Corn Hand Cut Chip**
 Case weight (lbs) **12.00**
 OZ per Dozen **6.00**
 Packages per case: **8**
 Tortillas Per Package **48**

Annual Lbs 1,500,000
 Runs per Year **52**
 Lbs per Run 28,846
 Hours Actual Used year 1,646
 Hours Scheduled year 1,481
 Hours Week 28.49
 Cuts per Cycle **12.00**
 Cycles Per Minute **45**
 Tortillas per Minute 540.0
 Run Rate Lbs per hr 1,013
 Actual run rate with Downtime 911
Uptime ratio 90.00%
 Pounds per man hour 126.56
 Staffing **8.00**
 Labor rate per hour \$ **12.00**
 Bags per minute 11.25
 Lbs Demand Per Week 28,846
 Total Waste 5.00%
 Yield to Flour Lbs 625.00
 Theoretical Yield % to Flour **130%**
 Yield % with waste 125.0%

Cases per Minute
 1.41

Ingredients	Batch Lbs.	% Flour	Unit Cost	Batch Cost	Yielded Lb.
Masa Flour	500.00	100.00%	0.3000	\$ 150.00	0.2400
				\$ -	-
				\$ -	-
Water	275.00	55.00%	0.0000	\$ -	-
	0.00	0.00%	0.5500	\$ -	-
Premix	5.00	1.00%	2.0000	\$ 10.00	0.0160
	0.00	0.00%	1.0000	\$ -	-
Other Ingredients		0.00%		\$ -	-
				\$ -	-
				\$ -	-
				\$ -	-
				\$ -	-
				\$ -	-
				\$ -	-
Totals	780.00			\$ 160.00	0.2560

	Per Case	Per Package	Per Pound
Ingredients	3.0720	\$ 0.384	\$ 0.2560
Direct Labor	\$ 1.14	\$ 0.142	\$ 0.0948
Indirect Labor	\$ 0.79	\$ 0.099	\$ 0.0661
Variable Overhead	\$ 0.75	\$ 0.094	\$ 0.0628
Fixed Overhead	\$ 1.71	\$ 0.213	\$ 0.1422
Conversion (w/o pkg.)	\$ 4.39	\$ 0.549	\$ 0.3659
Packaging Material Qty/Case			
Box 1	\$ 0.50	\$ 0.063	\$ 0.0417
Bag 8	\$ 0.36	\$ 0.045	\$ 0.0300
Packaging Cost	\$ 0.86	\$ 0.108	\$ 0.0717
Production Cost	\$ 8.32	\$ 1.040	\$ 0.6936

Corn Cost per Line Hr
 \$ 66.89 Indirect Labor \$ per line hour
 \$ 63.60 Variable \$ per line hour
 \$ 144.01 Fixed \$ per line hour

Cost Tortilla
 \$ 0.0217
Cost 1/4 cut chip
 \$ 0.0054

Product
Case weight (lbs) 15.63
OZ per Dozen 12.50
Packages per case: 20
Tortillas Per Package 12

6" Press

Annual Lbs 1,500,000
 Runs per Year 52
 Lbs per Run 28,846
 Hours Actual Used year 1,185
 Hours Scheduled year 1,067
 Hours Week 20.51
 Drops per Cycle 24.00
 Cycles Per Minute 15
 Tortillas per Minute 360.0
 Run Rate Lbs per hr 1,406
 Actual run rate with Downtime 1,266
Uptime ratio 90.00%
 Pounds per man hour 140.63
 Staffing 10.00
 Labor rate per hour \$ 12.00
 Bags per minute 30.00
 Lbs Demand Per Week 28,846
 Total Waste 4.00%
 Yield to Flour Lbs 438.00
 Theoretical Yield % to Flour 150%
 Yield % with waste 146.0%

Cubed versus liquid shortening

Savings - Cubed versus liquid shortening

Cases per Minute

1.50

<u>Ingredients</u>	<u>Batch Lbs.</u>	<u>% Flour</u>	<u>Unit Cost</u>	<u>Batch Cost</u>	<u>Yielded Lb</u>
Flour	300.00	100.00%	0.1800	\$ 54.00	\$ 0.1233
Water	150.00	50.00%	0.0000	\$ -	\$ -
Shortening	30.00	10.00%	0.4800	\$ 14.40	\$ 0.0329 from .55
Premix	24.00	8.00%	1.5000	\$ 36.00	\$ 0.0822
Dough Relaxer Tabs	0.10	0.03%	1.0000	\$ 0.10	\$ 0.0002
Other Ingredients		0.00%		\$ -	\$ -
Totals	504.10			\$ 104.50	\$ 0.2386

<u>Ingredients</u>	<u>Per Case</u>	<u>Per Package</u>	<u>Per Pound</u>
Ingredients	3.7279	\$ 0.186	\$ 0.2386
Direct Labor	\$ 1.33	\$ 0.067	\$ 0.0853
Indirect Labor	\$ 0.74	\$ 0.037	\$ 0.0476
Variable Overhead	\$ 0.71	\$ 0.035	\$ 0.0452
Fixed Overhead	\$ 2.65	\$ 0.132	\$ 0.1693
Conversion (w/o pkg.)	\$ 5.43	\$ 0.271	\$ 0.3475
Packaging Material <i>Qty/Case</i>			
Box	1 \$ 0.75	\$ 0.038	\$ 0.0480
Bag	20 \$ 1.60	\$ 0.080	\$ 0.1024
Packaging Cost	\$ 2.35	\$ 0.118	\$ 0.1504
Production Cost	\$ 11.51	\$0.575	\$0.7364

Press Cost per Line Hr
 \$ 66.89 Indirect Labor \$ per line hour
 \$ 63.60 Variable \$ per line hour
 \$ 238.12 Fixed \$ per line hour

Cost Tortilla
 \$ 0.0479

Total Press Lbs 3,000,000
 Base price lbs. \$ 0.7412
 Adjusted Price per Lb \$ 0.7364
Savings Lb. \$ (0.0048)
Annual Savings \$ (14,383.56)

Product: **6" Press**
 Case weight (lbs) **15.63**
 OZ per Dozen **12.50**
 Packages per case: **20**
 Tortillas Per Package **12**

Annual Lbs 1,500,000
 Runs per Year **52**
 Lbs per Run 28,846
 Hours Actual Used year 1,185
 Hours Scheduled year 1,067
 Hours Week 20.51
 Drops per Cycle **24.00**
 Cycles Per Minute **15**
 Tortillas per Minute 360.0
 Run Rate Lbs per hr 1,406
 Actual run rate with Downtime 1,266
Uptime ratio 90.00%
 Pounds per man hour 140.63
 Staffing **10.00**
 Labor rate per hour **\$ 12.00**
 Bags per minute 30.00
 Lbs Demand Per Week 28,846
 Total Waste 4.00%
 Yield to Flour Lbs 444.00
 Theoretical Yield % to Flour **152%** ←
 Yield % with waste 148.0%

Savings - Tighten giveaway by .25 Oz.

Cases per Minute

1.50

Ingredients	Batch Lbs.	% Flour	Unit Cost	Batch Cost	Yielded Lb
Flour	300.00	100.00%	0.1800	\$ 54.00	0.1216
				\$ -	-
				\$ -	-
Water	150.00	50.00%	0.0000	\$ -	-
Shortening	30.00	10.00%	0.5500	\$ 16.50	0.0372
Premix	24.00	8.00%	1.5000	\$ 36.00	0.0811
Dough Relaxer Tabs	0.10	0.03%	1.0000	\$ 0.10	0.0002
Other Ingredients		0.00%		\$ -	-
				\$ -	-
				\$ -	-
				\$ -	-
				\$ -	-
Totals	504.10			\$ 106.60	0.2401

	Per Case	Per Package	Per Pound
Ingredients	3.7514	\$ 0.188	\$ 0.2401
Direct Labor	\$ 1.33	\$ 0.067	\$ 0.0853
Indirect Labor	\$ 0.74	\$ 0.037	\$ 0.0476
Variable Overhead	\$ 0.71	\$ 0.035	\$ 0.0452
Fixed Overhead	\$ 2.65	\$ 0.132	\$ 0.1693
Conversion (w/o pkg.)	\$ 5.43	\$ 0.271	\$ 0.3475
Packaging Material Qty/Case			
Box	1 \$ 0.75	\$ 0.038	\$ 0.0480
Bag	20 \$ 1.60	\$ 0.080	\$ 0.1024
Packaging Cost	\$ 2.35	\$ 0.118	\$ 0.1504
Production Cost	\$ 11.53	\$0.577	\$ 0.7380

Press Cost per Line Hr
\$ 66.89 Indirect Labor \$ per line hour
\$ 63.60 Variable \$ per line hour
\$ 238.12 Fixed \$ per line hour

Cost Tortilla
 \$ 0.0480

Tighten giveaway .25 Oz

Total Press Lbs 3,000,000
 Base price lbs. \$ 0.7412
 Adjusted Price per Lb \$ 0.7380
Savings Lb. \$ (0.0033)
Annual Savings \$ (9,867)

Product **6" Press**
Case weight (lbs) 15.63
OZ per Dozen 12.50
Packages per case: 20
Tortillas Per Package 12

Savings - Decrease Staffing 1

Annual Lbs 1,500,000
 Runs per Year 52
 Lbs per Run 28,846
 Hours Actual Used year 1,185
 Hours Scheduled year 1,067
 Hours Week 20.51
 Drops per Cycle 24.00
 Cycles Per Minute 15
 Tortillas per Minute 360.0
 Run Rate Lbs per hr 1,406
 Actual run rate with Downtime 1,266
Uptime ratio 90.00%
 Pounds per man hour 156.25
Staffing 9.00
 Labor rate per hour \$ 12.00
 Bags per minute 30.00
 Lbs Demand Per Week 28,846
 Total Waste 4.00%
 Yield to Flour Lbs 438.00
 Theoretical Yield % to Flour 150%
 Yield % with waste 146.0%

Cases per Minute
1.50

Ingredients	Batch Lbs.	% Flour	Unit Cost	Batch Cost	Yielded Lb
Flour	300.00	100.00%	0.1800	\$ 54.00	0.1233
Water	150.00	50.00%	0.0000	\$ -	-
Shortening	30.00	10.00%	0.5500	\$ 16.50	0.0377
Premix	24.00	8.00%	1.5000	\$ 36.00	0.0822
Dough Relaxer Tabs	0.10	0.03%	1.0000	\$ 0.10	0.0002
Other Ingredients		0.00%		\$ -	-
Totals	504.10			\$ 106.60	0.2434

	Per Case	Per Package	Per Pound
Ingredients	3.8028	\$ 0.190	\$ 0.2434
Direct Labor	\$ 1.20	\$ 0.060	\$ 0.0768
Indirect Labor	\$ 0.74	\$ 0.037	\$ 0.0476
Variable Overhead	\$ 0.71	\$ 0.035	\$ 0.0452
Fixed Overhead	\$ 2.65	\$ 0.132	\$ 0.1693
Conversion (w/o pkg.)	\$ 5.30	\$ 0.265	\$ 0.3389
Packaging Material Qty/Case			
Box	1 \$ 0.75	\$ 0.038	\$ 0.0480
Bag	20 \$ 1.60	\$ 0.080	\$ 0.1024
Packaging Cost	\$ 2.35	\$ 0.118	\$ 0.1504
Production Cost	\$ 11.45	\$0.572	\$ 0.7327

Press Cost per Line Hr
 \$ 66.89 Indirect Labor \$ per line hour
 \$ 63.60 Variable \$ per line hour
 \$ 238.12 Fixed \$ per line hour

Cost Tortilla
 \$ 0.0477

Remove 1 person

Total Press Lbs 3,000,000
 Base price lbs. \$ 0.7412
 Adjusted Price per Lb \$ 0.7327
Savings Lb. \$ (0.0085)
Annual Savings \$ (25,600)

Product: **6" Press**
 Case weight (lbs) **15.63**
 OZ per Dozen **12.50**
 Packages per case: **20**
 Tortillas Per Package **12**

Savings - Increase Cycle Rate 1 per minute

Ingredients	Batch Lbs.	% Flour	Unit Cost	Batch Cost	Yielded Lb
Flour	300.00	100.00%	0.1800	\$ 54.00	\$ 0.1233
Water	150.00	50.00%	0.0000	\$ -	\$ -
Shortening	30.00	10.00%	0.5500	\$ 16.50	\$ 0.0377
Premix	24.00	8.00%	1.5000	\$ 36.00	\$ 0.0822
Dough Relaxer Tabs	0.10	0.03%	1.0000	\$ 0.10	\$ 0.0002
Other Ingredients		0.00%		\$ -	\$ -
Totals	504.10			\$ 106.60	\$ 0.2434

Annual Lbs 1,500,000
 Runs per Year **52**
 Lbs per Run 28,846
 Hours Actual Used year 1,111
 Hours Scheduled year 1,000
 Hours Week 19.23
 Drops per Cycle **24.00**
 Cycles Per Minute **16** ←
 Tortillas per Minute 384.0
 Pounds per hour used 1,500
 Run Rate Lbs per hr 1,350
 Uptime ratio **90.00%**
 Pounds per man hour 150.00
 Staffing **10.00**
 Labor rate per hour **\$ 12.00**
 Bags per minute 32.00
 Lbs Demand Per Week 28,846
 Total Waste 4.00%
 Yield to Flour Lbs 438.00
 Theoretical Yield % to Flour **150%**
 Yield % with waste 146.0%

Cases per Minute
1.60

	Per Case	Per Package	Per Pound
Ingredients	3.8028	\$ 0.190	\$ 0.2434
Direct Labor	\$ 1.25	\$ 0.063	\$ 0.0800
Indirect Labor	\$ 0.70	\$ 0.035	\$ 0.0446
Variable Overhead	\$ 0.66	\$ 0.033	\$ 0.0424
Fixed Overhead	\$ 2.48	\$ 0.124	\$ 0.1587
Conversion (w/o pkg.)	\$ 5.09	\$ 0.254	\$ 0.3257
Packaging Material Qty/Case			
Box 1	\$ 0.75	\$ 0.038	\$ 0.0480
Bag 20	\$ 1.60	\$ 0.080	\$ 0.1024
Packaging Cost	\$ 2.35	\$ 0.118	\$ 0.1504
Production Cost	\$ 11.24	\$ 0.562	\$ 0.7195

Press Cost per Line Hr
 \$ 66.89 Indirect Labor \$ per line hour
 \$ 63.60 Variable \$ per line hour
 \$ 238.12 Fixed \$ per line hour

Cost Tortilla
 \$ 0.0468

Increase cycle rate by 1



Total Press Lbs 3,000,000
 Base price lbs. \$ 0.7412
 Adjusted Price per Lb \$ 0.7195
Savings Lb. \$ (0.0217)
Annual Savings \$ (65,149)

Product: **6" Press** Double Volume

Case weight (lbs) **15.63**

OZ per Dozen **12.50**

Packages per case: **20**

Tortillas Per Package **12**

Annual Lbs **3,000,000** ←

Runs per Year **52**

Lbs per Run 57,692

Hours Actual Used year 2,370

Hours Scheduled year 2,133

Hours Week 41.03

Drops per Cycle **24.00**

Cycles Per Minute **15**

Tortillas per Minute 360.0

Run Rate Lbs per hr 1,406

Actual run rate with Downtime 1,266

Uptime ratio 90.00%

Pounds per man hour 140.63

Staffing **10.00**

Labor rate per hour **\$ 12.00**

Bags per minute 30.00

Lbs Demand Per Week 57,692

Total Waste 4.00%

Yield to Flour Lbs 438.00

Theoretical Yield % to Flour **150%**

Yield % with waste 146.0%

Cases per Minute
1.50

Ingredients	Batch Lbs.	% Flour	Unit Cost	Batch Cost	Yielded Lb
Flour	300.00	100.00%	0.1800	\$ 54.00	0.1233
Water	150.00	50.00%	0.0000	\$ -	-
Shortening	30.00	10.00%	0.5500	\$ 16.50	0.0377
Premix	24.00	8.00%	1.5000	\$ 36.00	0.0822
Dough Relaxer Tabs	0.10	0.03%	1.0000	\$ 0.10	0.0002
Other Ingredients		0.00%		\$ -	-
Totals	504.10			\$ 106.60	0.2434

	Per Case	Per Package	Per Pound
Ingredients	3.8028	\$ 0.190	\$ 0.2434
Direct Labor	\$ 1.33	\$ 0.067	\$ 0.0853
Indirect Labor	\$ 0.37	\$ 0.019	\$ 0.0238
Variable Overhead	\$ 0.71	\$ 0.035	\$ 0.0452
Fixed Overhead	\$ 1.32	\$ 0.066	\$ 0.0847
Conversion (w/o pkg.)	\$ 3.73	\$ 0.187	\$ 0.2390
Packaging Material <i>Qty/Case</i>			
Box	1 \$ 0.75	\$ 0.038	\$ 0.0480
Bag	20 \$ 1.60	\$ 0.080	\$ 0.1024
Packaging Cost	\$ 2.35	\$ 0.118	\$ 0.1504
Production Cost	\$ 9.89	\$ 0.494	\$0.6328

Press Cost per Line Hr

\$ 33.45 Indirect Labor \$ per line hour

\$ 63.60 Variable \$ per line hour

\$ 119.06 Fixed \$ per line hour

Cost Tortilla

\$ 0.0412

Double volume within plant
Go from 6 to 12Mm lbs..



Total Press Lbs	6,000,000	Total Corn Lbs	6,000,000
Base price lbs.	\$ 0.7412	Base price lbs.	\$ 0.4728
Adjusted Price per Lb	\$ 0.6328	Adjusted Price per Lb	\$ 0.4103
Savings Lb.	\$ (0.1084)	Savings Lb.	\$ (0.0625)
Annual Savings	\$ (650,699)	Annual Savings	\$ (374,929)

Product	6" Corn Head Cut Chip	Head Cut Chips
Case weight (lbs)	12.00	
Grams per chip	3.54	= 6 oz dozen and 1/4 cut baked chip
Packages per case:	1	
Chips Per Package	1,538	

Annual Lbs	1,500,000	
Runs per Year	52	
Lbs per Run	28,846	
Hours Actual Used year	989	
Hours Scheduled year	890	
Hours Week	17.11	
Cuts per Cycle	80.00	
Cycles Per Minute	45	
Chips per Minute	3,600.0	Cases per Minute
Run Rate lbs per hr	1,686	
Actual run rate with Downtime	1,517	2.34
Uptime ratio	90.00%	
Pounds per man hour	337.14	
Staffing	5.00	
Labor rate per hour	\$ 12.00	
Bags per minute	2.34	
Lbs Demand Per Week	28,846	
Total Waste	2.50%	
Yield to Flour Lbs	637.50	
Theoretical Yield % to Flour	130%	
Yield % with waste	127.5%	

Ingredients	Batch Lbs.	% Flour	Unit Cost	Batch Cost	Yielded Lb.
Masa Flour	500.00	100.00%	0.3000	\$ 150.00	0.2353
Water	275.00	55.00%	0.0000	\$ -	-
Premix	5.00	1.00%	2.0000	\$ 10.00	0.0157
Other Ingredients	0.00	0.00%	1.0000	\$ -	-
Totals	780.00			\$ 160.00	0.2510

	Per Case	Per Package	Per Pound
Ingredients	3.0125	\$ 3.012	\$ 0.2510
Direct Labor	\$ 0.43	\$ 0.427	\$ 0.0356
Indirect Labor	\$ 0.48	\$ 0.476	\$ 0.0397
Variable Overhead	\$ 0.45	\$ 0.453	\$ 0.0377
Fixed Overhead	\$ 1.03	\$ 1.025	\$ 0.0854
Conversion (w/o pkg.)	\$ 2.38	\$ 2.382	\$ 0.1984
Packaging Material Qty/Case			
Box	1 \$ 0.50	\$ 0.500	\$ 0.0417
Bag	1 \$ 0.09	\$ 0.090	\$ 0.0075
Packaging Cost	\$ 0.59	\$ 0.590	\$ 0.0492
Production Cost	\$ 5.98	\$ 5.984	\$ 0.4986

Corn Cost per Line Hr	
\$ 66.89	Indirect Labor \$ per line hour
\$ 63.60	Variable \$ per line hour
\$ 144.01	Fixed \$ per line hour

Cost 1/4 cut chip Head Cut
\$ 0.0039

Convert Hand cut chips to Head Cut

Total Chip Lbs		1,500,000
Base price lbs.	\$	0.6936
Adjusted Price per Lb	\$	0.4986
Savings Lb.	\$	(0.1950)
Annual Savings	\$	(292,541)