

Hazelnut Processing Costs

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www.midwesthazelnuts.org

**Upper Midwest
Hazelnut
Development Initiative**

**UW
Extension**

Situation

- Many enterprising growers developing their own processing lines
- Next step...develop a processing line (with full cost accounting) that can produce cost-competitive kernels
- Processing Cost Calculator 1.0 can help!

Hazelnut Processing Overview

Harvest and Drying

- Hand or machine harvest when ripe
- Dry the involucre
- No license required



Husking

- Required for storage and sale of in-shell nuts
- No license required



Sorting and Storage

- Size sorting for sale, processing, grading
- In-shell nuts store well
- No license required, but food safety is key



Food safety
practices are
not optional

GROCERY MANUFACTURERS ASSOCIATION

Industry Handbook for Safe Processing of Nuts

© 2010



Cracking

- Cracking rate
- Cracking %
- % whole kernel
- Food processing plant license required in WI



Cleaning

- Air column separation (aspirator)
- Separating splits from shell fragments is a challenge



Raw Whole Kernels

- Sell as is or add value



Hazelnut Value-Chain

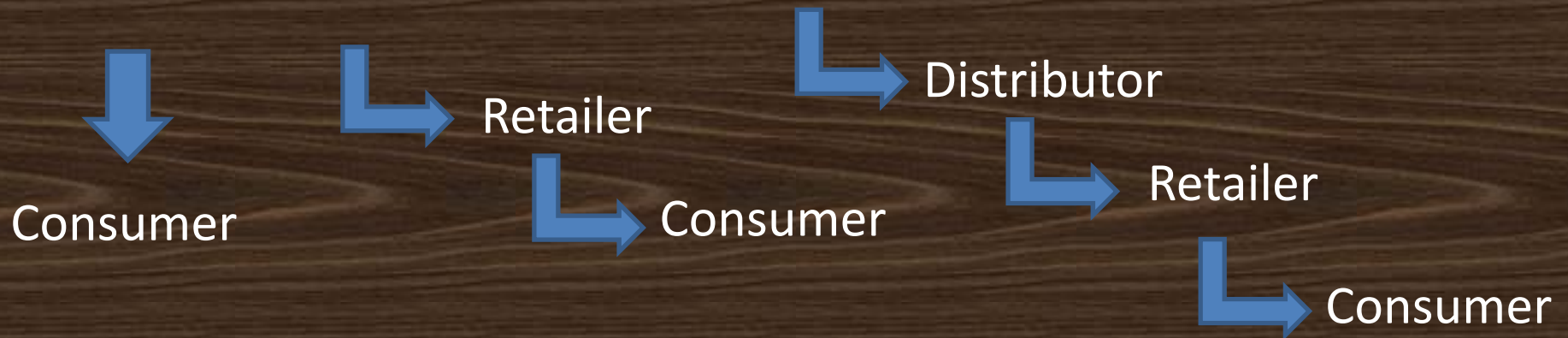
- Grow hazelnuts (Production Company)



- Process into kernels (Processing Company)



- Sell kernels (Marketing & Sales Company)



Value-Chain Structure

- Grow hazelnuts (Production Company)



If \$1/lb in-shell pay price...

- Process into kernels (Processing Company)



What is the kernel price?

- Sell kernels (Marketing & Sales Company)



The Pricing Challenge

Raw Natural Hazelnut Kernels
Freddy Guys
\$13.50/lb (retail)

Store Home New Products My Account

Raw (Natural) Hazelnut Kernels

\$13.50


Qty:

Option(s):

Gift Note?:

(Max 100 Characters)

[Add To Cart](#)



The Pricing Challenge

As a processor, if you buy in-shell hazelnuts for \$1/lb, how much are you paying per lb of kernel?

The Pricing Challenge

- 35% kernel by weight – theoretical
- 30% kernel by weight – actual
- 78% whole kernel processing yield
- 15% split kernel recovery
- 7% kernel loss

- 23% saleable whole kernel

The Pricing Challenge

23% saleable whole kernel

\$1/lb in-shell cost = \$4.35/lb whole kernel cost

5% margin to distributor – \$4.58/lb

20% margin to retailer – \$5.72/lb

40% margin to customer – \$9.52/lb

The Pricing Challenge

\$9.52/lb price to customer

One big problem...

That's the price before processing, packaging, and marketing costs are included in the price.

We know packaging and marketing costs, but we still don't know in-shell to kernel processing costs.

What's your Processing
Cost?

Midwest Hazelnut In-Husk to Kernel Processing Cost Calculator - BETA

Last Updated: March 1, 2016

This spreadsheet tool helps you determine your cost of production to turn in-husk hazelnuts into saleable kernels.

The costs do not include your cost to grow, harvest, or purchase in-husk or in-shell hazelnuts.

Likewise, the costs do not include your costs to package, store, or market the saleable kernels.

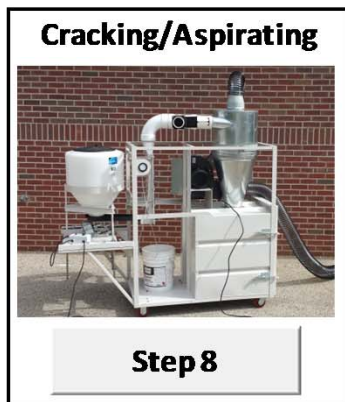
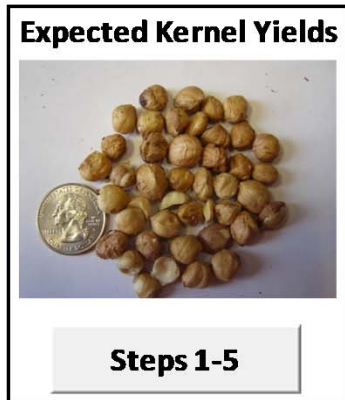
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**View Cost
Summary**

Step 1: Enter total annual volume of in-shell nuts:	1500	lbs in shell
Step 2: Enter the average percent kernel:	34	% of in-shell nuts by weight
Maximum possible kernel yield:	510	lbs of kernel
Step 3: Enter your whole kernel recovery rate:	78	% of kernels that are recovered as whole kernels
Step 4: Enter percent of whole kernels that are saleable:	95	% of kernels that are saleable
Expected saleable whole kernel yield:	377.91	lbs of whole kernel
Step 5: Enter your split kernel recovery rate:	0	% of kernels that are recovered as split kernels
Expected split kernel yield:	0	lbs of split kernel

Leave blank if using individual cracker and aspirator

Combined Cracker/Aspirator

Equipment

Purchase Cost:	\$ 5,500.00
Fabrication Cost:	
Materials:	\$ -
Labor hours:	0
Labor cost:	\$ - \$/hr

Total Cost:	\$ 5,500.00
Depreciation Period:	5 years

Cost/year: \$ 1,100.00

Labor

Flow-Through Rate:	50 lbs in-shell/hr
Hours of labor/hour of operation*:	0.25 hrs
Labor Cost:	\$ 10.00 \$/hr

Need to know ownership, maintenance, and labor costs for each step in the process.

* For every hour the machine runs, enter the number of hours it takes you to keep in running. Include set-up, cleaning, and operational labor.

Fixed Costs

Equipment	Per Year	Per lb In-Shell	Per lb kernel
Husker	\$ 160.00	\$ 0.11	\$ 0.42
Post-Husking Aspirator	\$ 96.00	\$ 0.06	\$ 0.25
Combined Husker/Aspirator	0	\$ -	\$ -
Sanitizing Equipment	\$ 44.00	\$ 0.03	\$ 0.12
Sizer	\$ 1,000.00	\$ 0.67	\$ 2.65
Cracker	0	\$ -	\$ -
Post-Cracking Aspirator	0	\$ -	\$ -
Combined Cracker/Aspirator	\$ 1,100.00	\$ 0.73	\$ 2.91
Post-Aspirator Cleaner	0	\$ -	\$ -
Final Hand Sorting - Equipment	\$ 40.00	\$ 0.03	\$ 0.11
Overhead			
Processing Building	\$ 600.00	\$ 0.40	\$ 1.59
Other	\$ 635.00	\$ 0.42	\$ 1.68
Total Fixed Costs	\$ 3,675.00	\$ 2.45	\$ 9.72

Variable Costs

Labor	Per Year	Per lb In-Shell	Per lb kernel
Husker	\$ 75.00	\$ 0.05	\$ 0.20
Post-Husking Aspirator	\$ 75.00	\$ 0.05	\$ 0.20
Combined Husker/Aspirator	0	\$ -	\$ -
Sanitizing	\$ 56.25	\$ 0.04	\$ 0.15
Sizer	\$ 10.00	\$ 0.01	\$ 0.03
Cracker	0	\$ -	\$ -
Post-Cracking Aspirator	0	\$ -	\$ -
Combined Cracker/Aspirator	\$ 75.00	\$ 0.05	\$ 0.20
Post-Aspirator Cleaner	0	\$ -	\$ -
Final Hand Sorting	\$ 360.00	\$ 0.24	\$ 0.95
Overhead			
Utilities	\$ 200.00	\$ 0.13	\$ 0.53
Supplies/Maintenance:	\$ 700.00	\$ 0.47	\$ 1.85
Total Fixed Costs	\$ 1,551.25	\$ 1.03	\$ 4.10

Cost of Kernels

- \$4.35/lb of kernel to purchase in-shell nuts
- \$13.82/lb of kernel to process
- \$18.17/lb cost (COGS for Marketing/Sales Company)
- Add in marketing and sales costs and we're priced out of the market...even before mark-ups!

What's the Solution?

- Process big volumes to lower per unit costs
- Maximize whole kernel recovery rates
- Minimize labor needed to run the line

- “Made with American hazelnuts” instead of pure American hazelnuts? (sell hazelnut-flavored palm-oil, chocolate, and sugar)
- Sell as close to direct as possible
- Sell to high-end markets