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A User's Guide to USDA's Pork Carcass Cutout

WHAT IS IT?

The cutout value of an individual pork carcass is based on the amounts of the various cuts produced by that carcass and the prices of those cuts. Its value is expressed in cents per pound or dollars per hundred pounds (centi-weight or cwt). Theoretically, each hog has a unique cutout value.

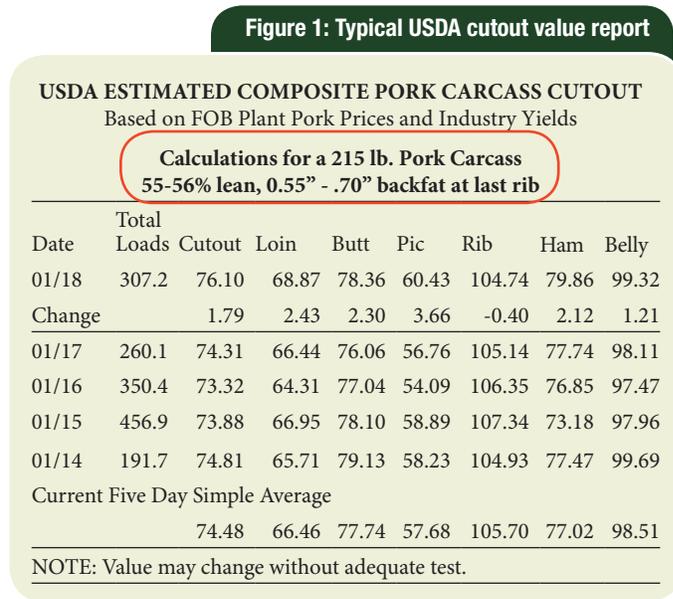
Every pork slaughter plant computes a plant cutout value that represents the average value of the carcasses produced by that plant in a specified time period. The plant cutout value is determined by the amount of pork cuts produced and prices received for those cuts. A plant's cutout value is confidential, proprietary information and is the single most important determinant of the price the plant will pay for hogs.

USDA's Estimated Pork Carcass Cutout (PCC) is the estimated value of a standardized pork carcass (currently 55-56% lean, 215 lbs.) based upon industry-average cut yields and average market prices of sub-primal pork cuts. Industry-average cut yields are updated by USDA annually in January based on the results of a survey of packers the previous July. Market prices come from USDA wholesale pork, lard, and meat and bone meal price reports.

The PCC reflects the overall supply and demand situation for wholesale pork cuts. Composite values are calculated each day for the various pork primals and these values are combined to reflect a single composite value of a pork carcass. These cuts reflect a standard cutting specification and must be traded on a negotiated basis to deliver within ten days of the time of sale for combos (large totes or containers that hold approximately 2000 lbs of product) and 14 days for boxed product. Figure 1 shows a typical cutout value price report as it appears in USDA's National Daily Pork Report (LM_PK602).

BACKGROUND INFORMATION

In the fabrication process, pork carcasses are broken into primal units which, in turn, are broken into various sub-primal cuts. Primals can be cut in different styles to make different sets of sub-primals to fit different customer and consumer needs. Sub-primal fabrication also produces by-products of varying type and quantity. These by-products (such items as trimmings, bone, fat and skin) have value that must be added into the primal value to fully account for all parts of the carcass.



The Pork Carcass Cutout (PCC) is an estimate of the value of a 55-56% lean, 215 lb. hog carcass based upon current whole-sale prices being paid for sub-primal pork cuts.

The potential value of sub-primals generally depends on how much work must be done on the primal cut to extract the specific sub-primal. Boneless cuts require more fabrication and thus cost more to produce than do bone-in cuts. They are also worth more to end users because they require less end-user labor and contain less waste product. The same is true of fat trimming. Styles produced and sold in larger volume will have more impact on the overall cutout.

Seasonal shifts in the relative amount and types of cut styles are reflected in the PCC by weighting the various styles according to the volume of each cut style reported to USDA.

HOW DOES IT WORK?

The PCC is a series of mathematical calculations which uses current sub-primal pork cut prices and industry-average cut yields to calculate primal values. Industry-average primal cut yields are then used to translate primal values to a carcass value. These steps and their accompanying calculations are best illustrated through a sample calculation. The same series of steps is followed for all of the other pork primals.

For example, the steps of determining the value of a 1/4" trimmed pork loin cut in the bone-in center cut, tender-in vacuum-packed loin cutting style are outlined below. This cutting style breaks the primal cut (a 1/4" trimmed pork loin) into four primary sub-primals (bone-in center-cut tender-in loin, boneless sirloin, blade ends and butt tender) and three by-products (72% trim, 42% trim and bone). The yields of these components appear in **Figure 2** and in **Appendix A, Table A-1** under style #7. Note that 0.50% of the loin is unaccounted for in these yields and assigned to "shrink" at a value of zero. Shrink is caused by moisture loss and cutting loss.

STEP 1: SUB-PRIMAL CUTS TO PRIMAL VALUE

A value for each component is determined by deducting packaging costs from each component's market price. Each component's contribution to the primal value is computed by multiplying its individual value by its yield factor. Those are summed to determine the primal's gross value and a labor factor is deducted to compute its net value.

USDA bases its labor costs on the total percent of the primal

cut that is not accounted for in the primary sub-primal. In our example, the primary sub-primal (bone-in center cut tender-in loin) yield from the primal loin is 61.36%. Labor was required to remove the remaining 38.64% of the primal. To calculate labor costs, USDA multiplies 38.64% by an industry standard \$27.50 processing cost. This results in \$10.63 in labor cost which is subtracted to arrive at a labor-free value of the original primal.

Figure 2: Calculation of the value of a 1/4" Trim Primal Loin using the Bone-in Center Cut, Tender-In cutting style.

**Step 1:
Component
Values to
Primal Value**

Bone-in Center Cut, Tender-Ln Loin $61.36\% * \$130.42 = \80.03	+
Boneless Sirloin $8.23\% * \$93.32 = \7.68	+
Blade Ends $12.77\% * \$57.23 = \7.31	+
Butt Tender $1.50\% * \$198.52 = \2.98	+
72% Trimmings $6.35\% * \$59.78 = \3.80	+
42% Trimmings $4.53\% * \$22.25 = \1.01	+
Bone $4.79\% * \$5.26 = \0.25	+
Shrink $0.47\% * \$0.00 = \0.00	+
Labor $1 - 61.36\% = 38.64\% * \$27.50 = \$-10.63$	-
<div style="border: 1px solid #e67e22; border-radius: 15px; padding: 5px; display: inline-block; background-color: #e67e22; color: white; font-weight: bold;"> \$92.43 </div>	

Value of a 1/4" primal loin cut into a bone-in center cut, tender in loin = \$92.43

STEP 2: PRIMAL VALUES TO COMPOSITE PRIMAL VALUE

The calculations outlined in Step 1 determine a primal value for each cutting style based on the sub-primals produced by that style. As can be seen in **Figure 1** and Table A-1 in the Appendix, there are nine specified cutting styles for loins. To determine an overall primal value, the

values of the various cutting style values are combined based on the volumes of the various cutting styles reported to USDA. These calculations are shown in **Figure 3**. The result is an average composite value for a 1/4" trimmed primal loin. In this case, the value is \$70.22 per cwt. or 70.22 cents per pound.



Figure 3: Creating a composite primal value from sub-primal style values

Step 2: Sub-Primal Styles to Primal

Loin 1 1/4" Trim Loin VAC 9.40 lds @ \$70.69	+
Loin 2 - 1/4" Trimmed Loin Paper 1.00 lds @ \$86.50	+
Loin 3 - 1/4" Trimmed Loin Combo 5.87 lds @ \$64.45	+
Loin 4 - 1/8" Trimmed Loin VAC 12.72 lds @ \$70.83	+
Loin 5 - 1/8" Trimmed Loin Paper 0.29 lds @ \$86.25	+
Loin 6 - 1/8" Trimmed Loin Combo 2.15 lds @ \$60.14	+
Loin 7 - Bone-in CC, Tender-in Loin VAC 3.96 lds @ \$87.06	+
Loin 8 - Bnls CC Strap-on Loin 28.00 lds @ \$68.36	+
Loin 9 - Bnls CC, Strap-off Loin 33.14 lds @ \$70.43	+

\$70.22

Composite 1/4" Trimmed Primal Loin Value = \$70.22

STEP 3: COMPOSITE PRIMAL TO UNTRIMMED (DROP) PRIMAL

The next step is to convert the "trimmed" primal value to an untrimmed or commodity primal value. The appropriate "Trimmed Primal to Untrimmed" table is used to determine this value (see **Figure 4**).

Note that there is no "trimmed-to-untrimmed" adjustment for hams since the beginning ham subprimals (Selected Hams 20-23# and 23-27#) are untrimmed (i.e. have a yield of 100% in **Table A-5**). For picnics, all three styles in Table A-3 start with an untrimmed picnic so no "trimmed-to-untrimmed" adjustment is necessary.

Figure 4: Trimmed composite primal to untrimmed (drop) primal

Step 3: 1/4" Trimmed Primal to Untrimmed Primal

Component	%	Value	Total
1/4" Loin	84.93%	\$70.22	\$59.64
T/Trace	0.28%	\$34.05	\$0.10
Fat	11.08%	\$19.60	\$2.17
Skin	3.71%	\$28.55	\$1.06
Drop Loin	100%	\$62.97	

STEP 4: DROP PRIMALS TO CARCASS CUTOUT

In step 4, we combine the composite primal loin value calculated in Step 3 with similar values calculated for the other six primals and four individual carcass parts to determine a composite cutout (see **Figure 5**). Each primal is weighted by the percentage of the entire carcass that it represents (its yield). Note

occurs during the fabrication process. This loss is generally parts of the carcass that are too small to be used (such as saw and blade residues) or become contaminated (dropped on the floor) and are deemed inedible. The percentage of cut loss is simply that amount not accounted for by other cuts and pieces. The value of cut loss is the value of rendered product

**Step 4:
Component
Values to
Primal Value**

Figure 5: Composite primal values to cutout value

Composite Primal Loin Value $25.32\% * \$62.97 = \15.94	+
Composite Primal Butt Value $10.22\% * \$82.37 = \8.42	+
Composite Primal Picnic Value $11.26\% * \$39.89 = \4.49	+
Composite Primal Sparerib Value $4.77\% * \$120.50 = \5.75	+
Composite Primal Ham Value $24.59\% * \$46.16 = \11.35	+
Composite Primal Belly Value $16.14\% * \$128.97 = \20.82	+
Composite Primal Jowl Value $1.45\% * \$32.94 = \0.48	+
Hind Feet $1.34\% * \$21.10 = \0.28	+
Neck Bones $1.76\% * \$50.19 = \0.88	+
Tails $0.18\% * \$68.78 = \0.12	+
Front Feet $1.01\% * \$60.28 = \0.61	+
Cut Loss $1.96\% * \$4.30 = \0.08	
\$69.22	

Composite Cutout Value = \$69.22

NATIONAL WEEKLY COMPREHENSIVE PORK REPORT

The National Weekly Comprehensive Pork Report covers weekly market activity from Monday to Friday and includes the comprehensive value and volumes of all reported wholesale pork trade with the exception of specialty pork products. The report is issued each Monday at 1:00 p.m. Central Time under report numbers LM_PK680 and LM_PK681.

The report includes an estimated value of a standard pork carcass and primals based on the various individual cuts and prices of those cuts. The values and volumes reflect marketplace activity for all destinations (including export), sales types, delivery periods, refrigeration types, and packaging styles with the exception of specialty pork products.

On January 4, 2021, USDA expanded the report to capture the emerging market for actual carcass transactions. It's important to recognize that the existing comprehensive estimated carcass cutout value is derived from multiple sale prices from each subprimal portion of a carcass, reassembled into a single value, where actual carcass transactions are a single price for the entire carcass. If there are actual pork carcass trades for the week, the report will show the volume for all trades. The price will also be included in the aggregate comprehensive pork carcass cutout value calculation on a 1:1 weighted average ratio.

Figure 6 is an example of a single week's reported aggregate comprehensive pork carcass cutout value and the table in Figure 7 demonstrates how the aggregate comprehensive pork cutout value is calculated if there are actual pork carcass trades for the week. This calculation takes place after Steps 1 through 4 listed in this overview; if there are no pork carcass trades for the week, the comprehensive cutout value follows the original methodology listed above in Steps 1 through 4. A 1:1 weighted average value or Aggregate Comprehensive Carcass Cutout Value is calculated using the existing Comprehensive Estimated Carcass Cutout Value derived from the subprimals and the Comprehensive Actual Carcass Trade Value derived from transactions.

The report also includes reported trade volumes for barrow and gilt meat on a weekly basis, and reported trade volumes for sow, boar, and mixed (sow, boar, barrow/gilt) meat on a weekly basis. However, given the LMR confidentiality guideline, "only boar meat" is not reported at this time.

Figure 6: Comprehensive Pork Carcass Cutout

Weekly Estimated Primal Cutout - Comprehensive - Barrow/Gilt Only							
	Carcass	Loin	Butt	Picnic	Rib	Ham	Belly
01/18/2021	74.21	74.47	75.18	54.99	120.30	55.16	114.55
Change:	4.22	1.88	4.29	-3.52	1.52	8.59	4.69
Total Load Count (Cuts, Trimmings, Processed): 6,082.00							
Weekly Pork Cuts FOB Plant - Comprehensive - Barrow/Gilt Only							
Current Volume - (one load equals 40,000 pounds)							
Loin	1,190.27 loads		47,610,915 pounds				
Butt	674.36 loads		26,974,514 pounds				
Picnic	276.81 loads		11,072,271 pounds				
Rib	432.31 loads		17,292,501 pounds				
Ham	1,549.43 loads		61,977,139 pounds				
Belly	586.25 loads		23,449,982 pounds				
Trimmings	1,044.37 loads		41,774,629 pounds				
Variety	162.07 loads		6,482,897 pounds				
Added Ingredients	136.89 loads		5,475,719 pounds				
Carcass	5.70 loads		228,000 pounds				

Figure 7: Calculating the Comprehensive Pork Carcass Cutout Value

	Volume	Price	Total
Existing Comprehensive Estimated Carcass Cutout Value (derived from subprimals)	243,040,000 pounds	\$74.22	\$18,038,428,800.00
Comprehensive Actual Carcass Trade Value (derived from transactions)	228,000 pounds	\$67.71	\$15,437,880.00
Aggregate Comprehensive Carcass Cutout Value	243,268,000 pounds	\$74.21	\$18,053,866,680.00



APPENDIX A: YIELD PERCENTAGES

Table A-1: Loin styles and yields

Loin Primal Styles:		#4 - 1/8" Trimmed Loin VAC	#8 - Bnls CC, Strap-on Loin							
#1 - 1/4" Trimmed Loin VAC		#5 - 1/8" Trimmed Loin Paper	#9 - Bnls CC, Strap-off Loin							
#2 - 1/4" Trimmed Loin Paper		#6 - 1/8" Trimmed Loin Combo								
#3 - 1/4" Trimmed Loin Combo		#7 - Bone-in CC, Tender-in Loin VAC								
LOIN Components	Packaging Adjustment	#1	#2	#3	#4	#5	#6	#7	#8	#9
1/4" Trimmed Loin VAC	\$5.00	100.0%	-	-	-	-	-	-	-	-
1/4" Trimmed Loin Paper	\$2.00	-	100.0%	-	-	-	-	-	-	-
1/4" Trimmed Loin Combo	\$0.80	-	-	100.0%	-	-	-	-	-	-
1/8" Trimmed Loin VAC	\$5.00	-	-	-	95.88%	-	-	-	-	-
1/8" Trimmed Loin Paper	\$2.00	-	-	-	-	95.88%	-	-	-	-
1/8" Trimmed Loin Combo	\$0.80	-	-	-	-	-	95.88%	-	-	-
Bone-in CC, Tender in VAC	\$6.25	-	-	-	-	-	-	61.36%	-	-
Bnls CC Strap-on	\$6.25	-	-	-	-	-	-	-	38.92%	-
Bnls CC Strap-off	\$6.25	-	-	-	-	-	-	-	-	34.24%
Boneless Sirloin	\$5.00	-	-	-	-	-	-	8.23%	7.78%	7.78%
Bone-in Sirloin	\$5.00	-	-	-	-	-	-	-	-	-
Blade Ends	\$7.00	-	-	-	-	-	-	12.77%	-	-
Tenderloin	\$10.25	-	-	-	-	-	-	-	4.94%	4.94%
Butt Tender	\$5.50	-	-	-	-	-	-	1.50%	-	-
Backribs 2.0#/up	\$11.25	-	-	-	-	-	-	-	10.31%	10.31%
Riblets	-	-	-	-	-	-	-	-	1.43%	1.43%
72% trim	\$0.70	-	-	-	-	-	-	6.35%	14.68%	18.20%
42% Trim	\$0.70	-	-	-	-	-	-	4.53%	5.47%	6.63%
Fat	-	-	-	-	3.88%	3.88%	3.88%	-	-	-
Bone	-	-	-	-	-	-	-	4.79%	15.71%	15.71%
Shrink	-	0.00%	0.00%	0.00%	0.24%	0.24%	0.24%	0.47%	0.76%	0.76%
Labor	-	-	-	-	-	-	-	-	-	-
Total Percentage		100.0%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table A-2: Butt (shoulder) styles and yields

#1 - 1/4" Trimmed Butt VAC		#4 - 1/8" Trimmed Butt				#7 - Bnls Butt Vac			
#2 - 1/4" Trimmed Butt paper		#5 - 1/4" Trimmed Steak Ready Butt				#8 - Bnls Butt Poly			
#3 - 1/4" Trimmed Butt combo		#6 - 1/8" Trimmed Steak Ready Butt							
BUTT Components	Packaging Adjustment	#1	#2	#3	#4	#5	#6	#7	#8
1/4" Trim Butt VAC	\$4.00	100.0%	-	-	-	-	-	-	-
1/4" Trim Butt paper	\$2.00	-	100.0%	-	-	-	-	-	-
1/4" Trim Butt combo	\$0.70	-	-	100.0%	-	-	-	-	-
1/8" Trim Butt VAC	\$4.00	-	-	-	95.30%	-	-	-	-
1/4" Trim Steak-Ready Butt VAC	\$4.25	-	-	-	-	87.53%	-	-	-
1/8" Trim Steak-Ready Butt VAC	\$4.25	-	-	-	-	-	84.39%	-	-
1/4" Trim Bnls Butt, Vac	\$5.00	-	-	-	-	-	-	90.23%	-
1/4" Trim Bnls Butt, Poly	\$2.00	-	-	-	-	-	-	-	90.23%
72% trim	\$0.70	-	-	-	-	12.17%	12.17%	2.30%	2.30%
42% trim	\$0.70	-	-	-	1.24%	-	-	-	-
Fat	-	-	-	-	3.14%	-	3.14%	-	-
Bone	-	-	-	-	-	-	-	7.15%	7.15%
Shrink	-	0.00%	0.00%	0.00%	0.32%	0.30%	0.30%	0.32%	0.32%
Labor	-	-	-	-	-	-	-	-	-
Total Percentage		100.0%	100.0%	100.0%	100.00%	100.0%	100.0%	100.0%	100.0%



APPENDIX A: YIELD PERCENTAGES

Table A-3: Picnic styles and yields				
#1 - SS Smkr Trim Picnic VAC		#3 - Picnic Meat Combo Cushion Out		
#2 - SS Smkr Trim Picnic Paper				
PICNIC Components	Packaging Adjustment	#1	#2	#3
SS Smoker Trim Picnic VAC	\$6.00	73.45%		-
Smoker Trim Picnic Paper	\$2.00		73.45%	-
Picnic Meat Combo Cushion Out	\$0.75	-	-	50.66%
Picnic Cushion Meat VAC	\$5.00	-	-	20.99%
72% trim	\$0.70	11.04%	11.04%	-
42% trim	\$0.70	1.73%	1.73%	-
Hocks		6.39%	6.39%	-
Fat		3.51%	3.51%	2.23%
Skin		3.47%	3.47%	9.92%
Bone		-	-	15.76%
Shrink		0.41%	0.41%	0.44%
Labor		-	-	-
Total Percentage		100.00%	100.00%	100.00%

Table A-4: Sparerib styles and yields			
#1 - Trimmed Sparerib - LGT		#2 - Trimmed Sparerib - MED	
SPARERIB Components	Packaging	#1	#2
Trimmed Sparerib-LGT	\$8.50	100.0%	-
Trimmed Sparerib-MED	\$8.50	-	100.00%
Shrink		0.00%	0.00%
Labor		-	-
Total Percentage		100.0%	100.0%

Table A-5: Ham styles and yields										
#1 - Trmd Selected Ham 20-23#'s			#4 - 4 Muscle Ham to Blue				#7 - Insides			
#2 - Trmd Selected Ham 23-27#'s			#5 - 5 Muscle Ham to Blue				#8 -Outsides			
#3 - 3 Muscle Ham to Blue			#6 - Roll outs				#9 - Knuckles			
HAM Components	Packaging	#1	#2	#3	#4	#5	#6	#7	#8	#9
Trmd Selected Ham 20-23#	\$0.80	100.0%	-	-	-	-	-	-	-	-
Trmd Selected Ham 23-27#	\$0.80	-	100.0%	-	-	-	-	-	-	-
3 Muscle Ham to Blue	\$0.95	-	-	44.31%	-	-	-	-	-	-
4 Muscle Ham to Blue	\$0.95	-	-	-	46.18%	-	-	-	-	-
5 Muscle Ham to Blue	\$0.95	-	-	-	-	50.60%	-	-	-	-
Roll out ham	\$0.95	-	-	-	-	-	60.57%	-	-	-
Insides	\$0.95	-	-	-	-	-	-	16.36%	16.36%	16.36%
Outsides	\$0.95	-	-	-	-	-	-	17.94%	17.94%	17.94%
Knuckles	\$0.95	-	-	-	-	-	-	10.01%	10.01%	10.01%
Lite Butt	\$0.95	-	-	1.87%	-	-	-	1.87%	1.87%	1.87%
Inner Shank	\$0.95	-	-	4.42%	4.42%	-	-	4.42%	4.42%	4.42%
Outer Shank	\$0.95	-	-	4.35%	4.35%	4.35%	4.25%	4.35%	4.35%	4.35%
72% Trim	\$0.70	-	-	11.49%	11.49%	11.49%	4.54%	11.49%	11.49%	11.49%
42% Trim	\$0.70	-	-	7.02%	7.02%	7.02%	4.30%	7.02%	7.02%	7.02%
Fat		-	-	8.46%	8.46%	8.46%	8.41%	8.46%	8.46%	8.46%
Skin		-	-	6.90%	6.90%	6.90%	6.74%	6.90%	6.90%	6.90%
Bone		-	-	10.57%	10.57%	10.57%	10.57%	10.57%	10.57%	10.57%
Shrink		0.00%	0.00%	0.61%	0.61%	0.61%	0.62%	0.61%	0.61%	0.61%
Labor		-	-	-	-	-	-	-	-	-
Total Percentage		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%



APPENDIX A: YIELD PERCENTAGES

#1 - Derind Belly 9-13# #2 - Derind Belly 13-17#			
		#1	#2
Derind Belly 9-13#	\$0.75	81.61%	
Derind Belly 13-17#	\$0.75		81.61%
72% Trim	\$0.70	1.07%	1.07%
42% Trim	\$0.70	5.07%	5.07%
Fat		1.75%	1.75%
Skin		10.07%	10.07%
Shrink		0.43%	0.43%
Labor			
Total Percentage	100.0%	100.0%	100.0%

#1 - Skinned Jowl		
JOWL Components	Packaging	#1
Skinned Jowl Combo	\$0.75	78.99%
Skin		20.32%
Shrink		0.68%
Labor		-
Total Percentage		100.0%

APPENDIX B: TRIMMED TO UNTRIMMED ADJUSTMENTS

Component	%	Value	Total
1/4" Loin	84.93%	\$70.22	\$59.64
T/Trace	0.28%	\$34.05	\$0.10
Fat	11.08%	\$19.60	\$2.17
Skin	3.71%	\$28.55	\$1.06
Drop Loin	100.00%		\$62.97

Component	%	Value	Total
Ribs	95.84%	\$124.87	\$119.68
Fat	4.16%	\$19.60	\$0.82
Drop Rib	100.00%		\$120.50

Component	%	Value	Total
1/4" Loin	86.13%	\$92.00	\$79.24
T/Trace	1.84%	\$34.05	\$0.63
Fat	7.22%	\$19.60	\$1.42
Skin	4.81%	\$22.38	\$1.08
Drop Butt	100.00%		\$82.37

Component	%	Value	Total
Belly	97.91%	\$131.27	\$128.53
42% Trim	2.09%	\$21.25	\$0.44
Drop Belly	100.00%		\$128.97



APPENDIX C: PRIMAL CUTOUT WEIGHTING/YIELDS FOR COMPOSITE CUTOUT

Primal Yield to Carcass	
Loin	25.32%
Butt	10.22%
Picnic	11.26%
Sparerib	4.77%
Ham	24.59%
Belly	16.14%
Jowl	1.45%
Neck Bones	1.76%
Tails	0.18%
Front Feet	1.01%
Hind Feet	1.34%
Cut Loss	1.96%