Determining the True Value of Dairy Feeds

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DairyMGT.info

FeedVal2012

Feeding

- FeedVal 2012
- Grouping Strategies for Feeding Lactating Dairy Cattle
- Optigen® Evaluator
- Income Over Feed Supplement Cost
- Dairy Extension Feed Cost Evaluator
- Corn Feeding Strategies
- Income Over Feed Cost
- Dairy Ration Feed Additive Break-Even Analysis

Heifers

- Cost-Benefit of Accelerated Liquid Feeding Program for Dairy Calves
- Economic Value of Sexed Semen Programs for Dairy Heifers
- Heifer Replacement
- Heifer Break-Even

Reproduction

- UW-DairyRepro$Plus: A Reproductive Analysis Tool that Includes Heat Detection Devices
- Economic Value of Sexed Semen Programs for Dairy Heifers
- UW-DairyRepro$: A Reproductive Economic Analysis Tool
- Exploring Timing of Pregnancy Impact on Income Over Feed Cost
- Dairy Reproductive Economic Analysis

Production

- Milk Curve Fitter
- Decision Support System Program for Dairy Production and Expansion
- Economic Analysis of Switching from 2X to 3X Milking
- Lactation Benchmark Curves for Wisconsin
- Economic Evaluation of using rbST
- Alfalfa Yield Predictor: Using a Computer Application to Predict Irrigated Alfalfa Yield

Replacement

- The Economic Value of a Dairy Cow
- Value of a Springer
- Heifer Replacement
- Heifer Break-Even
- Herd Structure Simulation

Financial

- LGM-Dairy Analyzer
- Working Capital Decision Support System
- The Wisconsin Dairy Farm Ratio Benchmarking Tool
- Decision Support System Program for Dairy Production and Expansion
- Least Cost Optimizer
- LGM-Dairy Premium Sensitivity
- Return to Labor
- Estimate Your Mailbox Price
- LGM Dairy Feed Equivalent Calculator
- Net Guarantee Income Over Feed Cost for LGM-Dairy

Price Risk

- LGM-Dairy Premium Sensitivity
- Least Cost Optimizer
- LGM Premium
- LGM Dairy Feed Equivalent Calculator
- Milk Component Price Analysis

Environment

- Dairy Nutrient Manager
- Grazing-N: Application that Balances Nitrogen in Grazing Systems
- Seasonal Prediction of Manure Excretion
- Dynamic Dairy Farm Model

Why decision support tools?

Farm specific decision-making

Assessment should be farm specific

Every farm is different

Farm conditions change dynamically

Decisions should adjust

Market conditions change permanently

Impact decisions

User-friendly applications

Easy to use, still robust

Rationale

True price of a feed

Cows need nutrients

They don’t need “feeds”

Feed price ≠ nutrient value

Feeds have various nutrients

True feed price

∑nutrient values

Best deal

Feeds with lower true price

Nutrient value

Simple example

Actual

Corn: 09%CP + 2.00Mcal/kg = $0.267/kg (89%DM)
SBM: 54%CP + 2.20Mcal/kg = $0.587/kg (89% DM)

Then

CP: $0.748/kg DM
Mcal: $0.116/Mcal

True

Corn: [(9%CP)($0.748/kg)+(2Mcal)($0.116/Mcal)]*89%=$0.267
SBM:[(54%CP)($0.748/kg)+(2.2Mcal)($0.116/Mcal)]*89%=$0.587

Nutrient value

How about 3 nutrients?

Referee Feeds

	CP	Nel	NDF		Price
	%	Mcal/kg	%		$/kg
Corn	9	2	9		0.30
SBM	54	2.2	15		0.66
Hay	18	1.3	50		0.13
	$/kg	$/Mcal	$/kg		
Value ($)	**0.7903**	**0.1306**	**-0.0036**		

Nutrient value

Pricing another feed

					Price
	CP	Nel	NDF		$/kg
	$/kg	$/Mcal	$/kg		
Value ($)	0.7903	0.1306	-0.0036		
	%	Mcal/kg	%		
Priced Feed: Corn Silage	7%	0.67	42%		**$0.14**

E.g., market price of Corn Silage
$0.161/kg

Overpriced!
0.161/0.140 = 115%
15% above predicted!

Nutrient value

More realistic

More nutrients or more referee feeds
Solution becomes more complicated

Market prices are as fed
Solution should be on a dry matter (DM) basis

Different number of feeds and nutrients
Matrix becomes irregular
Always #feeds ≥ #nutrients
Solution is an average of nutrient value in all feeds

Not all feeds should form the price
Referee = Pricers
Others = Priced

FeedVal2012

Online tool

Calculate values

Individual nutrients

Predicts prices

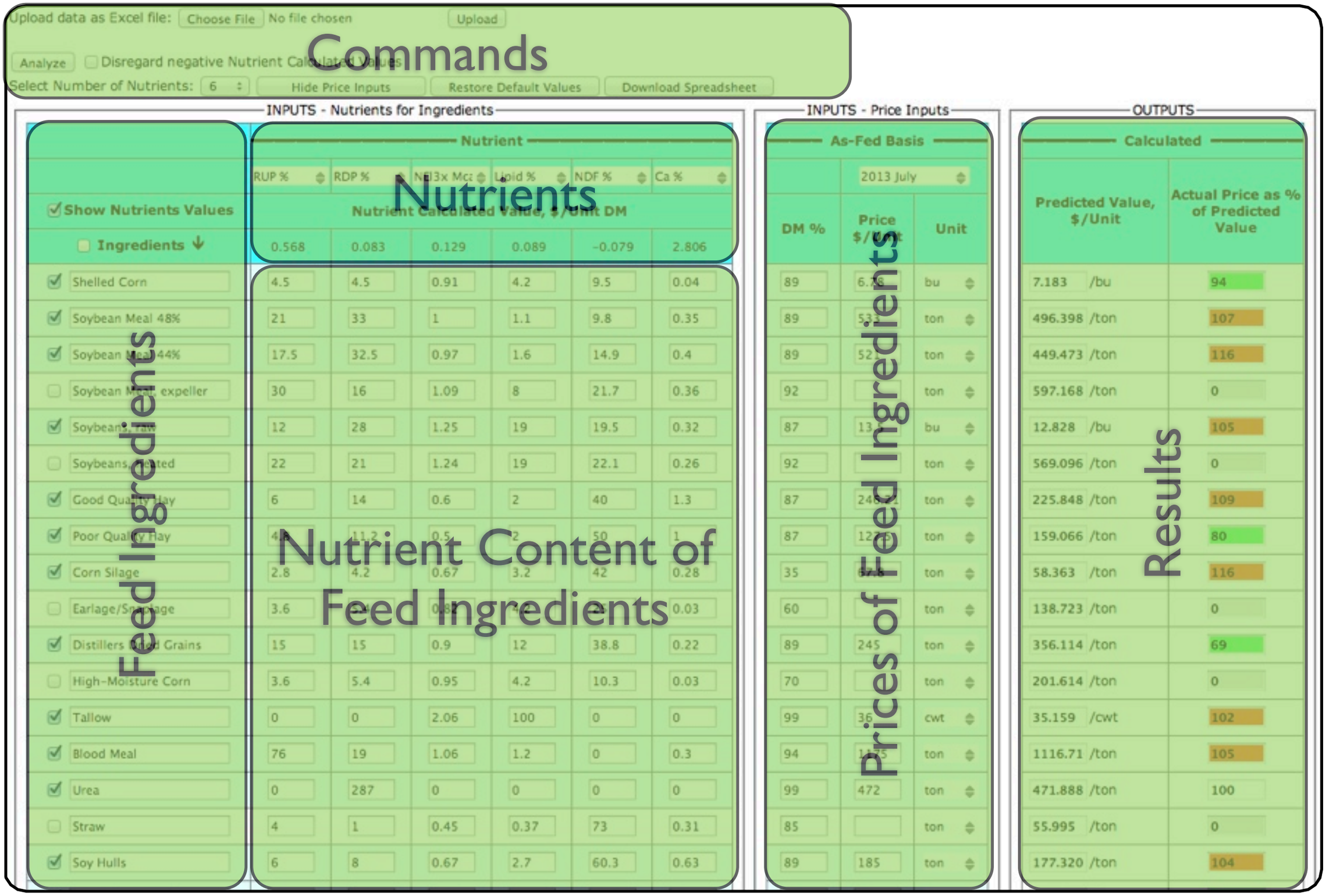
Feed ingredients

Gives relative prices

Compared to market

FeedVal2012

A flexible online tool



Best and worst purchase

July 2012

Overpriced

Whole cottonseed

$370/$258 =

144% predicted

Bargain

Wet distillers

$76/$172 =

44% predicted

	RUP %	RDP %	NEl3x Mcal	Lipid %	NDF %	Ca %	2013 July			Predicted Value, $/Unit	Actual Price as % of Predicted Value
Show Nutrients Values	Nutrient Calculated Value, $/Unit DM						DM %	Price $/Unit	Unit		
Ingredients ↓	0.568	0.083	0.129	0.089	-0.079	2.806					
Shelled Corn	4.5	4.5	0.91	4.2	9.5	0.04	89	6.78	bu	7.183 /bu	94
Soybean Meal 48%	21	33	1	1.1	9.8	0.35	89	533	ton	496.398 /ton	107
Soybean Meal 44%	17.5	32.5	0.97	1.6	14.9	0.4	89	521	ton	449.473 /ton	116
Soybean Meal, expeller	30	16	1.09	8	21.7	0.36	92		ton	597.168 /ton	0
Soybeans, raw	12	28	1.25	19	19.5	0.32	87	13.5	bu	12.828 /bu	105
Soybeans, heated	22	21	1.24	19	22.1	0.26	92		ton	569.096 /ton	0
Good Quality Hay	6	14	0.6	2	40	1.3	87	246.21	ton	225.848 /ton	109
Poor Quality Hay	4.8	11.2	0.5	2	50	1	87	127.5	ton	159.066 /ton	80
Corn Silage	2.8	4.2	0.67	3.2	42	0.28	35	67.8	ton	58.363 /ton	116
Earlage/Snaplage	3.6	5.4	0.82	4.2	25	0.03	60		ton	138.723 /ton	0
Distillers Dried Grains	15	15	0.9	12	38.8	0.22	89	245	ton	356.114 /ton	69
High-Moisture Corn	3.6	5.4	0.95	4.2	10.3	0.03	70		ton	201.614 /ton	0
Tallow	0	0	2.06	100	0	0	99	36	cwt	35.159 /cwt	102
Blood Meal	76	19	1.06	1.2	0	0.3	94	1175	ton	1116.71 /ton	105
Urea	0	287	0	0	0	0	99	472	ton	471.888 /ton	100
Straw	4	1	0.45	0.37	73	0.31	85		ton	55.995 /ton	0
Soy Hulls	6	8	0.67	2.7	60.3	0.63	89	185	ton	177.320 /ton	104
Corn Gluten Feed	7.5	16.5	0.79	3.5	35.5	0.7	89	162	ton	272.311 /ton	59
Canola Meal, expeller	17	21	0.8	5.4	30	0.75	89	362	ton	390.617 /ton	93
Canola Meal, solvent	13.5	24.5	0.74	1.5	29.8	0.75	89		ton	340.687 /ton	0
Cottonseed Meal	20	25	0.78	1.9	30.8	0.2	89	390	ton	388.124 /ton	100
Wheat Middlings	4.5	14	0.76	4.3	36.7	0.16	89	190	ton	203.984 /ton	93
Whole Cottonseed	6	18	0.88	19.3	50.3	0.17	89	370	ton	257.820 /ton	144
Hi-Pro Distillers	22	22	0.9	4	25	0.22	89		ton	443.992 /ton	0
Wet Distillers	12	18	0.92	15	38.8	0.22	45	76	ton	171.689 /ton	44
Brewers Dried Grains	15	15	0.78	5.2	47.4	0.3	89		ton	309.630 /ton	0
Wet Brewers	12	18	0.78	5.2	47.1	0.35	25		ton	80.516 /ton	0
Malt Sprouts	9	21	0.68	2.3	47	0.24	89		ton	227.789 /ton	0
Sunflower Meal	8	21	0.63	1.4	40.3	0.48	89	240	ton	226.176 /ton	106
Beet Pulp	5	5	0.67	1.1	45.8	0.91	89	270	ton	194.628 /ton	139

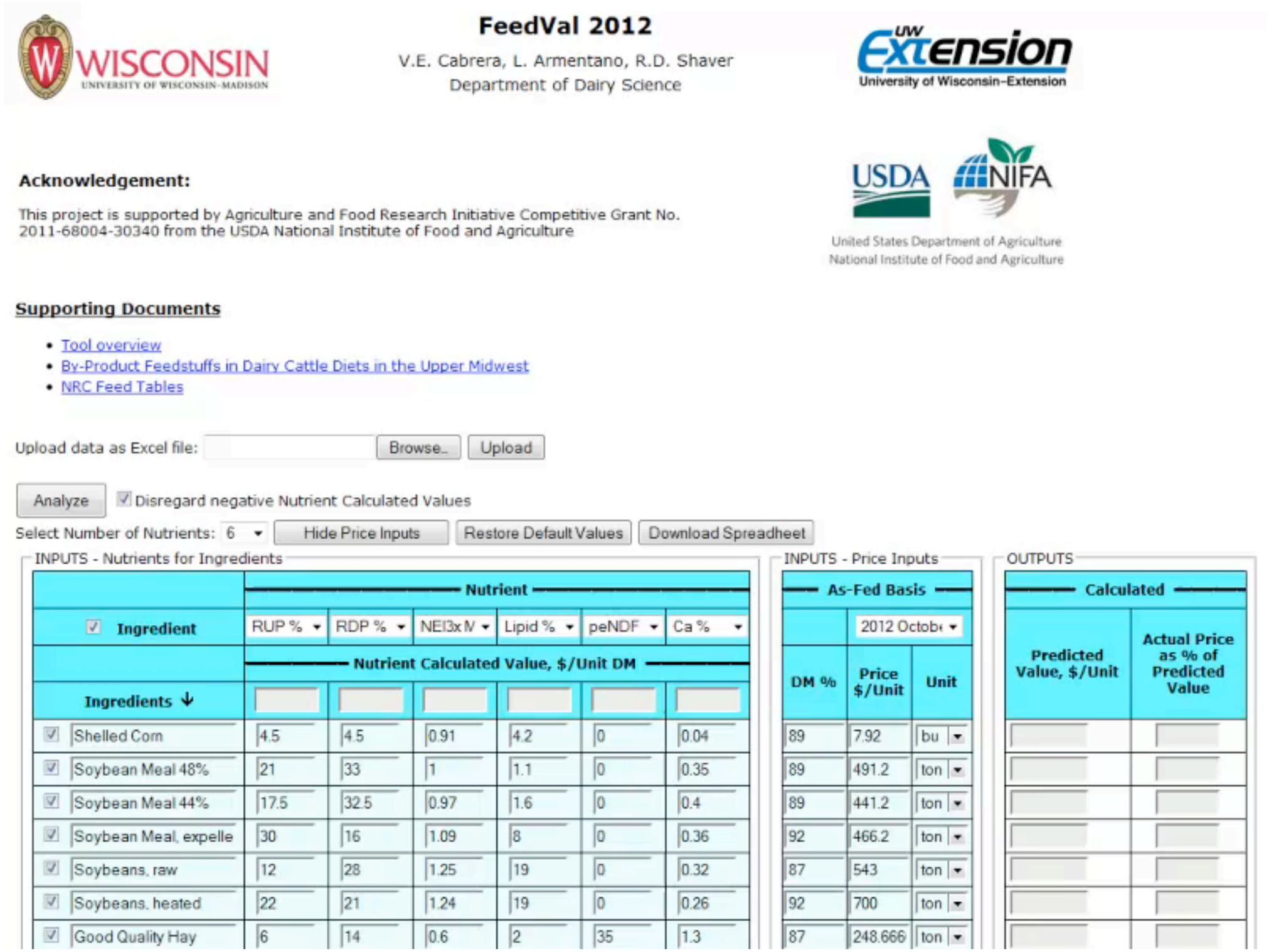
What's true price for

July 2012: RUP, RDP, NEI, peNDF

			Price ($/unit)		% of
Feed	DM	Unit	Market	Predicted	Predicted
Wet distillers	45	ton	76	184	41
Poor Quality Hay	87	ton	128	173	74
Molasses	89	ton	220	218	101
Barley	89	cwt	15	13	116
Tallow	99	cwt	36	28	130
Brewers Dried Grains	89	ton	-	354	-
Whey	20	ton	-	51	-

Video demonstration

Available at DairyMGT.info



FeedVal 2012

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United States Department of Agriculture
National Institute of Food and Agriculture

Supporting Documents

- Tool overview
- By-Product Feedstuffs in Dairy Cattle Diets in the Upper Midwest
- NRC Feed Tables

Upload data as Excel file: Browse... Upload

Analyze | Disregard negative Nutrient Calculated Values

Select Number of Nutrients: 6 | Hide Price Inputs | Restore Default Values | Download Spreadheet

INPUTS - Nutrients for Ingredients

Ingredient	Nutrient: RUP %	RDP %	NEl3x M	Lipid %	peNDF	Ca %
	Nutrient Calculated Value, $/Unit DM					
Ingredients ↓						
Shelled Corn	4.5	4.5	0.91	4.2	0	0.04
Soybean Meal 48%	21	33	1	1.1	0	0.35
Soybean Meal 44%	17.5	32.5	0.97	1.6	0	0.4
Soybean Meal, expelle	30	16	1.09	8	0	0.36
Soybeans, raw	12	28	1.25	19	0	0.32
Soybeans, heated	22	21	1.24	19	0	0.26
Good Quality Hay	6	14	0.6	2	35	1.3

INPUTS - Price Inputs

As-Fed Basis			
	2012 Octob		
DM %	Price $/Unit	Unit	
89	7.92	bu	
89	491.2	ton	
89	441.2	ton	
92	466.2	ton	
87	543	ton	
92	700	ton	
87	248.666	ton	

OUTPUTS

Calculated	
Predicted Value, $/Unit	Actual Price as % of Predicted Value

Monthly market watch

Best feed prices, ranked

Bargains and overpriced

- 27 referee feeds
- 4 nutrients:
  - RUP, RDP, NEL, peNDF
- FOB Midwest US prices

Predicted prices

- 13 feeds

FeedVal 2012 predicted dairy feed prices and rankings for July 2013[1]

V.E. Cabrera, P. Hoffman, and R. Shaver

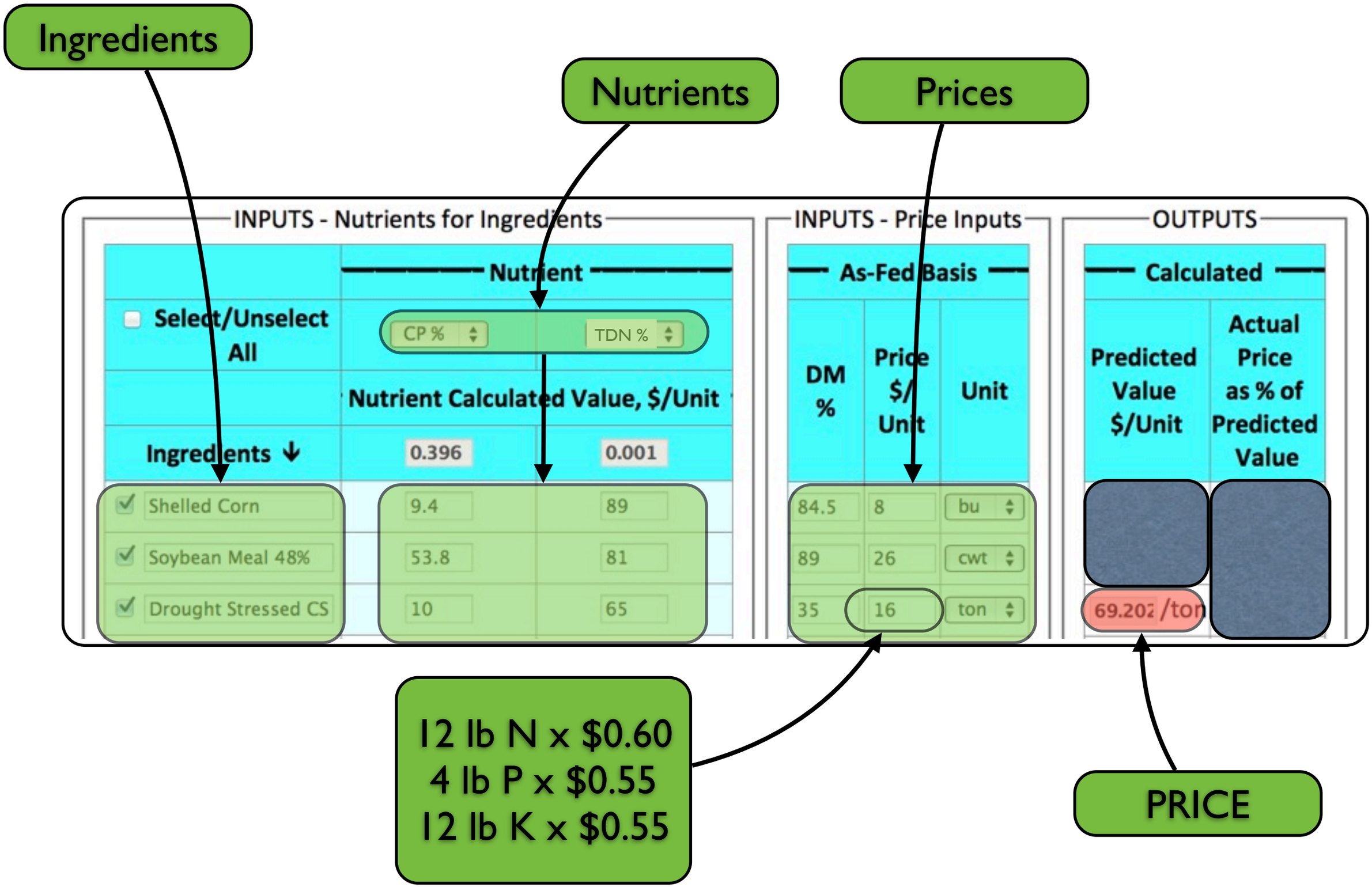
Ingredient	DM %	Unit	Feed Prices ($/Unit) Market	Predicted	Actual Price as % of Predicted Value	Best-buy Ranking
Wet Distillers	45	ton	76.0	183.9	41	1
Corn Gluten Feed	89	ton	162.0	286.7	57	2
Distillers Dried Grains	89	ton	245.0	383.4	64	3
Poor Quality Hay	87	ton	127.5	172.8	74	4
Wheat Middlings	89	ton	190.0	247.0	77	5
Soy Hulls	89	ton	185.0	231.1	80	6
Hominy	89	ton	220.0	257.8	85	7
Wheat	89	bu	6.6	7.7	85	8
Corn Gluten Meal	89	ton	600.0	698.4	86	9
Corn Silage	35	ton	67.8	75.2	90	10
Shelled Corn	89	bu	6.8	7.6	90	11
Sunflower Meal	89	ton	240.0	259.3	93	12
Cottonseed Meal	89	ton	390.0	416.8	94	13
Canola Meal, expeller	89	ton	362.0	387.0	94	14
Molasses	89	ton	220.0	218.3	101	15
Urea	99	ton	472.0	454.7	104	16
Oats	89	ton	263.1	251.3	105	17
Soybeans, raw	87	bu	13.5	12.5	108	18
Soybean Meal 48%	89	ton	533.0	491.0	109	19
Blood Meal	94	ton	1175.0	1072.4	110	20
Good Quality Hay	87	ton	246.2	213.5	115	21
Soybean Meal 44%	89	ton	521.0	449.3	116	22
Barley	89	cwt	14.6	12.6	116	23
Linseed Meal	89	ton	415.0	351.0	118	24
Beet Pulp	89	ton	270.0	217.2	124	25
Whole Cottonseed	89	ton	370.0	293.4	126	26
Tallow	99	cwt	36.0	27.7	130	27

Soybean Meal, expeller	92	ton	594.6
Soybeans, heated	92	ton	559.8
Earlage/Snaplage	60	ton	162.2
High-Moisture Corn	70	ton	213.9
Straw	85	ton	133.0
Canola Meal, solvent	89	ton	343.8
Hi-Pro Distillers	89	ton	460.8
Brewers Dried Grains	89	ton	354.4
Wet Brewers	25	ton	92.6
Malt Sprouts	89	ton	281.0
Wheat Bran	89	ton	230.1
Corn Stover	80	ton	105.4
Whey	20	ton	51.2

[1]Analysis performed using UW-Madison FeedVal 2012: http://dairymgt.info/tools/feedval_12/index.php including 27 feed ingredients displayed in top part of the table, 4 nutrients: RUP, RDP, NEL, and peNDF; and using general wholesale FOB Midwest input prices. These results might change substantially depending on: local input prices, nutrients, and feed ingredients used for price formation. For more in-depth analyses please use the FeedVal 2012 decision support tool and local input prices.

Pricing drought stressed silage

Nutrient content and field expenses



Fungicide treated alfalfa

Referee feeds and nutrients selected

Referee Feeds

Nutrients

INPUTS - Nutrients for Ingredients

INPUTS - Price Inputs

OUTPUTS

Ingredient	Nutrient: CP %	Nutrient: NEl3x M	As-Fed Basis: 2012 Septemb DM %	As-Fed Basis: 2012 Septemb Price $/Unit	As-Fed Basis: 2012 Septemb Unit	Calculated: Predicted Value, $/Unit	Calculated: Actual Price as % of Predicted Value
	Nutrient Calculated Value, $/Unit DM						
Ingredients ↓							
Shelled Corn	9	0.91	89	8	bu	/bu	
Soybean Meal 48%	54	1	89	550	ton	/ton	
Good Quality Hay	20	0.6	87	250	ton	/ton	
Poor Quality Hay	16	0.5	87	150	ton	/ton	
Corn Silage	7	0.67	35	60	ton	/ton	
Untreated	27.87	0.761	91.76		ton	/ton	
Headline	26.42	0.748	91.95		ton	/ton	
Warrior	27.98	0.762	91.74		ton	/ton	
Headline/Warrior	28.70	0.771	91.59		ton	/ton	

Priced Alfalfa Hay

Fungicide treated alfalfa

Referee feeds and nutrients selected

INPUTS - Nutrients for Ingredients

Ingredient	Nutrient: CP %	Nutrient: NEl3x M	As-Fed Basis: DM %	As-Fed Basis: Price $/Unit (2012 Septemb)	As-Fed Basis: Unit	Calculated: Predicted Value, $/Unit	Calculated: Actual Price as % of Predicted Value
Nutrient Calculated Value, $/Unit DM							
Ingredients ↓	0.336	0.121					
☑ Shelled Corn	9	0.91	89	8	bu	7.013 /bu	114
☑ Soybean Meal 48%	54	1	89	550	ton	539.257 /ton	102
☑ Good Quality Hay	20	0.6	87	250	ton	243.727 /ton	103
☑ Poor Quality Hay	16	0.5	87	150	ton	199.205 /ton	75
☑ Corn Silage	7	0.67	35	60	ton	73.396 /ton	82
☐ Untreated	27.87	0.761	91.76		ton	341.489 /ton	0
☐ Headline	26.42	0.748	91.95		ton	330.328 /ton	0
☐ Warrior	27.98	0.762	91.74		ton	342.316 /ton	0
☐ Headline/Warrior	28.70	0.771	91.59		ton	348.192 /ton	0

Priced Alfalfa Hay

Other FeedVal2012 applications

In Wisconsin and elsewhere

Pricing organic barley

Imported from Canada to US

Pricing feeds with no market prices

- Whey
- Straw
- Corn stover

Determine nutrient values

- CP
- NEL
- NDF

Thanks