

Digestible Nutrients

Average Composition and Cost in Feedstuffs Grown and Fed in Oregon

Federal Cooperative Extension Service
Oregon State College
Corvallis

DIGESTIBLE NUTRIENTS

Average Composition and Cost
In Feedstuffs Grown and Fed in Oregon

Prepared by
the Departments of
Dairy and Animal Husbandry
Oregon State College

Federal Cooperative Extension Service
Oregon State College
Corvallis

Cooperative Extension Work in Agriculture and Home Economics
Wm. A. Schoenfeld, Director

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AVERAGE COMPOSITION AND COST OF DIGESTIBLE NUTRIENTS
IN FEEDSTUFFS
GROWN AND FED IN OREGON

This mimeograph has been prepared by members of the Departments of Dairy and Animal Husbandry, Oregon State College, for the use of county agricultural agents, teachers, dairymen, livestock feeders, and feed manufacturers in Oregon. It is not available for free distribution.

The feeding standards for maintenance and milk production are taken from the 1944 and 1945 recommendations of the Committee on Animal Nutrition, National Research Council. The feeding standards for swine show both the National Research Council recommendations and the Morrison Standards from Feeds & Feeding, 20th edition, by F. B. Morrison, on page 4. Many of the tables giving feed analysis are also taken from this text. Those so used are indicated by footnotes.

The data used in other tables have been compiled from many sources, including Morrison's Feeds and Feeding, the feed laboratory of the Division of Foods and Dairies of the Oregon State Department of Agriculture, from Crown Mills, Portland, and from analyses made by the Department of Agricultural Chemistry of the Oregon Experiment Station.

Analyses given are averages of many analyses on these feeds made by the organizations credited in the preceding paragraph. Oregon and the Northwest feeds will not always exactly hold to these averages but are the best that can be given at this time.

The term "T.D.N." or total digestible nutrients, refers to the total of the digestible protein, the digestible fat times $2\frac{1}{4}$, the digestible fiber and the digestible nitrogen-free extract.

It should be pointed out that the analysis given at the top of each sheet for a particular feed stuff is the chemical analysis except in the case of digestible protein and total digestible nutrients. The cost figures are based on the digestible analysis.

In the tables showing the cost per pound of digestible protein and total digestible nutrients, the costs per ton given are within the range of those usually paid for the particular product. In addition, the cost is also given at \$1.00 per ton in order to permit easy calculation at any given price.

The information given under digestible nutrients per pound of the particular feed stuffs will be of considerable value to the dairyman or livestock feeder as it will indicate the possible intake of digestible protein and total digestible nutrients in variable amounts of feed.

DAILY NUTRITIONAL ALLOWANCES FOR DAIRY CATTLE*

	Total		Calcium	Phosphorus
	Digestible Nutrients	Digestible Protein		
	Pounds	Pounds	Grams	Grams
A. Maintenance				
700-pound cow	6.0	0.45	7	7
800-pound cow	6.7	0.50	8	8
900-pound cow	7.4	0.55	9	9
1000-pound cow	8.1	0.60	10	10
1100-pound cow	8.8	0.65	11	11
1200-pound cow	9.5	0.70	12	12
1300-pound cow	10.2	0.75	13	13
1400-pound cow	10.9	0.80	14	14
1500-pound cow	11.6	0.85	15	15
B. Pregnancy (per 1000 pounds)				
Last 6 - 12 weeks	14.0	1.20	22	17
Lactation (per pound milk)				
2.5% butterfat	0.26	0.037	1	0.7
3.0% butterfat	0.28	0.040	1	0.7
3.5% butterfat	0.30	0.043	1	0.7
4.0% butterfat	0.32	0.045	1	0.7
4.5% butterfat	0.35	0.048	1	0.7
5.0% butterfat	0.37	0.050	1	0.7
5.5% butterfat	0.40	0.053	1	0.7
6.0% butterfat	0.42	0.055	1	0.7
6.5% butterfat	0.45	0.058	1	0.7

FEEDING STANDARDS FOR BEEF CATTLE, HOGS, AND SHEEP

	Requirements per Head Daily			
	Total Digestible Nutrients	Digestible Protein	Calcium	Phosphorus
	Pounds	Pounds	Grams	Grams
<u>BEEF CATTLE**</u>				
<u>Fattening Calves Finished as Short Yearlings</u>				
Weight 400 lbs.	8.0	1.1	20	15
Weight 500 lbs.	9.5	1.2	20	16
Weight 600 lbs.	11.0	1.3	20	17
Weight 700 lbs.	12.0	1.4	20	18
Weight 800 lbs.	13.5	1.5	20	18

*Based on Recommendations of Committee on Animal Nutrition, National Research Council, August 1945.

**Recommended Nutrient Allowances for Beef Cattle - National Research Council, September, 1945.

FEEDING STANDARDS FOR BEEF CATTLE, HOGS, AND SHEEP (Cont.)

	Requirements per Head Daily			
	Total	Digestible	Calcium	Phosphorus
	Digestible Nutrients	Digestible Protein	Grams	Grams
	Pounds	Pounds	Grams	Grams
<u>Fattening Yearling Cattle</u>				
Weight 600 lbs.	11.5	1.3	20	17
Weight 700 lbs.	13.5	1.4	20	18
Weight 800 lbs.	14.0	1.5	20	19
Weight 900 lbs.	15.5	1.6	20	20
<u>Fattening 2-year-old Cattle</u>				
Weight 900 lbs.	16.0	1.6	20	20
Weight 1000 lbs.	17.0	1.7	20	20
Weight 1100 lbs.	18.0	1.8	20	20
<u>Wintering Mature Pregnant Cows</u>				
Weight 900 lbs.	10.0	0.9	18	16
Weight 1000 lbs.	9.0	0.9	16	15
Weight 1100 lbs.	9.0	0.8	16	15
<u>Wintering Weanling Calves</u>				
Weight 400 lbs.	6.0	0.7	16	12
Weight 500 lbs.	7.0	0.8	16	12
Weight 600 lbs.	8.0	0.8	16	12
<u>Wintering Yearling Cattle</u>				
Weight 600 lbs.	8.0	0.8	16	12
Weight 700 lbs.	8.5	0.8	16	12
Weight 800 lbs.	9.0	0.8	16	12
Weight 900 lbs.	9.0	0.8	16	12
<u>SHEEP*</u>				
<u>Bred Ewes First 100 Days of Gestation</u>				
Weight 100 lbs.	1.7	.17	3.2	2.5
Weight 120 lbs.	1.9	.19	3.3	2.7
<u>Bred Ewes Last 6 Weeks Before Lambing</u>				
Weight 100 lbs.	2.0	.20	4.2	3.1
Weight 120 lbs.	2.2	.22	4.4	3.3
<u>Ewes Nursing Lambs</u>				
Weight 100 lbs.	2.5	.27	6.1	4.5
Weight 120 lbs.	2.7	.28	6.4	4.7

*National Research Council Recommendation, October 1945.

FEEDING STANDARDS FOR BEEF CATTLE, HOGS, AND SHEEP (Cont.)

	Requirements per Head Daily			
	Total Digestible Nutrients	Digestible Protein	Calcium	Phosphorus
	Pounds	Pounds	Grams	Grams
<u>Fattening Lambs</u>				
Weight 50 lbs.	1.2	.17	2.8	1.9
Weight 60 lbs.	1.4	.18	3.1	2.1
Weight 70 lbs.	1.7	.19	3.3	2.2
<u>SWINE*</u>				
<u>Growing and Fattening Pigs</u>				
		Crude Protein		
Weight 50 lbs.	2.0	0.6	7.4	4.9
Weight 100 lbs.	3.8	0.8	13.7	9.1
Weight 200 lbs.	5.6	1.0	17.9	11.9
<u>Pregnant Gilts and Sows:</u>	4.5	0.9	16.4	10.9
<u>Young Boars</u>				
<u>Lactating Sows: Breeding Boars</u>	7.5-11.3	1.5-2.3	27.41	18.27
<u>MORRISON'S STANDARD FOR SWINE**</u>				
<u>Growing and Fattening Pigs</u>				
		Digestible Protein	Total Digestible Nutrients	
		Pounds	Pounds	
Weight 30 lbs.		0.25-0.32	1.2-1.7	
Weight 50 lbs.		0.35-0.43	1.9-2.5	
Weight 100 lbs.		0.50-0.60	3.2-4.3	
Weight 200 lbs.		0.73-0.83	5.2-6.4	
<u>Wintering Pregnant Older Sows</u>				
Weight 300 lbs.		0.43-0.49	3.2-4.1	
Weight 400 lbs.		0.53-0.60	4.0-5.0	
<u>Brood Sows Nursing Litters</u>				
Weight 300 lbs.		1.16-1.23	8.1-9.5	
Weight 400 lbs.		1.22-1.29	8.5-10.0	

*National Research Council Recommendation, August, 1944.

**Taken by special permission of the Morrison Publishing Company, Ithaca, New York, from Feeds and Feeding, 20th Edition, by F. B. Morrison.

ALFALFA HAY (AVERAGE ANALYSES)

AnalysisPer Cent

Total dry matter	90.4
Digestible protein	10.6
Total digestible nutrients	50.3
Crude protein	14.7
Fat	2.0
Fiber	29.0
Ash	8.3
Calcium	1.2
Phosphorus	0.2

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.47¢	0.10¢
5	2.4	0.5
6	2.8	0.6
7	3.3	0.7
8	3.8	0.8
9	4.2	0.9
10	4.7	1.0
11	5.2	1.1
12	5.6	1.2
15	7.1	1.5
20	9.4	2.0
25	11.8	2.5

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.106	.503
5	.530	2.51
10	1.06	5.03
12	1.27	6.04
14	1.48	7.04
16	1.70	8.05
18	1.91	9.05
20	2.12	10.06
25	2.65	12.58
30	3.18	15.09
35	3.71	17.61
40	4.24	20.12

ALFALFA HAY (Very Leafy)

*Analysis

	<u>Per Cent</u>
Total dry matter	90.0
Digestible protein	12.4
Total digestible nutrients	53.7
Crude protein	16.5
Fat	2.7
Fiber	22.6
Ash	8.7
Calcium	1.69
Phosphorus	0.24

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.40¢	0.09¢
5	2.0	0.5
6	2.4	0.5
7	2.8	0.6
8	3.2	0.7
9	3.6	0.8
10	4.0	0.9
11	4.4	1.0
12	4.8	1.1
15	6.0	1.4
20	8.0	1.8
25	10.0	2.3

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.124	.537
5	.62	2.69
10	1.24	5.37
12	1.49	6.44
14	1.74	7.52
16	1.98	8.59
18	2.23	9.67
20	2.48	10.74
25	3.10	13.43
30	3.72	16.11
35	4.34	18.80
40	4.96	21.48

* Morrison - Feeds and Feeding, 20th Edition

ALFALFA HAY (Stemmy)

*AnalysisPer Cent

Total dry matter	90.4
Digestible protein	8.2
Total digestible nutrients	47.5
Crude protein	12.1
Fat	1.4
Fiber	36.0
Ash	7.8
Calcium	1.01
Phosphorus	0.19

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.61¢	0.11¢
5	3.1	0.6
6	3.7	0.7
7	4.3	0.8
8	4.9	0.9
9	5.5	1.0
10	6.1	1.1
11	6.7	1.2
12	7.3	1.3
15	9.2	1.7
20	12.2	2.2
25	15.3	2.8

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.082	.475
5	.41	2.38
10	.82	4.75
12	.98	5.70
14	1.15	6.65
16	1.31	7.60
18	1.48	8.55
20	1.64	9.50
25	2.05	11.88
30	2.46	14.25
35	2.87	16.63
40	3.28	19.00

CHEAT HAY

*Analysis

	<u>Per Cent</u>
Total dry matter	91.7
Digestible protein	2.9
Total digestible nutrients	40.4
Crude protein	6.9
Fat	2.1
Fiber	29.2
Ash	7.4
Calcium	0.33
Phosphorus	0.25

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	1.72¢	0.12¢
5	8.6	0.6
6	10.3	0.7
7	12.0	0.8
8	13.8	1.0
9	15.5	1.1
10	17.2	1.2
11	18.9	1.3
12	20.6	1.4
15	25.8	1.8
20	34.4	2.4
25	43.0	3.0

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.029	.404
5	.15	2.02
10	.29	4.04
12	.35	4.85
14	.41	5.66
16	.46	6.46
18	.52	7.27
20	.58	8.08
25	.73	10.10
30	.87	12.12
35	1.02	14.14
40	1.16	16.16

CLOVER HAY, RED (AVERAGE ANALYSES)

9.

*Analysis

Per Cent

Total dry matter	88.2
Digestible protein	7.0
Total digestible nutrients	51.9
Crude protein	11.8
Fat	2.6
Fiber	27.3
Ash	6.4
Calcium	1.21
Phosphorus	0.18

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.71¢	0.10¢
5	3.6	0.5
6	4.3	0.6
7	5.0	0.7
8	5.7	0.8
9	6.4	0.9
10	7.1	1.0
11	7.8	1.1
12	8.5	1.2
15	10.7	1.5
20	14.2	2.0
25	17.8	2.5

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.070	.519
5	.35	2.60
10	.70	5.19
12	.84	6.23
14	.98	7.27
16	1.12	8.30
18	1.26	9.34
20	1.40	10.38
25	1.75	12.98
30	2.10	15.57
35	2.45	18.17
40	2.80	20.76

NATIVE HAY, MT. STATES, GOOD

*Analysis

	<u>Per Cent</u>
Total dry matter	90.0
Digestible protein	4.9
Total digestible nutrients	52.0
Crude protein	8.1
Fat	2.1
Fiber	29.8
Ash	6.7
Calcium	0.30
Phosphorus	0.22

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	1.02¢	0.10¢
5	5.1	0.5
6	6.1	0.6
7	7.1	0.7
8	8.2	0.8
9	9.2	0.9
10	10.2	1.0
11	11.2	1.1
12	12.2	1.2
15	15.3	1.5
20	20.4	2.0
25	25.5	2.5

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.049	.52
5	.25	2.60
10	.49	5.20
12	.59	6.24
14	.69	7.28
16	.78	8.32
18	.88	9.36
20	.98	10.40
25	1.23	13.00
30	1.47	15.60
35	1.72	18.20
40	1.96	20.80

OAT HAY

*Analysis

	<u>Per Cent</u>
Total dry matter	88.0
Digestible protein	4.5
Total digestible nutrients	46.3
Crude protein	8.3
Fat	2.7
Fiber	28.4
Ash	6.9
Calcium	0.22
Phosphorus	0.17

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	1.11¢	0.11¢
5	5.6	0.6
6	6.7	0.7
7	7.8	0.8
8	8.9	0.9
9	10.0	1.0
10	11.1	1.1
11	12.2	1.2
12	13.3	1.3
15	16.7	1.7
20	22.2	2.2
25	27.8	2.8

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.045	.463
5	.23	2.32
10	.45	4.63
12	.54	5.56
14	.63	6.48
16	.72	7.41
18	.81	8.33
20	.90	9.26
25	1.13	11.58
30	1.35	13.89
35	1.58	16.21
40	1.80	18.52

REED CANARY GRASS HAY

*Analysis

	<u>Per Cent</u>
Total dry matter	90.8
Digestible protein	3.5
Total digestible nutrients	46.6
Crude protein	7.5
Fat	2.4
Fiber	29.1
Ash	7.4
Calcium	0.27
Phosphorus	0.23

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	1.43¢	0.11¢
5	7.2	0.6
6	8.6	0.7
7	10.0	0.8
8	11.4	0.9
9	12.9	1.0
10	14.3	1.1
11	15.7	1.2
12	17.2	1.3
15	21.5	1.7
20	28.6	2.2
25	35.8	2.8

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.035	.466
5	.18	2.33
10	.35	4.66
12	.42	5.59
14	.49	6.52
16	.56	7.46
18	.63	8.39
20	.70	9.32
25	.88	11.65
30	1.05	13.98
35	1.23	16.31
40	1.40	18.64

* Morrison - Feeds and Feeding, 20th Edition

SUDAN GRASS HAY

*Analysis

	<u>Per Cent</u>
Total dry matter	89.2
Digestible protein	4.3
Total digestible nutrients	48.5
Crude protein	8.8
Fat	1.6
Fiber	27.9
Ash	8.0
Calcium	• 0.28
Phosphorus	0.22

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	1.16¢	0.10¢
5	5.8	0.5
6	7.0	0.6
7	8.1	0.7
8	9.3	0.8
9	10.4	0.9
10	11.6	1.0
11	12.8	1.1
12	13.9	1.2
15	17.4	1.5
20	23.2	2.0
25	29.0	2.5

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.043	.485
5	.22	2.43
10	.43	4.85
12	.52	5.82
14	.60	6.79
16	.69	7.76
18	.77	8.73
20	.86	9.70
25	1.08	12.13
30	1.29	14.55
35	1.51	16.98
40	1.72	19.40

* Morrison - Feeds and Feeding, 20th Edition

TIMOTHY HAY

*AnalysisPer Cent

Total dry matter	88.7
Digestible protein	2.9
Total digestible nutrients	46.9
Crude protein	6.2
Fat	2.4
Fiber	30.1
Ash	5.0
Calcium	0.27
Phosphorus	0.16

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	1.72¢	0.11¢
5	8.6	0.6
6	10.3	0.7
7	12.0	0.8
8	13.8	0.9
9	15.5	1.0
10	17.2	1.1
11	18.9	1.2
12	20.6	1.3
15	25.8	1.7
20	34.4	2.2
25	43.0	2.8

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.029	.469
5	.15	2.35
10	.29	4.69
12	.35	5.63
14	.41	6.57
16	.46	7.50
18	.52	8.44
20	.58	9.38
25	.73	11.73
30	.87	14.07
35	1.02	16.42
40	1.16	18.76

VETCH AND OAT HAY, MOSTLY OAT

*Analysis

	<u>Per Cent</u>
Total dry matter	89.8
Digestible protein	4.8
Total digestible nutrients	53.0
Crude protein	6.6
Fat	2.9
Fiber	29.4
Ash	5.8
Calcium	0.35
Phosphorus	0.20

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	1.04¢	0.09¢
5	5.2	0.5
6	6.2	0.5
7	7.3	0.6
8	8.3	0.7
9	9.4	0.8
10	10.4	0.9
11	11.4	1.0
12	12.5	1.1
15	15.6	1.4
20	20.8	1.8
25	26.0	2.3

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.048	.53
5	.24	2.65
10	.48	5.30
12	.58	6.36
14	.67	7.42
16	.77	8.48
18	.86	9.54
20	.96	10.60
25	1.20	13.25
30	1.44	15.90
35	1.68	18.55
40	1.92	21.20

VETCH AND OAT HAY, MOSTLY VETCH

*Analysis

	<u>Per Cent</u>
Total dry matter	90.0
Digestible protein	9.1
Total digestible nutrients	52.5
Crude protein	12.5
Fat	2.5
Fiber	29.3
Ash	7.6
Calcium	0.62
Phosphorus	0.22

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.55¢	0.10¢
5	2.8	0.5
6	3.3	0.6
7	3.9	0.7
8	4.4	0.8
9	5.0	0.9
10	5.5	1.0
11	6.1	1.1
12	6.6	1.2
15	8.3	1.5
20	11.0	2.0
25	13.8	2.5

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.091	.525
5	.46	2.63
10	.91	5.25
12	1.09	6.30
14	1.27	7.35
16	1.46	8.40
18	1.64	9.45
20	1.82	10.50
25	2.28	13.13
30	2.73	15.75
35	3.19	18.38
40	3.64	21.00

ALFALFA MOLASSES SILAGE

<u>Analysis</u>	<u>Per Cent</u>
Total dry matter	38.9
Digestible protein	3.8
Total digestible nutrients	22.8
Crude protein	5.2
Fat	2.0
Fiber	7.5
Ash	3.3
Calcium	0.58
Phosphorus	0.10

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	1.32¢	0.22¢
2	2.6	0.4
3	4.0	0.7
4	5.3	0.9
5	6.6	1.1
6	8.0	1.3
7	9.2	1.5
8	10.6	1.8
9	11.9	2.0
10	13.2	2.2

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.038	.228
10	.38	2.28
20	.76	4.56
25	.95	5.70
30	1.14	6.84
35	1.33	7.98
40	1.52	9.12
45	1.71	10.26
50	1.90	11.40
60	2.28	13.68
70	2.66	15.96
80	3.04	18.16

CORN SILAGE, DENT, WELL EARED

* Analysis

	<u>Per Cent</u>
Total dry matter	29.2
Digestible protein	1.5
Total digestible nutrients	20.6
Crude protein	2.5
Fat	0.9
Fiber	6.4
Ash	1.6
Calcium	0.08
Phosphorus	0.06

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	3.33¢	0.24¢
2	6.7	0.5
3	10.0	0.7
4	13.3	1.0
5	16.7	1.2
6	20.0	1.4
7	23.3	1.7
8	26.6	1.9
9	30.0	2.2
10	33.3	2.4

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.015	.206
10	.15	2.06
20	.30	4.12
25	.38	5.15
30	.45	6.18
35	.53	7.21
40	.60	8.24
45	.68	9.27
50	.75	10.30
60	.90	12.36
70	1.05	14.42
80	1.20	16.48

* Morrison. - Feeds and Feeding, 20th Edition

PEA AND OATS SILAGE

*Analysis

	<u>Per Cent</u>
Total dry matter	30.0
Digestible protein	2.7
Total digestible nutrients	19.2
Crude protein	3.6
Fat	1.2
Fiber	9.4
Ash	2.8
Calcium	0.09
Phosphorus	0.07

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	1.85¢	0.26¢
2	3.7	0.5
3	5.6	0.8
4	7.4	1.0
5	9.3	1.3
6	11.1	1.6
7	13.0	1.8
8	14.8	2.1
9	16.7	2.3
10	18.5	2.6

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.027	.192
10	.27	1.92
20	.54	3.84
25	.68	4.80
30	.81	5.76
35	.95	6.72
40	1.08	7.68
45	1.22	8.64
50	1.35	9.60
60	1.62	11.52
70	1.89	13.44
80	2.16	15.36

*Morrison - Feeds and Feeding, 20th Edition

PEA-VINE SILAGE

<u>*Analysis</u>	<u>Per Cent</u>
Total dry matter	27.9
Digestible protein	2.6
Total digestible nutrients	17.8
Crude protein	3.5
Fat	1.0
Fiber	7.8
Ash	2.5
Calcium	0.28
Phosphorus	0.08

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	1.92¢	0.28¢
2	3.8	0.6
3	5.8	0.8
4	7.7	1.1
5	9.6	1.4
6	11.5	1.7
7	13.4	2.0
8	15.4	2.2
9	17.3	2.5
10	19.2	2.8

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.026	.178
10	.26	1.78
20	.52	3.56
25	.65	4.45
30	.78	5.34
35	.91	6.23
40	1.04	7.12
45	1.17	8.01
50	1.30	8.90
60	1.56	10.68
70	1.82	12.46
80	2.08	14.24

*Morrison - Feeds and Feeding, 20th Edition

REED CANARY GRASS SILAGE

AnalysisPer Cent

Total dry matter	30.5
Digestible protein	1.8
Total digestible nutrients	18.0
Crude protein	2.8
Fat	0.7
Fiber	11.8
Ash	2.3
Calcium	0.17
Phosphorus	0.10

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	2.70¢	0.28¢
2	5.6	0.6
3	8.3	0.8
4	11.1	1.1
5	13.9	1.4
6	16.7	1.4
7	19.5	2.0
8	22.2	2.2
9	25.0	2.5
10	27.8	2.8

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.018	.18
10	.18	1.80
20	.36	3.60
25	.45	4.50
30	.54	5.40
35	.63	6.30
40	.72	7.20
45	.81	8.10
50	.90	9.00
60	1.08	10.80
70	1.26	12.60
80	1.44	14.40

SUDAN GRASS SILAGE

*Analysis

	<u>Per Cent</u>
Total dry matter	26.1
Digestible protein	1.2
Total digestible nutrients	15.1
Crude protein	2.2
Fat	0.9
Fiber	8.8
Ash	2.4
Calcium	0.16
Phosphorus	0.09

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	4.17¢	0.33¢
2	8.3	0.7
3	12.5	1.0
4	16.7	1.3
5	20.9	1.7
6	25.0	2.0
7	29.2	2.3
8	33.4	2.6
9	37.5	3.0
10	41.7	3.3

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.012	.151
10	.12	1.51
20	.24	3.02
25	.30	3.78
30	.36	4.53
35	.42	5.29
40	.48	6.04
45	.54	6.80
50	.60	7.55
60	.72	9.06
70	.84	10.57
80	.96	12.08

* Morrison - Feeds and Feeding, 20th Edition

SUGAR BEET TOP SILAGE

*Analysis

	<u>Per Cent</u>
Total dry matter	27.0
Digestible protein	1.8
Total digestible nutrients	11.8
Crude protein	3.5
Fat	0.7
Fiber	3.0
Ash	8.5
Calcium	0.31
Phosphorus	0.09

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	2.78¢	0.42¢
2	5.6	.8
3	8.3	1.3
4	11.1	1.7
5	13.9	2.1
6	16.7	2.5
7	19.5	2.9
8	22.2	3.4
9	25.0	3.8
10	27.8	4.2

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.018	.118
10	.18	1.18
20	.36	2.36
25	.45	2.95
30	.54	3.54
35	.63	4.13
40	.72	4.72
45	.81	5.31
50	.90	5.90
60	1.08	7.08
70	1.26	8.26
80	1.44	9.44

* Morrison - Feeds and Feeding, 20th Edition

VETCH AND OATS SILAGE

Analysis

	<u>Per Cent</u>
Total dry matter	30.1
Digestible protein	2.4
Total digestible nutrients	19.4
Crude protein	3.2
Fat	1.1
Fiber	9.5
Ash	2.2
Calcium	0.26
Phosphorus	0.07

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	2.08¢	0.26¢
2	4.2	0.5
3	6.2	0.8
4	8.3	1.0
5	10.4	1.3
6	12.5	1.6
7	14.6	1.8
8	16.6	2.1
9	18.7	2.3
10	20.8	2.6

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.024	.194
10	.24	1.94
20	.48	3.88
25	.60	4.85
30	.72	5.82
35	.84	6.89
40	.96	7.86
45	1.08	8.83
50	1.20	9.80
60	1.44	11.74
70	1.68	13.68
80	1.92	15.62

ALFALFA, GREEN

<u>*Analysis</u>	<u>Per Cent</u>
Total dry matter	25.4
Digestible protein	3.4
Total digestible nutrients	14.7
Crude protein	4.6
Fat	1.0
Fiber	7.0
Ash	2.4
Calcium	0.40
Phosphorus	0.06

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	1.47¢	0.34¢
2	2.9	.68
3	4.4	1.02
4	5.8	1.36
5	7.3	1.70
6	8.8	2.04
7	10.3	2.38
8	11.8	2.72
9	13.2	3.06
10	14.7	3.40

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.034	.147
5	.17	.74
10	.34	1.47
15	.51	2.21
20	.68	2.94
25	.85	3.68
30	1.02	4.41
35	1.19	5.15
40	1.36	5.88
45	1.53	6.62
50	1.70	7.35
60	2.04	8.82

CLOVER, RED, GREEN

* Analysis

	<u>Per Cent</u>
Total dry matter	25.0
Digestible protein	2.6
Total digestible nutrients	15.4
Crude protein	4.0
Fat	0.9
Fiber	6.8
Ash	2.1
Calcium	0.43
Phosphorus	0.07

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	1.92¢	0.32¢
2	3.8	0.64
3	5.8	0.96
4	7.7	1.3
5	9.6	1.6
6	11.5	1.9
7	13.4	2.2
8	15.3	2.6
9	17.3	2.9
10	19.2	3.2

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.026	.154
5	.13	.77
10	.26	1.54
15	.39	2.31
20	.52	3.08
25	.65	3.85
30	.78	4.62
35	.91	5.39
40	1.04	6.16
45	1.17	6.93
50	1.30	7.70
60	1.56	9.24

* Morrison - Feeds and Feeding, 20th Edition

*Analysis

	<u>Per Cent</u>
Total dry matter	11.8
Digestible protein	1.9
Total digestible nutrients	7.8
Crude protein	2.4
Fat	0.5
Fiber	1.6
Ash	1.8
Calcium	0.19
Phosphorus	0.06

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	2.63¢	0.61¢
2	5.3	1.3
3	7.9	1.9
4	10.5	2.6
5	13.2	3.2
6	15.8	3.8
7	18.4	4.5
8	21.0	5.1
9	23.7	5.8
10	26.3	6.4

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.019	.078
5	.10	.39
10	.19	.78
15	.29	1.17
20	.37	1.56
25	.48	1.95
30	.57	2.34
35	.67	2.73
40	.76	3.12
45	.86	3.22
50	.95	3.31
60	1.14	3.50

PASTURE (50% LADINO CLOVER, 50% MIXED GRASSES)

<u>Analysis</u>	<u>Per Cent</u>
Total dry matter	21.7
Digestible protein	3.1
Total digestible nutrients	15.2
Crude protein	4.1
Fat	0.6
Fiber	5.1
Ash	2.3
Calcium	0.27
Phosphorus	0.08

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	1.61¢	0.33¢
2	3.2	0.7
3	4.8	1.0
4	6.4	1.3
5	8.1	1.7
6	9.7	2.0
7	11.3	2.3
8	12.9	2.6
9	14.5	3.0
10	16.1	3.3

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.031	.152
5	.16	.76
10	.31	1.52
15	.47	2.28
20	.62	3.04
25	.78	3.80
30	.93	4.56
35	1.09	5.32
40	1.24	6.08
45	1.40	6.84
50	1.55	7.60
60	1.86	9.12

VETCH AND OATS, GREEN

*Analysis

	<u>Per Cent</u>
Total dry matter	26.5
Digestible protein	2.9
Total digestible nutrients	17.1
Crude protein	3.8
Fat	0.9
Fiber	7.5
Ash	2.3
Calcium	
Phosphorus	0.07

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	1.72¢	0.29¢
2	3.4	0.58
3	5.2	0.87
4	6.9	1.2
5	8.6	1.5
6	10.3	1.7
7	12.0	2.0
8	13.8	2.3
9	15.5	2.6
10	17.2	2.9

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.029	.171
5	.15	.86
10	.29	1.71
15	.44	2.57
20	.58	3.42
25	.73	4.28
30	.87	5.13
35	1.02	5.99
40	1.16	6.84
45	1.31	7.70
50	1.45	8.55
60	1.74	10.26

* Morrison - Feeds and Feeding, 20th Edition

APPLES

*Analysis

	<u>Per Cent</u>
Total dry matter	17.9
Digestible protein	0.2
Total digestible nutrients	14.4
Crude protein	0.5
Fat	0.4
Fiber	1.3
Ash	0.4
Calcium	0.01
Phosphorus	0.01

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	25.0¢	0.35¢
2	50.0	0.7
3	75.0	1.1
4	100.0	1.4
5	125.0	1.8
6	150.0	2.1
7	175.0	2.5
8	200.0	2.8
9	225.0	3.2
10	250.0	3.5

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.002	.144
5	.01	.72
10	.02	1.44
15	.03	2.16
20	.04	2.88
25	.05	3.60
30	.06	4.32
35	.07	5.04
40	.08	5.76
45	.09	6.48
50	.10	7.20
60	.12	8.64

CARROTS

*Analysis

	<u>Per Cent</u>
Total dry matter	11.9
Digestible protein	0.8
Total digestible nutrients	9.6
Crude protein	1.2
Fat	0.2
Fiber	1.1
Ash	1.2
Calcium	0.06
Phosphorus	0.06

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	6.25¢	0.52¢
2	12.5	1.0
3	18.8	1.6
4	25.0	2.1
5	31.3	2.6
6	37.5	3.1
7	43.8	3.6
8	50.0	4.2
9	56.3	4.7
10	62.5	5.2

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.008	.096
5	.04	.48
10	.08	.96
15	.12	1.44
20	.16	1.92
25	.20	2.40
30	.24	2.88
35	.28	3.36
40	.32	3.84
45	.36	4.32
50	.40	4.80
60	.48	5.76

* Morrison - Feeds and Feeding, 20th Edition

* AnalysisPer Cent

Total dry matter	9.4
Digestible protein	1.0
Total digestible nutrients	7.3
Crude protein	1.4
Fat	0.1
Fiber	0.8
Ash	1.0
Calcium	0.01
Phosphorus	0.03

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	5.0¢	0.69¢
2	10.0	1.4
3	15.0	2.1
4	20.0	2.8
5	25.0	3.5
6	30.0	4.1
7	35.0	4.8
8	40.0	5.5
9	45.0	6.2
10	50.0	6.9

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.010	.073
5	.05	.37
10	.10	.73
15	.15	1.10
20	.20	1.46
25	.25	1.83
30	.30	2.17
35	.35	2.56
40	.40	2.92
45	.45	3.29
50	.50	3.65
60	.60	4.38

* Analysis

	<u>Per Cent</u>
Total dry matter	21.2
Digestible protein	1.1
Total digestible nutrients	17.3
Crude protein	2.2
Fat	0.1
Fiber	0.4
Ash	1.1
Calcium	0.01
Phosphorus	0.05

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
1	4.55¢	0.29¢
2	9.1	0.58
3	13.7	0.87
4	18.2	1.2
5	22.8	1.5
6	27.3	1.7
7	31.9	2.0
8	36.4	2.3
9	41.0	2.6
10	45.5	2.9

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.011	.173
5	.06	.87
10	.11	1.73
15	.17	2.60
20	.22	3.46
25	.28	4.33
30	.33	5.19
35	.39	6.06
40	.44	6.92
45	.50	7.79
50	.55	8.65
60	.66	10.38

* Morrison - Feeds and Feeding, 20th Edition

PUMPKINS, FIELD

* Analysis

	<u>Per Cent</u>
Total dry matter	10.4
Digestible protein	1.3
Total digestible nutrients	9.0
Crude protein	1.7
Fat	1.0
Fiber	1.6
Ash	0.9
Calcium	
Phosphorus	0.04

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	3.85¢	0.56¢
2	7.7	1.1
3	11.6	1.7
4	15.4	2.2
5	19.3	2.8
6	23.1	3.4
7	27.0	3.9
8	30.8	4.5
9	34.7	5.0
10	38.5	5.6

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.013	.090
5	.07	.45
10	.13	.90
15	.20	1.35
20	.26	1.80
25	.33	2.25
30	.39	2.70
35	.46	3.15
40	.52	3.60
45	.59	4.05
50	.65	4.50
60	.78	5.40

* Morrison - Feeds and Feeding, 20th Edition

* Analysis

	<u>Per Cent</u>
Total dry matter	11.1
Digestible protein	1.0
Total digestible nutrients	9.3
Crude protein	1.3
Fat	0.2
Fiber	1.4
Ash	1.0
Calcium	0.07
Phosphorus	0.05

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	5.0¢	0.54¢
2	10.0	1.1
3	15.0	1.6
4	20.0	2.2
5	25.0	2.7
6	30.0	3.2
7	35.0	3.8
8	40.0	4.3
9	45.0	4.9
10	50.0	5.4

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.010	.093
5	.05	.47
10	.10	.93
15	.15	1.40
20	.20	1.86
25	.25	2.33
30	.30	2.79
35	.35	3.26
40	.40	3.72
45	.45	4.19
50	.50	4.65
60	.60	5.58

* Morrison - Feeds and Feeding, 20th Edition

TURNIPS

*Analysis

	<u>Per Cent</u>
Total dry matter	9.5
Digestible protein	1.3
Total digestible nutrients	8.5
Crude protein	1.4
Fat	0.2
Fiber	1.1
Ash	0.9
Calcium	0.06
Phosphorus	0.04

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	3.85¢	0.59¢
2	7.7	1.2
3	11.6	1.8
4	15.4	2.4
5	19.3	3.0
6	23.1	3.5
7	27.0	4.1
8	30.8	4.7
9	34.7	5.3
10	38.5	5.9

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.013	.085
5	.07	.43
10	.13	.85
15	.20	1.28
20	.26	1.70
25	.33	2.13
30	.39	2.55
35	.46	2.98
40	.52	3.40
45	.59	3.83
50	.65	4.25
60	.78	5.10

* Morrison - Feeds and Feeding, 20th Edition

*Analysis

	<u>Per Cent</u>
Total dry matter	24.0
Digestible protein	1.2
Total digestible nutrients	16.3
Crude protein	2.0
Fat	0.6
Fiber	5.6
Ash	1.3
Calcium	0.06
Phosphorus	0.05

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	4.17¢	0.31¢
2	8.3	0.62
3	12.5	0.93
4	16.7	1.2
5	20.9	1.6
6	25.0	1.9
7	29.2	2.2
8	33.4	2.5
9	37.5	2.8
10	41.7	3.1

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.012	.163
5	.06	.82
10	.12	1.63
15	.18	2.45
20	.24	3.26
25	.30	4.08
30	.35	4.89
35	.41	5.71
40	.47	6.52
45	.53	7.34
50	.59	8.15
60	.71	9.78

* Morrison -- Feeds and Feeding, 20th Edition

*Analysis

	<u>Per Cent</u>
Total dry matter	89.6
Digestible protein	0.9
Total digestible nutrients	44.1
Crude protein	4.0
Fat	2.3
Fiber	36.1
Ash	6.0
Calcium	0.36
Phosphorus	0.13

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	5.56¢	0.11¢
2	11.1	0.2
3	16.7	0.3
4	22.2	0.4
5	27.8	0.6
6	33.4	0.7
7	38.9	0.8
8	44.5	0.9
9	50.0	1.0
10	55.6	1.1

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.009	.141
5	.05	2.21
10	.09	4.41
15	.14	6.62
20	.18	8.82
25	.23	11.03
30	.27	13.23
35	.32	15.44
40	.36	17.64
45	.41	19.85
50	.45	22.05
60	.54	26.46

BARLEY

<u>Analysis</u>	<u>Per Cent</u>
Total dry matter	90.0
Digestible protein	7.5
Total digestible nutrients	78.8
Crude protein	9.5
Fat	2.0
Fiber	6.0
Ash	2.6
Calcium	0.05
Phosphorus	0.36

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.67¢	0.06¢
15	10.1	.9
20	13.4	1.2
22	14.7	1.3
24	16.1	1.4
26	17.4	1.6
28	18.8	1.7
30	20.1	1.8
35	23.5	2.1
40	26.8	2.4

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.075	.788
2	.15	1.58
3	.23	2.36
4	.30	3.15
5	.38	3.94
6	.45	4.73
7	.53	5.52
8	.60	6.30
9	.68	7.09
10	.75	7.88

BEEF PULP, DRIED

<u>*Analysis</u>	<u>Per Cent</u>
Total dry matter	92.0
Digestible protein	4.8
Total digestible nutrients	71.8
Crude protein	9.0
Fat	0.8
Fiber	18.8
Ash	3.5
Calcium	0.68
Phosphorus	0.07

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	1.04¢	0.07¢
15	15.6	1.1
20	20.8	1.4
22	22.9	1.5
24	25.0	1.7
26	27.0	1.8
28	29.1	2.0
30	31.2	2.1
35	36.4	2.5
40	41.6	2.8

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.048	.718
2	.10	1.44
3	.14	2.15
4	.19	2.87
5	.24	3.59
6	.29	4.31
7	.34	5.03
8	.38	5.74
9	.43	6.46
10	.48	7.18

CORN - DENT

AnalysisPer Cent

Total dry matter	86.0
Digestible protein	7.2
Total digestible nutrients	81.5
Crude protein	9.5
Fat	4.0
Fiber	2.2
Ash	1.3
Calcium	0.02
Phosphorus	0.27

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.69¢	0.06¢
15	10.4	0.9
20	13.8	1.2
22	15.2	1.3
24	16.6	1.4
26	17.9	1.6
28	19.3	1.7
30	20.7	1.8
35	24.1	2.1
40	27.6	2.4

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.072	.815
2	.14	1.63
3	.22	2.45
4	.29	3.26
5	.36	4.08
6	.43	4.89
7	.50	5.71
8	.58	6.52
9	.66	7.34
10	.72	8.15

CORN AND COB MEAL

*Analysis

Per Cent

Total dry matter	88.5
Digestible protein	6.0
Total digestible nutrients	75.9
Crude protein	8.2
Fat	3.3
Fiber	8.2
Ash	1.4
Calcium	0.01
Phosphorus	0.23

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.83¢	0.07¢
15	12.5	1.0
20	16.7	1.4
22	18.3	1.5
24	19.9	1.7
26	21.6	1.8
28	23.2	2.0
30	24.9	2.1
35	29.1	2.5
40	33.2	2.8

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.06	.759
2	.12	1.518
3	.18	2.277
4	.24	3.036
5	.30	3.795
6	.36	4.554
7	.42	5.313
8	.48	6.072
9	.54	6.831
10	.60	7.590

*Morrison - Feeds and Feeding, 20th Edition

OATS

AnalysisPer Cent

Total dry matter	91.0
Digestible protein	7.5
Total digestible nutrients	71.3
Crude protein	9.6
Fat	5.5
Fiber	11.5
Ash	3.7
Calcium	0.09
Phosphorus	0.35

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.67¢	0.07¢
15	10.1	1.1
20	13.4	1.4
22	14.7	1.5
24	16.1	1.7
26	17.4	1.8
28	18.8	2.0
30	20.1	2.1
35	23.5	2.5
40	26.8	2.8

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.075	.713
2	.15	1.43
3	.23	2.14
4	.30	2.85
5	.38	3.57
6	.45	4.28
7	.53	4.99
8	.60	5.70
9	.68	6.42
10	.75	7.13

WHEAT

*Analysis

	<u>Per Cent</u>
Total dry matter	89.1
Digestible protein	8.5
Total digestible nutrients	83.6
Crude protein	9.9
Fat	2.0
Fiber	2.7
Ash	1.9
Calcium	0.04
Phosphorus	0.35

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.59¢	0.06¢
15	8.9	0.9
20	11.8	1.2
22	13.0	1.3
24	14.2	1.4
26	15.3	1.6
28	16.5	1.7
30	17.7	1.8
35	20.7	2.1
40	23.6	2.4

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.085	.836
2	.17	1.67
3	.26	2.51
4	.34	3.34
5	.42	4.18
6	.51	5.02
7	.60	5.85
8	.68	6.69
9	.77	7.52
10	.85	8.36

* Morrison - Feeds and Feeding, 20th Edition

MILL RUN (WHEAT MIXED FEED)

AnalysisPer Cent

Total dry matter	90.0
Digestible protein	12.9
Total digestible nutrients	69.7
Crude protein	15.5
Fat	4.0
Fiber	8.5
Ash	5.0
Calcium	0.10
Phosphorus	1.00

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	.39¢	0.07¢
15	5.9	1.1
20	7.8	1.4
22	8.6	1.5
24	9.4	1.7
26	10.1	1.8
28	10.9	2.0
30	11.7	2.1
35	13.7	2.5
40	15.6	2.8

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.129	.697
2	.26	1.39
3	.39	2.09
4	.52	2.79
5	.65	3.49
6	.77	4.18
7	.90	4.88
8	1.03	5.58
9	1.16	6.27
10	1.29	6.97

WHEAT BRAN

<u>Analysis</u>	<u>Per Cent</u>
Total dry matter	90.0
Digestible protein	12.0
Total digestible nutrients	68.3
Crude protein	14.5
Fat	3.7
Fiber	10.0
Ash	5.8
Calcium	0.12
Phosphorus	1.32

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.42¢	0.07¢
15	6.3	1.1
20	8.4	1.4
22	9.2	1.5
24	10.1	1.7
26	10.9	1.8
28	11.8	2.0
30	12.6	2.1
35	14.7	2.5
40	16.7	2.8

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.12	.683
2	.24	1.37
3	.36	2.05
4	.48	2.73
5	.60	3.42
6	.72	4.10
7	.84	4.78
8	.96	5.46
9	1.08	6.15
10	1.20	6.83

BLOOD MEAL (DRIED BLOOD)

<u>*Analysis</u>	<u>Per Cent</u>
Total dry matter	91.2
Digestible protein	70.7
Total digestible nutrients	75.9
Crude protein	82.2
Fat	1.2
Fiber	1.3
Ash	3.8
Calcium	0.33
Phosphorus	0.26

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.07¢	0.07¢
60	4.2	4.2
70	4.9	4.9
80	5.6	5.6
85	6.0	6.0
90	6.3	6.3
95	6.7	6.7
100	7.0	7.0
110	7.7	7.7
120	8.4	8.4

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.707	.759
1.5	1.06	1.14
2.0	1.41	1.52
2.5	1.77	1.90
3.0	2.12	2.28
3.5	2.47	2.66
4.0	2.83	3.04
4.5	3.18	3.42
5.0	3.54	3.80
5.5	3.89	4.17
6.0	4.24	4.55

* Morrison - Feeds and Feeding, 20th Edition

COCONUT MEAL

<u>*Analysis</u>	<u>Per Cent</u>
Total dry matter	90.7
Digestible protein	18.7
Total digestible nutrients	80.8
Crude protein	20.3
Fat	8.2
Fiber	10.4
Ash	6.3
Calcium	0.21
Phosphorus	0.62

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.27¢	0.06¢
20	5.4	1.2
25	6.8	1.5
28	7.6	1.7
30	8.1	1.8
32	8.6	1.9
34	9.2	2.0
37	10.0	2.2
40	10.8	2.4
45	12.2	2.7

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.187	.308
1.5	.28	1.21
2.0	.37	1.62
2.5	.47	2.02
3.0	.56	2.42
3.5	.65	2.83
4.0	.75	3.23
4.5	.84	3.64
5.0	.94	4.04
5.5	1.03	4.44
6.0	1.12	4.85

* Morrison - Feeds and Feeding, 20th Edition

COTTONSEED MEAL (43% PROTEIN)

49.

<u>* Analysis</u>	<u>Per Cent</u>
Total dry matter	93.5
Digestible protein	35.0
Total digestible nutrients	75.5
Crude protein	43.2
Fat	7.2
Fiber	10.6
Ash	5.5
Calcium	0.24
Phosphorus	1.11

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.14¢	0.07¢
30	4.3	2.1
35	4.9	2.5
38	5.3	2.7
41	5.7	2.9
44	6.2	3.1
47	6.6	3.3
50	7.0	3.5
55	7.7	3.9
60	8.4	4.2

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.35	.755
1.5	.53	1.13
2.0	.70	1.51
2.5	.88	1.89
3.0	1.05	2.27
3.5	1.23	2.64
4.0	1.40	3.02
4.5	1.58	3.40
5.0	1.75	3.78
5.5	1.93	4.15
6.0	2.10	4.53

* Morrison - Feeds and Feeding, 20th Edition

FISH MEAL (AVERAGE ANALYSIS)

<u>Analysis</u>	<u>Per Cent</u>
Total dry matter	92.3
Digestible protein	51.8
Total digestible nutrients	71.1
Crude protein	64.0
Fat	6.7
Fiber	1.1
Ash	15.8
Calcium	5.37
Phosphorus	2.98

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	.10¢	0.07¢
35	3.5	2.6
40	4.0	2.8
45	4.5	3.2
50	5.0	3.5
54	5.4	3.8
58	5.8	4.1
62	6.2	4.3
66	6.6	4.6
70	7.0	4.9

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.518	.711
1.5	.78	1.07
2.0	1.04	1.42
2.5	1.30	1.78
3.0	1.55	2.13
3.5	1.81	2.49
4.0	2.07	2.84
4.5	2.33	3.20
5.0	2.59	3.56
5.5	2.84	3.91
6.0	3.11	4.27

LINSEED MEAL

<u>Analysis</u>	<u>Per Cent</u>
Total dry matter	91.2
Digestible protein	29.6
Total digestible nutrients	77.7
Crude protein	34.0
Fat	6.0
Fiber	8.4
Ash	5.3
Calcium	0.37
Phosphorus	0.75

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.17¢	0.06¢
30	5.1	1.8
35	6.0	2.1
38	6.6	2.3
41	7.0	2.5
44	7.5	2.6
47	8.0	2.8
50	8.5	3.0
55	9.4	3.3
60	10.2	3.6

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1.0	.296	.777
1.5	.444	1.17
2.0	.59	1.55
2.5	.74	1.94
3.0	.89	2.33
3.5	1.04	2.72
4.0	1.18	3.11
4.5	1.33	3.50
5.0	1.48	3.89
5.5	1.63	4.27
6.0	1.78	4.66

PEANUT MEAL

<u>Analysis</u>	<u>Per Cent</u>
Total dry matter	93.0
Digestible protein	37.4
Total digestible nutrients	81.7
Crude protein	42.0
Fat	7.2
Fiber	7.0
Ash	5.5
Calcium	0.15
Phosphorus	0.51

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.13¢	0.06¢
30	3.9	1.8
35	4.6	2.1
38	4.9	2.3
41	5.3	2.5
44	5.7	2.6
47	6.1	2.8
50	6.5	3.0
55	7.2	3.3
60	7.8	3.6

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.374	.817
1.5	.56	1.23
2.0	.75	1.63
2.5	.94	2.04
3.0	1.12	2.45
3.5	1.31	2.86
4.0	1.50	3.27
4.5	1.68	3.68
5.0	1.87	4.09
5.5	2.06	4.49
6.0	2.24	4.90

SKIM-MILK, DRIED

*Analysis

	<u>Per Cent</u>
Total dry matter	93.8
Digestible protein	33.1
Total digestible nutrients	84.1
Crude protein	34.8
Fat	0.9
Fiber	0.0
Ash	8.0
Calcium	1.24
Phosphorus	0.96

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	.15¢	0.06¢
60	9.0	3.6
70	10.5	4.2
80	12.0	4.8
85	12.8	5.1
90	13.5	5.4
95	14.3	5.7
100	15.0	6.0
110	16.5	6.6
120	18.0	7.2

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.331	.341
1.5	.50	1.26
2.0	.66	1.68
2.5	.83	2.10
3.0	.99	2.52
3.5	1.16	2.94
4.0	1.32	3.36
4.5	1.50	3.78
5.0	1.66	4.21
5.5	1.82	4.63
6.0	1.99	5.05

* Morrison - Feeds and Feeding, 20th Edition

SOYBEAN MEAL

<u>Analysis</u>	<u>Per Cent</u>
Total dry matter	91.0
Digestible protein	36.1
Total digestible nutrients	82.6
Crude protein	42.5
Fat	6.1
Fiber	5.5
Ash	5.3
Calcium	0.28
Phosphorus	0.66

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.14¢	0.06¢
30	4.2	1.8
35	4.9	2.1
38	5.3	2.3
41	5.7	2.5
44	6.2	2.6
47	6.6	2.8
50	7.0	3.0
55	7.7	3.3
60	8.4	3.6

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.361	.826
1.5	.54	1.24
2.0	.72	1.65
2.5	.90	2.07
3.0	1.08	2.48
3.5	1.26	2.89
4.0	1.44	3.30
4.5	1.62	3.72
5.0	1.81	4.13
5.5	1.99	4.54
6.0	2.17	4.96

ALFALFA MOLASSES FEED

*Analysis

	<u>Per Cent</u>
Total dry matter	86.0
Digestible protein	7.8
Total digestible nutrients	56.3
Crude protein	11.4
Fat	1.2
Fiber	13.5
Ash	8.7
Calcium	---
Phosphorus	---

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	0.64¢	0.09¢
15	9.6	1.4
20	12.8	1.8
22	14.1	2.0
24	15.4	2.2
26	16.6	2.3
28	17.9	2.5
30	19.2	2.7
35	22.4	3.2
40	25.6	3.6

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.078	.563
2	.16	1.13
3	.23	1.69
4	.31	2.25
5	.39	2.82
6	.47	3.38
7	.55	3.94
8	.62	4.50
9	.70	5.07
10	.78	5.63

MOLASSES, BEET

*Analysis

	<u>Per Cent</u>
Total dry matter	80.6
Digestible protein	2.5
Total digestible nutrients	58.8
Crude protein	7.7
Fat	---
Fiber	---
Ash	10.3
Calcium	0.05
Phosphorus	0.02

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	2.0¢	0.09¢
10	20.0	0.9
12	24.0	1.1
14	28.0	1.3
16	32.0	1.4
18	36.0	1.6
20	40.0	1.8
22	44.0	2.0
24	48.0	2.2
30	60.0	2.7

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.025	.588
2	.05	1.18
3	.08	1.76
4	.10	2.35
5	.13	2.94
6	.15	3.53
7	.18	4.12
8	.20	4.70
9	.23	5.29
10	.25	5.88

*Morrison - Feeds and Feeding, 20th Edition

MOLASSES, CANE

*Analysis

	<u>Per Cent</u>
Total dry matter	74.1
Digestible protein	0.9
Total digestible nutrients	56.6
Crude protein	2.8
Fat	---
Fiber	---
Ash	9.4
Calcium	0.56
Phosphorus	0.06

Cost of Digestible Nutrients at Varying Prices

<u>Price per ton</u>	<u>Cost per pound digestible protein</u>	<u>Cost per pound total digestible nutrients</u>
\$ 1	5.56¢	0.09¢
10	55.6	0.9
12	66.7	1.1
14	77.8	1.3
16	89.0	1.4
18	100.1	1.6
20	111.2	1.8
22	122.3	2.0
24	133.4	2.2
30	166.8	2.7

Digestible Nutrients by Pounds

<u>Weight Pounds</u>	<u>Digestible protein Pounds</u>	<u>Total digestible nutrients Pounds</u>
1	.009	.566
2	.018	1.13
3	.027	1.70
4	.036	2.26
5	.045	2.83
6	.054	3.40
7	.063	3.96
8	.072	4.53
9	.081	5.09
10	.090	5.66

* Morrison - Feeds and Feeding, 20th Edition