OILSEED MEALS: POSTWAR TRENDS IN PRODUCTION AND USE

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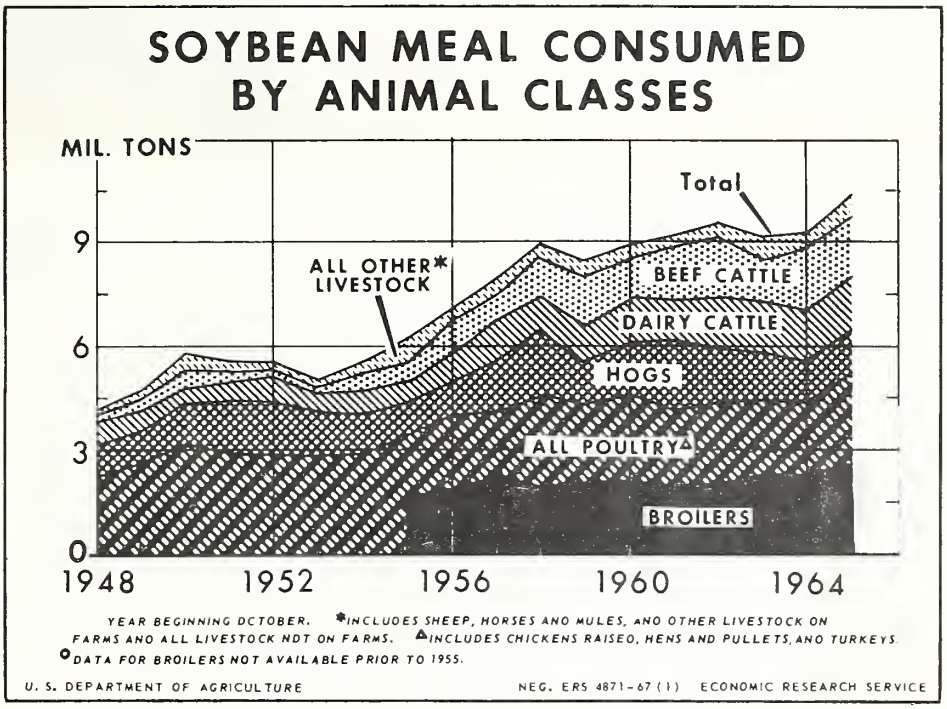

Soybean meal consumed in the United States more than doubled since 1948/49, rising from 4.2 million tons that year to over 10 million in 1965/66. The rapid growth in beef cattle and broiler production, along with increased feeding per animal, were factors boosting soybean meal demand. Quantities consumed by dairy cattle, hogs, and other animals also increased significantly. Currently, about half of the total soybean meal fed is consumed by livestock and the other half by poultry. (See page 21.)

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Since World War II, the United States has emerged as a leading supplier and user of oilseed meals. Soybean meal now accounts for over four-fifths of the 5 major oilseed meals produced in the United States, and its share is expected to become even larger in the future. Cottonseed meal accounts for about 10 to 15 percent, and the balance is composed of linseed meal, copra meal, peanut meal, and --in recent years--safflower meal.

Today, U.S. oilseed meals are playing an increasingly important role in both domestic and world livestock feeding. Present propsects point to even further growth in demand for oilseed meals as a source of high-protein feeds.

Oilseed Meals Are Source of Protein for Animals

Oilseed meals are classified as high-protein, byproduct feeds or concentrates. They are produced simultaneously with oil whenever the oilseeds are processed.

The chief use of oilseed meals is in livestock and poultry feed rations to provide protein in an appropriate nutritional balance with carbohydrates. All animals need protein for growth and maintenance of body tissues. Dairy cattle require additional protein for optimum milk production, and laying hens need extra protein for maximum egg production.

Oilseed meals are fed in 2 ways--either in a complete or balanced formula feed, or as a high-protein supplement to be fed with other low-protein feeds.

Table 15 compares the average composition of selected characteristics for the 4 leading oilseed meals produced from domestically-grown crops.

Table 15.--Average composition (by selected characteristics) of various oilseed meals

Oilseed meal (solvent process)	Total dry matter	Total protein	Digestible protein	Total digestible nutrients	Fiber	Calcium	Phosphorus
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Soybean meal	89.3	45.8	42.1	77.2	5.9	0.32	0.67
Cottonseed meal	91.4	41.6	34.5	66.1	10.7	0.15	1.10
Linseed meal	90.9	35.1	30.7	71.0	9.3	0.40	0.83
Peanut meal	91.5	47.4	43.1	74.3	14.9	0.20	0.65

Adapted from data contained in Farmers' Bulletin No. 2196, Finishing Beef Cattle, U.S. Department of Agriculture, Washington, D.C., March 1964.

Soybean Meal Leading High-Protein Feed

The production and use of oilseed meals have doubled in the postwar period. Total supplies for the October 1966-September 1967 marketing year are placed at 16.4 million tons, compared with 7.9 million tons in 1948/49.

The greatest development during this period was the rapid increase in the production and use of soybean meal. In 1948/49, soybean meal accounted for about 55 percent of total U.S. oilseed meal production. In 1966/67, soybean meal production is expected to triple that of the earlier period and account for around 85 percent of total oilmeal output.

In 1948/49, cottonseed meal accounted for about one-third of total oilseed meal production. During 1966/67, it is expected to account for only about 11 percent, due to sharply reduced output.

The "other" oilseed meals (primarily linseed, peanut, and copra), have trended downward from their levels of the late 1940's, due mainly to decreased production of linseed meal and reduced imports of copra, the source of copra meal.

Total disappearance of oilseed meals increased from 7.7 million tons in 1948/49 to a record 16.2 million in 1965/66. For 1966/67, it is estimated that around 16.2 million tons will be utilized--over four-fifths consumed domestically in animal feeds and the balance exported.

The postwar era witnessed the rise of the United States as an important exporter of oilseed meals. Today, soybean meal exports (excluding meal equivalent of soybean exports) account for over 90 percent of the total oilseed meal shipped abroad (table 16). In 1948/49, they accounted for about 45 percent. Soybean meal exports increased from about 150 thousand tons in 1948/49 to 2.6 million tons in 1965/66. During 1966/67, they likely will be close to the level of last year. Western Europe is the major market, currently taking about three-fourths of total U.S. meal exports. The rapid growth of the livestock and poultry industries in Europe, plus the excellent quality of U.S. soybean meal, have resulted in the increased demand for this high-protein feed. This foreign market has grown despite an increase in soybean meal prices (table 17). However, most U.S. meal exports are in the form of soybeans. About 275 million bushels of soybeans--the equivalent of around 6.5 million tons of meal--probably will be exported during the current marketing year.

United States imports of oilseed meals are relatively small. In recent years, they have averaged less than 100 thousand tons. About another 100 thousand tons of copra meal is imported in the form of copra.

Oilseed meal stocks are necessarily small, as the quality quickly deteriorates if stored for any length of time. Stocks at the beginning of the marketing year generally average around 2 percent of annual production.

Table 16.--Oilseed cakes and meals: Supply and disposition, year beginning October, 1961-66

Item	Supply				Disposition		
	Stocks, October 1 1/	Production	Imports	Total	Exports	Domestic disappearance	Total
	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons
1961-62							
Soybean	78	10,342	---	10,420	1,064	9,262	10,326
Cottonseed	73	2,629	76	2,778	26	2,652	2,678
Other 2/	25	517	18	560	28	524	552
Total	176	13,488	94	13,758	1,118	12,438	13,556
1962-63							
Soybean	94	11,127	0	11,221	1,476	9,586	11,062
Cottonseed	100	2,718	42	2,860	85	2,615	2,700
Other 2/	9	541	10	560	64	3/487	551
Total	203	14,385	52	14,640	1,624	12,689	14,313
1963-64							
Soybean	159	10,609	0	10,768	1,478	9,168	10,647
Cottonseed	160	2,730	30	2,920	54	2,727	2,781
Other 2/	9	572	21	602	66	514	580
Total	327	13,910	52	14,290	1,598	12,410	14,008
1964-65							
Soybean	122	11,286	---	11,408	2,036	9,266	11,302
Cottonseed	139	2,768	20	2,927	139	2,710	2,849
Other 2/	21	571	15	607	95	3/496	591
Total	282	14,625	35	14,942	2,270	12,472	14,742
1965-66 4/							
Soybean	106	12,901	---	13,007	2,601	10,274	12,875
Cottonseed	78	2,604	44	2,726	99	2,564	2,663
Other 2/	16	612	8	636	155	3/468	623
Total	199	16,116	52	16,369	2,855	13,306	16,161
1966-67 5/							
Soybean	132	13,650	---	13,782		11,000	
Cottonseed	64	1,800	75	1,939		1,855	
Other 2/	13	635	10	658		560	
Total	209	16,085	85	16,379		13,415	

1/ Stocks at processing plants. 2/ Includes linseed, peanut, copra, and other oilseed meals. 3/ Domestic disappearance is smaller than amounts shown as fed to all animal classes in tables 18 and 20 due to unadjusted data for imports and exports. 4/ Preliminary. 5/ Partly estimated.
Totals computed from unrounded numbers.

Table 17.--Oilseed meal prices: Average wholesale price per ton, 1948-66

Year beginning October	Soybean meal, 44 percent protein, bulk, Decatur 1/	Cottonseed meal, 41 percent protein, bulk, Memphis	Linseed meal, 34 percent protein, bulk, Minneapolis 2/	Copra meal, 20 percent protein, bulk, Los Angeles	Peanut meal, 50 percent protein, bulk, S.E. points 3/	Soybean meal as percentage of:			
						Cottonseed meal	Linseed meal	Copra meal	Peanut meal
	Dollars	Dollars	Dollars	Dollars	Dollars	Percent	Percent	Percent	Percent
1948	66.10	58.80	62.90	64.35	61.50	112	105	103	107
1949	64.30	60.25	64.75	61.05	64.20	107	99	105	100
1950	64.45	70.35	57.60	61.65	62.60	92	112	105	103
Average, 1948-50	64.95	63.13	61.75	62.35	62.77	103	105	104	103
1951	83.35	81.95	70.40	87.05	85.05	102	118	96	98
1952	67.55	66.65	67.95	79.55	71.45	101	99	85	95
1953	78.65	63.35	65.45	64.40	75.55	124	120	122	104
1954	60.70	60.75	60.75	67.80	70.30	100	100	90	86
1955	52.55	51.35	54.35	65.60	52.75	102	97	80	100
Average, 1951-55	68.56	64.81	63.78	72.88	71.02	106	107	94	97
1956	47.45	51.70	51.60	63.65	47.20	92	92	75	101
1957	53.40	56.50	50.30	58.65	56.40	95	106	91	95
1958	55.80	59.45	66.40	79.75	56.60	94	84	70	99
1959	55.55	56.25	60.10	73.45	56.90	99	92	76	98
1960	60.60	56.15	54.15	64.00	56.80	108	112	95	107
Average, 1956-60	54.56	56.01	56.51	67.90	54.78	97	97	80	100
1961	63.60	59.20	66.00	73.80	61.80	107	96	86	103
1962	71.30	66.90	67.30	80.80	67.40	107	106	88	106
1963	71.00	62.20	58.00	76.70	62.70	114	122	93	113
1964	70.20	59.80	61.90	77.10	67.70	117	113	91	104
1965	81.50	72.40	74.50	84.80	79.50	113	109	96	103
Average, 1961-65	71.52	64.10	65.54	78.64	67.82	112	109	91	105
1966									
October	82.20	75.10	81.70	82.00	88.10	109	101	100	93
November	78.90	80.90	78.20	82.00	91.40	98	101	96	86
December	84.60	83.20	77.70	82.00	93.40	102	109	103	91

1/ October 1948-June 1950, quoted at 41% protein. 2/ May 1947-June 1950, quoted at 34% protein; July 1950-July 1954, quoted at 36% protein; August 1954 to date, quoted at 34% protein. 3/ October 1948-September 1964, quoted at 45% protein.

Growth in Beef Cattle and Broiler Industries Expand Oilseed Meal Demand

During the period 1948-50, total oilseed meals consumed domestically by all classes of animals averaged 7.9 million tons--60 percent of which was soybean meal, 27 percent cottonseed meal, and the balance other oilmeals (table 18). Almost two-thirds of this total was consumed by all classes of livestock and around one-third by all classes of poultry. In 1965/66, total oilseed meal consumed reached a record 13.3 million tons--77 percent of which was soybean meal, 19 percent cottonseed meal, and the balance other oilmeals. About three-fifths of this total was fed to livestock and two-fifths to poultry.

Of significance is the tremendous increase in the quantities fed to broilers and beef cattle. Since the late 1940's, the quantity of oilseed meals fed to broilers increased around 4 times and doubled for beef cattle. The increased quantities consumed by these two classes are the result of postwar growth in animal numbers and the increase in the feeding rate per animal.

The greatest increase occurred in the use of soybean meal. Soybean meal as a percentage of total oilseed meals fed to dairy cattle increased from 30 percent for the 1948/49-1949/50 average to 70 percent in 1965/66; for beef cattle, 12 to 58 percent; and for hogs, 66 to 76 percent. Use of soybean meal in poultry feeds has averaged over 90 percent of total oilseed meals so used throughout the postwar period. Of the total quantity of soybean meal fed to all animals in 1965/66, about one-half was fed to cattle, hogs, and other livestock and the other half to all poultry, compared to 43 and 57 percent, respectively, for the earlier period. (Tables 19 and 20 show these relationships for the various oilseed meals for all classes of livestock and poultry.)

Improved Feeding Methods Increased the Use of Oilseed Meals

The number of high-protein-consuming animal units 1/ increased from 131 million in 1948/49 to record 149 million in 1965/66--up 14 percent. Feeding per high-protein-consuming animal unit rose from 106 pounds in the earlier period to a high of 169 pounds in 1965/66--nearly a three-fifths increase. The increase partly reflects the significant strides made in scientific feeding methods, plus the ever-growing supply of oilseed meals which became available during the postwar period.

Oilseed Meal Prices Exhibit Wide Variations

Oilseed meal prices generally follow similar patterns but fluctuate widely from year to year. Currently, prices at principal markets are near the high peaks of 1951, when they averaged around the $80 per ton level. In the mid-1950's, when they were at their postwar lows, they averaged around $50-55 per ton.

1/ A high-protein-consuming animal unit is the equivalent of one milk cow in terms of feed consumed. In computing, horses and mules and all livestock not on farms are excluded. A detailed description and method of computation are contained in Statistical Bulletin No. 301, Animal Units of Livestock Fed Annually, 1909 to 1960, December 1961.

Table 18.--Oilseed cakes and meals: Quantities consumed by different animal classes and type of meal, year beginning October, 1948-50 average and 1951-66 annual

Type of meal and year	Livestock						Poultry				Total oilseed meals fed
	Cattle			Hogs	Other livestock 1/	Total livestock	Broilers	Hens and pullets	Other poultry 2/	Total poultry	
	Dairy	Beef	Total								
	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons	1,000 tons
Total oilseed cakes and meals 3/											
Average 1948-50	1,363	1,455	2,818	1,764	455	5,037	678	1,097	1,135	2,910	7,947
1951	1,470	1,940	3,410	1,830	669	5,909	930	1,160	1,130	3,220	9,129
1952	1,685	1,825	3,510	1,741	470	5,721	1,025	1,080	1,090	3,195	8,916
1953	1,600	1,880	3,480	1,671	465	5,616	1,050	930	1,080	3,060	8,676
1954	1,450	1,920	3,370	1,601	465	5,436	1,035	1,065	985	3,085	8,521
1955	1,509	2,076	3,585	1,338	599	5,522	1,558	1,227	872	3,657	9,179
1956	1,557	2,023	3,580	1,545	595	5,720	1,811	1,550	943	4,304	10,024
1957	1,745	2,038	3,783	1,707	648	6,138	2,223	1,430	975	4,628	10,766
1958	1,800	2,305	4,105	2,181	658	6,944	2,000	1,913	917	4,830	11,774
1959	1,771	2,500	4,271	1,530	678	6,479	2,167	1,873	758	4,798	11,277
1960	2,057	2,454	4,511	1,916	574	7,001	2,228	1,640	1,081	4,949	11,950
1961	1,983	2,963	4,946	2,187	582	7,715	2,138	1,557	966	4,661	12,376
1962 4/	2,178	3,021	5,199	2,048	643	7,890	2,229	1,559	961	4,749	12,639
1963 4/	2,216	2,765	4,981	1,693	726	7,400	2,427	1,558	948	4,933	12,333
1964 4/	2,201	2,999	5,200	1,646	721	7,567	2,409	1,570	874	4,853	12,420
1965 4/	2,203	2,911	5,114	1,709	932	7,755	2,687	1,539	1,296	5,522	13,277
1966 5/											13,385
Soybean meal											
Average 1948-50	434	308	742	1,144	256	2,142	---	---	---	2,656	4,798
1951	530	335	865	1,475	330	2,670	---	---	---	2,970	5,640
1952	726	195	921	1,434	215	2,570	---	---	---	2,940	5,510
1953	434	240	674	1,291	190	2,155	---	---	---	2,810	4,965
1954	552	600	1,152	1,201	240	2,593	---	---	---	2,835	5,428
1955	568	710	1,278	925	443	2,646	1,558	966	872	3,396	6,042
1956	784	860	1,644	950	460	3,054	1,811	1,285	943	4,039	7,093
1957	1,025	841	1,866	1,220	513	3,599	2,123	1,265	975	4,363	7,962
1958	1,100	957	2,057	1,871	500	4,428	1,850	1,743	917	4,510	8,938
1959	972	1,346	2,318	1,242	506	4,066	1,982	1,644	758	4,384	8,450
1960	1,268	977	2,245	1,684	399	4,328	2,028	1,400	1,081	4,509	8,837
1961	1,210	1,453	2,663	1,968	405	5,036	1,938	1,292	966	4,196	9,232
1962 4/	1,407	1,708	3,115	1,732	449	5,296	2,004	1,295	961	4,260	9,556
1963 4/	1,477	1,413	2,890	1,267	518	4,675	2,227	1,288	948	4,463	9,138
1964 4/	1,479	1,654	3,133	1,202	514	4,849	2,209	1,304	874	4,387	9,236
1965 4/	1,538	1,675	3,213	1,304	670	5,187	2,531	1,399	1,127	5,057	10,244
1966 5/											11,000
Cottonseed meal											
Average, 1948-50	663	1,039	1,702	174	190	2,066	---	33	---	103	2,169
1951	550	1,540	2,090	140	320	2,550	---	100	---	100	2,650
1952	729	1,465	2,194	142	235	2,571	---	100	---	100	2,671
1953	901	1,520	2,421	150	255	2,826	---	100	---	100	2,926
1954	780	1,170	1,950	150	205	2,305	---	100	---	100	2,405
1955	757	1,190	1,947	310	156	2,413	---	98	---	98	2,511
1956	552	963	1,515	470	135	2,120	---	100	---	100	2,220
1957	470	937	1,407	305	135	1,847	100	150	---	250	2,097
1958	550	990	1,540	200	158	1,898	150	150	---	300	2,198
1959	600	990	1,590	177	163	1,930	185	215	---	400	2,330
1960	590	1,185	1,775	132	166	2,073	200	225	---	425	2,498
1961	590	1,215	1,805	197	170	2,172	200	250	---	450	2,622
1962 4/	657	1,069	1,726	198	186	2,110	225	250	---	475	2,585
1963 4/	642	1,050	1,692	346	198	2,236	200	260	---	460	2,696
1964 4/	616	1,042	1,658	369	197	2,224	200	256	---	456	2,680
1965 4/	565	998	1,563	335	254	2,152	156	125	100	381	2,533
1966 5/											1,825
Other oilseed cake and meals 6/											
Average 1948-50	266	108	374	447	9	830	---	50	---	151	981
1951	390	65	455	215	19	689	---	150	---	150	839
1952	230	165	395	165	20	580	---	155	---	155	735
1953	265	120	385	230	20	635	---	150	---	150	785
1954	118	150	268	250	20	538	---	150	---	150	688
1955	184	176	360	103	---	463	---	163	---	163	626
1956	221	200	421	125	---	546	---	165	---	165	711
1957	250	260	510	182	---	692	---	15	---	15	707
1958	150	358	508	110	---	618	---	20	---	20	638
1959	199	164	363	111	9	483	---	14	---	14	497
1960	199	292	491	100	9	600	---	15	---	15	615
1961	183	295	478	22	7	507	---	15	---	15	522
1962 4/	114	244	358	118	8	484	---	14	---	14	498
1963 4/	97	302	399	80	10	489	---	10	---	10	499
1964 4/	106	303	409	75	10	494	---	10	---	10	504
1965 4/	100	238	338	70	8	416	---	15	69	84	500
1966 5/											560

1/ Includes sheep, horses and mules, and other livestock on farms and all livestock not on farms. 2/ Includes chickens raised and turkeys. 3/ Includes soybean, cottonseed, linseed, peanut, and copra meals. 4/ Subject to revision. 5/ Estimated. 6/ Includes linseed, peanut, and copra meals.

Table 19.--Oilseed cakes and meals: Percentage consumed by different animal classes and type of meal, year beginning October, 1948-49, 1950-54, 1955-59, 1960-64 averages, and 1965 annual

Type of meal and year	Livestock						Poultry				Total oilseed meals fed
	Cattle			Hogs	Other livestock 1/	Total livestock	Broilers	Hens and pullets	Other poultry 2/	Total poultry	
	Dairy	Beef	Total								
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Total oilseed cakes and meals 3/											
1948-49	19.9	17.8	37.7	21.1	5.5	64.3	7.7	13.8	14.3	35.7	100.0
1950-54	16.6	21.0	37.6	20.4	5.9	63.9	11.2	12.4	12.6	36.1	100.0
1955-59	15.8	20.6	36.4	15.7	6.0	58.1	18.4	15.1	8.4	41.9	100.0
1960-64 4/	17.2	23.0	40.2	15.4	5.3	60.9	18.5	12.8	7.8	39.1	100.0
1965 4/	16.6	21.9	38.5	12.9	7.0	58.4	20.2	11.6	9.8	41.6	100.0
Soybean meal											
1948-49	10.4	3.8	14.2	24.5	4.7	43.4	5/	5/	5/	56.6	100.0
1950-54	9.7	7.2	16.9	24.6	4.9	46.4	5/	5/	5/	53.6	100.0
1955-59	11.6	12.2	23.8	16.1	6.3	46.2	24.3	17.9	11.6	53.8	100.0
1960-64 4/	14.9	15.6	30.5	17.1	5.0	52.6	22.6	14.3	10.5	47.4	100.0
1965 4/	15.0	16.4	31.4	12.7	6.5	50.6	24.7	13.7	11.0	49.4	100.0
Cottonseed meal											
1948-49	32.6	46.9	79.5	7.0	9.0	95.5	5/	5/	5/	4.5	100.0
1950-54	27.4	53.0	80.4	6.2	9.4	96.0	5/	4.0	5/	4.0	100.0
1955-59	25.8	44.6	70.4	12.9	6.6	89.9	6/3.8	6.3	5/	10.1	100.0
1960-64 4/	23.7	42.5	66.2	9.5	7.0	82.7	7.8	9.5	5/	17.3	100.0
1965 4/	22.3	39.4	61.7	13.2	10.0	85.0	6.2	4.9	3.9	15.0	100.0
Other oilseed meals 7/											
1948-49	32.4	10.5	42.9	40.3	0.4	83.6	5/	5/	5/	16.4	100.0
1950-54	29.1	15.2	44.3	35.0	2.4	81.7	5/	18.3	5/	18.3	100.0
1955-59	31.6	36.4	68.0	19.8	0.3	88.1	5/	11.9	5/	11.9	100.0
1960-64 4/	26.5	54.4	80.9	15.0	1.7	97.6	5/	2.4	5/	2.4	100.0
1965 4/	20.0	47.6	67.6	14.0	1.6	83.2	5/	3.0	13.8	16.8	100.0

1/ Includes sheep, horses and mules, and other livestock on farms and all livestock not on farms. 2/ Includes chickens raised and turkeys. 3/ Includes soybean, cottonseed, linseed, peanut, and copra meals. 4/ Subject to revision. 5/ Not shown separately. 6/ Not shown separately prior to 1957. 7/ Includes linseed, peanut, and copra meals.

Table 20.--Oilseed cakes and meals: Quantities consumed by type of meal and different animal classes, year beginning October, 1948-49, 1950-54, 1955-59, 1960-64 averages, and 1965 annual

Animal class and year	Soybean meal		Cottonseed meal		Other oilseed meals 1/		Total oilseed meal	
	1,000 tons	Percent	1,000 tons	Percent	1,000 tons	Percent	1,000 tons	Percent
Total livestock and poultry 2/								
1948-49	4,338	57.2	2,326	30.6	928	12.2	7,592	100.0
1950-54	5,452	62.1	2,501	28.5	827	9.4	8,780	100.0
1955-59	7,697	72.6	2,271	21.4	636	6.0	10,604	100.0
1960-64 3/	9,200	74.5	2,616	21.2	528	4.3	12,344	100.0
1965 3/	10,244	77.2	2,533	19.0	500	3.8	13,277	100.0
Total livestock 4/								
1948-49	1,881	38.6	2,221	45.5	776	15.9	4,878	100.0
1950-54	2,530	45.1	2,401	42.8	676	12.1	5,607	100.0
1955-59	3,559	57.8	2,042	33.1	560	9.1	6,161	100.0
1960-64 3/	4,837	64.4	2,163	28.8	515	6.8	7,515	100.0
1965 3/	5,187	66.9	2,152	27.7	416	5.4	7,755	100.0
Dairy cattle								
1948-49	451	29.8	760	50.3	300	19.9	1,511	100.0
1950-54	529	36.4	686	47.1	240	16.5	1,455	100.0
1955-59	889	53.0	586	35.0	201	12.0	1,676	100.0
1960-64 3/	1,368	64.3	619	29.1	140	6.6	2,127	100.0
1965 3/	1,538	69.8	565	25.7	100	4.5	2,203	100.0
Beef cattle								
1948-49	165	12.2	1,090	80.6	97	7.2	1,352	100.0
1950-54	393	21.3	1,326	71.9	126	6.8	1,845	100.0
1955-59	943	43.1	1,013	46.3	232	10.6	2,188	100.0
1960-64 3/	1,441	50.7	1,112	39.2	287	10.1	2,840	100.0
1965 3/	1,675	57.5	998	34.3	238	8.2	2,911	100.0
Hogs								
1948-49	1,062	66.4	164	10.2	374	23.4	1,600	100.0
1950-54	1,342	75.1	155	8.7	290	16.2	1,787	100.0
1955-59	1,242	74.8	292	17.6	126	7.6	1,660	100.0
1960-64 3/	1,571	82.7	248	13.1	79	4.2	1,898	100.0
1965 3/	1,304	76.3	335	19.6	70	4.1	1,709	100.0
Total poultry 5/								
1948-49	2,457	90.6	104	3.8	152	5.6	2,713	100.0
1950-54	2,922	92.0	100	3.2	151	4.8	3,173	100.0
1955-59	4,138	93.1	230	5.2	75	1.7	4,443	100.0
1960-64 3/	4,363	90.3	453	9.4	13	0.3	4,829	100.0
1965 3/	5,057	91.6	381	6.9	84	1.5	5,522	100.0
Broilers								
1948-49	6/	---	7/	---	8/	---	582	100.0
1950-54	6/	---	7/	---	8/	---	982	100.0
1955-59	1,865	95.5	7/87	4.5	8/	---	1,952	100.0
1960-64 3/	2,081	91.0	205	9.0	8/	---	2,286	100.0
1965 3/	2,531	94.2	156	5.8	8/	---	2,687	100.0

1/ Includes linseed, peanut, and copra meals. 2/ Includes cattle, hogs, sheep, horses and mules, and other livestock on farms, all livestock not on farms, broilers, hens and pullets, chickens raised and turkeys. 3/ Subject to revision. 4/ Includes cattle, hogs, sheep, horses and mules, and other livestock on farms and all livestock not on farms. 5/ Includes broilers, hens and pullets, chickens raised and turkeys. 6/ Not shown separately prior to 1955. 7/ Not shown separately prior to 1957. 8/ Not shown separately.

Soybean meal prices (44 percent protein, bulk, Decatur) have ranged from a high of $83 per ton in 1951/52 to a low of $47 in 1956/57. Soybean meal prices increased faster in recent years than have cottonseed meal, linseed meal, and peanut meal (table 17). For the 1966/67 marketing year, oilseed meal prices are expected to average around the $75-80 per ton level, reflecting the strong demand for these commodities.

OUTLOOK FOR OILSEED MEALS

The outlook for U.S. oilseed meals continues bright. Since future expansion depends almost entirely upon soybean meal, the rest of this article concerns itself with this commodity and competitive products.

The use of soybean meal is expected to grow as the world demand for meat and dairy products continues to expand. If the rate of growth continues, by 1980 the quantity needed for domestic feeding probably will be double the 9 million tons of the early 1960's. United States soybean meal exports also are expected to increase. However, the rate of increase will depend largely upon the growth of the world's livestock and poultry industries and the supply of competitive products. Also, many countries will continue to import the major portion of their soybean meal requirements in the form of soybeans. A potential market also exists for use of isolated soybean protein and flour for human consumption, especially in the protein-deficient areas of the world.

Principal Competition Comes From Urea

However, competition does exist from other sources. Chief among these is urea, an organic nitrogenous compound. Urea furnishes no energy, vitamins, or minerals in the diet but must be used with carbohydrates such as corn or cereal grains. Feeding of urea is limited to animals with ruminant digestive tracts--such as sheep, beef, and dairy cattle. It is converted into protein by microorganisms within the rumen.

As a feed, urea's principal advantage is that it provides a low-cost source of protein, making it competitive with the oilseed meals. For example, 1 pound of urea plus 6 or 7 pounds of corn can replace 7 or 8 pounds of soybean meal or cottonseed meal. (Feed urea with a 45 percent nitrogen content is potentially equivalent to 2.81 pounds of crude protein per pound.) During 1965/66, the comparative cost of a grain-urea mixture averaged about $30 per ton less than for soybean meal (44 percent protein, Chicago), and around $18 below a ton of cottonseed meal (41 percent protein, Forth Worth).

In 1965/66, it was estimated that urea displaced the equivalent of over 2 million tons of soybean meal. Use of urea likely will expand in the future, but the rate is unknown. Lack of adequate data is a handicap.2/ A detailed analysis of the use of urea in animal feeds is scheduled for release by the Economic Research Service in April 1967.

2/ Additional information on the economic implications of urea in animal feeds is contained in the Feed Situation, FdS-205, August 1964, Economic Research Service, USDA.

Other Competition Limited

Fish meal also competes with oilseed meals. In 1965/66, U.S. fish meal production totaled 243,000 tons. Another 370,000 tons were imported. In 1948/49, production and imports were 241,000 and 47,000 tons respectively.

High-lysine corn, a potential feed grain of the future, could also affect the use of soybean meal. The protein content of this new variety is around 15 percent--nearly double that of the corn produced today. Although further research is necessary before high-lysine corn becomes an important livestock feed, its development may be as significant an advance as was hybrid corn in the 1930's. Its use in animal feeds could reduce substantially the requirements for soybean meal.

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