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THE 1974-75 FEED GRAIN OUTLOOK FOR NORTHEASTERN DAIRY AND POULTRY PRODUCERS

By

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THE 1974-75 FEED GRAIN OUTLOOK FOR NORTHEASTERN DAIRY AND POULTRY PRODUCERS*

Herrell DeGraff

I feel honored to have been invited to participate in this forward-looking sales conference. I had written a quite different presentation for this occasion. But after the U.S. Department of Agriculture, a week ago, issued the August 1 estimate of this year's feed-grain crops, I decided that nothing else I might discuss could possibly be as important to you. Consequently, I discarded what previously had been prepared and will now stick my neck out with some (hopefully) interpretive comments on the impact of this year's prospective grain harvest on our Northeastern livestock producers.

The figure that stimulated, by far, the greatest amount of comment when released by USDA after the markets had closed on August 12, was the estimate of the 1974 corn crop at 4.966 billion bushels. This figure is down 12 percent from corn production in 1973 and a full 25 percent below the "hoped for" crop widely publicized last March on the basis of farmers' "planting intentions" and a projected "trend-line" yield.

A considerable diversity of adverse weather conditions over much of the major producing areas of the country had been widely recognized to have reduced crop prospects materially below the March "hoped for" figure. The National Corn Growers Association and various grain-trade sources had issued August 1 estimates for the 1974 corn crop at figures ranging between 5.0 and 5.4 billion bushels. What probably was most startling about the USDA's estimate issued August 12 was that the first figure was 4 instead of 5.

But it was not only corn for which yield prospects had seriously deteriorated. The USDA's August 1 estimates for each of the four feed grains (corn, sorghum, oats, and barley, and the comparative importance of each, were as follows:

	1973 Harvest	1974 Aug. 1 Estimate	Percent of Total		Percent Change from 1973
	(million tons)		1973	1974	
Corn	158.0	139.0	77.0	79.7	- 12
Sorghum	26.2	17.3	12.8	9.9	- 34
Oats	10.6	10.2	5.2	5.8	- 4
Barley	10.2	8.0	5.0	4.6	- 22
	205.0	174.5	100.0	100.0	- 15

* Presented at Beacon General Sales Conference, Wells College, Aurora, New York, August 20, 1974.

Even dominant as the corn crop is in the nation's feed-grain supplies, the overall production of feed grain this year was down 15 percent in the August 1 estimate (compared to 12 percent for corn alone) largely in consequence of a one-third decline in the prospective yield of grain sorghum.

Because of reduced carryover stocks as we move into the new feeding season from this year's crops compared to a year ago, the prospective total supply of feed grain for the new year (beginning October 1) is 197.6 million tons compared to last year's 237.7 million tons, or 17 percent less.

The pertinent data for corn is set forth in Table 1, and for the 4 feed grains in Table 2. The earlier projections for 1974 are no longer very pertinent. It is comparisons of supply and utilization between 1973 and the August 1, 1974 estimates that are now meaningful. Additionally, let's focus primarily on data for the 4 feed grains (Table 2) rather than on corn alone.

Out of the reduced apparent supply - 197.6 million tons for the new year compared to last year's 237.7 million tons - note that I have (preliminarily and rather arbitrarily) allocated 135.0 million tons to feed use and 27.0 million tons to export. These amounts are 13 percent and 35 percent, respectively, below last year. Even so, carryover stocks at the end of the 1974-75 marketing years will be reduced moderately below the very low carryovers from 1973 production.

What is pertinent to us now, and to our objectives here, is the dynamics of both the supply and utilization estimates as we move on into the actual harvest and the new feeding and marketing year. There are several aspects of these dynamics, each of which can possibly change the picture set forth in the estimates:

1. Production:

   Remember, the production estimate is based on August 1 crop conditions in the producing areas. Historically, it has been a rare year induced when later estimates and the final harvest has not changed from the August figures. Changes up and changes down have been about equally divided over the years; so, while we can expect change, we have no guidance from history as to direction (or very much as to magnitude).

   There is some current optimism, perhaps more in the grain trade than among farmers, that general rains over much of the Great Plains and the Mid-West during the first two weeks of August resulted in improved crop prospects. Very possibly this might have been more true for soybeans than for feed-grains, but some improvement in corn yield should not entirely be discounted. Moreover, weather conditions from now until early October can still be important and, by far, the most critical can be frost date.

   Much of this year's corn crop (and soybeans) is running somewhat later than normal behind the calendar. Early frost could be a catastrophe over a great many acres. Weather records show the following for normal and early frost dates at Mid-West points:

Killing Frost

	Average Date	Earliest Recorded
Omaha	October 17	September 18
Des Moines	October 11	September 13
Peoria	October 20	September 26

Whether frosts come average or early in 1974 is a dynamic that can mean much to all of us.

2. Exports:

This is indeed another dynamic factor. Last year exports amounted to 20 percent of total utilization of U.S. feed-grain supplies, and the quantity exported was a little more than this year's total reduction in supply (August 1 estimate).

Why have I estimated a 35 percent reduction in exports for the new crop year compared to 1973-74? There are several reasons:

a. World grain production is now estimated as moderately above a year ago. Indeed, there is trouble in parts of Africa and India - in Bengal and Bangladesh - but, overall, world production is the best of the last three years.

b. Forward commitments for new-crop exports of grains (reported by USDA) were, as of early August, roughly 70 percent lower for wheat compared to a year ago; roughly 60 percent lower for corn; and roughly 40 percent lower for soybeans.

c. Other impacting factors that may work to reduce foreign purchases of our grains include: (1) a stronger dollar compared to other world currencies than was true a year ago; (2) a lesser degree of inflation here than in other countries who might be buying from us; and (3) a relatively more serious energy bind in potential importing countries, which places a premium demand on energy imports even compared to food and feed-grain imports.

We probably also should add to the list of export impediments the higher prices at which our feed-grains are selling, and prospectively will sell, compared to a year ago.

Whether the aggregate of these several forces will reduce export movement of feed-grains from this country as much as (or more than) is projected in Table 2 is certainly not now entirely clear. The direction of change from the export estimate will, of course, change domestic availability in the opposite direction and, thus, this dynamic factor is of great significance to our own livestock industry.

/We should note in passing that there may be efforts to limit exports by government action. That issue, in 1974, will probably be decided more on a political than an economic basis./

3. Prices:

As we should have expected, neither the grain-terminal cash markets nor the futures markets sat idle and waited for "official figures" of prospective new-crop output. The fundamental question now before us is, how much (how fully) has the tight supply-utilization balance for feed-grains in the new market year already been discounted. Over the past three months (mid-May to mid-August), the "cash-market" price of corn at Chicago has risen a full dollar per bushel - from $2.60+ to $3.60+ per bushel.

Note that on August 12, the day the USDA August 1 production estimate was released (after the markets had closed for the day), the corn futures market closed down the daily trading limit on all options on the Chicago Board of Trade. Clearly, the speculative and the hedging interests involved in futures trading had not expected a crop estimate as low as actually was released by USDA.

The next day, Tuesday, August 13, all corn options traded up the daily limit. The same pattern was repeated on August 14. The August 15 market (Thursday) was "mixed" but closed down for the day some 6¢ to 8¢ a bushel. On Friday, August 16, the Board of Trade closings were again up the limit (10¢ per bushel) on all forward options. And on Monday, August 19, they were all again down the daily limit.

In brief, prices have bounced up and bounced down since the crop report was released on August 12. On August 20, both the cash price (Chicago) and the December futures option on the Chicago Board of Trade were 10¢ a bushel lower than the closing prices on Friday, August 9, before the August crop estimates became public.

This fact clearly reflects a grain-trade plus grain-speculator viewpoint that the supply-utilization balance for 1974-75 feed-grain marketing year will not be as tight as had been anticipated prior to August 12. It may be the so-called "weather improvement" that is dominating grain-trade and speculator thinking. It may, additionally, be the currently apparent softness of export demand.

But, clearly, how feed-grain prices will behave from now through the 1974-75 marketing and feeding year is a dynamic factor hinging upon the several other dynamic matters affecting supply or utilization, or both.

4. Feed Use:

We come now to the dynamics of how almost three-quarters of our feed-grain supply is used (72% in 1973), that is, feed for livestock.

As background against which to evaluate what may be ahead in this crucial area (crucial to your interests and mine), I have attached Table 3, which summarizes the feed usage both by type of livestock and type of feed for the feeding year 1970-71, the latest year for which such data are available. Note from Table 3 the following:

Major Users	Percent of Total Feed from: Corn	4-Grains	Percent of Total Tonnage of Feed-Grains Fed
Beef cattle	9.9	19.4	27.1
Swine	61.0	69.0	32.4
Dairy	18.4	25.4	13.3
Poultry	42.9	60.3	18.4

Given this background data on usage, the question that now seems pertinent is, what adjustments (changes in feed usage) might be expected in the supply-price crunch that seems to lie ahead in the 1974-75 marketing year. Please note again that we are proceeding from the August 1 supply-utilization balances and that any of several dynamic forces may change these estimates.

A. Beef cattle

Note that beef cattle use 27 percent of all grain that is fed (1970-71 feeding year), and that grain accounts for one-fifth (19.4%) of their total feed used. (The data for 1973-74 were not significantly changed from 1970-71.)

The grain used by beef cattle is almost all in the fed-lot segment of the cattle industry. With short feed-grain supply and grain prices that seem certain to be high in relation to prospective prices for fed-cattle, it seems clear that (a) fewer cattle will go into feed-lots than in other recent years, and that (b) the feeding period will be shortened for the fewer cattle that do move to feed-lots.

The cattle feeding industry experienced enormous losses in 1973-74 in consequence of the price-control fiasco and sharply increased feed prices. In consequence, the number of cattle placed on feed was down 12 percent in the January through March quarter of 1974 compared to 1973, and down 29 percent in the April through June quarter. Recent USDA reports indicate that the number of cattle on feed July 1 of this year was 23 percent below last year.

This change has resulted in sharply reduced prices (at least 25 percent down) for feeder calves and yearlings paid to cow-calf producers. Thus, farmers and ranchers everywhere are hit with sharply reduced prices at the same time that the ranching industry in the High Plains and Southwest is suffering from drought that has sharply reduced their pasture capacity and, therefore, their ability fully to maintain their herds.

For these reasons, we should expect in the months ahead (perhaps the full year ahead) much more rigorous culling of the beef-cow herd, increased cow slaughter, and sharply increased movement of steers and heifers to slaughter directly off grass and without going through feed-lots.

Beef supplies, we should note, will definitely not be short for consumers in the year ahead, but choice fed-beef to which consumers have become accustomed will indeed be short.

Grain fed cattle in the 1974-75 feeding season may well drop 20 percent below 1973-74. If so, this would be a reduction of 8 million tons - a 25 percent drop would be 10 million tons - and would, in either case, be a very sizeable part of the 21 million ton drop in feed availability shown in Table 2.

B. Swine

Note that swine used 32 percent of all grain fed to livestock in the 1970-71 marketing year, and that grain accounted for 69 percent of the total feed units they used.

Hog production traditionally has been more subject to cyclical changes than most of our other livestock enterprises. The most recent cyclical peak of farrowings was in 1970, at 101.9 million pigs. Many of these, of course, were fed out and finished for market in 1971. Subsequent annual farrowings have been:

	Pigs Farrowed (millions)	Percent Change from 1970
1971	98.5	- 3.4
1972	93.7	- 8.0
1973	91.8	-10.0
1974 est.	88.3	-13.4

A key question for the swine industry is the degree to which breeding will shrink further after an already unusual four years of decline. To the degree that market-hog production has moved into the hands of the recently emerging specialized producers - highly capitalized in confinement-rearing facilities - there will be a strong tendency to "tough-out" a difficult year. By contrast, to the degree that the traditional general crop-and-livestock farmer is still the source of market hogs, the circumstances that appear to lie ahead will clearly lead to reduced marketings in 1975. I have no information on the relative proportion now being marketed by each type of hog producer. Specialized producers have been increasing in number and volume, but the more traditional type of producing unit is probably still dominant on a volume basis.

The pigs that will be marketed through the early weeks of 1975 have already been farrowed. The crunch will be reflected in breedings in the months ahead; in farrowing from December on into 1975; and in marketings for consumer pork supplies mostly in the second half of next calendar year.

Reduced breedings this fall - very possibly as much as 10 to 12 percent below the fall of 1973 - will result in reduced feed use by swine in 1975. If it happens, this adjustment will be reflected in a higher percentage of sows and gilts among the hogs marketed for slaughter during the coming fall and winter.

Based on 1970, swine used 32.4 percent of the total grain fed to livestock. The amount was 46.8 million tons (Table 3). This usage

has already been reduced, by reason of smaller hog numbers, and is probably currently between 42 and 43 million tons. For the marketing year 1974-75, I shall now estimate a further drop of 4 to 5 million tons.

Thus, between beef and hogs, the reduction in feed-grain usage from 1973-74 would aggregate:

Hogs	- down	4- 5 million tons
Beef cattle	- down	8-10 million tons
		12-15 million tons

Of course, the dynamics of crop yields, exports, grain prices, and producer adjustments may significantly change either or both of these estimates as the harvest and feeding season progress.

C. Broilers and turkeys

In terms of our Northeastern interests, feed usage by poultry should be reviewed in two segments, (1) poultry meat; and (2) eggs.

All poultry during the 1970-71 feeding year used 26,467 thousand tons of grain feeds and 16,300 thousand tons of feed supplements (Table 3). The percentages used for the several poultry enterprises was approximately as follows:

	Percent of Feed Used
Broiler chickens	38.1
Turkeys	12.9
Egg production	40.9
Pullets for flock replacement	8.1
Total	100.0

Based on these percentages, the production of broilers and turkeys in 1970-71 required roughly 21.8 million tons of feed, of which 13.5 million tons was feed grain. The quantities used were moderately larger in 1973-74 (about 1.0 million additional tons of grain).

At current market prices for dressed birds (broilers, 36¢ dressed basis, New York) and current feed costs, producers are in a loss position. Even on a "forward-price basis" (November option at 41¢, or January at 42¢), it is little more than a break-even game against prevailing costs.

Both broiler and turkey production is concentrated in large degree in "integrator" hands - operators who have major capacity and motivation to "tough-it out." Some, however, may well get fed up with present prospects.

For the marketing year 1974-75, I will now estimate a reduction of 2.0 million tons of feed grains used for broiler and turkey production compared to the marketing year now ending.

Add this to the reductions projected above for beef cattle (8 million tons) and for hogs (4 million tons), and the aggregate is 14 million of the 21 million tons shown in Table 2 as the 1974-75 short-fall of feed compared to 1973-74.

What's left to consider? We are clearly getting close to home!

D. Milk production

Let me shift base as I come home to our Northeastern agriculture (within which, as already has been said, I had the privilege of growing up). How I will do so will be apparent in a moment.

In 1970-71, milk production used 13.3 percent of all feed-grain tonnage utilized in all U.S. livestock production. The aggregate was 19.2 million tons (from total use of 144.2 millions, Table 2).

How will our Northeastern dairy-farmer neighbors respond to the crunch that is projected from the August crop report and the other dynamics and adjustments already estimated?

First, what are their other crop prospects (other feed availability) for the new feeding year?

Their oat crop is projected (August 1) to be 18 percent (11,400 tons) above the 1973 harvest. Their hay crop at 9 percent (1.1 million tons) below last year. Corn that is destined to become silage certainly looks good across most of the Northeast. In total, the Northeastern feed crops, this year compared to last, range in the area of a stand-off to a little better.

This fact led me to look at New York dairy-farm records for the past two years, as collected and summarized by the Department of Agricultural Economics at Cornell. These are summarized as follows:

	New York Dairy Farms	
	571 Farms, 1972	609 Farms, 1973
Milk cows per farm	70	69
Man equivalent per farm	2.3	2.2
Lbs. milk sold per cow	12,680	12,350
Av. price per cwt.	$6.41	$7.30
Value of milk per cow	$812.78	$901.55
Feed bought per cow	$206	$278
Feed purchases as percent of milk sold	25%	31%
Year-end capital investment	$183,047	$207,598
Interest on average capital @ 7%	$11,800	$13,672
Labor and management income of farm operator	$5,835	$10,178

Dairy concentrate feeds used on these farms in 1973 equaled 26.4 percent of total farm operating expenses. If concentrate feed costs

in the 1974-75 feeding year were to go up 25 percent from the 1973 level, total operating costs on these farms (other things being equal) would rise by 6.6 percent. (With a 35 percent increase in the cost of concentrate feeds, total operating costs would rise by 9.2 percent.)

To the extent that milk prices may rise modestly in the new feeding year, the feed cost increases would in some degree be offset.

Under the impact of cost-price relationships that almost certainly will be adverse in the aggregate, some additional marginal dairy-farm operations in the Northeast almost certainly will drop out, continuing a trend that has reduced the number of dairy farms in New York State by 50 percent in the last decade.

But efficient established operators will certainly, for the most part, carry on and "tough-it out." Their labor income, based on the 1973 New York Dairy Farm Summary above (609 farms) will probably be cut in half. But the $207 thousand dollar investment per farm would still be functioning; their 2.2 man equivalent per farm would still have their jobs; their expenses could be covered - it is these operators and their families who would be pinched.

Assuming more normal crop production returns for the nation in 1975, well-organized and good-managing Northeastern dairymen will take a comparative beating in the new feeding year that will indeed be serious, but they can survive it on the basis of the present outlook.

E. Egg producers

Egg producers in the 1970-71 feeding year used 21 million tons of concentrate feeds, of which 13 million tons were feed-grains. This includes feed for both egg production and raising replacement pullets. Roughly, 15 percent of this national total was used in the Northeast.

Operating summaries of New York egg-producing farms, published by the Department of Agricultural Economics at Cornell, reveal the following:

	New York Egg Producing Farms	
	34 Farms, 1972	29 Farms, 1973
Hens per farm	20,502	21,400
Man equivalent per farm	3.3	3.8
Eggs per hen	227	220
Pullets raised	29,440	28,400
Layer feed purchased	$63,770	$114,050
Av. price per cwt.	$3.95	$6.07
Lbs. feed per doz. eggs	4.2	4.8
Av. price per doz. eggs	30.9¢	54.3¢
Year-end capital investment	$147,555	$182,215
Interest on average capital @ 7%	$10,173	$12,081
Labor and management income of farm operator	$611	$24,106

Feed purchases on these farms in 1973 ($125,080 per farm for all feeds) was 50.5 percent of total farm operating expenses, or roughly twice the percentage that feed is of operating costs on dairy farms. Thus, in relative terms, the egg producer is hit even harder than the dairyman by the short feed supply and high feed prices.

And again, as with dairying, more marginal producing units in the Northeast well may discontinue operations under the cost-price crunch caused by the short feed crops.

But, also, well-organized and efficient operations, I believe, will weather the storm.

If feed costs rise 25 percent above the 1973 level, and feed use per dozen eggs and egg prices hold at the 1973 levels, note the following as summarized from the operating results of Egg Producing Farms shown above:

	Lbs. feed per doz. eggs	Cost per lb. feed	Feed cost per doz. eggs	Price of eggs/doz.	Value/doz. above feed cost
1972	4.2	3.95¢	16.6¢	30.9¢	14.3¢
1973	4.8	6.07¢	29.1¢	54.3¢	25.2¢
New feeding year	4.8	7.60¢	36.5¢	54.3¢	17.8¢

Given the assumptions that underlie these figures, the good labor incomes that Northeastern egg producers experienced in 1973 would fall sharply in the year ahead, in the direction of but not quite down to the sad results of 1972.

But the well-organized, efficient, forward-looking poultryman will stay in production just like his dairyman counterpart. Farmers neither stop nor start on the basis of one year outlook. It is, of course, essential for them to be looking ahead. That is what this exercise is all about. But I'm pretty sure that a great many good farmers are already ahead of the rest of us in planning their adjustments.

In summary, we should note again that this is only mid-August. The harvest that is so critical may prove to be larger, or smaller. Frost may be late this year, or early. The export market may take even less grain than is projected in Tables 2 and 3. The grain markets may already have quite fully discounted the price impact of the short grain crop. Again we repeat, all these factors remain dynamic and only time, ranging from weeks to months, will bring more precise answers to the many questions.

A highly pertinent additional question is whether the adverse weather of 1974, that so seriously has reduced the nation's prospective harvests, is (a) merely a one-year aberration, or (b) the forerunner of other bad years ahead. This question is being widely debated, including among the world's most informed students of climatology. There are yet no answers.

Repeatedly our attention is called to the "20-year drought cycle" in our agriculturally important West Central States. It is 20 years since the drought of the 1950's.

But the adverse weather of 1974 has not been only drought. Planting season wet weather was also serious. Moreover, we have had single years of bad weather before.

For those whose memory will reach back, recall the "disaster year" of 1947. There was drought in the Corn Belt. The corn harvest fell to 2.1 billion bushels from 2.9 in 1946 and then recovered to 3.3 billion in 1948. Yield per harvested acre was only 28 bushels in 1947, compared to 37 in 1946, and 42 in 1948. The farm price of corn jumped 40 percent (per bushel) for the short 1947 harvest and then dropped 40 percent the following year.

Thus, 1947 was an aberration. The probability is that 1974 is the same.

Table 1. CORN

Marketing Year Beginning October 1	1972-73 1/	1973-74 1/	1974-75 Projections 2/ 3/15	6/24	8/12
Acreage (mil. ac.)					
Set Aside	24.4	6.0	0	0	0
Planted	67.0	71.6	78.8	78.8	77.4
Harv. for grain	57.4	61.8	68.8	68.8	63.8
Yield per Harvested Acre (bu)	97.1	91.4	97.0	93.0	77.8
		Million Bushels			
Supply					
Beginning stocks	1,126	709	533	453	428
Production	5,573	5,643	6,674	6,400	4,966
Imports	1	1	1	1	1
Total	6,700	6,353	7,208	6,854	5,395
Utilization					
Feed	4,310	4,265	4,565	4,365	3,850
Food & seed	423	435	435	435	435
Total Domestic	4,733	4,700	5,000	4,800	4,285
Exports	1,258	1,225	1,225	1,225	800
Total	5,991	5,925	6,225	6,025	5,085
Ending Stocks	709	428	983	829	310

SOURCE: 1/ ERS, USDA
2/ Production projections and (8/12) crop estimate from USDA. Disappearance figures are H. D. estimates.

Table 2. FOUR FEED GRAINS

Marketing Year[1]	1972-73[2]	1973-74[2]	1974-75 Projections[3] 3/15	6/24	8/12
Acreage (mil. ac.)					
Set Aside	36.6	9.4	0	0	0
Planted	115.1	121.4	126.2	126.2	n.a.
Harv. for Grain	94.0	102.3	107.1	107.1	99.5
Yield per Harvested Acre (ton)	2.13	2.00	2.18	2.12	1.76
		Million Tons			
Supply					
Beginning Stocks	48.4	32.4	24.5	22.2	22.2
Production	199.9	205.0	233.9	227.1	175.0
Imports	0.4	0.3	0.4	0.4	0.4
Total	248.7	237.7	258.8	249.7	197.6
Utilization					
Feed	156.2	155.9		156.2	135.0
Other Domestic	17.0	17.3		17.6	17.0
Total Domestic	173.2	173.2		173.8	152.0
Exports	43.1	42.3		41.6	27.0
Total	216.3	215.5		215.4	179.0
Ending Stocks	32.4	22.2		34.3	18.6

1/ Marketing year: Beginning July 1 for barley and oats; October 1 for corn and sorghum.

SOURCE: 2/ ERS, USDA
3/ Production projections and (8/12) crop estimate from USDA. Disappearance figures are H. D. estimates.

Table 3. CONSUMPTION OF FEED (IN FEED UNITS) BY KINDS OF LIVESTOCK
(Year Beginning October 1, 1970)

	Dairy Cattle	Beef Cattle	Swine	Poultry	Other	Total
	(thousands of tons of feed units) 1/					
Corn	13,928	20,045	41,369	18,823	8,953	102,488
Sorghum grains	1,023	10,931	1,260	3,348	518	17,080
Other grains 2/	4,817	8,179	4,132	4,296	3,195	24,673
Total grains	19,192	39,155	46,761	26,467	12,666	144,241
High protein feeds 3/	4,071	6,340	9,310	13,798	3,528	37,047
Other by-products 4/	3,382	2,690	1,575	2,502	1,410	11,559
Total supplements	7,453	9,030	10,885	16,300	4,938	48,606
Pasture	17,666	111,378	10,165	1,148	12,141	152,498
Hay	18,117	31,615	-	-	2,823	52,555
Other roughage 5/	13,247	10,574	-	-	1,073	24,894
Total roughage	49,030	153,567	10,165	1,148	16,037	229,947
All Feeds	75,675	201,752	67,811	43,915	33,641	422,794
	Percentage by Kind of Feed					
Corn	(18.4)	(9.9)	(61.0)	(42.9)	(26.6)	(24.2)
Total grain	25.4	19.4	69.0	60.3	37.6	34.1
Total supplements	9.8	4.5	16.0	37.1	14.7	11.5
Total roughage	64.8	76.1	15.0	2.6	47.7	54.4
All Feeds	100.0	100.0	100.0	100.0	100.0	100.0
	Percentage by Kind of Livestock					
Corn	13.5	19.5	40.0	18.3	8.7	100.0
Total Grain	13.3	27.1	32.4	18.4	8.8	100.0
Total supplements	15.3	18.6	22.4	33.5	10.2	100.0
Total roughage	21.3	66.8	4.4	.5	7.0	100.0
All Feeds	17.9	47.7	16.0	10.4	8.0	100.0

1/ A feed unit is the equivalent in feeding value of one ton of corn.
2/ Includes oats, barley, wheat, and rye.
3/ Includes oilseed meal, grain protein by-products, and animal proteins.
4/ Grain-milling by-products.
5/ Silage, beet pulp, and straw.

SOURCE: USDA, "National and State Livestock-Feed Relationships," Statistical Bulletin No. 446, 1972.