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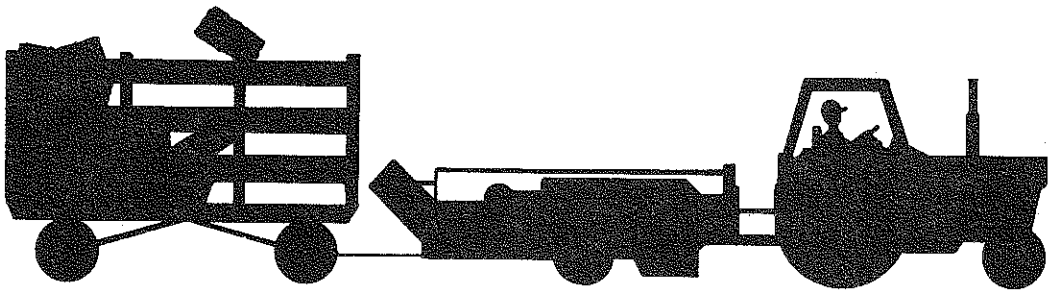
HAY HARVESTING AND MARKETING IN NEW YORK



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HAY HARVESTING AND MARKETING

IN NEW YORK

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HAY HARVESTING AND MARKETING

IN NEW YORK

Hay crops are an important part of New York agriculture. The roughly 2.3 million acres in hay are 40 percent of the state's cropland. Only about 10 to 14 percent of the crop is sold, but hay is a cash crop with a value of between 34 and 50 million dollars.[1] Hay is third in cash sales among New York's field crops, behind corn and potatoes.

In a sense, it's wrong to think of hay as a single "cash crop" in New York. Hay is produced on many different types of farms. Hay producers use different harvesting methods and sell for different uses, so hay is really many "crops" that have different production and marketing costs and bring different prices. For example, hay sold standing in the field to the dairy farmer next door is a different "crop" from wire-tied bales sold to a Florida racetrack, from a management standpoint. Some buyers are more willing than others to pay premium prices for hay with good nutritional quality and color, packaged in tight, easy-to-handle bales. New York hay producers sell to dairy farms, racetracks, horse breeders, pleasure horse owners and others across New York and surrounding states.

Why is there an interest in hay as a cash crop in 1985? Shrinking profit margins are forcing many dairy farmers with small herds to consider other ways of making a living on soils that will grow little else but hay. Some of these farmers may be able to sell the dairy herd and grow hay as a profitable enterprise, using machinery on hand, perhaps in combination with an off-farm job. Also, some cash grain farmers are considering bringing more hay into crop rotations to add nitrogen and reduce pest problems on row crops.

Purpose of This Report

The purpose of this report is to provide general information on hay harvesting systems and marketing patterns in New York, so that producers and buyers can make better informed decisions about choices available to them. The report is based on results of a mail survey of dairy and cash crop farmers in 28 New York counties identified by selected Cooperative Extension agents and regional specialists as likely hay producers, and from followup personal interviews of a smaller number of farmers and hay dealers. A total of 6,685 farmers were mailed a short questionnaire in

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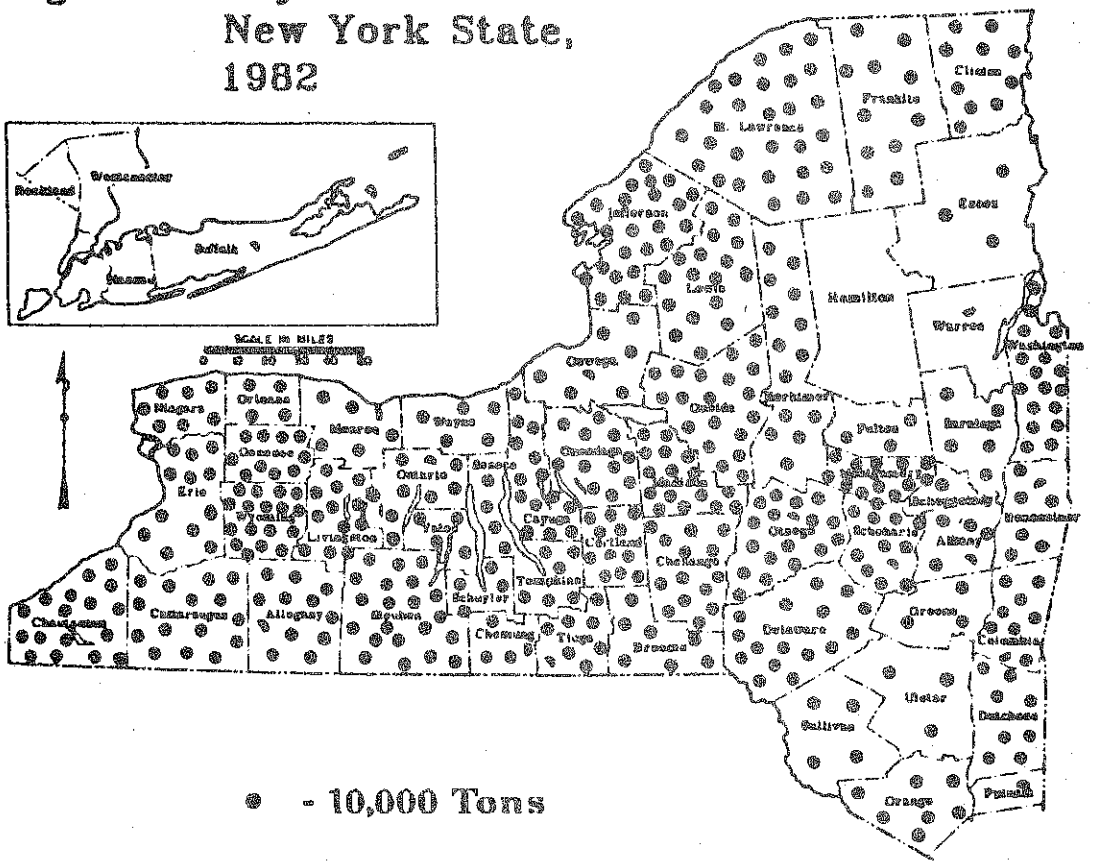
[1]There are two sources of published information on the value of hay sold in New York, and there is a wide discrepancy between the two, owing mainly to the difficult measurement problems involved. The New York Crop Reporting Service discontinued reporting of hay sales in 1980, when they estimated that 10 percent of the crop was sold at a value of 34 million dollars. The 1982 Census of Agriculture also reported sales of hay together with field seeds. Adjusting this figure by the value of field seed production gives an estimate of 50 million dollars in hay sales, or about 14 percent of the crop.

June 1984. (The survey questionnaire is included in the Appendix.) A total of 1,411 returned completed questionnaires reporting hay crops harvested in 1983. Four hundred and seventy two, or about 1 in 3, reported selling dry hay from the 1983 crop. Also, 368 bought hay between June 1, 1983 and May 31, 1984. As a followup to the mail survey, 43 farmers were interviewed for additional information on their hay marketing and purchasing practices. They were asked how they typically find buyers, arrive at prices and collect payments. Most of the producers interviewed were located in Northern New York. Twenty-nine producers and 9 buyers were interviewed in that region, with another 5 producers interviewed in the Central Plains region for comparison.

Where is Hay Produced and Sold?

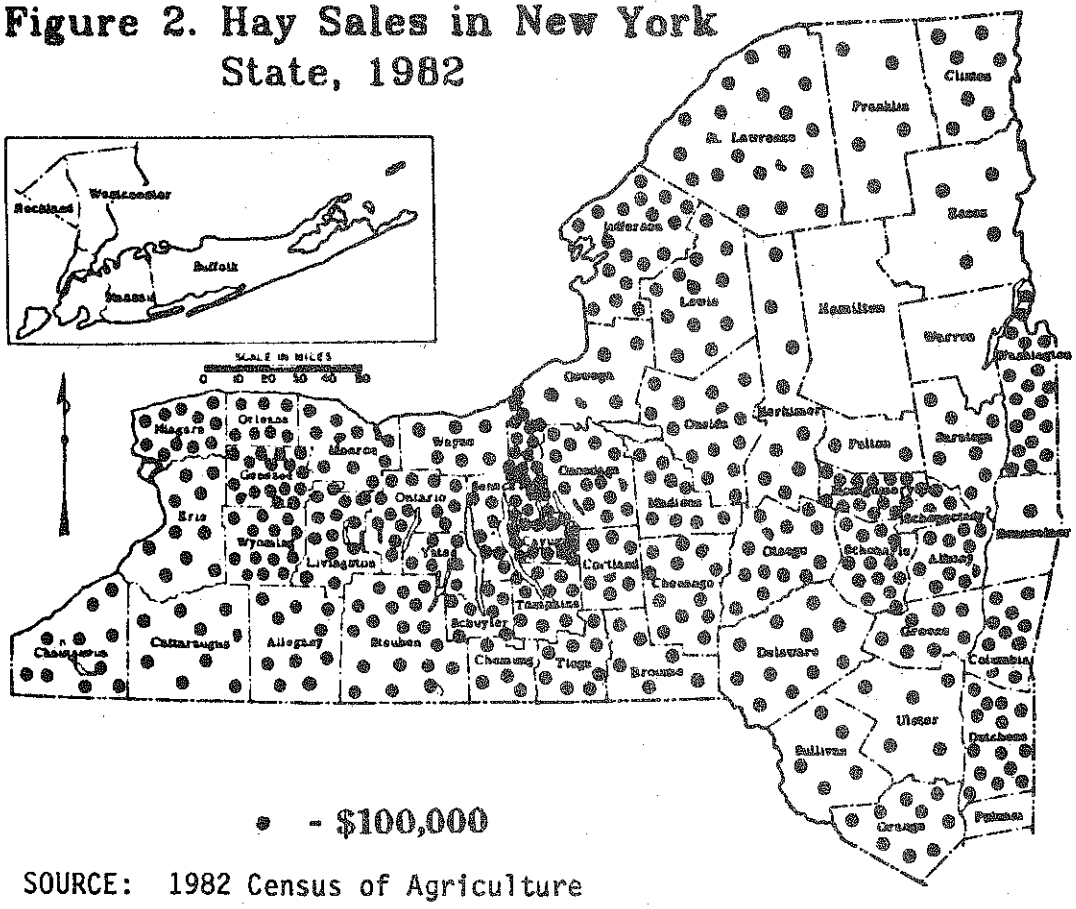
The maps below and on the next page show that hay production and sales from farmers are fairly evenly distributed across upstate New York, except for the Adirondack and Catskill Mountains, based on estimates reported in the 1982 Census of Agriculture (Figures 1 and 2). At the bottom of the next page is a map showing the number of farmers in each county that completed the hay production and marketing questionnaire (Figure 3).

Figure 1. Hay Production in New York State, 1982



SOURCE: 1982 Census of Agriculture

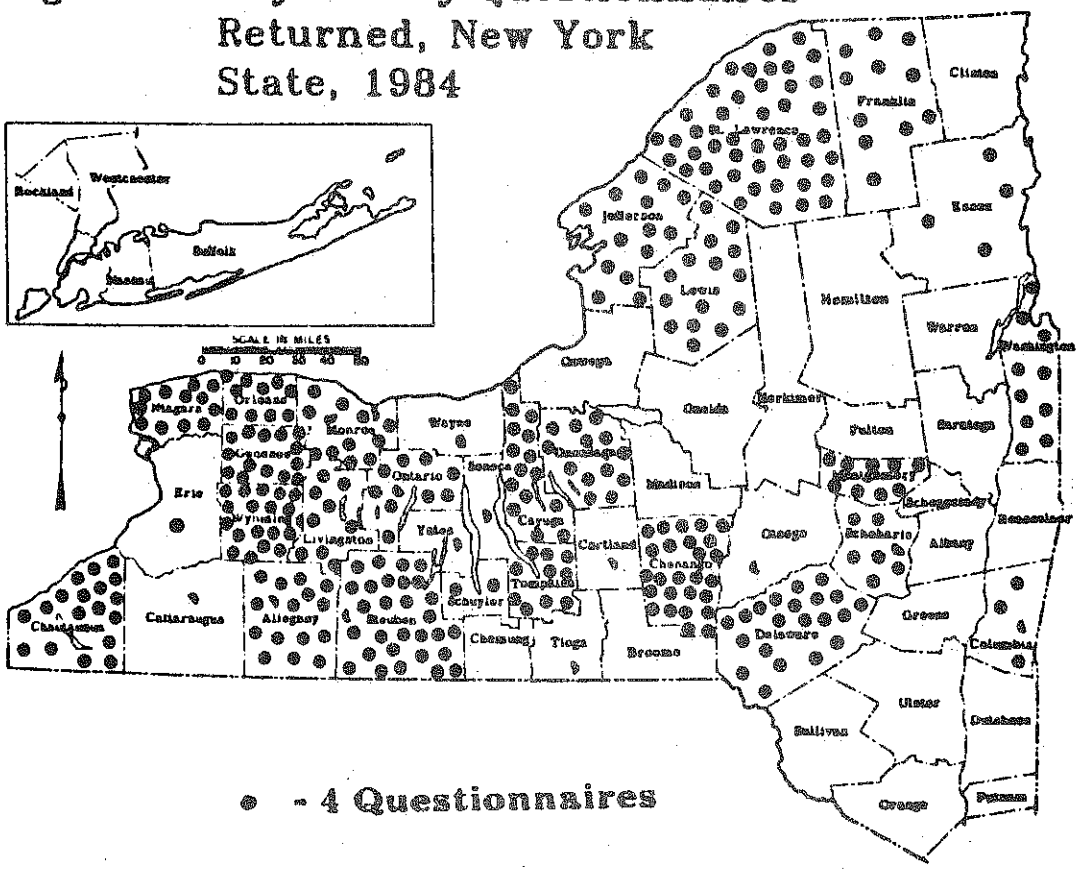
Figure 2. Hay Sales in New York State, 1982



• - $100,000

SOURCE: 1982 Census of Agriculture

Figure 3. Hay Survey Questionnaires Returned, New York State, 1984



• - 4 Questionnaires

Harvesting Systems

A wide variety of hay crop harvesting systems were in use on the 1411 reporting farms. Conventional twine-tie square bales, wire-tied square balers, large round balers, stackers and silage systems were reported.

The farms were about evenly split between those harvesting all of the crop as dry hay (45%) and those harvesting some combination of dry hay and hay crop silage (47%), as Table 1 and Figure 4 show. Another 8% used only silage systems.

Table 1. Dry Hay and Hay Crop Silage Systems in Use 1411 New York Farms, 1983

Hay Crop Harvested as Dry Hay	Farms	Hay Equivalent Harvested Per Farm a	Dry Hay Harvested Per Farm
-%-	-%-	-tons-	-tons-
All Hay	45.0	149	149
Dry Hay & Silage	47.1	389	186
76-99 Hay	10.7	310	265
51-75	13.7	348	219
26-50	14.1	401	156
1-25	8.6	535	84
All Silage	7.9	139	0
Total	100.0	262	155

a Silage was converted to dry hay equivalent by adjusting reported moisture to 10 percent.

Farms using combination systems of 25 percent or less dry hay tended to be larger than average. The average harvest of hay equivalent per farm for this group is 535 tons, compared to 262 tons for all farms. (Silage was converted to hay equivalent by adjusting the reported moisture content to 10 percent moisture).

Table 2 shows that over half of the 369 thousand tons of hay equivalent harvested by reporting farms was put up as twine-tie, square bales. Forty percent of the crop was harvested as silage. Wire-tied square bales, large round bales and stacks made up the remaining 7 percent. Farmers who grow hay primarily for sale tend to use wire, while those who grow hay mainly for their own use but sell what they don't need tend to use twine. Some evidence of this is that 62 percent of the wire-tie hay was sold, compared to 13 percent of the twine-tie bales, 11 percent of the large round bales and almost none of the stacks. Still, two-thirds of the hay sold was square bales tied with twine.

Table 2. Harvesting Systems Used For All Hay Crops and Dry Hay Sold
1411 New York Farms, 1983

System	All Hay Crops Harvested			Dry Hay Sold		Sales as Percent of Harvested
	-tons-	-% of Crop-	-% of Dry-	-tons-	-% of Sold-	-%-
Square Bale, Twine	190,942	51.7	87.6	24,690	67.5	12.9
Square Baler, Wire	17,180	4.7	7.9	10,585	28.9	61.6
Large Round Baler	7,797	2.1	3.6	840	2.3	10.8
Stacker	2,075	0.6	1.0	5	0	0.2
Silage	151,016	40.9	-	-	-	-
All Methods	**369,010**	**100.0**	**100.0**	**36,602**	**100.0**	**9.9**

Harvest Hay for Sale, or Sell Excess Feed?

The best harvesting system for hay to be sold to a buyer some distance away may not be the best system for hay crops fed on the farm. For hay to be sold, bales should be well-formed and dense to speed loading and unloading, cut waste and allow the trucker to get as many tons as possible on the truck. Since many of the costs involved in operating a truck, such as the driver's wages, are about the same regardless of the tons being hauled, getting more on the truck cuts shipping cost per ton. So, a buyer choosing between dense bales and looser ones is likely to offer a higher price for the dense bales. For hay fed on the farm, a dense bale is not nearly so important, and other factors, such as labor requirements for harvest, storage and feeding play a larger role.

The farmers interviewed generally thought quality requirements demanded by their buyers were much different from quality requirements they would look for in hay they would feed themselves. Most recognized that first cut hay harvested in late May or early June generally has a higher protein and energy content than first cut hay harvested in late June or July. However, a rain or two resulting in a loss in color cut the market price substantially, even though the loss of nutrients might be smaller than the drop in price might imply. Nearly all felt that buyers measure quality mainly by color, and that hay cut in late June or July is less likely to be rained on than hay cut earlier. So, delaying cutting a few weeks past the time of maximum feed value increased chances of getting a crop with good green color that would bring a high price.

These ways of evaluating quality complicate the choice of a hay harvesting system for farmers who want to feed some hay and sell the rest. Table 3 shows how important hay sales were compared to feeding on the 1411 farms surveyed. Seven percent of the farms sold their entire harvest of dry hay, averaging 129 tons per farms. About one-fourth of the farms sold some of their hay and fed some, and most of these sold 15 percent or less, averaging 217 tons harvested and 16 tons sold. Two-thirds fed their entire hay crops and sold none.

Table 3. Farms Selling Different Percentages of Their Hay Crops

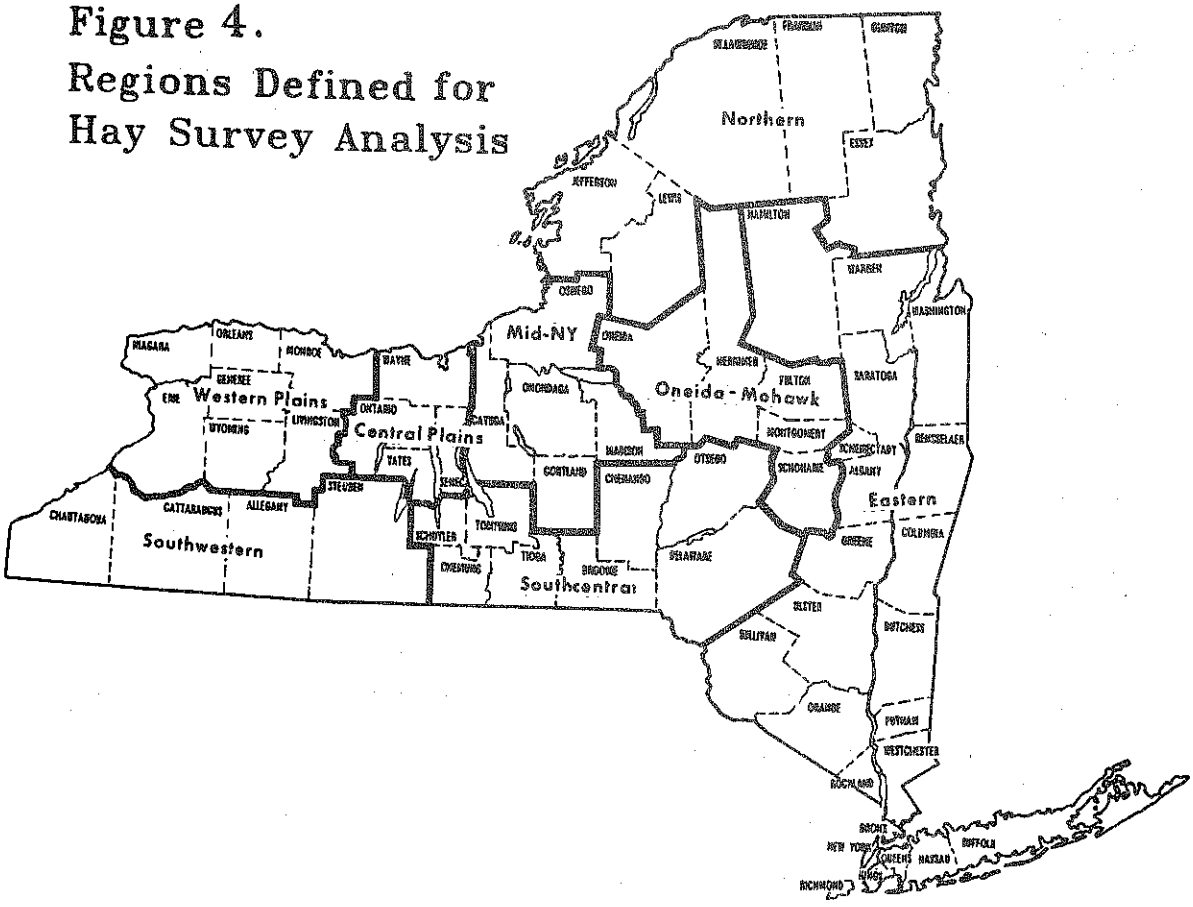
Dry Hay Sold	1411 Farms Harvesting Hay Crops	Dry Hay Harvested /Farm	Dry Hay Sold /Farm
-%-	-%-	-tons-	-tons-
All Hay Sold	6.9	129	129
76-99 Sold	3.3	172	152
51-75	3.5	163	104
26-50	5.9	194	71
1-25	13.9	217	26
No Hay Sold	66.5	139	0
Total	100.0	155	25

Price Patterns

The price received for hay varies a great deal, depending on quality, access to highways and markets, the marketing skills of the seller and many other factors. Farmers responding to the mail survey were asked to provide amounts and average prices received for hay sold from the 1983 crop, broken down into four hay types. The hay types were alfalfa and alfalfa mixtures, second or later cutting, not weather damaged; alfalfa and alfalfa mixtures, first cutting, not weather damaged; other hay, including clover, trefoil and timothy, not weather damaged; and severely weather damaged, mulch, bedding and other hay.

Price variability across the state was determined by grouping counties into 8 geographical regions. These are outlined on the map in Figure 4. These regional boundaries correspond with those used for the Dairy Farm Business Summary projects conducted by the Department of Agricultural Economics and Extension field staff across the state, with the exception that 3 regions in the eastern part of the state have been combined. The regions differ with respect to soil and climactic conditions as well as distance to various major hay markets within and outside of New York.

Figure 4.
Regions Defined for Hay Survey Analysis



Most of the hay sold in the Western and Central Plains, mid-New York, the Oneida-Mohawk and Eastern regions is alfalfa and alfalfa mixtures. The Southwestern, Southcentral and Northern regions sell mainly other types of hay (Table 4).

Table 4. Types of Hay Sold, by Region, 1411 New York Farms, 1983

Region	Alfalfa: Second and Later Cuttings a	Alfalfa: First Cutting b	Other Hay c	Weather Damaged d	All Hay
	----------tons sold in region----------				
Western Plains	2,959	4,329	1,570	233	9,091
Southwestern	651	1,086	2,797	174	4,708
Central Plains	673	1,200	423	20	2,316
Southcentral	724	1,428	2,500	134	4,786
Mid-New York	2,043	3,715	689	59	6,506
Northern	756	1,262	3,416	341	5,776
Oneida-Mohawk	309	1,184	485	15	1,993
Eastern	188	634	463	88	1,373
New York	8,303	14,839	12,343	1,064	36,548
	----------% of all hay sold in region----------				
Western Plains	32.5	47.6	17.3	2.6	100.0
Southwestern	13.8	23.1	59.4	3.7	100.0
Central Plains	29.0	51.8	18.3	0.9	100.0
Southcentral	15.1	29.8	52.2	2.8	100.0
Mid-New York	31.4	57.1	10.6	0.9	100.0
Northern	13.1	21.9	59.2	5.9	100.0
Oneida-Mohawk	15.5	59.4	24.3	0.8	100.0
Eastern	13.7	46.2	33.7	6.4	100.0
New York	22.7	40.6	33.8	2.9	100.0

a Alfalfa and alfalfa mixtures, 2nd or later cutting, not weather damaged

b Alfalfa and alfalfa mixtures, 1st cutting, not weather damaged

c Other hay, including clover, trefoil and timothy, not weather damaged

d Severely weather damaged, mulch, bedding and other

Table 5 shows average prices reported. The average price reported for all hay was $79 per ton. Prices were lowest in the Northern region, although within the region prices varied a great deal with higher prices in areas with easy access to the Northway in the east and Route 81 to the west than in the areas farther from interstate highways. The other region with low prices was the Southwestern region. Prices tended to be higher in regions closer to the New York City area and southern New England, where hay is in demand for horses. The questionnaire did not ask whether the price reported included a charge for hauling. However, few of the farmers contacted in the followup interviews did their own hauling beyond using wagons for short trips to neighboring farms. This would indicate that there is probably little hauling cost included in the prices shown here.

Table 5. Prices Received for Hay by Type and Region a
1411 New York Farms, 1983

Region	Alfalfa: Second and Later Cuttings	Alfalfa: First Cutting	Other Hay	Weather Damaged	All Hay
	$/ton				
Western Plains	99.92	81.45	67.91	46.17	84.40
Southwestern	83.22	63.90	56.23	50.41	61.94
Central Plains	102.31	83.39	93.27	55.00	90.39
Southcentral	102.59	73.91	69.85	41.56	75.48
Mid-New York	109.41	93.05	77.82	75.56	96.03
Northern	84.12	63.22	57.68	42.79	61.36
Oneida-Mohawk	101.50	75.36	66.12	60.00	77.27
Eastern	100.00	83.67	66.18	59.54	78.47
New York	100.06	81.00	64.44	48.75	79.11
	% of first cut alfalfa price				
Western Plains	122.7	100.0	83.4	56.7	
Southwestern	130.2	100.0	88.0	78.9	
Central Plains	122.7	100.0	111.8	66.0	
Southcentral	138.8	100.0	94.5	56.2	
Mid-New York	117.6	100.0	83.6	81.2	
Northern	133.1	100.0	91.2	67.7	
Oneida-Mohawk	134.7	100.0	87.7	79.6	
Eastern	119.5	100.0	79.1	71.2	
New York	123.5	100.0	79.6	60.2	

[a] See footnote on Table 4 for complete hay type descriptions used

The map in Figure 5 is an attempt to lend a bit of geographic perspective to the regional average prices shown in Table 5. Prices are shown only for first cut alfalfa and alfalfa mixtures, from the second column of Table 5, not for the other three hay types. The nearly 15 thousand tons of first cut alfalfa reported make up over 40 percent of the total of all hay sold. A total of 224 farms reported selling first cut alfalfa. The dots on Figure 3 on page 3 show the counties in which the farmers returning questionnaires were located. The dollar amounts shown in Figure 5 for the average prices are located roughly in the center of the cluster of returned questionnaires in each region.

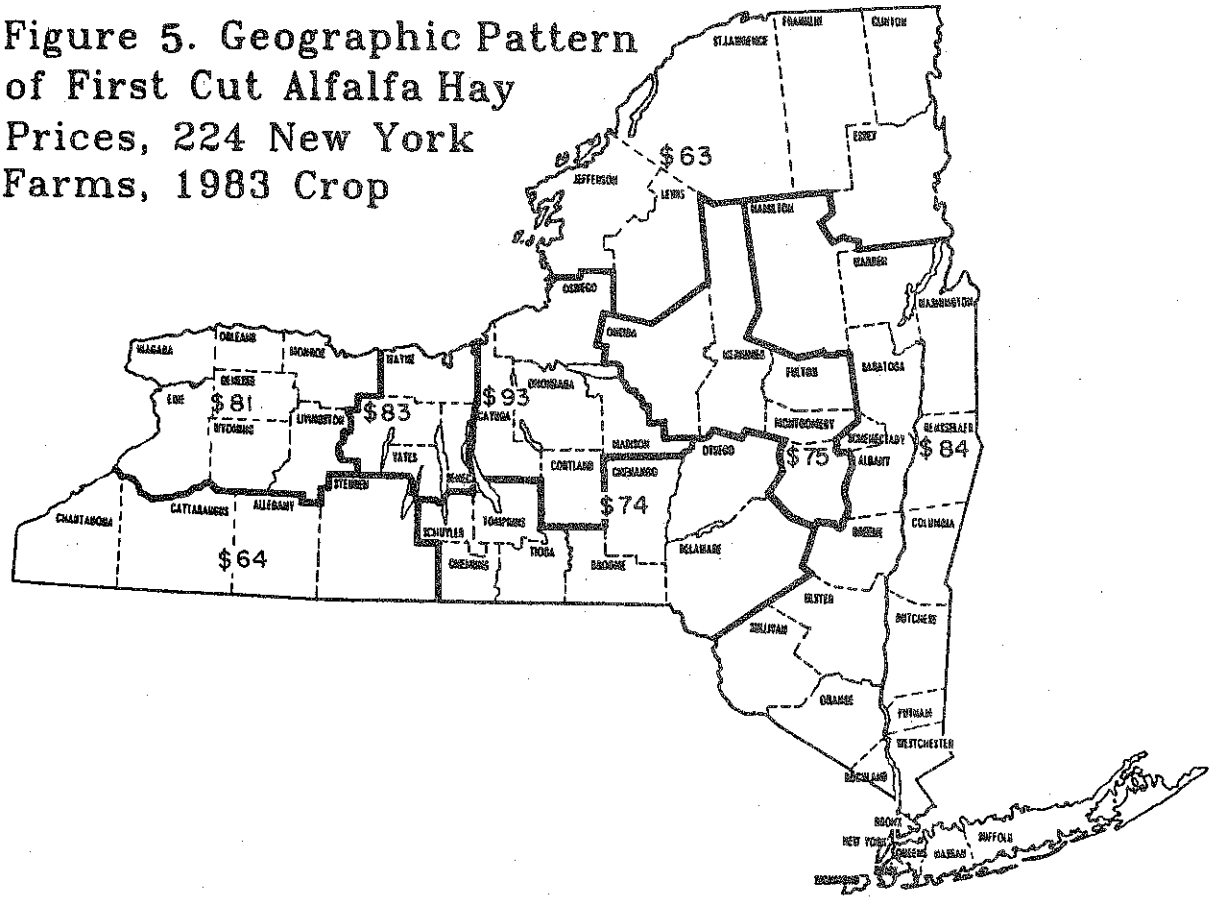


Figure 5. Geographic Pattern of First Cut Alfalfa Hay Prices, 224 New York Farms, 1983 Crop

The regional price differences should be kept in perspective. Prices in every region varied so much from farm to farm that some farmers in the regions with the lowest averages received higher prices than other farmers in regions with the highest averages. For example, the average price for first cut alfalfa in the Northern region was $63, or $30 less than in mid-New York. Yet, roughly one-sixth of the farmers in the Northern region reported prices over $78, while one-sixth in mid-New York reported prices less than $70.

Much of the price variability is probably due to quality differences. The survey does not provide enough information to tell how much quality varies across regions. Use of wire-tie balers by many farmers in the Western and Central Plains and mid-New York to make shipping easier may also help to explain the higher prices in those regions.

Does the use of wire instead of twine affect the price received for hay? Farmers in the Central Plains region who used wire received an average of $87 per ton, compared with $70 for twine-tied bales, a difference of $17 per ton. In mid-New York, the difference was even greater, $26 per ton. In the Western Plains, on the other hand, wire-tied bales averaged $1 less per ton than twine (Table 6).

Table 6. Prices Received for First Cut Alfalfa Hay by Harvesting Method, Selected New York Regions, 1983

	Square Baler, Twine			Square Baler, Wire		
	Selling Farms	Hay Sold	Average Price	Selling Farms	Hay Sold	Average Price
	number	tons	$/ton	number	tons	$/ton
Western Plains	53	1,697	82	18	2,567	81
Central Plains	11	357	70	5	843	87
Mid-New York	25	1,586	78	18	2,129	104

This does not imply that a farmer in the mid-New York region now using twine will necessarily get $26 more per ton by changing to a wire-tie baler. The difference may be due to the fact that a buyer is willing to pay more for a tight, heavy wire-tie bale because he can get more tons on the truck and cut shipping costs to distant markets. But, the difference may also be due to the fact that farmers using wire manage the hay enterprise more intensively. The higher prices may be due to higher quality as well as more careful marketing.

Where Is New York's Hay Marketed?

Harvesting systems, cutting dates and other management practices are helpful in producing a product that buyers want and will pay for. A knowledge of where hay is moving, volumes of hay purchased by different types of buyers and shipping distances involved can help a producer assess his potential markets. The mail survey questionnaire asked farmers to identify the final destination for the hay they sold, if known. They were also asked to provide information on the type of buyer and distance that the hay was shipped to its final destination.

The mail survey covered only a small proportion of all farmers selling hay in each region, and this proportion was different from one region to another. The 1982 Census of Agriculture provides a basis for estimating these proportions. It includes estimates of total hay and field seed sales by county. The mail survey covered only a small percentage of all farmers selling hay in each region. This percentage was different from one region to another, owing to the procedure used in selecting farms to be surveyed. The smallness of the coverage and the difference in coverage among regions was not a problem for most of the analyses discussed in this report. The percent coverage in each region was estimated with a procedure using estimates of total hay and field seed sales and field seed production by county published in the 1982 Census of Agriculture, along with estimates of field seed prices from the New York Crop Reporting Services and local suppliers, and average hay prices by region reported in the survey.[2]

The mail survey covered about 5 percent of total hay sales estimated for the state using this procedure. The coverage for individual regions ranged from less than 1 percent in the Eastern region to 10 percent in the Western Plains. Total tons sold by all farmers in each region to the various destinations was estimated by dividing this percent coverage into the tons reported on the survey (and multiplying by 100).

Over half of the hay was purchased by a buyer in the same county. Looking at regions shows some striking differences. Eighty-five percent of the hay in Northern New York stayed in the county, and the percentage was nearly as high in the Southwestern and Eastern regions. On the other hand, about one-quarter or less stayed in the county in the Western and Central Plains, mid-New York and the Oneida-Mohawk regions (Table 7). The mid-Atlantic states (PA, DL, MD, VA and NJ) were major destinations for hay moving out of the Western and Central Plains and Southwestern New York.

Producers in the Oneida-Mohawk region reported that over half of their hay moved to the New York City area. The NYC area was also a major destination for hay from the Western Plains and mid-New York. Fifteen percent of the hay from the Western Plains and 17 percent from the Oneida-Mohawk region was shipped to New England.

No one in the Eastern region reported selling hay to the New York City area, as would have been expected given the number of horses in that area. Part of the reason for this might be that the only two counties surveyed in the Eastern region were Washington and Columbia counties, and both are fairly far from New York City and close to the racetracks in Saratoga Springs, another big market.

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[2]The procedure was to first calculate total hay sales for all farmers in the county by subtracting field seed production valued at current market prices from the combined total of hay and field seed sales published in the census. The value of field seed production is small compared to the combined value of sales (about 4 percent for the state) so any errors due to using production instead of sales should be small. Then average prices per ton for each region were divided into hay sales to get an estimate of tons sold by all farmers in the region. Dividing tons sold by all farmers into tons reported in the mail survey then gives the percent coverage for each region shown in the far right column of the middle panel of Table 7.

Table 7. Destinations of Hay Sold by Region of Origin
1141 New York Farms, 1983

Region of Origin	Destination: Within County	Other Upstate County	New York City Area	New England	Mid-Atlantic States	Other Southern States	Other, Didn't Know or Didn't Answer	Total	Percent Coverage
	tons reported on survey								
Western Plains	1,808	430	984	1,038	1,776	845	2,722	9,604	
Southwestern	2,492	a	a	a	921	0	819	4,400	
Central Plains	676	781	a	102	975	82	a	2,672	
Southcentral	2,336	988	357	a	521	a	765	4,967	
Mid-New York	1,196	996	1,692	115	629	398	978	6,004	
Northern	4,043	121	433	a	102	a	911	5,637	
Oneida-Mohawk	74	a	625	184	153	a	942	2,029	
Eastern	855	317	a	a	0	0	a	1,236	
New York	13,480	3,851	4,133	1,478	5,077	1,325	7,205	36,548	
	total tons sold (reported tons/percent coverage)								
Western Plains	17,806	4,236	9,691	10,227	17,493	8,327	26,815	94,595	10.15
Southwestern	44,278	a	a	a	16,372	0	14,558	78,172	5.63
Central Plains	9,767	11,275	a	1,475	14,077	a	a	38,594	6.92
Southcentral	43,507	18,396	6,658	a	9,702	a	14,249	92,511	5.37
Mid-New York	14,566	12,134	20,605	1,396	7,656	4,851	11,913	73,121	8.21
Northern	77,156	2,317	8,272	a	1,949	a	17,389	107,560	5.24
Oneida-Mohawk	2,539	a	21,520	6,327	5,273	a	32,416	69,832	2.91
Eastern	89,851	33,291	a	a	0	0	a	129,944	0.95
New York	299,470	86,371	67,336	21,333	72,522	14,358	122,938	684,328	5.47
	% of all hay sold with destination identified								
Western Plains	26.3	6.3	14.3	15.1	25.8	12.3		100.0	
Southwestern	69.6	a	a	a	25.7	0.0		100.0	
Central Plains	25.5	29.4	a	3.8	36.7	a		100.0	
Southcentral	55.6	23.5	8.5	a	12.4	a		100.0	
Mid-New York	23.8	19.8	33.7	2.3	12.5	7.9		100.0	
Northern	85.6	2.6	9.2	a	2.2	a		100.0	
Oneida-Mohawk	6.8	a	57.5	16.9	14.1	a		100.0	
Eastern	72.1	26.7	a	a	0.0	0.0		100.0	
New York	53.3	15.4	12.0	3.8	12.9	2.6		100.0	

a
Deleted to preserve confidentiality of individual respondents.

The information on shipping distance and type of buyer in Table 8 shows two fairly distinct marketing patterns. The first pattern was to sell directly to dairy and other livestock farms or horse or pony owners (other than racetracks). This hay tended to move 20 miles or less, and represented about half of the total sold. Smaller amounts also sold for mulch, industrial and miscellaneous purposes and moved 20 or less miles.

The other marketing pattern is through dealers to destinations fairly far from the producer. Dealers bought almost half of the hay sold. Eighty-seven percent of this hay moved over 50 miles to its final destination. Less than two percent of the hay was sold directly to racetracks by producers.

Table 8. Shipping Distances of Hay Sold by Type of Buyer
1411 New York Farms, 1983

	Distance Shipped in Miles				
Type of Buyer	0-20	21-50	51-100	Over 100	Total
	tons				
Dealer	1,069	900	12,525	915	15,409
Dairy farm	9,332	1,822	537	0	11,691
Other livestock farm	1,711	109	108	a	1,946
Racetrack	126	63	337	0	526
Other horse or pony owner	1,208	820	a	0	2,035
Mulch or industrial	90	a	a	0	117
Other	80	a	a	a	114
New York	13,616	3,757	13,514	951	31,838
	% of all hay sold to buyer type				
Dealer	6.9	5.8	81.3	5.9	100.0
Dairy farm	79.8	15.6	4.6	0.0	100.0
Other livestock farm	87.9	5.6	5.5	a	100.0
Racetrack	24.0	12.0	64.1	0.0	100.0
Other horse or pony owner	59.4	40.3	a	0.0	100.0
Mulch or industrial	76.9	a	a	0.0	100.0
Other	70.2	a	a	a	100.0
New York	42.8	11.8	42.4	3.0	100.0

a Deleted to preserve confidentiality of individual respondents.

Marketing Practices

Many different types of farms grow hay for sale. For some, hay sales are a major income producer. Many of these farms devote considerable management efforts to producing a quality product and locating buyers willing to pay a good price for it. For many others, hay sales are simply a way of getting rid of some extra forage, and the income produced is too small to be worth devoting management time to improving marketing practices.

Producers

Most of the Northern New York producers, 20 out of 29, were dairy farmers. Five of the rest were part-time operations where the operator also held a full-time off-farm job. A sixth was retired from off-farm employment. The remaining three were former dairy farmers who had sold their herds for various reasons within the past one to five years and were making a transition to cash crop farming. Hay production for sale on a large scale was relatively new for these producers, and hay was only a minor source of income for most of the dairy farmers and part-time farm operators.

The five Central Plains farmers had all been producing hay for sale for a number of years. Three were full-time cash crop farmers and the other two farmed part-time with off-farm jobs. The cash crop farms felt that hay was beneficial to other crops in rotation, and seasonal labor demands for hay harvest meshed well with grain production. Persons with off-farm employment in both the Central Plains and Northern New York were often in situations with flexible schedules allowing for time off during critical days for hay harvest. The retired individual was a landowner who depended on a tenant to harvest the hay for him on shares, and sold his share as a part-time effort.

Producers normally sold to only a few buyers, typically not more than 3. About half of the producers reported selling year after year to the same repeat buyers. On the other hand, several reported selling to 10 or more buyers. Producers generally depended on buyers to make the initial contact leading to a sale. They contacted buyers only occasionally. Five producers had posted advertisements in local newspapers and meeting places from time to time. The rest depended on "word of mouth" advertising to attract buyers.

The New York State Department of Agriculture and Markets has been increasing efforts to provide better market information to New York farmers and others. One such effort is the annual Hay Directory, a listing of producers and dealers in each county across the state who have provided the necessary information for listing to the Department staff. The directory effort is relatively new. The first one was published in 1981. The 1983 Hay Directory contained 98 names.

The Hay Directory was not widely known by the producers interviewed. Over half indicated they had not heard about it. Only one had listed his name in the directory. A general feeling expressed was that repeat buyers generally purchased as much as was available, so that advertising for additional buyers by means of the directory may not be necessary.

Producers were asked how they typically arrived at a sale price with buyers. Most said they set a price and let buyers "take it or leave it", sometimes consulting with other buyers and sellers first. Three producers reported following southern Pennsylvania hay auction price trends published in the Lancaster Farming weekly newspaper. They set their prices based on past relationships to the Pennsylvania markets. One producer reported following price trends in the New York Department of Agriculture and Markets' monthly Hay Report, and one reported checking with Cooperative Extension personnel in his county. Most producers would not promise to sell hay to a particular buyer at a set price more than a week in advance of the sale.

Timing of payment was also discussed. Two-thirds of the producers reported being paid for the hay at loading or weighing. Many of the rest would extend credit to neighbors "until the next milk check", and some dealers paid for a previous load when picking up the next load. Most producers were careful to extend credit only to neighbors or dealers they dealt with regularly.

Losses from nonpayment are a serious problem for hay sellers. The State of New York has addressed the issue in its dealer licensing law.[3] This law requires dealers, brokers, commission agents and processors to be licensed, give a bond and deposit a fee into the agricultural producers security fund. A producer who has sold hay or other farm products to a person covered by the law and is not paid within 30 days can file a claim with the Commissioner of Agriculture and Markets. The claim is then certified and paid from the bond and the fund. Most dealers who buy hay for sale and brokers who negotiate sales are subject to the law. However, hay sales to other farmers who buy hay for their own use are not covered by the dealer licensing law.

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[3]Article 20 of the Agriculture and Markets Law, Chapter 824, Laws of 1983, as amended, relating to licensing and sale of farm products. See Circular 922 by the State of New York, Department of Agriculture and Markets for the complete article.

Losses were common among the producers interviewed. Seven of the 34 producers reported losses (Table 9). Several of the losses were to neighboring farmers experiencing financial difficulties, and these producers expressed hopes of repayment at some later time. Only one small loss was to a dealer who might have been subject to the licensing law. No claim had been filed in this case. The licensing law might be said to be working well for hay sellers in that there was only one small loss to a dealer. However, the licensing law does not provide any specific protection for the roughly one-half of total hay sales to farmers and other unlicensed buyers (see Table 8). Losses from nonpayment are clearly still a factor producers of hay for sale should be prepared to deal with.

Table 9. Size and Frequency of Loss From Nonpayment for Sales of Hay, 34 New York Producers, 1984

Loss Amount		
-$-		-Number-
1- 499		3
500-2,499		2
2,500-4,999		0
Over 5,000		2
	Total Losses	7

Producers were also asked about the typical load size for hay sold. Most of the producers reported selling hay in a wide variety of load sizes. Tractor-trailers and wagons were most common (Table 10). This agrees with the mail survey which showed large amounts moving locally to neighbors and also large quantities moving long distances.

Table 10. Typical Load Sizes for Hay Sales, 34 New York Producers, 1984

Type of Transport	Average Reported Weight		Replies
	-tons-		number
Tractor-trailer	18		13
Straight truck	8		4
Pickup truck	1		5
Wagon	5		9
		Total Replies	31

Buyers

Nine hay buyers were interviewed about their hay purchasing practices, for comparison. All were dairy farmers located in Northern New York. All reported purchasing hay in most years, on a regular basis. Two of the nine purchased all of their hay needs and baled none of their own hay.

The buyers purchased from a small number of sellers, with none buying from more than four. Six of the nine had purchased only from repeat sellers in the past year. One of the buyers had placed an advertisement in a newspaper to find hay for sale, but the most common method of contacting sellers was for the buyer to call someone he had bought from before. Three of the nine reported knowing about the Hay Directory. One of the buyers bid on standing hay, otherwise prices were set by the sellers. Four buyers paid when the hay was delivered, but the remaining five were extended credit for more than one week.

Five of the buyers purchased standing hay. Reasons cited were the cost savings from using equipment and labor already on hand, and the ability to control cutting date and quality. Others bought hay out of the field. They felt that they could monitor quality more closely this way than buying hay out of storage as well as saving the cost of moving the hay into and out of the seller's storage. Four of the buyers reported purchasing hay from Canada. They cited the favorable exchange rate and better quality as reasons.

Summary and Implications

Hay is an important cash crop in New York. Hay is produced on many types of farms, using different harvesting methods, and sold for different uses. There is increasing interest in hay as a cash crop as dairy and cash crop farmers look for alternative enterprises. There are many difficult management problems to be overcome for profitable production of hay for cash sale, however.

The purpose of this report is to provide information on hay harvesting systems and marketing patterns in New York, so that producers and buyers can make better informed decisions about choices available to them. Results of a mail survey of dairy and cash crop farmers and followup interviews are presented.

There are two fairly distinct marketing patterns for hay sold by the reporting farms in the survey. One pattern is direct sale to buyers fairly close to the seller, mainly dairy farms 20 miles away or less. The other main pattern is long-distance sales through dealers or brokers to racetracks, urban and surburban pleasure horse owners, and other markets over 50 miles from the seller. The quality and bale density requirements are likely to be much different for two different major markets.

The size of the market for New York hay will be an important consideration if a large number of farmers seek to shift out of dairying to producing hay for sale. If new biotechnology developments such as the bovine growth hormone increase milk production per cow, the number of dairy cows in the state may fall. Reduced cow numbers would hurt demand for hay, even though increased consumption per cow might partially compensate. It has been suggested that beef cow-calf or other livestock enterprises might be expanded to utilize the cropland freed up by the decrease in dairy cows.

Horses and ponies are a small but growing market for hay. While accurate statistics are hard to obtain, the 1978 Equine Census by the New York Crop Reporting Service found about 180,000 horses and ponies in the state. The best available estimates for 1984 are 200,000 to 300,000, each typically eating 10 to 20 pounds of hay per day. This would imply total annual hay consumption by horses and ponies in the range of 365 thousand to 1 million tons, or 7 to 20 percent of the state's hay production. Some hay is imported into New York from other states and Canada. It may be possible for New York hay producers to displace some of these imports as well as increase their share of New England and southern markets. This might require a concerted effort to improve quality and better market information to match sellers and buyers.

A hay producer may be able to improve the profitability of hay as a cash crop by taking the time to check out the different market opportunities available in his area and the quality requirements, marketing costs and prices for each. This would be especially important when major capital investments in balers and other harvesting machinery and storage structures are being considered. These investments determine or at least influence the type of bale package that can be offered to buyers, as well as labor requirements and operating expenses. Hay sellers who feed part of the crop

may consider tradeoffs made between harvesting system requirements of the hay to be sold and requirements for the hay to be fed.

The 1,411 farms responding to the survey were about evenly split between those harvesting all dry hay and those harvesting a combination of dry hay and hay crop silage. Farmers who grow hay primarily for sale tend to use wiretie balers, while those who grow hay mainly for their own use tend to use twine-tie balers. Still, two-thirds of the hay sold was tied with twine. Prices for wire-tied hay averaged higher than twine-tied bales in the mid-New York and Central Plains regions, but not in the Western Plains.

Some questions raised during the interviews and other discussions include: does use of a bale thrower detract from bale appearance and price, compared to stacking bales by hand? For what situations is an automatic bale wagon or other specialized handling equipment a profitable investment?

Hay prices vary more from farm to farm and region to region than prices of most other crops. Prices were lowest in the Northern region and highest in the Central Plains and mid-New York. An interesting problem for researchers is to determine how much of this price variation reflects quality differences and differences in transportation costs to buyers, and how much is due to lack of market information on the part of buyers and sellers (for example, Smith sells his hay to Jones for $60 per ton because he doesn't know that Johnson down the road is willing to pay $70). Further research will be necessary to answer these questions.

Several states have initiated computerized systems for providing better hay market information. Would such a system be helpful in New York? From the standpoint of some individual hay sellers, the price variability may reflect opportunities to improve prices by better marketing (and conversely, some sellers may save money by better purchasing strategies).

Producers who were interviewed reported selling generally to the same small number of buyers year after year, depending mainly on "word of mouth" advertising to attract buyers. It may be possible to increase profits by advertising and making greater use of published sources as a guide to market price trends.

Hay will always be a heterogeneous product, with weather, soils, weeds and other factors beyond control of the producer causing quality differences. The shift to hay crop silage by dairymen is an effort to reduce weather damage, but hay crop silage is not feasible crop to sell for most hay sellers.

Questions can be raised about the apparent heavy reliance on color as the sole measure of quality by many buyers. There may be no other quality measure available in many situations. However, early-cut, weather-damaged hay with some color loss may have more nutritional value than green, overmature hay; yet it may sell for a lower price. Producers of hay for sale tended to delay harvest to reduce the risk of weather damage, because they felt that color was the main measure of quality important to buyers. It may be possible for both buyers and sellers to gain from a greater reliance

on more accurate quality measures such as chemical or electronic analyses of protein and energy content. The time delay necessary for performing the analysis as well as a possible lack of knowledge about how to balance livestock rations cost-effectively are problems impeding the use of such quality measures. Mobile near-infrared-radiation testing equipment holds promise of reducing the time delay in evaluating quality and nutritional value.

Hay pricing on the basis of chemical analysis of nutritional value may hold more promise for dairy than for the horse market. One reason for this assertion is that pleasure horse owners with only one or a few horses may have less knowledge of and interest in nutrition than an experienced manager of a commercial dairy farm. Hence, they may be less willing and able to compare lots of hay on the basis of nutritional quality. They may also be less concerned with cost and more concerned with the aesthetics of a sweet-smelling, green bale of hay. The competitive nature of horse racing and the higher value per animal compared to dairy and other livestock may also make trainers less willing to experiment with new hay pricing schemes than, say, dairy farmers for whom feed costs are a more important part of total operating costs.

Losses from nonpayment were a common problem reported by hay sellers, with 7 of the 34 reporting losses at some point in the past. Most sellers reported being paid for their hay at loading or weighing, in an effort to reduce losses. They extended credit only to neighbors or dealers they dealt with regularly. One problem with demanding payment at loading or weighing is that it may translate into a loss of sales. It may be, but is not necessarily, profitable to risk small losses if the quantity sold or price can be increased. If the decision is made to extend credit, the risk of loss can be reduced by such practices as requesting credit references and financial information on a standardized credit application, and using regular and accurate billing procedures. A check with others extending credit to the purchaser, lending institutions and credit agencies may be needed to determine ability to meet credit obligations.[4]

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[4]These and other credit management practices are discussed in A.E. Ext. 79-3, "Guidelines for Improving the Credit Management of Agribusiness Firms", by D. M. Kohl, G. J. Conneman and R. S. Smith.

APPENDIX

HAY PRODUCTION AND MARKETING SURVEY

May 1984

CONFIDENTIAL **REPORT FOR HAY GROWN IN 1983**

Please give the information as accurately and completely as possible. If you do not have exact figures, please estimate.

1. How many tons of hay crops did you harvest for silage or green chop? [ ] TONS
   [ ] AVERAGE % MOISTURE

2. How many tons of baled or stacked hay did you harvest? [ ] TONS

If you baled hay, please answer questions 3 - 5	If you did not bale any hay, go to question 10. Skip questions 3 - 9 in this section.

3. What type of equipment do you use to harvest baled hay? (Please write "1" for the one most most commonly used. If you use more than one type, write "2" for the second type you use.)

   Square baler, twine tie ( ) Large round roll baler ( )
   Square baler, wire tie ( ) Other _____ ( )

4. What is your average bale weight? [ ] POUNDS

5. How many tons of hay did you sell and do you expect to sell from the 1983 crop? [ ] TONS

   Is this higher ( ), about the same ( ), or lower ( ) than normal for past years? (Please check one)

If you sold or plan to sell hay, please answer questions 6 - 9.	If you did not sell or expect to sell hay, go to question 10. Skip questions 6 - 9 in this section.

6. What types of hay did you sell? Estimate tons of each, in what month most of the hay was sold and the average price.

	Tons	Month Sold	Price/ton
Alfalfa and alfalfa mixtures, 2nd or later cutting, not weather damaged			
Alfalfa and alfalfa mixtures, 1st cutting not weather damaged			
Other hay, including clover, trefoil and timothy not weather damaged			
Severely weather damaged, mulch, bedding and other			

APPENDIX (continued)

For question 7 - 9, more than one answer may describe the hay you sold. Please write "1" for the largest quantity, "2" for the next largest and "3" for the third largest.

7. Who did you sell most of your hay to?

Dealer or broker	( )	Racetrack	( )
Dairy farm	( )	Other horse or pony owner	( )
Other livestock farm	( )	Mulch or industrial	( )
Other _____	( )		

8. Estimate how far the hay you sold was shipped to its final destination.

0 - 20 miles	( )	51 - 100 miles	( )	Don't know	( )
21 - 50 miles	( )	Over 100 miles	( )		

9. What was the final destination of the hay you sold? If you sold through a dealer or broker, indicate where he shipped it, if known. If unsure, check "Don't know".

Your county	( )
Outside county, in upstate New York	( )
New York City, Long Island, Rockland or Westchester Counties	( )
New England	( )
Pennsylvania, Delaware, Maryland, Virginia or New Jersey	( )
Other southern states	( )
Other _____	( )
Don't know	( )

10. How many tons of hay did you buy and do you expect to buy between June 1, 1983 and May 31, 1984? Is this higher ( ), about the same ( ), or lower ( ) than normal for past years (Please check one) [ ] TONS

If you bought or expect to buy hay, please answer questions 11 and 12.

If you did not buy or expect to buy hay, go to the next page. Skip questions 11 and 12.

For questions 11 and 12, please write "1" for the largest quantity. If more than one answer describes the hay you bought, write "2" for the next largest quantity and "3" for the third largest.

11. Who did you buy the hay from?

Farmer who harvested it	( )	Other _____	( )
Dealer or broker	( )		

12. Estimate how far the hay was shipped from the farm where grown to you.

0 - 20 miles	( )	51 - 100 miles	( )	Don't know	( )
21 - 50 miles	( )	Over 100 miles	( )		

REFERENCES

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