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Solicitation costs and returns of selected Sioux City livestock commission firms

David Harold Hammond
Iowa State University

SOLICITATION COSTS AND RETURNS OF SELECTED SIOUX CITY LIVESTOCK COMMISSION FIRMS

by

David Harold Hammond

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TABLE OF CONTENTS

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INTRODUCTION

The first of the large terminal markets or public stockyards was established in Chicago in 1865. Between 1865 and 1900, most of the present day public livestock markets were established. From the time of their beginning until the 1920's, the terminal markets were the major and practically the only outlet for slaughter livestock. In the decade from 1920 to 1930, a number of meat packing plants were established in the livestock producing areas. Developments that aided this change in the meat packing industry included hard surfaced roads and motor trucks that permitted less reliance on the railroads for transportation; changes in freight rates to allow economical movement of carcass meat in refrigerated cars; and the improvement of communication via radio and rural free delivery so livestock producers could know the current market situation and choose between alternative markets more rationally.

These interior packing plants began to cut into the terminal markets' share of the market, especially in hogs and calves. The declining importance of terminal markets is shown in Table I and Figures 1, 2 and 3. As late as 1953, 61.5% of the slaughter cattle moved through terminal markets but in 1962, 35.6% of the slaughter cattle moved through terminal markets (5) (6). The percent of slaughter cattle moving through terminal markets has declined steadily since

Table I. Slaughter and market receipts of cattle and hogs[1]

Year	Commercial slaughter of cattle	Terminal receipts of slaughter cattle	Percent of slaughter cattle from terminals	Sioux City slaughter cattle receipts	Commercial slaughter of hogs	Terminal receipts of hogs	Percent hogs from terminals	Sioux City hog receipts
1962	26,083,000	9,300,079	35.6%	733,450	79,334,000	21,715,765	27.4%	1,988,299
1961	25,635,000	10,345,180	40.4%	972,281	77,335,000	21,510,390	27.8%	1,919,258
1960	25,224,000	11,116,297	44.1%	1,006,991	79,036,000	22,906,362	29.0%	1,862,620
1959	22,930,000	10,815,649	47.2%	997,929	81,582,000	25,516,758	31.3%	2,188,232
1958	23,555,000	11,115,660	47.2%	922,651	70,965,000	21,870,463	30.8%	1,663,776
1957	26,232,000	12,716,786	48.5%	793,196	72,595,000	22,803,169	31.4%	1,367,819
1956	26,862,000	14,504,361	54.0%	864,024	78,513,000	25,630,747	32.6%	1,619,113
1955	25,722,000	14,029,505	54.5%	895,973	74,216,000	24,578,729	33.1%	1,888,586
1954	25,017,000	14,287,123	57.1%	859,121	64,827,000	20,883,555	32.2%	1,650,480
1953	23,605,000	14,507,689	61.5%	916,280	66,913,000	21,096,400	31.5%	1,737,444

[1]Source: "Livestock and Meat Statistics, 1962" U.S.D.A., AMS, Statistical Reporting Serv. ERS, Washington, D. C. Statistical Bulletin No. 333, July 1, 1963.

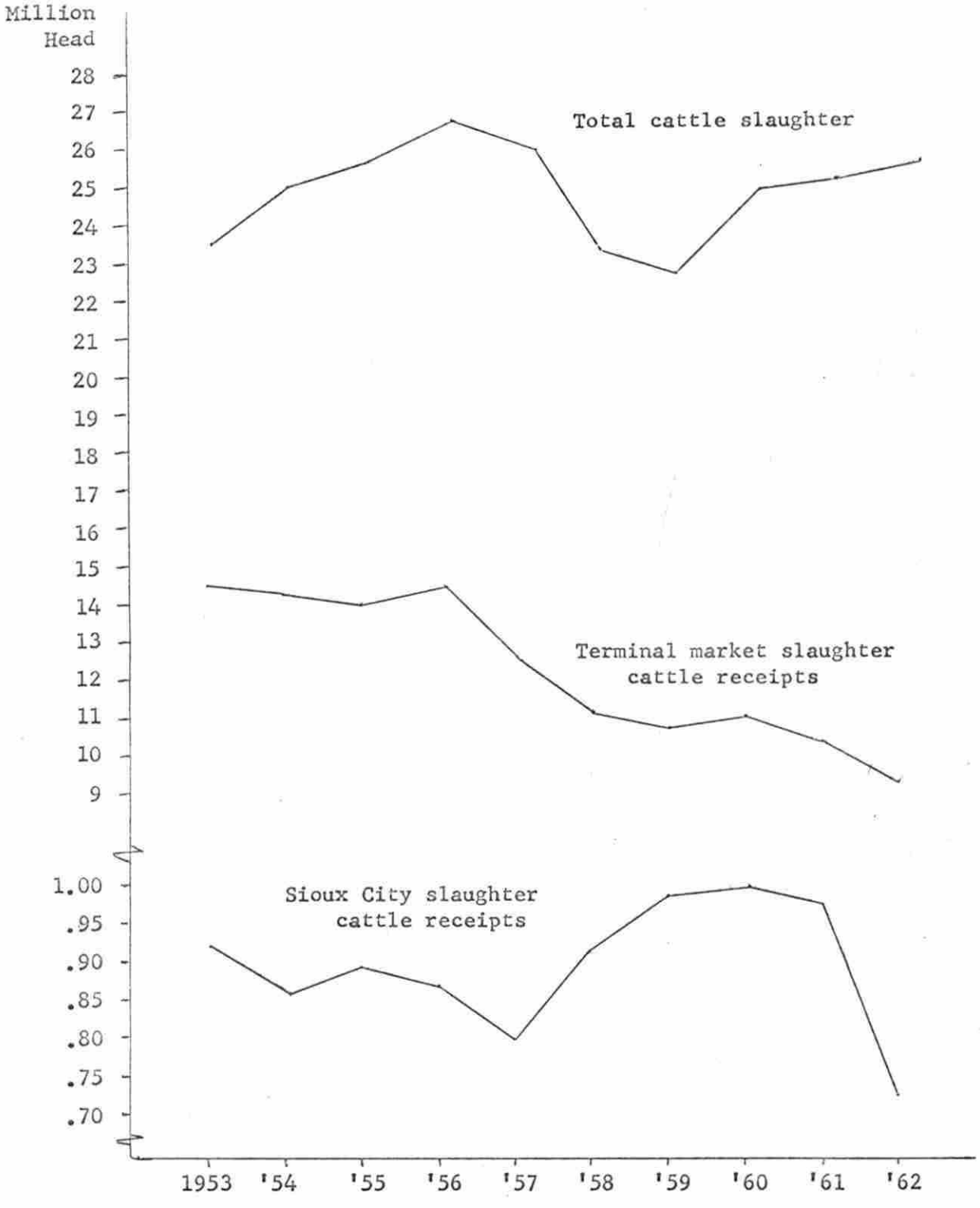

Figure 1
Slaughter and Terminal Market Receipts of Cattle, 1953 - 1962

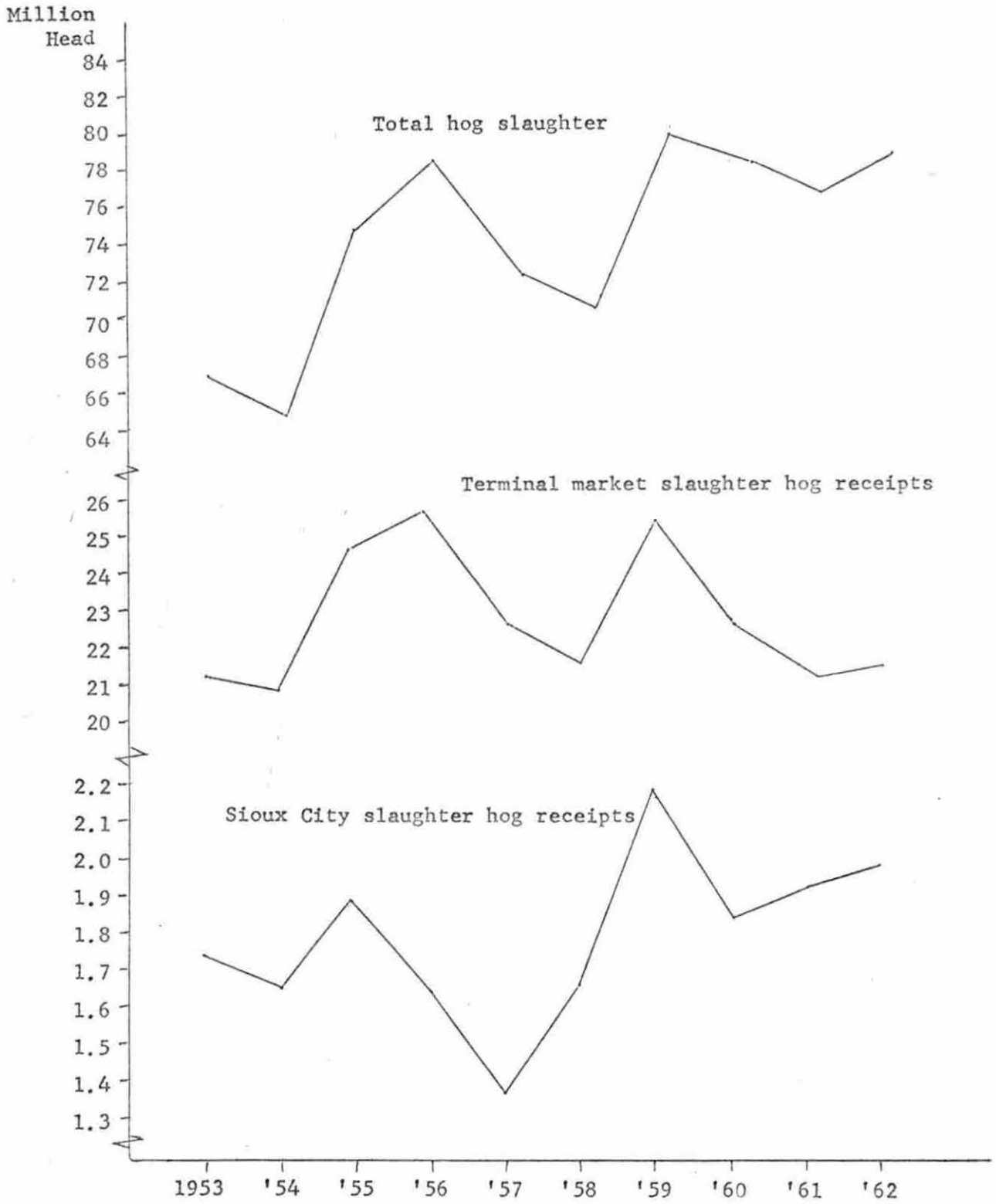

Figure 2

Slaughter and terminal market receipts of hogs, 1953 - 1962

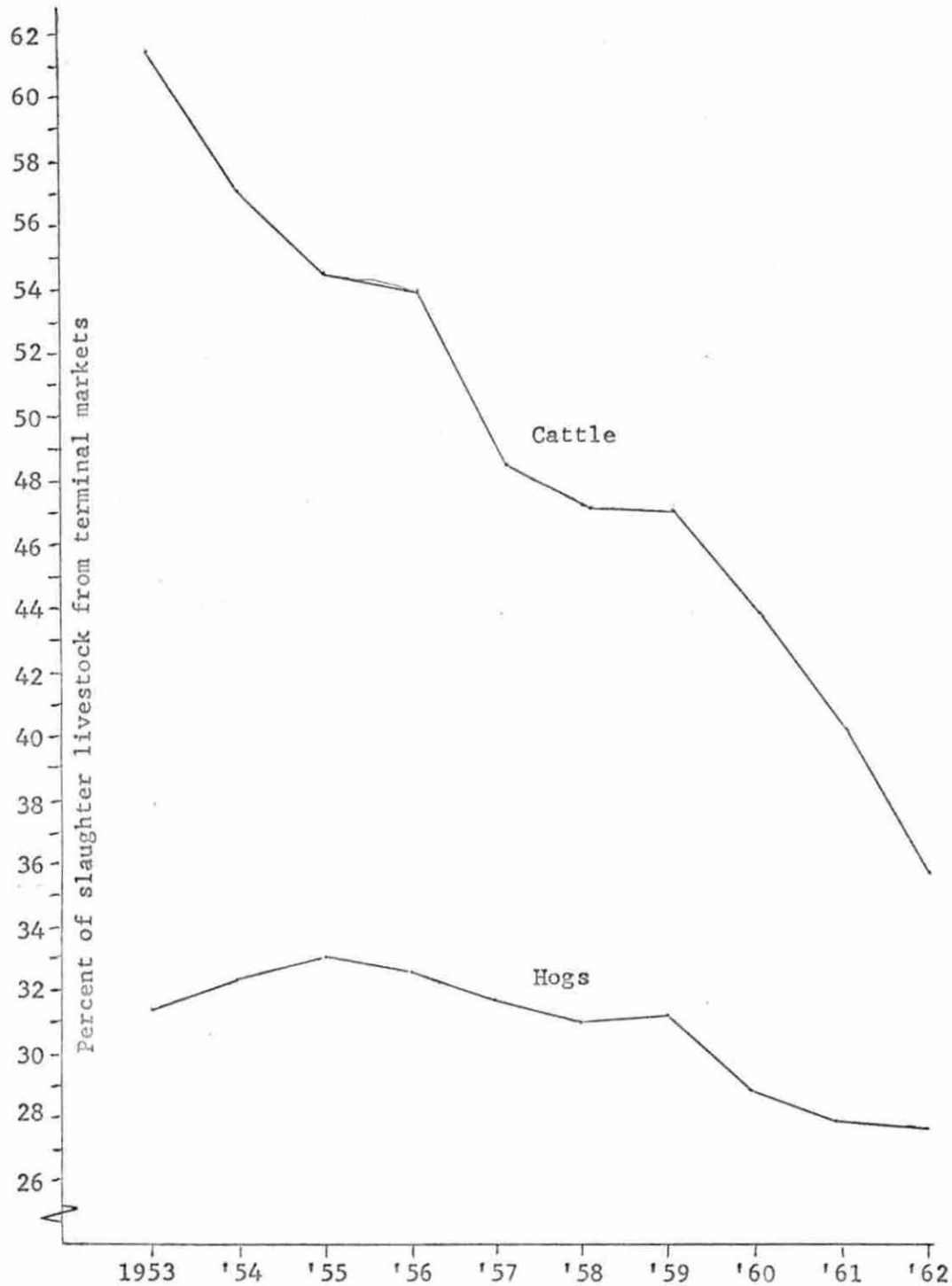

Figure 3

Percent of slaughter livestock from terminal markets, 1953 - 1962

1953. In this same period, the percent of hogs moving through terminal markets has declined irregularly. The percentage of hogs moving through terminal markets increases as the total hog slaughter increases and decreases as the total hog slaughter decreases. However, the decreases have been greater than the increases (5).

The Sioux City, Iowa, public stockyards was established in 1894 and at the present time, it is the third largest market for cattle and the fourth largest hog market among the terminals. The recent trend of the number of saleable slaughter cattle and hogs at Sioux City is shown in Table I and Figures 1 and 2. The Sioux City saleable hog receipts generally follow the same trend as the total hog slaughter and all terminal market hog receipts, moving in the same direction seven of the ten years.

The cattle situation is very different. The slaughter cattle receipts at the Sioux City Stockyards moved in the opposite direction of total cattle slaughter in seven of the past ten years and moved in the same direction as the terminal market's trend in only five of these ten years. From 1953 to 1957, slaughter cattle receipts at Sioux City declined slightly but moved upward rather sharply in 1958 and 1959. In 1960 the receipts held about steady and moved downward slightly in 1961. Saleable receipts of slaughter cattle at Sioux City declined 24,56% from 1961 to 1962 while

total cattle slaughter increased 1.75%. The receipts of slaughter cattle at all terminal markets declined 10.10% from 1961 to 1962. The decline at Sioux City accounted for 22.85% of this decline.

During the latter part of 1962, the Sioux City Stockyards management was well aware of this sharp decline in slaughter cattle receipts and, naturally, were quite concerned. The general decline in importance of terminal markets combined with the sharp drop of slaughter cattle at Sioux City were the incentives for the initiation of this study.

The objective of terminal markets and particularly Sioux City is to increase their saleable receipts, or at least to stop any further declines. The individual commission firms are a major factor in the number of livestock moving through the market. That is, except for some publicity and promotion sponsored by the Stockyards Company or the Foundation, the individual commission firms and their representatives are responsible for solicitation of livestock from producers.

Most of the commission firms carry on roadside advertising and mail some type of newsletter to their patrons. One of the more effective methods of keeping old customers and gaining new customers is the direct solicitation of livestock by visiting the individual producer on his farm.

When discussions began with Sioux City market personnel in late 1962 concerning possible areas of study, the question of solicitation costs and effectiveness was discussed. The questions which were raised concerning visits included the costs of such visits, their effectiveness, and possible relationships between the number of visits made and costs and effectiveness of visits.

REVIEW OF LITERATURE

There is a good deal of information available concerning terminal markets but the only recent study on solicitation costs and effectiveness is a "Case Study of Commission Firm Soliciting Costs, 1962" (1). Cramer and Grimes selected one commission firm from each of the major markets in Missouri: Kansas City, St. Joseph, and St. Louis. Records were kept of visits made by members of each firm for a three month period and checked against livestock received from the farms visited. The consignments received covered livestock consigned during the three month record keeping period and a six week period following the last visit. Cramer and Grimes did not state any definite conclusions in the mimeographed summary of their study but there were wide differences between the firms and between representatives within firms. These differences were in costs per visit; cost per animal unit seen and consigned; and percent of farms and livestock that were consigned. Cramer and Grimes computed costs on travel, meals, and lodging but did not include salary costs. Their average cost per visit of firms ranged from $1.43 to $4.11 and their average cost per animal unit received ranged from 9.2¢ to 35.9¢. The percent of animal units seen that were consigned ranged from 7.8% to 29.6% between the firms. Cramer and Grimes found that 70% to 85% of the cattle that were consigned were received within six

weeks of the visit and 65% to 70% of the hogs were received within six weeks of being visited. Cramer and Grimes also included information on the present market outlet of producers visited.

OBJECTIVES

The Sioux City Stockyards and Livestock Exchange Managements were interested in the area of solicitation and the Cramer and Grimes study. They felt that a more intensive study of the Sioux City commission firms along these lines would be useful to them. Out of these discussions came the following objectives of this study:

1. Determine if it is profitable for commission firms on a central public market (i.e., Sioux City) to solicit cattle and hog consignments by visiting livestock producers on their farms.
2. Determine the cost of farm visits in terms of time and out-of-pocket costs and relate costs to number of visits made.
3. Determine the percent of old and new customers that consigned livestock after being visited.
4. Relate the number of visits made to the percent of farmers that consigned livestock.
5. Determine the cost per animal unit consigned.

METHODS USED IN THE STUDY

A period of twelve weeks covering March 4, 1963, to May 25, 1963, was selected for the study. This period was selected in December, 1962, without regard to forecasted livestock marketings or prices in order to eliminate bias in the selection of the time period. This period was selected because it fit into the timing schedule of preparing needed materials and orienting the participating firms.

A record of all farms visited by the participating commission firms was kept by each firm for the six week period March 4, 1963, to April 13, 1963. The names of the farmers visited were checked with the files of the firms to see if they consigned livestock to that firm between the time they were visited and the end of the period covered by the study, May 25, 1963. Thus, each farmer was given at least a six week period after being visited to consign livestock to that firm and be included in the study. The length of the study, 12 weeks, was selected because it was felt by the stockyards personnel and the research personnel that this would be adequate to give a representative picture. Also Cramer and Grimes found that 70% to 85% of the cattle consigned were consigned within six weeks after they were visited and 65% to 70% of the hogs consignments were within this period. It was agreed that, based on Cramer and Grimes'

results, the small percent of livestock that could be gained by a longer period would not warrant the added time and expense required.

The information on each visit that was requested from the commission firms included firm name; representative of the firm making the visit; date of visit; name and address or county of the livestock producer visited; whether he was an old or new customer of that firm; number of cattle, hogs, and sheep seen; and the time spent on the farm. At the end of each day of visiting livestock producers, a daily summary was made which covered the part of the day spent visiting farmers, miles driven, meal expense, lodging expense, and any other expenses incurred in making visits. Forms were provided to the firms for the keeping of these records. See Appendix for samples of the forms used.

After May 25, 1963, these names were checked with the files of the commission firm to see whether or not the farmers visited consigned livestock to that firm. Data was also collected on the number of head consigned and the time span between the visit and the consignment. All of the above data was coded on punch cards to be processed and analyzed.

In order to have a cross-section of commission firms in the study, the 23 commission firms at the Sioux City Stockyards were divided into three groups by size. The size

of the firm was used as the criteria for grouping as it was felt by the Sioux City Stockyards personnel that this was a good indicator of number of farms visited and the aggressiveness of the firms. Two firms were then selected from large firms, two from the medium sized firms, and three from the smaller firms. The selections were made randomly, Three firms were selected from the smaller size group because it was felt that they would be more apt not to complete the study. If one dropped out the results would still contain data from two smaller firms. As it turned out, two of the three smaller firms did not complete the study and the remaining firm kept records for only part of the period. This partial return was included in the results. Consequently, there are two large firms, two medium sized firms, and a partial return from one of the smaller commission firms included in the study.

EFFECT OF EXTERNAL FACTORS

The total receipts of livestock at the Sioux City Stockyards during the period under study would have an influence on the percent of farmers that consigned livestock. The receipts for the same 12 week period in 1963, 1962 and 1961 were obtained from the Sioux City Stockyards and compared. The weekly cattle receipts for 1963 in the period of the study averaged 24,567 head compared to 25,008 head per week in 1962 and 25,084 head in this period in 1961. See Table II. The 1963 receipts were 1.7% lower than the 1962 average and 2.06% lower than the 1961 weekly average for the same 12 week period. The analysis of variance table and the F test show that there were no significant differences between the average weekly cattle receipts during the 12 week period in 1963, 1962 or 1961.

The week to week variability of livestock receipts could also affect the conclusions of the study. One measure of variability within the 12 week period for each year is the range in weekly receipts. The difference between the high and low weekly cattle receipts in 1963 was 4,398 head, considerably less than the 12,483 head range in 1962 and less than half as large as the range of 9,854 head of cattle in 1961. A more sophisticated measure of variability is the s^2 of cattle receipts within the 12 week period of each year. Hartley's homogeneity of variance test was used to determine

Table II. Weekly cattle receipts, Sioux City Stockyards

Week ending	1963	1962	1961
March 9	25,253	25,216	25,239
16	24,014	16,688	23,355
23	21,449	26,681	22,029
30	25,847	16,098	30,366
April 6	24,132	25,273	26,630
13	25,424	24,032	21,821
20	23,800	28,050	25,586
27	26,274	26,868	28,311
May 4	27,741	26,917	25,988
11	24,358	28,024	27,574
18	21,763	28,581	20,512
25	24,749	27,667	23,597
Total	294,803	300,095	301,008
Average	24,567	25,008	25,084
High Week	25,847	28,581	30,366
Low Week	21,449	16,098	20,512
Difference (High-Low)	4,398	12,483	9,854
s^2	3,145,493	17,978,727	8,552,773
s	1773.55	4240.12	2924.51

H_0: $u_1=u_2=u_3$

H_A: At least one of the equalities does not hold

Test statistic $F = \frac{\text{Between years mean square}}{\text{Error mean square}}$

$\alpha = .01$

Reject $F > 5.37$

Analysis of variance table

Source	Degrees of freedom	Sum of squares	Mean square
Total	35	328,317,509	
Between years	2	1,870,579	935,290
Error	33	326,446,930	9,892,331

Computed $F = \frac{935,290}{9,892,331} = .095$

Therefore accept H_0: the weekly average cattle receipts for the three years are not different.

Table II. (continued)

H_0: $\sigma_1^2=\sigma_2^2=\sigma_3^2$

H_A: At least one of the equalities does not hold

Test statistic Hartleye Homogeniety of Variance= $\frac{s^2 \text{ maximum}}{s^2 \text{ minimum}}$

$\alpha = .01$

Reject ccmputed $\frac{s^2 \text{ max.}}{s^2 \text{ min.}} > 6.7$

$\frac{s^2 \text{ max.}}{s^2 \text{ min.}} = \frac{17,978,727}{3,145,493} = 5.716$

Therefore, accept H_0: the variances of weekly cattle receipts within each year are not different.

if the variances are significantly different for the three years. The variances of weekly cattle receipts within each year are not significantly different, although on an a priori basis, the 1963 variance is smaller than either 1962 or 1961.

Using the same procedure on weekly hog receipts at Sioux City for the same periods, the results are similar for average weekly receipts and ranges between high and low weekly receipts. See Table III. The 1963 hog receipts were 3.9% above the 1962 level and 12.5% above 1961, but the F test showed no significant difference between them at the .01 level because of the wide variability within each year. When comparing the variability within years there is a

Table III. Weekly hog receipts, Sioux City Stockyards

Week ending	1963	1962	1961
March 9	39,030	31,904	30,763
16	39,183	23,513	31,344
23	36,145	51,183	35,416
30	45,568	18,019	37,200
April 6	39,232	48,142	28,374
13	42,491	43,433	32,511
20	40,690	44,892	34,988
27	45,564	45,553	45,282
May 4	45,717	45,999	45,511
11	44,148	42,650	45,875
18	41,543	43,990	41,812
25	46,306	47,279	40,615
Total	505,617	486,554	449,691
Average	42,135	40,546	37,474
High week	46,306	51,183	45,875
Low week	36,145	18,019	28,374
Difference (High-Low)	10,161	33,164	17,501
s^2	11,186,521	107,887,904	38,669,598

H_0: $u_1=u_2=u_3$

H_A: At least one of the equalities does not hold

Test statistic: $F = \frac{\text{Between year mean square}}{\text{Error mean square}}$

$\alpha = .01$
Reject $F > 5.32$

Analysis of variance table

Source	Degrees of Freedom	Sum of Squares	Mean Square
Total	35	1,869,909,344	
Between years	2	434,725,090	217,362,545
Error	33	1,435,184,254	43,490,432

Computed $F = \frac{217,362,545}{43,490,432} = 4,998$

Therefore accept H_0:

Average weekly hog receipts are not different between the three years.

Table III. (Continued)

H_0: $\sigma_1^2 = \sigma_2^2 = \sigma_3^2$

H_A: At least one of the equalities does not hold

Test statistic: Hartley's Homogenity of Variance = $\frac{s^2 \text{ maximum}}{s^2 \text{ minimum}}$

$\alpha = .01$

Reject computed $\frac{s^2 \text{ max.}}{s^2 \text{ min.}} > 6.7$

Computed $\frac{s^2 \text{ max.}}{s^2 \text{ min.}} = \frac{107,887,904}{11,186,521} = 9.644$

Therefore, reject H_0: accept H_A:

the variance of weekly hog receipts within each year is different.

significant difference between the s^2 for the three years. On an a priori basis, the variance in hog receipts for 1963 is less than either 1962 or 1961.

Thus, the cattle and hog receipts during the 12 week period were not abnormally high or low and the variability within the 1963 period was either equal to or less than previous years. Consequently, the results of this study will not be biased because of abnormal livestock receipts.

Livestock prices have an influence on livestock marketing and could affect the conclusions of the study. Week to week price variations can have more effect on the precise timing of livestock marketing in the short run than the general level of prices. When livestock, particularly meat

animals and especially hogs, are ready for market, they cannot be held off the market for more than a few weeks. Since the level of livestock receipts was not out of line with previous years, the general price level had little effect on livestock consignments. It is interesting to note that there were significant differences in the price levels between the three years. See Tables IV and V. The prices used in the comparisons are for choice steers and 190 to 220 pound hogs grading mostly No. 1 and No. 2. Since week to week price variability could affect the study, the s^2 of weekly average prices were compared. Using Hartley's test again, the variances of hog and cattle prices was not significantly different between the three years. Thus, the livestock price factor is not of significant importance.

Another external factor that must be considered is the Pork Fair, a promotion that was sponsored by the stockyards that was put on two weeks after the study period was over. In the Pork Fair promotion, every farmer that consigned hogs to a Sioux City commission firm within twelve weeks of the Pork Fair received a chance on a new car that was given away at the Pork Fair. That was, of course, an incentive for hog producer to consign at least some hogs to the Sioux City market. The period when consignees received a chance on the car extended four weeks into the last part of the period of recording farm visits. Thus the Pork Fair may have induced

Table IV. Average weekly price per hundred pounds, choice steers Sioux City Stockyards

Week ending	1963	1962	1961
March 9	22.68	25.89	24.97
16	21.59	25.91	24.82
23	22.52	25.60	24.71
30	23.02	25.83	24.87
April 6	23.13	26.40	24.90
13	23.08	26.42	24.38
20	22.84	26.28	24.28
27	22.08	26.39	23.81
May 4	22.23	25.50	23.49
11	22.04	25.74	23.01
18	21.42	25.38	22.70
25	21.69	24.36	21.90
Total	268.37	309.70	287.84
Average	22.36	25.81	23.99
High week	23.13	26.42	24.97
Low week	21.42	24.36	21.90
Difference (High-Low)	1.71	2.06	3.07
s^2	.363518	.338800	1.025573

H_0: $u_1=u_2=u_3$

H_A: At least one of the equalities does not hold

Test statistic: $F = \frac{\text{Between years mean square}}{\text{Error mean square}}$

$\alpha = .01$
Reject $F > 5.32$

Analysis of variance table

Source	Degrees of Freedom	Sum of Squares	Mean Square
Total	35	90.2598	35.6266
Between years	2	71.2531	
Error	33	19.0067	.5706

Computed $F = \frac{35.6266}{.5706} = 61.8516$

Therefore reject H_0: accept H_A: the average weekly cattle prices for the three years are different.

Table IV. (Continued)

H_0: $\sigma_1^2=\sigma_2^2=\sigma_3^2$

H_A: At least one of the equalities does not hold

Test statistic: Hartley's Homogeniety of variance= $\frac{s^2 \text{ maximum}}{s^2 \text{ minimum}}$

$\alpha = .01$

Reject computed $\frac{s^2 \text{ max.}}{s^2 \text{ min.}} > 6.7$

$$\frac{s^2 \text{ max.}}{s^2 \text{ min.}} = \frac{1.025573}{.338800} = 3.027$$

Therefore, accept H_0: the variance in cattle prices within each of the three years is not different.

Table V. Average weekly hog prices per hundred pounds; 190-220 pound mostly No. 1 and No. 2 grade hogs Sioux City Stockyards

Week ending	1963	1962	1961
March 9	14.65	17.04	18.44
16	14.38	16.85	18.04
23	14.44	16.58	17.60
30	14.08	16.64	17.40
April 6	13.78	16.74	17.76
13	14.20	16.22	17.69
20	14.25	16.28	17.46
27	14.00	16.39	16.81
May 4	14.05	15.93	16.88
11	14.56	16.00	16.88
18	15.38	16.18	16.88
25	15.66	15.86	16.89
Total	173.43	196.71	208.73
Average	14.45	16.39	17.39
High week	15.66	17.04	18.44
Low week	13.78	15.86	16.81
Difference (High-Low)	1.88	1.18	1.63
s^2	.312436	.144073	.287955

Table V. (Continued)

H_0: $u_1=u_2=u_3$

H_A: At least one of the equalities does not hold

Test statistic $F = \frac{\text{Between years mean square}}{\text{Error mean square}}$

$\alpha = .01$
Reject $F > 5.32$

Analysis of variance table

Source	Degrees of freedom	Sum of Squares	Mean Square
Total	35	61.8705	
Between years	2	53.6814	26.8407
Error	33	8.1891	.2482

Computed $F = \frac{26.8407}{.2482} = 108.1414$

Therefore, reject H_0, accept H_A. The average weekly hog prices for the three years are different.

H_0: $\sigma_1^2=\sigma_2^2=\sigma_3^2$

H_A: At least one of the equalities does not hold

Test statistic: Hartley's Homogeniety of variance $= \frac{s^2 \text{ maximum}}{s^2 \text{ minimum}}$

$\alpha = .01$
Reject computed $\frac{s^2 \text{ max.}}{s^2 \text{ min.}} > 6.7$

$\frac{s^2 \text{ max.}}{s^2 \text{ min.}} = \frac{.312436}{.144073} = 2.169$

Therefore, accept H_0: the variance in hog prices within each of the three years is different.

some hog consignments but the extent of this effect is not known. Most of the promotion for the Pork Fair was in the few weeks immediately preceding the Pork Fair and was after the period of counting farm visits.

In summing up the effects of external factors, they had little or no effect on livestock consignments. The period included in this study was not an abnormal period, perhaps even more "normal" than the comparable period in the two previous years.

GLOSSARY OF SYMBOLS

The following symbols will be used throughout this study:

C_f - Firm total cost of making farm visits

V_f - Number of visits made by a firm

C_i - Individual's total cost of making farm visits

V_i - Number of visits made by an individual

M_f - Man days spent making farm visits by a firm

M_i - Man days spent making farm visits by an individual

TC_i - Travel cost of making visits by an individual

LC_f - Labor cost of making visits by a firm

F_f - Number of farms visited by a firm where livestock were seen

K_f - Number of farms consigning livestock to a firm

CK_f - Number of cattle consigned to a firm

CV_f - Number of visits made by a firm where cattle were seen

HV_f - Number of visits made by a firm where hogs were seen

HK_f - Number of hogs consigned to a firm

AU - Animal Unit; one head of cattle, three hogs, or five sheep

AUS_f - Animal units seen by a firm

AUK_f - Animal units consigned to a firm

LEVEL OF SIGNIFICANCE FACTORS

In the regressions that follow, the r^2 or goodness of fit is computed. In order to determine if the r^2's are significantly different from zero, the t test

$$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}} \qquad \text{degrees of freedom} = n - 2$$

will be used (4). With the level of significance at .05 and n equal to five for the firms, the r^2 necessary to be significant is computed to be $r^2 > .771$. Similarly for the 27 individual representatives, an r^2 of .145 will be significantly different from zero at the .05 level. The computed r^2 for each regression will be compared to these values rather than computing a t test for each equation.

The r^2 levels are based on independent observations. The representatives are not independent as they are clusters of representatives within firms. However, the added refinement that would be gained by alternative computational methods would not add greatly to the analysis.

COST OF VISITS

The cost of making visits to farmers to solicit their business is very important to livestock commission firms. They want to make effective calls but as economically as possible. Costs included in this study are labor costs for time spent visiting farmers, mileage costs, meals, and lodging. In order to put all firms and representatives on an equal basis, uniform prices of $25.00 per man day for labor, $0.10 per mile for mileage, and actual costs of meals and lodging were used. See Table VI for data on firms and individuals.

There are two means of analyzing the costs of visits. The first is to use the firm averages or totals. The second method is to use the averages or totals of the individual representatives of the firms. Both methods of analysis are used and they will be designated in the comparisons.

The estimated average cost per visit, computed by weighting the average cost per visit by the number of visits made, was $4.056. As this is a ratio of visits to costs, the appropriate variance estimator is

$$\text{Var}\,(\bar{r}_w) = \frac{1}{x_n^2}\ \frac{N-n}{N}\ \frac{1}{n}\ \frac{1}{n-1}$$

$$\left[(Y-\bar{Y})^2 + R^2\ \ (X-\bar{X})^2 - 2R\,(X-\bar{X})\,(Y-\bar{Y})\right]$$

where $\bar{r}_w$ is the ratio estimator, N the population size, n the sample size, Y the cost of making visits, X the number of

Table VI. Costs of visits

			Visits Made	Visits per Week	Man Days	Labor Cost[a]	Labor Cost per Visit	Man Days per Visit	Visits per Man Day	Mileage	Mileage Cost[b]	Miles per Visit	Miles per Man Day	Meal Expense	Lodging Expense
Firm I	Rep	1	31	5.17	3.0	75.00	2.419	.097	10.33	650	65.00	20.97	216.7	5.00	
		2	36	6.00	4.0	100.00	2.778	.111	9.00	550	55.00	15.28	137.5	13.50	
		3	6	1.00	.5	12.50	2.083	.083	12.00	120	12.00	20.00	240.0	——	
		4	22	3.67	1.5	37.50	1.705	.068	14.67	320	32.00	14.55	213.3	1.50	
	(2 men)	5	69	11.50	8.0	200.00	2.899	.116	8.62	1,050	105.00	15.22	131.2	28.00	
		Total	164	27.33	17.0	425.00	2.591	.104	9.65	2,690	269.00	16.40	158.2	48.00	
Firm II	Rep	1	111	18.50	9.0	225.00	2.027	.081	12.33	2,260	226.00	20.36	251.1	34.85	9.50
		2	26	4.33	1.5	37.50	1.442	.058	17.33	227	22.70	8.73	151.3	——	
	(2 men)	3	19	3.17	3.0	75.00	3.947	.158	6.33	638	63.80	33.58	212.7	5.26	
		4	25	4.17	2.0	50.00	2.000	.080	12.50	386	38.60	15.44	193.0	1.00	
	(2 men)	5	23	3.83	3.0	75.00	3.261	.130	7.67	327	32.70	14.22	109.0	2.10	
		Total	204	34.00	18.5	462.50	2.267	.091	11.03	3,838	383.80	18.81	207.5	43.21	9.50
Firm III	Rep	1	28	4.67	1.5	37.50	1.339	.054	18.67	277	27.70	9.89	184.7	4.71	
	(2 men)	2	18	3.00	1.5	37.50	2.083	.083	12.00	214	21.40	11.89	142.7	2.00	
		Total	46	7.67	3.0	75.00	1.630	.065	15.33	491	49.10	10.67	163.7	6.71	
Firm IV	Rep	1	279	46.50	17.0	425.00	1.523	.061	16.41	4,016	401.60	14.39	236.2	34.50	
		2	25	4.17	1.5	37.50	1.500	.060	15.66	466	46.60	18.64	310.7	3.00	
		3	91	15.17	6.25	156.25	1.717	.069	14.56	1,427	142.70	15.68	228.3	29.81	
		4	86	14.33	7.5	187.50	2.180	.087	11.47	1,933	193.30	22.48	257.7	38.12	
	(2 men)	5	6	1.00	1.0	25.00	4.167	.167	6.00	194	19.40	32.33	194.0	.40	
		Total	487	81.17	33.25	831.25	1.707	.068	14.65	8,036	803.60	16.50	241.7	105.83	
Firm V	Rep	1	135	22.50	10.5	262.50	1.944	.078	12.86	2,205	220.50	16.33	210.0	45.25	22.50
		2	29	4.83	2.0	50.00	1.724	.069	14.50	742	74.20	25.59	371.0	10.45	6.50
	(2 men)	3	5	.83	1.5	37.50	7.500	.300	3.33	471	47.10	94.20	314.0	9.42	
		4	228	38.00	13.43	335.75	1.473	.059	16.98	4,128	412.80	18.11	307.4	59.20	
		5	296	49.33	18.75	468.75	1.584	.063	15.78	4,585	458.50	15.49	244.5	89.45	5.50
		6	159	26.50	9.5	237.50	1.494	.060	16.74	3,122	312.20	19.64	328.6	42.50	15.75
		7	87	14.50	6.67	166.75	1.917	.077	13.04	1,817	181.70	20.89	272.4	11.52	
		8	1	.16	.25	6.25	6.250	.250	4.00	65	6.50	65.00	260.0	——	
		9	21	3.50	9.0	225.00	10.714	.429	2.33	1,509	150.90	71.86	167.7	13.80	
		10	7	1.16	1.75	43.75	6.250	.250	4.00	363	36.30	51.86	207.4	2.50	
		Total	968	161.33	73.35	1,833.75	1.894	.076	13.20	19,007	1,900.70	19.64	259.1	284.09	50.23
All Firms			1,869	311.50	145.10	3,627.50	1.941	.078	12.88	34,062	3,406.20	18.22	234.7	487.84	59.73

[a] Labor charged at $25.00 per day.

[b] Mileage charged at $0.10 per mile.

Table VI (Continued)

			Total Out of Pocket Cost	Out of Pocket Cost per Visit	Out of Pocket Cost per Man Day	Total Cost	Total Cost per Visit	Total Cost per Man Day	Labor % of Cost	Mileage % of Cost	Out of Pocket % of Cost	Travel Cost (Labor Excluded)	Travel Cost per Visit	Travel Cost per Man Day
Firm I	Rep	1	5.00	.161	1.67	145.00	4.677	48.33	51.7%	44.8%	3.4%	70.00	2.258	23.33
		2	13.50	.375	3.38	168.50	4.681	42.12	59.3%	32.6%	8.0%	68.50	1.903	17.12
		3	———	———	———	24.50	4.083	49.00	51.0%	49.0%	———	12.00	2.000	24.00
		4	1.50	.068	1.00	71.00	3.227	47.33	52.8%	45.1%	2.1%	33.50	1.523	22.33
	(2 men)	5	28.00	.406	3.50	333.00	4.826	41.62	60.1%	31.5%	8.4%	133.00	1.928	16.62
		Total	48.00	.293	2.82	742.00	4.524	43.65	57.3%	36.3%	6.5%	317.00	1.933	18.65
Firm II	Rep	1	44.35	.400	4.93	495.35	4.463	55.04	45.4%	45.6%	9.0%	270.35	2.436	30.04
		2	———	———	———	60.20	2.315	40.13	62.3%	37.7%	———	22.70	.873	15.13
	(2 men)	3	5.26	.277	1.75	144.06	7.582	48.02	52.1%	44.3%	3.7%	69.06	3.635	23.02
		4	1.00	.040	.50	89.60	3.584	44.80	55.8%	43.1%	1.1%	39.60	1.584	19.80
	(2 men)	5	2.10	.091	.70	109.80	4.774	36.60	68.3%	29.8%	1.9%	34.80	1.513	11.60
		Total	52.71	.258	2.85	899.01	4.407	48.60	51.4%	42.7%	5.9%	436.51	2.140	23.60
Firm III	Rep	1	4.71	.168	3.14	69.91	2.497	46.61	53.6%	39.6%	6.7%	32.41	1.158	21.61
	(2 men)	2	2.00	.111	1.33	60.90	3.383	40.60	61.6%	35.1%	3.3%	23.40	1.300	15.60
		Total	6.71	.146	2.24	130.81	2.844	43.60	57.3%	37.5%	5.1%	55.81	1.213	18.60
Firm IV	Rep	1	34.50	.124	2.03	861.10	3.086	50.65	49.4%	46.6%	4.0%	436.10	1.563	25.65
		2	3.00	.120	2.00	87.10	3.484	58.07	43.1%	53.5%	3.4%	49.60	1.984	33.07
		3	29.81	.328	4.77	328.76	3.613	52.60	47.5%	43.4%	9.1%	172.51	1.896	27.60
		4	38.12	.443	5.08	418.92	4.871	55.86	44.8%	46.1%	9.1%	231.42	2.691	30.86
	(2 men)	5	.40	.067	.40	44.80	7.467	44.80	55.8%	43.3%	.9%	19.80	3.300	19.80
		Total	105.83	.217	3.18	1,740.68	3.574	52.35	47.8%	46.2%	6.1%	909.43	1.867	27.35
Firm V	Rep	1	67.75	.502	6.45	550.75	4.080	52.45	47.7%	40.0%	12.3%	288.25	2.135	27.45
		2	16.95	.584	8.48	141.15	4.867	70.58	35.4%	52.7%	12.0%	91.15	3.143	45.58
	(2 men)	3	9.42	1.884	6.28	94.02	18.804	62.68	39.9%	50.1%	10.0%	56.52	11.304	37.68
		4	59.20	.260	4.41	807.75	3.543	60.15	41.6%	51.1%	7.3%	472.00	2.070	35.15
		5	94.95	.321	5.06	1,022.20	3.453	54.52	45.9%	44.9%	9.3%	553.45	1.870	29.52
		6	58.23	.366	6.13	607.93	3.823	63.99	39.1%	51.4%	9.6%	370.43	2.330	38.99
		7	11.52	.132	1.73	359.97	4.138	53.97	46.3%	50.5%	3.2%	193.22	2.221	28.97
		8	———	———	———	12.75	12.750	51.00	49.0%	51.0%	———	6.50	6.500	26.00
		9	13.80	.657	1.53	389.70	18.557	43.30	57.7%	38.7%	3.5%	164.70	7.843	18.30
		10	2.50	.357	1.43	82.55	11.793	47.17	53.0%	44.0%	3.0%	38.80	5.543	22.17
		Total	334.32	.345	4.56	4,068.77	4.203	55.47	45.1%	46.7%	8.2%	2,235.02	2.309	30.47
All Firms			547.57	.293	3.77	7,581.27	4.056	52.25	47.8%	44.9%	7.2%	3,953.77	2.115	27.25

visits made, R the population ratio which is estimated by $\bar{r}_w$, and $\bar{X}_n$ the sample mean of number of visits made (3). The computed variance using the firm data is .02504 with a standard error of .1582. Using the t table, a 95% confidence interval of the average cost per visit is between \$3.617 and \$4.495.

The weighted average travel cost per visit is \$2.115 and the variance of this is .01418. The 95% confidence interval for average travel cost per visit is from \$1.785 to \$2.445. The weighted average cost per man day was \$52.25 with variance 3.8224 and standard error 1.955. The 95% confidence interval for average cost per man day is \$46.82 to \$57.68. The travel cost per man day is \$27.25; the total cost per man day minus the labor cost per man day of \$25.00.

The total cost of making visits is a linear function of the number of visits made by the firms. The computed regression is

$$C_f = -\$32.84 + \$4.144V_f; \quad r^2 = .99$$

where C_f is the total costs to the firm of making visits and V_f is the number made by the firm. The relationship of the number of visits made by individuals or pairs of individuals and their cost of making visits is linear with the computed regression being

$$C_i = \$54.428 + \$3.27V_i; \quad r^2 = .935$$

The relationship between man days spent making visits and the total cost of visits is also linear for both the firm and the individual representative basis. On the firm basis, the equation is

$$C_f = -\$135.74 + \$56.926 M_f; \quad r^2 = .978$$

The linear regressions are of the general form $Y = a + bX$. The b's in the preceding equations are the marginal cost per visit or per man day. When these regressions are forced through the origin, intercept equal zero, the slopes of the regressions are equal to the weighted average cost per visit or per man day.

Thus the total cost of making farm visits is a linear function of both man days and the number of visits made on either the firm or individual basis. Also, there are no economies of scale for the larger firms over the range of firm sizes in this study.

Average cost per visit and average cost per man day do not increase or decrease significantly as the number of visits made or man days spent making visits increases. The firm's average cost per man day increases slightly as more man days are spent visiting farmers.

$$\frac{C_f}{M_f} = \$43.6544 + \$0.1749 M_f; \quad r^2 = .806$$

with C_{f/M_f} being the average cost per man day for the firm and M_f being man days. It is a reasonable conclusion that

the cost per man day increases as a firm allocates more time to making visits because they would be covering more territory and thus the mileage, meals, and lodging costs would make up a larger share of the total costs.

This is reflected in the above regression. Cost per man day is a constant of $25.00 per man day so the relationship between travel cost per man day and man days spent making visits is identical to the above equation except that $25.00 is subtracted from the intercept. This means that the travel cost per man day increases $0.175 per additional man day allocated to solicitation by the firm. The percent of total costs for labor decreases as man days increases as

$$\frac{LC_f}{C_f}(100) = 56.888\% - .176\%\ (M_f). \quad r^2 = .753$$

Conversely, the percent of total cost for travel costs must increase as man days spent making visits increases.

The percent of total costs for labor is 47.8%, computed by weighting firm percentages by number of visits made, while mileage expenses comprise 44.9% of the cost and the remaining 7.2% is for meals and lodging. The firm, then, should be more concerned about labor and mileage costs than with costs of meals and lodging.

The relationship between average cost per visit and the visits made per man day gives some useful information. As Figure 4 shows, the average cost per visit decreases rapidly as visits per man day increase up to about seven visits and

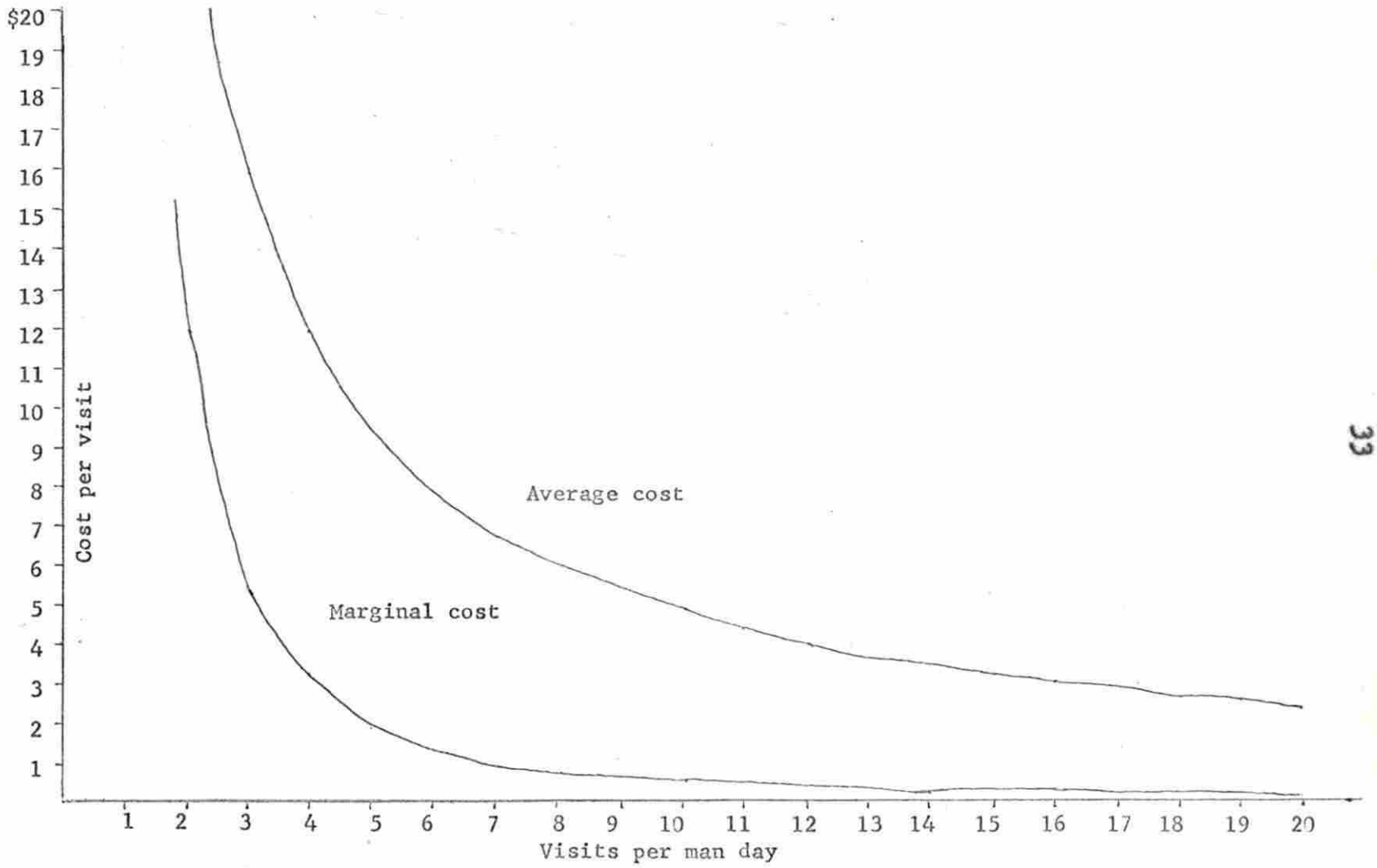

Figure 4 Costs per visit per man day

then decreases more gradually. This is important to a livestock commission firm as it would want to be sure its men average seven or more visits per man day spent making visits.

In statistical terms, the relationship is

$$\frac{C_i}{V_i} = \$0.024 + \$47.681 \frac{1}{V_{i/M_i}} ; \quad r^2 = .936$$

with C_{i/V_i} as the cost per visit and V_{i/M_i} being the visits per man day. The first derivative of the previous equation gives the marginal cost of an additional visit per man day.

$$\frac{d \frac{C_{i/V_i}}{V_{i/M_i}}}{d} = - \frac{\$47.6814}{(V_{i/M_i})^2}$$

This is also shown graphically in Figure 4. It is clear that the cost of making each additional visit decreases as more visits are made each man day.

When labor costs are subtracted out and only mileage, meals and lodging are considered, the picture is quite similar as is shown in Figure 5. The relationship of travel cost per visit and visits per man day is

$$\frac{TC_i}{V_i} = \$0.014 + \$23.4943 \frac{1}{V_{i/M_i}} ; \quad r^2 = .794$$

The marginal travel cost per visit is also shown in Figure 5 and is derived from the above equation to be

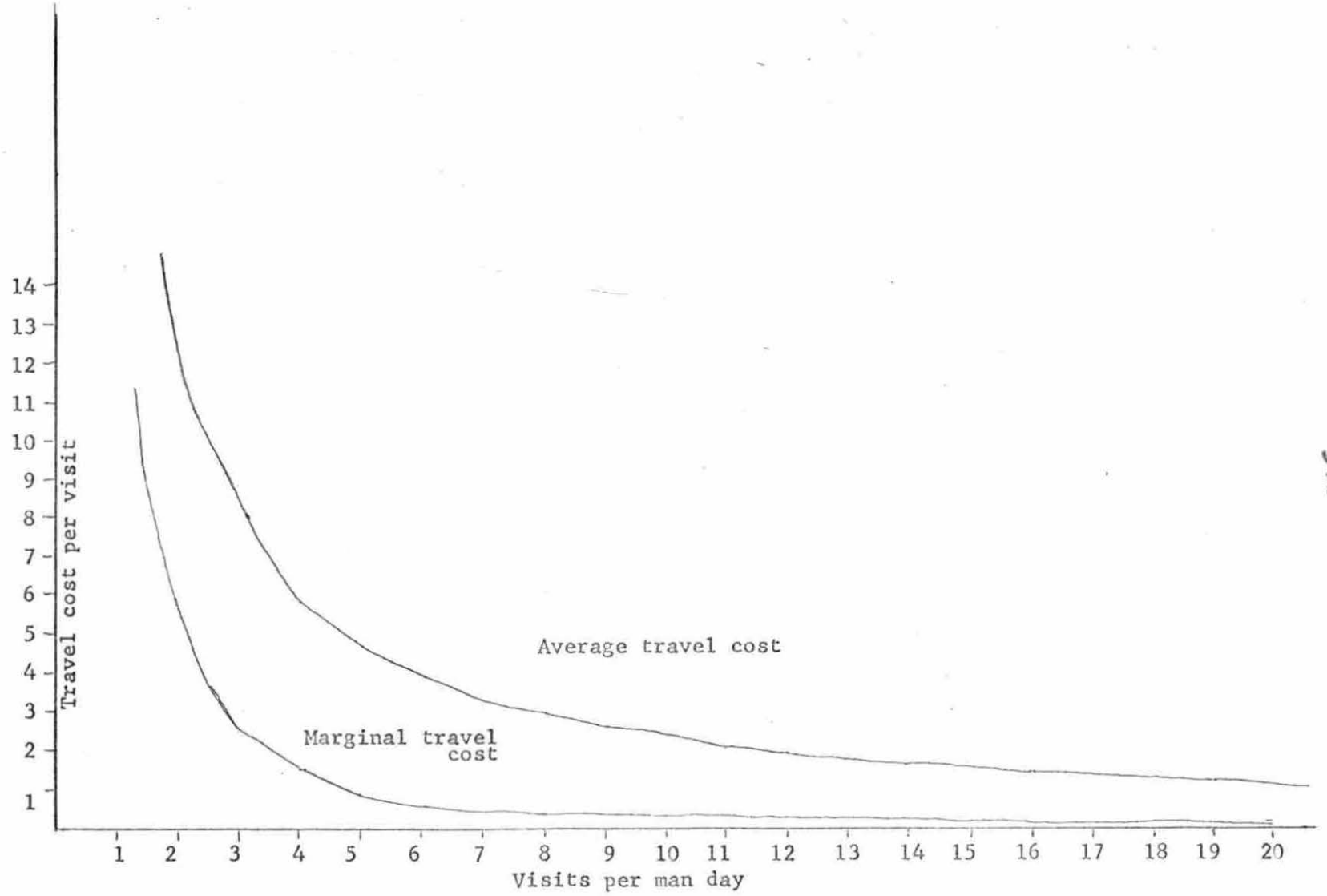

Figure 5 Travel costs per visit per man day

$$\frac{d\ TC_{i/V_i}}{d\ V_{i/M_i}} = -\frac{\$23.4946}{V_{i/M_i}^2}$$

The relationships between the various cost comparisons can be explained algebraically. Using the individual representative basis, let C be the total cost of visits, V be the number of visits made, and M be equal to man days spent making visits. Total costs of visits is a linear function of man days as was shown previously and is of the form $C = a\ bM$. The a in this equation is relatively small and actually should be equal to zero as no visits would incur no cost. Thus, this equation can be considered as $C = bM$. Dividing through by V, we get $C/V = b\ (M/V)$. Since $M/V = \frac{1}{V/M}$, $C/V = b(\frac{1}{V/M})$ which is the relationship of cost per visit to visits per man day that was shown previously. Further, the b's of these computed regressions are quite close and theoretically should be equal. The difference can be attributed to deviations of the observations from the computed regressions.

SOLICITATION TECHNIQUES

A total of 1869 farm visits were made to 1368 farmers. Some of these farms were visited more than once in the six week period. Of the farms visited, 72.4% were visited once in the six week period; 20.2% were visited twice; 5.8% three times; 1.2% four times, .1% five times and one farm, or less than .1% of the farms, was visited six times in six weeks. See Table VII. There are some differences between firms, but each follows the same general trend. There is a slight trend for the larger firms to visit a higher percent of farms more than once, but it is not a significant trend. Only the two larger firms visited any farmer more than three times or visited any new customers more than twice in the six week period.

The main emphasis in solicitation of consignments was on cattle. On 88.7% of all farms visited, cattle were seen and cattle consignments were discussed. There are some differences in the percentages between the firms and between old and new customers but they were irregular. In contrast to this, hogs were seen on 19.9% of the visits but 83.5% of the hog visits were made by the three smaller firms. The large firms evidently did not put much emphasis on hog solicitations. Only one of the firms made solicitation visits for sheep. See Table VII.

Table VII. Summary of firms' solicitation techniques

	Firm I			Firm II			Firm III			Firm IV			Firm V			Total		
	All	Old	New	All	Old	New	All	Old	New	All	Old	New	All	Old	New	All	Old	New
No. of farms visited	126	113	13	186	133	53	44	6	38	309	219	90	703	459	244	1,368	930	438
No. of farms saw no livestock	0	0	0	12	6	6	0	0	0	4	3	1	47	18	29	63	27	36
% farms saw no livestock	0%	0%	0%	6.5%	4.5%	11.3%	0%	0%	0%	1.3%	1.4%	1.1%	6.7%	3.9%	11.9%	4.6%	2.9%	8.2%
No. of farms saw cattle	121	110	11	137	106	31	40	6	34	287	200	87	629	415	214	1,214	837	377
% of farms saw cattle	96.0%	97.3%	84.6%	73.7%	79.7%	58.5%	90.9%	100%	89.5%	92.9%	91.3%	96.7%	89.5%	90.4%	87.7%	88.7%	90.0%	86.1%
No. of farms saw hogs	93	80	13	90	62	28	34	4	30	39	34	5	16	13	3	272	193	79
% of farms saw hogs	73.8%	70.8%	100%	48.4%	46.6%	52.8%	77.3%	66.7%	78.9%	12.6%	15.5%	5.6%	2.3%	2.8%	1.2%	19.9%	20.8%	18.0%
No. of farms saw hogs and cattle	62	53	9	48	37	11	28	4	24	16	13	3	19	9	10	173	116	57
% of farms saw hogs and cattle	49.2%	46.9%	69.2%	25.8%	27.8%	20.8%	63.6%	66.7%	63.2%	5.2%	5.9%	3.3%	2.7%	2.0%	4.1%	12.6%	12.5%	13.0%
No. of farms saw sheep													20	19	1	20	19	1
% of farms saw sheep													2.7%	3.9%	.4%	1.5%	2.0%	.2%
% visits to new customers			10.3%			28.5%			86.4%			29.1%			34.7%			32.0%
No. farms visited once	92	81	11	168	118	50	42	6	36	190	117	73	499	302	197	991	624	367
% farms visited once	73.0%	71.7%	84.6%	90.3%	88.7%	94.3%	95.5%	100%	94.7%	61.5%	53.4%	81.1%	71.0%	65.8%	80.7%	72.4%	67.1%	83.8%
No. of farms visited twice	30	28	2	18	15	3	2		2	74	59	15	153	113	40	277	215	62
% of farms visited twice	23.8%	24.8%	15.4%	9.7%	11.3%	5.7%	4.5%		5.3%	23.9%	26.9%	16.7%	21.8%	24.6%	16.4%	20.2%	23.1%	14.2%
No. farms visited three times	4	4								33	33		43	36	7	80	73	7
% farms visited three times	3.2%	3.5%								10.7%	15.1%		6.1%	7.8%	2.9%	5.8%	7.8%	1.6%
No. farms visited four times										11	9	2	6	6		17	15	2
% farms visited four times										3.6%	4.1%	2.2%	.9%	1.3%		1.2%	1.6%	.5%
No. farms visited five times													2	2		2	2	
% farms visited five times													.3%	.4%		.1%	.2%	
No. farms visited six times										1	1					1	1	
% farms visited six times										.3%	.5%						.1%	

Another interesting factor is the percent of calls where the individual making the call saw both cattle and hogs. The smaller firms had a much higher per cent of calls where more than one kind of livestock was seen than did the larger firms. The smaller firms place more emphasis on hog solicitations and their men are more apt to discuss consignments of more than one kind of livestock. Also, the larger firms have more men making visits and they can be specialists for a particular kind of livestock.

An indicator of aggressiveness of a firm is the percent of farms visited that were new customers. Overall, 32.0% of the farmers visited were new customers, that is they had not consigned livestock to the firm that made the visit within 18 months. The range in percent calls to new customers is from 86.4% to 10.3%. Firm III with the highest percentage distorts the picture as, it will be recalled, they kept records on only three days of visits and thus, it was not a true picture of normal visits. Disregarding Firm III, the percent of calls to new customers increases as the size of firm increases. This may or may not be a cause and effect relationship.

Another factor is the percent of farms visited where no livestock was seen. The two smaller firms, Firms I and III, made no calls where they did not see livestock. Firm II, a medium sized firm, saw no livestock on 6.5% of the farms

visited. Firm IV, a relatively large firm, saw no livestock on 1.3% of the farms visited. It is reasonable that the firms making more calls would have a higher percentage of no livestock calls as they would be making more calls without having prior information on livestock numbers. However, Firm II appears to be out of line with the other firms. The incidences of no livestock seen on visits was higher for new customers than for old customers. This would be expected. Visits to both old and new customers where no livestock was seen have a distribution between firms similar to all customers. Some of these calls where no livestock were seen were for purposes other than solicitating consignments. Some of these may have been made to deliver invoices, take orders for feeder cattle, and inquire about prospective customers. These would not cover all of the no livestock calls and the rest would have to be charged to public relations. These no livestock calls were included in the cost of making visits.

CONSIGNMENTS TO FIRMS

There are large differences between firms in the percent of farms visited that consigned livestock. The data is summarized in Table VIII. Some of these differences are due to the personality and aggressiveness of the employees, reputation of the firm, and other similar factors which were not measured in this study. Only the results of these factors are measured. The percentage of farms consigning livestock is computed by dividing the number of farms that consigned livestock by the number of farms visited where livestock was seen. This means that the visits where no livestock was seen have been excluded. This will give a more accurate picture of the effectiveness of the farm visits than would be given by using all visits, whether or not livestock was seen. Livestock must be seen before it can be counted as consigned in this study.

The percent of farms visited where livestock was seen that consigned livestock, weighted by the number of visits made, was 46.82%. See Table VIII. The variance of this estimator is .00133 when computed on a decimal basis. The 95% confidence interval for the percent of farms visited that consigned livestock is from 56.95% to 36.69%. The range between firm averages is from a high of 61.90% for Firm I to 40.85% for Firm V. The percent of farms consigning appears to decline as more farms are visited but the decline is not statistically significant. The computed regression is

Table VIIIa. Livestock consignments to firms

	All Visits						Old Customers					
Firm Number	I	II	III	IV	V	Total	I	II	III	IV	V	Total
Farms Visited--Saw Livestock	126	174	44	305	656	1,305	113	127	6	216	441	903
Farms Consigned Livestock	78	79	23	163	268	611	74	70	4	139	230	517
% Farms Saw Livestock--Consigned Livestock	61.90%	45.40%	52.27%	54.44%	40.85%	46.82%	65.49%	55.12%	66.67%	64.35%	52.15%	57.25%
Visits Made--Saw Cattle	159	153	41	465	872	1,690	146	121	6	358	614	1,245
Farms Visited--Saw Cattle	121	137	40	287	629	1,214	110	106	6	200	415	837
Farms Consigned Cattle	57	43	10	151	251	512	56	39	2	127	215	439
% of Farms Saw Cattle--Consigned Cattle	47.11%	31.39%	25.00%	52.61%	39.90%	42.17%	50.91%	36.79%	33.33%	63.50%	51.80%	52.45%
No. of Cattle Seen	8,162	14,070	2,800	38,516	50,061	113,609	7,517	11,996	490	27,211	36,079	83,293
No. of Cattle Consigned	2,085	1,531	263	7,940	12,641	24,459	2,045	1,446	35	6,937	11,606	22,069
% Cattle Seen That Were Consigned	25.53%	10.88%	9.39%	20.61%	25.25%	21.53%	27.21%	12.05%	7.14%	25.50%	32.16%	26.50%
Average No. Cattle Seen per Farm	67.45	102.70	70.00	134.20	79.59	93.58	68.34	113.17	81.70	136.06	86.94	99.51
Average No. Cattle Consigned per Farm--Saw Cattle	17.23	11.18	6.58	27.67	20.10	20.15	18.59	14.64	5.83	34.68	27.97	26.37
Average No. Cattle Consigned per Visit--Saw Cattle	13.11	10.01	6.41	17.08	14.50	14.47	14.01	11.95	5.83	19.38	18.90	17.73
Visits Made--Saw Hogs	127	99	36	43	17	322	112	70	4	38	14	238
Farms Visited--Saw Hogs	93	90	34	39	16	272	80	62	4	34	13	193
Farms Consigned Hogs	35	38	21	24	6	124	31	33	3	23	4	94
% Farms Saw Hogs--Consigned Hogs	37.76%	42.22%	61.76%	61.54%	37.50%	45.59%	38.75%	53.22%	75.00%	66.65%	30.77%	48.70%
No. of Hogs Seen	9,521	10,278	6,425	3,660	1,126	31,010	8,524	7,628	1,000	3,308	866	21,326
No. Hogs Consigned	1,743	2,165	1,282	940	178	6,308	1,579	2,032	271	817	140	4,839
% Hogs Seen That Were Consigned	18.31%	21.06%	19.95%	25.68%	15.81%	20.34%	18.52%	26.98%	27.10%	24.70%	16.17%	22.69%
Average No. Hogs Seen per Farm	102.38	114.20	188.97	93.85	70.38	114.01	106.55	123.03	250.00	97.29	66.62	110.50
Average No. Hogs Consigned per Farm--Saw Hogs	18.74	24.06	37.71	24.10	11.12	23.19	19.74	32.77	67.75	24.03	10.77	25.07
Average No. Hogs Consigned per Visit--Saw Hogs	13.72	21.87	35.61	21.86	10.47	19.59	14.10	29.03	67.75	21.50	10.00	20.33

Table VIIIa(Continued)

	New Customers					
Firm Number	I	II	III	IV	V	Total
Farms Visited--Saw Livestock	13	47	38	89	215	402
Farm Consigned Livestock	4	9	19	24	38	94
% Farms Saw Livestock--Consigned Livestock	30.77%	19.15%	50.00%	26.97%	17.67%	23.38%
Visits Made--Saw Cattle	13	32	35	107	258	445
Farms Visited--Saw Cattle	11	31	34	87	214	377
Farms Consigned Cattle	1	4	8	24	36	73
% of Farms Saw Cattle--Consigned Cattle	9.09%	12.90%	23.53%	27.59%	16.82%	19.36%
No. of Cattle Seen	645	2,074	2,310	11,305	13,982	30,316
No. of Cattle Consigned	39	85	228	1,003	1,035	2,390
% Cattle Seen That Were Consigned	6.05%	4.10%	9.87%	8.87%	7.40%	7.88%
Average No. Cattle Seen per Farm	58.64	66.90	67.94	129.94	65.34	80.41
Average No. Cattle Consigned per Farm--Saw Cattle	3.55	2.74	6.71	11.53	4.84	6.34
Average No. Cattle Consigned per Visit--Saw Cattle	3.00	2.66	6.51	9.37	4.01	5.37
Visits Made--Saw Hogs	15	29	32	5	3	84
Farms Visited--Saw Hogs	13	28	30	5	3	79
Farms Consigned Hogs	4	5	18	1	2	30
% Farms Saw Hogs--Consigned Hogs	30.77%	17.81%	60.00%	20.00%	66.67%	37.97%
No. of Hogs Seen	997	2,650	5,425	352	260	9,684
No. Hogs Consigned	164	133	1,011	123	38	1,469
% Hogs Seen That Were Consigned	16.45%	5.02%	18.64%	34.94%	14.62%	15.17%
Average No. Hogs Seen per Farm	76.69	94.64	180.83	70.40	86.67	122.58
Average No. Hogs Consigned per Farm--Saw Hogs	12.62	4.75	33.70	24.60	12.67	18.60
Average No. Hogs Consigned per Visit--Saw Hogs	10.93	4.59	31.59	24.60	12.67	17.49

Table VIIIb. Sheep visits[a]

	All	Old	New
Farms Visited—Saw Sheep	20	19	1
Farms Consigned Sheep	14	13	1
% of Farms Saw Sheep—Consigned Sheep	70.00%	68.42%	100.00%
No. of Sheep Seen	10,315	10,165	150
No. of Sheep Consigned	6,177	6,083	94
% Sheep Seen That Were Consigned	59.88%	59.84%	62.70%
Average No. Sheep Seen per Farm	515.75	535.00	150
Average No. Sheep Consigned per Farm—Saw Sheep	441.21	467.92	94
Average No. Sheep Consigned per Visit—Saw Sheep			94

[a]All visits by Firm V.

$$\frac{K_f}{F_f}(100) = 56.7564 - .0222\ F_f; \quad r^2 = .426$$

where F_f is the number of farms visited where livestock was seen and $\frac{K_f}{F_f}(100)$ represents the percent of farms consigning livestock.

The weighted percent of old customers that consigned livestock was 57.25% with variance (again on a decimal basis) of .001006 and 95% confidence interval from 48.45% to 66.05%. The percent of new customers consigning is quite naturally lower being 23.38% with variance .001646 and 95% confidence interval from 12.11% to 34.65%. The percent of old and new customers consigning both apparently decline as more visits are made but again, the declines are not significant. The declines are not unreasonable as a firm would tend to visit its best customers or best prospective customers first and naturally they would be more apt to consign livestock. The apparent decline is greater among new customers which would come from making more visits without having definite leads on new customers before making the visits.

The following three methods of computing and comparing consignments of cattle and hogs will be used in the analysis of cattle and hog consignments:

1) the percent of farms where cattle (hogs) were seen that consigned cattle (hogs)

2) percent of cattle (hogs) seen on farm visits that were consigned

3) average number of head consigned per visit made where cattle (hogs) were seen.

Each of these methods will be computed for all farms visited and are then divided into old and new customers.

Considering only the farms where cattle were seen, 42.17% of them consigned cattle. See Table VIII. This estimator has a variance of .000919 and a 95% confidence interval of from 33.76% to 50.58%. The percent consigning ranged from a high of 52.61% for Firm IV to 25.00% for Firm III. There is no significant change in the percent of farms that consigned when the number of farms visited where cattle were seen changes. Overall, 52.45% of the old customers consigned cattle if cattle were seen on the farm visit compared to 19.36% of the new customers.

The number of cattle seen on visits is not too accurate as there were often discrepancies in the number of cattle seen on the same farm on different visits. Thus, the number of cattle seen can be used only as a guide. A weighted average of 93.6 head of cattle were seen per visit. The weighted percent of cattle seen that were consigned is 21.53% for all customers. Similarly for old customers, 26.50% of the cattle seen were consigned and for new customers, 7.88% were consigned.

A good overall measure of the effectiveness of solicitation by a livestock commission firm is the average number of cattle consigned to that firm for each visit made where cattle

were seen. The weighted average was 14.47 head of cattle consigned per cattle visit. This estimator has a variance of .715894 and 95% confidence interval from 12.12 to 16.82. The range in firm averages was from 17.08 in Firm IV to 6.41 head per visit for Firm III. The number of cattle consigned to a firm has a direct linear relationship to the number of visits made where cattle were seen. The computed linear relationship is

$$CK_f = 317.19 + 15.4118\ CV_f;\quad r^2 = .985$$

for all customers where CV_f is the number of visits made where cattle were seen and CK_f if the number of cattle consigned. The slope of this regression, 15.4118 is the marginal number of cattle consigned per visit. The average number of cattle consigned per old customer farm visited is 17.73 and from new customers, 5.37. Linear regressions similar to the one above give the marginal number of cattle consigned from old customers of 19.849 and from new customers, 4.234.

Turning to hog visits and consignments, 45.59% of the farms visited where hogs were seen consigned hogs. See Table VIII. The variance of the percent of farms consigning hogs is .001783 and the confidence interval is from 33.88% and 57.30%. As was mentioned previously, most of the hog visits were made by the three smaller firms. There is no significant change in the percent of farms consigning hogs

as more hog visits were made. Among the old customers, 48.7% consigned hogs after hogs were seen on their farm while 38.0% of the new customers consigned hogs. The range of consignment percentages between firms is quite wide and the number of hog visits by some firms was quite small. Thus, some of the firm percentages are not too valid.

The number of hogs seen is subject to the same errors as was the number of cattle seen. The weighted average number of hogs seen per visit was 144.0 with a range between firms of from 70 head to 189. The percent of hogs seen that were consigned was 20.34% for all customers. Dividing this into old and new customers, 22.69% of the hogs seen on old customers' farms were consigned compared to 15.17% of the new customers' hogs.

The weighted average number of hogs consigned per visit where hogs were seen was 19.59, which has a variance of 9.1702 and a computed 95% confidence interval of from 11.18 to 28.00. The linear relationship between the number of visits made where hogs were seen and the number of hogs consigned is

$$HK_f = 372.83 + 13.8007\ HV_f; \quad r^2 = .706$$

where HK_f is the number of hogs consigned and HF_f is the number of farms visited where hogs were seen. The b of this equation, 13.8007, is the marginal number of hogs consigned per farm visited.

The weighted average number of hogs consigned per visit from old customers was 20.33 and the marginal number of hogs consigned was 15.808. Among new customers, an average of 17.49 head of hogs were consigned per new customer visited where hogs were seen. This new customer linear regression of number of hogs consigned and number of visits made where hogs were seen is not significant. Thus, no reliable estimate of the marginal number of hogs consigned per visit can be made.

It will be noted that the variance of all estimators of hog consignments are larger than the variance for the corresponding cattle estimators. Perhaps this is because of the smaller number of hog visits than cattle visits.

Only one firm, Firm V, made farm visits to solicit sheep consignments. Twenty farms were visited and 14, or 70%, of these consigned sheep. Only one of these farms was to a new customer and that farmer consigned sheep. The average number of sheep seen per visit was 516 and an average of 309 head of sheep were consigned per visit made that concerned sheep consignments. Many of these sheep visits were made at the request of the sheep producers who asked the commission men to help them sort the sheep that were ready to sell. This accounts for the high percent of farms consigning.

Using the study averages, there does not appear to be much difference between hog and cattle consignments from all

farms visited and from old customers. See Table IX. However, hog consignments from new customers were well above cattle consignments from new customers. Firm III made about 40% of the new customer hog visits and had a high percent of consignments. Even when these visits were excluded, the consignments from new customer hog visits ran above new customer cattle visits.

There are several possible reasons for solicitation being more effective among new customers for hogs than for cattle but no definite conclusions can be reached based on this study. As was pointed out in Table I and Figures 1, 2, and 3, the recent trend in cattle marketing has been away from terminal markets. The percent of slaughter hogs moving through terminal markets has been relatively stable since at least 1953. Individual farmers shift their market outlets from time to time, but based on the previous discussion, more cattle feeders have shifted away from terminal markets than have switched to terminal markets. The shift in hog outlets has been relatively balanced between those moving to and away from terminal markets. Thus, there are fewer new customers shipping cattle to all terminal markets than there are new hog customers. Continuing with this line of reasoning from the all terminal markets level to the Sioux City Stockyards case, the slaughter cattle saleable receipts of slaughter cattle at Sioux City has been up since 1960. It is reasonable that there would be fewer new cattle customers than there would be new hog customers at the Sioux City Stockyards. Thus,

Table IX. Summary of consignments

	All Customers	Old Customers	New Customers	New customers excluding Firm III
% of farms visited where livestock was seen that consigned livestock	46.82%	57.25%	23.38%	
% of farms visited where cattle were seen that consigned cattle	42.17%	52.45%	19.36%	
% of farms visited where hogs were seen that consigned hogs	45.59%	48.7 %	38.0 %	24.49%
% of cattle seen that were consigned	21.33%	26.50%	7.88%	
% of hogs seen that were consigned	20.34%	22.69%	15.17%	10.75%
Number of cattle consigned per farm visited	20.15	26.37	6.34	
Number of hogs consigned per farm visited	23.19	25.07	18.60	9.35

this could be at least one of the reasons for the hog consignments being higher than cattle consignments from new customers.

The percent of the farms that consigned livestock after being visited increases when they have been visited more times. See Table X and Figure 6. This is a reasonable result as the better customers or prospective customers would be the ones

Table X. Consignments by number of times visited

	All Customers						Old Customers					
No. of Times Visited	1	2	3	4	5	6	1	2	3	4	5	6
Farms Consigned Livestock	359	168	66	15	2	1	299	139	62	14	2	1
Farms Visited--Saw Livestock	928	277	80	17	2	1	597	215	73	15	2	1
% Farms Saw Livestock--Consigned Livestock	38.69%	60.65%	82.50%	88.24%	100%	100%	50.09%	64.65%	84.93%	93.33%	100%	100%
Visits Made--Saw Cattle	855	524	231	68	10	6	549	400	210	60	10	6
Farms Visited--Saw Cattle	855	262	77	17	2	1	549	200	70	15	2	1
Farms Consigned Cattle	275	156	63	15	2	1	234	129	59	14	2	1
% of Farms Saw Cattle--Consigned Cattle	32.16%	59.54%	81.82%	88.24%	100%	100%	42.62%	64.50%	84.29%	93.33%	100%	100%
No. of Cattle Seen	70,161	28,469	10,364	3,744	625	246	48,282	22,191	9,284	2,665	625	246
No. of Cattle Consigned	10,900	7,616	3,535	1,617	482	309	9,712	6,819	3,417	1,330	482	309
% Cattle Seen That Were Consigned	15.55%	26.75%	34.11%	43.19%	77.12%	100%	20.12%	30.73%	36.81%	49.91%	77.12%	100%
Average No. Cattle Seen per Farm	82.06	108.66	134.60	220.24	312.5	246	87.95	110.95	132.63	177.67	312.50	246
Average No. Cattle Consigned per Farm--Saw Cattle	12.75	29.07	45.91	95.12	241	309	17.69	34.10	48.81	88.67	241	309
Average No. Cattle Consigned per Visit--Saw Cattle	12.75	14.53	15.30	23.78	48.2	51.50	17.69	17.05	16.27	22.17	48.20	51.50
Visits Made--Saw Hogs	226	76	24				152	66	24			
Farms Visited--Saw Hogs	226	38	8				152	33	8			
Farms Consigned Hogs	100	20	4				74	16	4			
% Farms Saw Hogs--Consigned Hogs	44.25%	52.63%	50.00%				48.68%	48.48%	50.00%			
No. of Hogs Seen	25,989	4,290	750				16,940	3,655	750			
No. Hogs Consigned	5,023	1,036	249				3,739	851	249			
% Hogs Seen That Were Consigned	19.33%	24.15%	33.20%				22.07%	23.28%	33.20%			
Average No. Hogs Seen per Farm	115.00	112.89	93.75				111.45	110.76	93.75			
Average No. Hogs Consigned per Farm--Saw Hogs	22.23	27.26	31.12				24.60	25.79	31.12			
Average No. Hogs Consigned per Visit--Saw Hogs	22.23	13.63	10.38				24.60	12.89	10.38			

Table X (Continued)

	New Customers			
No. of Times Visited	1	2	3	4
Farms Consigned Livestock	60	29	4	1
Farms Visited--Saw Livestock	331	62	7	2
% Farms Saw Livestock--Consigned Livestock	18.13%	46.77%	57.14%	50.00%
Visits Made--Saw Cattle	306	124	21	8
Farms Visited--Saw Cattle	306	62	7	2
Farms Consigned Cattle	41	27	4	1
% of Farms Saw Cattle--Consigned Cattle	13.40%	43.55%	57.14%	50.00%
No. of Cattle Seen	21,879	6,278	1,080	1,079
No. of Cattle Consigned	1,188	797	118	287
% Cattle Seen That Were Consigned	5.43%	12.70%	10.93%	26.60%
Average No. Cattle Seen per Farm	71.50	101.26	154.30	539.50
Average No. Cattle Consigned per Farm--Saw Cattle	3.88	12.86	16.86	143.50
Average No. Cattle Consigned per Visit--Saw Cattle	3.88	6.43	5.62	35.88
Visits Made--Saw Hogs	74	10		
Farms Visited--Saw Hogs	74	5		
Farms Consigned Hogs	26	4		
% Farms Saw Hogs--Consigned Hogs	35.14%	80.00%		
No. of Hogs Seen	9,049	635		
No. Hogs Consigned	1,284	185		
% Hogs Seen That Were Consigned	14.19%	29.13		
Average No. Hogs Seen per Farm	122.28	127.00		
Average No. Hogs Consigned per Farm--Saw Hogs	17.35	37.00		
Average No. Hogs Consigned per Visit--Saw Hogs	17.35	18.50		

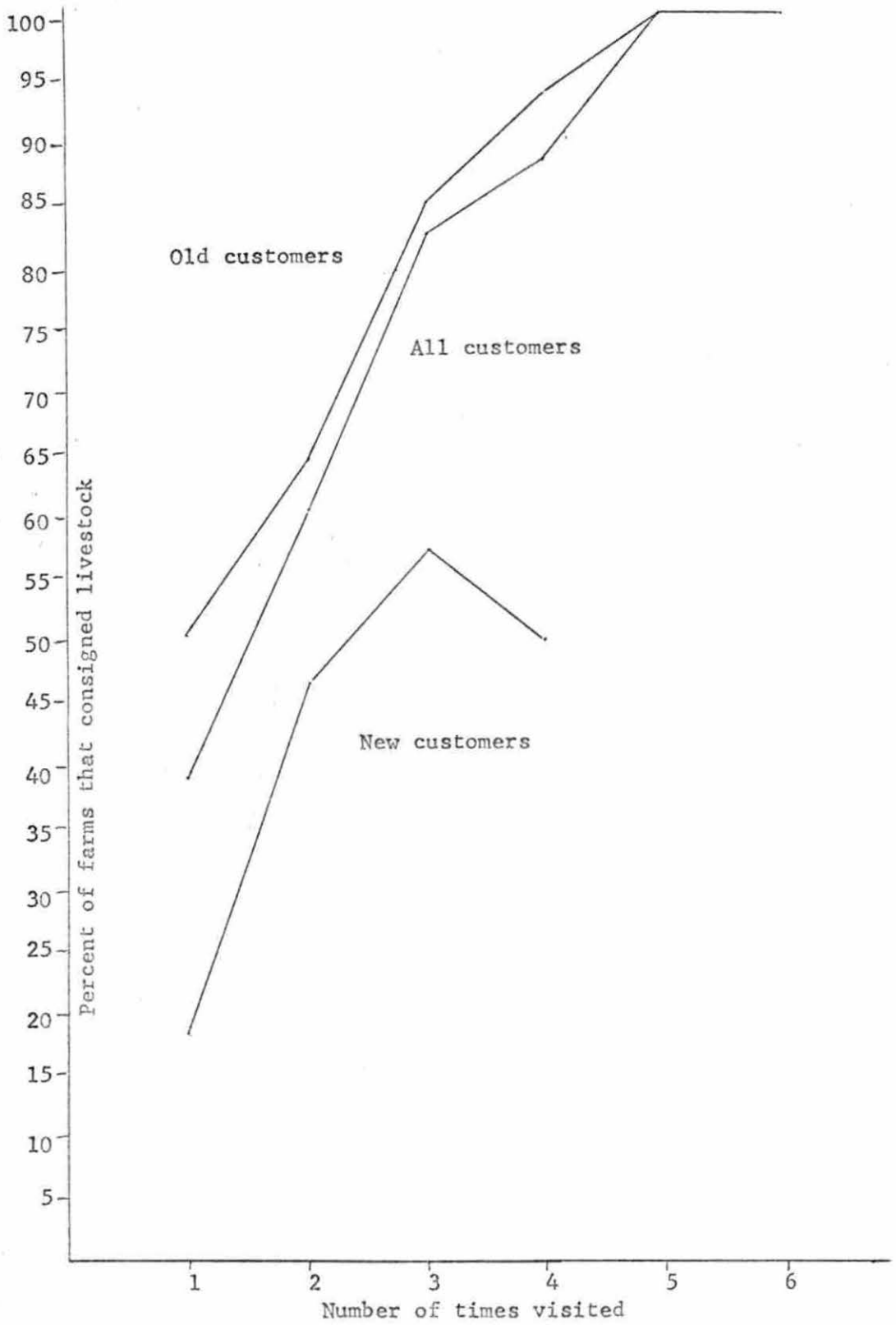

Figure 6

Percent of farms consigning by number of times visited

that were revisited. The percent of farms visited once in the study period of six weeks that consigned livestock was 38.69% compared to 60.25% consigning of those visited twice, 82.50% of those visited three times, 88.24% of the farms visited four times and 100% of those visited five and six times. The trends are similar for old and new customers with the percent of old customers consigning being higher than for new customers. The figures show a decline in the percent consigning when going from three to four visits among new customers. It will be noted in Table X that seven new customers were visited three times and four of them consigned, whereas two new customers were visited four times and one of them consigned livestock. Thus, little confidence can be put in this apparent decline.

Using the same type of analysis, cattle consignments follow a pattern similar to all visits. It will be noted in Table X that, as cattle feeders are visited more times, all of the following measures increase: percent of cattle seen that were consigned; average number of cattle seen per farm; average number of cattle consigned per visit saw cattle; and the average number of cattle consigned per farm visited. The downward trend in number of cattle seen per visit from five to six visits is an obvious inconsistency. Two hundred forty-six head were reported as seen whereas 309 head of cattle were consigned. The old and new customers

follow a pattern similar to that for all visits.

Turning to hog visits and consignments as a hog producer is visited more times, there does not appear to be any relationship between the number of times an old hog customer is visited and the percent of farms consigning. For new customers, however, there is a spectacular rise in the percent of farms consigning as a new hog customer is visited twice. However, only five new hog customers were visited twice and four of them consigned hogs so this is a very small sample and quite probably not representative. Looking at other measures of returns from farms visited, no general pattern appears with hogs as it did with cattle. The average number of hogs consigned per farm visited does increase a little, more so for new customers.

As farmers are visited more times, the increase in consignments can not be called a cause and effect relationship. We have no way of knowing whether the farmer would have consigned if the second, third or more visits had not been made. It can only be stated that there is a relationship.

The average number of head of livestock consigned per visit made was computed, as a farm visited twice counting two visits, a farm visited three times counting as three visits, and so on. Using this measure, the average number of cattle consigned per visit holds about steady up to three visits to the same farm and then rises rapidly above three

visits to the same farm. See Figure 7. Thus, making the second and third calls to an old customer resulted in about the same return as making the first call to another farm.

Making the second visit to a new customer already visited resulted in an average of 6.43 head of cattle consigned for each of the two visits to him compared to the average of 3.88 head of cattle consigned from making the first visit to a new customer. Thus, on the average, more cattle were consigned by revisiting a new customer than by visiting another new customer the first time.

The average number of cattle seen per farm was 71.5 for new customers visited only once and 5.43% of the cattle were consigned. Among new customers visited twice, 101.3 head of cattle were seen per farm but 12.70% of them were consigned. Thus the percent of cattle seen that were consigned increased more than the number of cattle seen which supports the above conclusions.

Of the farms visited twice, 14.8% were visited by two different representatives of the same firm. A comparison was made of the percent of farms that consigned livestock after being visited twice by one representative of a firm and those consigning livestock after being visited twice, each time by a different representative of the firm. See Table XI. Of the farms in the study visited twice by the same representative, 58.9% consigned livestock compared to 73.2% of

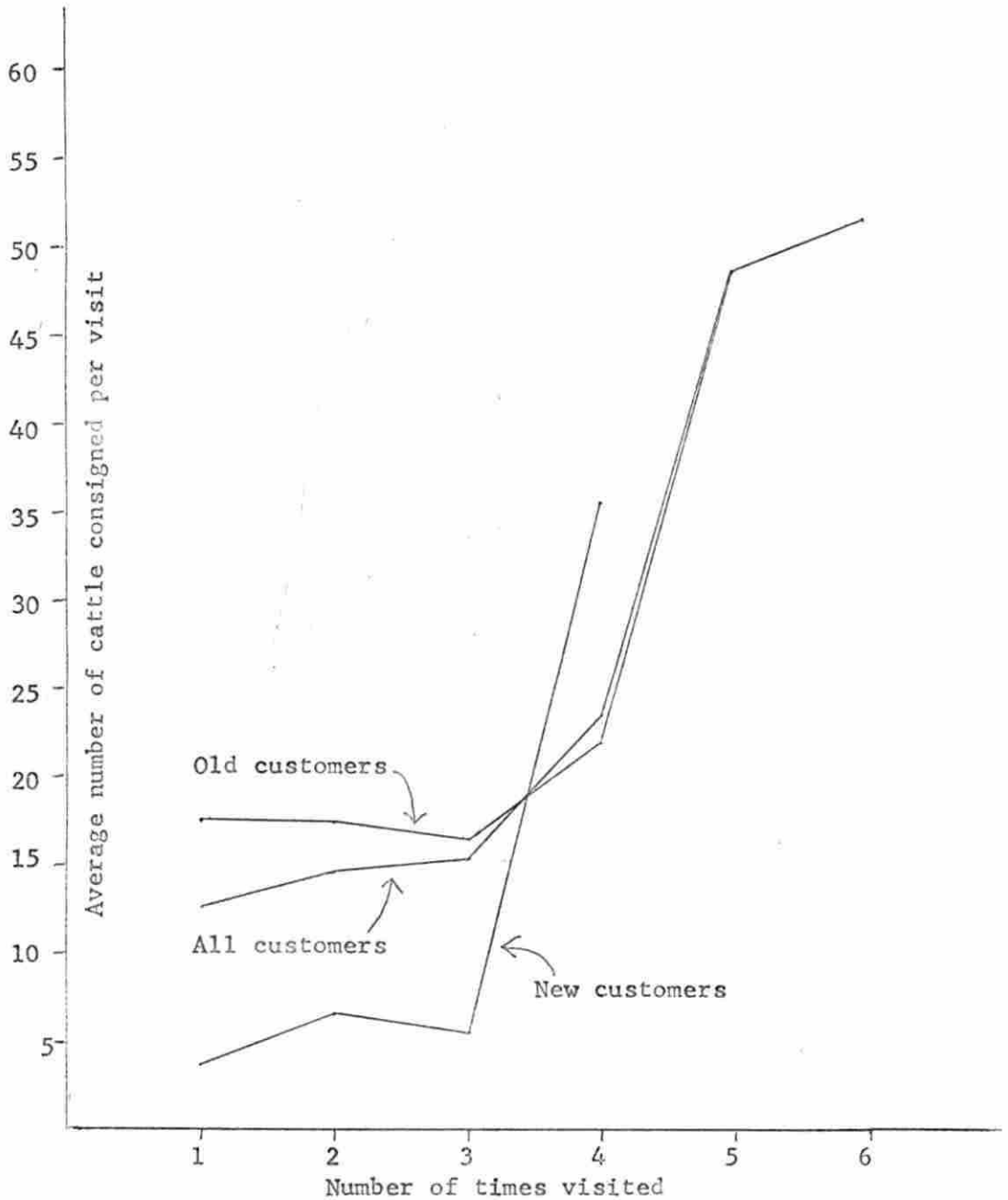

Figure 7

Cattle consigned per visit by number of times visited

Table XI. Consignments from visits to same farmer by the same and different representatives

	2 Visits, Same Men			2 Visits, Different Men			3 Visits, Same Men			3 Visits, Different Men		
	Farms Visited	Farms Consigned	% Consigned	Farms Visited	Farms Consigned	% Consigned	Farms Visited	Farms Consigned	% Consigned	Farms Visited	Farms Consigned	% Consigned
Firm I												
Old Cust	5	3	60%	23	18	78.3%				4	3	75%
New Cust	1			1	1	100%						
Total	6	3	50%	24	19	79.2%				4	3	75%
Firm II												
Old Cust	8	5	62.5%	7	3	42.9%						
New Cust	3	2	67%									
Total	11	7	63.6	7	3	42.9%						
Firm III												
Old Cust												
New Cust	2	2	100%									
Total	2	2	100%									
Firm IV												
Old Cust	55	39	70.9%	4	4	100%	32	29	90.6%	1	1	100%
New Cust	13	6	46.2%	2	2	100%						
Total	68	45	66.2%	6	6	100%	32	29	90.6%	1	1	100%
Firm V												
Old Cust	109	66	60.6%	4	2	50%	36	29	80.6%			
New Cust	40	16	40.0%				7	4	57.1%			
Total	149	82	55.0%	4	2	50%	43	33	76.7%			
Total												
Old Cust	177	113	63.8%	38	27	71.1%	68	58	85.3%	5	4	80%
New Cust	59	26	44.1%	3	3	100%	7	4	57.1%			
Total	236	139	58.9%	41	30	73.2%	75	62	82.7%	5	4	80%

the farms consigning livestock when visited by different representatives. This would indicate an advantage for having different representatives call on the same farmer. However, when taking each firm individually, there is no consistency as two firms showed an advantage for one representative and two firms indicate an advantage for different representatives solicitating consignments from the same farmer. The number of visits by different representatives is small compared to total of two visits in Firms IV and V but in Firms I and II, which had more even distribution, Firm I was more effective with two men visiting the same farmer and Firm II was more effective with one man visiting the same farmer twice. Thus, no definite conclusions can be reached for all firms as one-man calls are more effective for some firms and two men visiting the same farmer is more effective for other firms.

Visits to old customers followed all customers closely as all but three of the two-men visits were to old customers. Of the three new customers visited twice by different men, all three consigned livestock. This cannot be considered as significant because of the very small numbers involved.

Five of the farms visited three times were visited by two representatives and four of them or 80% consigned livestock. Of the farms visited three times by the same representative of a firm 82.7% consigned livestock so no differences can be shown. All of the farms visited more than three times were visited by the same representative.

COST OF CONSIGNMENTS

In order to relate costs to consignments, a measure of animal units is used where one animal unit equals one head of cattle, three hogs, or five sheep. The total cost was divided between old and new customers in the same ratio as the number of calls to old and new customers. This assumes the same cost per visit for old and new customers. The animal units seen by and consigned to a firm were also divided into old and new customers. The data is summarized in Table XII.

The weighted average cost per animal unit seen for all visits was $0.0602 with the firm averages ranging from $0.0265 to $0.0775. There is no significant relationship between the cost per animal unit seen and the number of visits made. The cost per animal seen for old customers is slightly below all visits, and for new customers, the cost per animal unit seen is slightly above all visits. It must be remembered that the number of cattle and hogs seen on farms were often guesses so these averages are not exact.

One of the most important measures in this study is the cost per animal unit consigned. This measures the effectiveness and the economy of making farm visits. The weighted average cost per animal unit consigned was $0.2727. This estimation has a variance of .000533 and a 95% confidence interval from $0.2086 to $0.3368. Computing this as a regression,

Table XII. Costs of consignments

A.U. = Animal Unit = 1 head cattle = 3 head hogs = 5 head sheep

	Firm I			Firm II			Firm III		
	All	Old	New	All	Old	New	All	Old	New
Visits Made	164	149	15	204	150	54	46	6	40
Total Cost	742.00	674.11	67.89	899.01	661.04	237.97	130.81	17.06	113.75
No. Cattle Seen	8,162	7,517	645	14,070	11,996	2,074	2,800	490	2,310
No. Hogs Seen	9,521	8,524	997	10,278	7,628	2,650	6,425	1,000	5,425
Hog A.U. Seen	3,174	2,841	332	3,426	2,543	883	2,142	333	1,808
No. Sheep Seen									
Sheep A.U. Seen									
Total A.U. Seen	11,336	10,358	977	17,496	14,539	2,957	4,942	823	4,118
Cost per A.U. Seen	.0655	.0650	.0593	.0514	.0454	.0805	.0265	.0207	.0276
A.U. Seen per Visit	69.12	69.52	65.13	85.76	96.93	54.76	107.43	137.17	102.95
Cattle Consigned	2,085	2,045	39	1,531	1,446	85	263	35	228
Hogs Consigned	1,743	1,579	164	2,165	2,032	133	1,282	271	1,011
Hog A.U. Consigned	581	526	55	722	677	44	427	90	337
Sheep Consigned									
Sheep A.U. Consigned									
Total A.U. Consigned	2,666	2,571	94	2,253	2,123	129	690	125	565
Cost per A.U. Consigned	.2783	.2622	.7222	.3990	.3114	1.8447	.1896	.1365	.2013
A.U. Consigned per Visit	16.26	17.26	6.27	11.04	14.15	2.39	15.00	20.83	14.12
% A.U. Seen that Consigned	23.52%	24.82%	9.62%	12.88%	14.60%	4.36%	13.96%	15.18%	13.75%
Average Cost per Visit	4.524			4.407			2.844		
A.U. Need Consign; C = R	3.62			3.54			2.27		
A.U. Need See; C = R	15.387	14.581	37.620	27.376	24.151	80.872	16.297	14.937	16.545
Travel Cost per Visit		1.933		2.140			1.213		
A.U. Need Consign to Cover Travel Cost		1.55		1.71			.97		

Table XII (Continued)

A.U. = Animal Unit = 1 head cattle = 3 head hogs = 5 head sheep

	Firm IV			Firm V			All Firms		
	All	Old	New	All	Old	New	All	Old	New
Visits Made	487	377	110	968	679	289	1,869	1,361	508
Total Cost	1,740.68	1,347.46	393.22	4,068.77	2,853.84	1,214.93	7,581.27	5,520.68	2,060.59
No. Cattle Seen	38,516	27,211	11,305	50,061	36,079	13,982	113,609	83,293	30,316
No. Hogs Seen	3,660	3,308	352	1,126	866	260	31,010	21,326	9,684
Hog A.U. Seen	1,220	1,103	117	375	289	87	10,337	7,109	3,228
No. Sheep Seen				10,315	10,165	150	10,315	10,165	150
Sheep A.U. Seen				2,063	2,033	30	2,063	2,033	30
Total A.U. Seen	39,736	28,314	11,422	52,499	38,401	14,099	126,009	92,435	33,574
Cost per A.U. Seen	.0438	.0476	.0344	.0775	.0743	.0862	.0602	.0597	.0614
A.U. Seen per Visit	81.59	75.10	103.84	54.23	56.56	48.79	67.42	67.92	66.09
Cattle Consigned	7,940	6,937	1,003	12,641	11,606	1,035	24,459	22,069	2,390
Hogs Consigned	940	817	123	178	140	38	6,308	4,839	1,469
Hog A.U. Consigned	313	272	41	59	47	13	2,103	1,613	490
Sheep Consigned				6,177	6,083	94	6,177	6,083	94
Sheep A.U. Consigned				1,235	1,217	19	1,235	1,217	19
Total A.U. Consigned	8,253	7,209	1,044	13,935	12,870	1,067	27,797	24,899	2,899
Cost per A.U. Consigned	.2109	.1869	.3766	.2920	.2217	1.1386	.2727	.2217	.7108
A.U. Consigned per Visit	16.95	19.12	9.49	14.40	18.95	3.69	14.87	18.29	5.71
% A.U. Seen that Consigned	20.71%	25.46%	9.14%	26.54%	33.51%	7.57%	22.06%	26.93%	8.63%
Average Cost per Visit	3.574			4.203			4.056		
A.U. Need Consign; C = R	2.86			3.36			3.24		
A.U. Need See; C = R	13.805	11.229	31.280	12.668	10.033	44.412	14.710	12.050	37.601
Travel Cost per Visit	1.867			2.309			2.115		
A.U. Need Consign to Cover Travel Cost	1.49			1.85			1.69		

$$C_f = -7.578 + .2741\ AUK_f; \quad r^2 = .956$$

where C_f is the total cost of firms of making visits and AUK_f is the animal units consigned to that firm. Thus the marginal cost per animal unit consigned is $0.2741. The cost per animal unit consigned has no significant relationship with the number of visits made, animal units consigned per visit, or percent of farms consigning livestock. However, there is a relationship between the cost per animal unit consigned, the average cost per visit and the percent of animal units seen that were consigned. The computed linear regression is

$$\frac{C_f}{AUK_f} = -.041208 + .119141\ \frac{C_F}{V_f} - .007719\ \frac{AUS_f}{AUK_f}\ 100;$$

$$r^2 = .881$$

where $\frac{C_f}{AUK_f}$ is the cost per animal unit consigned, $\frac{C_f}{V_f}$ cost per visit, and $\frac{AUS}{AUK}\ 100$ is the percent of animal units seen that were consigned. This means that as the average cost per visit decreases, the cost per animal unit consigned decreases; and as the percent of animal units seen that were consigned increases, the cost per animal unit consigned decreases. These are reasonable results. This conclusion agrees with the hypothesis previously made that the firms want to make effective calls as economically as possible.

Considering only old customers, the weighted average cost per animal unit consigned was $0.2217 with variance .0001815 and a 95% confidence interval of from $0.1842 to $0.2592. The regression of cost of visits and number of animal units consigned is

$$C_f = 68.47 + \$0.2093\ AUK_f; \quad r^2 = .980$$

which gives a marginal cost per animal unit consigned from old customers of $0.2093. A multiple linear regression similar to the one for all customers is computed as

$$\frac{C_f}{AUK_f} = -.093317 + .100882\ \frac{C_f}{V_f} - .003409\ \frac{AUS_f}{AUK_f}\ 100; \quad r^2 = .975$$

The conclusions from this equation are similar to that for all customers except that the percent of animal units seen that were consigned is of less importance.

The weighted average cost per animal unit consigned by new customers was $0.7108. The variance of this estimation is .05053 which is much above the variance for old and all customers. This is also reflected in the wide limits on the 95% confidence interval which are from $0.0867 to $1.3349 per animal unit consigned. In looking at the range between firm averages, the low is 0.2013 for Firm III and the high, Firm II, was $1,8447. See Table XII. Computing the regression of cost of visits and number of animal units consigned yields

$$C_f = -5.47 + \$0.7089\ AUK_f; \quad r^2 = .508$$

which is not significant. The b, $0.7089, is the best estimate available of the marginal cost per animal unit consigned from new customers. A multiple linear regression for new customer of cost per animal unit consigned, average cost per visit, and percent of animal units seen that were consigned yields

$$\frac{C_f}{AUK_f} = 2.241651 + .036151 \frac{C_f}{V_f} - .171730 \frac{AUS}{AUK} 100;$$

$$r^2 = .845$$

It will be noted that for new customers, the cost per visit is a less important variable than for old or all customers and the percent of animal units seen that were consigned is a much more important variable.

ECONOMIC IMPLICATIONS

In economic analysis, the firm should equate marginal cost and marginal revenue. It will be recalled that the marginal cost per animal unit consigned was $0.2741. Total revenue is a linear function of animal units consigned as the price (commission charge) per animal unit consigned is a constant. Thus marginal revenue is equal to the price. According to economic theory, with constant marginal cost and constant marginal revenue, the size of the firm is indeterminate (2). With a marginal revenue or price per animal unit consigned of $0.2741, marginal revenue would equal marginal cost. However, the size of the firm would still be indeterminate over the range of firm sizes covered by this study.

A price (commission charge) of $1.25 per animal unit will be assumed. This is a consignment charge of $1.25 per head of cattle, $0.42 per hog, and $0.25 per sheep. However, not all of the revenue from consignments can be allocated to solicitation as there are other expenses to the firm such as office space, selling costs, etc. Thus if 21.9% of the assumed revenue is allocated to solicitation, the marginal cost and marginal revenue from solicitation will be equated on an animal unit basis. The remaining 78.1% of the revenue would be for other costs and profit.

Looking at old and new customers separately, the marginal cost per animal unit consigned from old customers

was $0.2093. Thus, 16% of the assumed revenue needs to be allocated to solicitation from old customers. The marginal cost per animal unit consigned from new customers was $0.7089 which is 56.7% of the price per animal unit.

Similar results can be derived from the marginal cost and marginal revenue per visit. The marginal cost per visit was $4.144 and the marginal number animal units consigned per visit was 14.73. This means a commission charge of $0.2813 per animal unit would equate marginal cost and marginal revenue on a per visit basis. This is 22.48% of the assumed commission charge of $1.25 per animal unit. This is quite close to the marginal cost per animal unit consigned.

The marginal and average estimates of costs and consignments are quite close. The averages will be used for further analysis and another means of incorporating total firm expenses will be used. Dividing the average cost per visit by $1.25 gives the number of animal units that must be consigned per visit made in order to cover the solicitation costs. See Table XII. Only Firm II's new customer calls failed to get enough consignments to cover the cost of making the visits. To determine the number of animal units that need to be consigned per visit to cover all firm expenses, the percent of the firm's expenses that are for solicitation can be used. This percentage divided into the number of

animal units that need to be consigned per visit to cover solicitation costs will yield the number of animal units that need to be consigned per visit to cover all costs. As an example, assume 25% of the firm's total expenses are for solicitation. Using the average of $4.056 cost per visit, 3.245 animal units need to be consigned per visit to cover solicitation costs and 12.98 animal units must be consigned per visit to cover all costs. An average of 14.87 animal units were consigned per visit which leaves 1.89 animal units at $1.25 or $2.36 profit per visit. This is an example assuming 25% of total costs for solicitation and is not based on any actual cost percentages.

The animal units that need to be consigned per visit to cover travel costs is also shown in Table XII. These figures can be used in the same way that the animal units that need to be consigned per visit to cover all costs were used. The percent of the firm's expenses due to travel for solicitation divided into the animal units needed to cover travel costs will give an estimate of the animal units that need to consigned per visit to cover all costs.

Using the computed number of animal units that need to be consigned to cover total costs of making visits and the percent of animal units seen that were consigned, the average number of animal units that a firm needs to see per visit in order to cover solicitation costs was computed and is shown

in Table XII. This number divided by the percent of firm expenses due to solicitation will give the average number of animal units that need to be seen per visit to cover all costs.

CONSIGNMENTS TO REPRESENTATIVES

Since some of the farmers were visited by different representatives, it is difficult to equitably divide the consignments between individual representatives. As an example of this problem, suppose two different representatives visited the same farmer at different times and both saw 50 head of livestock of which 20 were consigned. The question is then who should get credit for the consignments. If both are credited with seeing 50 head and both are credited with 20 head consigned, the total of the representatives of a firm will be greater than the total for the firm as the 50 head seen and 20 consigned were counted only once for the firm. Also, the sum of the number of farms visited by each representative will be greater than the firm total of the number of farms visited.

In an attempt to circumvent a part of this problem, the consignments of a farmer who was visited by two different representatives was divided in proportion to the number of visits each representative made to that farmer. In addition, if livestock was consigned after the first visit and before the second visit, the representative who made the first visit received full credit for such livestock plus a share of the livestock consigned after the second visit. This method of division introduced a bias into the data for representatives of Firms I and II as they had the highest percentage of two

men visiting the same farm. Firms IV and V had only a few two-representative visits so the bias would be small and Firm III had no two man visits to the same farm.

The results, converted to animal units, are shown in Table XIII. From this data, the cost per animal unit consigned and the animal units consigned per visit were computed. Three representatives did not receive credit for any consignments. Excluding these three, as their cost per animal unit consigned is infinite, the range in cost per animal unit consigned was from $0.112 to $1.368. The cost per animal unit consigned reflects the same bias as the division of consignments introduced. Using the assumed commission charge of $1.25 per animal unit consigned, the three who did not get credit for any consignments and one other representative failed to cover their total cost of making farm visits.

The cost per animal unit consigned to an individual is not correlated with the cost per visit, the number of animal units consigned per visit, nor a combination of the two. It will be recalled that for the firms, the cost per animal unit consigned was positively correlated with the average cost per visit and negatively correlated with the percent of animal units seen that were consigned. Because of the difficulties previously mentioned, no attempt was made to determine the percent of animal units seen that were consigned to an individual because even larger biases would be introduced and the results could be highly misleading.

Table XIII. Costs of consignments to representatives

		All Visits									Old Customers						New Customers					
		Visits Made	Total Cost of Visits	Average Cost per Visit	Animal Units Consigned	Cost per Animal Unit Consigned	Animal Units Consigned per Visit	A.U. Need per Visit for Cost = Revenue	Travel Cost per Visit	A.U. Need Consigned per Visit to Cover Travel Cost	Visits Made	Total Cost of Visit	Average Cost per Visit	Animal Units Consigned	Cost per A.U. Consigned	A.U. Consigned per Visit	Visits Made	Total Cost of Visits	Average Cost per Visit	Animal Units Consigned	Cost per A.U. Consigned	A.U. Consigned per Visit
Firm I Rep	1	31	145.00	4.677	953	.152	30.74	3.74	2.258	1.81	31	144.99	4.677	953	.152	30.74	—	———	4.677	—	———	———
	2	36	168.50	4.681	647	.260	17.97	3.74	1.903	1.52	32	149.79	4.681	611	.245	19.09	4	18.72	4.681	36	.520	9
	3	6	24.50	4.083	—	———	———	3.27	2.000	1.60	4	16.33	4.083	—	———	———	2	8.17	4.083	—	———	———
	4	22	71.00	3.227	500	.142	22.73	2.58	1.523	1.22	22	71.00	3.227	500	.142	22.73	—	———	3.227	—	———	———
	5	69	333.00	4.826	565	.589	8.19	3.86	1.928	1.54	60	289.56	4.826	507	.571	8.45	9	43.43	4.826	58	.749	6.44
Firm II Rep	1	111	495.35	4.463	1,041	1.476	4.38	3.57	2.436	1.95	85	379.36	4.463	956	.397	11.25	26	116.04	4.463	85	1.365	3.27
	2	26	60.20	2.315	44	1.368	1.69	1.85	.873	.70	2	4.63	2.315	—	———	———	24	55.56	2.315	44	1.263	1.83
	3	19	144.06	7.582	470	.307	24.74	6.07	3.635	2.91	19	144.06	7.582	470	.307	24.74	—	———	7.582	—	———	———
	4	25	89.60	3.584	338	.265	13.52	2.87	1.584	1.27	23	82.43	3.584	338	.244	14.70	2	7.17	3.584	—	———	———
	5	23	109.80	4.774	359	.306	15.61	3.82	1.513	1.21	21	100.25	4.774	359	.279	17.10	2	9.55	4.774	—	———	———
Firm III Rep	1	28	69.91	2.497	492	.142	17.57	2.00	1.158	.93	2	4.99	2.497	17	.294	8.50	26	64.92	2.497	476	.136	18.31
	2	18	60.90	3.383	198	.308	11.00	2.71	1.300	1.04	4	13.53	3.383	109	.124	27.25	14	47.36	3.383	89	.532	6.38
Firm IV Rep	1	279	861.10	3.086	5,329	.162	19.10	2.47	1.563	1.25	209	644.97	3.086	4,473	.144	21.40	70	216.02	3.086	856	.252	12.23
	2	25	87.10	3.484	138	.631	5.52	2.79	1.984	1.59	18	62.71	3.484	138	.454	7.67	7	24.39	3.484	—	———	———
	3	91	328.76	3.613	1,075	.306	11.81	2.89	1.896	1.52	64	231.23	3.613	887	.261	13.86	27	97.55	3.613	188	.519	6.96
	4	86	418.92	4.871	1,568	.267	18.23	3.90	2.691	2.15	80	389.68	4.871	1,568	.249	19.60	6	29.23	4.871	—	———	———
	5	6	44.80	7.467	144	.311	24.00	5.97	3.300	2.64	6	44.80	7.467	144	.311	24.00	—	———	7.467	—	———	———
Firm V Rep	1	135	550.75	4.080	1,144	.481	8.47	3.26	2.135	1.71	92	375.36	4.080	1,055	.356	11.47	43	175.44	4.080	89	1.971	2.07
	2	29	141.15	4.867	—	———	———	3.89	3.143	2.51	19	92.47	4.867	—	———	———	10	48.67	4.867	—	———	———
	3	5	94.02	18.804	143	.657	28.60	15.04	11.304	9.04	4	75.22	18.804	143	.526	35.75	1	18.80	18.804	—	———	———
	4	228	807.75	3.543	3,812	.212	16.72	2.83	2.070	1.66	197	697.97	3.543	3,617	.193	18.36	31	109.83	3.543	195	.563	6.29
	5	296	1,022.20	3.453	3,686	.277	12.45	2.76	1.870	1.50	239	825.27	3.453	3,428	.241	14.34	57	196.82	3.453	258	.763	4.53
	6	159	607.93	3.823	694	.876	4.36	3.06	2.330	1.86	27	103.22	3.823	278	.371	10.30	132	504.64	3.823	416	1.213	3.15
	7	87	359.97	4.138	3,225	.112	37.02	3.31	2.221	1.78	73	302.07	4.138	3,132	.096	42.90	14	57.93	4.138	93	.623	6.64
	8	1	12.75	12.750	—	———	———	10.20	6.500	5.20	1	12.75	12.750	—	———	———	—	———	12.750	—	———	———
	9	21	389.70	18.557	1,086	.359	51.71	14.85	7.843	6.27	20	371.14	18.557	1,067	.348	53.35	1	18.56	18.557	19	.977	19.00
	10	7	82.55	11.793	149	.554	21.29	9.43	5.543	4.43	7	82.55	11.793	149	.554	21.24	—	———	11.793	—	———	———

The consignments credited to individual representatives were divided into old and new customers and the results in terms of animal units is also shown in Table XIII. The average cost per visit is assumed to be equal for old and new customers so the total cost of making visits is divided between old and new customers in the same proportion as the number of visits.

The old customer results closely follow the results for all visits as old customer visits comprised most of the visits. The cost per animal unit consigned from old customers is equal to or below all customers with only one exception. All of the representatives credited with any livestock consignments from old customers covered the cost of making the visits.

Turning to new customers, 21 representatives visited at least one new customer, but seven of these did not receive credit for any consignments. Of those receiving credit for consignments from new customers, three representatives were not credited with enough consignments to cover the cost of the visits.

In summary, if some livestock consignments were credited to a representative, all but one received enough consignments to cover the cost of making visits. All of the representatives that were credited with consignments from old customers covered the cost of making visits, but three did not receive enough consignments from new customers to cover costs. In

all instances, if consignments were made to a representative, enough livestock was consigned to cover travel costs. The method of division of consignments must be kept in mind throughout these results.

The average cost per visit is known for each representative. See Table IV. Using the commission charge of $1.25 per animal unit, the number of animal units that each representative needs to have consigned per visit to cover the cost per visit is calculated and is shown in Table XII. These figures can be used by the firm in the identical manner as the firm averages which was illustrated on page 68. Similarly, the animal units that need to be consigned to cover travel cost is also computed.

Going back to the relationship between the average cost per visit and the number of visits made per man day in Figure 4, the number of animal units that need to be consigned per visit to cover consignment cost was computed and is shown in Figure 8. Figure 8 then gives the animal units that need to be consigned per visit to cover solicitation costs for various numbers of visits per man day. Again, this does not include costs other than solicitation, so the number of animal units must be divided by the solicitation percent of total firm costs to give the animal units needed to cover all costs. The animal units that need to be consigned per visit to cover the marginal cost of each additional visit per man day is also shown in Figure 8.

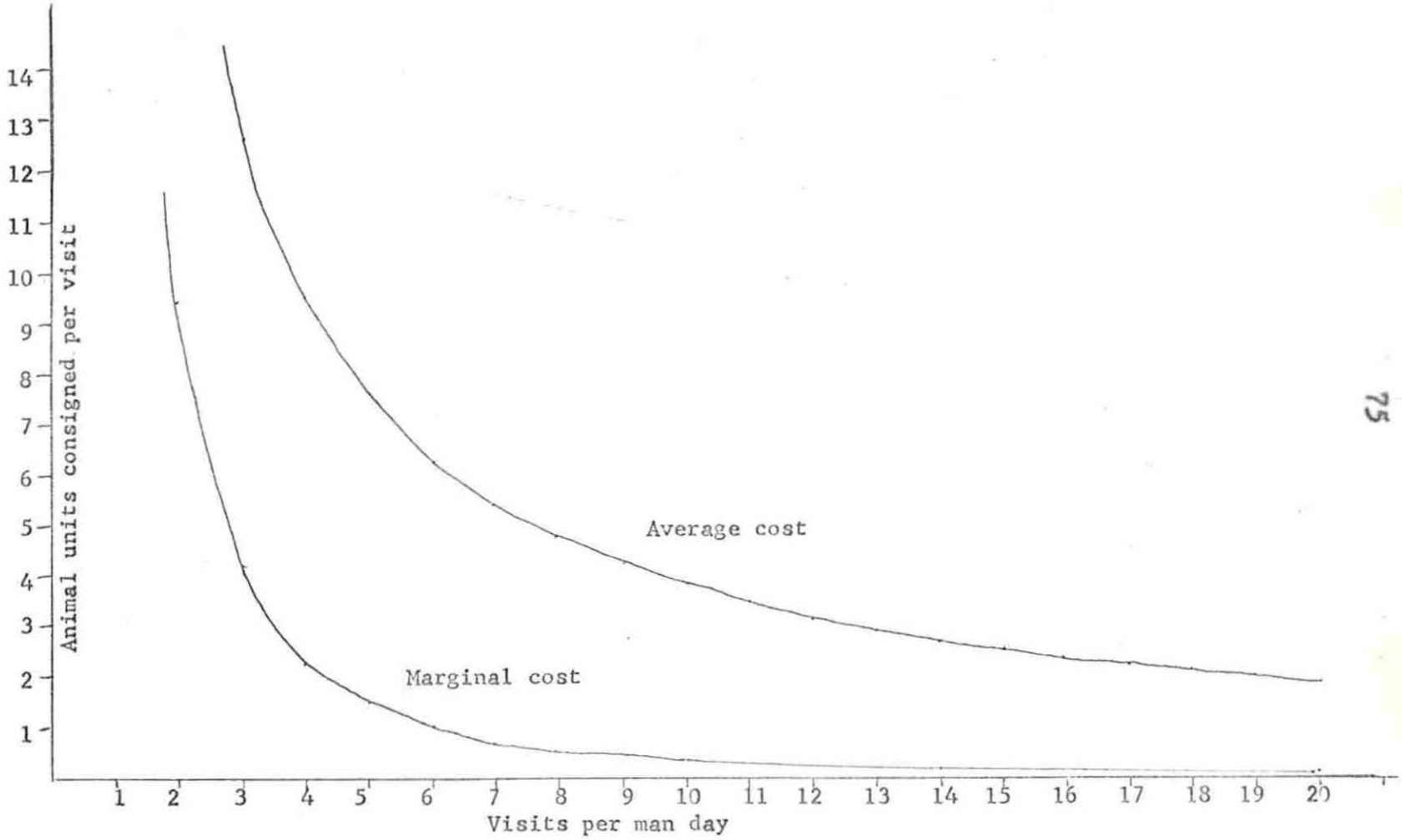

Figure 8

Necessary number of Animal Units consigned to cover solicitation cost

The following example will serve to illustrate how a firm could use these data. Suppose a representative averaged 12 visits per man day and 20% of the firm's total expenses were for solicitation. At 12 visits per day, an average of 3.19 animal units must be consigned per visit to cover solicitation costs. However, solicitation costs are 20% of the total firm expenses so 3.19 divided by .20 equals 15.95 animal units consigned per visit are needed to cover all costs. However, if the representative were to increase his number of visits per man day to 13, .23 animal units would be necessary from this added visit per man day to cover solicitation costs and 1.15 animal units would need to be consigned from this visit to cover all cost.

Similarly, using travel cost per visit and visits made per man day, Figure 9 shows the animal units that need to be consigned per visit to cover travel costs and marginal travel costs. These can be used in the same manner as used above for total cost per visit.

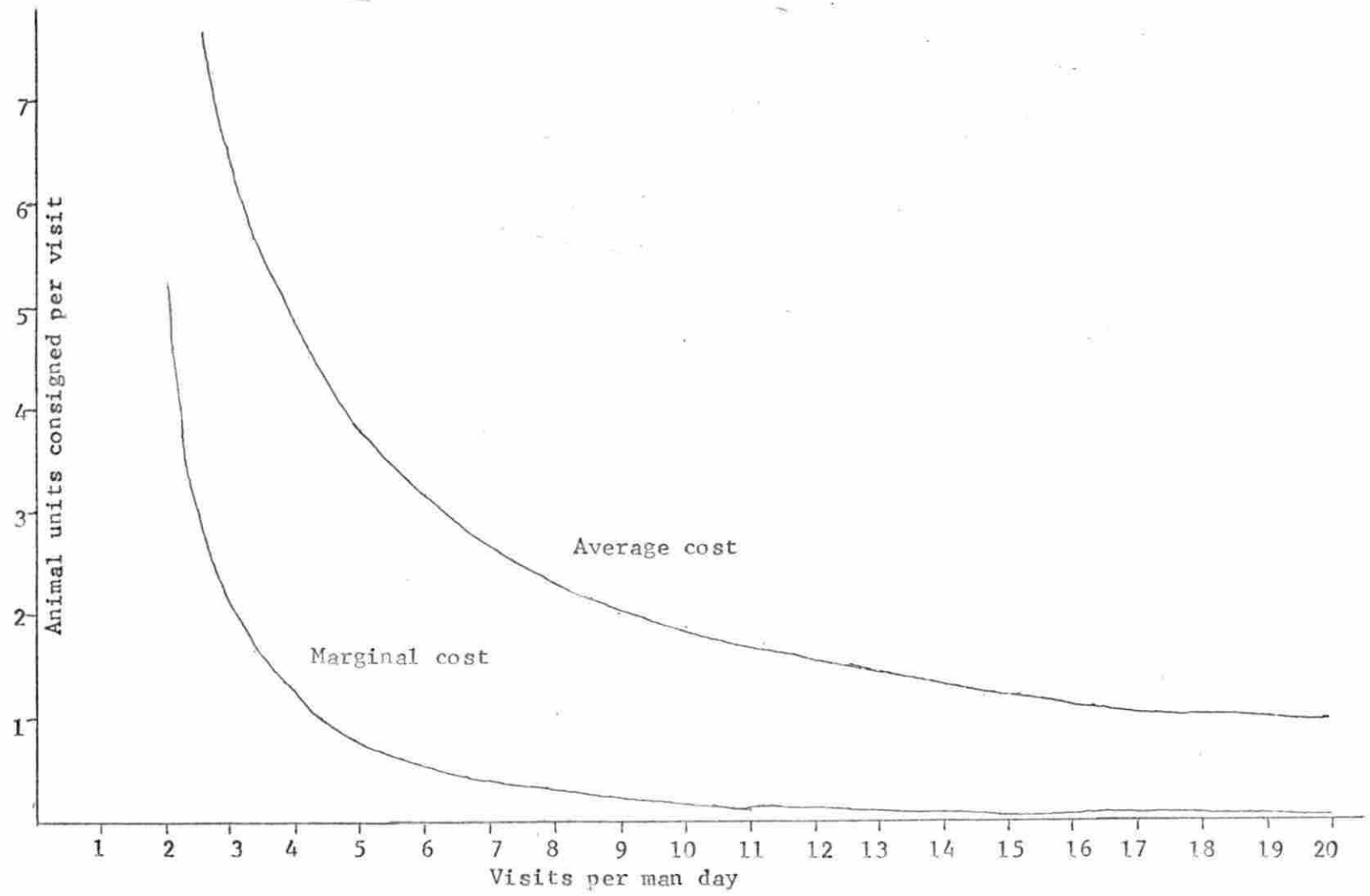

Figure 9

Necessary number of animal units consigned per visit to cover travel costs

SUMMARY

External factors that could have affected the results of this study were shown to be such that they had little if any effect on the results. External factors considered were cattle and hog receipts during the study period, cattle and hog prices during this period, and the Pork Fair Promotion which was held shortly after the conclusion of this study.

The weighted average cost per visit was $4.056 and the average travel cost per visit was $2.115. The weighted average cost per man day was $52.25 and average travel cost per man day was $27.25. The total cost of making farm visits is a linear function of man days spent making visits and of the number of visits made. Thus there are no economies of scale for the larger firms. Neither average cost per visit nor per man day is correlated to the number of visits made or the number of man days spent making visits. As more man days are spent making farm visits; mileage, meals, and lodging become a larger share of the total cost and the labor expenses become a smaller share. The average and marginal cost per visit decrease as more visits are made per man day. The decreases in costs become less as more visits are made per man day. Travel costs per visit per man day follow a similar pattern.

The main emphasis of solicitation is on cattle. The smaller firms did most of the hog solicitation. About one

third of the visits were to new customers and the percent of calls to new customers increases with the size of the firm. Over one-fourth of the farms visited were visited more than once in the six week period. The larger firms made more visits where no livestock was seen than did the smaller firms. The smaller firms, however, made more visits where more than one kind of livestock was seen.

Of the farms visited where livestock was seen, 46.82% of them consigned livestock. Dividing this into old and new customers, 57.25% of the old customers visited consigned livestock and 23.38% of the new customers consigned livestock. For each visit made where cattle were seen, 14.47 head of cattle were consigned. After each visit to old customers where cattle were seen, 17.73 head were consigned and after new customer visits, 5.37 head were consigned. A weighted average of 19.59 hogs were consigned from each visit made where hogs were seen. Dividing this into old and new customers, 20.33 hogs were consigned from visits to old customers where hogs were seen and 17.49 were consigned after each new customer visit where hogs were seen. Only one firm solicitated sheep consignments and an average of 309 head of sheep were consigned from each visit made.

The percent of farms that consigned livestock increased quite rapidly as more visits were made to the same farm. This result was true for old and new customers also. However, making two and three visits to a farmer resulted in about the

same number of cattle consigned per visit as from making only one visit to a farmer. Among new customers, a few more cattle were consigned per visit from visiting a farmer twice than from only one visit. The picture is different for hogs as the number of hogs consigned per visit decreases when going from one visit to two visits. Consignments from having two different representatives visit the same farmer are not greatly different than when one representative visits a farmer twice. This varied between firms as two men visiting the same farmer were more effective for some firms and one-man visits were more effective for other firms.

The livestock numbers were converted to animal units with one animal unit equal to one head of cattle, three hogs, and five sheep. The weighted average cost per animal unit seen was $0.0602. The average cost per animal unit consigned was $0.2727 and the marginal cost per animal unit consigned was $0.2641. The cost per animal unit consigned decreases as the average cost per visit decreases and as the percent of animal units seen that were consigned increases. This conclusion holds for all customers, old customers and new customers. The percent of animal units that were consigned is less important among old customers and more important among new customers. The average cost per animal unit consigned from old customers was $0.2217 and from new customers, $0.7108. The cost per animal unit consigned from new customers is quite variable.

In economic analysis, the firm should equate marginal cost and marginal revenue. Marginal revenue in this study is the price or commission charge per animal unit consigned. Thus, marginal cost and marginal revenue are both constants and the size of the firm is indeterminate over the range of firm sizes covered by this study. However, a commission charge of $0.2741 would equate marginal cost and marginal revenue. This commission charge would cover only the solicitation expenses. Additional revenue from commission charges would be necessary to cover other firm expenses and allow for profit.

Similar results were divided using marginal cost and marginal revenue per visit rather than per animal unit. The marginal cost per visit was $4.144 and the marginal number of animal units consigned per visit was 14.73. Thus, a commission charge of $0.2813 per animal unit would equate marginal cost and marginal revenue on the per visit basis.

Using an assumed commission charge of $1.25 per animal unit, the average number of animal units that need to be consigned per visit to cover solicitation costs was computed. Only one firm's new customer calls failed to cover the cost of solicitation.

There were some difficulties in allocating livestock seen and consigned to individual representatives within a firm. An arbitrary assumption was made in order to circumvent some of these difficulties. Three representatives did

not receive any credit for livestock consignments. The range in cost per animal unit consigned to individuals was from $0.112 to $1.368. The weighted average cost per animal unit consigned over individuals is the same as for the firms. No attempt was made to determine the number of animal units seen as large biases could be introduced. Dividing consignments to individuals into old and new customers, all of the representatives that received credit for consignments from old customers covered the cost of making the visits. Twenty-one representatives visited at least one new customer. Fourteen of these representatives received credit for consignments from new customers but three of them were not credited with sufficient consignments to cover the cost of the visits. For all representatives, if consignments were credited to a representative, enough livestock was consigned to cover travel costs.

The number of animal units that need to be consigned per visit to cover average and marginal cost per visit as more visits are made per man day was computed and shown in Figure 8. A similar analysis was made for travel costs.

CONCLUSIONS

A commission charge of about $0.27 per animal unit will cover the cost of making solicitation visits. This can be decreased by lowering the cost per visit or increasing the percent of animal units seen that are consigned. One means of lowering the cost per visit is to increase the number of visits made per man day. The percent of farms consigning increases as a particular farm is visited more times but the return per visit does not increase much, except for new cattle customers visited twice which increases a little. There are no significant economies or diseconomies for larger firms either in cost of visits or consignments.

RECOMMENDATION FOR FURTHER STUDY

This study gives an insight to the costs and returns of making solicitation visits to farmers. Perhaps a study similar to this one should be done again in the future to check the results and conclusions. Further study should be made along the lines of just what convinces a farmer to consign livestock to a central market or to a specific firm rather than to alternative outlets. This would also include a survey of salesmanship applicable to livestock solicitation. A study of this nature would be more sociological than economic, but this is a very important aspect of solicitation.

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APPENDIX

TRIP RECORD OF FARM VISITS

Commission Firm ______________________ Representative ________

1	2	3	4	5	6	7
Date	Name	County	Customer Old New	Cattle Seen	Hogs Seen	Man minutes on farm

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DAILY SUMMARY	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8. Man Days (to nearest ½ day)						
9. Mileage						
10. Meals						
11. Lodging						
12. Other Expenses						

Write Legibly

Over for instructions

Use of Trip Record of Farm Visits

Each commission firm representative visiting farms for the purpose of soliciting livestock consignments for his commission firm will keep a record of each visit on the form provided. When two representatives of a firm make visits together, only one will complete the Trip Record of Farm Visits, but the time and expenses of both men will be included on the record.

IMPORTANT

Use one Trip Record of Farm Visits per trip and turn it in to your office when you return from each trip. These will be picked up each week. Start a new sheet when you leave on another trip.

For each farm visit, complete the top portion of the record (items 1 through 7). At the end of each day of farm visits, complete the daily summary at the bottom of the record (items 8 through 12).

For each visit

1. Date - Enter the date the visit was made.

2. & 3. Name and County - Enter the name and county of the livestock producer visited,

4. Customer, Old or New - Check either old or new customer. An old customer is one who has consigned livestock to your commission firm within the last 18 months. A new customer is one who has not consigned livestock to your firm within the last 18 months.

5. Cattle Seen - Record the number of cattle seen on that visit that would be marketable on the Sioux City market within 90 days.

6. Hogs Seen - Record the number of hogs seen on that visit that would be marketable on the Sioux City market within 90 days.

7. Man Minutes on Farm - If one representative makes a visit, man minutes on that farm is the number of minutes he spent on that farm. If two men make a visit together, multiply the time spent on that farm by two. Example: Two men spent 45 minutes on a farm. 45 minutes times two men equal 90 man minutes on that farm.

Daily summary to be completed at the end of each day.

8. Man Days - Record either "1" for all day or the part of the day to the nearest ½ day spent visiting farms. If two men make visits together, multiply all or part of the day times two. Example: Two men spent Thursday afternoon and all day Friday visiting farms together. For Thursday, ½ day times two men equal one man day. Enter "1" under Thursday. For Friday, one day times two men equal two man days. Enter "2" under Friday.

9. Mileage - Enter the total miles driven that day.

10. Meals - Enter the meal cost for the day including both men if two men were traveling together.

11. Lodging - Enter the lodging expense if you were out overnight.

12. Other Expenses - Enter any other out-of-pocket expenses incurred.