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THE EFFECT OF BROCHURES AND LETTERS ON IMPROVING MAIL RESPONSE RATES

by

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CONTENTS

THE EFFECT OF BROCHURES AND LETTERS ON MULTIPLE FRAME RESPONSE RATES

Introduction

The Statistical Reporting Service is continually striving to determine methods that will increase the number of questionnaires returned through the mail by farm and ranch operators. One such effort to increase mail returns was the sending of brochures to livestock producers selected for the December 1974 and January 1975 livestock multiple frame surveys in all livestock multiple frame states. The hog sample received a brochure titled "Hog Slaughter - Do You Profit Forecast" and the cattle sample received a brochure titled "Cattle Marketing". (The brochures are presented in the Appendix.) These brochures contained information that could help the livestock producers gauge probable market supplies and therefore take advantage of market conditions. The brochures were also designed to help the respondent interpret survey data.

An earlier study conducted in Wisconsin 1/ indicated that brochures sent before the multiple frame mail questionnaires resulted in a better response rate than brochures sent with the questionnaire. Based on this result all multiple frame states were to send the brochure to the entire sample before mailing the multiple frame questionnaires. However, the Wisconsin study also indicated that a letter mailed prior to the questionnaire elicited a better response than did a brochure. Therefore, it seemed advisable to conduct a test in selected states to determine if there were any benefits from the nationwide use of the brochures.

Alternative Treatments

The Minnesota SSO and Missouri SSO participated in the study to test the effectiveness of alternative procedures to increase mail responses from farm and ranch operators. Minnesota and Missouri were selected because of the following:

1. They conducted both hog and cattle multiple frame surveys.

2. They selected a new sample which would minimize conditioning effects of previous surveys.

The alternative procedures were tested during the 1974 December Hog Multiple Frame Survey and the January 1975 Cattle Multiple Frame Survey. Four treatments were tested in each of these surveys. Each treatment was the same for hog and cattle surveys except that the cattle and hog brochures differed. The brochures used could not stand alone; therefore, a cover letter accompanied

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1/ William F. Kelly and Frederic A. Vogel. Effect of Selected Procedures On Mail Questionnaire Response By Farm Operators, 1974, United States Department of Agriculture, Statistical Reporting Service.

the brochures. The treatments tested were as follows:

1. Brochure and letter sent before the questionnaire.

2. Brochure and letter sent with the questionnaire.

3. Letter sent before the questionnaire.

4. Control group - no brochure or letter sent.

The letters sent with the brochures, treatments 1 and 2, and the letter sent independent of the brochure (treatment 3, were the same within states except the latter did not contain the P. S. stating a brochure was also included. The Appendix contains copies of the letters used by the states. In Missouri, a reminder card was sent to each respondent in addition to what was required by each treatment.

Both states selected their hog and cattle samples using regular survey procedures. The samples were then systematically divided into four parts within strata and then the four treatments were randomly assigned. All strata except the extreme operator strata were included in the project. These extreme operator strata were deleted because of small sample sizes and because of the large number of preselects that required special handling.

The timing of the survey in Minnesota and Missouri differed slightly, as shown in the following schedule:

	Minnesota		Missouri	
	Hogs	Cattle	Hogs	Cattle
Mailed presurvey letter and brochure	Nov. 15	Dec. 13	Nov. 13	Dec. 12
Mailed list questionnaire	Nov. 20	Dec. 19	Nov. 18	Dec. 17
Mailed reminder card	-	-	Nov. 21	Dec. 20

Results

Table I shows the returns by treatment for hogs and cattle, respectively. The treatment using a letter sent before the questionnaire had the greatest percentage of questionnaires returned by mail. The treatment with the brochures sent before the questionnaire (the procedure recommended by the Data Collection Branch for the multiple frame states) showed a slightly greater percentage of questionnaires returned than returned by the control group. However, when the brochures were sent with the questionnaires, lower response rates usually resulted when compared to the control group.

The analysis using the Dunnett's procedure is shown in Table II. The hypothesis tested for each survey was that the mail rate or return was significantly greater for any of the three treatments compared to the control. The test for the Minnesota hog survey indicated that the letter sent before the questionnaire and the brochure sent before the questionnaire resulted in mail return rates that were significantly better than the returns for the control group. This implies that the difference between these treatments is larger than what can be contributed to sampling variation. Only the letter sent before the questionnaire in Minnesota for cattle resulted in a significantly better mail response rate than the control. For the Hog and Cattle surveys in Missouri, there were no significant differences in mail response rates for the three treatments compared to the control.

Not only is it important to examine the effects of treatments on mail responses, but also their effects on all types of responses. That is, the effects different treatments had on refusals and inaccessibles.

From Table I, it appears that the letter sent before the questionnaire showed the highest mail return; it also seemed to show the highest refusal and inaccessible rate. However, as Table III shows, none of the refusals and inaccessible rates were significantly different from the control using Dunnett's test procedure.

The previous tests of significance were conducted on states by livestock surveys independent from each other. It is also of interest to test the difference between the three treatments compared to the control for the combined results. Table IV indicates the results of using the P_λ 2/ procedure to test for significant differences between the mail response rates for the control compared to the other three treatments. The letter sent before the questionnaire had a significantly better mail response rate than the control. The brochure sent before the questionnaire and the brochure sent with the questionnaire were not significant better than the control.

Summary and Conclusions

The letter sent before the questionnaire did improve the mail response rate compared to the control group. This treatment usually resulted in the largest percentage of refusals and inaccessibles although it did not differ significantly from control. Conjecture at this point would indicate that the pre-survey letter allows "borderline" respondents more time to react to the survey which has both a negative and positive effect on mail return rates with the positive effect much greater.

Only for Minnesota hogs did the brochure sent before the questionnaire result in a significant difference in mail response rates over the control group. However, the combined test for states (P_λ) for this treatment was non significant. These results indicate it is very marginal whether the extra time and

2/ Harold F. Huddleston, Combination of Independent Test Statistics, United States Department of Agriculture, Statistical Reporting Service

the extra mailing cost involved warrant the use of brochures sent before the questionnaire.

The brochure sent with the questionnaire did not have a significantly higher percentage return rate by mail than the control group and in two out of four cases there was even a lower mailing rate although this was not tested for significance.

Based upon this information, it is recommended not to include a brochure with the questionnaire in a survey without further testing. It is unclear why this treatment should have a lower response rate. However, a possibility is farmers and ranchers fail to "bother" with or read mail that contained several pieces of material in an envelope.

The purpose of this study was to evaluate the use of a brochure and compare it with the use of a letter to improve survey response. The best mail returns in both states for both surveys resulted from the use of the presurvey letter. Considering the cost of developing and printing brochures compared to a letter, it is recommended that presurvey letters be used over the use of pre-survey brochures.

There is strong evidence that no brochures or letters should be included with the questionnaire in a mail survey. Pre-survey letters will improve mail returns; however, factors such as extra printing and mailing costs as well as slightly higher refusal rates need to be considered. Only in Minnesota did the pre-survey letter substantially affect mail returns. It is doubtful whether the small improvement in mail rates in Missouri was worth the extra costs and effort involved.

TABLE I: Distribution of Sample by Treatment and Response Category to the Hog and Cattle Multiple Frame Surveys, Minnesota and Missouri 1/

Response Category	TREATMENT: Brochure & Letter Sent Before Questionnaire		Brochure & Letter Sent With Questionnaire		Letter Sent Before Questionnaire		Control	
HOGS and PIGS	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
MAIL								
Minnesota	133	32.6	115	28.3	145	35.8	97	23.8
Missouri	158	28.5	153	27.6	176	31.8	169	30.4
REFUSALS AND INACCESSIBLE								
Minnesota	30	7.4	20	4.9	23	5.7	31	7.6
Missouri	32	5.8	36	6.5	47	8.4	34	6.1
CATTLE and CALVES								
MAIL								
Minnesota	113	34.6	115	35.2	151	46.3	112	34.5
Missouri	131	33.8	107	27.8	135	35.0	130	33.6
REFUSALS AND INACCESSIBLE								
Minnesota	39	12.0	38	11.7	50	15.4	35	10.7
Missouri	33	8.6	43	11.1	43	11.2	39	10.2

1/ The original samples were based upon an optimal allocation procedure and the numbers and percents were weighted according to proportionate allocation.

TABLE II Proportion of questionnaire returned by mail for the four treatments used in the Hog and Cattle Multiple Frame Survey, Minnesota and Missouri 1/

Category	Treatments				t (Dunnett) $S\bar{d}$	$S\bar{x}$
Hogs and Pigs	BB/Q	BW/Q	LB/Q	Control		
Minnesota	.326**	.283NS	.358**	.238	.0650	.0227
Missouri	.285NS	.276NS	.318NS	.304	.0735	.0194
Cattle and Calves						
Minnesota	.346NS	.352NS	.463**	.345	.0735	.0182
Missouri	.338NS	.278NS	.350NS	.336	.0639	.0238

** Significantly Better Mail Response Rate than the Control at α=.01
NS Non Significant
1/ The one sided Dunnetts Comparison test at α=.01 was used to test if treatments were significantly better than the control Pi - Pc > t (Dunnett) Sd.

TABLE III Proportions of questionnaires that were refusals or inaccessibles for the four treatments in the Hog and Cattle Multiple Frame Survey, Minnesota and Missouri 1/

Category	Treatments				t (Dunnett) Sd	$S_{\bar{x}}$
Hogs and Pigs	BB/Q	BW/Q	LB/Q	Control		
Minnesota	$.074^{NS}$	$.049^{NS}$	$.057^{NS}$	.076	.0353	.0121
Missouri	$.058^{NS}$	$.065^{NS}$	$.084^{NS}$	,061	.0309	.0106
Cattle and Calves						
Minnesota	$.120^{NS}$	$.117^{NS}$	$.154^{NS}$	.107	.0532	.0183
Missouri	$.086^{NS}$	$.111^{NS}$	$.112^{NS}$	.102	.0451	.0155

NS Non Significant

1/ The one sided Dunnetts Comparison Test at $\alpha = .01$ was used to test if treatments were significantly different than the control.

TABLE IV: Procedure to Test Treatments for Mail Response Rates Against the Control for States Combined by Species and Combined by State and Species 1/

Treatments	States Combined by Species				States and Species Combined	
	Cattle		Hogs			
Control Tested Against:	P_λ Value	Test 2/	P_λ Value	Test 2/	P_λ Value	Test 3/
Brochure & Letter sent Before Questionnaire	2.93^{NS}	4	11.64*	4	14.57^{NS}	8
Brochure & Letter sent With Questionnaire	2.10^{NS}	4	5.56^{NS}	4	7.60^{NS}	8
Letter sent Before Questionnaire	16.36**	4	16.17**	4	32.53**	8

** Significantly better mail response rate than the control at $\alpha = .01$

* Significantly better mail response rate than the control at $\alpha = .05$

1/ The P_λ Procedure was used to test the overall treatment effects of the combined independent surveys

$$2 \Sigma \text{ Ln } P(t_i \geq t_c) > X^2$$

2/ Test degrees of freedom equal two times the number of states

3/ Test degrees of freedom equal four times the number of states

Missouri Crop & Livestock Reporting Service
UNITED STATES DEPARTMENT of AGRICULTURE
MISSOURI DEPARTMENT of AGRICULTURE
P. O. Box L, Columbia, Missouri 65201

November 18, 1974

Dear Farm Reporter:

Crop and livestock production has caught everyone's full attention these days. Reliable information on potential food supplies from our farms is essential to intelligent marketing by farmers. Shortly you'll have the opportunity of participating in a nationwide effort to develop such useful information.

You and 2,300 other scientifically selected Missouri producers will receive a brief form asking about your farm, with special attention directed toward hog and pig operations. This small sample will be surveyed each quarter for one year and then be replaced with a new sample. Your individual report will remain confidential and will be summarized with other reports to provide those in agriculture with State and national indications of the December 1 hog and pig inventory; June-November farrowings; and December 1974 - May 1975 intended farrowings.

The USDA Hogs and Pigs Report will be available through the office of your Missouri Crop and Livestock Reporting Service on the afternoon of December 23.

Thanks kindly for your interest and help. If you have any questions when the form arrives, please place a collect call to Mr. Doug Deeker in my office. Telephone # 314-442-2271 Extension 3135.

Sincerely,

Donald W. Barrowman

Donald W. Barrowman
Agricultural Statistician in Charge

P.S. I have enclosed an article that you might find interesting.

MINNESOTA CROP AND LIVESTOCK REPORTING SERVICE

U. S. Department of Agriculture
Statistical Reporting Service

Minnesota
Department of Agriculture

Metro Square Building, Suite 270
7th & Robert Sts., St. Paul, Minn. 55101

December 13, 1974

Dear Sir:

In farming, only one thing is certain -- change. As a result, farmers need and demand reliable and timely statistics on which to base their decisions. Providing these statistics is our job, but we need your help.

In a few days, you will be receiving a questionnaire asking about the number of cattle and calves in your farming operation. Your report is needed to help us attain maximum accuracy of Minnesota's cattle and calf estimates. We need your report even if you do not have any cattle and calves.

We can keep our costs to a minimum if you will complete this inquiry and return it to us by December 30. Since we must account for all of our sample, we must contact those who have not responded by that date.

If you have any questions on the inquiry, call Jim Sands, collect, at 612-296-3878. He will be happy to answer your questions. If we can be of further service, or provide you with other information, please let us know.

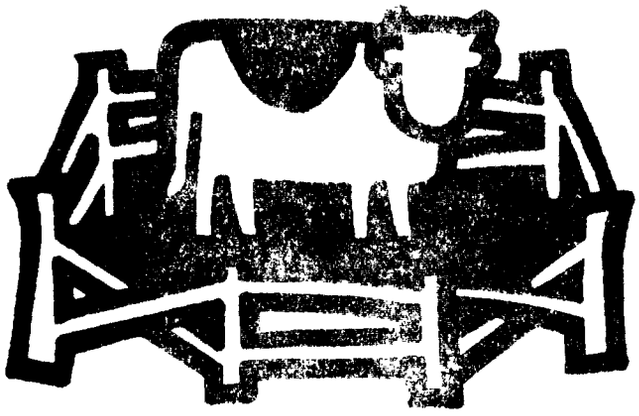
Sincerely,

David N. Taylor
State Agricultural Statistician

P.S. I have enclosed an article which may assist you in your livestock planning.

DNT:JKS:lw
Enclosure

U.S. Department of Agriculture
Statistical Reporting Service



CATTLE CALCULUS

Raising and selling cattle for profit takes skill—not just in production techniques but in timing marketings so as to get the best possible price.

Three SRS reports, *Cattle on Feed*, *Cattle Inventory*, and *Livestock Slaughter*, are must reading for any cattle producer who wants to take advantage of the market, rather than let the market take advantage of him.

In this article we'll show you how to use these three SRS reports to gauge market supplies on the coming 4 to 6 months.

Step One: Estimate Fed Cattle Marketings

The bulk of the Nation's beef supply—about 75 percent—comes from fed cattle produced in feedlots. Thus the potential supply of fed cattle, more than any other single factor, is what determines cattle prices in the short run.

Steers in the light end of the 700-900 pound weight group shown in the *Cattle on Feed* report, and all the steers and heifers in the under 700 pound category will provide the bulk of fed marketings 4 to 6 months hence.

To illustrate how you can forecast April-June 1975 fed cattle marketings:

Assume the *Cattle on Feed* report to be published January 29 shows 3.5 million steers 700-900 pounds in feedlots as of January 1. Take half of this number (presumably about half would be on the light end of the weight group) and add it to the total number of steers and heifers in the 700 pound and under class. Let's suppose that latter figure is 5.0 million head. Your combined total would be 6.75 million.

This combined total next needs to be plotted on the chart on the bottom of page 3 which depicts the historical relationships that have existed between the number of cattle on feed in these weight groups January 1 and fed cattle marketings in April-June.

This plotting is a simple matter of merely locating your combined total of 6.75 million head on the horizontal line which indicates the number of January 1 cattle on feed in the appropriate weight groups. From that point you would draw a straight line up to the diagonal and read off the forecasted level of January-March marketings. You should get about 6.1 million.

Step Two: Correct for Current Conditions.

You'll notice that the chart on page 3 also includes numbers and dots above and below the diagonal line.

These dots indicate the years in the past decade when actual April-June marketings have deviated from the historical trend as shown by the diagonal line.

The marked deviation in 1973 and 1974 from historical norms will give you an idea of the host of factors that you need to consider in forecasting future marketings.

In 1973, for instance, severe cold and prolonged wet weather during the winter and spring reduced use of protein feeds because of their high cost, and the prohibition against using DES as a growth booster resulted in slower than usual weight gains.

Consequently, it took cattle a good deal longer to reach market weights, disrupting the normal time relationships between weight on a given date and subsequent slaughter.

Then, on top of this delay, producer, packer, and consumer reactions to price freezes were an additional monkeywrench thrown into the marketing system.

Some cattlemen fed animals to heavier weights, further slowing the movement of animals through the production and marketing system.

The result of all this was much fewer head than usual slaughtered during the normal marketing periods.

This year there have been other factors to disrupt normal marketing patterns.

Slaughter ran much heavier than usual in January as both sellers and buyers tried to do their marketings before an announced truck strike in February.

Later a sharp price break caused farmers to resume holding cattle to heavier weights in hope of easing their loss positions.

Finally, high feed costs encouraged many producers to keep their feeder animals on pasture longer, meaning that when they finally went into feedlots they weighed more than usual and are taking a shorter time to finish off.

So, whenever you make a forecast, you need to check on what's happening with the weather, feeding rates, ration composition, feeding costs, market weights, slaughter prices, and so on—and then use your best judgment as to what all these indicate for future marketings.

Step Three. Estimate Total Steer and Heifer Slaughter.

Your estimate of fed cattle marketings can be expanded into a total for all steers and heifers slaughtered by referring to SRS' latest *Cattle Inventory* report (issued February and July) and the table on the top of page 2.

To determine this total, divide your estimate of fed cattle marketings into your estimate of the fed cattle percentage of total steer and heifer slaughter.

For example, if you think fed cattle marketings will provide 88 percent of the total, you would divide your fed cattle estimate of 6.1 million head by 0.88.

Your total for all steer and heifer slaughter, consequently, is 6.9 million.

You will note for April-June 1974, fed cattle marketings represented 87 percent of total steer and heifer

SLAUGHTER TRENDS

Year and quarter	Steer and heifer slaughter			Cow and bull slaughter	Total commercial slaughter
	Fed	Total	Fed share of total		
	Thousand head		*Percent*	*Thousand head*	
1968 Jan.-Mar.	5,567	6,740	82.6	1,737	8,477
Apr.-Jun.	5,685	6,885	82.6	1,645	8,530
July-Sept.	5,786	7,144	81.0	1,968	9,112
Oct.-Dec.	5,624	6,873	81.9	2,037	8,907
Year	22,662	27,642	82.0	7,387	35,026
1969 Jan.-Mar.	5,949	6,877	86.5	1,798	8,675
Apr.-Jun.	5,863	6,709	87.4	1,750	8,459
July-Sept.	6,067	7,119	85.2	1,986	9,105
Oct.-Dec.	5,981	7,035	85.0	1,963	8,998
Year	23,860	27,740	86.0	7,497	35,237
1970 Jan.-Mar.	6,148	6,881	89.4	1,635	8,516
Apr.-Jun.	6,219	7,095	87.7	1,578	8,673
July-Sept.	6,302	7,248	87.0	1,701	8,949
Oct.-Dec.	6,215	7,112	87.4	1,775	8,887
Year	24,884	28,336	87.8	6,689	35,025
1971 Jan.-Mar.	6,231	6,964	89.6	1,633	8,587
Apr.-Jun.	6,278	7,146	87.6	1,751	8,917
July-Sept.	6,594	7,485	88.1	1,794	9,279
Oct.-Dec.	6,178	6,972	88.6	1,829	8,803
Year	25,281	28,573	88.5	7,007	35,586
1972 Jan.-Mar.	6,443	7,033	91.7	1,665	8,698
Apr.-Jun.	6,727	7,381	91.1	1,641	9,022
July-Sept.	6,907	7,387	94.0	1,650	9,035
Oct.-Dec.	6,775	7,363	92.0	1,679	9,044
Year	26,852	29,164	92.2	6,635	35,779
1973 Jan.-Mar.	6,585	6,903	95.4	1,744	8,648
Apr.-Jun.	6,283	6,544	96.1	1,591	8,132
July-Sept.	5,958	6,280	94.9	1,715	7,995
Oct.-Dec.	6,505	6,994	93.0	1,862	8,860
Year	25,331	26,721	94.8	6,912	33,635
1974 Jan.-Mar.	6,046	6,648	90.9	1,842	8,490

slaughter. The lowest proportion for the quarter since 1968.

High feed and replacement cost and lower cattle prices caused cattlemen to place fewer animals on feed. As a result, more animals are being marketed without going through the traditional feedlots.

Step Four. Figure Cow and Bull Slaughter.

Again you need to refer to the table on page 2 to determine the range of April-June cow and bull slaughter since 1968.

Basically, it has fluctuated from about 1.6 million to 1.8 million head, but whether you'll make your estimate on the high or low side of this range depends in part on what you feel SRS' *Cattle Inventory* report indicates about the cattle cycle.

Cattle production is characterized by ups and downs in production related to ups and downs in prices. Strong prices tend to encourage herd expansion, less favorable prices can make for herd reductions.

Consequently, the buildup phase of the cattle cycle typically sees a downturn in slaughter as cattlemen withhold cows and heifers for breeding.

As prices go down, cattlemen decide to stop holding extra animals for expansion and begin more heavy culling of breeding herds. This adds more animals to the slaughter market.

Let's assume you estimate total cow and bull slaughter at 1.7 million.

Step Five. Add 'Em Up.

All that remains in coming up with a forecast of total April-June cattle slaughter is to sum total steer and heifer slaughter with total cow and bull slaughter.

The hypothetical numbers we've been working with so far would put this grand total at 8.7 million head.

Why Bother?

Why should any farmer waste his time making elaborate marketing forecasts?

Because his future may depend on it.

Today's farming costs too much to afford the luxury of marketing neglect. In fact, some experts see marketing sophistication as the deciding factor in who will be farming 5, 10, 15 years from now.

CATTLE COUNT

Volatile . . . probably best describes today's cattle industry. Sharp shifts in traditional trends in output and marketings; cost price problems for producers; and the nagging uncertainty of what's ahead.

Decisions producers are making now are some of the most difficult they've ever had to make.

Nothing guarantees making the right plans for breeding, fattening, and selling cattle. But the opportunity for better choices improves when the producer works with current and reliable information indicating industry-wide activity.

The Statistical Reporting Service provides information that covers these main areas: inventory numbers and value, breeding intentions and livestock births, and slaughter. Reports also provide estimates of cattle on feed by weight groups, placements, marketings, and marketing intentions.

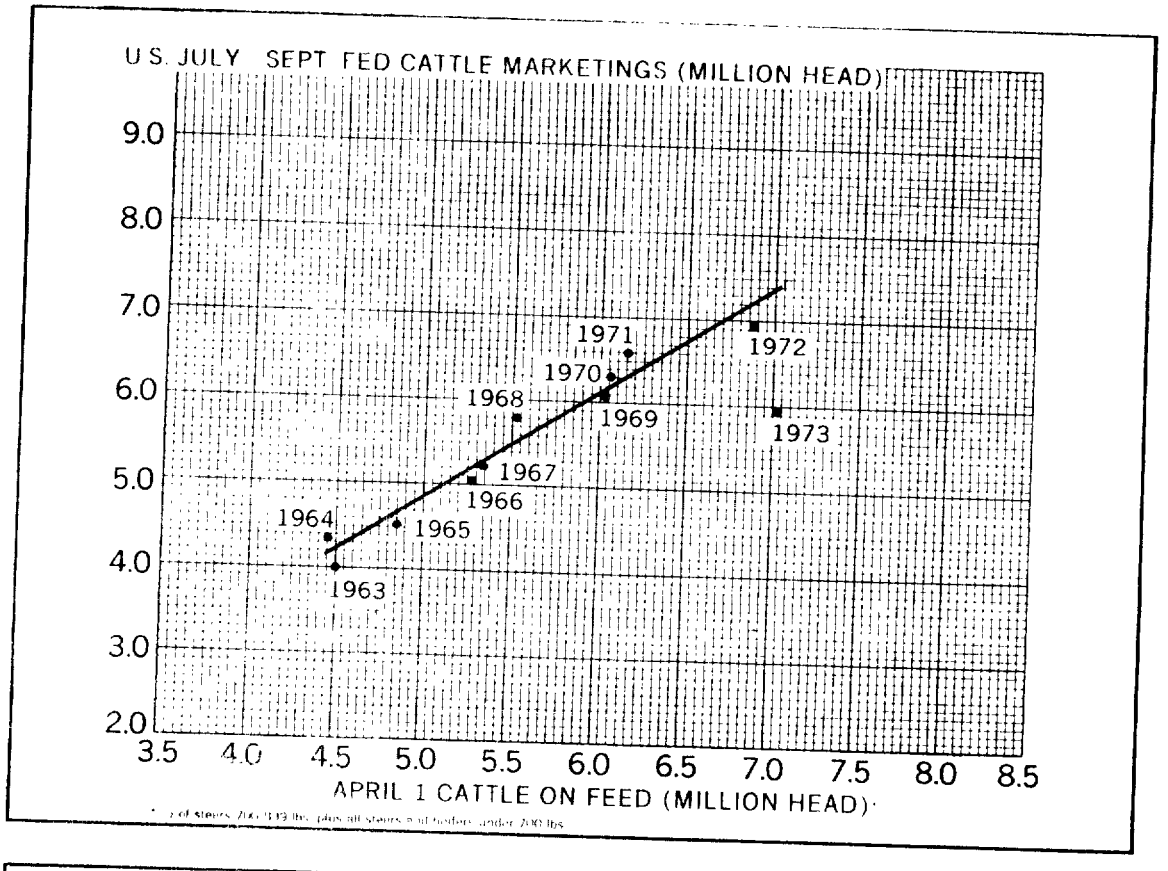
The significant thing to consider is that these indications reflect what producers report to SRS.

SRS, through its 44 State field offices, contacts a representative sample of the Nation's cattlemen by mail, telephone, and personal interviews. The more information SRS collects, the more reliable the estimates.

Each field office prepares a summary of the local situation for review by livestock experts with SRS at the Department of Agriculture in Washington, D.C.

These official State and national estimates are reported by the press and broadcasters, college economists and farm organizations.

Livestock estimates about production and marketing prospects are working tools that help cattlemen better judge their course of action.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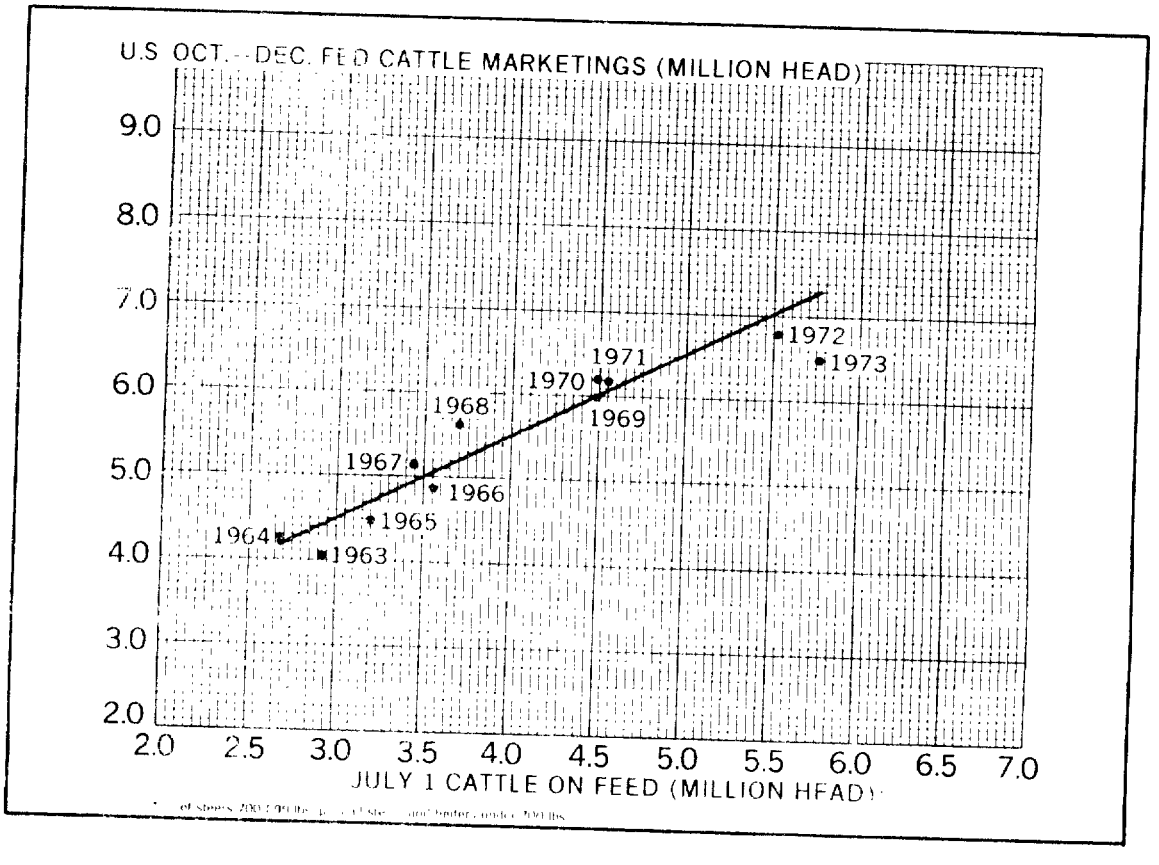
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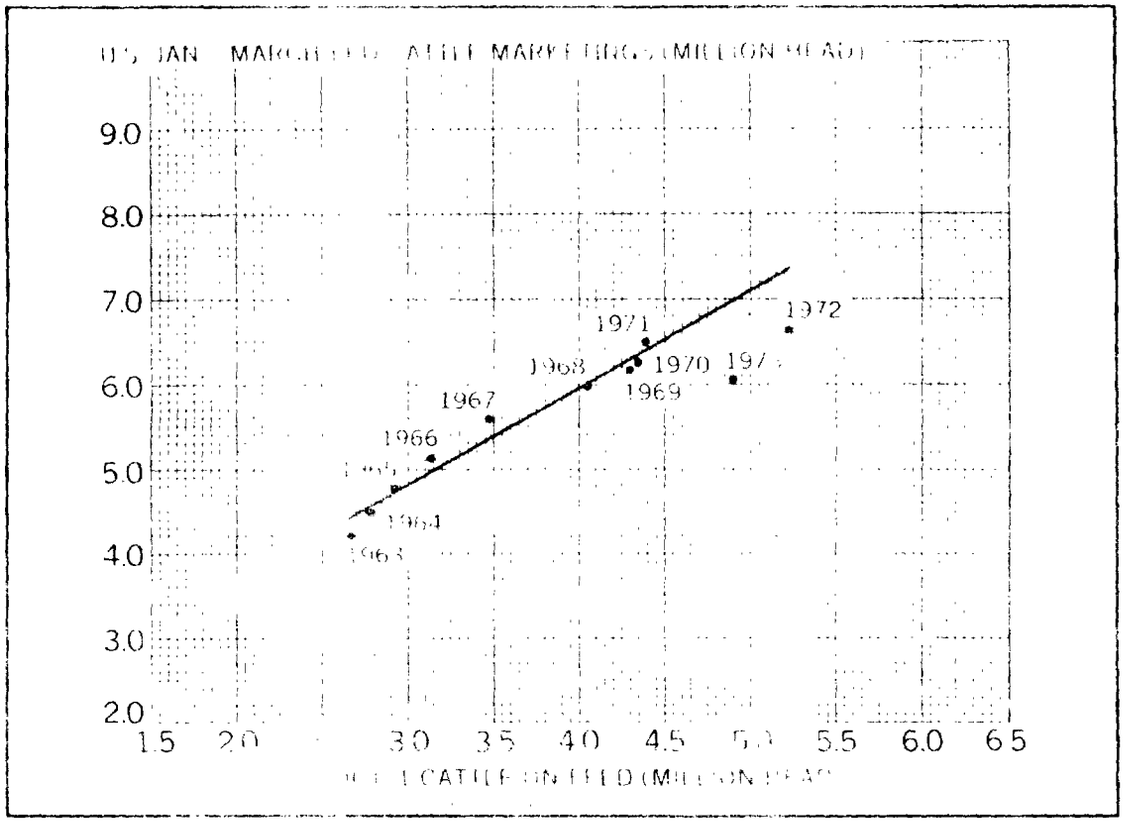
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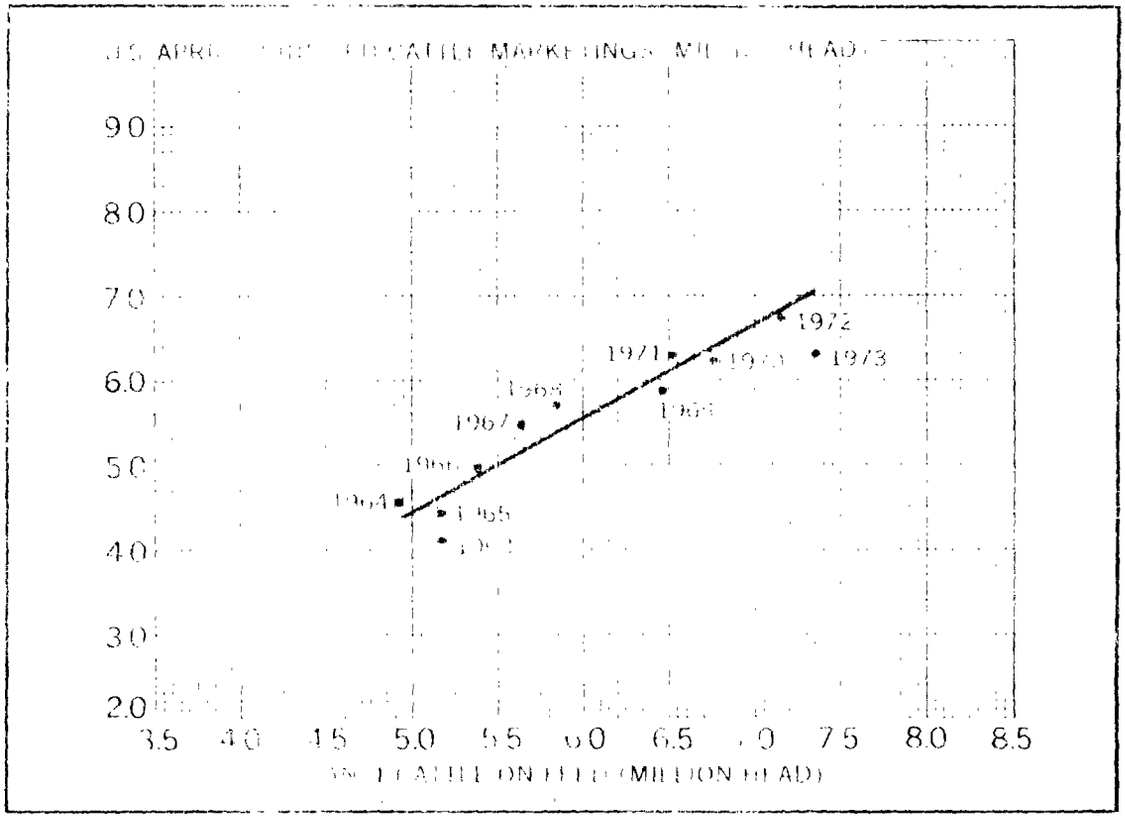
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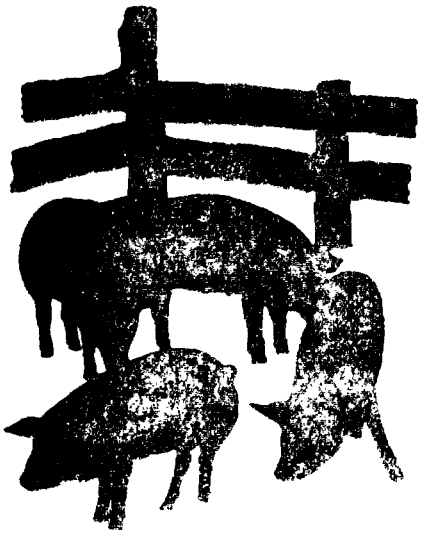
Statistical Reporting Service



HOG SLAUGHTER: DO IT YOURSELF FORECASTS

Starting with SRS' *Hogs and Pigs* report, any hog producer in the Nation can make his own projection of hog slaughter in the coming month.

With the help of a couple of charts, we'll show you how to take the December *Hogs and Pigs* report and use it to gauge potential market supplies during December-February and March-May.

Your Data Base

SRS' quarterly *Hogs and Pigs* reports will give you much of the data you need for making slaughter forecasts up to 6 months hence: an inventory of breeding and market hogs in the major hog-producing States (especially important, a breakdown of the market hogs by weight classes).

These quarterly reports are the major data sources for forecasters in both Government and industry who project future hog supplies.

The summary pages of each report will give you a feel for the national and regional supply situations in the hog industry.

Charting Prospective Slaughter

One of the approaches to forecasting future hog slaughter involves selected data in the *Hogs and Pigs* report and some plotting on charts shown on pages 3 and 4.

These charts show the past relationships between the number of hogs in two different weight groups as of June 1 and December 1 in the Nation and the level of commercial hog slaughter in December-February, March-May, June-August, and September-November.

Hogs gain about 1 to 1½ pounds a day from birth to slaughter. The commercial slaughter market weight for hogs averages about 240 pounds—which means that December-February supplies will rest mainly on the number of hogs weighing 120 or more pounds as of December 1. March-May marketings will come mainly from the 120-pound-and-under group.

(The table on page 2 gives the approximate marketing schedule for the various weight groups throughout the year.)

For forecast marketings for the December-February quarter, add up the number of market hogs in the 180-pound-plus weight group as of December 1 in the United States. The data will be in the December *Hogs and Pigs* report.

Next, pinpoint this total on the horizontal grid at the bottom of the December-February marketings chart (top page 3). From there, measure the distance to the diagonal line to read off the probable level of the December-February commercial slaughter.

Here's an illustration:

Suppose on December 1 there were 2 million hogs in the 120-to-179-pound weight group; 6 million in the 180-to-219-pound group; and 2 million in the 220-pound-plus group.

Your combined total would be 17 million head, which you would pinpoint on the horizontal line indicating the number of December 1 market hogs weighing 120 pounds or more.

From that point draw a straight line up to the diagonal and read off the forecasted level of December-February marketings. You should get between 19.2 and 19.6 million head.

You can forecast March-May slaughter in exactly the same way—except that the weight classes to be totaled here are the under-60-pound and the 60-to-119-pound weight groups. Also, do your plotting on the chart at the bottom of page 3, which relates to March-May supplies.

In March and September, the *Hogs and Pigs* report covers only the 14 major hog-producing States. Therefore, some upward adjustment in the inventory numbers to a probable total for all 50 States needs to be made. These 14 States had 86 percent of the U.S. total on December 1, 1973.

Adjust for Judgment Factors

You can see that the charts on page 3 also include numbers and dots above and below the diagonal lines.

These dots indicate the years and actual marketings in the December-February and March-May quarters during the past decade while the diagonal line indicates the average for 1964-72. The distance the dots are from the lines show how wide the annual deviations were from the 9-year average.

There's usually a logical explanation for each variation—or more likely several explanations.

A case in point was last year when a host of unprecedented conditions greatly distorted traditional marketing patterns beginning with spring marketings.

Weight gains during 1973 were much slower than usual—resulting from adverse weather during the winter and spring, reduced feeding of proteins, and the feeding of some poor

THESE LITTLE PIGGIES GO TO MARKET SRS' slaughter reports indicate most pigs go to market 5 to 7 months after they're born, if weight gains are close to the average of 1 to 1½ pounds daily. The table below shows the approximate slaughter period for hogs in the various weight classes at the start of the December and June quarters, when data are available for the entire United States.

December 1 weights	
220 pounds and over	First week of December
180 to 219 pounds	December into early-January
120 to 179 pounds	Early January through February
60 to 119 pounds	March through mid-April
Under 60 pounds	Mid April through June

June 1 weights	Slaughter period
220 pounds and over	First week of June
180 to 219 pounds	June
120 to 179 pounds	July into early August
60 to 119 pounds	Early August through September
Under 60 pounds	October through December

quality corn from the 1972 crop. Low slower gains lengthened the time it took for hogs to reach market weight.

On top of this delay, producer, packer buyer, and consumer reactions to price freezes were additional disruptive factors in the marketing system. Most producers feed animals to heavier weights, thus slowing the movement of animals through the production and marketing system.

Quite obviously, judgment plays a part in forecasting future marketings and when plotting your charts you may want to adjust your forecast up or down depending on what you think production or market prices portend.

High prices usually encourage producers to market at lighter weights, indicating the number slaughtered might be greater than usual.

Conversely, in a period of declining prices, producers tend to hold hogs a little longer in hopes prices will get a little better. The upshot is usually an increase in average hog weights and perhaps fewer than normal hogs slaughtered in one particular quarter.

But keep in mind, hogs delayed in one period must eventually come to market for sale. In order to keep tabs on this movement, a close look at the inventory by weight groups is necessary each quarter. By comparing current numbers to previous years and previous quarters, some conclusions might be drawn as to how the "porcine assembly line" is moving.

Intentions—And How to Handle Them

Each *Hogs and Pigs* report includes a paragraph on what producers say they plan in the way of sow farrowings in the coming quarter. If these intentions materialize, they are generally a pretty good indicator of supplies for 6 to 12 months later.

Always remember, though, the *intentions report reflects* industry conditions at one point in time. Should these conditions change, producers might alter their production plans dramatically.

How Forecasting Can Work For You

The relatively simple charting described in this article can help a farmer get a perspective on the hog supply situation in the coming months. And this may help you time your own marketings to get the very best possible price advantage.

For instance, if you foresee a big boost in marketings in the near future and you've got hogs nearing market weight, you might want to move them to market before the crowd gets there and prices sag.

And it's a sure thing that the better your knowledge of the overall hog supply situation, the better your position is going to be in marketing your product.

MAKING HOG ESTIMATES

Producing and selling hogs for a profit takes skill . . . and a little bit of luck. The luck part may be out of the farmer's hands, but he can improve his managerial skills with solid information about output and marketing plans of the Nation's hog industry.

The U.S. Department of Agriculture's Statistical Reporting Service prepares a full series of estimates of the hog and pig inventory, sows farrowed, pig crop size, the number of sows expected to farrow, and other supply indicators.

Making these estimates accurately reflect conditions and prospects takes the combined efforts of hog producers and USDA statisticians.

Estimates start with information from a representative group, or sample, of producers. Some are scientifically selected from master lists of names, others are contacted when certain land areas are chosen for detailed agricultural fact-gathering programs.

Additionally, special efforts are made to get information from many large hog producers since their activities can have a significant impact on the industry.

The survey data collected by mail questionnaires, phone interviews, and personal contacts are summarized in each State office and summaries are sent to USDA in Washington, D.C. for review and official release. All estimates are prepared under security conditions to prevent advance release. The public and news media get copies at scheduled times.

Reliable hog information helps bring stability to the market and cuts uncertainty about potential production and supplies. USDA estimates help slash rumors and forecasts offered by special interest groups.

Hog estimates are working tools for hog producers.

(Note: All SRS reports are available from the State Agricultural Statistician or SRS Information, U.S. Department of Agriculture, Washington, D.C. 20250.)