UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN
COLLEGE OF AGRICULTURE
COOPERATIVE EXTENSION SERVICE
CIRCULAR 1081

THE ILLINOIS BEEF PERFORMANCE TESTING PROGRAM

performance, carcass, pedigree and eyeball evaluations

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THE ILLINOIS BEEF PERFORMANCE TESTING PROGRAM

This program is conducted jointly by county extension advisers, area livestock advisers, and extension livestock specialists in the Department of Animal Science, University of Illinois at Urbana-Champaign. If you are interested in finding out more about this program, contact a member of any of these groups.

Almost all of the purebred beef registry associations have a performance testing program. Purebred breeders are urged to participate in their association's program. Cooperative Extension Service personnel will be happy to help obtain records for such programs.

Facilities are available at Urbana to process all records from commercial as well as purebred herds. A modest fee is charged for this service. There is a real advantage in having performance records as part of your official records at the breed association office.

If the records are processed at Urbana, we will furnish you with an extra copy, on request, that you can forward to your breed association office. If you prefer, you may have all of the processing done at your breed association office. Where you have your records processed will in no way affect the cooperation you will receive from Extension Service personnel.

Contents

This circular was prepared by G. E. Ricketts, Associate Professor, B. A. Weichenthal, Associate Professor, and H. G. Russell, Professor of Animal Science Extension.

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Urbana, Illinois July, 1973

Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. JOHN B. CLAAR, *Director*, Cooperative Extension Service, University of Illinois at Urbana-Champaign.

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THE VALUE OF PRODUCTION RECORDS AND PERFORMANCE TESTING

HERD IMPROVEMENT should be one of the major objectives of all commercial and purebred cattlemen. Such factors as increasing the weaning and yearling weights and improving the quality of the calves produced should be of major concern. A sound breeding, management, and selection program is needed for any improvement, and this is where accurate records come into play.

Properly kept production records can be very useful to:

- Help measure herd productivity.
- Evaluate bull performance.
- Identify high-producing cows.
- Help cull out low-producing cows.
- Indicate differences in the gaining ability of calves.
- Help select herd replacements.
- Provide permanent, yearly records.
- Supplement what can be seen with the naked eye and retained in the memory.

The performance of individual cows varies greatly in most herds. The table at the bottom of this column shows the average, 205-day adjusted weights (steer equivalent) of the calves from the top and bottom 20 cows in four herds enrolled in the Illinois Beef Performance Testing Program.

Considerable variation can also exist in the performance of calves from different sires used within the same herd. The first table in column two shows actual records from four Illinois herds enrolled in the Performance Testing Program, indicating these sire differences. Multiplying the difference in sire averages by the current feeder-calf price for choice calves will provide the figure for the increased value of calves from the bull with the high sire average.

The heritability of a particular trait indicates how rapidly improvement can be made through selection for that trait. Heritability estimates of less than 20 percent are usually considered low; those from 20 to 40 percent, medium; and those above 40 percent, high.

Variation in Beef Cow Performance in Four Illinois Herds Enrolled in the Beef Performance Testing Program

No. of cows	Herd averages (205-day adjusted weights)	Average 205-day adjusted weight		Difference
		Top 20 cows	Bottom 20 cows	
		pounds		
116	528[a]	599	447	152
297	485[a]	574	380	194
117	430[a]	494	365	129
81	384[b]	443	330	113

[a] Creep feed. [b] No creep feed.

Herd Sire Production Differences in Four Illinois Herds Enrolled in the Beef Performance Testing Program

Herd	No. of bulls used	Herd averages (205-day adjusted weights)	Average 205-day adjusted weight of calves by sire		
			Low sire	High sire	Difference per calf
			pounds		
1	4	405	373	413	40
2	4	442	417	477	60
3	7	495	464	528	64
4	4	420	387	467	80

Heritability Estimates (Percentages) for Beef Cattle

Calving interval	10	Conformation (grade)	
Weaning weight	30	Weaning	25
Gain efficiency	40	Slaughter	40
Maternal ability	40		
Feedlot gain	45	Carcass (characteristics)	
Birth weight	40	Carcass grade	40
Final feedlot weight	60	Fat thickness	45
Susceptibility to cancer eye	30	Loin-eye area	70

From this information, you can see that the major production factors emphasized in the performance testing program are medium to high in heritability.

PURPOSES OF THE ILLINOIS BPT PROGRAM

The primary purpose of this program is to provide information that will be valuable to cooperators in selecting and culling their cattle, and in improving the production of their cow herds. The program is not intended to encourage competition between herds, since conditions vary from farm to farm; but it will help develop standards for comparison if breeders are interested in doing so. Major emphasis is given to:

1. Beef cow performance, as evidenced by
   a. Weaning weight of calves.
   b. Evaluation scores at weaning.
2. Post-weaning performance of calves.
3. Carcass quality at slaughter.
4. Herd sire performance, as measured by the three standards just given.

All of the characteristics measured in the performance testing program are of medium or high heritability, as noted before. Real progress can be made in improving these if a good selection program is followed.

This is a highly productive, Polled Hereford cow. The five calves she has weaned in five years had an average 205-day adjusted weight of 631 pounds. The 365-day adjusted weights of her four sons averaged 1,079 pounds.

The success of the BPT Program depends on good cooperation between extension advisers and herd owners. Here, an extension adviser is discussing the weights and the evaluation scores of calves with a herd owner.

Performance records will not replace the good judgment cattle breeders have used in the past in selecting replacement cattle. However, such records will supply facts about weaning weights and gaining ability that should provide a better measure of productivity.

HOW THE PERFORMANCE TESTING PROGRAM OPERATES

Responsibilities of the Herd Owner

1. Contact your extension adviser at least a month before you plan to wean your calves in order to set up a date for weighing and evaluating them. Also, contact him several weeks before your post-weaning tests will be completed. All of the needed record forms can be obtained from the extension adviser's office.

2. Be sure the calves are at least 150 days of age but not more than 270 days old when they are weighed for their weaning record. This is necessary for calculating the official 205-day weight.

3. Make sure each cow, herd sire, and calf is identified by some positive means.

4. Keep an accurate calving record, including the calf's identification, birth date, dam, sire, and sex.

5. Weigh and evaluate all calves that are old enough, not just a few of the best ones.

6. Arrange for scales and facilities to weigh the cattle accurately.

7. Fill out the Calf Crop Record Work Sheet, the Post-Weaning Record Work Sheet, or both prior to the day the cattle are to be weighed. Complete all of the columns except those for the actual weight, evaluation scores, and grade. New cooperators who are filling out the Calf Crop Record Work Sheet for the first time should also leave blank the space marked "Herd Code."

8. Be certain that the cattle are at least 330 days of age and that they have been on test at least 140 days when the Post-Weaning Record is completed. This is required in order to calculate the official 365-day weight.

9. Pay the processing fee for each animal that is weighed and evaluated. Make checks payable to the University of Illinois.

Responsibilities of the County Extension Adviser

1. Keep a complete file and a good supply of BPT materials in the office, including copies of the current

- Circular on the Illinois BPT Program.
- Calf Crop Record Work Sheet.
- Post-Weaning Record Work Sheet.
- Weighing and Evaluation Work Sheet.
- Outline of the Seven Body Types.
- Carcass Quality Work Sheet.
- Individual Cow Performance Record.
- Sire Evaluation Record.
- Bull Code Number Record.
- Cow Code Number Record.

2. Explain the program to prospective cooperators in the county, and help cooperators evaluate their records.

3. Arrange with the cooperator for a date on which to weigh his calves and/or yearlings. Make arrangements for a committee or an individual to do the official evaluation of the cattle.

4. Check the completed Calf Crop Record Work Sheets and the Post-Weaning Record Work Sheets to be sure all of the information needed is shown, then send these work sheets to the Livestock Extension Specialists' Office — 326 Mumford Hall, Urbana 61801. Also, collect the processing fee and send it along

with the completed work sheets. As noted before, all checks must be made payable to the University of Illinois.

Responsibilities of the Area Livestock Adviser

1. Conduct meetings and conferences to acquaint breeders with the Illinois BPT Program and to help cooperators evaluate their records.
2. Help weigh and evaluate cattle and help assemble records. The latter is particularly useful to those whose herds are just starting in the program.
3. Make summaries of records for your area when it seems useful to do so.
4. Keep a good supply of all record forms on hand.

Responsibilities of the State Livestock Specialists

1. Conduct meetings and conferences to acquaint breeders with the Illinois BPT Program and to help cooperators evaluate their records.
2. Help weigh and evaluate cattle, when possible; also, help assemble records.
3. Furnish the record forms and other BPT materials.
4. Update the Illinois BPT Program whenever necessary.
5. Supervise the record-processing at Urbana; also, see that the herd owner, county extension adviser, and area livestock adviser receive copies of the processed records.
6. Maintain a file containing a copy of the processed records of all of the cooperators in the Illinois Beef Performance Testing Program.
7. Make summaries of data on a routine basis.
8. Send a quarterly information letter about the program to each of the cooperating herd owners and to all appropriate Extension Service personnel.

Weaning-Time Phase

This is the first part of the Illinois BPT Program.

1. **The herd owner needs to fill out the Calf Crop Record Work Sheet prior to the day the calves are to be weighed and evaluated.** A sample of this form is shown on page 8. All columns except those for the actual weight, evaluation scores, and grade are to be completed.

2. **At weaning, each calf must be weighed separately and the weight must be recorded on the Weighing and Evaluation Work Sheet.** (See page 7.) We recommend weighing the calves at an average age of about seven months. No weight or weight-ratio calculations will be made for calves under 150 or over 270 days of age. This edit system is part of the computer program for processing the weaning records. However, the information from the Calf Crop Record Work Sheet will be listed on the Processed Calf Crop Record for all calves outside the accepted age range. The calculated, 205-day weights on cattle outside the 150- to 270-day range generally will be less accurate than the 205-day weights calculated for calves inside this range.

3. **The calves should be evaluated when they are weighed.** Whenever possible, a three-man committee is used; otherwise, one person is acceptable. Each member of the committee records his evaluation scores on a separate Weighing and Evaluation Work Sheet. Major emphasis is given to the evaluation for body type and muscling. The evaluation of the calf's feeder grade is now an optional part of the BPT Program.

Body type score. This evaluation became part of the program as of September 1, 1971. The body type scores are made on a 1-through-7 basis (see page 4). These scores apply across the cattle industry, not just within each breed. As a general rule, most of the animals of the English breeds will be in the 1-to-5 range. For Charolais and other breeds of similar size, the scores will usually be from 3 to 7 (refer to page 4).

Muscle score. This evaluation was also added to the program as of September 1, 1971. The basis used is 1 through 7:

1 an exceptionally thin calf (a walking skeleton).	4 average muscling.
2 very light muscled.	5 heavy muscled.
3 light muscled.	6 very heavy muscled.
	7 double muscled.

Feeder calf grade. This is an optional part of the program now, as noted previously. The major emphasis is on body type and muscle evaluation. If grades are used, the cattle would be ranked as follows:

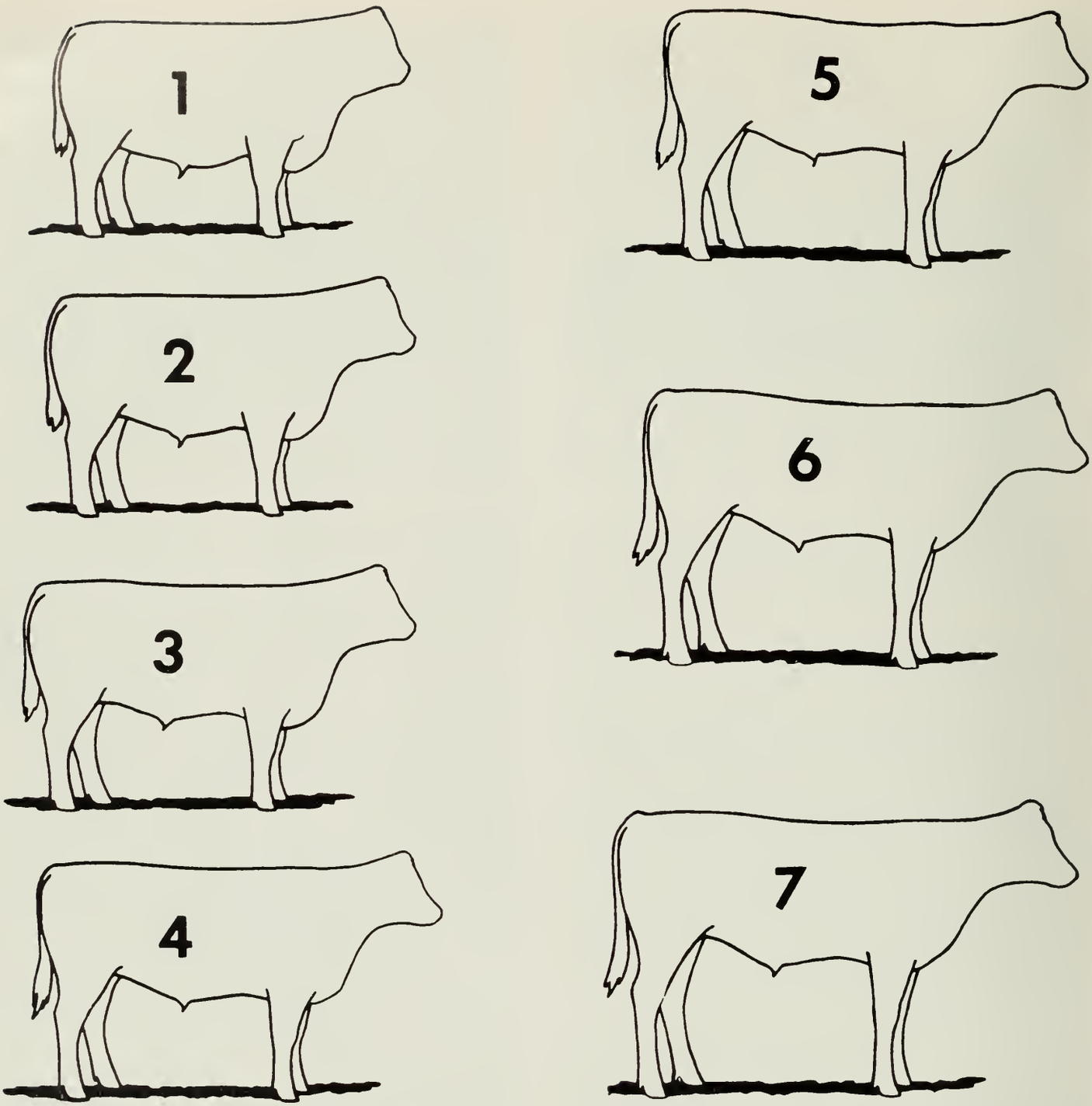
Feeder calf grades

Prime 17, 16, 15	Good 11, 10, 9
Choice.....14, 13, 12	Standard 8, 7, 6
Utility.....5, 4, 3	

If the cooperator does not want a feeder calf grade, a zero can be placed in the grade column; or this space can be used for something else, for example:

- An evaluation score for condition.
- An evaluation score for structural soundness.
- A code for calving difficulty.
- Some other item the herd owner might want to code in numerically.

4. **The evaluation scores and the grades, if used, are averaged to the nearest whole number and then transferred to the Calf Crop Record Work Sheet, along with the weights.** The extension adviser forwards these completed sheets to Urbana, along with the processing fee.



These outlines represent the seven body type scores being used in the Illinois Beef Performance Testing Program. They were developed at the University of Wisconsin to represent the range in body types of cattle involved in their body type research projects. In general, cattle of the English breeds will be covered by body types 1 through 5. The largest Charolais cattle or similar size cattle of other breeds will require the use of body types 6 and 7.

Post-Weaning Phase

During the second phase of the BPT Program, weaned calves should be group-fed for at least 140 days in order to test their ability to gain. They do not have to be full-fed, but all of the calves in a group should receive the same ration. Thus, a group of sale or replacement bulls would probably be fed a higher-energy ration than the one given to a group of replacement heifers.

The test period starts on the date the weaning weights are obtained. The actual weaning weight is used as the initial weight on test. Using the weaning weight as the starting weight for this test period makes it possible to account for all periods in the animal's life up to the yearling weight.

Official 365-day weights or weight ratios are calculated only for animals that are at least 330 days of age and that have been on test at least 140 days. However, information from the Post-Weaning Record Work Sheet along with the average daily gain on test is listed on the Processed Post-Weaning Record for all animals that do not meet the previous requirements.

The herd owner should fill out the Post-Weaning Record Work Sheets prior to the day the cattle are to be weighed off-test and evaluated. All columns are to be completed except those for the off-test weight, evaluation scores, and grade.

At the end of the post-weaning feeding period, the cattle are to be weighed and evaluated. Again, the evaluation should be done by a committee of three when possible; however, using only one person is satisfactory.

After the evaluation scores and the grades, if used, have been averaged to the nearest whole number, transfer this information to the Post-Weaning Record Work Sheets along with the off-test weights. Your extension adviser will forward these completed work sheets to Urbana, along with your processing fee. Checks must be made payable to the University of Illinois.

Carcass Evaluation Phase

This is the third phase of the BPT Program. Weaning weights, evaluation scores, and post-weaning performance may all be satisfactory; but it is also important to know whether your herd can produce trim, meaty, high-grading carcasses at normal market weight. This represents another measure of herd performance. Carcass evaluation of the progeny is also a good measure of sire performance. We recommend using a progeny-testing program on the sire's first calf crop.

Select eight to twelve cattle for slaughter. The steers should weigh at least 975 pounds; the heifers, at least 875 pounds — with enough finish to grade Choice. The spread between the slaughter weights of a group of heifers or steers should be less than a hundred pounds. No more than half of the test group should be heifers. If the necessary number of cattle is not available in your bull's first calf crop, slaughter others from his second one. The simplest way to obtain complete and accurate carcass data is to make use of the federal grading service.

USDA BEEF CARCASS EVALUATION SERVICE. As a service to the livestock industry, the Livestock Division of the USDA's Consumer and Marketing Service has developed a program for certifying detailed carcass information from specific slaughter cattle. Many beef cattle producers, breed associations, agricultural experiment stations, and others interested in the improvement of beef cattle have asked for this type of service.

The USDA's new carcass evaluation service is based on positive identification of the live animal and of its carcass; therefore, this service is suitable for use in sire evaluation and in other performance testing programs. As part of the carcass evaluation service, USDA meat graders will provide any of the information called for on the Beef Carcass Evaluation Report (shown on page 6). When less-detailed information is requested, that may be furnished on a regular grading certificate.

How to apply. When a producer wants to use this service, he arranges to have his cattle slaughtered in a federally inspected packing plant, or in a plant inspected by the state that is approved to receive the federal meat-grading service. The producer obtains the packer's permission to have the carcass evaluated by a federal meat grader.

The producer and the packer decide which of them is to be billed for the cost of the evaluation service. Then, the producer requests the carcass evaluation service from the nearest field office of the USDA Meat Grading Branch. (See page 6.) When requesting the service, the producer tells the Meat Grading Branch office where the cattle are to be slaughtered, the factors he wishes to have certified, the number of animals involved, the date and the approximate time of slaughter, and who is to be billed for the service.

Identifying the cattle. The producer can identify his cattle by using metal or plastic ear tags, ear tattoos, back tags furnished by the Meat Grading Branch, or any similar identification system approved by the local meat grading supervisor. Positive identification of the carcass depends entirely on properly identifying the animal before it is slaughtered. This requires close cooperation among the packer, the producer, and the grader concerning the date and time of slaughter. The producer must attach identification tags securely, so they will not be lost while the cattle are being handled and shipped to the slaughtering plant. Back tags must be attached high on the right shoulder.

The Meat Grading Branch furnishes the producer with three copies of a form on which to list the identifying numbers for each animal. One copy is used as a check list at the time of slaughter, another copy is for the meat grader, and the remaining copy is returned to the producer with the official records.

Maintaining identity. In federally inspected packing plants, a federal meat inspector transfers the identity of the live animal to its carcass. In state-inspected plants, this may be done by a federal meat grader or by a meat inspector.

FORM LS-106
(3-1-66)

BEEF CARCASS EVALUATION REPORT

U. S. DEPARTMENT OF AGRICULTURE
CONSUMER AND MARKETING SERVICE
LIVESTOCK DIVISION

USDA NO.	OTHER IDENTIFICATION	BREED *(As supplied by owner)*	MEAT GRADING CERTIFICATE NO.

NAME OF PRODUCER	NAME OF PACKER

1 QUALITY GRADE — BY THIRDS

A. CONFORMATION, MARBLING, AND MATURITY FACTORS

CONFORMATION	DEGREE OF MARBLING	MATURITY (APPROXIMATE AGE SHOWN) *(Circle one)*
		A *(Under 30 mos.)* B *(30 to 48 mos.)* C D E *(Over 48 mos.)*

B. OTHER FACTORS

TEXTURE OF MARBLING *(Check one)*

☐ FINE ☐ MEDIUM ☐ COARSE

COLOR OF LEAN *(Check one)*

☐ VERY LIGHT CHERRY RED ☐ CHERRY RED ☐ SLIGHTLY DARK RED ☐ MODERATELY DARK RED ☐ DARK RED ☐ VERY DARK RED ☐ BLACK

FIRMNESS OF LEAN *(Check one)*

☐ VERY FIRM ☐ FIRM ☐ MODERATELY FIRM ☐ SLIGHTLY SOFT ☐ SOFT ☐ VERY SOFT ☐ EXTREMELY SOFT

TEXTURE OF LEAN *(Check one)*

☐ VERY FINE ☐ FINE ☐ MODERATELY FINE ☐ SLIGHTLY FINE ☐ SLIGHTLY COARSE ☐ COARSE ☐ VERY COARSE

2 YIELD GRADE — BY TENTHS

YIELD FACTORS

CARCASS WEIGHT *(From packer's hot wt. tag)*	FAT THICKNESS *(Inches, nearest 1/10 in.)*		RIB EYE AREA *(from Grid)*	KIDNEY, PELVIC AND HEART FAT *(As percent of carcass weight)*
LB.	IN. ACTUAL	IN. ADJUSTED	SQ. IN. BY TENTHS	PCT. ESTIMATED

(DATE) (SIGNATURE OF GRADER)

Evaluating and reporting. After the carcasses have been thoroughly chilled, the meat grader evaluates them for each of the factors requested by the producer, recording these data on the Beef Carcass Evaluation Report, or on another form used by the Meat Grading Branch if the complete service is not requested. Copies are furnished to the person requesting the service.

Cost. Charges for the carcass evaluation service are made at the regular rate for grading meat, plus any expenses incurred for travel or for transferring the identification of the live animal to the carcass.

USDA Meat Grading Service field offices. There is only one of these offices in Illinois. The address is Room 10, 536 South Clark Street, Chicago 60605 — telephone 312/353-5751. Two other field offices are located at 800 South Chambers Street in Sioux City, Iowa 51107 — telephone 712/252-0259; and at 760 Livestock Exchange Building, Kansas City Stockyards, Kansas City, Missouri 65102 — telephone 816/374-5331.

CARCASS DATA SERVICE. The Livestock Division of the USDA's Agricultural Marketing Service is developing a program known as the Carcass Data Service, which is currently a national pilot project. Under this program, the beef cattle owner who wants to obtain carcass information would purchase specially designed and numbered ear tags. In federally inspected plants where meat grading service is available, the grader should automatically report carcass data on all cattle bearing these special tags. Owners would purchase the ear tags from an agency authorized to distribute them. This agency would maintain records to assure the return of the carcass data and the collection of the service charges.

Interested producers should contact one of the extension livestock specialists at the University of Illinois in Urbana-Champaign for details about the program. The report to be issued by the Carcass Data Service is expected to include:

- Slaughter date
- Ear-tag number
- Hot carcass weight
- Conformation grade
- Maturity
- Degree of marbling
- Quality grade
- Fat thickness (in tenths of an inch)
- Rib-eye area (in square inches)
- Kidney, pelvic, and heart fat (percentage)
- Yield grade

WORK SHEETS AND RECORD FORMS USED IN THE BPT PROGRAM

These are shown on the following pages. All of them can be obtained from the county extension adviser or the area livestock adviser.

WEIGHING AND EVALUATION WORK SHEET

Illinois Beef Performance Testing Program

Owner John Doe County Adams

Date 11-17-71 Grader Joe Green

Grade
Prime—17, 16, 15
Choice—14, 13, 12
Good—11, 10, 9
Standard—8, 7, 6
Utility—5, 4, 3

Body type score
1 = (very short & dumpy)
2
3
4
5
6
7 = (very large framed)

Muscling score
1 = exceptionally thin calf (walking skeleton)
2 = very light muscled
3 = light muscled
4 = average muscling
5 = heavy muscled
6 = very heavy muscled
7 = double muscled

Sex code
1 = bull
2 = heifer
3 = steer

Calf no.	Sex code	Weight	Body type score	Muscling score	Grade	Calf no.	Sex code	Weight	Body type score	Muscling score	Grade
20	1	740	4	5	15	27	3	480	3	3	12
22	2	645	4	4	14	28	2	400	2	5	14
24	2	540	3	5	15	21	3	575	3	4	14
29	2	450	4	6	16	31	2	450	3	5	15
25	1	570	3	4	14	30	3	485	4	4	14
26	1	580	4	5	15	32	3	420	3	4	13

This work sheet is used to record the weights and evaluation scores of calves at weaning time, or of cattle completing a Post-Weaning Record.

CALF CROP RECORD WORK SHEET

Illinois Beef Performance Testing Program

County Adams Breed or breed crosses Angus

Herd code 001–0001 (1-7) Month 11 (8-9) Year 71 (10-11)

12 John Doe (Owner) R.R.#1 (Street or Rural Route) Doeville (City), Illinois (State) 66643 (Zip Code 79)

Calf no. (12-16)	Sex code (17)	Sire no. (18-22)	Dam no. (23-27)	Age of dam (28-29)	Breed of sire (30-31)	Breed of dam (32-33)	Birth date Mo. (34)	Birth date Day (—)	Birth date Yr. (39)	Date weighed Mo. (40)	Date weighed Day (—)	Date weighed Yr. (45)	Actual weight (46-49)	Mgt. code (50)	Body type score (51)	Muscling score (52)	Grade (53-54)
20	1	1	10W	10	1	1	3	4	71	11	17	71	740	3	4	5	15
22	2	1	4	10	↓	↓	3	10	↓	↓	↓	↓	645	↓	4	4	14
24	2	1	T3W	9			3	16					540		3	5	15
29	2	1	9	4			5	10					450		4	6	16
25	1	2	20	6			4	3					570		3	4	14
26	1	2	11R	10			4	10					580		4	5	15
27	3	2	5	5			4	25					480		3	3	12
28	2	2	2	6			4	29					400		2	5	14
21	3	1	12	11			3	8					575		3	4	14
31	2	2	14T	9			5	14					450		3	5	15
30	3	1	R15	10			5	10					485		4	4	14
32	3	2	A8	4	↓	↓	5	26	↓	↓	↓	↓	420	↓	3	4	13

This form, when completed, is sent to the UI Livestock Extension Specialists at Urbana-Champaign. It provides the information necessary to produce the processed Calf Crop Record.

Management Code
0 = No creep
1-7 = Months of creep feeding and/or grain feeding prior to weighing
9 = Nurse cow

Sex Code
1 = Bull
2 = Heifer
3 = Steer

BULL CODE NUMBER RECORD

Illinois Beef Performance Testing Program

Code no.	Bull's name, tattoo, or registration number	Code no.	Bull's name, tattoo, or registration number
1		28	
2		29	
3		30	
4		31	
5		32	
6		33	
7		34	
8		35	
9		36	
10		37	
11		38	
12		39	
13		40	
14		41	
15		42	
16		43	
17		44	
18		45	
19		46	
20		47	
21		48	
22		49	
23			
24			
25		52	
26		53	
27		54	

Use this sheet if you identify your bulls by a name or number larger than five places. The number in the box is the number you list on the Calf Crop Record Work Sheet in the sire column. List your bulls on this sheet and keep it with your permanent herd records. Report each bull by the same number each year.

COW CODE NUMBER RECORD

Illinois Beef Performance Testing Program

Code no.	Cow's name, tattoo, or registration number	Code no.	Cow's name, tattoo, or registration number
1		28	
2		29	
3		30	
4		31	
5		32	
6		33	
7		34	
8		35	
9		36	
10		37	
11		38	
12		39	
13		40	
14		41	
15		42	
16		43	
17		44	
18		45	
19		46	
20		47	
21		48	
22		49	
23			
24			
25		52	
26		53	
27		54	

Use this sheet if you identify your cows by a name or number larger than five places. The number in the box is the number you put under "dam" in the Calf Crop Record Work Sheet. List all your cows on this sheet and keep it with your permanent herd records. Be sure each cow is reported by the same number each year.

POST-WEANING RECORD WORK SHEET

Illinois Beef Performance Testing Program

County: Adams — Breed or breed crosses: Angus

Herd code: 001–0001 (1-7) — Month: 4 (8-9) — Year: 72 (10-11)

12 John Doe (Owner) — R. R. #1 (Street or Rural Route) — Doeville (City), Ill. (State) — 66643 (Zip Code 79)

Calf no. 12-16	Sex code 17	Sire number 18-22	Breed of sire 23-24	Breed of dam 25-26	Birth date Mo. 27	Day	Yr. 32	Date on test Mo. 33	Day	Yr. 38	Date off test Mo. 39	Day	Yr. 44	Weight on test 45-58	Weight off test 49-52	205-day wt., adj. for age of dam 53-56	Body type score 57	Muscling score 58	Grade 59-60
20	1	1	1	1	3	4	71	11	17	71	4	26	72	740	1,172	603	4	6	16
25	1	2			4	3								570	962	519	3	4	14
26	1	2			4	10								580	998	544	3	5	15
22	2	1			3	10								645	909	537	4	4	14
24	2	1			3	16								540	820	462	3	5	15
28	2	2			4	29								400	600	404	2	4	13
29	2	1			5	10								450	754	502	5	6	16
31	2	2	↓	↓	5	14	↓	↓	↓	↓	↓	↓	↓	450	690	486	3	5	15

This form, when completed, is sent to the UI Livestock Extension Specialists at Urbana-Champaign. It provides the information necessary to produce the processed Post-Weaning Record. Most of the information needed to complete this work sheet can be obtained from the Calf Crop Record. The "on-test" weight is the actual weight at weaning time that appears on the Calf Crop Record.

Sex code: 1 = bull, 2 = heifer, 3 = steer.

Calf Crop Record Work Sheet. Please follow the instructions given here carefully when you are filling out this form.

County, and breed or breed crosses. These must be written in.

Herd code. Be sure to list all seven numbers. If the herd is a new one in the Illinois BPT Program, leave this space blank; a herd code number will be assigned by the extension livestock specialists in Urbana.

Month and year. The information called for at the top of the sheet refers to the month and year in which the calves were weighed. Do not spell out the month; list it numerically — for example, 10 instead of October. For the year, list only the last two digits — 73 for 1973.

Address. This must be complete, including the Zip Code.

Calf, sire, and dam number. The maximum is five places. Within that maximum, any combination of numbers and letters can be used; or, five numbers or five letters.

Sex code. The code is 1 for a bull, 2 for a heifer, and 3 for a steer.

Age of dam at calving. This entry should be made as follows:

Two-year-olds, from one year and nine months to two years and nine months.

Three-year-olds, from two years and nine months to three years and nine months.

Four-year-olds, from three years and nine months to four years and nine months, and so on.

Breed of sire and breed of dam. Two places are allowed in each column. Animals that are seven-eighths or more of a particular breed should be listed as straightbred. These breed codes went into effect in the BPT Program on September 1, 1971:

1 Angus	E Simmental
2 Hereford	F Limousin
3 Polled Hereford	G Murray Grey
4 Shorthorn	H Galloway
5 Polled Shorthorn	J Maine-Anjou
6 Charolais	K Devon and South Devon
7 Red Angus	L Santa Gertrudis
8 Red Poll	M Lincoln Red
9 Brangus	N Hays Converter
A Holstein	P Chianina
B Brown Swiss	Q Flechvieh
C Guernsey, Jersey, or Ayrshire	R Blonde d'Aquitaine
D Milking Shorthorn	S Brahman

For example, you would put a "1" in the Breed of Sire column and a "1" in the Breed of Dam column if you have purebred Angus cattle. If you have crossbred cattle and used Simmental semen to breed Charolais-Angus (crossbred) females, put an "E" in the Breed of Sire column and a "61" in the Breed of Dam column. When the sire or dam is a crossbred, be sure to list the sire breed of the cross first. A "61" in the Breed of Dam column would mean that the dam was sired by a Charolais bull and was out of an Angus cow.

Birth date. Show the month, day, and year. The entry for a calf born on March 10, 1972, would be "3-10-72."

Date weighed. Again, list the month, day, and year in digital form (same as for birth date). If all of the cattle were weighed on the same day, enter the date once. It is not necessary to repeat the date for each calf.

Actual weight. Give this figure as of the day indicated in the previous column.

Management code. For this, enter a zero for no creep-feeding and 1 through 7 to show the number of months of creep- and/or grain-feeding prior to weighing. Thus, for a calf that received creep feed for three months before being weaned and weighed, a "3" should be entered under Management Code. A "1" should be entered for a calf that had no creep feed before weaning, but was not weighed until a month after being weaned and received grain during that month. A "9" means the calf was on a nurse cow.

Evaluation scores and grade. The body type, muscling, and grade scores should be averaged to the nearest whole number. If the calves were not evaluated or graded, put a zero in the appropriate column or columns.

Calf Crop Record (page 13). This is the processed record you receive at weaning time. It is calculated from the information you have submitted on the Calf Crop Record Work Sheet.

Individual Cow Performance Record (page 14). This provides a lifetime performance record for each cow in the herd. The information on the Calf Crop Record is transferred by the herd owner to the Individual Cow Performance Record sheet. After a herd has been on test for a few years, a study of these record sheets will show which cows are consistently among the top performers in the herd. NOTE: This form is available free at your county extension office.

Post-Weaning Record (page 15). It shows the performance data on your cattle from weaning time until approximately one year of age. This record is very useful in selecting bulls and heifers for herd replacements and for sale. Remember that the yearling weight has a high heritability. The entries made on this record are calculated from the information you submit on the Post-Weaning Record Work Sheet.

ILLINOIS BEEF PERFORMANCE TESTING PROGRAM

CALF CROP RECORD

HERD CODE NO.
001-0001

COUNTY
Adams

John Doe R.R. 1 Doeville, Ill. 66643

CALF NUMBER	SEX	SIRE NUMBER	DAM NUMBER	AGE OF DAM	BREED OF SIRE	BREED OF DAM	BIRTH DATE MO. DAY YR.	DATE WEIGHED MO. DAY YR.	AGE IN DAYS	ACTUAL WEIGHT	UN. ADJUSTED 205 DAY WEIGHT	205 DAY WEIGHT ADJUSTED FOR AGE OF DAM	205 DAY WEIGHT RATIO WITHIN SEX	205 DAY ADJUSTED WEIGHT	205 DAY ADJUSTED WEIGHT RATIO	MGT CODE	BODY TYPE SCORE	MUSCLE SCORE	GRADE
20	1	1	10W	10	1	1	03-04-71	11-17-71	258	740	603	603	109	573	113	3	4	5	15
22	2	1	4	10	1	1	03-10-71	11-17-71	252	645	537	537	112	563	111	3	4	4	14
24	2	1	T3W	9	1	1	03-16-71	11-17-71	246	540	462	462	97	485	95	3	3	5	15
29	2	1	9	4	1	1	05-10-71	11-17-71	191	450	478	502	105	527	104	3	4	6	16
21	3	1	12	11	1	1	03-08-71	11-17-71	254	575	478	502	100	502	99	3	3	4	14
30	3	1	R15	10	1	1	05-10-71	11-17-71	191	485	515	515	103	515	101	3	4	4	14
							Average by	sire	232	573	512	520	104	528	104		3.7	4.7	14.7
25	1	2	20	6	1	1	04-03-71	11-17-71	228	570	519	519	94	493	97	3	3	4	14
26	1	2	11R	10	1	1	04-10-71	11-17-71	221	580	544	544	98	517	102	3	4	5	15
28	2	2	2	6	1	1	04-29-71	11-17-71	202	400	404	404	85	424	83	3	2	5	14
31	2	2	14T	9	1	1	05-14-71	11-17-71	187	450	486	486	102	510	100	3	3	5	15
27	3	2	5	5	1	1	04-25-71	11-17-71	206	480	478	478	96	478	94	3	3	3	12
32	3	2	A8	4	1	1	05-26-71	11-17-71	175	420	480	504	101	504	99	3	3	4	13
							Average by	sire	203	483	485	489	96	488	96		3.0	4.3	13.8
							Average by	herd	218	528	499	505	100	508	100		3.3	4.5	14.3

The processed Calf Crop Record is prepared by computer at the University of Illinois at Urbana-Champaign. Copies are mailed to the herd owner, the Extension Adviser, and the Area Livestock Adviser. Another copy is filed at Urbana. If desired, a copy will also be sent to your national breed association office.

BREED CODE

1. Angus
2. Hereford
3. Polled Hereford
4. Shorthorn
5. Polled Shorthorn
6. Charolais
7. Red Angus
8. Red Poll
9. Brangus
A. Holstein
B. Brown Swiss
C. Guernsey, Jersey or Ayrshire
D. Milking Shorthorn
E. Simmental
F. Limousin
G. Murray Grey
H. Galloway
J. Maine-Anjou
K. Devon and South Devon
L. Santa Gertrudis
M. Lincoln Red
N. Hays Converter
P. Chianina
Q. Flechvieh
R. Blonde d'Aquitaine

SEX CODE

1. Bull
2. Heifer
3. Steer

MANAGEMENT CODE

0 = No creep
1-7 = Months of creep feed and/or grain feeding prior to weighing
9 = Nurse cow

INDIVIDUAL COW PERFORMANCE RECORD

Illinois Beef Performance Testing Program

Name Illinomere Queen 2 Herd or tattoo number 4032 Birth date 3-10-65

Sire 8 Dam 64 Date at first calving 4-10-67 Age at first calving 25 months

205-day adj. wt.	205-day adj. wt. ratio	Body type score	Muscling score	Grade	365-day adj. wt.	365-day adj. wt. ratio	Body type score	Muscling score	Grade
540	105	4	4	14	800	110	4	5	15

Remarks

Calving Record

Year	Calf no.	Sex code	Birth date	Sire no.	205-day adj. wt.	205-day adj. wt. ratio	Body type score	Muscl-ing score	Grade	365-day adj. wt.	365-day adj. wt. ratio	Body type score	Muscl-ing score	Grade
67	14	1	4-1	804	565	105	3	4	14	1,010	102	4	5	15
68	42	3	3-19	1	550	110	3	5	15	890	103	3	5	15
69	75	2	3-16	1	554	112	4	4	14	790	107	3	5	15
70	110	1	3-10	RA	590	117	5	5	16	1,125	120	5	5	16
71	145	2	3-24	RA	545	106	4	5	15	810	110	4	5	15

The information on this form is filled in by the herd owner, from the processed Calf Crop Record and the Post-Weaning Record. An up-to-date record should be kept on each cow in the herd.

Sex code: 1 = bull, 2 = heifer, 3 = steer.

ILLINOIS BEEF PERFORMANCE TESTING PROGRAM

POST-WEANING RECORD

HERD CODE NO. 001-0001

COUNTY Adams

John Doe R.R. 1 Doeville, Ill. 6643

CALF NUMBER	SEX	SIRE NUMBER	BREED OF SIRE	BREED OF DAM	BIRTH DATE MO. DAY YR.	DATE ON TEST MO. DAY YR.	DATE OFF TEST MO. DAY YR.	DAYS ON TEST	WEIGHT ON TEST	WEIGHT OFF TEST	AGE OFF TEST	AVERAGE DAILY GAIN ON TEST	205 DAY WEIGHT ADJUSTED FOR AGE OF DAM	365 DAY ADJUSTED WEIGHT	365 DAY ADJUSTED WEIGHT RATIO WITHIN SEX	BODY TYPE SCORE	MUSCLE SCORE	GRADE
20	1	1	1	1	03-04-71	11-17-71	04-25-72	160	740	1,172	418	2.70	603	1,035	107	4	5	16
			Average		by sire within sex			160	740	1,172	418	2.70	603	1,035	107	4.0	5.0	16.0
25	1	2	1	1	04-03-71	11-17-71	04-25-72	160	570	962	388	2.45	519	911	94	3	4	14
26	1	2	1	1	04-10-71	11-17-71	04-25-72	160	580	998	381	2.61	544	962	99	3	5	15
			Average		by sire within sex			160	575	980	385	2.53	532	937	97	3.0	4.5	14.5
			Average		by sex			160	630	1,044	396	2.59	555	969	100	3.3	4.7	15.0
22	2	1	1	1	03-10-71	11-17-71	04-25-72	160	645	885	412	1.50	537	777	106	4	5	15
24	2	1	1	1	03-16-71	11-17-71	04-25-72	160	540	820	406	1.75	462	742	102	3	5	15
29	2	1	1	1	05-10-71	11-17-71	04-25-72	160	450	722	351	1.70	502	774	106	4	6	16
			Average		by sire within sex			160	545	809	390	1.65	500	764	105	3.7	5.3	15.3
28	2	2	1	1	04-29-71	11-17-71	04-25-72	160	400	632	362	1.45	404	636	87	2	5	14
31	2	2	1	1	05-14-71	11-17-71	04-25-72	160	450	690	347	1.50	486	726	99	3	5	15
			Average		by sire within sex			160	425	661	355	1.48	445	681	93	2.5	5.0	14.5
			Average		by sex			160	497	750	376	1.58	478	731	100	3.2	5.2	15.0

The processed Post-Weaning Record is prepared by computer at the University of Illinois at Urbana-Champaign. Copies are mailed to the herd owner, the Extension Adviser, and the Area Livestock Adviser. Another copy is filed at Urbana. If desired, a copy will also be sent to your national breed association office.

BREED CODE

1. Angus
2. Hereford
3. Polled Hereford
4. Shorthorn
5. Polled Shorthorn
6. Charolais
7. Red Angus
8. Red Poll
9. Brangus
A. Holstein
B. Brown Swiss
C. Guernsey, Jersey, or Ayrshire
D. Milking Shorthorn
E. Simmental
F. Limousin
G. Murray Grey
H. Galloway
J. Maine-Anjou
K. Devon and South Devon
L. Santa Gertrudis
M. Lincoln Red
N. Hays Converter
P. Chianina
Q. Flechvieh
R. Bonde d' Aquitaine

SEX CODE

1. Bull
2. Heifer
3. Steer

SIRE EVALUATION RECORD

Illinois Beef Performance Testing Program

Name Illinois Progressive Herd or tattoo number 20495

Sire Mr. Progressive Dam Illinomere 22 Birth date 2-27-67

205-day wt., adj. for age of dam	205-day wt. ratio within sex	Body type score	Muscling score	Grade	No. of days on test	Av. daily gain on test	365-day adj. wt.	365-day adj. wt. ratio	Body type score	Muscling score	Grade
610	115	4	5	15	140	3.00	1,090	109	4	5	15

Remarks

Performance of Progeny

Year	No. of calves	Av. 205-day adj. weight	Av. 205-day adj. wt. ratio	Mgt. code	Av. body type score	Av. muscling score	Av. grade	No. of yearlings	Sex code	Av. daily gain on test	Av. 365-day adj. weight	Av. 365-day adj. wt. ratio	Av. body type score	Av. muscling score	Av. grade
69	5	500	102	3	3.4	4.8	14.4	1	1	2.80	1,030	102	4	5	15
								2	2	1.50	700	102	3.5	4.5	14.5
70	15	495	103	2	3.5	4.7	14.3	4	1	3.00	1,040	104	3.7	5.0	14.8
								4	2	1.65	725	102	3.3	4.5	14.3
71	25	510	105	3	3.5	4.8	14.5	7	1	2.90	1,035	104	3.6	4.9	14.7
								6	2	1.55	715	103	3.5	4.7	14.5
								6	3	2.4	886	105	3.5	4.6	14.5

The information on this form is filled in by the herd owner, from the processed Calf Crop Record and the Post-Weaning Record. An up-to-date record should be kept on each bull in the herd.

Sex code: 1 = bull, 2 = heifer, 3 = steer.

CARCASS QUALITY WORK SHEET

Illinois Beef Performance Testing Program

Herd code number 001-0001 Name John Doe

R.R. #1 Doeville, Illinois 66643

Street or Rural Route City State Zip Code

1. Animal number	30
2. Slaughter tag number	1
3. Slaughter weight	1,040
4. Hot carcass weight	650
5. Dressing percentage	62.5
6. Fat thickness (in.)	.5
7. Fat thickness per 100 lb. of carcass (in.)	.077
8. Rib-eye area (sq. in.)	13.5
9. Rib-eye area per 100 lb. of carcass (sq. in.)	2.08
10. Conformation	C+
11. Maturity	A
12. Marbling	Modest
13. Quality grade	C°
14. Kidney, heart, pelvic fat (%)	3.0
15. Estimated yield grade	2.5
16. Slaughter date	7-3-72
17. Birth date	5-10-71
18. Age at slaughter (days)	420
19. Lb. carcass per day of age	1.55
20. 205-day adj. weight	515
21. 365-day adj. weight	915
22. Sire number	2
23. Dam number	R15

This is the form to use when you want to combine the performance records and official carcass evaluation data on slaughtered animals, as well as make additional calculations.

Sire Evaluation Record (page 16). If kept up-to-date, this form will show a lifetime record for each bull in the herd. That information will be useful in comparing the weaning and post-weaning records of the progeny from each bull in the herd. NOTE: This form is available free at your county extension office.

Carcass Quality Record (page 17). The herd owner can transfer the official carcass evaluation data to this form, so that additional calculations can be made. The Carcass Quality Record is a valuable supplement to the Calf Crop Record and the Post-Weaning Record. NOTE: This form is available free at your county extension office.

HOW WEIGHTS AND WEIGHT RATIOS ARE CALCULATED

Calf Crop Record. The computer program for processing the weaning records adjusts the weaning weight for the age of the calf, the age of the dam, and the sex of the calf. The 205-day age basis and the adjustment factors used are those recommended by the National Beef Improvement Federation. These have been adopted by most states and breed associations.

Age of calf. The weights of all calves are adjusted to a 205-day age basis by figuring an average daily gain from birth to the date on which the calves are weighed. The average daily gain equals the actual weight, minus 70 pounds (the assumed birth weight), divided by the age of the calf (in days) when it is weighed. The 205-day weight equals the average daily gain from birth, times 205, plus 70 pounds (the assumed birth weight).

Age of dam. All calves are adjusted to a mature dam this way:

Two-year-olds, 205-day weight times 1.15
Three-year-olds, 205-day weight times 1.10
Four-year-olds, 205-day weight times 1.05
Five- to ten-year-olds, no adjustment
Eleven-year-olds and up, 205-day weight times 1.05.

Sex of calf. The weights of all calves are adjusted to a steer-calf basis by adding 5 percent to the weight of a heifer calf and subtracting 5 percent from the weight of a bull calf.

205-day weight ratio within sex. The weight ratios are simple percentages. In this column on the herd owner's records, the 205-day weight of each calf (adjusted for age of dam) is compared with the average 205-day weight (also adjusted for age of dam) for all of the calves of its sex in the herd. In other words, the weight of each heifer calf is compared to the average weight of all heifer calves in the herd. The same is true for the bull calves and for the steer calves. This comparison provides the herd owner with an automatic way of evaluating his calves on a weight basis. Calves with a weight ratio of less than 100 would be below average for that herd; those with a ratio of more than 100, above average. If a heifer calf in your herd has an 83 in this column, her 205-day weight (adjusted for age of dam) is 17 percent (100 minus 83) below the average weight for all of the heifers in the herd. Similarly, a heifer with a weight ratio of 125 would be 25 percent above that same average.

205-day adjusted weight ratio. This, too, is a percentage figure, but the sex factor has been eliminated; all calves have been adjusted to a steer basis in calculating the 205-day adjusted weight. Therefore, all calves can be compared equally, regardless of sex. This also allows the herd owner to compare each cow's production with the herd average. For example, a "75" in this column would mean that this calf's 205-day adjusted weight was 25 percent below the average of all calves in the herd; also, that the production of this calf's mother was 25 percent below that of the average for the herd. Anything above 100 in this column would indicate that those cows and their calves are above the average in the herd.

To compare the weight of a particular calf with the others of its sex in the herd, use the 205-day weight ratio within sex. Use the 205-day adjusted weight ratio to evaluate the production of an individual cow.

Post-Weaning Record.

365-day adjusted weight. Since the age of the dam has about the same effect on the weight at one year as on the weaning weight, the correction for the age of the dam is included in the 365-day adjusted weight. The formula is: 205-day weight, adjusted for age of dam, + (average daily gain on test × 160).

365-day adjusted weight ratio within sex. This is also a percentage figure, calculated in the same manner as the 205-day weight ratio within sex. The 365-day adjusted weight of each animal is compared with the average 365-day adjusted weight for all the animals of that sex included on the record forms. This means that the 365-day adjusted weight for each bull is compared to the average 365-day weight of all bulls on test at the same time in a given herd; the same, for heifers and steers.

550-day adjusted weight. Some cooperators in the Illinois BPT Program like to obtain these weights (ones at approximately eighteen months) for their cattle, especially replacement heifers. In order to do this, the final weight needs to be taken at 500 days of age or after, but not before that time. The 550-day adjusted weight can be calculated in two ways:

$$\frac{\text{actual final wt.} - \text{actual weaning wt.}}{\text{no. of days between weights}} \times 345 + \text{205-day wt. adj. for age of dam}$$

$$\frac{\text{actual final wt.} - \text{weight off-test}}{\text{no. of days between weights}} \times 185 + \text{365-day adj. wt.}$$

NOTE: The weight off-test is shown on the Post-Weaning Record.

HOW TO MAKE GOOD USE OF YOUR RECORDS

1. Build up a history of production on each cow in the herd. You may know which cow is the best one in your herd and which is the poorest one. But do you know what cows are in the top half and in the bottom half? Use your BPT records to:

a. Cull your herd. Even culling first-calf heifers on the basis of that one calf is an economically sound practice.

b. Make a list of potential herd replacements from the calves with the heaviest weaning weights and the highest evaluation scores.

2. Pick calves for replacements that gain the fastest after weaning and have the heaviest weight at one year, checking the frame to make sure it is adequate for continued growth.

3. Look over the weaning weights, evaluation scores, post-weaning gains, and carcass quality of the calves sired by different bulls (if you use more than one).

4. Be prepared to supply performance records. You will find that more and more producers want cattle with such records. Good records make cattle more valuable to some people.

GUIDELINES FOR SELECTING A HERD SIRE

One of the most important management decisions a herd owner makes is the selection of a herd sire. Careful thought and planning are required. Many herd owners still fail to realize the value of a good bull.

Select a bull that will be an asset to the herd, one that will contribute to herd improvement. Before starting out to buy a new herd sire, take some time to evaluate your cow herd and current calf crop. Where do they need improvement the most? Is it in muscling, soundness, size, gaining ability, ruggedness, or some other trait?

Next, decide what herds you plan to visit or which sales you want to attend. Buy from reputable breeders who are known to be doing a good job of production and who will supply a breeder's guarantee with the animals they sell. Patronize those who are cattle breeders in the truest sense, ones who are making real progress in improving the quality and performance of their own cattle.

Take your time in making a selection. Start out well before the time you will need a bull. The earlier you start, the greater the number of bulls from which you can make your selection. Be sure that the bull you choose is:

- Large-framed, with plenty of size for his age.
- Structurally correct, including the feet and the legs.
- Performance-tested, with a good 205-day weight (adjusted for age of dam) and a good 365-day adjusted weight.
- Well-muscled.
- From a cow that consistently ranks in the top half of the herd in terms of production.
- From a sire that has been doing a good job of settling cows and of siring large-framed, fast-gaining calves.
- Normal in testicular development — meaning that both testicles are present and that they are fully descended, sound, and approximately equal in size.
- Free of reproductive diseases, as determined by blood tests and verified by health papers.

University of Illinois at Urbana-Champaign

College of Agriculture

TABLE FOR DETERMINING AGE IN DAYS

Department of Animal Science

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1	730	699	671	640	610	579	549	518	487	457	426	396	1	365	334	306	275	245	214	184	153	122	92	61	31	1
2	729	698	670	639	609	578	548	517	486	456	425	395	2	364	333	305	274	244	213	183	152	121	91	60	30	2
3	728	697	669	638	608	577	547	516	485	455	424	394	3	363	332	304	273	243	212	182	151	120	90	59	29	3
4	727	696	668	637	607	576	546	515	484	454	423	393	4	362	331	303	272	242	211	181	150	119	89	58	28	4
5	726	695	667	636	606	575	545	514	483	453	422	392	5	361	330	302	271	241	210	180	149	118	88	57	27	5
6	725	694	666	635	605	574	544	513	482	452	421	391	6	360	329	301	270	240	209	179	148	117	87	56	26	6
7	724	693	665	634	604	573	543	512	481	451	420	390	7	359	328	300	269	239	208	178	147	116	86	55	25	7
8	723	692	664	633	603	572	542	511	480	450	419	389	8	358	327	299	268	238	207	177	146	115	85	54	24	8
9	722	691	663	632	602	571	541	510	479	449	418	388	9	357	326	298	267	237	206	176	145	114	84	53	23	9
10	721	690	662	631	601	570	540	509	478	448	417	387	10	356	325	297	266	236	205	175	144	113	83	52	22	10
11	720	689	661	630	600	569	539	508	477	447	416	386	11	355	324	296	265	235	204	174	143	112	82	51	21	11
12	719	688	660	629	599	568	538	507	476	446	415	385	12	354	323	295	264	234	203	173	142	111	81	50	20	12
13	718	687	659	628	598	567	537	506	475	445	414	384	13	353	322	294	263	233	202	172	141	110	80	49	19	13
14	717	686	658	627	597	566	536	505	474	444	413	383	14	352	321	293	262	232	201	171	140	109	79	48	18	14
15	716	685	657	626	596	565	535	504	473	443	412	382	15	351	320	292	261	231	200	170	139	108	78	47	17	15
16	715	684	656	625	595	564	534	503	472	442	411	381	16	350	319	291	260	230	199	169	138	107	77	46	16	16
17	714	683	655	624	594	563	533	502	471	441	410	380	17	349	318	290	259	229	198	168	137	106	76	45	15	17
18	713	682	654	623	593	562	532	501	470	440	409	379	18	348	317	289	258	228	197	167	136	105	75	44	14	18
19	712	681	653	622	592	561	531	500	469	439	408	378	19	347	316	288	257	227	196	166	135	104	74	43	13	19
20	711	680	652	621	591	560	530	499	468	438	407	377	20	346	315	287	256	226	195	165	134	103	73	42	12	20
21	710	679	651	620	590	559	529	498	467	437	406	376	21	345	314	286	255	225	194	164	133	102	72	41	11	21
22	709	678	650	619	589	558	528	497	466	436	405	375	22	344	313	285	254	224	193	163	132	101	71	40	10	22
23	708	677	649	618	588	557	527	496	465	435	404	374	23	343	312	284	253	223	192	162	131	100	70	39	9	23
24	707	676	648	617	587	556	526	495	464	434	403	373	24	342	311	283	252	222	191	161	130	99	69	38	8	24
25	706	675	647	616	586	555	525	494	463	433	402	372	25	341	310	282	251	221	190	160	129	98	68	37	7	25
26	705	674	646	615	585	554	524	493	462	432	401	371	26	340	309	281	250	220	189	159	128	97	67	36	6	26
27	704	673	645	614	584	553	523	492	461	431	400	370	27	339	308	280	249	219	188	158	127	96	66	35	5	27
28	703	672	644	613	583	552	522	491	460	430	399	369	28	338	307	279	248	218	187	157	126	95	65	34	4	28
29	702		643	612	582	551	521	490	459	429	398	368	29	337		278	247	217	186	156	125	94	64	33	3	29
30	701		642	611	581	550	520	489	458	428	397	367	30	336		277	246	216	185	155	124	93	63	32	2	30
31	700		641		580		519	488		427		366	31	335		276		215		154	123		62		1	31

Example: To find the number of days between March 12 and September 19, enter the table on the twelfth row under the column headed "March" and read the number 660; then enter the table on the nineteenth row under the column headed "September" and read the number 469; 660 minus 469 equals 191, the desired number of days. Be sure to add an extra day if leap year is involved.

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