



Current Report

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Program to Calculate 205-Day Adjusted Weights (PBD205WT for Purebred Herds) (COM205WT for Commercial Herds)

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This program assists cattlemen in evaluating the performance of their cow-calf herd. Program output contains information that is useful for determining which cows to cull and which calves to keep for replacements to improve the overall productivity of the herd.

Data Needed

When comparatively measuring performance of a cow herd, standardized production data for animals in the herd may simplify and improve decisions. To do this, weaning weights of all calves must be standardized to a 205-day adjusted weight basis. This calculation requires birth weights, weaning weights, and birth dates. Birth weight can be the actual measured birth weight of the calf, or if this is not available, an estimated birth weight can be used. It may be helpful to classify estimated birth weights into three categories initially (small, medium, or large) with an assigned weight for each category to improve the accuracy of the calculations.

Adjusting for Calf Age

To calculate the 205-day adjusted weight, birth weight (actual or estimated) is subtracted from weaning weight. This figure is divided by the age of the calf in days, multiplied by 205, and added back to the birth weight. The formula for this calculation is as follows:

$$\frac{\text{WEANING WT} - \text{BIRTH WT}}{\text{AGE IN DAYS}} \times 205 + \text{BIRTH WT} = \text{205-DAY ADJUSTED WT}$$

The calf's weaning weight has now been adjusted for age. When this is done for all the calves in the herd, the 205-day adjusted weights can be compared since all calves are on an equal age basis. However, there has been no adjustment for the age of the dam or the sex of the calf. To do the best possible job of evaluating the calves, these two adjustments should be made.

Adjusting for Age of Dam

The age of the dam influences the weaning weight of her calf. Research indicates that a cow reaches her peak productive potential at the age of 5 years and maintains it until the age of 11 with little decline in productivity. However all cows in the herd may not be in the age bracket of 5 to 10 years. To account for the differences in the ages of the cows, an adjustment is needed to put all the cows on a common basis. This factor adjusts the 205-day adjusted weight for the age of the dam based upon the sex of the calf. This factor is added to the already calculated 205-day adjusted weight. The following weight factors are used to adjust for the age of the dam based upon the sex of the calf:

AGE OF DAM	SEX OF CALF	
	MALE (lbs)	FEMALE (lbs)
2	add 60	54
3	add 40	36
4	add 20	18
5 to 10	add 0	0
11 or More	add 20	18

Adjusting for Sex

An adjustment for the sex of the calf is necessary to evenly evaluate cow production for the herd. Generally at weaning, bull calves will weigh more than steer calves and steer calves will weigh more than heifer calves. The following factors are used to adjust the 205-day adjusted weight to a common sex equivalent:

Bull equivalents

Heifer multiplied by 1.10 = bull

Steer multiplied by 1.05 = bull

Steer equivalents

Heifer multiplied by 1.05 = steer

Bull multiplied by 0.95 = steer

Heifer equivalents

Steer multiplied by 0.95 = heifer

Bull multiplied by 0.90 = heifer

In commercial herds, 205-day adjusted weights are usually adjusted to steer equivalents. Purebred herds may report 205-day adjusted weights within sex groups or convert them to a bull basis. Sex groups are usually used in adjusting weaning weights for a purebred herd. To convert to a bull basis, the 205-day adjusted weight is multiplied by the appropriate adjustment factor that puts all the calves on an equal basis to account for the sex differences.

To learn more about the use of the 205-day adjusted weight in performance testing, pick up a copy of the *Oklahoma Beef Cattle Manual, Second Edition*, at your county Extension office. An in-depth discussion of the use of performance testing is contained in that publication.

Weight Per Day of Age (WDA)

An additional tool used in performance testing is also included in the program. To evaluate and compare the performance of the calves, a weight per day of age calculation is made. This calculation simply looks at the weight gain of the calves from the day they are born until the time all the calves are weighed. The formula for calculating the weight per day of age is as follows:

WEIGHT

= WEIGHT PER DAY OF AGE

AGE IN DAYS

The weight per day of age allows for the comparison of each of the calves using an equal age basis. The calves' birth weights, ages, and growth rates are then compared using the weight per day of age. This allows for the evaluation of the growth potential of the calves since the larger the value indicates a greater growth potential. This performance evaluation tool provides additional information for culling cows and selecting replacement animals for the herd.

Computer Programs Available

Two programs are available for calculating 205-day adjusted weights and weights per day of age. Both of the programs work on the same principle allowing the user to select between calculating 205-day adjusted weights and weights per day of age for commercial or purebred herds. The program for purebred herds is called PBD205WT and the program for commercial herds is called COM205WT. The user can select the program which will provide the desired information.

The difference between the two programs involves the adjustment for sex of the calves. The commercial program (COM205WT) makes an adjustment for the sex of the calves which allows for all the cows and steer, heifer, or bull calves to be compared equally. The need for this adjustment is due to the fact that in most commercial herds the desire is to sell weight. The purebred program (PBD205WT) does not adjust for the sex of the calves since the desire in most purebred operations is to sell calves to be used as replacements. By leaving this adjustment out, it is felt that the calves are more easily compared within sex groups using a 205-day adjusted weight formula which does not add the weight adjustment for sex of the calf. The decision of which program to use is left to the user based upon the information needed since both programs provide basically the same information.

Using the Program

The 205-day adjusted weight programs are available as a LOTUS 123 spreadsheet template or as a stand-alone program.

To use the program, the user is required to collect and keep the following data and records for each of the cows and calves in the herd.

1. Cow Identification
2. Calf Identification
3. Age of the Cow in Years
4. Calf Birth Date
5. Calf Weaning Date
6. Sex of The Calf
7. Calf Birth Weight
8. Calf Weaning Weight

To assist the user in gathering this information, a data collection worksheet is included with the programs. The worksheet is titled WKSHT205 and can be printed and carried with the user as the data is being collected. To do so, simply load the WKSHT205 file then press and hold the ALT key down and press the "P" key. The user may wish to make several copies of this worksheet to have available as data is being collected. An example of the data collection worksheet is presented in Figure 1.

The data from the data collection worksheet can then be transferred to the program quite easily. Once

Figure 1.

205-Day Adjusted Weight Calculation
DATA COLLECTION SHEET

COW I.D.	CALF I.D.	COW'S AGE IN YEARS	CALF'S BIRTH DATE MO DAY	CALF'S WEAN DATE MO DAY	SEX OF CALF 1=BULL 2=HEIFER 3=STEER	CALF'S BIRTH WEIGHT	CALF'S WEANING WEIGHT	ADDITIONAL INFORMATION

this data is entered into the program, the following calculations are made by pressing the F9 (calculation) key:

- 1. Age of Calf in Days
- 2. 205-Day Adjusted Weight
- 3. Weight per Day of Age

The format of the program and a sample of the output is presented in Figure 2. Several options for sorting the data are available so that the user can obtain the desired information in a usable form. Six sort procedures have been built into the program to simplify this process. To use these sort routines, press and hold the ALT key down and press one of the following keys for the desired output.

- T -- Sort the 205-day adjusted weight from low to high value.
- S -- Sort the 205-day adjusted weight by sex of the calves.
- A -- Sort the 205-day adjusted weight by ages of the cows.
- I -- Sort the 205-day adjusted weight by cow identification.
- W -- Sort the weight per day of age from low to high value.

- X -- Sort the weight per day of age by sex of the calves.

Figure 2 also presents sample purebred herd data where the 205-day adjusted weights are sorted by sex of the calves by using ALT S. Figure 3 presents sample commercial herd data where the 205-day adjusted weights are sorted by ages of the cows using ALT A.

Once the data is sorted press and hold the ALT key down and press the "P" key to send the output to the printer. The data in the program can be sorted in as many ways as the user desires. If the user wants the output listed by ages of the cows and then by the sex of the calves, simply sort the data using ALT A then print the data next sort the data using ALT S then print the data again. In this way the user can get as much information as desired in a usable form.

The use of 205-day adjusted weights in performance testing is a good tool for examining the productivity of the beef cow herd. It provides information needed to make sound management decisions for culling poor producing cows and adding potentially good producing replacements to the herd. However, this is only one of many tools that cattlemen should use in evaluating the performance and productivity of their beef cow herd.

Figure 2.

205-Day Adjusted Weight Calculation
FOR PUREBRED HERDS

REC. NUM.	COW I.D.	CALF I.D.	COW'S AGE IN YEARS	CALF'S BIRTH DATE MO DAY	CALF'S WEAN DATE MO DAY	SEX OF CALF			CALF'S BIRTH WEIGHT	CALF'S WEANING WEIGHT	CALF'S AGE IN DAYS	205-DAY ADJUSTED WEIGHT (NO SEX ADJ.)	CALF'S WEIGHT PER DAY OF AGE
						1=BULL	2=HEIFER	3=STEER					
1	7	29	4	3 13	10 17	3	60	395	217	395	1.82		
2	14	36	10	4 2	10 17	3	78	388	198	400	1.96		
3	12	34	2	2 22	10 17	3	75	422	239	430	1.77		
4	2	24	3	2 25	10 17	3	63	445	236	434	1.89		
5	19	41	8	4 22	10 17	3	77	408	178	459	2.30		
6	4	26	2	4 6	10 17	3	72	390	194	466	2.01		
7	10	32	8	4 11	10 17	3	81	455	189	487	2.41		
8	8	30	9	2 5	10 17	2	69	405	256	357	1.59		
9	9	31	11	2 8	10 17	2	80	410	253	366	1.62		
10	18	40	3	3 10	10 17	2	79	431	220	425	1.96		
11	6	28	12	3 30	10 17	2	68	400	200	426	2.00		
12	13	35	6	4 2	10 17	2	66	398	198	428	2.01		
13	1	23	7	3 15	10 17	2	75	430	215	431	2.00		
14	16	38	11	3 15	10 17	2	70	432	215	433	2.01		
15	21	43	12	3 30	10 17	2	60	427	200	454	2.13		
16	15	37	4	3 14	10 17	1	73	400	216	403	1.85		
17	17	39	5	2 29	10 17	1	68	446	232	423	1.93		
18	11	33	5	3 18	10 17	1	63	425	212	433	2.00		
19	20	42	9	4 17	10 17	1	78	410	183	471	2.25		
20	5	27	10	4 1	10 17	1	71	448	199	480	2.26		
21	3	25	6	4 3	10 17	1	68	460	197	497	2.34		

Figure 3.

205-Day Adjusted Weight Calculation
FOR COMMERCIAL HERDS

REC. NUM.	COW I.D.	CALF I.D.	COW'S AGE IN YEARS	CALF'S BIRTH DATE MO DAY	CALF'S WEAN DATE MO DAY	SEX OF CALF			CALF'S BIRTH WEIGHT	CALF'S WEANING WEIGHT	CALF'S AGE IN DAYS	205-DAY ADJUSTED WEIGHT (STEER EQUIV.)	CALF'S WEIGHT PER DAY OF AGE
						1=BULL	2=HEIFER	3=STEER					
1	6	28	12	3 30	10 17	2	68	400	200	449	2.00		
2	21	43	12	3 30	10 17	2	60	427	200	478	2.13		
3	9	31	11	2 8	10 17	2	80	410	253	385	1.62		
4	16	38	11	3 15	10 17	2	70	432	215	456	2.01		
5	14	36	10	4 2	10 17	3	78	388	198	400	1.96		
6	5	27	10	4 1	10 17	2	71	448	199	483	2.26		
7	8	30	9	2 5	10 17	2	69	405	256	356	1.59		
8	20	42	9	4 17	10 17	3	78	410	183	451	2.25		
9	19	41	8	4 22	10 17	3	77	408	178	459	2.30		
10	10	32	8	4 11	10 17	3	81	455	189	487	2.41		
11	1	23	7	3 15	10 17	2	75	430	215	434	2.00		
12	13	35	6	4 2	10 17	2	66	398	198	431	2.01		
13	3	25	6	4 3	10 17	3	68	460	197	477	2.34		
14	11	33	5	3 18	10 17	3	63	425	212	413	2.00		
15	17	39	5	2 29	10 17	2	68	446	232	423	1.93		
16	7	29	4	3 13	10 17	3	60	395	217	395	1.82		
17	15	37	4	3 14	10 17	2	73	400	216	422	1.85		
18	2	24	3	2 25	10 17	3	63	445	236	434	1.89		
19	18	40	3	3 10	10 17	2	79	431	220	467	1.96		
20	12	34	2	2 22	10 17	3	75	422	239	430	1.77		
21	4	26	2	4 6	10 17	3	72	390	194	466	2.01		