INTRODUCTION

The American Wagyu Association has established guidelines for data collection from which customized genetic selection tools can be created for the Wagyu breed. These selection tools are a statistical analysis of performance data submitted by AWA members, referred to as Expected Progeny Differences (EPD). These EPD will provide Wagyu breeders with tools and the opportunity to improve genetics for growth, reproductive, maternal, and terminal carcass traits within their herd and across the Wagyu population.

For data to be relevant to EPD production, standard data collection procedures must be outlined. Data collection and submission throughout the cattle production cycle will allow Wagyu producers to become more efficient at all stages of production. Collection of data points at the cow calf level affect the ability for Wagyu producers to measure the maternal traits of their cow herd, along with measuring heritable growth traits of the calf produced through weaning. Data collection beyond weaning will affectively measure the growth genetics of cattle from specific genetic lines, until terminal traits can be collected.

Genetic evaluations analyze the differences in the performance of animals due to the genetic differences of the animals. To properly account for this, we must measure differences in individual animal performance within sound contemporary groups that define a constant environment and allowing genetic differences to be observed. While measuring performance is simple in principle, it is important to keep in mind the proper age windows for measuring as well as general guidelines for contemporary group structure. These guidelines have
been drafted to help insure the proper collection of objective measurements on the ranch.

It is important that we consider correct techniques when collecting data. For example, who should do the measuring? While it may seem that it doesn’t matter who reads the scales, it can result in the information being biased, one person may have a tendency to round numbers up while the other rounds down. For this reason it is important that the same person measure each animal in the contemporary group. Also, measuring scrotal measurements on bulls, one technician may pull the tape tighter than another. For these reasons it is important to use good equipment and to be as consistent as possible in the measuring technique and that all animals receive a fair measurement. This may include little things such as keeping the scales clean and balancing the scales before starting. It is also very important to verify the identification of each animal during processing; this will insure that each animal gets credit for its own performance.

CONTEMPORARY GROUPS

One of the most important aspects of an accurate genetic evaluation is proper contemporary grouping. Environment and management have a large effect on calf performance. When animals are exposed to variable environments or management practices (feed, pasture, shelter, vaccination, etc.), it is impossible to determine if their differences in performance are due to genetics or environment. Selecting the highest performing animals in this situation is likely to result in selecting animals that had an advantageous environment. Because environment is not inherited, genetic progress is drastically decreased. When every calf is treated as uniformly as possible, the differences between them are more likely to be due to their genetics. In other words, the higher performing animals are more likely to be the genetically superior animals; selecting the genetically superior animal’s results in greater genetic progress. The creation of contemporary groups is the mechanism that allows us to account for management and environmental variation between animals. A contemporary group is a set of same-sex calves that were born within a relatively short window of time and have been managed the same since birth. Each calf in the group has received the same opportunity to express its genetic merit for traits of interest.
If a subset of calves from a group receives different treatment, then those calves should be recoded as a different contemporary group. An example might be a small group of bulls from the larger group sent to a bull test, or perhaps being pulled out to fit for a show. Those bulls should have their data coded with a different contemporary group than the larger group from which they came. Another example might be if a group of calves is large enough that they can’t be weaned/weighed on the same day, they may be broken into separate contemporary groups and weighed on different days. Once animals are separated into a different group, they can never be recombined with the original group.

Every piece of performance data recorded should have the proper contemporary group attached to it. To optimize the amount of information that can be obtained from each performance record, it is best to keep contemporary groups as large as possible while still maintaining equal management and environment for all calves. Single-animal contemporary groups add no information to the genetic evaluation. While keeping contemporary groups as large as possible is useful, every animal must receive equal management. It is better to have 2 smaller groups that are truly managed the same within-group than one large group with unequal management. Improper contemporary grouping can lead to inaccurate and biased genetic evaluations.

In general, ET calves, multiple births, and freemartins are separated into their own contemporary groups. These situations result in different rearing environments for the calf that make it impossible to fairly compare them to other animals. (BIF)

Considerations breeders should be aware of when forming contemporary groups are:
1. Manage calves in groups. Breeders should also manage calves in groups as large as is practical. Within a management group treat all calves alike and weigh them all on the same day with the same scales. Remember, there must be at least two calves in a contemporary group.

2. If possible it's best if at least two sires are represented within a contemporary group. However, by using the Animal Model when both parents are registered with pedigree this is not an absolute requirement.

3. Make proper use of the weaning and yearling group identification, management and pasture codes. The AWA will use this information too properly for contemporary groups. Cows nursing calves in different pastures should be grouped differently and cows or calves receiving extra attention, such as show cattle, should be grouped separately as well.

4. Follow proper procedures when taking measurements. Guessing, eyeballing or using devices that estimate the measurement are not accurate procedures for genetic evaluation.

5. Be sure to send in all records, even for those calves that you do not intend to register. Sending in pre-selected records will only bias your data and will actually do more harm than good to your better genetics. Complete reporting of records will also assure that cows are given credit for calving and their genetics for reproduction, even for those cows that lost calves prior to weaning.

It is also very important that actual (not adjusted) measurements are submitted to the AWA. Adjustments to a standard age will be computed by the AWA and reported back to the producer. This is to insure that standard adjustment procedures are applied to all cattle in the AWA database.

**COMPLETE ANIMAL RECORDING (CAR)**

The American Wagyu Association has adopted the whole herd inventory based reporting concept. Each year AWA members participating in the CAR program will complete and bring current their herd inventory along with other information on every cow/calf in the herd. This information will be useful for development of Expected Progeny Differences an improving the accuracy of those that are economically important to Wagyu producers, such as traits which impact reproduction. Currently, the information required for every cow on the inventory is a calf, reproduction code and/or a disposal code. Basically a calf must be reported for every cow, or a reason why a calf was not reported. Furthermore, if the cow is no longer in the herd, then a disposal code must be included. The herd inventory concept is a simple and straightforward system.
that promotes the complete reporting of performance information. The responsibility of selecting the animals that remain in the herd as registered seedstock or animals that are marketed and promoted as registered Wagyu remains a decision of the breeder.

Reproduction and Disposal Codes

Reasons cows are culled from the herd vary. Many cows are culled for reasons not related to reproduction. Furthermore, many cows are reproductively sound, but calves are not always reported. For these reasons many cows are unfairly evaluated for their reproductive value. Reporting accurate reproduction and disposal codes will aid the breeder and National Cattle Evaluation in assigning more accurate breeding values for reproductive traits.

CALVING

Birth Weights

Calf birth weight is a useful indicator of calving ease. Therefore, selection of breeding animals for smaller birth weight EPD is an effective criterion for improving direct calving ease. Birth weight measurements must be taken as soon after birth as possible, calves should also be weighed and then identified with a permanent identification number (tattoo) at this time. The dam ID, calf ID, date of birth, calving ease score, calf vigor, and dam’s udder score should also be recorded at this time.

Calving Ease Score

Producers are asked to score the degree of calving difficulty using the following guidelines:

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>Unassisted/Unobserved</td>
</tr>
<tr>
<td>2</td>
<td>Easy Pull, some assistance</td>
</tr>
<tr>
<td>3</td>
<td>Hard Pull, usually mechanical assistance</td>
</tr>
<tr>
<td>4</td>
<td>Surgery, caesarian section or other surgery</td>
</tr>
<tr>
<td>5</td>
<td>Malpresentation (breach birth for example)</td>
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</tbody>
</table>
Calf Vigor

Calf vigor is important to the survival and health of newborn calves. Calf vigor scores represents how long it takes a calf to get up and start nursing or if it needed assistance.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>Up and sucking within 30 minutes, vigorous</td>
</tr>
<tr>
<td>2</td>
<td>Up within 1-2 hours, suckling without assistance</td>
</tr>
<tr>
<td>3</td>
<td>Suckling with assistance</td>
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<tr>
<td>4</td>
<td>No suckle reflex, Drench needed</td>
</tr>
<tr>
<td>5</td>
<td>Unwilling to rise. Dead shortly after birth</td>
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</tbody>
</table>

Teat & Udder Scores

Udder and teat quality definitely influence the profitability of beef production. Poor quality, injuries and/or disease of udders are a leading cause of culling and thereby lower cow longevity and lifetime productivity. Although larger udders have been associated with higher milk production and calf weaning weight, excessively large, pendulous udders and large teats may present difficulty for a calf to nurse, and thereby calf growth and weaning weight may be affected negatively. In general, more tightly supported udders and smaller teats should be considered desirable; however, the extremes of these conditions likely become detrimental at some point.

Deliberate, annual evaluation of udder quality is an essential component of cow-calf production. The Beef Improvement Federation recommends scoring
udder suspension and teat size annually on cows within 24 hours of the cow giving birth. These subjective numerical scores (see table below) can easily be assigned in the pasture. Scores should be assigned according to the worst quarter of the cow’s udder. To ensure consistency and facilitate comparison of records, preferably one person should evaluate all cows each year and across years. Written notes about abnormal shapes or characteristics other than udder suspension and teat size may be useful. (BIF)

The two charts below are courtesy of the University of Nebraska Lincoln.

**TEAT SIZE CHART**

![Teat Size Chart](chart1.png)

- Drawing 1: Teat size - very small and symmetrical. Teat size score = 9.
- Drawing 2: Teat size - small and symmetrical. Teat size score = 7.
- Drawing 3: Teat size - Intermediate in length, still have symmetry. Teat size score = 5.
- Drawing 4: Teat size - Large, variable in length and symmetry. Teat size score = 3.
- Drawing 5: Teat size - Very large, variable length and symmetry. Teats appear to be thick. Teat size score = 1.

**UDDER SUSPENSION CHART**

![Udder Suspension Chart](chart2.png)

- Drawing 3: Udder suspension - Intermediate attachment, Udder suspension score = 5.
- Drawing 5: Udder suspension - Very loose and pendulous attachment, very weak median suspensory ligament. Udder suspension score = 1.
Individual Animal ID

A permanent ID is an identification number that will stay with the animal from birth to death, and will be transferred to a new owner. This is important for identification of animals, because if you rely on a less permanent ID system, such as ear tags, animals can lose tags and other less permanent forms of ID and subsequently their individual identification is lost.

Breeders are responsible for ensuring that the animals they register bear a form of permanent identification prior to application for registration. All registered animals must carry a tattoo in one or both ears. That must consist of the owner’s herd prefix, an individual animal identification (I.D.) number, and the appropriate year letter code. A maximum of nine (9) digits may be used, and no two animals may carry the same tattoo within the same herd. In the event a breeder utilizes freeze-brand marks as a permanent identification mark, such mark shall be placed once on either side of each individual animal. In the event that a breeder utilizes a hot-branded mark as a permanent identification mark, such mark shall be placed once on either side of each individual animal. Any combination of the above locations or methods may be used.

A Herd Prefix is assigned to each member when application for membership is submitted. Herd prefix must be a minimum of two (2) and not more than four (4) alphabetical letters. No two members may have or use the same herd prefix.

1. When registering a calf born to its natural mother, the herd prefix of the owner of the dam at the time of birth must be used, and that individual must register the calf before it can be transferred.

2. An embryo transfer calf must be tattooed with and registered with the herd prefix of the owner of the calf at the time of registration.

3. Under no circumstances should an individual attempt to register a calf with herd prefix that have not been approved and assigned by the AWA Registry Office, or herd letter of another member or breeder.

4. Individual Identifying Number This number should be such that no two animals may carry the same tattoo/brand, (herd prefix, I.D. numbers, and
year letter code). A maximum of nine (9) digits may be used in the total tattoo (maximum of 4 digits for herd prefix, maximum 5 ID and year letter code).

5. Year letter code. Part of the required Wagyu Tattoo must be year letter code. Usually it is the last digit in the tattoo. Following are the year letter code codes from 2001 through the year 2030. (The letters I, O, Q, and V are not used).

<table>
<thead>
<tr>
<th>Year Letter Codes</th>
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<tbody>
<tr>
<td>L</td>
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<tr>
<td>M</td>
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<tr>
<td>N</td>
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<td>P</td>
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<td>Z</td>
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<tr>
<td>A</td>
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<td>B</td>
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</tbody>
</table>

If any tattoo is un-readable and you are the breeder, re-tattoo the animal in a different lobe and notify the Association Office. If you put the wrong tattoo in an ear, don’t alter it. Send the Certificate of Registration to the Association for correction. If any tattoo in a purchased animal is not legible, or does not agree with the Certificate of Registration, contact the Association office.

**Reporting information on ET calves**

Embryo transfer calves can be included in the Wagyu National Cattle Evaluation. There is however additional information required before EPD can be computed. Information about the recipient cow is required; information needed is the breed of recipient cow, year of birth of recipient cow, and a permanent identification number for the recipient cow. Contemporary groups will be formed using the same guidelines as for natural calves with the addition of recipient cow information. For example, calves out of the same breed type of recipient dam will be in the same contemporary group while calves out of recipient dams of different breed types will be in different contemporary groups. Be sure to include this information when registering Embryo Transfer calves.
Reporting information for Twin Calves

Performance information for twin calves should be reported to the AWA. While at this time weaning and yearling information from twin calves is not used by National Cattle Evaluation for the evaluation of weaning, yearling or milk EPD, the birth information is usable. Birth EPD can be computed for twin calves in many cases.

WEANING

Weaning Weight

Weaning weight should be collected on a high quality digital or mechanical individual animal scale and it should be recorded in pounds.

The weight should never be estimated and should be recorded to the nearest whole pound if possible. If recording the weight to the nearest whole pound is not feasible, then it can be acceptable to record the weight to the nearest 2-pound increment. Weaning weight should never be recorded to the nearest five pound or other larger increment. Weaning weight should never be estimated by averaging a group weight.

Weaning contemporary group is a group of calves that are of the same sex, are similar in age, and have been raised in the same management group (same location on the same feed and pasture, at the same time) and weaned and weighed on the same day. Contemporary groups should include as many cattle as can be accurately compared. However, if, for example, first-calf heifers are given preferential treatment (better feed) prior to weaning their calves, then these calves should be designated into a separate contemporary group than the calves from mature cows.

Weights should be taken on the same day for an entire contemporary group. Especially for large contemporary groups, water should be provided to calves penned-up prior to weighing so that there is no effect due to differences in dehydration between the first and last calves weighed.

For adjusted 205 day weaning weights the AWA required age range for collecting weaning weights on calves is 160 to 250 days of age.
Hip Height

Hip height converted to frame score is a linear measurement that helps cattle producers evaluate lean-to-fat ratio potential of an individual animal in a performance program. No one frame size will be best for all feed resources, breeding systems, and markets. Large-framed animals tend to be heavier at all weights, leaner, and later maturing. Small-framed animals tend to be lighter, fatter, and earlier maturing. Frame scores can be monitored to maintain body size, fatness level, and maturing rate within the optimum ranges dictated by the resources, breeding system, and market specifications of a herd. Frame score is a convenient way of describing the skeletal size of cattle. With appropriate height and growth curves, most animals usually maintain the same frame score throughout their life, regardless of when they are evaluated. However, frame scores may change for animals that mature earlier or later than average for their breed. The recommended site for hip height measurement is a point directly over the hooks. For adjusted 205 day hip height the AWA required age range for collecting measurements on calves is 160 to 250 days of age. (BIF)

Dam Weight, Height, Body Condition Score

Mature weight should be collected on an individual animal scale and should be recorded to the nearest pound. The weight should be collected on a high-quality digital or mechanical individual animal scale.

Mature height should be measured when the cow is standing on a flat surface with her hips level, and height is measured in inches. The measuring stick should be perpendicular to the ground with the height measured directly over the hooks.
Body condition scoring (BCS) is a useful tool to estimate the body composition and energy reserves of beef cows. The BCS scale ranges from 1-9 with 1 being emaciated and 9 being obese. Cows that calve in a BCS of 5 or greater breed back earlier, have more vigorous calves at birth and have more, higher quality colostrum. Ideally, scores should be recorded 60-90 days pre-calving, at calving and at weaning. Taking scores at 60-90 days pre-calving allows enough time for adjustment of the nutrition program prior to calving if necessary.

Scores recorded at or around the time of weaning are used in combination with cow weight recorded at the same time to calculate adjusted mature cow weights. Shrunk body weight should increase or decrease by approximately 7.1% for each unit change in BCS. For example, a mature cow that weighs 1,200 pounds with a BCS of 5 should require 85 pounds of weight gain to achieve BCS 6 and 85 pounds of weight loss to drop to a BCS of 4. (BIF)
Following is a description of the 1 to 9 body condition scoring system where a BCS 1 cow is extremely thin and emaciated and a BCS 9 cow is very fat and obese. Assign a cow a condition score in whole numbers (3, 4, 5, etc.).

<table>
<thead>
<tr>
<th>GROUP</th>
<th>BCS</th>
<th>DESCRIPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>THIN</td>
<td>1</td>
<td>Bone structure of shoulder, ribs, back, hooks, and pins are sharp to the touch and easily visible. No evidence of fat deposits or muscling.</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>No evidence of fat deposition and there is muscle loss especially in the hindquarters. The spinous processes feel sharp to the touch and are easily seen with space between them.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Very little fat cover over the loin, back, and foreibs. The backbone is still highly visible. Processes of the spine can be identified individually by touch and may still be visible. Spaces between the processes are less pronounced. Muscle loss in hind quarter</td>
</tr>
<tr>
<td>MODERATE</td>
<td>4</td>
<td>Foreribs are slightly noticeable and the 12th and 13th ribs are still very noticeable to the eye. The transverse spinous processes can be identified only by palpation (with slight pressure) and feel rounded rather than sharp. Slight muscle loss in hind quarter.</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>The 12th and 13th ribs are not visible to the eye unless the animal has been shrunk. The transverse spinous processes can only be felt with firm pressure and feel rounded but are not noticeable to the eye. Spaces between the processes are not visible and are only distinguishable with firm pressure. Areas on each side of the tailhead are starting to fill.</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Ribs are fully covered and are not noticeable to the eye. Hindquarters are plump and full. Noticeable springiness over the foreribs and on each side of the tailhead. Firm pressure is now required to feel the transverse processes. Brisket has some fat</td>
</tr>
<tr>
<td>FLESHER</td>
<td>7</td>
<td>Ends of the spinous processes can only be felt with very firm pressure. Spaces between processes can barely be distinguished. Abundant fat cover on either side of the tailhead with evident patchiness. Fat in the brisket.</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Animal takes on a smooth, blocky appearance. Bone structure disappears from sight. Fat cover is thick and spongy and patchiness is likely. Brisket is full.</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Bone structure is not seen or easily felt. The tailhead is buried in fat. The animal’s mobility may actually be impaired by excessive fat. Square appearance.</td>
</tr>
</tbody>
</table>

Temperament (Disposition, Docility)

Important behaviors to beef cattle production include reactions to processing through a squeeze chute, maternal instincts at calving, newborn calf vigor, bull serving capacity, and foraging behavior. Because these are distinctly different behaviors, different strategies are necessary to quantify differences among animals. Among the most important of behavioral traits, temperament reflects the ease with which animals respond to handling, treatment, and routine management. Animals with disposition problems are a safety risk to handlers, themselves, and other animals in the herd. Disposition affects handling equipment requirements, operation liability exposure, Beef Quality Assurance, and performance.
A method of temperament measurement is Pen Score. Animals are penned in a small lot (approximately 12 feet X 24 feet) in small groups (n~5) and approached by two observers. The individual animal’s response to human approach is scored on a scale from 1 to 5 as follows:

1. Non-aggressive (docile) Walks slowly, can be approached closely by humans, not excited by humans or facilities
2. Slightly Aggressive Runs along fences, will stand in corner if humans stay away, may pace fence
3. Moderately Aggressive Runs along fences, head up and will run if humans move closer, stops before hitting gates and fences, avoids humans
4. Aggressive Runs, stays in back of group, head high and very aware of humans, may run into fences and gates even with some distance, will likely run into fences if alone in pen
5. Very Aggressive Excited, runs into fences, runs over humans and anything else in path, “crazy”

Weaning Temperament scores should be collected at approximately the same time as weaning weights are collected. (BIF)

YEARLING

Yearling weight measurements should be taken between 320-410 days of age. Time between weaning and yearling weight measurement should be no less than 70 days. It is important to not take the yearling weight measurement too closely to the weaning weight to allow for more post-weaning growth and a more accurate measure of the yearling weight trait.

As with weaning weight proper measurement procedures are also important. Yearling weight should be collected on a high quality digital or mechanical individual animal scale and it should be recorded in pounds. Weights should be taken on the same day for an entire contemporary group. Especially for large contemporary groups, water should be provided to calves penned-up prior to weighing so that there is no effect due to differences in dehydration between the first and last calves weighed.

Yearling contemporary groups are always subsets of the weaning contemporary group.
Other measurements to take at this time include Temperament, Hip Height, Scrotal Measurements, Pelvic Measurements, and reporting status code.

**Status Code**

It is important to identify calves that were on your weaning report but were culled from the herd before yearling weights were taken with an appropriate calf disposal code.

**Hip Height**

For adjusted 365 day hip height the AWA suggested age range for collecting measurements on calves is 320 to 410 days of age.

**Temperament**

Use the same scoring and methods for Yearling Temperament as with Weaning Temperament.

Yearling Temperament scores should be collected at approximately the same time as yearling weights are collected.

**Scrotal Circumference**

Scrotal circumference is measured due to its positive relationship with the potential number of sperm cells that the bull can produce. It has been shown bulls with larger scrotal circumference reached puberty and produced higher quality sperm at a younger age and that their daughters also reached puberty at a younger age. Furthermore, larger scrotal circumference has been associated with an increased percentage of progressively motile sperm and less abnormal sperm production. ($^{[BIF]}$)

Scrotal circumference for yearling bulls is collected between 320 and 410 days of age. Scrotal circumference is measured using a scrotal tape around the widest part of the scrotum when the testicles are fully extended. The tape should be pulled firmly around the scrotum. It is recommended to record the measure a few times to ensure accurate results. The circumference of the scrotum is recorded in centimeters.
Pelvic Area

Pelvic area is an indicator of maternal calving ease. Selection of sires with high calving ease direct (CED) expected progeny differences (EPDs) mated to heifers that are screened for pelvic area will decrease the incidence and (or) severity of calving problems and minimize calf losses from dystocia. Pelvic measurements should be used in addition to, rather than in place of, selection for size, weight, and above all fertility. Producers should be aware that selection for pelvic area will likely not result in increased pelvic dimensions alone, but may result in increased size of the entire skeleton and animal. These correlated responses can be modulated in a multiple-trait selection program with emphases on moderate mature size and increased direct calving ease. Pelvic measurements can also be successfully used to identify abnormally small or misshaped pelvises. These situations, left unidentified, are often associated with extreme dystocia, resulting in caesarean delivery and even death of the calf or dam. While pelvic area can be used as a possible indicator trait for maternal calving ease, it may be most helpful for predicting earlier maturing heifers. Bullock and Patterson (1995) reported that puberty exerts a positive influence on pelvic width and area in yearling heifers; however, the differences observed among heifers as yearlings were not preserved when calving as two-year-olds. The data suggest that puberty plays a role in pelvic size as yearlings, but once heifers reach puberty the effects may no longer be present.

Pelvimetry is a useful culling tool to aid in the management of dystocia. Pelvic measurements can be obtained with a Rice Pelvimeter (Lane Manufacturing, Denver, CO), the Krautman-Litton Bovine Pelvic Meter (Jorgensen Laboratories, Inc. Loveland, CO), or the Equibov Bovine Pelvimeter (Ontario, Canada). The Rice pelvimeter is the preferred instrument to obtain pelvic measurements in cattle due to its ease of use, good repeatability, ability to read to at least 20 cm, and low cost compared to other pelvimeters. Pelvic area measured by the Rice pelvimeter is accurate and repeatable between and within veterinarians. It is important that the person doing the measuring have a thorough understanding of the birth canal, pelvic structure, and reproductive tract. Practice and experience are necessary before accurate measurements can be obtained. The vertical measurement is the vertical diameter between the symphysis pubis on the floor of the pelvis and the sacral vertebrae. The horizontal measurement is obtained by determining the horizontal diameter at its widest point between the left and right ileal shafts. These measurements are read in centimeters and multiplied together to obtain the total pelvic area in square centimeters. (BIF)
Ultrasound

The AWA Board of Directors has approved guidelines for the standardized collection of ultrasound data on Wagyu cattle. These guidelines should be adhered to when collecting ultrasound data on yearling seedstock. AWA ultrasound guidelines specify the use of ultrasound technicians fulfilling the certification requirements of the Ultrasound Guidelines Council (UGC).

Ultrasound data should be collected on all calves in the yearling contemporary group and cattle should be between 320–410 days of age. All cattle must also have a weaning and yearling weight taken at appropriate times and reported to AWA, furthermore a weight should be taken at the time of ultrasound data collection (this weight will work as the yearling weight). Calves should be reported to the AWA prior to scanning so that ultrasound reporting forms (Barnsheets) are available for the scanning technician prior to scanning.

When collecting ultrasound data it is very important that proper procedures are followed. It is the responsibility of the breeder to supply a squeeze chute with side panel doors to properly restrain cattle and provide access to the region of scanning. Technicians have several thousand dollars invested in equipment that must be protected and the quality of the images will be improved as well if cattle are properly restrained. Cattle must also be dry and clean in the regions to be scanned and out of direct sunlight to allow for seeing the images on the monitor. It is also necessary in most cases that cattle are clipped in the scanning region with no more than 1/2 inch of hair. By following these guidelines and by working with the technician you can improve the quality of ultrasound data that will be collected. If you have any questions about preparing cattle for scanning you should visit with the technician ahead of time or call the AWA office.

It is the responsibility of each producer to contact technicians to make arrangements to scan their cattle. If you are planning to collect ultrasound measurements on your cattle you should contact the AWA office well in advance for a copy of the ultrasound reporting forms (Barnsheet). For a list of qualified technicians contact the AWA office or the UGC office at http://ultrasoundbeef.com.
CARCASS DATA COLLECTION

These carcass data collection guidelines have been written to guide producers through a process that can take up to three years from conception to harvesting carcass records. It is important that proper guidelines are followed throughout this process to ensure success of the program.

Data from both seedstock herds (by collection carcass data from non-replacement animals) and commercial herds are useful tools for genetic evaluation of carcass traits. The best avenue for Wagyu producers to collect data points regardless if it’s at the ranch or beyond the ranch is a well-designed plan. The intention of this document is to outline the standard data collection procedures for the AWA members collecting carcass data from within their herd or by conducting progeny testing to generate information for the genetic evaluation of their seedstock animals. For the AWA to recognize the information as valid for EPD production verifying parentage will be mandatory, along with collecting growth and terminal traits outlined in the sections below.

Breeding Herd Considerations
Both seedstock and commercial herds offer opportunities to participate in a Carcass Progeny Evaluation Program to evaluate carcass traits. However, there are special considerations for each so that the most accurate data can be collected.

Seedstock Herds
All non-replacement individuals may enter the program, i.e. non-replacement heifers or bull calves (steers). To be included guidelines must be followed to correct for bias due to selection. When breeding herd replacements are removed from contemporary groups it is recommended that the weaning and yearling weights of all progeny in the initial growth contemporary group, not just the carcass contemporary group, be recorded and provided to the American Wagyu Association. For example, for a weaning and/or yearling contemporary group of 10 heifers 5 may be held for breeding herd
replacements while the other 5 may be further fed for harvest and carcass data collection. It is important to report all the calving, weaning and subsequent data to the American Wagyu Association.

Commercial Herds
Producers may choose to collect carcass data through well designed breeding programs using commercial (or non-registered Wagyu) cows. This approach allows for the collection of large numbers of carcass records by using Wagyu bulls either through Artificial Insemination (A.I.), natural breeding, or a combination of both. It is important to keep accurate breeding records (A.I. and natural service). Under this approach cows should be randomly mated to sires to achieve an unbiased comparison of sires. It is important to include reference sires in these datasets. Reference sires are those established sires with carcass records in other contemporary groups across other herds and years.

Contemporary Groups
The first consideration in progeny testing is creating contemporary groups, so that the producer has comparable data sets. The objective is to maintain contemporary group structure from birth to harvest which ensures equal opportunity for cattle to perform within the contemporary group under the same environmental conditions (environmental differences can exist in pastures adjacent to each other).

Contemporary groups should be managed to expose all cattle within the group to the same environmental factors (i.e. pastures/pens, feed, weather, etc.). A contemporary group must consist of two or more animals from the same ranch of origin, gender, management, and similar dam base. For commercial herds it is essential the contemporary group must have progeny by more than one sire and must also include a reference sire.

A reference sire is one that has historical data represented across multiple progeny tests within the Wagyu breed. All data will be collected and processed through the AWA database and then analyzed through the association’s national cattle evaluation procedures.
Growth Trait Data Collection
Growth traits can be collected and submitted to the AWA for calculations measuring gain efficiencies. Submitting both weaning and yearling weight not only measures the growth potential of the calf but also contribute to maternal EPD for the cowherd. Weaning weights are used to evaluate differences in direct (WWT EPD) and maternal weaning traits (MILK EPD). Yearling weight is an important trait because it has a high heritability and substantial genetic association with post weaning gain, efficiency of gain, and yield of trimmed, boneless retail beef.

Submission of additional feeding performance test data will contribute to growth efficiency traits. The economic importance of intake as the largest non-fixed cost of beef production is well known. Genetic evaluation programs for feed intake and efficiency are developing, recognizing the economic relevance of cost-stream input traits to genetic improvement in profitability. See appendix for BIF guidelines to measure feed intake.

Pre-Harvest Data Collection
The following pre-harvest data is required to be processed through the AWA database prior to submission of harvest data:

1. Dam Identification
   a) Registration number if registered
   b) Individual ID
   c) Date of birth (Year of birth if actual date not known)
2. Breed or breed type (breed codes are available upon request)
3. Sire registration number
4. Calf herd ID/tattoo/EID
5. Calf date of birth
6. Sex of calf
7. Calving ease score (optional)
8. Birth weight (optional)
9. Weaning Date
10. Weaning weights taken between 160 and 250 days
    a) Desired by optional for commercial herds
    b) Required for seedstock herds to account for selection bias
11. Yearling weights taken between 320 and 410 days (optional)
12. Yearling weigh date
13. Group and management codes
14. On feed and off feed dates

Carcass Data Collection
Carcass data traits are exceptional within the Wagyu Breed. Considering that the quality grade characteristics are unique to the breed, careful consideration must be made when setting the standard for carcass data collection. The goal when creating a carcass data collection standard is to design a system that captures the most applicable data points, while presenting a platform to the membership that is accessible. The AWA must do two things initially to proceed with a carcass data collection standard for the membership:

1. Establish data collection avenues
2. Create standard carcass data collection points

Some carcass data collection points can be subjective. To have an objective outlook on subjective matters, an outside un-biased source needs to be involved. The American Wagyu Association can assist in identifying third-party data collection companies. The third-party would be trained on a standard directed by the AWA and have the ability to collect all standardized data points necessary for carcass EPD. Once data collection has been completed by the data collection service a report would be sent to the producer and directly to the AWA.

Harvest Data Collection
Carcass data collected will need to include:

1) Calf herd ID/tattoo
2) Harvest date
3) Harvest plant and location
4) Hot carcass weight
   a) USDA Marbling score and instrument grading data (E+V and MIJ Camera data points when available)
   b) It is important to record and report the instrument grading technology that was used
   c) As emerging technology is developed and validated procedures for evaluating marbling score will be updated.
d) If additional data points are collected using different technologies than listed above that information can be submitted to the AWA for possible inclusion in future evaluations.

5) Carcass maturity  
6) Fat thickness – between 12th and 13th rib  
7) Ribeye area – between 12th and 13th rib  
8) Percent pelvic, heart, and kidney fat, if available  
9) Optional data may be reported including quality grade and yield grade  
10) Additional traits specific to Wagyu cattle may be included as validated technology becomes available.

Verifying Parentage
Parent verification will be required to collect sire specific performance traits. A DNA sample can be collected by blood, hair follicle, or tissue sample and submitted to the American Wagyu Association.

General Information for Carcass Data Collection

The responsibility of obtaining reference sire semen will be between the test herd owner and the test sire owner(s).

All financial arrangements will be between the test herd owner and the test sire owner. The AWA recommends an arrangement where all or a significant portion of financial incentives paid to a test herd (if any) are paid based on carcass records being collected and reported.

Be sure it is understood that the test herd owner has the responsibility of accurately recording complete herd identification, breeding and calving records, and growth data.

Be sure the party responsible for feeding the cattle and making harvest arrangements keeps all parties current on harvest date with a minimum of 3-4 weeks advance notice of harvest date.

Be sure to contact the packing plant and make arrangements well in advance (4-8 weeks) of your intention to collect carcass data. A positive relationship with the packing plant manager helps ensure successful carcass data collection.
Be sure to contact and establish a relationship with the third-party data collection company (4-8 weeks advance). You will need to make sure their calendar is open for the date of harvest and when carcass data is to be collected. They can be very helpful building relationships with all parties including the packing plant manager.

If ownership is not retained to slaughter, the test herd owner and sire owner have the responsibility of ensuring that the buyer is completely aware of the testing procedure and that the cattle are finished and slaughtered in accordance with prescribed guidelines.

The American Wagyu Association can provide advisory assistance in all phases of the testing procedure but assumes no responsibility for agreements between parties or collection of data. The producer will be responsible for coordination of the carcass data collection through including agreements with the packing plant. Collected carcass data then may be submitted to the American Wagyu Association in an electronic format or on forms provided to the producer or entity assisting with carcass data collection.

Any parties interested in working as a test herd for collecting carcass data may contact the American Wagyu Association.

**RESEARCH OPPORTUNITIES**

The AWA will pursue opportunities to participate in and lead research trials with current and emerging technologies. This allows for studies to address emerging genetic models and technologies for performance, carcass, and meat quality traits. Improved technology has the opportunity for improving accuracy and can also make carcass data collection more accessible to the AWA membership and allows historical data to be used in the calculations for EPD.

**GENETIC EVALUATION**

As performance data is collected and reported to the AWA (birth, growth, reproduction, and carcass) across multiple contemporary groups and sires the AWA can begin research to determine genetic parameters (estimates of
heritability, genetic correlations) for the Wagyu population. Once those genetic parameters are determined and if they sufficiently characterize the Wagyu population Expected Progeny Differences (EPD) can be computed.

**SUMMARY**

These guidelines are intended to aid the Wagyu breeder when collecting and reporting performance and carcass data. The use of information is dynamic, with advancements in technology, accuracy of measurement, and as the ability to collect more data improves our ability to improve accuracy of selection also improves. An understanding of how to measure and collect performance data is essential to progressive performance programs. The Beef Improvement Federation provides standardized guidelines and procedures which can be applied. The AWA has used these time tested guidelines with adjustments specifically for Wagyu breeders to build a performance program to advance the Wagyu breed and Wagyu genetics. If you have any questions about collecting performance information please contact the American Wagyu Association. Additional information can also be found in the Guidelines for Uniform Beef Improvement Programs, published by the Beef Improvement Federation [www.guidelines.beefimprovement.org](http://www.guidelines.beefimprovement.org)

*(BIF) – reprinted from the Beef Improvement Federation Guidelines*