CANADIAN BLONDE d'AQUITAINE ASSOCIATION

MEMBER HANDBOOK

updated January 1, 2023

IMPORTANT CONTACTS

CLRC
Canadian Livestock Records
Membership & Registry Services
Toll Free: 1 (877) 833-7110
Phone: (613) 731-7110
Fax: (613) 731-0704
Email: clrc@clrc.ca
Web: www.clrc.ca

CBDA
Canadian Blonde Association
www.canadianblondeassociation.ca

Provinces
Links can be found on the CBDA wenpage

AGSIGHTS (formerly BIO)
Herd Management Software & EPD's
Toll Free: 1 (855) 246-2333
Phone: (519) 767-2665
Fax: (519) 767-2502
Email: service@biotrack.ca
Web: www.agsights.com

Link to Registry & Forms
www.clrc.ca/associations/blonde

The link above will take you a CLRC page that contains valuable information that will help you on your journey with the Blonde d'Aquitaine breed. You will find links to the Herdbook (pedigrees) and Member page, Fee Schedules, forms that you will need to manage your Blonde herd, By-laws and much more. If you any further questions please contact a member of the CBDA Board of Directors. A contact list for the Board can be found on the CBDA website under the "Member Directory" heading.

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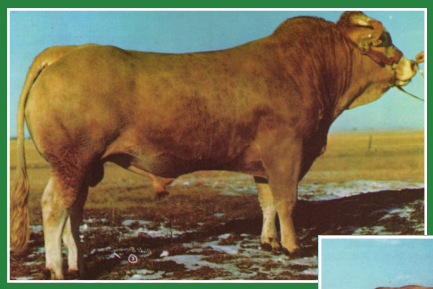
Early History of Blonde d'Aquitaine in Canada

The breed entered Canada in September of 1971 with the importation of a bull Fantome (R9), and the bull Flambar (R3) followed shortly after. Both were imported by H & F Cattle Company; the "F" standing for the Fouillard family of St. Lazare, Manitoba who would be an integral part of the breed until the early 2000's. Following the importation of the two bulls and widespread semen distribution, an interim Board of Directors was created in November of 1972 to facilitate an application for charter status with Ag. Canada. Following the official acceptance of the Canadian Blonde d'Aquitaine Association (CBDA) in 1973, a new Board of Directors was voted in. Included in this original group were Shirley Bilton, who received a lifetime achievement award from the CBDA in 2015, and was active in the breed until his passing in 2016 as well as Ken Mackenzie who was the first elected President of the Canadian Blonde Association, officially retiring from the breed in 2014.



Fantome

Flambar

NATIONAL BLONDE SALE & AGM

The first National Blonde sale was held in January of 1974. It was known as the "Canadian Blonde Bonanza Sale" and was held in conjunction with the Canadian Blonde AGM. The event was held in Calgary at the Stampede Grounds, and it became a tradition that National Shows and Sales held in Alberta were referred to as the "Bonanza", just as those held later by the Man/Sask Association were known as the "Sweetheart." The first National Show wasn't held until 1977, thus becoming the event we all recognize today.

This first sale featured two imported Fullblood open heifers, two imported Fullblood bull calves as well as bred and open 50% females. By this time many of the imported cattle were coming from England including the four Fullblood animals in this sale. The high seller, West Riddens Importance, was later renamed Double A Importance, and became a prolific flush cow. Sales results are printed below including an inflation adjustment to 2013 dollars just to give an idea of the outrageous prices being paid during the "Exotic Craze".

Lot 1 - Horton Ivy (R50) - $41,000 - purchased by Tony Roman, Ontario

Lot 2 - West Riddens Importance (R52) - $42,500 - purchased by Double A Stock Farm, Alberta

Lot 3 - Horton Inspector (R38) - $36,000 for 50% Int. - purchased by ?

Lot 4 - West Riddens Intermingle (R44) - $29,500 - purchased by ?

2	Fullblood Open Females	Average $41,750	2013 = $192,000
2	Fullblood Bull Calves	Average $32,500	2013 = $149,500
6	50% Bred Females	Average $9,000	2013 = $41,500
50	50% Open Females	Average $4,900	2013 = $22,500

Importance

Inspector

HISTORY OF THE BREED

The origin of the Blonde d'Aquitaine cattle breed dates back to the Sixth Century, and the invasions of France by countries from Central Europe. During that era, the conquerors moved east crossing Germany, Gaul (France), Spain and into Portugal. These invaders transported weapons and looted goods with them carried in vehicles drawn by cattle who also served as sources of meat. By following the paths of these invasions one finds the following breeds of cattle:

- La June de Franconie in Germany
- The Blonde breeds of Southwestern France
- The Blonde breeds of the Iberian Peninsula

It appears that these breeds all developed from the same genealogical source, and in France formed several strains in regions where the "Bos Aquitanous" were found. (the Western Pyrenees, Quercy, and the region around the Garonne River).

In 1961 the French Government combined three of these strains/breeds from the Southwest of France to create the Blonde d'Aquitaine breed as we know it today. An intensive breed improvement program was also created at this time which has pushed the breed to the third most populous beef breed in France. Carcass, growth, calving ease, fertility and milking ability are measured, and all animals in the Herd Book are type scored to ensure quality within the breed.

THE GARONNAIS STRAIN

This strain is specific to the lands along the Garonne River. Its original habitat or region was along the fertile alluvial banks of the Garonne between Agen and Bordeaux. The cattle breeds were named after the regions in which they resided - Garonnais and more specifically Agenaise, Bordelaise, Creon, etc.

During the Eighteenth Century they were already well known as the "good cows that fed Paris". The Garonnais were also considered one of the most beautiful cattle breeds in France, and thought to be one of the greatest work breeds in Europe. The Garonnais bulls were well known as good harness animals, and they were used in the ports and vineyards. They were equally capable of pulling barges along the Garonne River before being replaced by horses and the steam engine. Furthermore, three month old calves, mature cows and fattened bulls were used to provide meat for the large cities. At this time very little was being done to improve the genetics of the Garonnais. The selection of cattle for meat or milk production was not fully developed yet, and the principal focus of the strain was to produce work animals.

However the Garonnais were considered to possess qualities ideal for meat production, and in the first part of the Nineteenth Century the farmers of Agen put more care into the improvement of their animals. Thus at the competition in Paissy in 1845 and 1846 the five Garonnais animals present were classed ahead of the other French breeds with 2593 lbs of live weight and 66.5% yield as compared to 2167 lbs/65.3% for the Charolais and 2112 lbs/64.6% for the Limousin.

Organized improvement of the Garonnais breed began in 1898 with the creation of a Herd Book under orders from the Lot et Garonne Regional Council. At this time two types of Garonnais could be distinguished by their different environments.

- The Garonnais from the hillsides - larger bone structure, and a deep coloured hide.
- The Garonnais from the plains - finer bone, lower set build and a fair coloured hide

These two types were combined in the Herd Book, and there was some hybridization, but both environments retained a large influence from their original populations.

The improvement continued into the beginning of the Twentieth Century with the addition of:

- Local breeding co-ops
- Travelling judging competitions
- Creation of breeders unions to oversee the selection process

In 1925 recommendations were made to the Garonnais breeders for the improvement of the animals conformation. Bulls should have a long, thick and wide back, while females should have a fine pliable skin with a long wide barrel. Both sexes should have width of chest, the crops, and the rump. However at this time the breed was still used heavily as a work animal.

After World War II the Garonnais breeders were faced with changes in the direction of agriculture due to increased mechanization. Concerted efforts were made to improve the slaughter aspects (veal and beef) and calving ease of the breed in anticipation of increasing production. At this point the breeders began to focus on increasing the width of the rump which had mainly been ignored until that time. However, it was only in 1959 that the first Performance Control Group was created, and it was chiefly concerned with the Garonnais breed.

In 1845 the population of the Garonnais breed was 375,000 head, but had increased to 412,000 by 1892

due to its popularity as a work animal. From there the numbers steadily decreased due to the two World Wars, the splitting off of the Quercy breed, increased mechanization (no longer needed for work) and cross breeding with dairy cattle for increased milk yield until they numbered only 200,000 in 1962.


Blonde herd near the French Pyrenees

THE QUERCY STRAIN

Formerly, this name denoted a local breed that has long since disappeared. In 1920 this name was renewed when the department of Tarn et Garonne broke away from the Garonnais Herd Book to create a new Quercy breed which was made up of the Hill Side Garonnais type. In order to further differentiate their breed from the Garonnais the breeders made a wide appeal for cross breeding with the Limousin breed. This led to a decrease in size and growth, and an improvement in conformation although they were still very similar in type to the Garonnais. In 1920 this strain numbered 60,000 head, and that figure increased to 105,000 by 1943.

THE BLONDE DES PYRENEES BREED

Due to the specific conditions of the Western Pyrenees a smaller, lighter bodied breed of "Bos Aquitanous" emerged in that region. Separation of valleys within the Pyrenees led to the further distinction of several well known groups - Bernaise, Tarbaise, Lourdaise, Basquaise, etc. This differentiation ended in 1921, and these cattle were combined under the name of the "Blonde Des Pyrenees" with a total population of 275,000 head.

This animal was useful in harness as well as for fattening and milk, however World War II created an increased need for butter and cheese. Farmers were encouraged to become more involved in milk production, and by 1953 there were only 150,000 Blonde des Pyrenees cattle left as they were above all a work animal. However, in certain regions (Sounoulou, Morles, St. Palais, St. Jean-Pied-de-Port, Hasparren) they were also well known for their production of slaughter calves, and the trend of the breed in those areas was towards improvement of butchering traits. Another important fact should be noted about the Landes region and the Lower Pyrenees: the sharecroppers shared half their yield from butchering animals with their Landlords, whereas the milk all went to the sharecropper. This encouraged farmers to increase milk production of the breed in these areas.

At one time, as with the Quercy, the official organizations advocated cross-breeding with the Limousin breed. This lasted until 1965 and was then abandoned, however these small infusions had improved muscle through the rump and loin regions of the Blonde des Pyrenees. The breed is recognized today as an animal of medium frame, well proportioned, very rugged and well adapted to the mountains. It is a better milk producing animal than the Garonnais or Quercy strain. The Pyrenees breed also has a different horn shape than the other strains - with upward curving tips versus the downward growing horn of the Garonnais and Quercy.

EVOLUTION OF THE BLONDE d'AQUITAINE

Near the end of the 1950's the French Government completed a study to identify cattle breeds with sufficient numbers, and potential for improvement. At that time the Blonde breeds from Southwestern France were dismissed, not because they lacked potential, but because there were not enough numbers - Garonnais had 210,000 head representing 1.2% of French cattle, Quercy 50,000 head or 0.3% and the Blonde des Pyrenees 150,000 head or 0.9%. The Charolais and Limousin represented 8.8% and 3.4% respectively of the national cattle. Thus the idea of grouping all of these different Blonde breeds, into one representing 2.4% of the National herd, was born.

The link between the Garonnais and Quercy strains presented only a few difficulties as the separation had been quite recent, and in 1961 the Blonde d'Aquitaine breed was created. After some work researching the parental links between the Garonnais and the Blonde des Pyrenees, the latter was added to the Blonde breed in 1962. Blonde d'Aquitaine were officially recognized as a breed of National interest for the production of slaughter calves in 1963.

HOW TO BECOME A MEMBER & REGISTER YOUR BLONDE ANIMALS

1. All forms needed for these activities can be found by the following the link on Page 2 of this Handbook.
2. Apply for an Active Membership for the current year.
3. If you are a new member you will need to apply for tattoo letters and a herd prefix. Once approved you can use these items in the registration process. This application can be done when you apply for your membership.
4. Once you have received confirmation of your membership with herd name and tattoo prefix you may complete the Application for Registration form. Registrations can also be done electronically.
5. All Herdsires must have a SNP type on file with the CBDA for their offspring to be eligible for registration.
6. Sires used via Artificial Insemination (AI) must also have a SNP type on file in order to register their offspring. Please ensure your sire meets the requirements prior to breeding. There is a reference list on the CBDA website, or you can contact a member of the CBDA Board.
7. All Fullblood animals must be parentage verified to sire and dam to be eligible for registration.
8. There is random parentage testing at the time of registration for all Purebred and Percentage animals. 1 in 10 animals will be selected. Due to this by-law It is good practice to collect hair samples from cows prior to culling if you have not yet registered their offspring.
9. All Embryo Transplant animals must be parentage verified to sire and dam (or to the fullest extent possible) to be eligible for registration.
10. Detailed Rules for Registration can be found in the By-laws available by following the link on Page 2, or by contacting a member of the CBDA Board.

BLONDE PERFORMANCE PROGRAM & EPD's

As the Blonde breed is primarily a terminal sire breed, growth and carcass traits are extremely important for us to maintain a place in the beef industry. In order to measure these traits (and others) we use EPD's, and a company named AgSights (formerly BIO) located in Ontario has been the official provider of Blonde EPD's since the late 1990's. There are two ways that you can become involved in recording the performance of your Blonde cattle.

1. Purchase a subscription to the Biotrak on-line software system through AgSights. This system is extremely comprehensive not only providing performance information and EPD's, but allows you to track animal movements, sales, vaccinations, medical treatments and much more. You can also record and track information for your commercial or non-registered cattle in the herd. All this information is entered and accessed through the internet on a personal computer, tablet or phone. This option is best suited to producers with larger herds, or that are more technologically advanced.
2. Enter the CBDA administered Blonde Performance Program. It was created for producers that are only looking for performance information and EPD's, or for breeders with smaller numbers of animals who needed a more cost effective option (versus Biotrak). It is ideal for members with less than 50 registered Blonde cows. With this program you send your records to the program administrator via mail or email, and you will receive reports and EPD's back for your animals the same way. You do not have direct access to the system as you would with the Biotrak system. There are forms and instructions for the program on the CBDA website.

To sign up for the Performance Program, or for more information on either option please contact the Performance Committee Chairman: Nicholas Boyd
519-835-9099

Understanding Blonde Breed Composition and Terminology

The first Blonde d'Aquitaine cattle to arrive in Canada were bulls, and they were used extensively through artificial insemination. The first matings to the traditional British breeds produced outstanding results; fast growing calves that excelled in the feedlots and for carcass traits. Because it was possible to increase breed numbers more rapidly through the use of these AI sires bred to the domestic cow population, a "grading-up" policy was established. This policy was not unique to the Blonde breed, as all of the other European beef breeds have similar policies.

The worldwide term for animals that have been organized into breeds is "Purebred" as these animals have been selected for specific traits, and then bred over generations to set these traits. In France the standard is four generations of Blonde breeding to reach Purebred status (or 94%), and the same is used in Canada. The first Blonde cattle to arrive in Canada were considered Purebred, however with the new grading-up system, breeders wanted a way to identify those animals of pure French descent. Therefore Blonde cattle that were graded-up to Purebred status in Canada became known as "Domestic Purebreds". This was later refined to call the cattle of pure French descent "Fullbloods" and the graded-up cattle became "Purebreds". Cattle below the Purebred level were commonly referred to as "Percentage". This is the system we still use today.

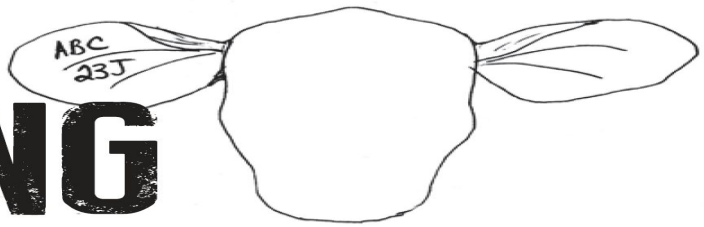
50% Blonde heifer from a Red Angus dam

Grading up of Blonde animals in Canada was governed by a grading-up chart until 2022. At this point a switch was made to using exact percentages based on recommendations from Ag Canada. Current grading up By-laws are as follows:

- Blonde genetic content will be calculated using percentages rounded to one decimal place.
- The Blonde percentage of the sire is added to that of the dam and divided by two in order to calculate Blonde percentage of offspring.
- Fullblood and Purebred animals will remain separate classes although Purebred animals will be able to reach 100% due to rounding.
- Animals not registered in the Blonde herdbook will be considered 0% Blonde.
- Graded up animals that are 90% or more will be considered Purebreds.
- Graded up animals that are 45%, but below 90% will be considered Percentage.
- Bulls must be above 70% Blonde breeding to be eligible for registration.
- Bulls of other breeds can be used as the sire on the first cross (F1), and resulting female calves can be registered provided they are above 45% Blonde breeding.
- Animals will be noted with the terms Fullblood, Purebred or Percentage along with their blood percentage on their registration papers and the on-line pedigree pages.

75% Blonde 25% Hereford Steer

Are You TATTOOING PROPERLY?



Many of you have been tattooing cattle for years, and doing a good job. However, I still come across cattle that have had their tattoos improperly or poorly done. Please read this short article to ensure that you aren't the one of the people producing these tattoos.

As per the CBDA by-laws: All calves must be identified by tattoo markings before they are six (6) months of age, and before applying for registration. However, it is not recommended that calves be tattooed at birth unless necessary for sale or show. It is far better to wait until the calf is several months old, and the ear large enough to accommodate proper tattooing. It is difficult to place the tattoo properly between the ear ribs of a small calf, and most of these tattoos are also placed too far into the hair at the edge of the ear due to space constraints. Improperly placed tattoos, needle holes becoming further apart as a calf grows and fading ink can make for a very poor tattoo that will be difficult to read in years to come.

More procedures and tips for producing a high quality tattoo

- Check the tattoo on a piece of cardboard before applying it to the animals ear. Remember when you are looking at the tattoo pliers it is a mirror image of what will appear in the ear.
- Know in which ear you are to place the tattoo. The CBDA designates the **right ear** (as per the picture in the heading) for tattoos, although if need be the left ear may be used and noted on the registration paper. Other Breed Associations can, and do designate the left ear as the primary ear for tattoos.
- Restrain the head of the animal, ideally in a squeeze chute, haltered and head pulled over to expose the ear in question. If the animal can throw its head too much, tearing occurs which causes more bleeding, elongation of the needle holes and possible loss of ink.
- Clean the ear with a cloth as dirt and wax can prevent the ink from penetrating the skin. Some people like to clean the ear with rubbing alcohol which also acts as a disinfectant.
- Apply tattoo ink to the ear **prior** to applying the tattoo. Green ink is the easiest to read.
- Place the tattoo between the ribs of the ear as close to the head as possible. Too far from the head and you may place it in the hair of the outer ear, especially as the animal grows.
- Herd letters should be placed at the top, with the herd number followed by the year letter designation, below as per the picture in the heading. See the chart on this page for year letter designations.
- Apply quickly, press firmly and release quickly to prevent tearing of the needle holes. You must press hard enough to puncture the skin so that the ink is well below the surface and new skin can heal over the needle holes.
- Rub ink into the needle holes. You may need to get some fresh ink to do this if the applied ink has become too dry or bloodied.
- View the tattoo again once in the ear to ensure that the letters and numbers are all correct.
- Also check the tattoo of any purchased animals as soon as you get them home, and if buying privately it may be a good idea to check prior to taking the animals home. A little due diligence could save you trouble down the road.

Year Letters

2017 - E	2021 - J	2025 - N	2029 - T
2018 - F	2022 - K	2026 - P	2030 - U
2019 - G	2023 - L	2027 - R	2031 - W
2020 - H	2024 - M	2028 - S	2032 - X

I, O, Q, V are not used

Interpreting Blonde EPD's

Expected Progeny Differences or EPD's are a means by which cattle performance can be measured across different environments and management systems which we'll call "groups". The simple version is that cattle in these different groups are given an index based on their individual performance versus the group average for a specific trait. This index provides a relative comparison for each trait, and animal in the group. Then the separate groups from different environments and management are compared while adding in pedigrees to look for similarities in relative trait performance amongst familial lines.

EPD's are a great tool in breed improvement as they take some of the guess work out of selecting animals for your breeding herd, and more specifically sire selection as they make up 50% of the genetics in your herd. However selecting cattle with proper structure and eye appeal is just as important. Feet, legs, udder, teats, docility, fertility are all extremely important to profitability in the North American cattle industry. We need to balance EPD's with correct phenotype, and the bull with the best numbers may not always be the solution to breed improvement.

In order for our membership to track sire performance through EPD's the CBDA publishes Sire Summaries from time to time. A Complete Sire Summary from 2014 and Active Sire Summary from 2015 are available on the Canadian Blonde d'Aquitaine website. All sires with five or more offspring have been included in the Complete Summary, and there are over 1400 sires on this list. The Active Summary only includes those bulls with progeny in the last five years. In these summaries we have also included Polled information behind the registration number; (P) indicates that the animal is known to be heterozygous polled, (HP) is homozygous polled and (DP) is double polled meaning both his sire and dam are polled, and there is a chance that the bull could be homozygous.

Some of the information in these Summaries is self explanatory, however some will require more discussion. Firstly the actual EPD and %wb. Higher numbers mean more of the trait (ie: more CE or calving ease) except in the case of BW in which case a higher number means less of the trait (ie: lower birth weight). In terms of Accuracy (Acc), numbers below 15 are only pedigree estimates; numbers below 35 only include the bulls own individual performance or very few progeny records. As the animal has more progeny the EPD will change and the Accuracy will increase. More definitions:

Prog/Herds - # of calves entered & # of herds they were born into
%wb - Percentage ranking within the breed
Acc - Accuracy of the EPD or in this case, higher number is more accurate
CE - Calving Ease; how easy a sires calves are born from first calf females
M - Milk; additional WW contributed by milking ability of daughters
MCE - Maternal Calving Ease; how easy a sires first calf daughters calve
SC - Scrotal Circumference

BW - Birth Weight
WW - Weaning Weight
YW - Yearling Weight
REA - Ribeye area
IMF - Marbling
BFAT - Back Fat
HT - Hip Height

In some Sire Summaries we have only reported the percentage within breed rating (%wb) and accuracy (Acc) of the trait for each sire, and not the actual EPD. Upon further assessment this may not have given our membership a true picture of the performance differences between sires. There are a few things to keep in mind when looking at this information.

Firstly we need to understand what the EPD means. In the case of BW, WW, YW and Milk the EPD is reported in terms of pounds. For example a sire near the top of the breed with a WW of +50 will sire calves that are 17 lbs heavier at weaning than the average sire (50%wb & WW of +33). A sire that has a Milk EPD of +30 will have daughters that wean calves that are 14 lbs heavier than the average sires daughters (50%wb & Milk of +16). In the case of CE these numbers are expressed in terms of percentages in relation to first calf heifers.. A sire with a +3.5 calving ease will have 4.8% fewer assists at birth than the average sire (CE of -1.3).

2015 Sire Summary Percentile Chart

	Calving Ease	Birth Weight	Wean Weight	Yearling Weight	Milk	Maternal Calving Ease	Scrotal Circ.	Hip Height	Rib Eye Area	Marbling	Back Fat
	%	lbs	lbs	lbs	lbs of calf	%	cm	cm	cm	%	cm
Percentile Within Breed	CE	BW	WW	YW	M	MCE	SC	HT	REA	IMF	BFAT
Top 5% (95%wb)	3.5	-3.4	50	68	30	5.8	0.10	0.82	1.09	-0.15	-0.88
10% (90%wb)	2.4	-2.4	45	62	26	4.8	-0.19	0.63	0.85	-0.21	-0.92
20% (80%wb)	1.2	-1.5	41	55	23	3.5	-0.50	0.40	0.66	-0.24	-1.03
30% (70%wb)	0.5	-0.8	38	50	21	2.7	-0.60	0.28	0.57	-0.26	-1.06
40% (60%wb)	-0.1	-0.3	35	46	19	1.9	-0.75	0.13	0.50	-0.27	-1.12
50% (50%wb)	-0.7	0.1	33	42	17	1.1	-0.88	-0.01	0.44	-0.28	-1.15
60% (40%wb)	-1.2	0.6	31	39	15	0.2	-1.00	-0.16	0.38	-0.30	-1.18
70% (30%wb)	-1.9	1.1	29	35	13	-0.5	-1.25	-0.32	0.33	-0.31	-1.20
80% (20%wb)	-2.7	1.8	26	31	11	-1.6	-1.57	-0.50	0.24	-0.32	-1.29
90% (10%wb)	-3.9	2.7	23	25	9	-3.0	-1.86	-0.75	0.15	-0.35	-1.44
Bottom 5% (5%wb)	-5.2	3.8	20	19	6	-4.3	-2.09	-0.94	0.07	-0.38	-1.50

However a bull at the bottom 10% of the breed for WW & Milk still has an EPD of +23, and +10 respectively. This bull only has 10 lbs less of WW than the average bull and his daughters calves are only 6 lbs lighter than the average sire. While the percentiles seem extremely different the actual real world results may not always be so.

1/29 ROBERTSONIAN TRANSLOCATION

1/29 Robertsonian Translocation is a genetic abnormality that can cause a decrease in herd fertility. This issue has become more important in recent years due to the use of older genetics with undocumented 1/29 status. New information regarding carrier and non-carrier bloodlines has also recently been provided by the French Blonde d'Aquitaine Association, and the hope is that we will be able to incorporate this information along with some newly identified Canadian carriers into the herdbook at CLRC.

A little history. It is not unique to the Blonde breed, and is found in several of the continental breeds (Charolais, Limousin, Simmental, etc). The condition was first reported in Danish Red and White cattle in 1964. The first lab for testing in France was set up in 1968, and from this the first paper describing 1/29 in French Blonde d'Aquitaine was published by Darre et al in 1972. Midatest, who controlled all AI sire testing and distribution of Blonde d'Aquitaine semen in the 60's, 70's and 80's, tested 142 AI sires in that period. 24 were found to be carriers, starting with Tarino born in 1962 and the last was Samedi born in 1981. In 1984 Midatest stopped listing carriers in their catalogue (bulls were 3-4 years old before being listed), and as of 1990 young carrier bulls were not performance tested at the Casteljaloux test centre. At one point in the late 1980's it was estimated that over 20% of the Blonde herd in France carried the translocation.

Affected animals have no visible difference in appearance from a normal animal. Female carriers are more likely to be affected by symptoms than male carriers. Research has shown a 5-10% decrease in fertility among heterozygous carrier females, and up to 15% decreases in homozygous carrier females due to early embryonic death. These losses result in females returning to heat 60-90 days after being bred. While there has been evidence of lower male fertility in some studies there is no consensus. A comprehensive study of 1/29 carrier Blonde d'Aquitaine AI sires in France found no differences in fertility. Pregnancy rates of Blonde d'Aquitaine females inseminated with the semen of carrier bulls (135,632 breedings) or non carrier bulls (585,949 breedings) were 74.88% and 74.75%, respectively. However one study did find that carrier bulls left fewer calves than normal bulls when used in natural service. This may be due to the results of other studies that have found reduced motility and increased defects in the semen of carrier bulls. Natural service requires the semen to make its way up the reproductive tract of the female, versus AI which deposits semen directly into the uterus, and this may account for the differences in fertility between the two methods of breeding.

So what is the impact on your herd? Heterozygous carriers will pass the condition to 50% of their offspring and homozygous carriers to 100% of their offspring (see the Genetics page elsewhere in this handbook for a more complete explanation). Carrier females may come up open in herds with defined calving seasons, or may not calve regularly every 12 months in less controlled seasons. A 1/29 carrier bull used as a herdsire has an even more negative impact with 50-100% of offspring being carriers, which means that 50-100% of your replacement heifers will be carriers. It would not take long to have a herd full of carrier females, and large economic losses would follow. This exact situation happened in a Saskatchewan Charolais herd in the 1980's, and brought this abnormality to the forefront in Canada.

What do we need to know as breeders? This abnormality is NOT widespread in our current breed population, however as breeders it is our responsibility to pass on the best genetics we are capable of. You will have seen pedigrees marked 129N or 129C following the registration number; N for normal karyotype and C for carrier of 1/29 translocation. Not all animals carry a designation as testing is a voluntary management practice requiring a lab test (blood). However once the animal is tested it is mandatory that it show on the pedigree, and this has been in place since the mid 90's. Earlier testing (beginning in 1990) was done by the University of Calgary as part of a research project and was proprietary, with results only being added to pedigrees if the owner wished.

Testing your herdsires is the key to preventing the spread. Check your pedigrees on-line at the CLRC. If you have an animal in your herd which has an ancestor identified as 129C, and the line of inheritance has not been broken by a 129N test, it would be wise to test the animal or any resultant offspring that you retain for breeding stock, especially if being used as a herdsire. You may also be able to lower testing costs by testing older animals (they need to be alive to do it), and if they and their offspring were bred to 129N animals you would be able to get several 129N animals through parentage (genetic inheritance) with the cost of one test.

A list of 1/29 carriers is available on the Canadian Blonde website along with a list of AI sires that have 129C animals in their pedigree.

Other Important Information regarding 1/29 Robertsonian Translocation

- All animals with a 129C parent must be tested to be eligible for registration.
- All animals born by Embryo Transplant must have a 129N status to be eligible for registration.
- All imported animals, semen or embryos must have a 129N status to be eligible for registration

1/29 Testing Procedure

- Apply to the CLRC for the 1/29 test, and you will receive paperwork and instructions.
- Arrangements must to be made with the Lab prior to collecting the blood - hair will not work.
- The blood sample must arrive at the lab within 48 hours of being taken. This will require shipment by courier, and may require shipment by air depending on your location.
- The sample should be taken and sent on Monday so that the sample can be prepared prior to the weekend.
- The sample must stay near room temperature - **do not refrigerate**.
- A blood sample in a **green top vial** must be forwarded to the Lab along with the paperwork from the CLRC.
- The blood sample should be taken by a veterinarian, and the tattoo clearly written on the blood vial.

GENETICS

As They Pertain to the BLONDE D'AQUITAINE BREED

by Reed Rigney

As I was writing about 1/29 Robertsonian Translocation I got thinking that an article outlining genetic inheritance would be helpful for breeders to understand how traits are passed from a parent to their offspring. For the sake of space I will take a very simplistic view of the genetic process, but it will cover our needs for this topic.

Each cell in an animal contains pairs of chromosomes (cattle have 30 pairs) which in turn contain the DNA or genetic code (genes) for that animal. This rule follows for reproductive cells as well, and a process called meiosis transforms them into sperm or eggs. In the process the pairs of chromosomes are split, re-combined to ensure that each individual is genetically unique and two gametes are formed. Each gamete contains half of the parent animals DNA, and becomes an individual sperm or egg. When the sperm and egg meet during fertilization, each chromosome pairs with its match from the other parent, to once again give us 30 pairs of chromosomes.

While some trait inheritance is very complicated with several genes controlling expression of a given trait, others are less so, and it is these that I will focus on in this article. Because chromosomes are in pairs (that then split), two letters are used to represent the genes for each trait that the animal possesses. Capital letters are used to represent the dominant gene and small case letters are used for the recessive gene. The dominant gene expresses itself whether it has one copy (heterozygous) or two copies (homozygous) in the DNA of an animal. The recessive gene remains "hidden", and has no effect on the animal unless they have two copies of the gene (homozygous recessive).

POLLED AND HORNED

In cattle the polled gene (P) is dominant to the horned gene (h). When breeding homozygous polled animals to one another or horned cattle (thus homozygous horned) to one another there is only one outcome; the polled will remain homozygous polled and the horned will stay homozygous horned. Please refer to the diagrams provided for possible outcomes of crossing polled and horned cattle.

Of course there are always exceptions. Mutations can occur, and there are several instances of horned animals producing polled offspring. Another possibility is that the "horns" of the parent animal were actually scurs.

Because we regularly dehorn calves at birth in Canada we don't always have the opportunity to see how these horns would have developed. There are also varying degrees of scurs from very small scabs to "heavy scurs" that are large and almost resemble horns. Scurs are actually a different gene than the horned/polled gene, therefore an animal can be polled and scurred or horned and scurred (horns cover the scurs). Scurs are also sex linked, which for our purposes mean that a bull will only have one scur gene (inherited from his dam) to show physical scurs while a scurred female must have two copies of the gene (homozygous). This is the reason that we see so many more scurred bulls than females. Another interesting twist is that homozygous polled animals can be "scurred" genetically, but will not have physical scurs.

Offspring are:
Hetero Polled
50% Horned

PARENT #1
Horned 50%

PARENT #2 Hetero Poll	h	h
P	Ph	Ph
h	hh	hh

Offspring are:
25% Homo Polled
50% Hetero Polled
25% Horned

PARENT #1
Hetero Poll

PARENT #2 Hetero Poll	P	h
P	PP	Ph
h	Ph	hh

Offspring are:
50% Homo Polled
50% Hetero Polled

PARENT #1
Homo Poll

PARENT #2 Hetero Poll	P	P
P	PP	PP
h	Ph	Ph

1/29 TRANSLOCATION

Transmission of the 1/29 abnormality follows the same simple inheritance pattern. The 1/29 trait is dominant, therefore we see lower fertility expressed even when an animal is heterozygous for the trait. The diagram shows the heritability pattern of offspring from a 129C (heterozygous) and a normal parent. As you can see, replacing the hetero parent (Cn) with a homozygous carrier parent (CC) would mean all of the offspring would be carriers. Once an animal is normal, the carrier animals in their background become irrelevant from an inheritance standpoint; they cannot pass the 129C trait on to their offspring because they do not carry it themselves.

Offspring are:
50% Carriers 1/29
50% Normal

PARENT #1
Hetero Carrier

PARENT #2 Normal	C	n
n	Cn	nn
n	Cn	nn

Axonopathy

The Canadian Blonde d'Aquitaine Association (CBDA) Board of Directors become aware of a new genetic defect present in Blonde cattle in February 2017. It's scientific name is Congenital neurodegeneration, however it is commonly known as **Axonopathy**. This is not a new defect as it traces back to the origin of the breed, but is relatively new in its identification. Upon initial review it appears that the Blonde herd in Canada will have a low level of carrier animals, but we need to be diligent to prevent its spread.

Axonopathy is a neurodegenerative anomaly that presents the following symptoms from the first days after birth: muscle and ligament sensitivity, possible lack of coordination and slight or partial paralysis manifested by a decrease in muscular strength. The disease progresses towards the inability to stand and the total loss of muscle function within a few weeks at most, and the outcome is always fatal.

Axonopathy follows a simple recessive inheritance path, and is only clinically expressed in the homozygous state. This means that both sire and dam must be carriers of the gene in order for an affected calf to be born. Heterozygous carrier animals do not exhibit any symptoms.This type of genetic disease is often referred to as a "lethal recessive".

As an example - when mating two carrier animals you will on average have 25% of the offspring born with Axonopathy, and dying within a few weeks, 50% of the offspring will be heterozygous carriers of the defect and 25% will not carry the defect.

Currently, we do not have the ability to test for this defect in Canada. However there is a test available in Europe, and the CBDA Board is making inquiries regarding its availability to Canadian Blonde breeders. If you are concerned about having calves born with Axonopathy the best strategy, until testing is available, is to avoid crossing pedigrees with possible carriers in them.

At present there is only one confirmed carrier registered in the CBDA Herdbook, and that is Coby R19363. His semen was imported from the Midatest program in France, however he does not have any registered progeny in our Herdbook yet.

The bull Jaguar R86 is also of concern as he is sired by a confirmed carrier of the defect, and has a 50% chance of being a carrier himself, and he has offspring registered in our Herdbook.

Going further back into pedigrees, it appears that the defect was carried through the sire line of HUTIN who in turn sired KAPUCIN - both of which can be found in many Canadian pedigrees. However the French Association would not commit to naming these bulls as a possible source as they do not have any DNA to test. The possibility of having a carrier also diminishes with each generation and these bulls are far back in most pedigrees.

The French Association did provide the CBDA with a list of AI sires that they have tested and their status. This list is available on the CBDA website under the Member Info heading or by contacting Reed Rigney (rigney@clearwave.ca 780-348-5308).

In the meantime your CBDA Board has passed three policies to manage this defect, and the membership should be aware of them. Please remember that these are policies and can be altered as the situation changes. Once testing is available more concrete By-laws will be brought forward.

- Imported live cattle, semen and embryos must be tested or be derived from animals tested for Axonopathy. Carrier animals will not be eligible for registration in the Canadian Blonde herdbook effective February 21, 2017

- Animals with parents that are carriers of Axonopathy will require testing when a test becomes available to the CBDA.

Known carriers and non-carriers will be updated in the CLRC registry database. Designations will show on paper pedigrees and in the on-line herdbook. AXC will designate carriers of the defect, and will AXN will designate non-carriers, and they will appear in the animal name after the 129 designation.

Lastly, this is not something to panic about - all breeds of cattle have genetic defects with many also having lethal outcomes. With increasing genetic technology more are being identified all the time. We as breeders just need to do our best to manage the issue in our Breed and in our herds.

If you suspect that you have had a calf born with Axonopathy please contact Reed Rigney (rigney@clearwave.ca 780-348-5308). Any information you will provide will be held in strict confidence, but we would like to identify any bloodlines present in our Canadian population that could be carriers.

Breeding Soundness Exams & Fertility

It is recommended practice that breeding age bulls have a breeding soundness exam completed prior to being sold to a customer. In fact the CBDA Code of Ethics states "All bulls offered, except calves at side, must be guaranteed breeders irrespective of age". The guarantee has specific conditions, but the fact remains that in order to protect the interests of both parties an exam should be done. It should be completed as close to the potential breeding season as possible to guard against issues creeping up in between the exam and exposure to females.

A breeding soundness exam is much more than just semen testing. The veterinarian will palpate the seminal vesicles (secrete fluid that makes up semen) to feel for signs of infection, palpate the testicles and epididymis to ensure they are firm (not hard or soft) as well as look for hair rings, warts, skin-ties, deviations, disease or other damage to the penis. Libido, and proper breeding technique is also extremely important in a breeding bull, however this is something that the owner will have to assess for themselves. Of course the semen will also be observed for abnormalities, motility and the testicles measured for circumference. Refer to the chart in this article for the minimum scrotal circumferences for Blonde bulls. If a bull does not meet these minimums , or fails any other part of the exam he will not be passed as a satisfactory breeder by the Veterinarian.

However keep in mind that these minimums are exactly that, and while the bull in question will be capable of servicing females, he would not be considered ideal for a bull in a breeding program. Scrotal circumference of young bulls is an accurate, repeatable method to assess current and future sperm producing ability. The measurement gives an estimate of the weight of the testes, which is directly related to the level of semen volume and quality. It is also positively related to the fertility of a bulls daughters, and females from sires with larger than average scrotal circumference reach puberty earlier, and have fewer days to rebreeding after calving.

Western Canadian Association of Bovine Practitioners
Suggested Minimum Scrotal Circumference
For Blonde d'Aquitaine bulls

Age in Months	circumference in cm
12	29
13	30
14	31
15	31.5
16-20	32
21-30	33

While large testicles are a positive in terms of early sexual maturity and fertility, there is only incremental change in a bulls serving capacity after he reaches 38 cm in circumference. So it is a matter of balance; yearling bulls don't need to have 38 cm scrotal measurements as they may not be physically mature enough to breed a large number of cows anyway. An ideal range for a yearling would be 33-35 cm and 36-38 cm for a 2 year old bull depending on the exact months of age. In fact testicles that are too large can create their own fertility problems. They are more susceptible to injury, frostbite and the bull may have trouble regulating testicle temperature properly. Proper temperature regulation of the testicles is also a reason to purchase bulls with proper testicle shape, scrotal neck length and without excess fat in the testicle region, although these are rarely issues in the Blonde breed.

General Information about Blondes

Gestation Length

It is longer for Blondes than many other breeds and is typically in the 290-295 day range for mature cows; two year old first calf heifers are typically 285-290. This is important to know as most gestation tables calculate due dates based on 282-286 days, and this can lead breeders to think their Blonde calves are overdue. Even though Blondes generally have a longer gestation length this doesn't mean that they have larger birth weights, and they are usually in-line with the other French breeds or slightly less on average.

Colour

Blondes vary in colour from white to dark red, with paler areas around the eyes, nose, insides of the legs and underline. They appear to follow a co-dominance colour pattern similar to the Shorthorn breed. Both breeds have a white and red colour, and when animals of those two colours are combined you get a mixture of the two; Blonde colour or Roan in the case of Shorthorns. The "Blonde" colour can vary from almost white to almost red, again similar to the Shorthorn breed where there are varying degrees of roan colour. See the diagrams below, and for a more detailed explanation on how to interpret the diagrams please see the Genetics Page.

Offspring are:
25% Red
50% Blonde
25% White

Parent #2 Blonde	Parent #1 Blonde: R	Parent #1 Blonde: W
R	RR	RW
W	RW	WW

Offspring are:
0% Red
100% Blonde
0% White

Parent #2 White	Parent #1 Red: R	Parent #1 Red: R
W	RW	RW
W	RW	RW

Offspring are:
50% Red
50% Blonde
0% White

Parent #2 Blonde	Parent #1 Red: R	Parent #1 Red: R
R	RR	RR
W	RW	WW

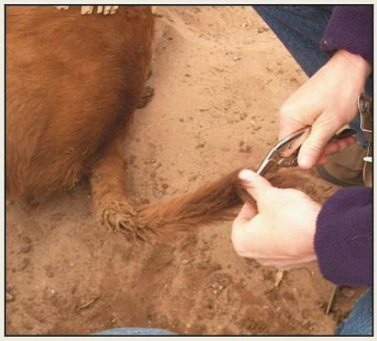
Offspring are:
0% Red
50% Blonde
50% White

Parent #2 Blonde	Parent #1 White: W	Parent #1 White: W
R	RW	RW
W	WW	WW

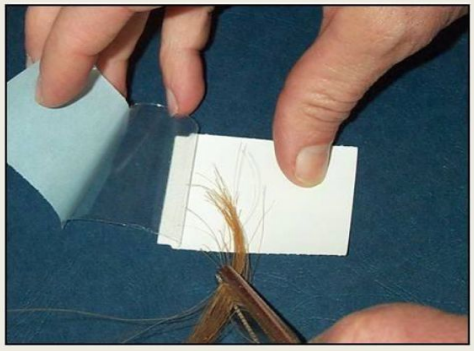
BREEDER HOW TO

How to Collect Hair Samples

- The hair samples should be collected from the tip of the animal's tail (switch).
- Make sure that the hair is clean and free of urine and manure. Dirty samples will not be processed.
- Comb or brush the tail to remove dead hair.
- Wrap about five hair strands around your finger, approximately 2 inches (5 cm) from the base of the tail, and then give a sharp pull. Inspect the hair and make sure the follicles are attached. Pull about ~~20~~ 50-60 hairs per animal.
- Secure the hair together with adhesive tape, about 1 inch (2 .5 cm) from the follicles. Place the sample into the provided hair envelope. Seal the envelope immediately and identify the sample by writing the name, tattoo and registration number of the animal on the outside. Place only one sample per envelope.
- If collecting more than one sample or sampling different animals, make sure to clean your hands, combs and brushes between animals to minimize cross-contamination.
- Place the hair sample envelope and completed DNA form into a larger envelope and mail it to:



Delta Genomics
4424 TEC Centre, Enterprise Square
10230 Jasper Ave
Edmonton, AB T5J 4P6



When collecting hair samples for DNA testing, select clean hair from the tip of the animal's tail

Secure the hair with tape about one inch from the follicles