

Documentos

ISSN 1516-7453

June, 2017

206

Girolando Breed Genetic Improvement Program / Sire Summary / Progeny Test Results / June 2017



*Empresa Brasileira de Pesquisa Agropecuária
Embrapa de Leite
Ministério da Agricultura, Pecuária e Abastecimento*

Documents 206

Girolando Breed Genetic Improvement Program Sire Summary Progeny Test Results - June/2017

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1st edition

1st print (2017): 2,000 copies

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CIP-Brazil. Cataloguing in publication
Embrapa Dairy Cattle

Girolando breed genetic improvement program – Sire summary – Progeny test results – June/2017 / Marcos Vinicius G. Barbosa da Silva ... [et al.]. – Juiz de Fora : Embrapa Dairy Cattle, 2017.
55 p. (Embrapa Dairy Cattle. Documents, 206).

ISSN 1516-7453

1. Dairy cattle. 2. Girolando breed – improvement. I. Silva, Marcos Vinicius G. Barbosa da. II. Martins, Marta Fonseca. III. Cembranelli, Marcello de Aguiar Rodrigues. IV. Paiva, Leandro de Carvalho. V. Panetto, João Cláudio do Carmo. VI. Machado, Marco Antonio. VII. Verardo, Lucas Lima. VIII. Gonçalves, Gustavo Souza. IX. Faza, Daniele Ribeiro de Lima Reis. X. Alves, Bruna Rios Coelho. XI. Series.

CDD 636.082.2

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Presentation

The successful history of Girolando, which was initialized with the first official registration of the breed in 1996 by the Ministry of Agriculture, is been outlined along with its development, and have been strongly supported by genetic improvement initiatives held by the Girolando Breeders Association and Embrapa Gado de Leite. Those initiatives include the progeny test, established in 1997, and the Girolando Breed Genetic Improvement Program, established in 2007.

The partnership between Girolando Breeders Association and Embrapa Gado de Leite, held in order to produce and release this summary in behalf of the Girolando breed, involves efforts of a staff composed of approximately one hundred people, working in several fields of animal production and science. Their work encompasses from registering field data, prospecting, organizing and managing partner herds, by the Girolando association; until treating, storing and analyzing data, as well as designing and publishing this present document. Hence, as a result of this work, the Girolando Sire Summary and Progeny Test Results contain a synthesis of several information that are greatly valuable for producers as well as for the community that shares interest in the Girolando breed.

This Sire Summary/Progeny Test Results document has innovative tools and resources, for breeders and/or other professionals. Those include information regarding molecular markers, the Girolando Linear Evaluation System (SALG) and the updated genetic evaluation of age at first calving. The methods for analysis were modified for this current evaluation and are detailed further in this document.

Still, in order to convert this work into effective benefit for the Girolando breed, it is important that producers and people working in the field apply, more and more, those results as a primary source of information to support managerial decisions for improvement of their herds.

Paulo do Carmo Martins
General Manager
Embrapa Gado de Leite

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Girolando Breed Genetic Improvement Program

Sire Summary

Progeny Test Results - June/2017

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1. Introduction

The Girolando breed progeny test was established in 1997, as a result of the partnership between Girolando and Embrapa Gado de Leite. In 2007, the Programa de Melhoramento Genético da Raça Girolando – PMGG (Genetic Improvement Program of the Girolando Breed) was implemented. Besides interacting with previously existing initiatives of the Girolando Breeders Association, such as the genealogical register service, the progeny test and the dairy control service, the PMGG launched the Linear Evaluation System (SLAG). The main objectives of the PMGG comprises identification of genetically superior individuals, the technically-oriented multiplication of genetics, the evaluation of economic traits and the promotion of sustainable dairy activities.

The Program's results are remarkable. Currently, Girolando has the most growing rates of semen production in Brazil. More than 536,176 semen doses from Girolando sires were produced in 2016, representing an increase of more than 43%, in comparison to 2013. The increased milk yield during the first three lactations of Girolando cows is another important achievement of this Program. The average milk yield in up to 305 days a year of Girolando cows was 3,703 kg in 2000 and, in 2015, reached 5,663 kg, representing a rise of 53%.

As a consequence of those and other factors, Girolando is achieving more recognition, nationally and internationally, and therefore, is being considered the preferable dairy breed in tropical regions. Because Girolando animals are capable to sustain an acceptable production level when raised in diverse types of management systems and environmental conditions, the breed is widely accepted in Brazilian dairy systems. In fact, 80% of the milk produced in the country originates from Girolando cows.

2. History of the Breed

The first activities involving crossbreeding between Holstein and Gyr in Brazil emerged in the 40's. According to some older traditional dairy farmers, this crossing occurred mistakenly when a Gyr bull invaded a neighboring farm and mated Holstein cows. Nonetheless, the directed crosses were guided in order to generate offspring that would combine the high milk production capacity of the Holstein cattle and the rusticity of the Gyr breed. The crossbreds were noteworthy for excellent productivity, high fertility indexes and good vigor. Due to these advantages, the crossbreeding practice quickly spread around the entire country. Within a short period, Girolando became the predominant cattle breed on the majority of Brazilian dairy farms.

Over the years, dairy crossbred achieved great importance, and lead many research and rural extension institutions to study and apply the crossbred practice, with the objective of improving the quality of the products. Thus, in 1978, the Programa de Cruzamento Dirigido – PROCRUZA (Directed Crossbreeding Program) was created in order to select different dairy

and beef cattle crossbreeds. Under the leadership of the Associação Brasileira de Criadores – ABC (Brazilian Association of Breeders), the Criadores de Gado de Leite do Triângulo Mineiro e Alto Paranaíba – ASSOLEITE (Triângulo Mineiro and Alto Paranaíba Association of Dairy Cattle Breeders) was in charge of implementing PROCRUZA. In 1988, the Ministry of Agriculture determined the end of PROCRUZA, and in 1989 ASSOLEITE was registered under the Ministry and began managing the program for the formation of the Girolando breed. The association was since then named as Associação Nacional dos Criadores de Girolando (National Association of Girolando Breeders). In 1996, the Girolando breed became official, the entity took on the name Associação Brasileira dos Criadores de Girolando – GIROLANDO (Brazilian Association of Girolando Breeders), headquartered in Uberaba, Minas Gerais State, Brazil.

3. The Girolando Breed

The Girolando breed was conceived aiming the development an ethnic group that produces milk sustainably, in tropical and subtropical regions. The breed's background is the crossing of Holstein (HOL) and Gyr (G) breeds, ranging genetic compositions varying from 1/4 HOL + 3/4 G to 7/8 HOL + 1/8 G. However, matings are been directed in order to establish the breed's genetic composition at 5/8 HOL + 3/8 G. The ultimate goal is to generate productive and standardized cattle that meet the needs of dairy farmers. Animals resulting from mating between 5/8 HOL + 3/8 G individuals are considered as Pure Synthetics (PS), which means the proper Girolando breed. In order to be registered as a definitive PS, besides being a product of such mate, an animal must have a positive genetic evaluation for the milk yield (PTA milk). This evaluation is based on an individual's own performance or on the performance of its parents. Other requirements are also demanded according to regulations from the Girolando Breed Genealogical Register, available on the Girolando site (www.girolando.com.br). The leading matings and crossbreeds practiced within the Girolando Program are presented below (Figure 1).

In Figure 1 the fraction or percentage of Holstein breed composition is always read first. The genetic composition of the sire always comes before the dam. For the purpose of the register, only 5/8 or PS cows can be bred with 5/8 or PS bulls. Females with genetic composition between $F \approx 5/8$ will be controlled as 5/8. Males of $F \approx 5/8$ will not have their genetic composition rounded off to 5/8, maintaining the correct fraction according to the mating from which it arose. The cells marked with the X are products from crossbreeds of which Girolando does not turn official the genealogy.

		MOTHER							
		Hostein	7/8	3/4	5/8 or PS	1/2	3/8	1/4	Gir
FATHER	Hostein	x	x	7/8 (87,5%)	x	3/4 (75%)	F ≈ 5/8 (68,75%)	5/8 (62,5%)	1/2 (50%)
	3/4	7/8 (87,5%)	13/16 (81,25%)	3/4 (75%)	x	5/8 (62,5%)	F ≈ 5/8 (56,25%)	1/2 (50%)	3/8 (37,5%)
	5/8 or PS	13/16 (81,25%)	3/4 (75%)	F ≈ 5/8 (68,75%)	PS (62,5%)	F ≈ 5/8 (56,25%)	1/2 (50%)	7/16 (43,75%)	5/16 (31,25%)
	Gir	1/2 (50%)	7/16 (43,75%)	3/8 (37,5%)	x	1/4 (25%)	x	x	x

Prepared by: Brazilian Association of Girolando Breeders, 2011.

Figure 1. Girolando breed crossbreed table.

The diagrams presented in Figures 2, 3, 4 and 5 show the leading strategies for the formation of Pure Synthetic (PS) Girolando. However, any combination between the breeds, Holstein, Gyr and its crossbreeds can be used for obtaining PS.

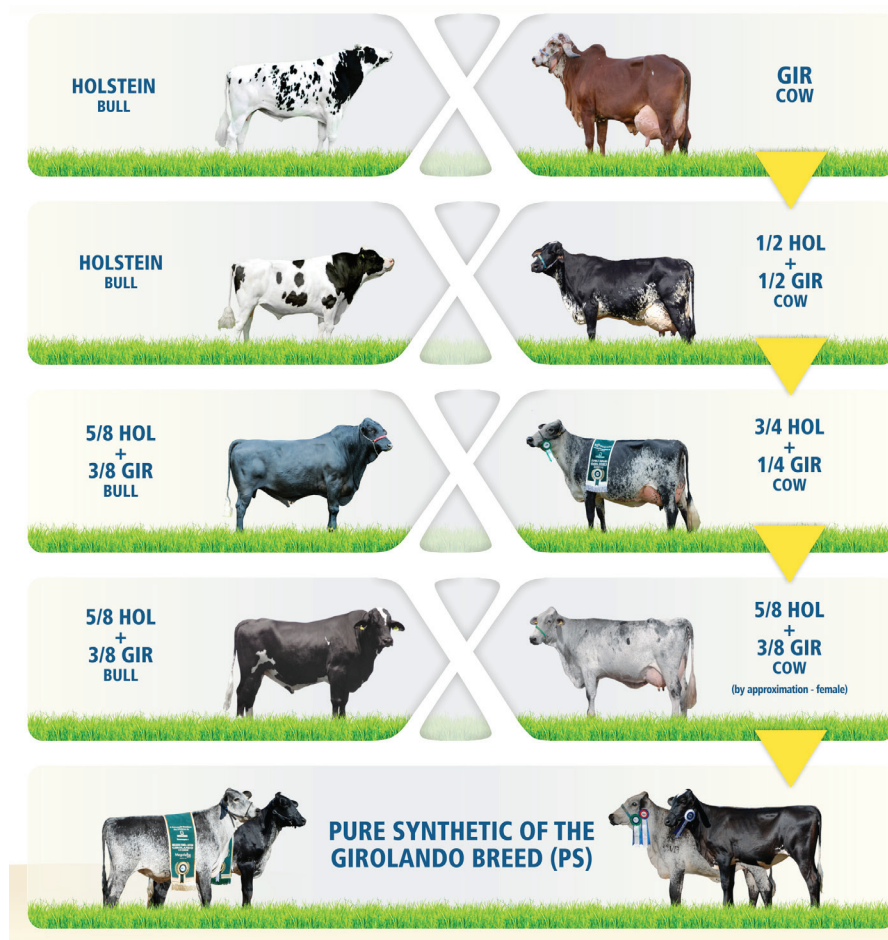


Figure 2. Crossbreed strategies for obtaining PS animals using Holstein breed bulls in the first two generations and a 5/8 Girolando bull in the following generations.

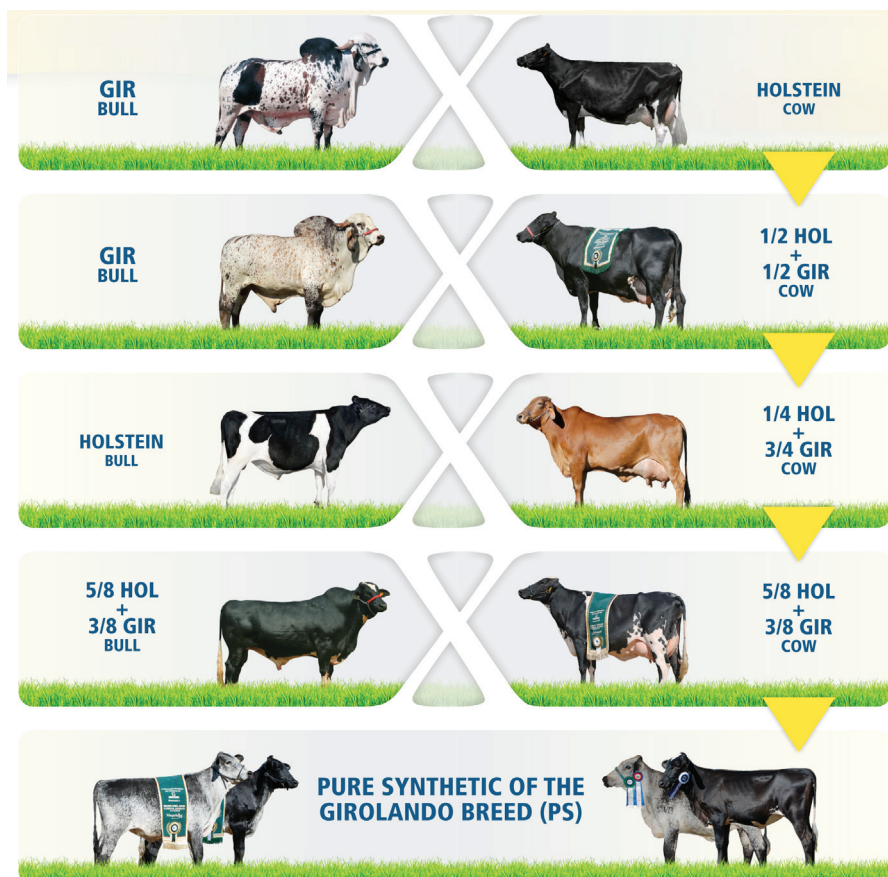


Figure 3. Crossbreed strategy for obtaining PS animals, using Gir and Holstein breed bulls in the first three generations and a 5/8 Girolando bull in the last generation.



Figure 4. Crossbreed strategy for obtaining PS animals, using Holstein breed bulls in the first generation, a 3/4 Girolando in the second generation and a 5/8 Girolando bull in the third generation.



Figure 5. Crossbreed strategy for obtaining PS animals, using a Gir bull in the first generation and a 5/8 Girolando bull in the last two generations.

Due to the greater availability of semen from Girolando bulls, the crossbreeding strategy using Girolando semen has become more viable. The main crossbreeding strategies using 5/8 of PS bulls are presented in Figure 6, and using 3/4 bulls are presented in Figure 7.

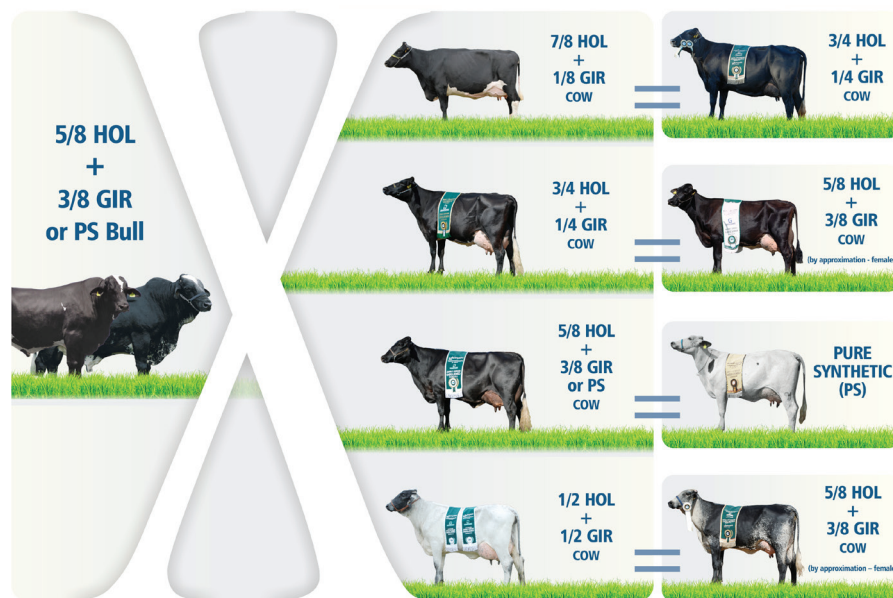


Figure 6. Most commonly used crossbreeds with Girolando 5/8 or PS bulls.



Figure 7. Most commonly used crossbreeds with Girolando 3/4 bulls.

4. Genotyping of Progeny Test Bulls

The evolution and recent advances achieved in the field of biotechnology allowed the use of molecular markers information for selection and mating programs. The knowledge about animal genotypes is of strategic importance and elevated economic value, as it allows for the identification of animals with greater potential for milk production, fat and protein milk content. Also this knowledge permits the identification of alleles linked to genetic diseases. With this information at hand, farmers can direct mating, choose semen, and therefore, apply the assisted selection through molecular markers for genetic improvement of Girolando breed.

4.1. Molecular Markers

Kappa-casein (k-CN) - The properties and quality of dairy are directly influenced by its protein content. The main proteins in milk are caseins, lactoglobulins and albumins. Molecular studies have identified that variants of Kappa-casein are strongly associated to a greater yield for cheese production. The BB-genotype animals produce more milk protein when compared to AA-genotype animals. The BB genotype is associated to superior cheese processing traits, such as less coagulation time and the formation of a denser coagulate. The production of BB animals are associated with yield 12% greater in terms of mozzarella and 8% for cheddar cheese in comparison to AA-genotype animals. AB animals have an intermediary yield comparing to BB and AA genotypes.

Beta-casein - This gene encodes a protein present in milk and has been correlated with allergies, type 1 diabetes and other effects. The two major alleles are A1 and A2. The A1 allele when digested in the gastrointestinal tract, giving rise to the BCM-7 peptide that was negatively correlated to health problems in humans. But the allele A2 is positively associated with increased production of milk and protein in cattle.

Beta-lactoglobulin (β -LGB) - This gene encodes a milk protein which corresponds to 50 to 55% of the proteins contained in whey. Twelve alleles have been identified for this gene, and A and B alleles are the most frequent in commercial herds. Allele A is the most favorable for milk production, while allele B is related to a larger percentage of fat and protein in milk. The milk from the animals with the AA genotype is recommended for *in natura* sale and milk from animals with the BB genotype is most recommended for the production of dairy, such as cheese.

DGAT1 - The DGAT1 (diacylglycerol O-acyltransferase 1) gene is strongly associated to the percentage of fat in the milk. Two alleles of this gene were identified in bovines. The A allele, fixed in the majority of Zebu breeds, is associated to increased protein and milk production. The K allele, very common in European breeds, is associated with a reduction in protein production and an increase in the production of fat in milk.

BLAD - Bovine leukocyte adhesion deficiency (BLAD) is a genetic disorder common in Holstein breeds. This disease is caused by a recessive mutation of the CD18 gene. Animals which are homozygote for this mutation have retarded growth, tooth loss, immune system failure and premature death, generally driven by pneumonia. Heterozygote animals (carriers of the recessive allele) have normal development.

DUMPS - Deficiency of Uridine Monophosphate Synthase (DUMPS) is another important genetic disorder of Holstein breed. It is characterized by a recessive mutation in the *UMPS* gene, resulting in deficiency of the UMPS. This enzyme is part of the pyrimidine synthesis pathway, which comprises the process of RNA and DNA synthesis. Homozygote embryos for this mutation die around the 40th day, since pyrimidines are greatly needed during that embryonic stage. Heterozygote cows have elevated level of orotic acid in the urine and milk.

CVM - Complex vertebral malformation (CVM) is a syndrome that include congenital growth retardation, vertebral malformation and deformation of the ventricular septum. The syndrome is caused by a mutation in the *SLC25A53* gene, which encodes a protein that plays an important role in the formation of the vertebra. Similar to other recessive genetic diseases, such as DUMPS and BLAD, carrier animals develop normally, while recessive animals die shortly after birth.

OPN (osteopontin) - Studies with Holstein animals, showed that this gene is associated with milk yield and with fat and protein percentage in milk. Other studies also demonstrated that this marker is also associated with growth traits.

5. Zootechnical Performance

For the current evaluation, 214,627 records were used. Those included milk yield and genealogy data, originated from herds supervised by the Dairy Control Service, and provided by Girolando Breeders Association. The milk yield of first lactations (70,223) was edited for age at first calving (560 to 1,650 days), year of birth (1997 to 2015), year of calving (2000 to 2016), breed composition (2/8 to 7/8 HOL:G), causes of lactation termination, herd size and contemporary groups for herd-calving year. Lactations included in those analyses met the criteria of pertaining to a herd that had at least three controlled lactations and used at least two bulls in the same year.

The productive performance at first lactation of 47,979 Girolando cows, controlled by this Program, pertaining from 1,096 collaborator herds, in the period from 2000 to 2017, is shown in Table 1 and Figures 8 and 9. The general average for milk yield in 305 days in

the period was 4,931 kg, taking into account the first, second and third lactations. The average total milk yield and the average duration of lactation were 5,464 kg and 284 days, respectively. The average calving interval was 433 days and the average age at the first calving was 1,060 days.

Table 1. Number of herds and lactations, average milk production 305 days and total milk yield of the third lactations, duration of lactation , calving interval and age at first calving of cows from the Girolando breed during the period from 2000 to 2016.

Calving year	Number of herds	Number of lactations	Milk yield (kg)		Lactation length (days)	CI ¹ (days)	N° Obs. CI	AFC ² (days)	N° Obs AFC
			In 305 days	Total					
2000	48	615	3,700 ± 1,847	4,137 ± 2,509	277 ± 106	392 ± 111	369	1,006 ± 167	595
2001	64	1,125	3,576 ± 1,678	3,799 ± 1,936	258 ± 97	398 ± 64	325	1,040 ± 174	770
2002	77	1,344	3,594 ± 1,585	3,827 ± 1,886	265 ± 93	420 ± 85	543	1,038 ± 178	764
2003	85	1,756	3,617 ± 1,630	3,869 ± 1,909	269 ± 97	424 ± 83	708	1,025 ± 165	1,004
2004	103	1,853	3,843 ± 1,745	4,134 ± 2,069	274 ± 98	433 ± 98	821	1,050 ± 171	953
2005	119	1,983	3,774 ± 1,745	4,079 ± 2,090	267 ± 101	443 ± 96	861	1,112 ± 192	1,003
2006	135	2,093	3,896 ± 1,806	4,238 ± 2,204	271 ± 101	442 ± 89	802	1,106 ± 165	1,231
2007	134	2,032	4,229 ± 1,988	4,588 ± 2,433	278 ± 89	446 ± 92	814	1,130 ± 180	1,146
2008	139	2,354	4,419 ± 2,039	4,910 ± 2,684	293 ± 97	439 ± 91	804	1,146 ± 177	1,499
2009	191	3,037	4,929 ± 2,095	5,017 ± 2,697	286 ± 99	425 ± 81	978	1,114 ± 180	2,008
2010	213	4,176	4,653 ± 2,233	5,195 ± 2,991	279 ± 109	419 ± 88	1,381	1,090 ± 187	2,760
2011	266	4,929	4,977 ± 2,210	5,620 ± 2,905	294 ± 117	424 ± 92	1,652	1,058 ± 194	3,219
2012	278	6,050	5,222 ± 2,143	5,992 ± 2,963	303 ± 113	431 ± 98	1,850	1,072 ± 190	4,108
2013	401	8,721	5,212 ± 2,492	5,889 ± 3,271	296 ± 102	437 ± 95	2,338	1,049 ± 209	5,456
2014	388	9,901	5,247 ± 2,494	5,795 ± 3,111	285 ± 94	427 ± 96	2,225	1,037 ± 294	7,219
2015 ¹	290	13,247	5,663 ± 2,182	6,310 ± 2,868	293 ± 95	438 ± 103	4,961	1,055 ± 232	7,561
2016 ^{1,2}	269	5,007	5,058 ± 2,170	5,239 ± 2,363	242 ± 70	436 ± 104	2,214	1,028 ± 202	2,054
Geral	778	70,223	4,931 ± 2,281	5,464 ± 2,911	284 ± 101	433 ± 96	23,480	1,060 ± 220	43,350

¹Calving interval, ²Age at first calving, ³CI incomplete data, ⁴Only lactations initiated up to October 2016 were included.

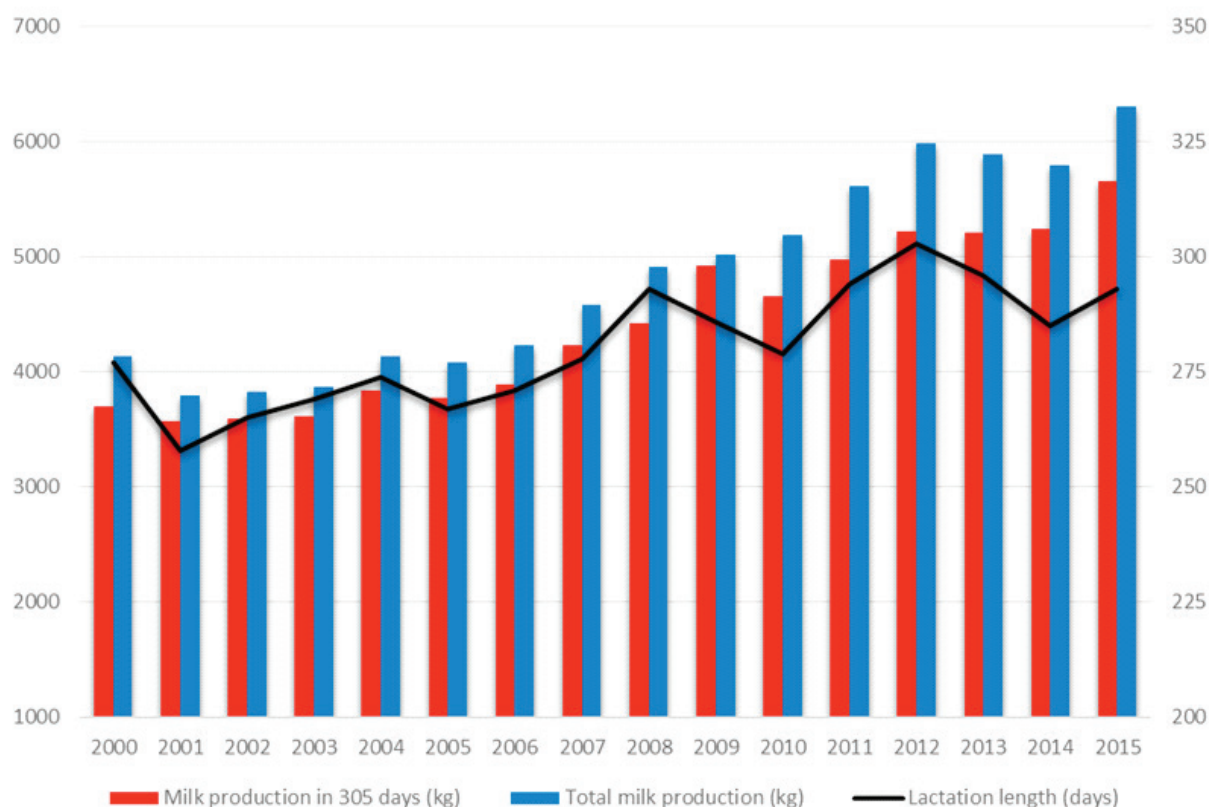


Figure 8. Average milk production in 305 days, total milk yield of the third lactation and lactation length of Girolando cows from 2000 to 2015.

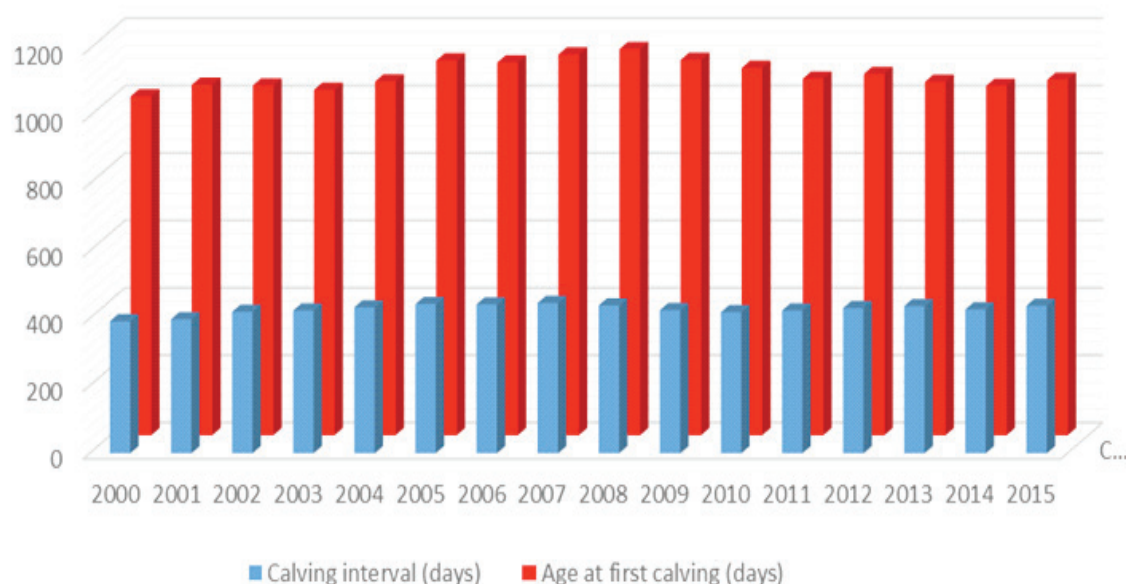


Figure 9. Average first calving interval (FCI) and age at first calving (AFC) of Girolando cows from 2000 to 2015.

6. Progeny Test and Genetic Evaluation of Bulls

The Girolando Breed Genetic Improvement Program (PMGG) has been underway for 20 years, under technical coordination of Embrapa Dairy Cattle. The PMGG is geared toward dairy control and the use of artificial insemination in the herds of breeders (Annex 3) for the conduction of the Girolando Bull Progeny Test. The progeny test started in 1997 and 100 sires of the first 12 groups have already been tested. Eight other groups that are currently under testing (Annex 1) and include 158 sires whose semen doses were distributed between 2010 and 2017 and 36 sires whose semen doses will be distributed in 2018.

6.1. Distribution of Progeny Test Semen

For the Progeny Test to be conducted it is necessary that sires and dams are available to breeders. Sires must be of excellent genetic origin and be selected by a technical board. The criteria for selection are specified in the regulation for the participation of bulls in the Girolando Breed Progeny Test. The selected sires are divided into groups according to the year of registration. The dams to be inseminated with the coded semen from these bulls are called collaborative dams. For each group of bulls, the period from the distribution of the coded semen to the publication of the first results of the progeny test take in average six years. This is due to factors such as the period of distribution, use of semen by breeders, gestation period of the dams, age at first calving, lactation period of the bulls' daughters and time for analysis of dairy control and genealogy data (Table 2).

Table 2. Time for the realization of the Progeny Test.

Stage	Duration (months)
Semen distribution	6
Use of semen in the herds	6
Gestation of collaborative matrixes	9
Average age at first calving	36
Average period of lactation of bulls' daughters	10
Data analysis	4
Total Duration	71

The average time estimated for the publication of the first results is 71 months, that is, 5 years and 11 months after the start of the distribution of semen to the collaborating herds.

This period may be shorter or longer, according to the time necessary for the execution of each of the stages. The most relevant stages of the test are the use of the semen and the collection of data regarding age at the first calving for the bull's daughters. Another stage of high importance is the distribution of semen, as the faster this occurs, the less time is necessary for the collaborative dams to be inseminated. The years of registration and semen distribution, as well as for the disclosure of the first results of each sire group of the Girolando progeny test are in Table 3.

Table 3. Years of registration and distribution of semen from sires pertaining to 19 groups of the Girolando Progeny Test.

Group	Registration	Distribution	Results
1	1996	1997	Available in 2004 (6 bulls)
2	1997	1999	Available in 2005 (8 bulls)
3	2000	2001	Available in 2007 (6 bulls)
4	2001	2002	Available in 2008 (5 bulls) and 2011 (1 bull)
5	2003	2004	Available in 2009 (7 bulls)
6	2004	2005	Available in 2010 (4 bulls) and 2011 (3 bulls)
7	2005	2006	Available in 2011 (8 bulls)
8	2006	2007	Available in 2013 (9 bulls)
9	2007	2008	Available in 2014 (9 bulls)
10	2008	2009	Available in 2014 (3 bulls) and 2015 (5 bulls)
11	2009	2010	Available in 2015 (3 bulls), 2016 (8 bulls), and 2017 (1 bull)
12	2010	2011	Available in 2016 (3 bulls), 2017 (11 bulls), and predicted for 2018 (5 bulls)
13	2011	2012	Predicted for 2018 (24 bulls)
14	2012	2013	Predicted for 2019 (23 bulls)
15	2013	2014	Predicted for 2020 (26 bulls)
16	2014	2015	Predicted for 2021 (26 bulls)
17	2015	2016	Predicted for 2022 (24 bulls)
18	2016	2017	Predicted for 2022 (29 bulls)
19	2017	2018	Predicted for 2022 (36 bulls)

Results of the groups 11 to 19 may become available after five or six years, varying according to the performance of the collaborator herds and each individual animal. The results may be anticipated if the reliability is greater than or equal to 70% and the bull has daughters in at least three herds. In 1998, 2000 and 2003, there was no semen distributed. This fact disrupted the timing of this phase and the disclosure of the first results of the other groups of sires.

6.2. Statistical Model and Analysis Methodology

The file containing the basis for the genetic evaluation included only the first three lactations of each cow, in accordance to the following rules:

- data from the second lactation was only included if the first lactation has been controlled;
- data from the third lactation was only included if the first and second lactation have been controlled.

From 2015, lactations that lasted more than 60 days were included in the evaluation, as long as the cause of the end of lactation was considered valid. In addition, the file also included the lactations of daughters produced from commercial semen, excepting those pertaining from the sire herd. Cows that had at least one controlled lactation performed during a milk yield contest were included in a specific contemporary group, according to the year of the initiation of lactation.

The model used for the genetic evaluation milk yield included the fixed effects of herd-year of calving, season and age of the cow at calving as covariates, with the linear and quadratic components. Other effects included were the fixed cow breed composition

(defined as the contribution of Holstein and Gyr breeds, in proportions varying from 2/8 to 7/8), and the random effects of the animal and experimental error. The predicted breeding values of each animal were obtained using the Best Linear Unbiased Prediction (BLUP) methodology within the software MTDFREML (1995). Table 4 contains the general information about the database, the values of the estimates of the variance components and heritability used in the model.

Table 4. Estimative of the heritability (h^2) for milk yield in 305 days and age at first calving and the genetic correlation of those traits.

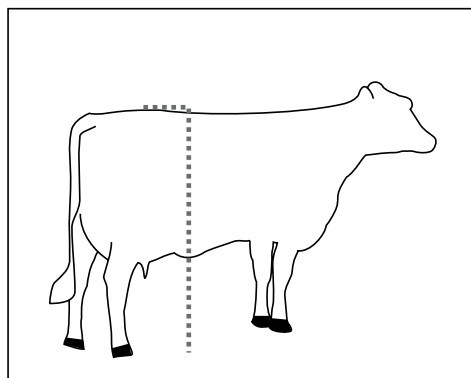
Trait	Heritability	Genetic correlation
Milk yield in 305 days	0.23	
Age at first calving	0.17	-0.67

The breeding values of the bulls were expressed as the Predicted Transmitting Ability (PTA) in relation to the genetic base, defined as the average of the breeding values of 827 cows born in 2000.

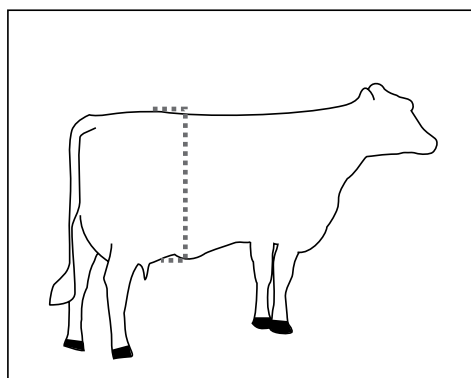
7. Girolando Linear Evaluation System - SALG

The aim of the Girolando Linear Evaluation System (SALG) is to measure and evaluate the conformation and handling traits of Girolando animals, and therefore, to generate highly reliable data that can be used for the prediction of breeding values for bulls in the progeny test. These predictions will be useful for breeders to select sires and dams, with the objective of improvement of economically important traits. This year, genetic values for an additional seven conformation traits were included in the Girolando sire report, totaling 12 evaluated traits. Below, the traits measured and evaluated through SALG are described briefly.

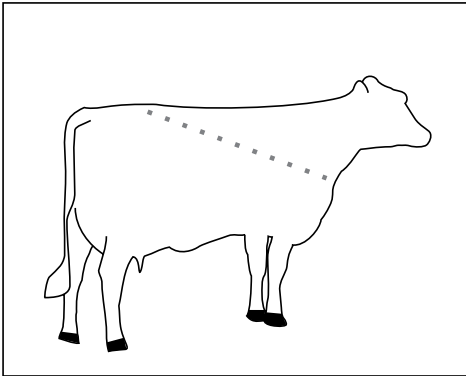
7.1. Body Capacity Measurements



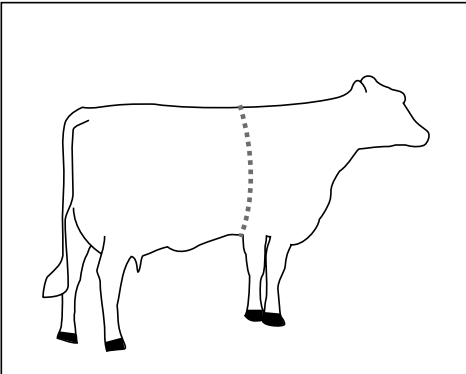
7.1.1. Rump Height: measured using a measuring stick. The device is placed above the rump, close to the hook bone, to the ground. Ideally, the rump should be high enough for the udder to be sufficiently far from the ground in order to reduce the risks of injuries and contamination.



7.1.2. Body Depth: measured using a measuring stick. The device is placed at the region immediately behind the rump, before the hooks (lumbar region), up to the lower line of the animal's belly, the cranial portion of the previous udder insertion. This trait is directly related to the animal's digestive and productive capacity. The body depth should be above the breed average.

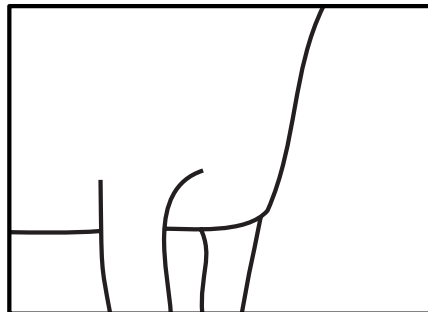
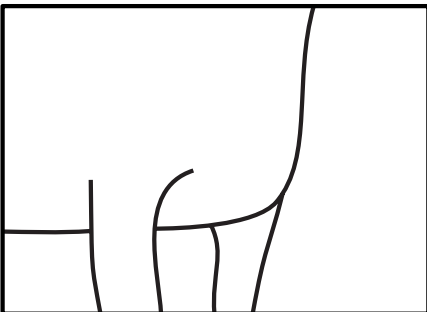


7.1.3. Body length: the measure is taken from the point of the scapula to the hook bone, using a measuring stick. It is related to the animal's respiratory, digestive and productive capacity. Body length should be above the breed average.

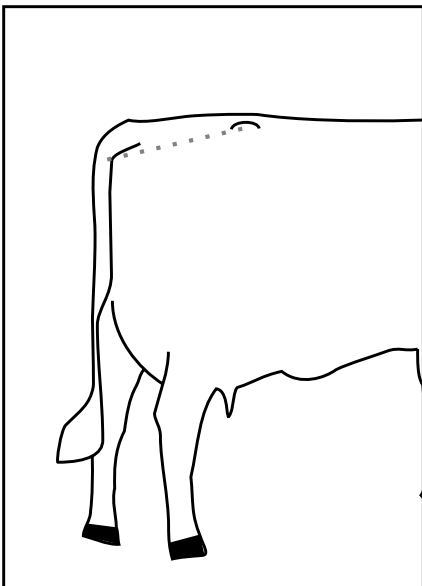


7.1.4. Thoracic perimeter: the circumference of the animal's thorax is measured using a measuring tape. It is strongly related to the cardiac and respiratory capacities. The thoracic perimeter should be above the breed average.

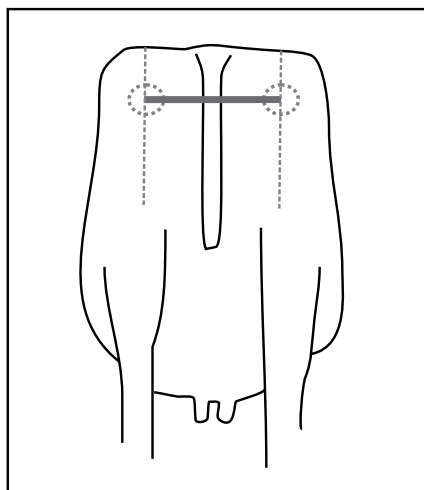
7.1.5. Chest amplitude: evaluated by means of a score. The distance between the back members is evaluated and refers to the animal's strength. The grades vary from 1 to 9: extremely closed chest is grades as 1, intermediary amplitude grades as 5 and an extremely ample chest is graded as 9.



7.2. Rump Measurements

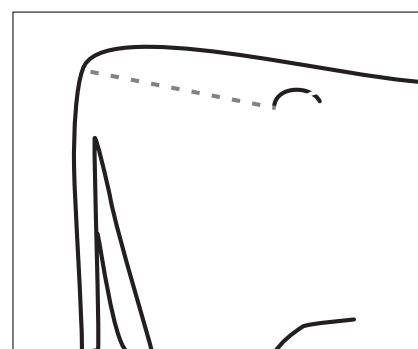
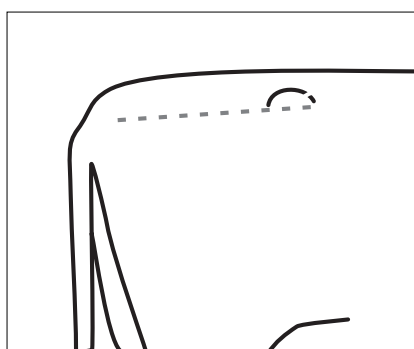
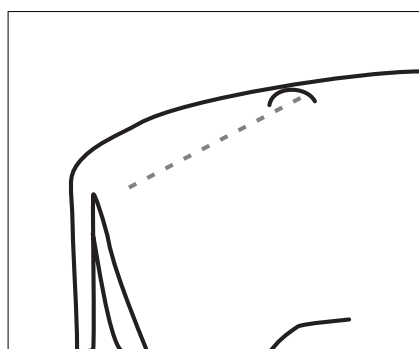


7.2.1. Rump length: is the distance between the point of the pin bone and the point of the hook bone, measured using a stick or tape. Rump length strongly influences the quality and the support of the mammary system, as it is the dorsal support of the udder. High values, above average, are favorable.



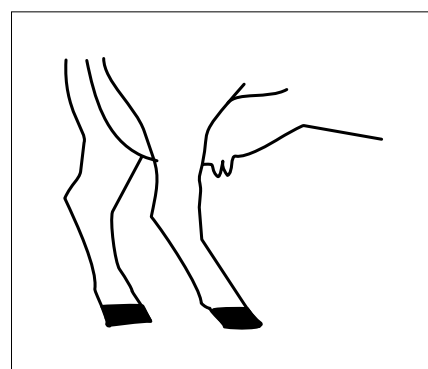
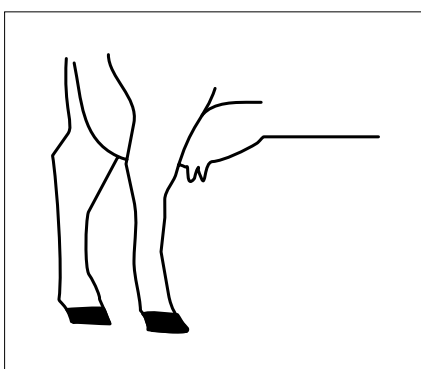
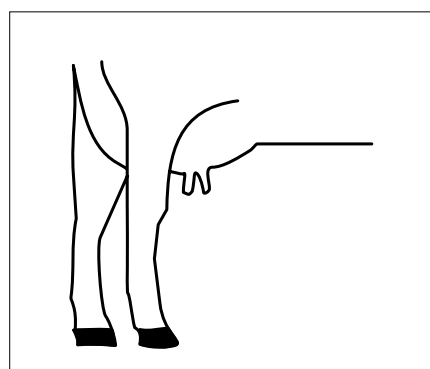
7.2.2. Width between pin bones: is the distance from the left point to the right point of the pin, measured using a measuring stick or tape. Higher values are related to greater calving facility for the animal and better dorsal support of the udder.

7.2.3. Rump Angle/Inclination: the angle of the rump is assessed by measuring the height of the hook bones, height of the pin bones and length of the rump. The inclination of the hook bone is calculated in relation to the pin bone. The value obtained can be either positive or negative. Above zero indicates a smooth rump. Below zero indicates an inverted rump, which leads to problems during calving and elimination of the placenta. The ideal value is as close to zero as possible.



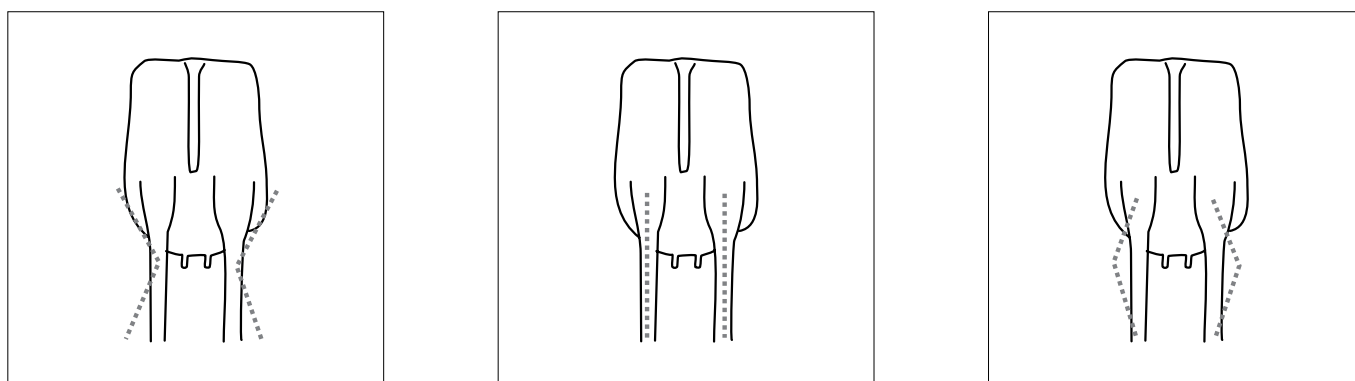
7.3. Legs and Feet

7.3.1. Legs - side view: the angle of the leg's curvature is evaluated through a score. Score 1 is given for very curved legs, 5 for intermediary legs (ideal) and 9 for extremely straight legs. At the height of the hock, the legs should have slight curvature, which should not be accentuated. Very curved legs may lead to wear of the hoof claws, making them cracked and very straight legs may cause mobility problems. The ideal score is close to 5.

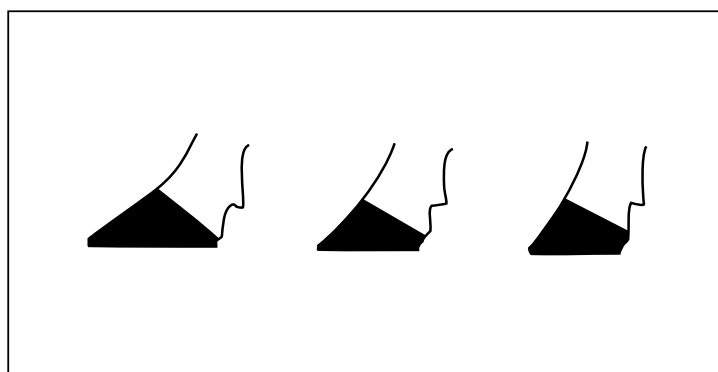


7.3.2. Legs - rear view: the position of the back legs is evaluated based on a score from 1 to 9. Score 1 is given for legs with very closed hocks, 5 for parallel legs (ideal) and 9 for legs with open hocks. Legs with closed hocks may crush and reduce udder space, causing

injury and increasing the occurrence of mastitis, while very open legs may cause mobility problems.

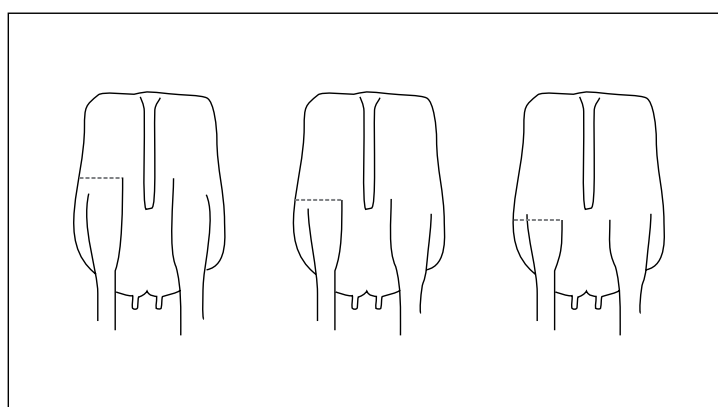


7.3.3. Hoof angle: is evaluated by means of a score. For good animal mobility, it is important that the hooves are strong and set at a good angle (close to 45°). Score 1 is given for very low angle hooves, 5 for hooves with an angle close to 45° (ideal) and score 9 for extremely steep angle hooves.

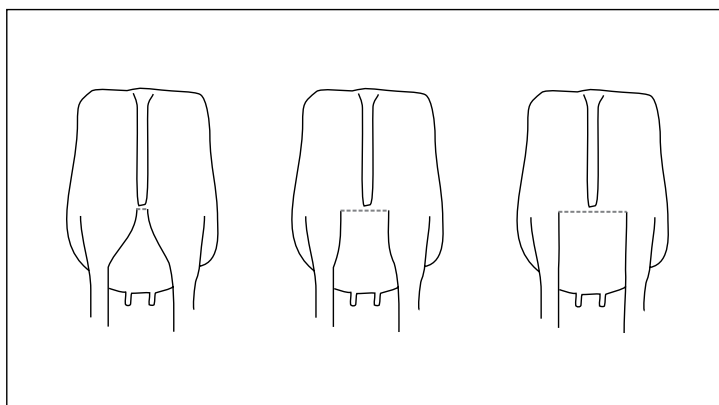


7.4. Posterior Udder

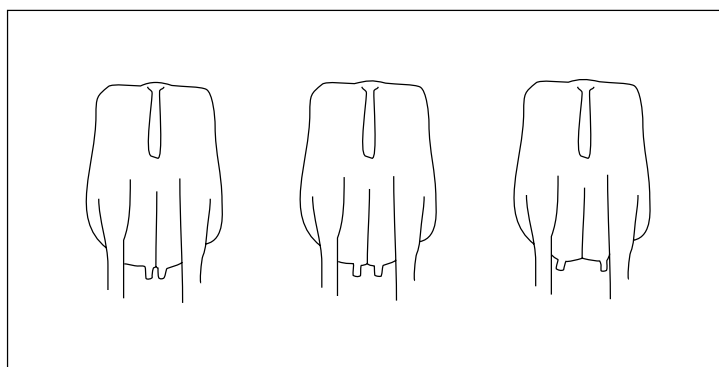
7.4.1. Rear udder height: is the distance between the base of the vulva to the fore udder insertion, in the perineal region. It is measured using measuring tape. It is related to the length and milk storage capacity of the fore udder. The higher, the better.



7.4.2. Rear udder width: is the distance between the left and right rear ligament of the udder. It can be measured with a measuring tape or ruler. It is strongly related to milk production and storage capacity.

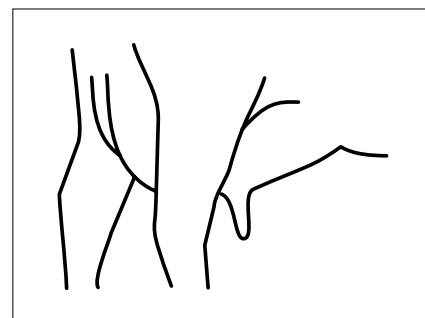
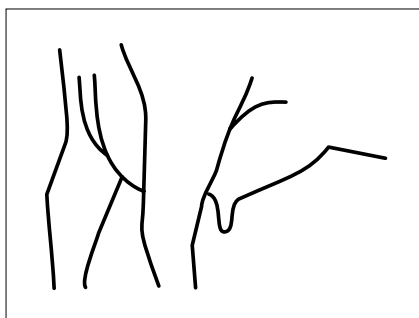
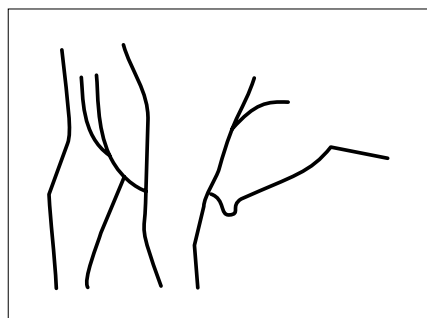


7.4.3. Rear teat placement: is evaluated based on a score from 1 to 9, 1 given for low quality placement, 5 for intermediary placement and 9 for extreme quality placement. The rear teats must be centered in the udder quarters. Values close to 9 are preferable, indicating more centralized teats than low values, which means open teats, placed on the sides of the quarters and which complicates mechanized milking.



7.5. Anterior Udder

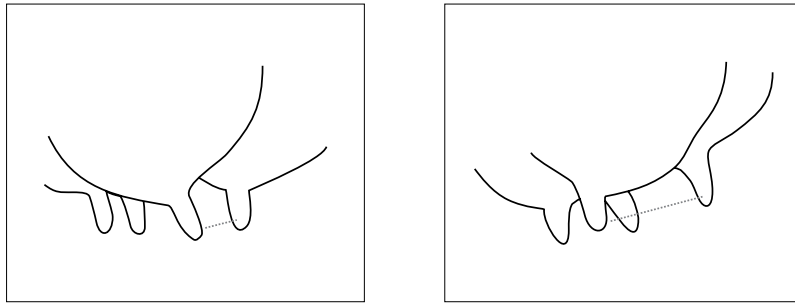
7.5.1. Teat length: the front teats of the animal are measured using a measuring tape or ruler. The ideal length of the teats is around 5 to 7 cm. Long teats are associated with inefficient colostrum nursing and mechanized milking. Also, they are related to increased incidence of teat loss and mastitis.



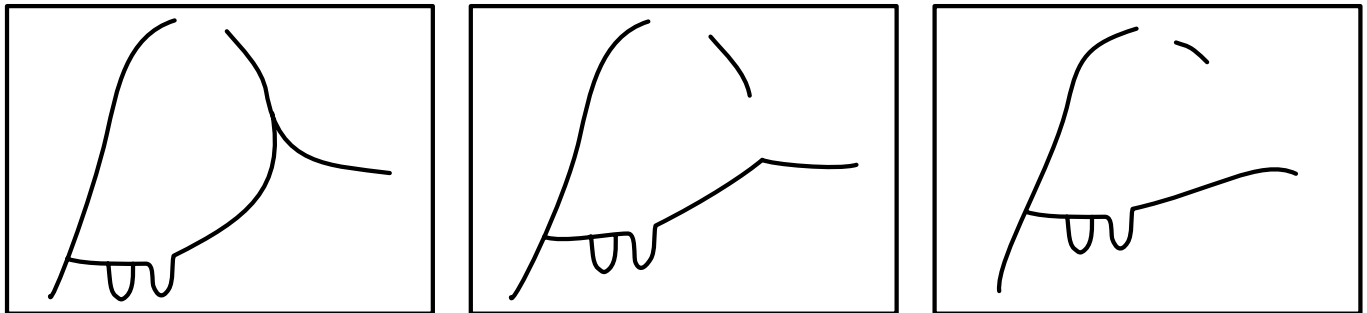
7.5.2. Teat diameter: is measured using a caliper, placed on the teat base. Wide teats are associated with inefficient colostrum nursing and mechanized milking. Also, they are related to increased incidence of teat loss and mastitis.

7.5.3. Front teat placement: the placement of the front teats is evaluated through a score. The score varies from 1 to 9: 1 is given for low quality placement, 5 for intermediary placement and 9 for extreme quality placement. The front teats must be centered in the udder quarters. Values close to 9 are preferable, indicating more centralized teats than low

values, which means open teats, placed in the sides of the quarters and which complicates mechanized milking.

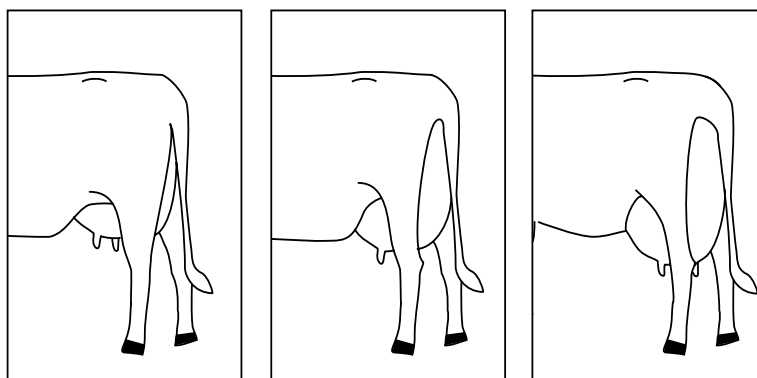


7.5.4. Ligament: the quality of fore udder insertion and support is assessed through visual evaluation (by means of a score). The evaluator can also press the area in order to feel the quality of the tissue. The fore udder must be firmly attached to the animal's ventral region, preventing the formation of swelling. This trait is of great importance, as it strongly influences the longevity of the mammary system. The score varies from 1 to 9: 1 is given for an extremely weak ligament and 9 for an extremely strong ligament.

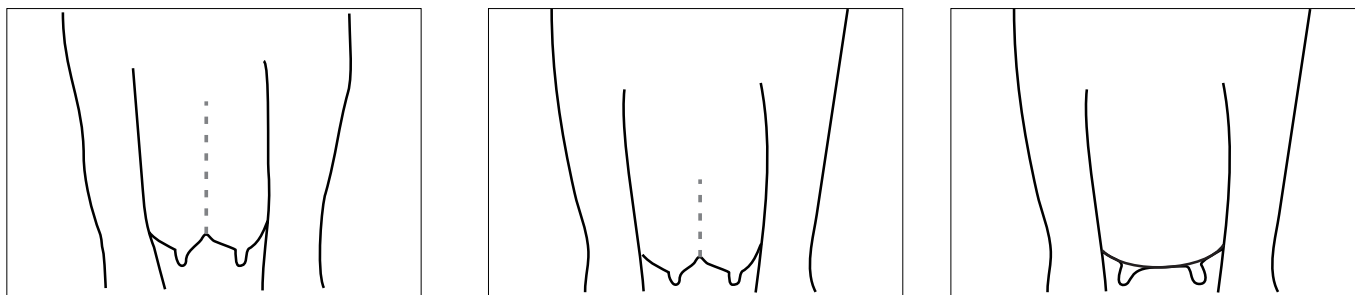


7.6. Mammary System

7.6.1. Udder depth: is the distance from an imaginary line traced from the level of the hocks to the base of the udder. It is measured using a measuring tape or ruler. This trait strongly influences the longevity of the mammary system and the quality of the fore, rear and central ligaments. The ideal udder has its base at approximately 10 cm above the hocks. Deep udders are subject to trauma.



7.6.2. Central ligament: the quality and support of the central ligament is evaluated visually. It is directly related to the longevity of the mammary system. The score varies from 1 to 9: 1 is given for an extremely weak ligament and 9 for an extremely strong ligament. It is one of them most important udder traits, as this ligament keeps the udder attached to the animal's abdomen. To support high production for a number of lactations, this ligament should be very strong. The more positive, the better.



7.7. Dairy Characterization

Angularity: the bone quality and dairy form of the animal is evaluated visually, considering the femininity and the angular form, also known as a wedge. The evaluation score ranges from 1 to 9: 1 given for extremely angular cows, 5 for intermediary angularity and 9 for extremely thickset cows.

7.8. Auxiliary Traits

7.8.1. Temperament: is evaluated by means of an animal docility score. More docile animals have better productive and reproductive performance. Scores vary between 1 and 9: 1 given for extremely aggressive animals and 9 for exceptionally docile animals.

7.8.2. Milking ease: is associated to the time and effort involved at the time of milking the animal. It is directly linked to milk production. Cows that are harder to milk tend to be more vulnerable to disease and to retain more milk (residual milk). For the evaluation of that trait, a score from 1 to 9 is given, very hard to milk cows are scored as 1 cows extremely easy to milk score a 9.

7.8.3. Calving ease: is related to the size of the calf and the need for assistance at the time of calving. Cows that calve easy resume post-partum estrus faster and, consequently, have better reproductive performance. This traits is evaluated by means of a score that varies from 1 to 9: 1 assigned to cows with extreme calving difficulty and 9 to cows with extreme facility in calving.

7.9. SALG Results

The averages for the traits described above are presented in Table 5. The averages for daughters of Girolando bulls participating in the Progeny Test are described.

Table 5. Averages of conformation traits and handling of cows that are daughters of Girolando bulls, measured and evaluated through SALG.

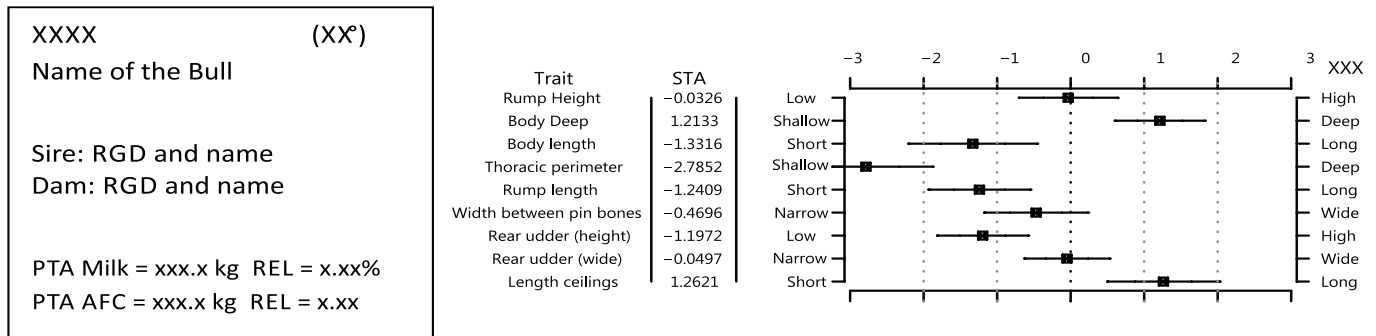
	Trait	Number of Observations	$h^2 \pm SE^*$	Trait Average	Standard Deviation
Body Capacity	Height at the rump (cm)	2,255	0.37 ± 0.14	140.13	6.10
	Body length (cm)	2,255	0.10 ± 0.11	110.65	7.96
	Thoracic perimeter (cm)	2,250	0.01 ± 0.07	186.58	12.62
Rump	Rump length (cm)	2,255	0.32 ± 0.14	49.52	3.91
	Width between pin bones (cm)	1,550	0.24 ± 0.12	49.08	4.33
	Width between Hook bone	2,255	-	18.71	3.32
	Hook bone height (cm)	2,255	-	136.64	6.50
	Pin bone height (cm)	2,255	-	126.73	7.51
Posterior Udder	Rear height (cm)	2,244	0.32 ± 0.15	21.29	5.37
	Rear width (cm)	2,244	0.23 ± 0.13	13.56	4.16
Anterior Udder	Teat width (cm)	2,243	0.08 ± 0.10	5.73	2.14
Mammary System	Udder depth (cm)	2,236	0.09 ± 0.15	14.89	5.43

* Heritability $\pm$ Standard error.

7.10. How to Interpret the Results

In order to understand better the results of the evaluations published in this report, an example of results obtained and their interpretations are presented bellow (Table 6). Right after the sire's registration number XXXXX, and its general classification by PTAL (XX^o - in parenthesis) and its name, are the registration numbers and the names of the sire's father, mother, and the PTA for milk production (PTAL), followed by reliability (REL).

Table 6. Example for interpretation of results.



In the Table, the results for productive traits are in the left and the genetic evaluations, STAs (standardized PTAs) for some of the evaluated conformation and management traits are in the right. STA is the standardized predicted transmitting ability (PTA) of the handling and conformation traits that allows comparison of the traits, even when they were measured in different units, as they are expressed as standard deviations. Thus, the breeder can evaluate a sire's ability to improve a specific trait, in case of the sire is bred with an average cow of the herd. STA values vary from -3 to 3 standard deviations.

The first column, under the title Traits, contains the names of the traits and under the name STA, are the traits' respective standardized predicted transmitting abilities (standard deviation values of -3 to 3). The line in front each of the traits indicates its confidence interval, a measure related to the average and the reliability of the STA estimation. The dot on the line corresponds to the STA estimate. The smaller the line, the greater the reliability of the STA value, and contrariwise. Furthermore, the line expresses the confidence for the estimated STA averages within these limits that is expected for future mating, in 95% of the cases. It is important to stress that this information must be used with the aim of complementarity in mating.

It is important to highlight that this information should be used with the aim of achieving complementarity in breeding. The right or left deviations in conformation and management traits imply that there will be genetic progress in the selected direction. As an example, if a cow has very large teats (above average), the ideal scenario includes mating this cow with a sire that has an STA close to zero for teat length, seeking to correct this problem in the next generation. The same rationale should be applied to other traits.

The publication of a graph containing one sire's characteristics will only occur if the following criteria is met:

- a) the sire must have a positive PTA for milk yield (Table 8)
- b) the sire's daughters must have measures within SALG enough to guarantee reliability of the results.

7.11. STAs for Conformation

This year will not be published the results of STAs for conformation. New data were collected in and are being analyzed. The results will be published later.

8. PTAs for Milk Production and Age at First Calving

The results of the genetic evaluation of sires, pertaining to the 12 groups tested since 1997, are presented in Tables 7 and 8. Those contain the registration number, the genetic composition, and the name of each Girolando sire, the PTA for milk yield, the age at first calving (IFC), the reliability of each test, with the respective numbers of daughters and herds evaluated, as well as the sire's genotypes. These results are presented for sires used in at least three herds, with a minimum confidence interval of 60% for milk yield PTA, if the bull does not have more daughters to be assessed and has no semen available in the market, the result will be released even with a lower reliability at minimum. In order to anticipate the result of a bull, it is necessary that the reliability for milk production be at least 70% and have daughters in at least three herds.

Table 7 contains the results of the tests of 12 bulls, 1 from the eleventh group and 11 from twelfth group of the progeny test. The PTA for milk yield ranged from -46.87 kg to 615.50 kg, and 10 sires had positive genetic values and two had negative values. Out of the positive PTA sires, one is a PS, five are 5/8 HOL:G and four are 3/4 HOL:G. The PTA for age at first calving ranged from -36.21 to 37.8 days, positive values were observed in nine sires and negative values were observed in two sires (Table 8).

Table 8 contains the general results and the genotypes for all sires tested since 1997. The PTAs for milk ranged from -561.77 kg to 615.50 kg, and 50 sires had positive genetic values and 50 had negative values. Among the 50 sires that had a positive PTA for milk yield, two are PS, 31 are 5/8 HOL:G and 17 are 3/4 HOL:G. The PTA for age at first calving ranged from -36.21 to 39.37 days, positive values were observed in 56 sires and negative values were observed in 44 sires (Table 8).

The negative genetic correlation of milk yield in 305 days during the first lactation and age at first calving (Table 4) indicates that genes related to the former trait have an opposite effect under the later trait. It seems that daughters of sires that have a higher genetic value for milk yield in up to 305 days tend to have a more accelerated growth or earlier maturity. Hence, it can be concluded that selection for milk yield results also in earlier calving heifers. In this case, it should be stressed that sires that have a negative value for age at first calving (AFCPTA) are desirable, as daughters of a sire that has a AFCPTA of -10 days are prone to firstly calve 10 days earlier than daughters of sires that have AFCPTA equal to zero.

Table 7. Milk yield and genotypes results of the Girolando Breed Progeny Test of sires tested for the first time, ranked according to PTA milk in 2017.

Rank.	Group	RGD	Genetic composition	Sire	N Daughter	N Herds	PTA Milk (kg)	R. PTA Milk (%)	PTA AFC ¹ (days)	R. AFC ¹ (%)	Molecular markers ¹⁰						Semen available AI Company		
											K-CN ²	B-CN ³	B-LGB ⁴	DGAT 1 ⁵	BLAD ⁶	DUMPS ⁷			CVM ⁸
1	12	0987	3/4	RBC Barão	7	6	615.50	68	-33.00	66	AB	A2A2	AA	AK	TL	TD	TV	CT	Not available
2	12	1671	5/8	Ozias da Centrogen TE	3	3	461.44	60	-25.06	60	AA	A1A2	BB	KK	TL	TD	TV	CT	Not available
3	12	1211	5/8	Imperor Bolton Santa Luzia	5	3	447.58	65	-17.46	70	AA	A2A2	AB	KK	TL	TD	TV	TT	CRV Lagoa
4	12	0993	3/4	Alfy Cayuaba Mission Iridio TE	6	6	415.88	62	3.11	60	AA	A2A2	AB	AK	TL	TD	TV	TT	Alta Genetics
5	12	1022	3/4	Imperador Toy Story FIV Gama	8	7	288.45	67	-35.06	65	AB	NG	BB	AK	TL	TD	NG	CT	CRI Genética
6	12	1096	5/8	Atual Garimpo Zak TE	15	9	236.74	62	-8.84	59	AA	A1A2	AB	AK	TL	TD	TV	TT	Not available
7	12	1662	5/8	Netuno Astre Renascer	5	4	230.45	60	-0.64	59	AA	A1A2	AB	AK	TL	TD	TV	CT	CRV Lagoa
8	12	0075	PS	IPA Bochecho	6	3	91.51	63	37.81	60	AA	A2A2	AB	AK	TL	TD	TV	TT	Alta Genetics
9	12	1465	5/8	Jacuba Printer Bem Feitor Blitz	15	9	81.60	74	-1.72	71	AA	NG	BB	AK	TL	TD	TV	CT	ABS Pecplan
10	12	1111	3/4	JPZ Bulgari Millenium Lia Santa Luccia	3	3	47.78	60	-11.66	64	AA	NG	AB	AK	TL	TD	TV	CC	ABS Pecplan
11	12	0823	3/4	Jordan Goldwyn DLS Pantanal	8	4	-42.66	67	-36.21	64	AB	NG	AB	AK	TL	TD	TV	CT	ABS Pecplan
12	11	0052 PS	PS	Berílio Soberano Santa Luccia	15	9	-46.87	74	-7.02	65	AA	A1A2	BB	AK	TL	TD	TV	CT	CRI Genética

¹AFC - Age at first calving (days).

²Allele A - High yield for cheese, **Allele B** - Low yield for cheese.

³Allele A1 - Associated with nutritional and health problems in humans, A2 - Higher milk production and protein.

⁴Allele A - High milk yield **Allele B** - High protein and fat milk content.

⁵Allele A - High milk yield **Allele K** - Reduction in milk protein content and increase in milk fat content.

⁶BL - Heterozygote animal - carrier of the allele for BLAD, TL - Homozygote animal - non-carrier of the allele for BLAD

⁷DP - Heterozygote animal - carrier of the allele for DUMPS, TD - Homozygote animal - non-carrier of the allele for DUMPS

⁸CV - Animal - Heterozygote animal - carrier of the allele for CVM, TV - Homozygote animal - non-carrier of the allele for CVM

⁹Allele C - Associated to increased protein and fat milk content, **Allele T** - Associated to elevated weight gain.

¹⁰NG - Not genotyped

Table 8. Milk yield and genotypes results of the Girolando Breed Progeny Test of sires from diverse tested groups, ranked according to PTA milk in 2017.

Rank.	Group	RGD	Genetic composition	Sire	N Daughter	N Herds	PTA Milk (kg)	R. PTA Milk (%)	PTA AFC¹ (days)	R. AFC¹ (%)	Molecular markers¹⁰							Semen available Central IA	
											K-CN²	B-CN³	B-LGB⁶	DGAT 1⁷	BLAD⁸	DUMPS⁹	CVM¹⁰	OPN¹¹	
1	12	0987	3/4	RBC Barão	7	6	615.50	68	-33.00	66	AB	A2A2	AA	AK	TL	TD	TV	CT	Not available
2	9	1154	5/8	Jacuba Titânio Bem Feitor Celsius	11	11	596.20	76	2.38	72	AA	A2A2	AB	AK	TL	TD	TV	TT	Alta Genetics
3	12	1671	5/8	Ozias da Centrogen TE	3	3	461.44	60	-25.06	60	AA	A1A2	BB	KK	TL	TD	TV	CT	Not available
4	12	1211	5/8	Imperor Bolton Santa Luzia	5	3	447.58	65	-17.46	70	AA	A2A2	AB	KK	TL	TD	TV	TT	CRV Lagoa
5	12	0993	3/4	Alfy Cayuaba Mission Iridio TE	6	6	415.88	62	3.11	60	AA	A2A2	AB	AK	TL	TD	TV	TT	Alta Genetics
6	8	0780	3/4	Argeu Leduc Santa Luccia TE	18	11	396.01	80	-24.72	74	AA	A2A2	AA	AK	TL	TD	TV	TT	Not available
7	11	1400	5/8	RBC Arquiteto	8	6	345.68	73	-25.79	68	AA	A2A2	BB	AK	TL	TD	TV	CT	CRV Lagoa
8	6	0945	5/8	Turbante Touch das Árábias	39	15	302.91	88	-9.25	78	AA	A2A2	AA	KK	TL	TD	TV	TT	Alta Genetics
9	12	0990	3/4	Curio FIV Paramount JGVA	35	18	290.65	85	-4.18	82	AA	A2A2	AA	AK	TL	TD	TV	CT	CRV Lagoa
10	12	1022	3/4	Imperador Toy Story FIV Gama	8	7	288.45	67	-35.06	65	AB	NG	BB	AK	TL	TD	NG	CT	CRI Genética
11	10	0806	3/4	Luter King TE Terra Vermelha	53	29	280.10	89	1.73	85	AA	NG	AA	KK	TL	TD	TV	TT	Sembra
12	12	1021	3/4	Charmoso Wildman Tannus	63	28	260.70	92	-28.17	88	AA	A1A1	BB	KK	TL	TD	TV	TT	Alta Genetics
13	2	0454	5/8	Magical Mascot TE Rancho Alegre	65	40	254.93	91	28.81	86	AA	A2A2	AA	KK	TL	TD	TV	TT	Not available
14	1	0300	3/4	110 Billy Fancy Paul Y	86	43	253.90	95	22.01	92	AA	A1A2	AA	KK	TL	TD	TV	CC	Not available
15	12	1096	5/8	Atual Garimpo Zak TE	6	4	236.74	62	-8.84	59	AA	A1A2	AB	AK	TL	TD	TV	TT	Not available
16	12	1662	5/8	Netuno Astre Renascer	5	4	230.45	60	-0.64	59	AA	A1A2	AB	AK	TL	TD	TV	CT	CRV Lagoa
17	11	0917	5/8	Jacuba Prime Bem Feitor Lou	4	4	224.61	62	-7.49	60	AB	A2A2	AB	AK	TL	TD	TV	CT	Not available
18	11	1413	5/8	Limão TE JRS	14	10	220.74	72	11.88	71	AA	A2A2	AB	AK	TL	TD	TV	CT	Not available
19	11	0944	3/4	Aristeu Billy Linda Santa Luccia	12	10	218.48	73	-6.32	68	AA	A1A2	AA	KK	TL	TD	TV	CT	Semex
20	4	0541	3/4	MBF 0246	6	4	187.16	60	-32.91	57	AA	A1A2	AA	AK	TL	TD	TV	CT	Not available
21	7	0983	5/8	Tango Storm Renascer	44	21	186.64	91	3.52	85	AA	A1A2	AA	AA	TL	TD	TV	TT	Not available
22	5	0621	5/8	Kaïen Celsius Itaiuna	10	9	181.78	74	-19.33	71	BB	A1A2	AA	KK	TL	TD	TV	CT	Not available
23	3	0476	3/4	Estand Luke HB	33	13	161.62	82	-20.21	75	AA	A2A2	AA	KK	TL	TD	TV	CT	Not available
24	5	0734	5/8	Cowboy Addison TE Rancho Alegre	201	55	148.58	96	-15.06	94	AB	A2A2	AA	KA	TL	TD	TV	TT	Not available
25	6	0931	5/8	Lion Império Itaiuna	33	15	131.46	87	-3.41	82	AA	A1A2	AA	AA	TL	TD	TV	TT	Not available
26	8	0754	3/4	Diamante Billy da Cacá	10	9	131.14	76	27.10	70	AA	A1A2	AA	AK	TL	TD	TV	CT	CRI Genética
27	2	0452	5/8	Danião Bellwood 3E	49	15	129.09	89	18.25	83	AB	A1A2	AA	KK	TL	TD	TV	TT	Not available
28	5	0580	3/4	Aristóteles Grandsian TE Sta Luccia	34	15	125.40	85	-20.56	78	AA	A2A2	AA	KK	TL	TD	TV	CT	Not available
29	7	0880	5/8	Átila Irã da Cacá	24	12	106.46	80	-16.99	69	AB	A2A2	AA	KA	TL	TD	TV	TT	Sembra
30	10	1293	5/8	Jacuba Dark Bem Feitor Aaron	9	10	98.08	67	-23.94	64	AA	A1A2	AB	AK	TL	TD	TV	TT	Alta Genetics
31	12	0075	PS	IPA Bochecho	6	3	91.51	63	37.81	60	AA	A2A2	AB	AK	TL	TD	TV	TT	Alta Genetics
32	12	1465	5/8	Jacuba Printer Bem Feitor Blitz	15	9	81.60	74	-1.72	71	AA	NG	BB	AK	TL	TD	TV	CT	ABS Pecplan
33	6	0563	3/4	Executivo Billy Beleza Y TE	36	17	79.25	86	-12.84	80	AB	NG	AA	KA	TL	TD	TV	TT	Not available
34	11	0960	3/4	Torpedo Bolton Santa Luzia	95	47	64.01	95	-2.92	93	AA	A1A2	AB	AA	TL	TD	TV	CT	Not available
35	11	1313	5/8	Sabiá IT	61	28	50.12	90	-4.50	86	AA	A2A2	AB	AK	TL	TD	TV	CT	ABS Pecplan

(to be continued...)

(continuation...)

Rank.	Group	RGD	Genetic composition	Sire	N		PTA Milk (kg)	R. PTA Milk (%)	PTA AFC¹ (days)	R. AFC¹ (%)	Molecular markers¹⁰						Semen available Central IA		
					Daughter	Herds					K-CN²	B-CN³	B-LGB⁶	DGAT 1⁷	BLAD⁸	DUMPS⁹		CVM¹⁰	OPN¹¹
36	12	1111	3/4	JPZ Bulgari Millenium Lia Santa Luccia	3	3	47.78	60	-11.66	64	AA	NG	AB	AK	TL	TD	TV	CC	ABS Pecplan Semex
37	12	1487	5/8	Thor FIV da Prata JAC	28	22	45.47	82	-11.48	80	AB	A1A2	AB	AK	TL	TD	TV	CT	Not available
38	5	0781	5/8	Rincão Itaipu Y	54	27	41.85	91	39.14	87	AA	A2A2	AA	KK	TL	TD	TV	CT	Not available
39	8	0955	5/8	Índio Windstar Sertão	24	6	41.22	87	13.94	79	AB	A2A2	AB	AK	TL	TD	TV	TT	Not available
40	8	1065	5/8	Ocidente London do Morro	15	11	40.25	78	3.65	68	AA	NG	BB	AK	TL	TD	TV	CT	Not available
41	9	1167	5/8	Globo Billy JAC	14	5	40.18	81	-5.48	74	AA	A1A2	AA	AK	TL	TD	TV	CC	Alta Genetics
42	9	0973	5/8	Ébano Gordon da Limeira	52	19	38.12	91	3.82	85	AA	A1A2	BB	AK	TL	TD	TV	TT	Not available
43	11	1284	5/8	Diplomata Roy Santa Luzia	51	30	33.67	91	24.68	88	AA	A2A2	BB	KK	TL	TD	TV	CT	Alta Genetics
44	7	0752	5/8	Lama Preta Instrutor Cavalier	12	6	30.00	60	-17.06	54	AA	NG	AA	KA	TL	TD	TV	CT	Not available
45	1	0216	5/8	Santa Cruz Zinabre Dynamic	22	12	27.20	80	-2.04	71	AB	A1A1	AA	AA	TL	TD	TV	TT	Not available
46	9	0016	PS	Notebook das Três Passagens	7	5	26.36	75	34.10	69	AA	A2A2	AA	AK	TL	TD	TV	TT	Not available
47	10	1294	5/8	Cacique Índio Sertão	6	6	20.41	72	8.67	68	AB	NG	BB	KK	TL	TD	TV	TT	Alta Genetics
48	11	1338	5/8	Imperador FIV Ribeirão Grande	47	24	20.20	88	-4.33	85	AA	A2A2	AA	AA	TL	TD	TV	CT	ABS Pecplan
49	7	0636	3/4	RBC Redator	21	8	6.11	83	-22.08	78	AA	NG	AA	KK	TL	TD	TV	TT	Not available
50	2	0455	5/8	Maguito Mascot TE Rancho Alegre	68	25	5.70	92	33.49	87	AB	A2A2	AA	KA	TL	TD	TV	TT	Not available
51	1	0350	5/8	Doutor Bellringer Itaipu	47	22	-2.47	89	-7.15	82	AB	A2A2	AB	KA	BL	TD	TV	TT	Not available
52	4	0639	5/8	Brutus das Árábias	38	15	-3.61	86	-15.74	80	AA	NG	AA	KA	TL	TD	TV	TT	Not available
53	6	0885	5/8	Jaguar das Três Passagens	66	33	-20.08	92	-0.73	87	AA	A2A2	AA	KA	TL	TD	TV	CT	Not available
54	1	0243	5/8	Dileto Balthazar Sonho	20	11	-22.44	76	16.23	63	AA	A1A2	AA	AA	TL	TD	TV	TT	Not available
55	10	0917	3/4	Abdu Lord Lily Santa Luz	9	9	-23.39	89	14.71	83	AA	A2A2	AA	AK	TL	TD	TV	TT	CRV Lagoa
56	7	0998	5/8	Curimã III TE Alegre	25	17	-27.01	84	-24.41	78	AA	A2A2	AA	KA	TL	TD	TV	TT	Not available
57	2	0487	5/8	Baco das Árábias	55	26	-31.74	90	16.38	85	AA	A2A2	AA	AA	TL	TD	TV	CT	Not available
58	10	0030	PS	Baú das Árábias	15	7	-34.68	81	-6.87	75	AA	NG	AA	AK	TL	TD	TV	TT	Not available
59	3	0475	3/4	Millenium Hortência Alf Boa Fé	287	105	-35.66	98	1.05	97	AA	A1A2	AA	KK	TL	TD	TV	CT	Not available
60	9	0855	3/4	Garimpo Boss JGVA	44	24	-42.53	90	-12.98	86	AA	A1A2	BB	AA	TL	TD	TV	CT	Alta Genetics
61	12	0823	3/4	Jordan Goldwyn DLS Pantanal	8	4	-42.66	67	-36.21	64	AB	NG	AB	AK	TL	TD	TV	CT	ABS Pecplan
62	11	0052	PS	Berlio Soberano Santa Luccia	15	9	-46.87	74	-7.02	65	AA	A1A2	BB	AK	TL	TD	TV	CT	CRI Genética
63	5	0566	3/4	Escote Royalist Curral Velho	21	11	-49.62	72	5.02	66	AA	NG	AA	KK	TL	TD	TV	CT	Not available
64	10	0020	PS	Potter Kaien Itaipu	12	9	-51.77	74	-19.79	68	AB	A1A2	AA	AK	TL	TD	TV	TT	Alta Genetics
65	7	1039	5/8	Florin Marker Dom Nato	42	21	-79.98	90	13.70	85	AA	A2A2	AA	KK	TL	TD	TV	TT	CRV Lagoa
66	2	0366	3/4	Nautilus Bandit Rancharia	26	11	-86.46	83	-9.06	76	AA	A2A2	AA	KK	TL	TD	TV	CT	Not available
67	10	1248	5/8	Impacto FIV da Prata JAC	128	50	-86.82	95	-3.48	92	AA	A1A2	AA	KK	TL	TD	TV	CT	Alta Genetics
68	6	0928	5/8	Soberano Adonias Santa Luccia	39	16	-92.77	84	5.60	76	AA	A2A2	BB	AK	TL	TD	TV	CT	Not available
69	3	0667	5/8	Zimbo das Árábias	57	26	-102.45	91	13.94	85	AA	A2A2	AA	KA	TL	TD	TV	TT	Not available
70	8	1066	5/8	Milagre das Três Passagens	28	9	-107.89	84	-26.73	77	AA	A1A2	AA	KK	TL	TD	TV	CT	Not available
71	4	0680	5/8	Famoso das Três Passagens	178	68	-124.91	96	16.79	94	AA	A2A2	AB	AA	TL	TD	TV	CC	Not available
72	4	0470	5/8	Galá Fancy Paul Itaipu TE	44	16	-137.35	84	24.33	80	AA	A2A2	AA	AA	TL	TD	TV	CT	Not available
73	9	1204	5/8	Dillon Ito das Árábias	20	9	-140.37	81	-30.92	74	AA	A1A2	BB	AA	TL	TD	TV	CT	Not available

(to be continued...)

(continuation...)

Rank.	Group	RGD	Genetic composition	Sire	N Daughter	N Herds	PTA Milk (kg)	R. PTA Milk (%)	PTA AFC ¹ (days)	R. AFC ¹ (%)	Molecular markers ¹⁰							Semen available	
											K-CN ²	B-CN ³	B-LGB ⁶	DGAT 1 ⁷	BLAD ⁸	DUMPS ⁹	CVM ¹⁰	OPN ¹¹	Central IA
74	4	0500	3/4	Chaplin Billy Fancy Paul Y	57	29	-144.58	89	6.01	83	AA	A1A2	AB	KA	TL	TD	TV	CT	Not available
75	6	0864	5/8	Império das Três Passagens	18	11	-147.92	78	0.32	73	AA	A1A2	BB	AA	TL	TD	TV	CT	Not available
76	1	0200	5/8	Azoto do Ouro Verde	44	22	-160.00	87	4.43	79	AA	A2A2	AA	AA	TL	TD	TV	TT	Not available
77	8	0632	3/4	Talento Millenium Boa Fé	24	16	-166.41	90	38.13	85	AA	NG	BB	KK	TL	TD	TV	TT	Not available
78	11	0812	5/8	Falcon Ribeirão Grande TE	31	21	-175.17	84	-13.72	81	AB	NG	BB	AK	TL	TD	TV	TT	Semex
79	11	0131	PS	Heros Florin Dom Nato	10	11	-188.71	74	23.04	69	AA	A2A2	AA	AK	TL	TD	TV	CT	CRV Lagoa
80	4	0717	5/8	Fausto Polo Itaiúna	104	50	-192.63	96	14.05	93	AA	A1A2	BB	KK	TL	TD	TV	TT	Alta Genetics
81	8	0999	5/8	Curimã I TE Alegre	30	17	-196.37	89	-26.74	82	AA	A2A2	AA	AA	TL	TD	TV	TT	Not available
82	9	0797	5/8	Netuno Famoso Dona Beja	21	15	-197.12	83	-1.14	74	AA	A2A2	AB	KK	TL	TD	TV	TT	Not available
83	8	0684	5/8	Nicolau Fausto Itaiúna	15	9	-201.08	77	-25.36	72	AA	A2A2	AA	KK	TL	TD	TV	TT	Alta Genetics
84	9	0007	PS	Neon das Três Passagens	11	8	-236.62	71	12.63	69	AA	A2A2	AA	AA	TL	TD	TV	CT	Not available
85	5	0057	5/8	Feiticeiro Riacho da Serra	88	36	-243.60	94	34.22	90	AA	A1A2	AA	KK	TL	TD	TV	TT	Not available
86	9	0014	PS	RBC Singelo	10	6	-247.48	79	16.22	75	BB	A1A2	AB	AK	TL	TD	TV	CT	Not available
87	1	0215	5/8	Santa Cruz Zape Elevation	16	10	-262.58	74	39.37	65	AA	A2A2	BB	KA	TL	TD	TV	TT	Not available
88	5	0619	5/8	Garboso Curimatã das Três Passagens	18	8	-265.89	75	-10.77	70	AA	A1A2	AA	AA	TL	TD	TV	TT	Not available
89	2	0312	3/4	BR Granito Mandingo TE	25	10	-274.16	79	3.44	71	AA	A2A2	BB	AA	TL	TD	TV	CT	Not available
90	6	0871	5/8	Lama Preta Hércules Twist-TE	67	33	-286.40	91	-5.54	86	AA	A2A2	BB	AK	TL	TD	TV	CT	Not available
91	7	0555	5/8	Simbolo Swinger Cal	39	18	-304.13	87	-28.12	80	AA	A2A2	AA	KA	TL	TD	TV	CT	Not available
92	2	0333	3/4	Senador S.W.D Santa Izabel	77	42	-328.09	91	-11.45	86	AA	A2A2	AA	KA	TL	TD	TV	CT	Not available
93	2	0410	5/8	Curimatã das Três Passagens	261	79	-355.81	98	0.27	96	AB	A2A2	AA	AA	TL	TD	TV	TT	Not available
94	8	1075	5/8	Vilão TE Alegre	176	67	-362.96	97	10.45	95	AB	NG	AA	KK	TL	TD	TV	TT	Not available
95	3	0345	5/8	Caxi OG	56	24	-371.51	91	-4.29	88	AA	A2A2	AA	KA	TL	TD	TV	TT	Not available
96	7	0559	5/8	Bátula Irã da Cacá	11	9	-444.70	76	-16.91	67	AB	A2A2	AA	KA	TL	TD	TV	CT	Semex
97	10	0010	PS	Fergus TE Caxi Alegre	21	12	-474.61	80	-6.11	75	AA	A2A2	AA	KK	TL	TD	TV	TT	Not available
98	3	0604	5/8	Império Paviljon Itaiúna	46	21	-513.27	90	8.79	86	AA	A1A2	AA	KA	TL	TD	TV	CT	Not available
99	3	0479	5/8	Dedé Três Passagens	33	17	-522.97	88	0.08	81	AA	A1A2	BB	AA	TL	TD	TV	CT	Not available
100	11	0053	PS	Raro das Árábias	7	6	-561.77	68	17.60	65	AA	A1A2	AA	AK	TL	TD	TV	TT	Not available

¹AFC - Age at first calving (days).²Allele A - High yield for cheese, **Allele B** - Low yield for cheese.³Allele A1 - Associated with nutritional and health problems in humans, A2 - Higher milk production and protein.⁴Allele A - High milk yield **Allele B** - High protein and fat milk content.⁵Allele A - Increase in milk and protein production, **Allele K** - Reduction in milk protein content and increase in milk fat content.⁶BL - Heterozygote animal - carrier of the allele for BLAD, TL - Homozygote animal - non-carrier of the allele for BLAD⁷DP - Heterozygote animal - carrier of the allele for DUMPS, TD - Homozygote animal - non-carrier of the allele for DUMPS⁸CV - Animal - Heterozygote animal - carrier of the allele for CVM, TV - Homozygote animal - non-carrier of the allele for CVM⁹Allele C - Associated to increased protein and fat milk content, **Allele T** - Associated to elevated weight gain.¹⁰NG - Not genotyped

9. Acknowledgments

We would like to thank all people that collaborated, directly or indirectly, with the Girolando Breed Genetic Improvement Program (PMGG). Acknowledgments are due to breeders, technicians, milk controllers, trainees, students and employees of the Instituto Federal do Triângulo Mineiro (IFTM), the Brazilian Association of Girolando Breeders and Embrapa Dairy Cattle that collaborated with data recording, provision, editing and processing, for the genetic evaluations and for publication of this report. We would also like to thank the collaborating herds, AI companies, associated institutions, the Ministry of Agriculture, Livestock and Supply and the Federal Government, who all believed in our work and supported the PMGG and the development of the Girolando breed in Brazil. Thank you very much.

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11. Glossary of Technical Terms

Additive Genetic Variance – The variation in the genetic values among animals of a population (breed), for a specific trait.

Allele – The alternative form of a specific gene located in the region of a homologous chromosome (*locus*). There are two alleles for each gene in diploid bovine cells, with and each allele passed down from a progenitor.

Animal Model – The procedure used to estimate genetic values or PTAs, using the registers records from the databases provided by breeder associations.

BLUP (Best Linear Unbiased Prediction) – Statistical method for data analysis, aiming to obtain solutions for the effects considered in a specific model. Among its statistical properties, the simultaneous estimation of equation solutions for fixed and random effects (genetic values) stands out as noteworthy. In practical ways, the genetic values (PTAs) are estimated simultaneously to the adjustment to the effects of the environment (contemporary herd-year groups, time, age at calving, genetic groups, etc.)

Genetic Base – The mean genetic value of cows born in a specific year, for each trait. Composed of the genetic merit reference of the breed for the comparison of bulls.

Genetic correlation – The probability that two distinct traits are determined by the same group of genes. Positive values mean that the group of genes increase the value of both traits, and negative values mean that one trait is increased and the other is decreased in response of the activation of the genes.

Genotype – The allelic constitution of a homologous chromosome region. Example: AA, Aa or aa.

Heritability – The parameter that describes the proportion of total variance for a specific trait that is due to the genetic differences among the individuals of the population (breed).

Heterozygote – The individual or genotype carrier of different alleles in one *locus*. Example: Aa.

Homozygote – The individual or genotype that presents two copies of the same allele in one *locus*. Example: AA or aa.

MTDFREML – The abbreviation for the set of programs written in the Fortran language (Multiple Trait Derivative Free REML), which uses the Restricted Maximum Likelihood methodology with the algorithm that does not use derivatives for the estimation of variance components and the prediction of animal's genetic values, in accordance with the model applied in the analysis of a specific database.

PTA (Predicated Transmitting Ability) – The measurement of the bull's genetic value, obtained through the performance of its daughters and its relatives in different herds, expressed as the difference (superiority or inferiority) of the breed's genetic base. Example: a bull with a PTA equal to 100 kg means that its progeny, on average, has an expected production potential of 100 kg of milk greater than the breed average.

Reliability (R) - The measurement of the amount of information used in the estimation of the genetic value. It indicates (in percentage) the confidence that can be placed on the PTA estimated for each bull. The greater the reliability, the greater the certainty that the value of the estimated PTA represents the real genetic value of the bull.

Annex 1. List and genotype of sires in test by the Girolando Progeny Test, ordered by group, breed composition and alphabetic order.

Sire name	Reg.	Genetic composition	Father	Mother	Molecular Markers ¹						Semen available		
					K-CN ²	B-CN ³	B-LGB ⁴	DGAT 1 ⁵	BLAD ⁶	DUMPS ⁷	CVM ⁸	OPN ⁹	AI Company
12 th - Results expected in 2018													
Dólar Dabliu Delib	0064	5/8	Dabliu Curimatã Dom Nato	Tabitha Windstar El Rancho	AA	A2A2	AA	AK	TL	TD	TV	TT	CRI Genética
Jacuba Fax Bem Feitor Garter	1464	5/8	Welcome Garter-ET	Jacuba II Tais I	AA	A2A2	BB	AK	TL	TD	TV	TT	CRI Genética
Deflector Rendeira Vião FIV Boa Fé	0072	PS	Vião TE Alegre	Rendeira Nica Millenium Boa Fé	AA	A2A2	AB	AK	TL	TD	TV	TT	Not available
Detetive Feiteiro FIV Boa Fé	0071	PS	Feiteiro Riacho da Serra	Rendeira Nica Millenium Boa Fé	AB	A1A2	AB	AK	TL	TD	TV	TT	ABS Pecplan
Franco Feiteiro Y	0143	PS	Feiteiro Riacho da Serra	Caroline de Mônaco Sharp Y	AA	A1A2	AB	AK	TL	TD	TV	TT	Alta Genetics
13 th - Results expected in 2018													
Atual Wildman Thor TE	0747	3/4	Ladys-Manor Wildman	Estrela Tricordiana	AA	A1A1	AB	AK	TL	TD	TV	TT	Alta Genetics
Galanteio XA	0409	3/4	Mr. Minister	Canção XA	AA	A2A2	AB	AK	TL	TD	TV	CC	ABS Pecplan
Gold Goldwyn RPM da Santo Antônio	1122	3/4	Braedale Goldwyn	Romana Barbante RPM Santo Antônio	AA	A2A2	AB	KK	TL	TD	TV	CC	Alta Genetics
JPZ Basileu Argeu Linda FIV	1202	3/4	Argeu Leduc Santa Luccia TE	Linda do SPA	AA	NG	AB	AK	TL	TD	TV	CC	CRV Lagoa
Napolitano TE Terra Vermelha	0487	3/4	Doolhof December	Quartinha Terra Vermelha	AA	A1A2	AB	KK	TL	TD	TV	CT	CRV Lagoa
Apolo FR Recreio	1590	5/8	Regancrest JR Defender-ET	Jacutinga FR Recreio	AA	A1A2	AB	AK	TL	TD	TV	CT	Not available
Duque FIV Shottle da Medalha Milagrosa	1470	5/8	Picston Shottle-ET	Lama Preta Opala Brilhante	AB	NG	AA	AK	TL	TD	TV	CT	ABS Pecplan
General Millenium FIV TS da Muquém	1750	5/8	Millenium Hortência Alf Boa Fé	Viola Esteio Valiant LE	AA	A2A2	AB	AK	TL	TD	TV	CT	CRV Lagoa
Imperador Baxter Volta Fria	1459	5/8	Emerald-ACR-SA T-Baxter	Felipeta Cenoura Bazuah Volta Fria	AA	A2A2	BB	KK	TL	TD	TV	CT	Alta Genetics
Imperador Jocko FIV WTF da Estiva	1600	5/8	Jocko Besn	Zumira 982 WTF da Estiva	AA	A2A2	AB	AK	TL	TD	TV	TT	CRV Lagoa
Jacuba Master Benfeitor Shottle	1762	5/8	Picston Shottle-ET	Jacuba II Natureza I	AA	A2A2	AB	AK	TL	TD	TV	CC	CRV Lagoa
Labirinto Don FAC	1526	5/8	Gem-Hill Amel Don-ET	Carol Paladino FAC	AA	NG	BB	AK	TL	TD	TV	CT	CRI Genética
Minister da Prata JAC	1560	5/8	Mr. Minister	Harmonia Terra Vermelha	AA	A1A2	AB	AK	TL	TD	TV	CT	Alta Genetics
Pavão Olympic IA da Terra Sagrada	1640	5/8	Delta Olympic	Fazendona da Terra Sagrada	AB	A2A2	AB	AK	TL	TD	TV	CT	CRV Lagoa
Projeto Leitegen	1594	5/8	Stouder Morty-ET	Paloma Estância Correa	AA	NG	BB	AK	TL	TD	TV	TT	CRV Lagoa
RBC Caraté	1485	5/8	Ricecrest Touchdown-ET	Padaria Retiro da Barra	AA	A2A2	BB	AK	TL	TD	TV	CT	ABS Pecplan
Rei Shottle da Centrogen FIV	1761	5/8	Picston Shottle-ET	Opera da Centrogen TE	AA	A1A2	AB	AK	TL	TD	TV	CT	ABS Pecplan
Rocky Goldwyn FIV RDMS	1731	5/8	Braedale Goldwyn	Laranja Santa Luzia	AB	A1A2	AB	KK	TL	TD	TV	CT	Alta Genetics
Tajmahal Wildman JSM	8080-D	5/8	Ladys-Manor Wildman	Rubi Indiano OG	AA	A2A2	AB	KK	TL	TD	TV	CT	Sembra
Tufão Flora Toystory Itauna	1675	5/8	Jenny Lou Marshall Toystory-ET	Flora 4 Nobre Itauna	AB	A2A2	AB	AK	TL	TD	TV	CT	CRI Genética
Bambu FIV Rincão da Tropical	0045	5/8	Rincão Itaipu Y	Rendeira Nica Millenium Boa Fé	AA	A1A2	AB	AK	TL	TD	TV	CT	CRV Lagoa
Boticário da Olaria	0197	P/S	Fausto Polo Itauna	Ficção Olaria	AA	A1A2	BB	AK	TL	TD	TV	TT	CRV Lagoa
IPA Cajano	0076	P/S	Magical Mascot TE Rancho Alegre	IPA Salada	AA	A2A2	AB	AK	TL	TD	TV	CT	Sembra
Júpiter FIV Rincão São Marcos	0207	PS	Rincão Itaipu Y	363 Urík Vista Alegre	AA	A2A2	AA	AK	TL	TD	TV	TT	Alta Genetics
Mago Zimbo das Árábias	0181	PS	Zimbo das Árabis	Angel Touch das Árábias	AA	A2A2	BB	AK	TL	TD	TV	TT	Not available
14 th - Results expected in 2019													
Brazão Bixia Toystory Nova Terra	1105	3/4	Jenny-LOU Marshall Toystory-ET	Engenho da Rainha Bixia	AB	A2A2	AA	AK	TL	TD	TV	CT	ABS Pecplan
Delegado Homestead FIV GRF M. Milagrosa	1800-D	3/4	Bomaz Homestead-ET	Calha Castelo Boa Fé	AB	A1A2	AA	AK	TL	TD	TV	CT	ABS Pecplan
Galático 4365 Megaton NF Irmãos	3984-H	3/4	ShadyCrest-H Megaton-ET	Elegancia 4365 Gameta NF Irmãos	AB	A2A2	AA	AK	TL	TD	CV	TT	ABS Pecplan

(to be continued...)

(continuation...)

Sire name	Reg.	Genetic composition	Father	Mother	Molecular Markers ¹					Semen available			
					K-CN ²	B-CN ³	B-LGB ⁴	DGAT 1 ⁵	BLAD ⁶	DUMPS ⁷	CVM ⁸	OPN ⁹	AI Company
Icaro Super RBR	1209	3/4	Charlesdale Superstition ET	Volga Bem Feitor RBR	AA	A1A1	BB	AK	TL	TD	TV	CT	CRI Genética
Olodum Sadorana FIV	1170	3/4	Millenium Hortencia ALF Boa Fé	Kayene TE Sadorana	AB	A2A2	BB	AK	TL	TD	TV	CT	Not available
Rage Blitz da Garden S Buck	0911-E	3/4	Fustead Emory Blitz-ET	Maravilha Rolex Fela	AA	A2A2	AA	AK	TL	TD	TV	TT	Sembra
Albatroz Laverna Aftershok Nova Terra	1652	5/8	MS Atlees SHT Aftershock-ET	Lama Preta Laverna Rajkot	AA	A1A2	AB	AK	TL	TD	TV	CT	ABS Pecplan
Axor Avalon RPM da Santo Antônio	1734	5/8	Farnear- TBR Altaavalon-ET	Geleia Sansão RPM Santo Antonio	AB	A2A2	AA	AK	TL	TD	TV	TT	Alta Genetics
Bond Choral Felicidade	7000-J	5/8	Emerald-ACE-VA Choral ET	Lama Preta Nuvem Meteoro	AB	A2A2	AA	AK	TL	TD	TV	TT	Alta Genetics
Gênio das Árábias	8686-F	5/8	Bomaz Shrl Kolton 692-ET	Semente das Arabias	AA	A1A2	AB	AK	TL	TD	TV	TT	Not available
Jacuba GM Kyoto Bem Feitor Planet	1769	5/8	Encenada Taboo Planet-ET	Jacuba I Bela I	AA	A2A2	BB	AK	TL	TD	TV	TT	ABS Pecplan
Jagunço IV FIV Shottle Alegre	1733	5/8	Picston Shottle-ET	Colonia Sansão OG	AA	A2A2	AB	AK	TL	TD	TV	TC	Alta Genetics
JPZ Calisto FBI Laranja FIV	1681	5/8	Gillette Brilea FBI	Laranja Santa Luzia	AA	A2A2	BB	AK	TL	TD	TV	CT	Semex
Quentao Planet FIV FZD	1187	5/8	Encenada Taboo Planet-ET	Parabolica Everest 3E	AB	A2A2	AB	AK	TL	TD	TV	CT	CRV Lagoa
Tesouro Dengo Toystory Itauna	1682	5/8	Jenny-LOU Marshall Toystory-ET	Dengosa 6 Nobre Itauna	AB	A2A2	AB	AK	TL	TD	TV	CT	CRV Lagoa
Barreto Masky Felicia Fausto FIV	3841-H	PS	Fausto Polo Itauna	Felicia Riberao Grande TE	AA	A2A2	BB	AK	TL	TD	TV	TT	Semex
Diamante Valinhos	0040	PS	Fausto Polo Itauna	Imagem Valinhos	AA	A1A2	BB	AK	TL	TD	TV	CT	Semex
Dionísio FR Recreio	9999-H	PS	Tango Storm Renascer	Leopoldina FR Recreio	AB	A1A1	AA	AK	TL	TD	TV	TT	CRI Genética
Gólias Fausto da Mu Mu	0580-D	PS	Fausto Polo Itauna	Dolores Dabliu da Mu mu	AA	A2A2	BB	AK	TL	TD	TV	TT	Alta Genetics
Luti Florin Dom Nato	0580-G	PS	Florin Marker Dom Nato	Rendeira Nica Millenium Boa Fé	AA	A2A2	AA	AK	TL	TD	TV	TT	Not available
Mark Fausto TE São Marcos	8080-I	PS	Fausto Polo Itauna	363 Urik Vista Alegre	AA	A1A2	BB	AK	TL	TD	TV	CT	CRI Genética
Meteoro Florim JEER	0039	PS	Florin Marker Dom Nato	Macieira JEER	AA	A2A2	AA	AK	TL	TD	TV	CT	Alta Genetics
Recanto da Baronesa Bonitão	8470-K	PS	Fausto Polo Itauna	Liz Luke TE Mutum	AA	A2A2	BB	AK	TL	TD	TV	CT	Alta Genetics
15 th - Results expected in 2020													
Alado Blitz FIV JM Monte Alverne	1206	3/4	Fustead Emory Blitz-ET	Botique JM Monte Alverne	AA	A2A2	AB	AK	TL	TD	TV	NG	CRV Lagoa
Farrok FIV Córrego Branco	1232	3/4	Torpedo Bolton Santa Luzia	Mexerica Santa Luzia	AA	A2A2	AB	AK	TL	TD	TV	NG	CRV Lagoa
ICH K85 Canela Shottle	4230-K	3/4	Picston Shottle-ET	ICH Canela Teatro	AA	A1A2	AB	AK	TL	TD	TV	NG	ABS Pecplan
Líder L. King TE RPM da Santo Antônio	8715N	3/4	Luter King TE Vermelha	Paloma AAO	AA	A1A2	NG	AK	TL	TD	TV	CT	CRV Lagoa
Porto Real Da Terra Vermelha	1799-D	3/4	Picston Shottle-ET	Quartinha Terra Vermelha	AA	A1A2	AA	AK	TL	TD	TV	NG	ABS Pecplan
Caique Goldwyn FIV F. Congonhas	6827-P	5/8	Braedale Goldwyn	Neves da CA Boa Vista	AA	A2A2	AB	AK	TL	TD	TV	NG	Semex
Castelo de Uberaba Goldwyn Fube	7114-R	5/8	Braedale Goldwyn	Castanhola Herdeiro MAMJ	AA	A2A2	AB	KK	TL	TD	TV	NG	Alta Genetics
Dragao FIV Wildman da Tropical	1000-M	5/8	Ladys-Manor Wildman-ET	Pitanga Sansão OG	AA	A1A2	BB	AK	TL	TD	TV	NG	Not available
Ebalco Magnetim FIV da Medalha Miliagrosa	6833-P	5/8	Mister Magnetism-ET	Lama Preta Opala Brilhante	AA	A2A2	AB	AK	TL	TD	TV	NG	ABS Pecplan
Evoque Morty Gil Gir São Marcos	7120-R	5/8	Stouder Morty-ET	Gil São Marcos	NG	A2A2	NG	NG	NG	NG	TV	NG	CRV Lagoa
Feho FR Recreio	6300-N	5/8	Stanbro More	Lapaz FR Recreio	AA	A1A1	AA	AK	TL	TD	TV	NG	CRV Lagoa
Groman FIV Blitz Santa Luzia	1795	5/8	Fustead Emory Blitz-ET	Castanhola Herdeiro MAMJ	AA	A2A2	BB	AK	TL	TD	TV	NG	Semex
Hugo Fever da Mumu	6829-P	5/8	Crackholm Fever	Eureka I FIV Teatro Delib	AA	A2A2	AA	KK	TL	TD	TV	NG	Semex
Jacuba Ping Impressor Freddie	1765	5/8	Badger Bluff Fanny Freddie	Jacuba I Brenda II	AB	A2A2	AA	AK	TL	TD	TV	NG	ABS Pecplan
Jagunço VIII FIV Shottle Alegre	6839-P	5/8	Picston Shottle-ET	Colonia Sansao OG	AA	A1A2	AA	AK	TL	TD	TV	NG	Alta Genetics
Natan Mandel Dom Nato	8738-J	5/8	Lutz-Meadows e Mandel-ET	Gioconda Napolitano Dom Nato	AA	A1A2	AB	AK	TL	TD	TV	NG	CRV Lagoa

(to be continued...)

(continuation...)

Sire name	Reg.	Genetic composition	Father	Mother	Molecular Markers ¹							Semen available	
					K-CN ²	B-CN ³	B-LGB ⁴	DGAT 1 ⁵	BLAD ⁶	DUMPS ⁷	CVM ⁸	OPN ⁹	AI Company
17 th - Results expected in 2022													
Conde Gerard FIV Nova Fé	9152U	3/4	Schillview Oman Gerard-ET	Engenho da Rainha Balada	NG	A1A1	NG	NG	TL	TD	TV	NG	ABS Pecplan
Cupido Planet Renacer	9384M	3/4	Ensenada Taboo Planet-ET	Maluca Marvelous Renacer	NG	A2A2	NG	NG	TL	TD	NG	NG	Select Sires
Dialetto Shortle IA da Xapetuba	9743Y	3/4	Picston Shottle-ET	Aspen Paramount FIV da Xapetuba	NG	A1A2	NG	NG	TL	TD	TV	NG	Alta Genetics
Etelvino FIV Planet da Tropical	4476K	3/4	Ensenada Taboo Planet-ET	Dracena Fabian Manij	NG	A2A2	NG	NG	TL	TD	TV	NG	Alta Genetics
Jango FIV Aftershock Rancho do Ro	3301 U	3/4	MS Atlees SHT Aftershock - ET	Engenho da Rainha Brenda Teatro	NG	A1A1	NG	NG	TL	TD	TV	NG	ABS Pecplan
Lancaster FIV Garrison Santa Luzia	1567S	3/4	Penn-England Garrison ET	Aduana DF	NG	A1A2	NG	NG	TL	TD	TV	NG	Alta Genetics
Luxo FIV Atwood Emelinda Volta Fria	5622P	3/4	Maple-Downs-I G W Atwood ET	Ermelinda Mergulhao	NG	A1A1	NG	NG	TL	TD	TV	NG	Select Sires
Segredo FIV Terra Vermelha	8272S	3/4	Crockett-Acres B Bronson-ET	Quartinha Terra Vermelha	NG	A1A2	NG	NG	TL	TD	TV	NG	CRV Lagoa
Twister Windbrook Tannus	2001W	3/4	Gillette Windbrook	Alcachofra Manij	NG	A2A2	NG	NG	TL	TD	TV	NG	Semex
Apocalipse Goli FIV WTF da Estiva	4566J	5/8	DE-SU Oman Goli-ET	Denuncia Refugio WTF da Estiva	NG	A1A2	NG	NG	TL	TD	TV	NG	CRV Lagoa
Astronauta FIV IT	9077L	5/8	Schillview Oman Gerard-ET	Duda Kubera IT	NG	A2A2	NG	NG	TL	TD	TV	NG	ABS Pecplan
Barack FIV Atwood RC do Moinho	8915U	5/8	Maple-Downs-I G W Atwood ET	Bianca Sansao FIV JJC	NG	A1A2	NG	NG	TL	TD	TV	NG	Alta Genetics
Cadillac Gerard FIV Nova Fé	2596F	5/8	Schillview Oman Gerard-ET	Colonia Sansao OG	NG	A2A2	NG	NG	TL	TD	TV	NG	CRV Lagoa
Casique Abacatuxia Jordan Estancia Nova Terra	9140M	5/8	Gillette Jordan	Abacatuxia Bixia Jaguar FIV E.N.T	NG	A1A2	NG	NG	TL	TD	TV	NG	ABS Pecplan
Cobalter FIV Goldwyn Jacuba Santa Luzia	9795AD	5/8	Braedale Goldwyn	Jacuba I Bela I	NG	A2A2	NG	NG	TL	TD	TV	NG	CRV Lagoa
Demetrio Felicidade Braxton Nova Terra	3056Z	5/8	Regancrest S Braxton ET	Felicidade FIV Everest Volta Fria	NG	A1A2	NG	NG	TL	TD	TV	NG	Alta Genetics
Federal Bolton FIV da Medalha Milagrosa	6212X	5/8	Sandy-Valley Bolton ET	Lama Preta Opala Brilhante	NG	A2A2	NG	NG	TL	TD	TV	NG	CRV Lagoa
Fetico Bolton FIV da Medalha Milagrosa	4850AE	5/8	Sandy-Valley Bolton ET	Lama Preta Opala Brilhante	NG	A2A2	NG	NG	TL	TD	TV	NG	Alta Genetics
Lama Preta Salmão Jerrick FIV	8248Y	5/8	Gillette Jerrick	Lama Preta Manchete Meteoro	NG	A1A1	NG	NG	TL	TD	TV	NG	Semex
Rarao Raio Toystory	7461S	5/8	Jenny-Lou Marshall Toystory-ET	Franca TE Sansao RPM Santo Antonio	NG	A2A2	NG	NG	TL	TD	TV	NG	Alta Genetics
Thor FIV FR Recreio	4913P	5/8	Rockalli Bradley	Jacutinga FR Recreio	NG	A1A2	NG	NG	TL	TD	TV	NG	Alta Genetics
Titan Gold Chip DLS Pantanal	9085I	5/8	MR Chassity Gold Chip-ET	Alicia Radar Dis Pantanal	NG	A1A2	NG	NG	TL	NG	TV	NG	Semex
Vicoso Aftershock RC do Moinho	4983M	5/8	MS Atlees Sht Aftershock - ET	Vicosa Sansao FIV JJC	NG	A1A2	NG	NG	TL	TD	TV	NG	Semex
Fortiz Tango FIV Boa Fé	0036	PS	Tango Storm Renacer	Felicia Ribeirão Grande TE	NG	A2A2	NG	NG	TL	TD	TV	NG	Alta Genetics
18 th - Results expected in 2023													
Blu McCutchen Genial FIV	4989AI	3/4	DE-SU BKM McCutchen 1174-ET	Varjao Moda TE	AA	A2A2	AA	NG	TL	TD	TV	NG	Alta Genetics
Campeão FIV Rio do Leite	6555-AK	3/4	DE-SU Gillespy-ET	Campea da Cabanha	AA	A1A2	AA	NG	TL	TD	TV	NG	ABS Pecplan
Conde Wildman FIV SABV	3200U	3/4	Ladys-Manor Wildman-ET	Faceira Sa Bela Vista	AA	A1A2	AB	NG	TL	TD	TV	NG	Bela Vista
EBV Rock Facebook 555-FIV	7606AG	3/4	Marbri Facebook	Diga Rhoelandt 293 Leda FIV Boa Fe	BB	A1A2	AB	NG	TL	TD	TV	NG	Semex
Emporio Bernadete Cancum Nova Terra	7904Y	3/4	Larcrest Cancun-ET	Bernadete Teatro FIV JD.do Turvo	AA	A2A2	AB	NG	TL	TD	TV	NG	ABS Pecplan
Fasano Jayven FIV da Xapetuba	5351AF	3/4	Stouler Jayven-ET	Amorosa Mischief FIV da Xapetuba	AB	A2A2	AA	NG	TL	TD	TV	NG	ABS Pecplan
Honorato FIV Haley Gam	9071AC	3/4	DE-SU Althaley-ET	Barbara Teatro Pedra	AA	A2A2	AB	NG	TL	TD	TV	NG	CRV Lagoa
ICH Natio Dorcy	3032AE	3/4	Coyne-Farms Dorcy-ET	ICH Destreza Bem Feitor TE	AB	A1A2	AA	NG	TL	TD	TV	NG	ABS Pecplan
ICH Natural Dorcy	7001AE	3/4	Coyne-Farms Dorcy-ET	ICH Destreza Bem Feitor TE	AB	A1A2	AB	NG	TL	TD	TV	NG	Alta Genetics
J.E.L.Rancho Grande Iota Jupiter TE	3794P	3/4	Regancrest Altaiota-ET	Curiosa do R.Grande	AA	A2A2	BB	NG	TL	TD	TV	NG	Alta Genetics
Maestro Booken AV Bonsucesso	1570AF	3/4	DE-SU 521 Bookem-ET	Ema AV Bonsucesso	AB	A2A2	AB	NG	TL	TD	TV	NG	CRJ Genetica

(to be continued...)

(continuation...)

Sire name	Reg.	Genetic composition	Father	Mother	Molecular Markers ¹								Semen available	
					K-CN ²	B-CN ³	B-LGB ⁴	DGAT ¹⁵	BLAD ⁶	DUMPS ⁷	CVM ⁸	OPN ⁹	AI Company	
Master FIV Tebarrot	3984AI	3/4	Our-Favorite Detox-ET	Belissima Teatro Tebarrot	AA	A2A2	AB	NG	TL	TD	TV	NG	CRV Lagoa	
Presidente FIV Bradnick Santa Luzia	1470Y	3/4	Regancrest-GV S Bradnick-ET	Previdencia December Santa Lucia	AA	A2A2	AB	NG	TL	TD	TV	NG	CRV Lagoa	
Torpego Paramount SCCJ	5347Y	3/4	Delta Paramount	Baunilha I Bethania	AA	A1A2	AB	NG	TL	TD	TV	NG	CRV Lagoa	
Bellator Stone OG	7067AG	5/8	Fustead Altastone-ET	Mandala Indiano OG	AB	A1A2	AB	NG	TL	TD	TV	NG	Alta Genetics	
Cadete Bradnick Fiv WTF da Estiva	6000AF	5/8	Regancrest-GV S Bradnick-ET	Garca Buzios WTF da Estiva	AA	A2A2	AA	NG	TL	TD	TV	NG	Sexex	
Demolitor Wildman Felicidade	4682X	5/8	Ladys-Manor Wildman-ET	Lama Preta Kiera Rajkot	AB	A1A1	AA	NG	TL	TD	TV	NG	Alta Genetics	
Elvys FIV Toystory da Sianinha	8379AE	5/8	Jenny-Lou Marshall Toystory-ET	Rarina Teatro FIV da Sianinha	AB	A1A2	AA	NG	TL	TD	TV	NG	Alta Genetics	
Embaixador FIV Haley da Sianinha	8391AE	5/8	DE-SU Althaley-ET	Rarina Teatro FIV da Sianinha	AB	A1A2	AA	NG	TL	TD	TV	NG	Alta Genetics	
Jacuba GM Lars Sansão Shamrock	8129N	5/8	Ladys-Manor PL Shamrock-ET	Jacuba V Carina I	AA	A2A2	NG	NG	TL	TD	TV	NG	Bela Vista	
Jaguar Shamrock 398 da MU-MU	7824AH	5/8	Ladys-Manor PL Shamrock-ET	Eureka I FIV Teatro Delib	AA	A2A2	AA	NG	TL	TD	TV	NG	Bela Vista	
Jubal FIV Brenda Gillespy Rancho do RO	3283U	3/4	DE-SU Gillespy-ET	Engenho da Rainha Brenda Teatro	AA	A1A1	NG	NG	TL	TD	TV	NG	ABS Pecplan	
Panorama Bolton Fiv Recanto Feliz	2604Y	5/8	Sandy-Valley Bolton ET	Riqueza Recanto Feliz	AA	A2A2	AA	NG	TL	TD	TV	NG	Bela Vista	
Sensato FIV Terra Vermelha	8270S	5/8	Cookiecutter Mom Hunter	Laila TE Terra Vermelha	AA	A2A2	AB	NG	TL	TD	TV	NG	CRV Lagoa	
Sistema FIV Shottle Agro SD	4607AH	5/8	Picston Shottle-ET	Patativa FIV Espelho Agro SD	AB	A1A2	AB	NG	TL	TD	TV	NG	Alta Genetics	
Superboy FIV Supersire DLS Pantanal	4747Z	5/8	Seagull-Bay Supersire-ET	Princesa FIV Sansao DLS Pantanal	AA	A2A2	AB	NG	TL	TD	TV	NG	ABS Pecplan	
Terremoto Supersire FIV da Favela	1000Z	5/8	Seagull-Bay Supersire ET	Pascoa da Centrogen FIV	AA	A1A2	AA	NG	TL	TD	TV	NG	CRI Genetica	
Brasileiro IT	8059P	PS	Sabia IT	Ponte Alta IT	AA	A1A2	AA	NG	TL	TD	TV	NG	ABS Pecplan	
Zorro Tango do Morro	1238P	PS	Tango Storm Renascer	Jurema Encore Sonho	NG	A1A2	NG	NG	NG	NG	NG	NG	Sexing	
19 th - Results expected in 2024														
Alta Supremo Class Oasis da Divisa	2314AI	3/4	Zahbulls Alta 1stclass-ET	Demasia JM Monte Alverne	AB	A2A2	NG	NG	NG	NG	TV	NG	Alta Genetics	
BB Milk Touchdown FIV Monterey	8862AJ	3/4	View-Home Monterey-ET	BB Milk Veri Mayssa Nobre FIV	AA	A1A2	AB	NG	NG	NG	TV	NG	ABS Pecplan	
Brooke FIV Goldwyn Santa Luzia	3636AK	3/4	Braedale Goldwyn	Inativa Marker Santa Luzia	AA	A2A2	AA	NG	NG	NG	CV	NG	Sexing	
Fileto Haley FIV da Xapetuba	3384AN	3/4	DE-SU Althaley-ET	Alterosa Bradley FIV Da Xapetuba	NG	A1A2	AA	NG	NG	NG	TV	NG	Alta Genetics	
Gental FIV Dorcy da Tropical	5703AH	3/4	Coyne-Farms Dorcy-ET	Alcachofra Manj	AB	A1A2	AB	NG	NG	NG	TV	NG	Alta Genetics	
ICH Nado Buxton	7087AE	3/4	MYE038 Buxton-ET	ICH Canela Teatro	NG	A1A2	BB	NG	NG	NG	TV	NG	ABS Pecplan	
ICH Nanquim Bradnick	2981AE	3/4	Regancrest-GV S Bradnick-ET	ICH Graça Teatro TE	NG	A1A2	NG	NG	NG	NG	TV	NG	Sexex	
ICH Nelo Mccutchen	3033AE	3/4	DE-SU BKM Mccutchen 1174-ET	ICH Canela Teatro	AA	A1A2	AB	NG	NG	NG	TV	NG	Sexex	
Ícone Shamrock Oasis da Divisa	5957AC	3/4	Ladys-Manor PL Shamrock-ET	Botique JM Monte Alverne	AA	A2A2	AB	NG	NG	NG	TV	NG	ABS Pecplan	
J.E.L.Rancho Grande Doorman Matheus TE	32347AI	3/4	Val-Bisson Doorman	Curiosa do R. Grande	NG	A2A2	AB	NG	NG	NG	TV	NG	Sexex	
J.E.L.Rancho Grande Mcc Marcos TE	4988AI	3/4	DE-SU BKM Mccutchen 1174-ET	Curiosa do R. Grande	AA	A1A2	BB	NG	NG	NG	TV	NG	ABS Pecplan	
J.E.L.Rancho Grande SS Mister TE	3236AI	3/4	Seagull-Bay Supersire ET	Curiosa do R. Grande	AA	A1A2	AB	NG	NG	NG	TV	NG	Sexex	
J.E.L.Rancho Grande Supersire Milk TE	5998AJ	3/4	Seagull-Bay Supersire ET	Curiosa do R. Grande	NG	A1A2	NG	NG	NG	NG	TV	NG	Select Sires	
Maximus Brenda Gerard Rancho do RO	0888AM	3/4	Schillview Oman Gerard-ET	Engenho da Rainha Brenda Teatro	NG	A1A2	BB	NG	NG	NG	TV	NG	CRV Lagoa	
Prime Cancun Oasis da Divisa	5954AC	3/4	Larcrest Cancun-ET	Demasia JM Monte Alverne	AA	A2A2	AB	NG	NG	NG	TV	NG	ABS Pecplan	
Rambo Jordan Santa Luzia	1471Y	3/4	Gillette Jordan	Galocha NR	NG	A1A2	BB	NG	NG	NG	TV	NG	CRV Lagoa	
2172 Shottle da Medalha Miliagrosa	4436AJ	5/8	Picston Shottle-ET	EBV Bambola Teatro 470 FIV	AA	A1A2	AA	NG	NG	NG	TV	NG	CRV Lagoa	
Alta Sheik FIV Class Volta Fria	6962AI	5/8	Zahbulls Alta1stclass-Et	Fascinante Patativa Modelo Volta Fria	NG	A2A2	NG	NG	NG	NG	TV	NG	Alta Genetics	

(to be continued...)

(continuation...)

Sire name	Reg.	Genetic composition	Father	Mother	Molecular Markers ¹						Semen available		
					K-CN ²	B-CN ³	B-LGB ⁴	DGAT 1 ⁵	BLAD ⁶	DUMPS ⁷	CVM ⁸	OPN ⁹	AI Company
Barao FIV do Pilar 2C	3438AF	5/8	Sandy-Valley Bolton ET	Paineira FIV Teatro JGVA	AA	A1A2	AB	NG	NG	NG	TV	NG	CRV Lagoa
Draco RCJ Doorman RC Do Moinho	8777AO	5/8	Val-Bisson Doorman	Bianca Sansão FIV JJC	AA	A2A2	AA	NG	NG	NG	TV	NG	Semex
Elo Supersire FIV Kub	9596AD	5/8	Seagull-Bay Supersire ET	Miniera Teatro FIV RPM da Santo Antonio	AA	A2A2	NG	NG	NG	NG	TV	NG	Alta Genetics
Gabinete FIV do Pilar 2C	3435AF	5/8	Seagull-Bay Supersire-ET	Obra Prima da Centrogen FIV	AA	A1A2	BB	NG	NG	NG	TV	NG	Alta Genetics
Garoto Haley Tannus	8118AG	5/8	DE-SU Altahaley-ET	Celebridade da Alcacchofra Tannus	AB	A2A2	NG	NG	NG	NG	TV	NG	Alta Genetics
Glauco FIV Meteor da Tropical	1629AP	5/8	Sully Altameteor-ET	Jaciara da Centrogen TE	NG	A2A2	NG	NG	NG	NG	TV	NG	Alta Genetics
IAM FIV Pat Morada Corinthiana	6030AP	5/8	MR Lookout Pesce Alta5G-ET	Perola Teatro FIV Primícias	AB	A1A2	BB	NG	NG	NG	TV	NG	Alta Genetics
ICH Nabil Buxton	1956AO	5/8	MYED38 Buxton-ET	ICH Impecável Sansão	AA	A1A2	AA	NG	NG	NG	TV	NG	ABS Pecplan
Imperador FIV Dorcy Fama JF	9979AL	5/8	Coyne-Farms Dorcy-ET	Moicana FIV Dona Minerva	NG	A2A2	AA	NG	NG	NG	TV	NG	CRV Lagoa
Jacuba GM Link Meteoro Jacey	7668AH	5/8	Coyne-Farms Jacey CRI-ET	Jacuba III Miss I	NG	A1A2	BB	NG	NG	NG	TV	NG	Alta Genetics
Jacuba Uno B. Supersire	7674AH	5/8	Seagull-Bay Supersire ET	Jacuba I Bela I	NG	NG	NG	NG	NG	NG	TV	NG	ABS Pecplan
RC Fantastico Meridian RC do Moinho	0700Z	5/8	Sully Hart Meridian-ET	Fantástica Teatro FIV TS da Muquem	NG	A1A2	AB	NG	NG	NG	TV	NG	Semex
Sheik Meridian FIV Rancho Tunin	6060AL	5/8	Sully Hart Meridian-ET	Olinda Terra Vermelha	NG	A2A2	AB	NG	NG	NG	TV	NG	Semex
Superboy do Pilar 2C	6160AD	5/8	Seagull-Bay Supersire-ET	Paineira FIV Teatro JGVA	NG	A1A2	AA	NG	NG	NG	TV	NG	Alta Genetics
Trovão Jayven FIV Da Favela	0013AD	5/8	Stouder Jayven-ET	Pascoa da Centrogen FIV	NG	A2A2	AA	NG	NG	NG	TV	NG	CRI Genetica
Zeus Dorcy Oasis da Divisa	2307AI	5/8	Coyne-Farms Dorcy-ET	Sevilha Sansão Oasis da Divisa	NG	A1A2	AB	NG	NG	NG	NG	NG	ABS Pecplan
Sedutor FIV Kenyo	5734AH	PS	Tango Storm Renacer	Kavinha Kenyo	NG	A2A2	AB	NG	NG	NG	TV	NG	Alta Genetics
Sombreiro FIV Kenyo	5735AH	PS	Thor FIV da Prata JAC	Kavinha Kenyo	NG	A2A2	AB	NG	NG	NG	TV	NG	Not available

¹NG - Not genotyped, ²Allele A - High yield for cheese, Allele B - Low yield for cheese, ³Allele A1 - Associated with nutritional and health problems in humans, A2 - Higher milk production and protein, ⁴Allele A - High milk yield Allele B - High protein and fat milk content, ⁵Allele A - Increase in milk and protein production, Allele K - Reduction in milk protein content and increase in milk fat content, ⁶BL - Heterozygote animal - Carrier of the allele for BLAD, TL - Homozygote animal - Non-carrier of the allele for BLAD, ⁷DP - Heterozygote animal - Carrier of the allele for DUMPS, TD - Homozygote animal - Non-carrier of the allele for DUMPS, ⁸CV - Animal - Heterozygote animal - Carrier of the allele for CVM, TV - Homozygote animal - Non-carrier of the allele for CVM, ⁹Allele C - Associated to increased protein and fat milk content, Allele T - Associated to elevated weight gain.

Annex 2. Pedigree information of Girolando sires of the 2017 Report, ordered by general ranking classification.

Rank.	Group	Reg.	Sire	Father	Mother	Paternal Grandfather	Maternal Grandfather	Owner
1	12	0987	RBC Barão	Ricecrest Touchdown-ET	Cajamanga AAO	Teatro da Sylvania	Ricecrest Task Terry	Roberto Antônio Pinto Melo de Carvalho
2	9	1154	Jacuba Titânio Bem Feitor Celsius	528 Etazon Celsius-ET	Jacuba I Novena I	How-El Acres K Bellman-ET	Bem Feitor Raposo da Cal	Roberto Pimental de Mesquita
3	12	1671	Ozias de Centrogen TE	Sandy Valley Bolton-ET	Jenoca LH TE	Meteoro de Brasília	Lexvold Luke Hershel-ET	Herbert Siqueira da Silva
4	12	1211	Imperor Bolton Santa Luzia	Sandy Valley Bolton-ET	Laranja Santa Luzia	Caju de Brasília	Lexvold Luke Hershel-ET	José Coelho Vitor
5	12	0993	Alfy Cayuaba Mission Iridio TE	Seagull-Bay Mission-ET	Alfy Cayuaba Teatro Danda	Teatro da Sylvania	Lexvold Luke Hershel-ET	Cayuaba Genética e Pec. LTDA.
6	8	0780	Arque Leduc Santa Luccia TE	Lystel Leduc-ET	Iracema LE	Juniper Rotate Jed-ET	Lonte Blackstar Jewel TL	Condomínio JPZ - Jorge Papazoglu e Outro
7	11	1400	RBC Arqueto	RBC Corisco	RBC Talentosa	C.A.Universo TE	Cedar-Creek Bergwil-ET	Roberto Antônio Pinto Melo de Carvalho
8	6	0945	Turbante Touch das Arábias	Dinomi Melwood Touch TL	Maravilha das Arábias	Arinda Melwood-ET	N/D*	Ricardo Miziara Jreige
9	12	0990	Curio FIV Paramount JGVA	Delta Paramount	Patativa Markowicz	Delta Canvas	Pinhazinho Araras M347 Pascoal	José Geraldo Vaz Almeida
10	12	1022	Imperador Toy Story FIV Gama	Jenny-Lou Marshall Toystory-ET	Beldade MAMJ	G.D.R.Canadian Star-TE	Mara-Thon BW Marshall-ET	Milton de Almeida Magalhães Júnior
11	10	0806	Luter King TE Terra Vermelha	Regancrest Elton Durham-ET	Quartinha Terra Vermelha	Enprise Bell Elton	Red-Fever Oakland-ET	Marta de Azevedo Bernardes
12	12	1021	Charmoso Wildman Tannus	Lady's Manor Wildman-ET	Alcachofra Manj	Mara-Thon BW Marshall-ET	G.D.R.Canadian Star-TE	Décio Vieira Tannus
13	2	0454	Mágica Mascot TE Rancho Alegre	S-Brook N-B Mascot-ET	Mágica Rancho Alegre	Whittier-Farms Ned Boy	Beguaba Gil	Hilton da Cunha Peixoto
14	1	0300	110 Billy Fancy Paul Y	Utag Valiant Fancy Paul-ET	Panorama IY	SWD Valiant	N/D*	Renato da Cunha Oliveira
15	12	1096	Atual Garimpo Zak TE	Garimpo Boss JGVA	Estrela Tricordiana	Planalto TE Cal	Bosside Ruben-ET	Rangel Gontijo de Queiroz
16	12	1662	Netuno Astre Renascer	Duregal Astre Starbuck ET	Morena Renascer	N/D*	Hanoverhill Starbuck EX	João Dário Ribeiro
17	11	0917	Jacuba Prime Bem Feitor Lou*	Jenny-Lou Marshall Toystory-ET	Jacuba III carina I	Mara-Thon BW Marshall-ET	Bem Feitor Raposo Da Cal	Roberto Pimental de Mesquita
18	11	1413	Limão TE JRS	Lexvold Luke Hershel-ET	Laranja Santa Luzia	Norrielaque Cleitus Luke-TW	Caju de Brasília	João Reis Soares
19	11	0944	Aristeu Billy Linda Santa Luccia	110 Billy fancy paul Y	Linda do Spa	Utag Valiant Fancy Paul-ET	N/D*	Condomínio JPZ - Jorge Papazoglu e Outro
20	4	0541	MBF 0246	Etazon Wallace	MBF Redação	Singing-Brook N-B Mascot-ET	Clover Mist Dandana-ET	Maria Dias Barretto Figueiredo
21	7	0983	Tango Storm Renascer	Mi-Bren Mathie Storm	Morena Renascer	Paradise-r Cleitus Mathie	N/D*	João Dário Ribeiro
22	5	0621	Kaion Celsius Itaiuna	528 Etazon Celsius-ET	Emboaba Everest Itaiuna	How-El Acres K Bellman-ET	C. A. Everest	Valério Machado Guimarães
23	3	0476	Estand Luke HB	Norrielaque Cleitus Luke	Chaleira HB	Bis-May Tradition Cleitus	N/D*	Hélio Borges Barbosa
24	5	0734	Cowboy Addison TE Rancho Alegre	Etazon Addison-ET	Mágica Rancho Alegre	Bis-May E-L Mountain-ET	Beguaba Gil	Hilton da Cunha Peixoto
25	6	0931	Lion Império Itaiuna	Império Pavillion Itaiuna	Gama TE Mason Itaiuna	Etazon Pavillion	Shoremar Mason-ET	Valério Machado Guimarães
26	8	0754	Diamante Billy da Cacá	110 Billy Fancy Paul Y	Lira Boagy da Caca	Utag Valiant Fancy Paul-ET	Sherryhill Cubby Boagy-ET	José Mascarenhas T.Jr/Cassio R.B.Paiva
27	2	0452	Danião Bellwood 3E	Mazeifield Bellwood 3E	Maravilha MN 3E	Arinda Melwood-ET	N/D*	Antônio de Souza Salgueiro
28	5	0580	Aristóteles Grandslam TE Santa Luccia	J-L-G Grandslam-ET	Iracema LE	Exrango Thor	Lonte Blackstar Jewel TL	Jorge Papazoglu
29	7	0880	Átia Irã da Cacá	Irã Urutu do Morro	Andorinha Spacey da Cacá	Santa Cruz Urutu Relógio	N/D*	João Augusto Junqueira Reis
30	10	1293	Jacuba Dark Bem Feitor Aaron	Dixie-Lee AARON-ET	Jacuba II Sara I	Norrielaque Cleitus Luke-TW	Bem Feitor Raposo Da Cal	Roberto Pimental de Mesquita
31	12	0075	IPA Bochecho	Zimbo das Arábias	IPA Ociosa	Santa Cruz Zape Elevation	Santa Cruz Zimbo Elevation	IPA - Instituto Agronômico de Pernambuco
32	12	1465	Jacuba Printer Bem Feitor Blitz	Fustead Emory Blitz-ET	Jacuba II Natureza I	Bem Feitor Raposo da Cal	MJR Blackstar Emory-ET	Roberto Pimental de Mesquita
33	6	0563	Executivo Billy Beleza Y TE	110 Billy Fancy Paul Y	Beleza Haden CF	Utag Valiant Fancy Paul-ET	N/D*	Renato da Cunha Oliveira
34	11	0960	Torpedo Bolton Santa Luzia	Sandy Valley Bolton-ET	Quartinha Terra Vermelha	Lexvold Luke Hershel-ET	Red-Fever Oakland-ET	José Coelho Vitor
35	11	1313	Sabiá IT	MR Morel-ET	Duda Kubera IT	Mara-Thon BW Marshall-ET	Castelo de Kubera	Itamar Faria Valle
36	12	1111	JPZ Bulgari Milenium Lia Santa Luccia	Millenium Hortência Alf Boa Fé	Lia Terra Vermelha	Regancrest Elton Durham-ET	Alvoor Elton Alf	Condomínio JPZ - Jorge Papazoglu e Outro
37	12	1487	Thor FIV da Prata JAC	Jenny-Lou Marshall Toystory-ET	Harmonia Terra Vermelha	Mara-Thon BW Marshall-ET	C.A.Quero-Quero	José Antônio da Silva Clemente
38	5	0781	Rincão Itaipu Y	Itaipu Nobre Y	Beleza Y	Nobre Fancy Paul Y	N/D*	Renato da Cunha Oliveira

(to be continued...)

(continuation...)

Rank	Group	Reg.	Sire	Father	Mother	Paternal Grandfather	Maternal Grandfather	Owner
39	8	0955	Índio Windstar Sertão	Dupasquier Windstar	Angra Sertão	Duregal Astre Starbuck ET	N/D*	Nazareth Dias Pereira
40	8	1065	Ocidente London do Morro	Londondale Lman Magnum-ET	Sewilha Ocidente do Morro	Rothrock Tradition Leadman	Ocidente	Olavo de Resende Barros Júnior
41	9	1167	Globo Billy JAC	110 Billy Fancy Paul Y	Gemada Decal II JAC	Uttag Valiant Fancy Paul-ET	Vir-Clay Enchantin Decal	Jair Alves Camargos / José Alves Camargos
42	9	0973	Étano Gordon da Limeira	Delika Juror Gordon-TW	2244 Matoso HG	Ked Juror-ET	Reinador da Epamig	José Márcio de Simone Silveira
43	11	1284	Diplomata Roy Santa Luzia	Roylane Jordan-ET	Laranja Santa Luzia	Ked Juror-ET	Caju de Brasília	José Coelho Vitor
44	7	0752	Lama Preta Instrutor Cavalier	Ca-Lili Standout Cavalier	Fartura OG	Sunyside Standout	Mongol da Pontal	Aparador Agropecuária e Promoções Ltda.
45	1	0216	Santa Cruz Zinabre Dynamic	Caernavon Rotarte Dynamic-ET	Reliquia Oásis Santa Cruz	Arinda Rotarte	Santa Cruz Oásis Hábili	José João Salgado dos Reis
46	9	0016	Notebook das Três Passagens	Magical Mascot TE Rancho Alegre	Favala Feitico das Três Passagens	Singing-Brook N-B Mascot-ET	Feitico das Primaveras	Ricardo Catão Ribeiro
47	10	1294	Cacique Índio Sertão	Índio Windstar Sertão	Madame Sertão	Dupasquier Windstar	Ipu Haley Birigitta Black ET	Nazareth Dias Pereira
48	11	1338	Imperador FIV Ribeirão Grande	Sandy Valley Bolton-ET	Laranja Santa Luzia	Lexvold Luke Hershel-ET	Caju de Brasília	João Reis Soares
49	7	0636	RBC Redator	Regancrest RBK Die-hard-ET	RBC Parantinha	Paradise-r Roebuck	N/D*	Roberto Antônio Pinto Melo de Carvalho
50	2	0455	Maguito Mascot TE Rancho Alegre	S-Brook N-B Mascot-ET	Mágica Rancho Alegre	Whittier-Farms Ned Boy	Beguaba Gil	Hilton da Cunha Peixoto
51	1	0350	Doutor Bellringer Itáuna	Tiho Belringer-ET	Mansinha Itáuna	Carlin-M Ivanhoe Bell	Santa Cruz Oriente Morcego	RYG Emp. Part. e Adm. S/A
52	4	0639	Brutus das Arábias	Santa Cruz Zinabre Dynamic	Bailarina das Arábias	Caernavon Rotarte Dynamic	Petecote Boda-ET	Ricardo Miziara Jreige
53	6	0885	Jaguar das Três Passagens	Famoso das Três Passagens	Gata das Três Passagens	Curimatã das Três Passagens	J-L-G Grandislam-ET	Carlos Eduardo Ferreira
54	1	0243	Dileto Balthazar Sonho	H. Conductor Balthazar	Azurita FR	Wapa Arlina Conductor	N/D*	Mário Lúcio Barros Borges
55	10	0917	Abdu Lord Lily Santa Luz	Etazon Lord Lily-ET	Independência Santa Luzia	To-Mar Blackstar-ET	N/D*	José Coelho Vitor
56	7	0998	Curimatã III TE Alegre	Curimatã das Três Passagens	Artia Vertente	Twist Astronaut	Richlawn Simon Dustin	Nelson Ariza
57	2	0487	Baco das Arábias	Lutz Meadows Blackstar Miles	Gemada das Arábias	To-Mar Blackstar-ET	N/D*	Ricardo Miziara Jreige
58	10	0030	Bau das Arábias	Brutus das Arábias	Rochona II das Arábias	Santa Cruz Zinabre Dynamite	Lonte Black Star Jewel TL	Ricardo Miziara Jreige
59	3	0475	Milênium Hortência Alf Boa Fé	Alvor Elton Alf	Hortência Boa Fé	Emprise Bell Elton	N/D*	Agropecuária Boa Fé Ltda.
60	9	0855	Garimpo Boss JGVA	Bosside Ruben-ET	Fneza Urânio JGVA	Ked Juror-ET	Uranio TE da Silvânia	José Geraldo Vaz Almeida
61	12	0823	Jordan Goldwyn DLS Pantanal	Braedale Goldwyn	Teteia OG	Caldas Valiant Victor VII-TE	Shoremar James	Denilson Lima de Souza
62	11	0052	Berílio Soberano Santa Luccia	Soberano Adonias Santa Luccia	Manequim Hélico Dona Beja	Hetico Baco Dona Beja	Adonias Progress Santa Luccia TE	Condomínio JPZ - Jorge Papazoglu e Outro
63	5	0566	Escote Royalist Curral Velho	Startmore Royalist-ET	Malvina Curral Velho	Madawaska Aerostar	N/D*	Renildo Neides Alves
64	10	0020	Potter Kaen Itáuna	Kaen Calsius Itáuna	Gama TE Mason Itáuna	528 Etazon Calsius-ET GM	Shoremar Mason-ET	Valério Machado Guimarães
65	7	1039	Florin Marker Dom Nato	528 Southland Marker-ET	Famosa Oliveira	Singing-Brook N-B Mascot-ET	N/D*	José Donato Dias Filho
66	2	0366	Nautilus Bandit Rancharia	Hanoverhill Bandit-ET	Sapeca Astra M-4	Rockali Son of Bova	Capucho da Canig	Aldir Henrique Silva
67	10	1248	Impacto FIV da Prata JAC	Clintia Zack Frederick-ET	Harmonia Terra Vermelha	Chance Southwind LB Zack-ET	C.A. Quero-Quero	José Antônio da Silva Clemente
68	6	0928	Soberano Adonias Santa Luccia	Adonias Progress Santa Luccia TE	Ametista Caju Santa Luccia TE	Duncan Progress-ET	Caju de Brasília	Jorge Papazoglu
69	3	0667	Zimbo das Arábias	Santa Cruz Zimbo Elevation	Bailarina das Arábias	Três Imãos Elevation	Petecote Boda-ET	Ricardo Miziara Jreige
70	8	1066	Milagre das Três Passagens	Império Paviljon Itáuna	Goibarda das Três Passagens	Etazon Paviljon	Petecote Lance TL	Marco Paulo Lemos Ferreira
71	4	0680	Famoso das Três Passagens	Curimatã das Três Passagens	Capivara Três Passagens	Twist Astronaut	B-Hiddenhills Mark-O-Polo	Carlos Eduardo Ferreira
72	4	0470	Galá Fancy Paul Itáuna TE	Uttag Valiant Fancy Paul-ET	Mansinha Itáuna	SWD Valiant	Santa Cruz Oriente Morcego	José Henrique Pastore
73	9	1204	Dillon Ito das Arábias	Barbee-M Juror Ito-ET	Semente das Arábias	Ked Juror-ET	Caju de Brasília	Maria Beatriz Costa Gomes
74	4	0500	Chaplin Billy Fancy Paul Y	110 Billy Fancy Paul Y	Cancela Y	Uttag Valiant Fancy Paul-ET	SS Juazeiro Berlin	Renato da Cunha Oliveira
75	6	0864	Império das Três Passagens	Dedé Três Passagens	Cocaina Três Passagens	Twist Astronaut	Bis-May Tradition Cleitus	Carlos Eduardo Ferreira
76	1	0200	Azoto da Ouro Verde	Caldas Supremo TE	Araponga da Ouro Verde	Pawnee Farm Arinda Chief	N/D*	Francisco Geraldo Megale
77	8	0632	Talento Milênium Boa Fé	Millenium Hortência Alf Boa Fé	Laranja Agrauna Booster Boa Fé	Alvor Elton Alf	Fustead Tesk Booster-ET	Enos Toledo Yan Hsin Ma
78	11	0812	Falcon Ribeirão Grande TE	Stouder Morty-ET	Laranja Santa Luzia	Shen-Val NV LM Formation-ET	Caju de Brasília	Miller Cresta de Melo Silva

(to be continued...)

Girolando Breed Genetic Improvement Program
Sire Summary
Progeny Test Results - June/2017

(continuation...)

Rank	Group	Reg.	Sire	Father	Mother	Paternal Grandfather	Maternal Grandfather	Owner
79	11	0131	Heros Florin Dom Nato	Florin Marker Dom Nato	Evelyn Magical Dom Nato	528 Southland Marker-ET	Magical Mascot TE Rancho Alegre	José Donato Dias Filho
80	4	0717	Fausto Polo Itaúna	B-Hiddenhills Mark-Q-Polo	Bolacha Oásis Itaúna	Walkway Chief Mark	Santa Cruz Oásis Hábil	Valério Machado Guimarães
81	8	0999	Curimã TE Alegre	Curimatã das Três Passagens	Arita Vertente	Twist Astronaut	Richlawn Simon Dustin	Nelson Ariza
82	9	0797	Netuno Famoso Dona Beja	Famoso das Três Passagens	363 Urik Vista Alegre	Curimatã das Três Passagens	Jatoba Urik Persistent Rima	Rubens Balchior da Cunha
83	8	0684	Nicolau Fausto Itaúna	Fausto Polo Itaúna	Java Gaíto Itaúna	B-Hiddenhills Mark-Q-Polo TL	Gaiato Mason Itama	Valério Machado Guimarães
84	9	0007	Neon das Três Passagens	Famoso das Três Passagens	Jandira das Três Passagens	Curimatã das Três Passagens	Caxi OG	Olavo de Resende Barros Júnior
85	5	0657	Feticeiro Riacho da Serra	Ked Juror-ET	Cajúna Riacho da Serra	To-Mar Blackstar-ET	N/D*	Alvaro Vasconcelos/Marcos Costa
86	9	0014	RBC Singelo	Curimatã das Três Passagens	RBC Proveta	Curimatã das Três Passagens	Oitavo Retiro da Barra	Roberto Antônio Pinto Melo de Carvalho
87	1	0215	Santa Cruz Zape Elevation	Três Irmãos Elevation I	Idade MEF Santa Cruz	Round Oak Rag Apple Elevation	Maravilha Exponente Faizão	José João Salgado dos Reis
88	5	0619	Garboso Curimatã das Três Passagens	Curimatã das Três Passagens	Cereja Bell das Três Passagens	Twist Astronaut	Lee-Gin Chris Bell	Bráulio Corti Júnior
89	2	0312	BR Granito Mandingo TE	Fisher Place Mandingo Twin	Fortaleza BR	SWD Valiant	N/D*	Bruno Regis Borges da Costa
90	6	0671	Lama Preta Hércules Twist-TE	Twist Astronaut	Cocaina Três Passagens	Flamengo da GB	Bis-May Tradition Cleitus	Apoador Agropecuária e Promoções Ltda.
91	7	0555	Símbolo Swinger Cal	Delta Swinger-ET	Diadema Cal	528 Etazon Celsius-ET GM	N/D*	Olavo de Resende Barros Júnior
92	2	0333	Senador S.W.D. Santa Izabel	SWD Valiant	Miss da GB	Pawnee Farm Alinda Chief	N/D*	José de Freitas Anaral
93	2	0410	Curimatã das Três Passagens	Twist Astronaut	Belaliba Sonho	Flamengo da GB	GRF Máximo Twin Chief	Carlos Eduardo Ferreira
94	8	1075	Vilão TE Alegre	Caxi OG	Ambição Lindy Reata	Feitico das Primaveraes	Minerão Lindy Roma TE	Nelson Ariza
95	3	0345	Caxi OG	Feitico das Primaveraes	Montanha da OG	Combo Criss	N/D*	Vilmar Pereira Pires
96	7	0599	Bátia Irã da Cacá	Irã Urutu do Morro	Andorinha Spacey da Cacá	Santa Cruz Urutu Relógio	N/D*	José Mascarenhas Torres Junior
97	10	0010	Fergus TE Caxi Alegre	Caxi OG	Arita Vertente	Feitico das Primaveraes	Richlawn Simon Dustin	Nelson Ariza
98	3	0604	Império Paviljon Itaúna	Etazon Paviljon	Bolacha Oásis Itaúna	To-Mar Wister-ET	Santa Cruz Oásis Hábil	RYG Emp. Part. e Adm. S/A
99	3	0479	Dedê Três Passagens	Twist Astronaut	Ativa Gilbert das Três Passagens	Flamengo da GB	Mainsteam Hotshot	Carlos Eduardo Ferreira
100	11	0053	Raro das Arábias	Feticeiro Riacho Da Serra	Preta Jewel das Arábias	Ked Juror-ET	Lonte Blackstar Jewel TL	Maria Beatriz Costa Gomes

*N.D. - Not determined.

Annex 3. Girolando Breed Genetic Improvement Program Participating Herds.

Owner	Farm	City	State Brazil
Albino Gomes de Oliveira	Colônia Santa Clara	Plácido de Castro	AC
Altair Ferreira dos Santos	Fazenda Bela Vista	Plácido de Castro	AC
Carletti Pereira Machado	Fazenda Novo Destino	Plácido de Castro	AC
Cloves Brasileiro Franco	Colônia São Pedro - AC	Plácido de Castro	AC
David Martins de Menezes	Água do Bugre	Plácido de Castro	AC
Divino Santos da Silva	Colônia Dois Irmãos	Plácido de Castro	AC
Elizeu Flaqueto Junior	Colônia Flaqueto Junior	Plácido de Castro	AC
João dos Santos da Silva	Fazenda São João	Plácido de Castro	AC
Jordão Ferreira da Silva	Fazenda Ouro Verde	Plácido de Castro	AC
Lindomar Silveira Borges	Colônias P1 e P2	Plácido de Castro	AC
Mateus da Silva de Oliveira	Colônia Realeza	Plácido de Castro	AC
Paulo Roberto da Silva	São Paulo	Plácido de Castro	AC
Valmor Tonis Malfada	Colônia Água Real	Plácido de Castro	AC
José Hildo Gonçalves Fernandes	Fazenda São José	Porto Acre	AC
Raimundo Nonato Nogueira	Rancho JL	Porto Acre	AC
Alexandre Vasconcelos de Araújo	Fazenda Boi Verde	Senador Guimard	AC
Almir Neves de Moraes Filho	Fazenda Boa Vista	Senador Guimard	AC
Cosmoty Pascoal Nogueira	Fazenda São Francisco	Senador Guimard	AC
José Augusto Martins de Araújo	Fazenda San Sebastian	Senador Guimard	AC
Lauro Fontana	Fazenda Iquiri	Senador Guimard	AC
Maria de Lourdes Andrade Ferreira	Fazenda Minas Gerais I	Senador Guimard	AC
Inácio José de Araújo	Fazenda Água Boa	Xapuri	AC
José Sebastião Rodrigues	Fazenda Três Irmãos	Xapuri	AC
Álvaro José do Monte Vasconcelos	Fazenda Alto Verde	Maceió	AL
José Geraldo Vaz Almeida	Fazenda Belo Horizonte	Amargosa	BA
Bonanza Industria e Agrícola Ltda	Fazenda Bonanza	Cachoeira	BA
Antônio Carlos Guimarães Brandão	Fazenda Córrego Raso	Candeias	BA
Beiro Rio Agropecuária Ltda	Fazenda Beira Rio	Rafael Jambeiro	BA
Rodrigo Melo Motta	Fazenda Mangueira	Apiacá	ES
Angelo André Bosi	Fazenda Dourada	Barra de São Francisco	ES
Celso Antonio Fagundes	Sítio Fagundes	Barra de São Francisco	ES
Devair da Silva Paiva	Sítio Paiva	Barra de São Francisco	ES
Joaquim Justino Sobrinho	Fazenda Santa Cruz	Barra de São Francisco	ES
Ataide José Légora	Fazenda Pedra Branca	Cachoeiro do Itapemirim	ES
Adriano Garcia Mendes	Capel	Ecoporanga	ES
Álvaro Dal'Col	Sítio Três Irmãos	Ecoporanga	ES
Antonio Carlos de Siqueira	Fazenda São Paulo	Ecoporanga	ES
Antônio Rodrigues Lima	Fazenda Vista Alegre	Ecoporanga	ES
Devair Rodrigues Lima	Fazenda Córrego do Divino	Ecoporanga	ES
Djalma de Sá Oliveira Filho	Fazenda Cachoeira Comprida	Ecoporanga	ES
Elcio de Oliveira Alvim	Fazenda Naná	Ecoporanga	ES
Elson Ferreira Florentino	Sítio Água Boa	Ecoporanga	ES
Henrique Bianchini Junior	Fazenda Estrela	Ecoporanga	ES
José Carlos Tavares de Souza	Sítio do José Carlos	Ecoporanga	ES
José Laurindo Pimenta	Sítio Senhor do Bonfim	Ecoporanga	ES
Leandro Almeida Santos	Fazenda Palmeira	Ecoporanga	ES
Luiz Alves de Freitas Neto	Fazenda Vista Alegre	Ecoporanga	ES
Luiz Roberto Silva Machado	Fazenda Boa União	Ecoporanga	ES
Marcos Dal'Col	Fazenda Primavera	Ecoporanga	ES
Mario Dal'Col	Colibri	Ecoporanga	ES
Sândalo Tavares Souza	Sítio do Sândalo	Ecoporanga	ES
Delfino Vieira	Agropecuária Viva	Ibitirama	ES
João Carlos Barreto	Fazendas Reunidas VB Ltda.	Mimoso do Sul	ES
Haroldo Carvalho Fernandes	Fazenda Mato Grosso	São Pedro de Rati	ES
Hélvio Queiroz dos Santos	Fazenda Shangrilá	Abadia de Goiás	GO
José Antônio Pires	Fazenda Bela Vista	Acreúna	GO
Luiz Fernando Alves Bonfim	Sítio Dois Irmãos	Acreúna	GO

(to be continued...)

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Owner	Farm	City	State Brazil
Cláudio Dias de Oliveira	Chácara Oliveira	Alexânia	GO
Danilo Alves Ribeiro Paes Leme	Fazenda Ribeirão das Paulas	Cachoeira Alta	GO
Ediney Cabral Marques	Fazenda Soledade	Caçu	GO
Zilderlei Nunes Ferreira	Fazenda São José	Caçu	GO
Dyego Angelo Vitorino Rezende	Fazenda Campo Belo	Caçú	GO
Lucilla Campana Trevisolli	Fazenda Santa Rosa	Caçú	Go
Rogério Trevisoli	Fazenda Paraíso do Rio Verde	Caçú	GO
Tiago Guimarães Assis	Fazenda Baú	Caçú	GO
Marcelo Rocha Ferreira	Caldas Novas	Caldas Novas	GO
Ademar José de Mendonça	Fazenda Retiro	Goiatuba	GO
Ademar Mendonça Filho	Fazenda Buriti II	Goiatuba	GO
Danillo Rafael Caixeta	Fazenda Boa Vista dos Pires	Ipameri	GO
Danilo Fernandes Valle	Faz. Cabrito	Itarumã	GO
Fagner Souza Ribeiro	Fazenda Barro Branco	Itarumã	Go
Itamir Faria Valle	Fazenda Serrinha I	Itarumã	GO
João Antônio Borges	Fazenda Ribeirão do Meio	Itarumã	GO
Josiel Gouveia de Paula	Sítio Estrela da Manhã	Itarumã	Go
Leandro Alves de Freitas	Faz. Baú	Itarumã	GO
Luiz José Machado	Chacara Nova Esperança	Itarumã	GO
Marcos Gonçalves Rodrigues	Fazenda Terra Nova	Itarumã	Go
Otávia Pereira da Silva	Fazenda Honda	Itarumã	GO
Plinio Borges Assis	Faz. Primavera	Itarumã	GO
Rubens Assis Freitas	Fazenda Barreiro	Itarumã	GO
Zilmar Jesus Borges	Fazenda JZ	Iturama	Go
Alceu Gouveia da Silva Filho	Fazenda Capão Grande	Jataí	GO
Celso Franco da Silva	Fazenda Santa Barbara	Jataí	GO
Eloi José Ragagnin	Fazenda Santa Maria	Jataí	Go
Hudson Alves Guimarães	Sítio São Judas Tadeu	Jataí	GO
Janice Assis Filgueira	Sítio Recanto Filgueira	Jataí	GO
João Wilson Damazio Silveira	Sítio São Francisco - Lote 124	Jataí	GO
José Abadia da Silva	Sítio Divino Pai Eterno - Lote 42	Jataí	GO
José Ronaldo Franco	Fazenda Boa Vista	Jataí	GO
Lázaro Henrique de Oliveira	Faz. Santo Mé	Jataí	GO
Leandro Oliveira Silva	Faz. Santo Mé	Jataí	GO
Marcos Vinicius Martins Oliveira	Sítio Meu Xodó	Jataí	GO
Renato Carvalho Prado Filho	Fazenda Capão Grande	Jataí	GO
Rogério Celestino	Sítio Nossa Senhora Aparecida	Jataí	GO
Rone Gomes Pereira	Sítio Tassa	Jataí	GO
Sebastião Lucio do Prado	Sítio Nova Esperança - Lote 27	Jataí	GO
Sergio Martins Castro	Sítio Manancial	Jataí	GO
Sidney Filizzola Borges / Sebastião Paulo Borges	Faz. Braz Filizzola	Jataí	GO
Dercílio Gomes Roriz	Fazenda Vertente de São Bartolomeu	Luziânia	GO
José Renato Chiari	Fazenda São Caetano	Morrinhos	GO
Francisco Antonio Hudinik	Faz. Campo Verde	Orizona	GO
João Lazaro Pereira	Faz. Cachoeira	Orizona	GO
Rúbio Fernal Ferreira e Sousa	Fazenda Salto	Padre Bernardo	GO
Aluísio Aguiar Pereira	Fazenda Bauzinho	Pires do Rio	GO
Ildo Ferreira	Fazenda Rio Verdeinho	Rio Verde	GO
João Batista Leão Paraguai	Fazenda Boa Vista	Rio Verde	GO
José Augusto Dornelles das Chagas	Fazenda Bauzinho	Rio Verde	GO
José Humberto de Assis	Fazenda Barra	Santo Antônio da Barra	GO
César Corrêa de Sousa	Fazenda Boa Vista	Abaeté	MG
Marcos Antônio de Oliveira	Faz São Sebastião da Morada	Abaeté	MG
Janilson Silva Sallum	Fazenda Buriti	Água Comprida	MG
Antônio de Oliveira Miguel	Sítio Ponte Alta	Aiuruoca	MG
Márcio Moraes Sampaio	Fazenda Morro Grande	AIURUOCA	MG
Maurício Nogueira	Fazenda Água Vermelha	Aiuruoca	MG

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Owner	Farm	City	State Brazil
Rafael de Andrade	Fazenda Morro Grande	Aiuruoca	MG
Rodrigo Bernardo Silva	Faz. Taquara Preta	Aracitaba	MG
Pollyanna Marques Vieira	Fazenda Taioba	Araguari	MG
Carlos Roberto Borges	Chácara Santa Isabel	Araxá	MG
Clovis Antonio de Faria Sousa	Fazenda JL	Araxá	MG
Walter Machado Borges Neto	Fazenda 2 Irmãos	Araxá	MG
Adilson José do Couto	Fazenda São Domingos	Arcos	MG
André Luis de Oliveira	Fazenda Cristais	Arcos	MG
Anselmo Verçosa de Oliveira	Fazenda Vargem dos Servos	Arcos	MG
César Júnio de Faria Andrade	Fazenda Boa Vista	Arcos	MG
Deibson José Mendonça	Fazenda Varjao	Arcos	MG
Emanuel Alves do Couto	Fazenda Sobradinho/Capoeirão	Arcos	MG
Fábio da Silva Rodrigues	Fazenda Boa Vista	Arcos	MG
Irineu Borges de Jesus	Faz Rio Preto	Arcos	MG
Jamil Veloso Borges	Faz Vargem Grande	Arcos	MG
José Francisco de Faria	Fazenda Capoeira do Café	Arcos	MG
José Geraldo Teixeira	Fazenda Reserva	Arcos	MG
Juarez Veloso Borges	Faz Vargem Grande	Arcos	MG
Leandro Geraldo Fonseca	Fazenda São Domingos dos Carneiros	Arcos	MG
Lécio Alves Veloso	Fazenda Reserva	Arcos	MG
Sebastião dos Reis Primo	Fazenda São Domingos	Arcos	MG
Centro Fed. de Educ. Tec. de Bambuí	Fazenda Varginha	Bambuí	MG
Luiz José Simon Vilella	Sítio Morro Redondo	Barão de Monte Alto	MG
Roberto Antônio Guimarães	Sítio Sapeca	Barão de Monte Alto	MG
Francisco Rangel de Queiroz	Fazenda San Francisco	Belo Horizonte	MG
Archimedes Machado Borges	Sítio Morro Redondo	Bias Fortes	MG
Emanuel Luiz	Faz Limeira	Bom Despacho	MG
Geraldo Magela de Araújo	Faz Cedro	Bom Despacho	MG
Leandro Machado da Silva	Fazenda Santa Rita	Bom Despacho	MG
Luiz Carlos Araújo Gontijo Junior	Faz Grota D'água	Bom Despacho	MG
Luiz Henrique Teixeira Pereira Melo	Faz Guariba	Bom Despacho	MG
Maurício Duarte de Andrade	Fazenda Paraíso	Bom Despacho	MG
Pedro Ivo de Araújo	Faz Extrema	Bom Despacho	MG
Ricardo Cardoso Gontijo Silva	Fazenda Bom Sucesso	Bom Despacho	MG
Roberto Jose de Araújo	Faz Retirinho	Bom Despacho	MG
Thiago Luciano de Araújo	Faz Saco de Cipó	Bom Despacho	MG
Carlos Henrique Guimarães Lopes	Fazenda São Sebastião	Bom Sucesso	MG
João Pedro da Silva Lopes Neto		Botelhos	MG
Arlindo José dos Santos	Sítio Mariana	C. do Brumado	MG
Luiz Antônio Franco	Fazenda Borda do Mato	Campestre	MG
Udelson Nunes Franco	Faz. Angico	Campina Verde	MG
Adão José de Assunção	Faz. Boa Esperança	Campo Florido	MG
Antônio Paulo Abate	Fazenda Santa Albertina	Campo Florido	MG
Márcio Gleik Garcia Borges	Faz. Sta Teresinha	Campo Florido	MG
Marilza Ribeiro de Sousa Castro	Fazenda Santo Inácio I	Campo Florido	MG
Olavo Gonçalves	Fazenda Santo Inácio	Campo Florido	MG
Reinildo Antônio da Silva	Sítio Três Lagoas	Campo Florido	MG
Silvio Feliciano	Faz. Sta Teresinha	Campo Florido	MG
Jair Faria Paiva Filho	Fazenda do Café	Carandai	MG
Adriano Francisco de Castro	Fazenda Fortaleza/Forquilha	Carmo da Mata	MG
Almir Resende Júnior	Fazenda Gameleira	Carmo da Mata	MG
Antonio Afonso Rodrigues	Sítio Forquilha/Morro das Pedras	Carmo da Mata	MG
Cesar Almeida	Fazenda Rancho do Fundo	Carmo da Mata	MG
Denilson Donizete Ribeiro	Fazenda Ponte Alta/Fortaleza	Carmo da Mata	MG
Evaldo Teodoro Pinto	Fazenda Folha Larga	Carmo da Mata	MG
Fernando Correa Ribeiro	Fazenda Lajinha	Carmo da Mata	MG
Francisco Fabiano Souza		Carmo da Mata	MG

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(continuation...)

Owner	Farm	City	State Brazil
Francisco Marques Neto	Sítio São Sebastião	Carmo da Mata	MG
Luis Carlos Lobato	Fazenda dos Ipês	Carmo da Mata	MG
Marcelo Nunes Coelho		Carmo da Mata	MG
Márcio Antônio Virgílio		Carmo da Mata	MG
Sebastião Ribeiro Filho	Fazenda Ponte Alta/Fortaleza	Carmo da Mata	MG
Sindicato dos Produtores Rurais de Carmo da Mata		Carmo da Mata	MG
Iranildo Antunes Clemente	Fazenda São Clemente	Carmo do Cajuru	MG
Mário Antônio Porto Fonseca	Sítio do Cedro	Carmo do Paranaíba	MG
Sirio José de Oliveira	Fazenda Campinhos	Carmo do Paranaíba	MG
Antônio Aparecido Arantes	Fazenda Guanabara	Cássia	MG
Jaime Rossato	Fazenda Bonfim	Cássia	MG
Manoel Teixeira Pires	Fazenda Santa Tereza	Cássia	MG
Ricardo Mendes Geraldo	Fazenda Santa Inês	Cássia	MG
Roberto Antônio Pinto de Melo Carvalho	Faz. Retiro da Barra	Cássia	MG
Gilberto Natal Delfino	Fazenda Retiro da Ponte	Cássia	MG
Robson Silveira Garcia Filho	Fazenda Araponga	Cássia	MG
Raphael Ferreira Barcelos	Fazenda São Mateus	Comendador Gomes	MG
Luciano Sene Sousa	Fazenda Boa Vista	Conceição das Alagoas	MG
Márcio Rodrigues Rocha	Faz. Boa Vista	Conceição das Alagoas	MG
Agropecuária Boa Fé Ltda	Fazenda Boa Fé	Conquista	MG
Luiz Carlos Rodrigues	Fazenda Nova Terra	Conquista	MG
Vilson Vieira Borges	Sócio Faz. Buriti	Coromandel	MG
Luciano José Magalhães	Fazenda Mãe não me Chore	Coronel Xavier Chaves	MG
Edgar de Souza Bento	Fazenda Agua Benta	Corrego Danta	MG
Geraldo Elias de Matos	Fazenda Tetais II	Corrego Danta	MG
João Batista da Cruz	Fazenda Tetais	Corrego Danta	MG
José Rosa Primo	Fazenda Vereda	Corrego Danta	MG
Vicente Vitorio de Fátima Mesquita	Fazenda Vereda	Corrego Danta	MG
Daniel Lino Rodrigues Garcia		Córrego Danta	MG
Rosemare Augusta Ferreira Pinto / José Maria Pinto	Fazenda Rosa	Córrego Danta	MG
Welber de Carvalho Junior	Fazenda Fortaleza	Córrego Danta	MG
Luiz Gualberto Ribeiro Ferreira	Fazenda Nossa Sra de Fátima	Delta	MG
Newton Pereira Portes	Fazenda Boa Sorte	Divino	MG
Gersony Ruela de Oliveira	Fazenda Recanto	Divino das Laranjeiras	MG
João Teodoro Sobrinho	Sítio das Flores	Divino das Laranjeiras	MG
André Costa Gaspar	Fazenda Boa Esperança	Doresopolis	MG
Antônio Luiz Landert	Sítio Sertãozinho	Estiva	MG
Donizete Felipe Justino	Sítio São José - Pantano das Rosas	Estiva	MG
Fernando Xavier Pereira	Faz. São João/Ribeirão das Pedras	Estiva	MG
José Ailton de Andrade	Faz. Ribeirão de Estiva	Estiva	MG
Romildo Aparecido Alvarenga	Sítio São Jorge - Itaim	Estiva	MG
Dirceu Peres Cabral	Fazenda Iracema	Estrela D'alva	MG
Mário Aparecido de Almeida	Sítio Minha Esperança	Extrema	MG
Guilherme Terra Ventura	Fazenda Maria Moura	Faria Lemos	MG
Central de Ensino e Desenvolvimento Agrário de Florestal	Escola Fazenda	Florestal	MG
Bráz Donizete Gonzaga	Fazenda Boa Esperança	Formiga	MG
Fábio Henrique da Silva	Fazenda Barreira	Formiga	MG
Geraldo Gonçalves Pinheiro	Fazenda Garcias - Gonçalves	Formiga	MG
Geraldo Henrique de Assis	Fazenda Morro Cavado	Formiga	MG
Gercina Lima Borges	Fazenda Limeira	Formiga	MG
Gilson Modesto de Souza	Fazenda Mamona	Formiga	MG
José Geraldo da Silva	Fazenda Albertos	Formiga	MG
Lailton Antônio de Castro	Sítio Beira Córrego	Formiga	MG
Liege de Sá Ribeiro	Fazenda Morro Cavado	Formiga	MG
Luís Augusto Gonçalves do Couto	Faz Garcias	Formiga	MG
Osmar Gonçalves do Couto	Fazenda Gonçalves	Formiga	MG
Pedro Fernandes Lima	Faz Facão	Formiga	MG

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(continuation...)

Owner	Farm	City	State Brazil
Waldemar José Borges	Fazenda Baiões	Formiga	MG
Waldemar José Borges	Fazenda do Alto	Formiga	MG
Wellington Antônio Pinheiro	Fazenda Pinheiros	Formiga	MG
Hermelano Antonio de Souza	Fazenda Recanto das Palmeiras	Fronteira	MG
Daniel Catuta de Rezende Ferreira	Fazenda Buritizal	Frutal	MG
Fabiano Rodrigues Lopes	Faz. Mato Preto	Frutal	MG
Jose Marcio Casarin Henriques	Agrop. Novo Horizonte	Guarani	MG
Márcio Luis Mendonça Alvim	Monte Alverne	Guarani	MG
Waldir Toledo Furtado	Faz. Boa Vista da Estiva	Guarani	MG
Gustavo Frederico Burger Aguiar	Fazenda Congonhas	Ibiá	MG
João Miareli	Fazenda Bethania	Ibiraci	MG
José Carlos/Wellington Guerreiro	Fazenda Nova Era	Ibiraci	MG
Marcileino Andrade Martins	Faz. Patrimônio	Igaratinga	MG
Antônio Carlos Rodrigues de Paula	Fazenda Limoeiro	Ipanema	MG
Pedro Alves Rodrigues Neto	Fazenda Figueira	Ipanema	MG
Vanone Luiz Andrade	Fazenda São Mateus	Itapagipe	MG
Gleidison Antonio Lopes	Faz Barreiro	Itapeçirica	MG
Pedro Henrique Correa Siqueira	Faz Três Lagoas	Itapeçirica	MG
Valério Machado Guimarães	Fazenda Engenho	Itaúna	MG
Jair/José Alves Camargos	Fazenda Córrego do Açude	Ituiutaba	MG
José Jacinto Júnior	Fazenda Felicidade	Ituiutaba	MG
Hélio Martins Marques		Iturama	MG
Alexandre Lopes Lacerda	Fazenda Mirai	Jaboticatubas	MG
Ademir Faustino		Jacuí	MG
Antônio Carlos de Souza	Fazenda Perobas	Jacuí	MG
Antônio Francisco Militão	Fazenda Sítio	Jacuí	MG
Danilo Silveira Prates	Sítio Santana	Jacuí	MG
Dener Santos Laversa	Sítio Córrego Rico	Jacuí	MG
Edson Arantes Prates	São José	Jacuí	MG
Edson Ribeiro	Fazenda São José	Jacuí	MG
Guaraci Barbosa da Silva	Sítio Piau de Baixo	Jacuí	MG
Joaquim Paulino Torres	Sítio Piau de Baixo	Jacuí	MG
José Ferreira	Fazenda Sete Córrego - Piau de Baixo	Jacuí	MG
José Teixeira Ribeiro	Sítio Boa Vista	Jacuí	MG
Roberto Carlos da Silva	Sítio Piau de Baixo	Jacuí	MG
Moacir Pereira Lima Júnior	Rancho Indaiá	Lajinha	MG
Valdeci Carmo da Cunha	Fazenda Serra dos Patricios	Laranjal	MG
Júlio César Brescia Murta	Estância Leblou	Leandro Ferreira	MG
Fábio Castro Soares	Fazenda Sossego	Leopoldina	MG
João Dário Ribeiro	Fazenda Estiva/Renascença	Luz	MG
Francisco Danilo Araújo Mendes	Sítio Pasto da Olaria do Açude	Madre de Deus	MG
José Antônio Pena	Fazenda Recanto do Coqueiro	Manhuaçu	MG
Marcio Jose Caldeira Rodes	Fazenda Nossa Senhora das Graças	Manhuaçu	MG
Valter Cesar Dutra		Manhuaçu	MG
Eberton de Souza Lima	Sítio Monte Alverne	Manhuaçu	MG
José Carlos da Costa	Fazenda Shalom	Manhuaçu	MG
Paulo César Botelho Bastos	Fazenda Cachoeira	Mar de Espanha	MG
José dos Santos	Fazenda Morrinhos	Maravilhas	MG
Carlos Alberto da Silva Barros	Sítio Rochedo e Duas Pedras	Mariana	MG
Celso Cota Neto	Fazenda Santa Quitéria	Mariana	MG
Dallyson Leandro Prado	Sítio Gerônimo	Mariana	MG
Fernando Geraldo de Castro Machado	Sítio Moreira	Mariana	MG
José Pereira de Melo	Fazenda Goiabeiras	Mariana	MG
Luiz Eduardo Vianna Ribeiro	Fazenda Água Limpa	Mariana	MG
Rúbia Figueiredo Mol	Fazenda Gongo	Mariana	MG
Tofir José Espiridião Haim	Fazenda Goiabeiras	Mariana	MG
Wendel da Silva Maurício	Sítio Vista Alegre	Mariana	MG

(to be continued...)

(continuation...)

Owner	Farm	City	State Brazil
Cristiano Alexandre Machado	Sítio Serra do Coco	Mariana	MG
Aparecido Teotônio da Rocha	Sítio Barro Amarelo	Materlândia	MG
Espólio Fernando Barros de Carvalho	Faz. Alegria	Miradouro	MG
José Eustáquio Mendonça de Castro	Fazenda São Judas Tadeu	Moeda	MG
Jorge Diniz Neto	Fazenda Brachiararia	Monjolos	MG
Daniel da Silva	Fazenda Valinhos	Monte Alegre de Minas	MG
Juvenal Pinto da Rocha	Fazenda Vitória	Monte Alegre de Minas	MG
Claiton Luiz de Lima	Estância ML	Monte Carmelo	MG
Kasib Alves	Fazenda Penedo	Monte Carmelo	MG
Márcio Antônio de Moraes	Fazenda Lambari	Monte Carmelo	MG
Pedro Paulo Marques	Fazenda Pirapetinga	Monte Carmelo	MG
Reginaldo Gonçalves	Fazenda Serra do Cipó	Monte Carmelo	MG
Rodrigo Nunes Mundim	Fazenda Máximos	Monte Carmelo	MG
Silvestre Rodrigues do Amaral	Fazenda Paraíso	Monte Carmelo	MG
Ubirajara Alves de Brito	Fazenda Penedo	Monte Carmelo	MG
Altieres Elias Moraes	Fazenda Pedreira	Monte São	MG
Fábio Willians Barbosa		Monte São	MG
José Danilo Franco	Sítio São João	Monte São	MG
Walter Domingues Bernardes	Sítio Retiro Coqueiral	Monte São	MG
Wilson da Fonseca	Sítio do Moinho	Monte São	MG
Diogo Souza dos Santos	Fazenda São Vicente	Morada Horta	MG
Júlio Maria Costa Francisco	Fazenda Campo Formoso	Muriae	MG
Sônia Schueler de Aquino	Fazenda Gameleira	Muriae	MG
Marcelo Rodrigues de Souza	Estância Pau D'álho	Mutum	MG
Nacib Saib Abi Habib	Fazenda Monte Libano	Mutum	MG
Humberto Naves	Fazenda Varginha	Nova Ponte	MG
Carlos Gonçalves Neves	Fazenda São Joaquim	Nova Ponte	MG
Antônio Gomes de Andrade	Fazenda Ripas	Nova Serrana	MG
Afonso Inácio Dias	Fazenda Recreio	Novo Cruzeiro	MG
Antônio Marcos Soares Lima	Fazenda Aliança	Novo Cruzeiro	MG
João Luiz Mozzer	Fazenda Liberdade	Novo Cruzeiro	MG
José Oelson Alves Faria	Fazenda Triângulo	Novo Cruzeiro	MG
Marino de Fátima Pereira	Fazenda Triângulo	Novo Cruzeiro	MG
Olegário Francisco de Assis	Fazenda Recreio	Novo Cruzeiro	MG
Weliton Antonio da Silva	Fazendinha Gravatá	Novo Cruzeiro	MG
Constantino Colhado Stacanelli	Sítio do tante	Oliveira	MG
Emater Oliveira- Evandro	Faz Diversas	Oliveira	MG
José Benedito da Silva	Sítio Santa Rita	Oliveira	MG
José Lázaro Pinheiro Silveira	Sítio Curral Velho	Oliveira	MG
Lamarque Luis de Lisboa	Sítio Rosa Vermelha	Oliveira	MG
Marcio Eugenio Leite de Castro	Fazenda Rancho da Paz	Oliveira	MG
Olavo de Resende Barros Júnior	Faz. Morro da Mandioca	Oliveira	MG
Renato Ferreira de Resende	Fazenda Cachoeira	Oliveira	MG
Rodolfo Cézar de Paulo Barezani	Fazenda da Lagoa	Oliveira	MG
Siridião Sérgio Leão Silveira	Sítio Calderão	Oliveira	MG
Edvaldo de Paulo Costa	Sítio Matinha	Oliveira	MG
Elson Batista Fernandes	Fazenda Nossa Senhora de Fátima	Paiva	MG
Osvane Homem de Faria	Faz. Taquara Preta	Paiva	MG
Lucas Iunes de Souza	Fazenda Aliança	Palma	MG
Antônio Carlos Mariano de Almeida	Faz. Vereda do Galo	Paracatu	MG
Franco da Silva Pereira	Sítio Esperança	Paracatu	MG
Luis Antônio de Oliveira Campos	Faz. Pereirinha	Paracatu	MG
Marcio Arede Vasconcelos	Faz. Santa Lucia	Paracatu	MG
Osvaldo Luiz Xavier	Faz. Manoel Joaquim	Paracatu	MG
José Ricardo Monteiro Rocha	Haras Ponta Negra	Paraopeba	MG
José Coelho Victor	Fazenda Santa Luzia	Passos	MG
José Roberto Bernardes	Fazenda Marinheiro	Passos	MG

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Owner	Farm	City	State Brazil
Lucas Gonçalves Bueno	Fazenda Santa Luzia	Passos	MG
Ricardo Rezende Barbosa	Fazenda Primavera	Pequi	MG
Juliano Naves Cardoso	Fazenda Engenho	Perdões	MG
Maria Abadia Ferreira da Silva	Fazenda Sto Inácio	Planura	MG
Felipe Guimarães Achcar	Agropecuária Santa Helena	Prata	MG
Felipe Vilela Andrade	Fazenda Sobradinho Douradinho	Prata	MG
Fernando Luiz Brant de Carvalho	Faz. Lagoa Dourada	Prata	MG
Paulo Luiz Brant de Carvalho	Faz. Esperança	Prata	MG
Ubaldo Gonçalves de Freitas/Leandro	Fazenda Cruzeiro	Prata	MG
Cassiano José Carneiro Neto	Fazenda São José	Pratinha	MG
Ely José Carneiro	Fazenda Cachoeira do Cervo	Pratinha	MG
Fabiano Gonçalves de Morais	Fazenda Quebra Anzol	Pratinha	MG
Igor Machado Ferreira	Sítio Estrela Guia	Recreio	MG
Elias Emerick	Sítio Barra do Jequitibá	Reduto	MG
Vinicius Júnior Thasmo	Fazenda Poço Fundo	Reduto	MG
Evaldo Gonçalves da Silva	Fazenda Nossa Senhora Aparecida	Resende Costa	MG
Elmo Inácio Carneiro	Fazenda 7 Nascentes	Rio Novo	MG
Osanan Pereira Caixeta	Faz. Pedacinho do Céu	Rio Paranaíba (São Gotardo)	MG
Instituto Federal Sudeste MG - Campus Rio Pomba	Instituto Federal Sudeste MG - Campus Rio Pomba	Rio Pomba	MG
José da Silva Ferras Filho	Fazenda Bom Retiro	Rio Preto	MG
Afonso Celso de Resende	Fazenda Segredo	Ritópolis	MG
Luiz Fernando Reis	Fazenda da Fulôre	Ritópolis	MG
Márcio Godinho de Souza	Sítio Recanto Feliz	Roseiral	MG
Carlos Ulisses Mortimer Nunes	Faz São Joao de Guanhaes	Sabinópolis	MG
Tiago Soares Mortimer	Faz São Joao de Guanhaes	Sabinópolis	MG
Antônio Carlos Mourão	Fazenda Cantagalo	Sabinópolis	MG
Deobaldino Marques de Pinho	Fazenda São José	Sabinópolis	MG
José Maria Nogueira	Fazenda Almeidas	Sabinópolis	MG
Ronaldo Pereira Ferreira	Fazenda Lageado	Sabinópolis	MG
Cedro Agronegócios Ltda	Fazenda Varginha	Sacramento	MG
Francisco Henrique Duque Machado	Fazenda São Miguel	Santa Bárbara do Monte Verde	MG
Valmir Costa	Sítio Carolina	Santa Bárbara do Monte Verde	MG
Adolfo Espíndula Filho	Fazenda Veados	Santa Juliana	MG
Andreia de Freitas Brito	Fazenda Bela Fama	Santana do Manhuaçu	MG
Odílio de Souza Pereira	Fazenda OS	Santana do Manhuaçu	MG
Alex Lima Alves	Fazenda Santa Helena	Santo Antônio do Monte	MG
Alexandre Antônio Veloso	Fazenda Moranguinho	Santo Antônio do Monte	MG
Elton Júnior Lacerda	Fazenda Esperança	Santo Antônio do Monte	MG
Jesus da Silva Limirio	Fazenda Cachoeira Bonita	Santo Antônio do Monte	MG
José Júnior Santos	Fazenda Cachoeira do Diamante	Santo Antônio do Monte	MG
Thiago D. Veloso/Neiro Antonio Veloso		Santo Antônio do Monte	MG
Luiz Eugênio Resende	Faz. Prudenciana	São Gotardo	MG
Antero Araújo Ferreira Vasconcelos	Fazenda Araras	São Pedro do Suaçuí	MG
Antônio Adilson Vilarino Leal	Fazenda Capão	São Pedro do Suaçuí	MG
Gilberto Alves	Fazenda Dallas	São Pedro do Suaçuí	MG
José Barroso da Rocha	Fazenda Volta do Rio	São Pedro do Suaçuí	MG
Adalton Luis Ferreira	Fazenda Nossa Senhora Aparecida	São Roque de Minas	MG
Silas Messias de Melo	Fazenda Paiol Queimado	São Roque de Minas	MG
Everton Nascimento São Julião	Faz. Coqueiros	São Tomás de Aquino	MG
Geraldo Silvestre de Melo	Fazenda Matinha das Pitas	Serra do Salitre	MG
César Augusto de Melo	Fazenda Matinha das Pitas	Serra do Salitre	MG
Geraldo Roberto Camargos	Fazenda Pitas	Serra do Salitre	MG
João Batista Araujo de Sousa	Fazenda Barreiro Alto	Sete Lagoas	MG
Luis Filipe Bastos Oliveira	Fazenda Boa Vista	Simonésia	MG
Anezio Luiz Assunção e Souza	Fazenda Capão Escuro	Tapira	MG
Elio René Borges	Fazenda Forquilha	Tapira	MG
José Vicente Nunes	Fazenda Furquilha	Tapira	MG

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Owner	Farm	City	State Brazil
Otávio Luiz de Carvalho Souza	Fazenda Campo Alegre	Tapira	MG
Paulo Cesar Guimaraes	Fazenda Campo Alegre	Tapira	MG
Selmo Antonio das Neves	Fazenda Forquilha	Tapira	MG
DF Agrop. Faria Lemos-Tombos Ltda	Fazenda Cascata	Tombos	MG
José Luiz Teixeira	Fazenda 4 de Novembro	Tumiritinga	MG
Ana Lúcia Nogueira Borges	Fazenda Matinha	Uberaba	MG
Centro Fed. de Educ. Tec. de Uberaba (IFTM Campus Uberaba)	Fazenda Santa Rosa	Uberaba	MG
Dalton da Paixão Sousa	Sítio Sapecado	Uberaba	MG
João Jesus da Cunha	Fazenda Serra Morena	Uberaba	MG
Júlio A Moura Neto	Território Rural	Uberaba	MG
Maria Inez Cruvinel Rezende	Fazenda Cedro do Campo	Uberaba	MG
Marilda Oliveira Lopes	Fazenda Paraíso	Uberaba	MG
Rogério José Cerqueira	Fazenda Carrossel	Uberaba	MG
Ronaldo Rocha Costa	Fazenda Monte Alegre do Buriti	Uberaba	MG
Adão Francisco dos Santos	Sítio Nova Aurora	Uberlândia	MG
Délcio Vieira Tannus	Fazenda dos Machados	Uberlândia	MG
Edimar Simoes de Souza	Fazenda da Laje	Uberlândia	MG
Jerônimo Gomes Ferreira	Fazenda Morada Corinthiana	Uberlândia	MG
José Antônio da Silveira	Xapetuba Agropecuária	Uberlândia	MG
Rogério Carneiro da Silva	Faz. Cruzeiro do Sul	Uberlândia	MG
Tales Humberto Alves Macedo	Fazenda Santa Terezinha	Uberlândia	MG
José Roberto de Lacerda	Fazenda Estância JR	Veríssimo	MG
Clayvert S. Abreu	Faz. Nova Esperança	Volta Grande	MG
José Rogério Reis Junqueira	Fazenda Pedra Branca	Volta Grande	MG
Márcio Moraes	Faz. Santa Rita	Volta Grande	MG
Rodrigo Reis Ferraz	Faz. São Francisco	Volta Grande	MG
Vinícius Furtado Coutinho	Sítio VG	Volta Grande	MG
Deair Maria Rezende Marques de Souza	Fazenda São José - Parte A	Aquidauana	MS
Fundação Universidade Estadual de Mato Grosso do Sul (UEMS)	Faz. Cera	Aquidauana	MS
Agnelo Machado Júnior	Fazenda Camapuã	Camapuã	MS
Dativa Maria dos Reis Martins	Fazenda Estiva	Camapuã	MS
Diego dos Reis Ferro	Estância Vale Verde	Camapuã	MS
Eduardo de Queiroz Melhado	Fazenda Seriema	Camapuã	MS
Fabrizio Machado	Fazenda Rancho JS (Arrendamento)	Camapuã	MS
Gilberto Ruzzon	Fazenda São José	Camapuã	MS
Jurany Rodrigues Ferreira	Fazenda Rancho J.S	Camapuã	MS
Marcelo Bonfim Azambuja	Fazenda Ponte do Lobo	Camapuã	MS
Antônio de Souza Salgueiro	Fazenda Fazendão	Campo Grande	MS
Flávio Eduardo Buainain	Faz. Vista Alegre	Campo Grande	MS
GPL - Grupo Produtores de Leite	Taila Guzela da Cunha	Campo Grande	MS
Rodipa Agropecuária Ltda	Reinaldo Vilela de Moura Leite	Campo Grande	MS
Ronan Rinaldi de Souza Salgueiro	Fazenda Fazendão	Campo Grande	MS
Rubens Belchior da Cunha	Fazenda São Marcos	Campo Grande	MS
Eduardo Meneses		Coqueiral	MS
Clovis Henrique Feltran	Faz. Boa Esperança	Corguinho	MS
Délcio Gerhardt	Fazenda Taquari	Costa Rica	MS
Enesio Martins Carrijo	Fazenda Três Barras	Costa Rica	MS
Paulo Sérgio da Silva	Fazenda Primeira Conquista	Costa Rica	MS
Queijaria São Marcos Ltda (Agropecuária São Marcos)	Fazenda São Marcos	Costa Rica	MS
Marcelo Batista Angelino		Coxim	MS
Marjorie Gonçalves de Souza Comparim	Faz. São João Batista	Dois Irmãos do Buriti	MS
Aurora Trefzger Cinato Real	Vale da Rondinela	Jaraguari	MS
Comproja- Coop. Mista dos produtores de leite Jaraguari e RE	Comproja	Jaraguari	MS
Renato Prado Medrado	Estancia Paraíso	Jaraguari	MS
Luiz Roberto Rodrigues	Faz. Kikinando	Nova Andradina	MS
Geraldo de Carvalho Borges	Fazenda Paraíso	Paracatu	MS
Semy Alves Ferraz		Paranaíba	MS

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Owner	Farm	City	State Brazil
Milton Carlos Porto	Fazenda São Luiz	Paranaíba	MS
Carlos Jacob Wallauer	Faz. Belas Artes	Rio Brillhante	MS
Adão Paes Sandin	Faz. Água Limpa	Terenos	MS
Denilson Lima de Souza	Faz. Cachoeirinha	Terenos	MS
Jesulino dos Santos Cerqueira	Estância Marca Sol	Caceres	MT
Carlos Antônio Procópio	Sítio Pingo de Mel	Castanheira	MT
Cesar de Almeida Alves	Sítio Santa Lucia	Castanheira	MT
Jovenal Vieira da Silva	Faz. Estância Grasiela	Castanheira	MT
Mario Ramos	Sítio 3 Irmãos	Castanheira	MT
Nelson Wagner Vargens	Sítio Tigre	Castanheira	MT
Roberto Vargem Tigre	Sítio Três Corações	Castanheira	MT
Ronilton de O. Rios	Faz. Piracicabana	Castanheira	MT
Alécio Gonçalves Rios	Fazenda Toca da Onça	Castanheira	MT
Amilton José de Santana	Sítio Baixão Verde	Castanheira	MT
Eustáquio Rangel Procópio	Chácara Santa Luzia	Castanheira	MT
Kleber Leitner Paz Tabata	Sítio Asa Branca	Castanheira	MT
Regio Brasileiro Rios Junior	Sítio Redal	Castanheira	MT
Ricardo Vargens Rios	Fazenda Mulungu	Castanheira	MT
Aguinaldo Manhezzo Junior	Fazenda Dona Zita	Cláudia	MT
José Caetano Amaral	Sítio Amaral	Cláudia	MT
Airton Pereira	Sítio Santa Inês	Guarantã do Norte	MT
Alisson Salathiel Kalinke	Sítio Ouro Branco	Guarantã do Norte	MT
Antonio Cesar Pelho Vale	Sítio Três Irmãos	Guarantã do Norte	MT
Cesar Augusto Junqueira Valle	Faz. Recanto do Valle	Guarantã do Norte	MT
Edmar Sehn	Sítio Planalto	Guarantã do Norte	MT
Fabio Andre Fogaça dos Santos	Estancia Vale da Serra	Guarantã do Norte	MT
Geraldo Pereira de Souza	Sítio Água Boa	Guarantã do Norte	MT
João Arleni Shuatz	Sítio Alto da Serra	Guarantã do Norte	MT
João José Rodrigues	Sítio Sonho de Criança	Guarantã do Norte	MT
João Mendonça	Sítio Salem	Guarantã do Norte	MT
Lutero Siqueira da Silva	Sítio Pôr do Sol	Guarantã do Norte	MT
Maria de Fátima Lima Leite	Chácara A Glória do Campo	Guarantã do Norte	MT
Ricardo Furlaneti Bachieri	Estancia Penápolis	Guarantã do Norte	MT
Antônio Carlos Chiquita	Sítio São José	Juína	MT
Antônio do Nascimento Souto	Faz. Vista Alegre	Juína	MT
Fernando José Ferreira Nunes	Sítio Santa Rita	Juína	MT
Gaspar Joaquim Dornelli	Faz. Patos de Minas	Juína	MT
Marcos André Freitas Souza	Fazenda Restia do Sol	Juína	MT
Alencar Junior da Rosa	Sítio Santa Rosa	Juína	MT
Almir Rogerio Bertusse	Sítio Diamante Azul	Juína	MT
Antônio Tarcísio Pillon	Chácara Nossa Senhora de Fátima	Juína	MT
Deraide de Oliveira	Sítio Três Irmãos	Juína	MT
Edis Bernardo Silva	Chácara Nossa Senhora Aparecida	Juína	MT
Elison Rodrigo Santana dos Santos	Sítio Santos	Juína	MT
Valdivino Lopes Coelho Junior	Sítio 3 irmãos	Matupa	MT
Adilson Dutra de Assis	Sítio Coração de Jesus	Mirassol D' Oeste	MT
Adilson Garcia da Silva	Sítio Flor do Campo	Mirassol D' Oeste	MT
Antônio Fernando Barbosa Gonsaga	Sítio Santo Antônio	Mirassol D' Oeste	MT
Antonio Ivo Leite	Sítio Nossa Senhora de Fátima	Mirassol D' Oeste	MT
Aparecido dos Santos	Estância Nossa Senhora Aparecida	Mirassol D' Oeste	MT
Aparecido Pereira da Silva		Mirassol D' Oeste	MT
Cezário Lemos da Silva	Sítio Paraíso da Serra	Mirassol D' Oeste	MT
Claudinei Xavier Ribeiro	Sítio Nossa Senhora Aparecida	Mirassol D' Oeste	MT
Donizete da Costa Alves	Sítio Estrela Guia	Mirassol D' Oeste	MT
Francisco Alves Rodrigues	Sítio Morada da Serra	Mirassol D' Oeste	MT
José Adão Coutinho dos Santos	Sítio Santa Luzia	Mirassol D' Oeste	MT
José Carlos Raimundo de Carvalho		Mirassol D' Oeste	MT

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Owner	Farm	City	State Brazil
José Euclides da Silva	Sítio Sol Nascente	Mirassol D' Oeste	MT
José Genevaldo Vitoria		Mirassol D' Oeste	MT
Luis Antonio de Carvalho	Sítio 3 Palmeiras	Mirassol D' Oeste	MT
Mauro Corte Marina	Sítio Agua Doce	Mirassol D' Oeste	MT
Milton da Silva Cobra		Mirassol D' Oeste	MT
Oliveiros Candeias Maria	Sítio São Benedito	Mirassol D' Oeste	MT
Oziel de Moura Alves	Sítio Castelo Branco	Mirassol D' Oeste	MT
Pedro Odair Roncoleta	Estância Nossa Senhora Aparecida	Mirassol D' Oeste	MT
Antonio Carlos Martins Alves	Fazenda Nossa Senhora de Fátima	Nova Canaã do Norte	MT
Moacir Jakson Perin	Sítio Perin	Nova Guarita	MT
Adelino José Pope	Sítio São Tiago	Nova Santa Helena	MT
Marcelo Pimenta	Sítio Pimentel	Nova Santa Helena	MT
Gladstone Soares Lopes da Silva	Fazenda Santiago	Nova Xavantina	MT
Giovani Magnani	Sítio União	Novo Mundo	MT
Washington de Carvalho Costa	Sítio Carvalho	Novo Mundo	MT
Embrapa Agrossilvipastoril		Sinop	MT
Alex Henrique Rocha	Sítio Barra da Esperança	Terra Nova do Norte	MT
Allan Junior Patel	Sítio Paraíso	Terra Nova do Norte	MT
Antonio do Nascimento Miguel	Faz. Kata	Terra Nova do Norte	MT
Carlos Zanovello	Sítio Zanovello	Terra Nova do Norte	MT
Claudinei Guizelini	Sítio Apucarana	Terra Nova do Norte	MT
Dener Lima Silva	Sítio Novo Mundo I	Terra Nova do Norte	MT
Denise Aparecida Lorenzini	Sítio Lorenzini	Terra Nova do Norte	MT
Ederson Pereira	Sítio Alvorada	Terra Nova do Norte	MT
Edson Silvino de Camargo	Sítio das Mangas	Terra Nova do Norte	MT
Elci Machado	Sítio Machado	Terra Nova do Norte	MT
Elizeu Pereira Machado	Sítio São Roque	Terra Nova do Norte	MT
Enor Miguel Mantovani	Sítio Pequizal	Terra Nova do Norte	MT
Gilberto Bartole	Sítio Nossa Senhora Aparecida	Terra Nova do Norte	MT
Imerio Lorenzini	Sítio Lorenzini	Terra Nova do Norte	MT
Luiz Antônio Sevens	Sítio Sevens	Terra Nova do Norte	MT
Luiz Henrique Antunes	Faz. Onça Parda	Terra Nova do Norte	MT
Moacir Jacó Talini	Sítio Cajueiro	Terra Nova do Norte	MT
Nilmar João Guarienti	Sítio Água Branca	Terra Nova do Norte	MT
Oli Omerio Zenni	Sítio Vale do Sol	Terra Nova do Norte	MT
Valdemir Moreira	Miraguaí	Terra Nova do Norte	MT
Valmir Carlos Roveda	Sítio São Roque	Terra Nova do Norte	MT
Valmor Gebien	Sítio da Serra	Terra Nova do Norte	MT
Rômulo Duarte Cunha	Fazenda Botija	Guarabira	PB
Renivaldo Brandão Tenório	Fazenda Lagoa do Cassiano	Bom Conselho	PE
Alberto de Azevedo Porpino	Fazenda Apoa do Rio	Lagoa do Carro	PE
Nilson Francisco dos Santos	Fazenda São Sebastião	Pesqueira	PE
Waldemar de Brito Cavalcanti Filho	Fazenda Catolé	Pesqueira	PE
Cristiano Nobrega Malta	Fazenda Avimalta	Recife	PE
Eriberto de Queiroz Marques	Fazenda Zombaria	Recife	PE
Fabiola Rodrigues Lemos	Fazenda Mirin do Vale	Recife	PE
Fernando Antônio Brasileiro Miranda	Fazenda Uberaba	Recife	PE
IPA - Instituto Agrônomo de Pernambuco	Estação Arco Verde	Recife	PE
Antônio Francisco Chaves Neto	Estância Três Irmãos	Arapongas	PR
Alcides Scariott	Fazenda Vale Verde	Chopininho	PR
Amarildo Antônio Balico	Sete Arroio	Chopininho	PR
Diones Rafael Boshi	Fazenda Boshi	Chopininho	PR
Euclides Forlin	Sítio 3 Pinheiros	Chopininho	PR
Jaidson Peretti	Estância dos Araças	Chopininho	PR
José Valdecir Basegio	Sítio São José	Chopininho	PR
Jucemar Luiz Maziero	Propriedade	Chopininho	PR
Odair Roberto Presotto	Estância Presotto	Chopininho	PR

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Owner	Farm	City	State Brazil
Rogério Bruno Ambrosio	Sítio Ambrósio	Chopinzinho	PR
Ronaldo Machado	Fazenda Três Saltos	Chopinzinho	PR
Aparecido João Florêncio Rodrigues	Sítio Santo Antônio	Colorado	PR
Edmarcio Doná	Sítio Santa Maria	Jaguapitã	PR
Nelson Jesus Sabóia Ribas	Rancho do Bom Jesus	Jaguapitã	PR
Clovis Marques Tozzi	Estancia Santa Maria	Maringá	PR
Agrop. Laffranchi Comércio e Ind. Ltda	Agropecuária Laffranchi	Tamarana	PR
Abelardo Martins de Mello	Fazenda Mello	Conceição de Macabu	RJ
Adelmo Pires de Castro	Sítio Jaboticaba	Itaperuna	RJ
Moacyr Azevedo de Oliveira	Sítio Palmital	Itaperuna	RJ
Paulo Roberto D'Anello	Sítio Jaboticaba	Itaperuna	RJ
Alberto Fernandes Gaspar da Silva	Faz Joana Darc	Miguel Pereira	RJ
José Donato Dias Filho	Fazenda São Roque	Miguel Pereira	RJ
Luiz Carlos Bandoli Gomes	Fazenda Monte Alto	Natividade	RJ
Mila de Carvalho Laurindo e Campos	Fazenda Recreio	São José de Ubá	RJ
Delmo Bastos Lopes	São José da Cachoeira	Valença	RJ
Giane Martins de Paula Lopes	Sítio Paraíso	Valença	RJ
José Carlos Reis	Fazenda São Luiz Velho	Valença	RJ
José Valter Lima Monteiro	Sítio São José	Valença	RJ
Miguel Bruno Conceição	Sítio Guimarães	Valença	RJ
Eloi Chaves de Oliveira	Faz. São Luis	Taipu	RN
Antônio Rodrigues Filho	Fazenda Primavera	Ariquemes	RO
Clorides Primo Carnevali	Fazenda Ligiana	Ariquemes	RO
Valdir Rutsatz	Sítio Capixaba	Cacoal	RO
Fernando Rogério de Souza Magalhães	Sítio Primavera	Candeias do Jamari	RO
Osmano José Ramos	Sítio Piquiá	Candeias do Jamari	RO
Lourival Caetano Rodrigues	Sítio Buraco Fundo	Costa Marques	RO
Celso Pires Maciel	Rancho Paraíso	Vale do Paraíso	RO
José Hélio Mendonça	Agropecuária Novo Mundo	Carira	SE
Lucila Dantas dos Santos	Fazenda Santo Antonio	Carira	SE
Marcelo Barreto Souza	Fazenda São José	Nossa Senhora da Glória	SE
Antônio Sancho de Souza Neto	Faz. Retiro da Esperança	Altair	SP
Higo Carlos de Freitas	Sítio Carvalho	Altair	SP
João Monteiro da Gama	Fazenda São Pedro São Paulo	Arandú	SP
Paulo Gabriel Reis Nader	Fazenda Santo Antonio Bela Vista	Caconde	SP
Luciano de Carvalho Pontes	Estância Mana	Guaíçara	SP
Roberto Almeida Oliveira e outros	Estância Sto Antônio	Guapiaçú	SP
Ricardo de Souza Lima Pereira		Guarantã	SP
Antônio de Oliveira	Faz. Oliveira	Icem	SP
José Miranda Alves de Paiva	Estancia Paraíso	Itapetininga	SP
ETEC Cônego José Bento	Escola Agrícola	Jacaréi	SP
Alexandre Augusto Corteze	Fazenda Santo Antônio	José Bonifácio	SP
Anderson Santos Senna	Chácara Senna	Junqueirópolis	SP
Homero N. de Paiva	Sítio Santo Antonio	Lavrinhas	SP
Joaquim Eurovaldo Junqueira	Sítio São Sebastião	Lavrinhas	SP
Célio Alves da Luz	Fazenda Diamante	Lins	SP
Leandro Rodrigo Egéia	Sítio Bom Viver	Lins	SP
Waldir Junqueira de Andrade	Fazenda Santana	Lins	SP
José Ronaldo Lopes	Fazenda Rancho Ibityra	Mirassol D' Oeste	SP
Márcio Barretto Ribeiro	Fazenda Boiada	Mococa	SP
Eugênio Deliberato Filho	Sítio Beira Rio	Mogi das Cruzes	SP
Wilson José Baraldi	Fazenda São José	Monte Azul Paulista	SP
Frutuoso Roberto Lima Filho	Estância Paineiras	Nova Granada	SP
Carlos Alberto Luiz de Almeida	Faz. Bacuri	Orindiuva	SP
Lourenço Olívio Barbosa Munhoz	Estância Bela Vista	Orindiuva	SP
Luiz Antonio de Almeida	Faz. Barreirão	Orindiuva	SP
Marly Terezinha Leme as Silva	Estância Sete Estrela	Orindiuva	SP

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Owner	Farm	City	State Brazil
Eneas Rodrigues Brum	Fazenda Monastério	Paraibuna	SP
Antônio Carlos de Meireles	Faz. Água Quente	Paulo de Faria	SP
Darlei Queiroz de Oliveira	Sítio Santos Reis	Paulo de Faria	SP
José Carlos de Oliveira	Sítio Camadam	Paulo de Faria	SP
Depto de Descent. do Desenv. - APTA	Polo Reg. Do Vale do Paraíba	Pindamonhangaba	SP
José Alberto Paiffer Menk	Fazenda Santo Antônio	Porto Feliz	SP
Alexandre Pereira da Costa	Fazenda Santa Isabel	Potirendaba	SP
Carlos Adalberto Rodrigues	Fazenda São Caetano	Potirendaba	SP
Adelcio José de Souza	Sítio Família Feliz	Presidente Epitácio	SP
Aginaldo Alves Lirio	Sítio Duas Estrelas - Lote 62	Presidente Epitácio	SP
Aisson Neri Barboza	Estância Espelho D'Água	Presidente Epitácio	SP
Antônio Alixandre dos Santos	Sítio Dias	Presidente Epitácio	SP
Celso Souza de Oliveira	Sítio Porto Esperança	Presidente Epitácio	SP
Erick Luciano dos Santos	Sítio Boa Fé	Presidente Epitácio	SP
Gilberto Ricardo Gomes	Estância Gegi - Lote 81	Presidente Epitácio	SP
Gilson Antônio da Silva	Sítio Andorinha Lote 53	Presidente Epitácio	SP
Heitor Hirai	Sítio São Judas Tadeu	Presidente Epitácio	SP
João de Andrade	Sítio São João	Presidente Epitácio	SP
José Carlos Lima	Sítio Esperança	Presidente Epitácio	SP
José Eduardo Soares da Silva	Sítio Santo Antônio	Presidente Epitácio	SP
Miguel Batista dos Santos	Sítio 3 Pinheiros	Presidente Epitácio	SP
Nelson Antônio Neto	Sítio Paraíso Vale da Benção	Presidente Epitácio	SP
Nilza Duarte Fernandes	Sítio São Gabriel Lote 12	Presidente Epitácio	SP
Paulo Lima de Santana	Sítio Três Irmãos	Presidente Epitácio	SP
Rogério Miguel	Sítio São José	Santa Branca	SP
Heitor de Mello Dias Gonzaga	Fazenda Boa Esperança	Santa Maria da Serra	SP
João José Roberto	Sítio Cascata	Santa Rita do Passa Quatro	SP
Júlio César Liberali	Sítio Liberali	Santa Rita do Passa Quatro	SP
Nelson Vizioli	Sítio São João da Barra	Santa Rita do Passa Quatro	SP
Schumann Joubert Camargo e outros	Sítio Estância Colina	Santa Rita do Passa Quatro	SP
Edson Tiuso	Fazenda Diamante	São João do Pau D'alho	SP
João Eduardo Benini Reis	Sítio São Paulo	São Joaquim da Barra	SP
Bráulio Conti Júnior	Fazenda Sobrama	Socorro	SP
Armando Ulysses Quaglio	Sítio Córrego Seco	Sta Rita do Passa Quatro	SP
ETEC Manoel dos Reis Araújo	ETEC Manoel dos Reis Araújo	Sta Rita do Passa Quatro	SP
Gustavo Pizeta Ferronato	Sítio São José do Paraíso	Sta Rita do Passa Quatro	SP
José Antônio Petroni	Sítio São Pedro	Sta Rita do Passa Quatro	SP
Maria Dulce Rodrigues Palhares	Sítio São José Campo Redondo	Sta Rita do Passa Quatro	SP
Pedro Paulo Silveira Motta e Outra	Fazenda Bom Jesus	Sta Rita do Passa Quatro	SP
Sérgio Leandro da Silva		Sta Rita do Passa Quatro	SP
Arlindo Gaspar Providelo	Fazenda Ipiranga do Alto	Tambau	SP
Haendel Brasília Camargo	Estancia Zilah	Tambaú	SP
Joaquim Carlos Carneiro Siqueira	Faz Açude	Tambaú	SP
Humberto Cavalheiro Andrade	Fazenda Boa Esperança	Vargem Grande do Sul	SP
Maquis Ranzani Júnior	Fazenda Cláudia	Vargem Grande do Sul	SP
Agropecuária Itahyê Palmeiras Ltda		Santa Rita do Passa Quatro	

Brazilian Association of Girolando Breeders

EXECUTIVE BOARD AND COMMITTEES – 2016/2019 TRIENNIUM

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Vice-President: Odilon de Rezende Barbosa Filho

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2nd Administrative Director: Rubens Aparecido Câmara Júnior

1st Financial Director: José Antônio da Silva Clemente

2nd Financial Director: Luiz Fernando Reis

Institutional and Commercial Relations: Domício José Gregório A. Silva

Technical Scientific: José Renato Chiari

International Relations: Guilherme Marquez de Rezende

Development and Events: Aurora Trefzger Cinato Real

Audit Committee

Holders

Afonso Celso de Resende

Alexandre Honorato

Cleiton Gonzaga Castilho

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Gustavo Frederico Burger Aguiar

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Alexandre Lopes Lacerda

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Silvio de Castro Cunha Júnior

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BA - Francisco Peltier Queiroz Filho	MT - Luciano Lacerda Nunes
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DF - Léo Machado Ferreira	PR - Bernardo Garcia de Araújo Jorge
DF - Walter Alves de Queiroz	PR - Ronald Rabbers
ES - Marcos Corteletti	RJ - André Luís Gonçalves de Souza
ES - Rodrigo José Gonçalves Monteiro	RJ - Herbert Siqueira da Silva
GO - Ildo Ferreira	RJ - Jean Vic Mesabarba e Aguiar Arrabal de M.Vicente
GO - Itamir Antônio Fernandes Valle	RJ - José Gabriel Souza Machado
GO - João Domingos Gomes dos Santos	RJ - Roberto Pimentel de Mesquita
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MG - Alessandra Merrichelli	RN - Manoel Montenegro Neto
MG - Alex Lima Alves	RN - Ricardo José Roriz da Rocha
MG - André Gustavo de Carvalho Paiva	RO - Darcy Afonso da Silva Neto
MG - Bernardo Souza Lima Mattos de Paiva	RO - Gilberto Assis Miranda
MG - Emílio Afonso França Fontoura	RS - Carlos Jacob Wallauer
MG - Evandro do Carmo Guimarães	SE - João Bosco Machado
MG - Fabiano Rodrigues Lopes	SE - Lafayette Franco Sobral
MG - Fabrício Siqueira	SP - Alexandre Pereira da Costa
MG - Horácio Moreira Dias	SP - Eduardo Lopes de Freitas
MG - João Dario Ribeiro	SP - Fábio José Biazon Dias
MG - João Machado Prata Junior	SP - Fernando Antônio de Macedo
MG - Luiz Paulo Levate	SP - Frutuoso Roberto de Lima Filho
MG - Marcelo Machado Borges	SP - Guilherme Ribeiro Meirelles
MG - Marcio Luiz Mendonça Alvim	SP - Lauro Teixeira Penna
MG - Maria Cristina Alves Garcia	SP - Marcos José de Paiva
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MG - Rodrigo Lauer Lignani	SP - Roberta Bertin Barros
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Natural Membership

MAPA: João Carlos Vianna Ribeiro

Technical Superintendent: Leandro de Carvalho Paiva

Effective Members

President: Tiago Moraes Ferreira

Celso Ribeiro Ângelo de Menezes

Cleocy Fam de Mendonça Júnior

José Renato Chiari

Klaus Hanser de Freitas

Limírio César Bizinotto

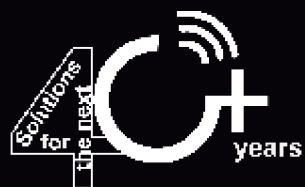
Marcelli Antenor de Oliveira

Marcello Aguiar Rodrigues Cembranelli

Olavo de Resende Barros Júnior

Embrapa

Dairy Cattle



MINISTRY OF
AGRICULTURE, LIVESTOCK
AND FOOD SUPPLY

