EXPLANATORY NOTES

Buta Bin reports the updated results of the genetic evaluation for the A.I. sires, performed with the BLUP Animal Model estimation. The BLUP (Best Linear Unbiased Prediction) method is the more precise one to correctly evaluate and rank sires. The obtained genetic indices express differences between bulls, so they are important to compare sires rather than as absolute values.

All the indices are expressed in the same scale with 100 as the average, corresponding to genetic base adopted for that trait, and with a standard deviation of 10. The sires with values over 110 fall within the best 15% , whereas over 120 only the best 2% are included.

SELECTED TRAITS

The breeding goal of the Piemontese breed is aimed to produce easy birth calves with a high growth potential and well developed muscular masses and breeding females with good calving ability. The selected traits can be divided into two types: productive traits, related to meat production, and reproductive traits, related to calvings.

1. Productive traits

They include muscularity and growth potential. These traits are measured during the performance test carried out on young bulls at Anaborapi Genetic Station, located in Carrù (Italy); here young bulls are bred in homogeneous conditions from the age of 50 days till 12 months.

Performance testing on station increases the accuracy of the comparison between animals, because environmental factors affecting the results (feeding, housing, health treatments, etc.) are the same for each animal. As a consequence, the differences observed between bulls rely mostly on their genetic potential. The result is an accurate estimation of the genetic value of animals, also reflected by traits heritabilities high value. Heritability reaches 0.49 for weight increase and 0.40 for muscularity.

Weight increase (average daily gain) is calculated on the basis of animals monthly weights during performance test. Therefore, 11 weights are used for each animal.

Muscularity is appraised through the morphological evaluation at one year of age. Through morphological evaluation the functional correctness of bulls is also assessed; legs evaluation is used to compute a genetic index that is included in the selection indices.

Size index is a combination of withers height, trunk length, chest girth and morphological scoring of dimensions carried out at 12 month of age.

For weight increase, muscularity and size indices, the genetic base (value 100) is given by the average of the young bulls tested at genetic station.

2. Reproductive traits

Considered traits are related to the calving process with the aim to improve calving performance. Also abnomalities in the calves at birth are considered.

The result of each calving is affected by calf size and by dam aptitude to calve (mainly determined by her pelvic area).The concurrent presence of these two biological effects results in two traits, birth ease and calving ease.

Birth ease expresses the genetic value of an animal according to its aptitude to generate easy birth calves. Calving ease expresses the genetic value of an animal according to its aptitude to generate females with good calving ability.

Calving traits are determined by a variety of environmental factors and due to their intrinsic nature are difficult to be measured. All these elements concur to reduce the heritability values, which are lower than those of productive traits: the heritability of birth ease is 0.13 and that of calving ease is 0.09.

Birth ease and calving ease indices are expressed with respect to a genetic base made up by cows aged 3-12 years having calved at least once in their life.

Calves abnormnalities are limbs abnormalities (artrogryposis), tongue abnormalities (macroglossia) and the sum of both abnormalities. The indices are expressed in percentage of abnormalities with respect to the average of AI sires, therefore the negative values are desirable as they point out a lower incidence of abnormalities.

GENETIC CORRELATIONS

Traits to be selected are often not independent from each other; they show genetic ties that can be weak or strong. This ties are called correlations. Due to these correlations the selection practiced on one trait can affect another one, causing an improvement or a worsening. Genetic correlations are very important in the selection schemes. Therefore these parameters have been studied deeply in the last years. Genetic correlation values for the Piemontese breed are shown below.

	growth	birth ease	calving ease
muscularity	-0.05	-0.05	-0.25
growth		-0.46	0.25
birth ease			-0.36

Genetic correlation is a number that ranges from –1 to 1. Values around zero indicate independence between traits, while values higher than 0.2 or lower than –0.2 indicate traits with positive or negative correlation, respectively. In the first case the improvement of the first trait also improves the other one: this is the case of growth potential and calving ease. In the second case the selection on the first trait worsens the other one: it is the case of the relationships between growth and birth ease and between birth ease and calving ease.
Some of the estimated correlations are quite negative and influence deeply the selection scheme of the Piemontese.

SELECTION INDICES

The selection index is a weighted sum of the indices of single traits. The weight of each trait depends on the genetic correlations with the other traits and on its economic importance. A.I. sires are selected according to a ranking based on the selection index.
Two selection indices are used for the Piemontese breed: the Breeding index and the Meat index. The first one aims to identify the best sires to produce breeding females; the second one aims to select the best sires to produce animals for fattening.

	Breeding Index	Meat Index
Weight increase	20%	20%
Muscularity	26%	26%
Birth ease	14%	38%
Calving ease	36%	12%
Limbs	4%	4%

THE BREEDING PROGRAMME

The young bulls undergo a selection stage before the enrolment in the Genetic Station based on their pedigree index (average of genetic values of their sires and dams). Every year, after being performance tested on station for beef traits, 40-45 young bulls out of the 215 are selected for A.I. when they are 1 year old.
A small amount of semen of each bull is distributed in the farms for the progeny testing programme. The final stage of selection takes place after the birth of 90 offsprings for each bull. Genetic evaluations are performed based on progeny test records and only the top 5% of all A.I. bulls for the Breeding index or the Meat Index are definitely selected for A.I..

TABLES AND CARDS INCLUDED IN THE CATALOGUE
The tables and cards of the bulls with semen available are reported in the first part of the Buta Bin catalogue.

Meat and Breeding tables: these tables include the bulls ordered by the Meat index or the Breeding index respectively. The bulls in the first table are the bulls aimed to produce slaughter animals, as they show the best combination of muscularity, growth and birth ease. For the same reason, these bulls are also very suitable for crossbreeding purposes,

both with dairy and beef breeds. The bulls in the second table are bulls suitable to produce breeding females as they have been selected to transmit calving ease and growth to their progeny but also a good conformation.

Bulls for heifers table: these bulls have shown a very good birth ease of their progeny when used on heifers, which experience more calving problems than adult cows. Bulls for heifers are very good for birth ease but, due to genetic correlations, usually are poor for calving ease of their daughters. As a consequence, these bulls should be used on heifers only in order to let them calve easily for the first time. The use of their progeny for breeding purposes is not recommended.

'Top bulls for…" tables: 4 tables are reported showing the top bulls with semen available for each of the selected traits (muscularity, growth, birth ease, calving ease).

Young bulls table: in this table information about the young bulls still in progeny test are reported.

Cards of bulls: for each bull with semen available extended information are reported in these cards including genetic indices, pedigree and also a picture.

Not recommended matings: this table provides information about the matings among A.I. bulls bloodlines to be avoided due to inbreeding problems. On the upper line the bulls having the highest number of daughters in the breed are reported. On the left side the bulls with available semen are reported. When there is a consistent relationship between two sires a red "X" is reported to indicate that the mating between the bull and a daughter of the other bull is not recommended.

Tables with all authorized A.I. bulls since 1985:
in this table the pedigree and genetic indices of all the bulls born after 1985 and authorized for A.I. are reported.

'All-time best bulls for…": six tables with the top bulls of the breed for all characteristics are reported together.

Lastest Results: this table provides information about the lastest bulls approved after progeny testing programme.

HOW TO READ THE TABLES

Toro	Matricola	Padre	Nonno Materno	n° figli	Indice Allevam.	Indice Carne	Musco-losità	Accre-scimento	Facilità Nascita	Facilità Parto	n° figlie	Centro
a	b	c	d	e	f	g	h	k	j	l	m	n

a – Name of the bull
b – Herdbook number
c – Sire of the bull
d – Maternal grandsire of the bull
e – Offspring number
f – Breeding index
g – Meat index
h – Muscularity
k – Weight increase
j – Birth ease
l – Calving ease
m – Number of daughter of the bulls having calved
n – A.I. Centre distributing the semen of the bull (only for Italy, foreign customers should contact Semenzoo Italy)

THE CARD OF A BULL

Regalo
IT001990389749

GENETIC INDICES

TRAIT	INDEX	70	100	130
Breeding index	135			
Meat index	128			
Muscularity	119			
Weight Increase	124			
Birth Ease	99			
Calving Ease	120			
Size	123			

Calves Abnormalities	Limbs -1.3%	Tongue -1.3%	Total -2.5%	calves number 193

196 offspring in 106 farms

PEDIGREE

	GOLFO FA - IT004902509703	DELTA FA - IT004096001476
		BALBANIA - IT089CN037B020
Padre NATALE FA - IT001990150199		DELANO FA - IT001300001991
	GIBBOSA - IT001900109338	RISCOSSA - TO 45191
	BRIO FA - IT061CN362B025	URIAL FA - CN 18516D
		SECCA - CN 36055C
Madre MARTA - IT001990051241		-
	C003 - IT173TO016C003	-

PERFORMANCE TEST
Phenotypic informations

Beginning Weight kg	Final Weight kg	ADG kg/d	Height at Withers cm	Trunk Length cm	Chest Girth cm
104	580	1.613	127	153	193

GENERAL NOTES

Birth Date
20-01-2010
Breeder
BRUNO DARIO - OSASCO (TO) - ITALY

Close