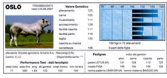


The selection concerns three type of traits: production, linked to the meat yield, breeding, linked to the calving and morphology linked to the somatic development and to the cows efficiency.



1. Production traits

The production traits are: growth speed and muscularity, both are basilar for the profitability of a beef farm. Higher growing shortens the fattening period: at slaughtering, with the same weight, the more conformed animals will get a better price.

The selection of these traits is based on the Performance Test led at Anaborapi in Carrù where the young bulls are tested to become AI sires. They are reared in homogenous conditions from 50 days till 12 months of age. The average daily weigh gain is calculated based on the monthly weighing: each animal is weighed 11 times. Muscularity is rated through the visual appraise by 3 breed experts using a linear number scale based on 9 codes. The extreme points of the scale are the biological extreme. Low codes are referred to animals with very scarce muscularity, high codes are for animals with high meat conformation. The same system is used for the finess of the cannon bone.

Beside these measures other dimensions are considered: height at withers, trunk length, chest girth, evaluation of the size, front and rear leg-set.

2. Reproduction traits

These traits concern calving and birth of the calf. The outcome of the calving is influenced by the size of the calf and by the cow aptitude due to her pelvic area and to her capacity to prepare to calve.

The co-presence of these two biological effects referred to one event makes the calving as the output of two traits: birth ease and calving ease. The birth ease is the aptitude to generate calves that can be born easily; calving ease is the aptitude to generate heifer-calves that can calve easily. The results of the calvings is made in the farms registered in the Herd Book through monthly visits by personnel of the Provincial Breeders Associations. The international calving scale ICAR includes 5 values

Code	Expression
1	Not assisted
2	Easy with assistance
3	Difficult with pulling
4	Caesarian
5	Still born

During the visit also other traits are recorded: weight of the calf, meat conformation, length, vitality, defects.

3. Morphological traits

These traits are recorded on the female population through the visual appraisal on heifers at their first calving. The observations are about bone finess, size, height at withers. Regarding the set-leg the observations are made on the rotation angle of the front legs and the cannon bone angle view by on side. The evaluation is based on 9 values scale: the extreme are the biological extreme. The best phenotype with correct set leg is in the middle with code 5.

4. Economic values

The aim of the selection is to increase the breeder incomes through the most productive animals. When the selection is led using several traits we have to chose the animals showing the best gene combination of the different interesting traits. To do this we need to know the genetic value of the animal (the genetic index) and the relative economic importance that each trait has in the farm income. In the Piemontese breed the economic values of the main traits have been set with a simulation model and are reported in the following table:

Trait	Relative Economic Value
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The selected traits and their economic importance

Growing	19,8%
Muscularity	32,7%
Birth ease + Calving ease	47,5%