# *Statistical Indicators*
## E-28
## Publication rules cow indexes

## ▪ Introduction

Breeding values of cows are estimated on the basis of information about parents, observations on the animal itself, offspring and foreign information. Cooperation CRV is a herd book and as such responsible for the breeding values. The introduction of genomics has made it possible to predict the genetic value of an animal in the population. Breeding values based on this genomic information are called genomic breeding values and are based on parental information and DNA testing.
The herd book Cooperation CRV is responsible for the estimating and publishing of breeding values and is a herd book that is recognised by the government.

Breeding values based on the usual information sources (pedigree, performance and offspring) are referred to as conventional breeding value.

Genomic breeding values and conventional breeding values are estimated in two separate genetic evaluation systems. In the official herdbook genetic evaluation, genomic information via a DGV (direct genomic value) is combined with pedigree information, performance and offspring information. The genomic information of an animal is included in the genetic evaluation via the DGV as a starting value.

There are different types of breeding values: the national breeding value, the parent average and the converted breeding value. If a combination of information sources is used, we speak of a national breeding value. If a breeding value is only based on the information source 'parents', the breeding value is called an expected breeding value. If the breeding value is only based on foreign information, we speak of a converted breeding value. The publication requirements for all three types are the same.

This chapter describes the requirements for obtaining an official breeding value. The term official breeding value means that this breeding value is entered in the database of the recognized herd book organizations and that these breeding values will be used on products of these organizations.

## ▪ Publication rules

The publication of (official) breeding values depends on a number of aspects:
- Herd book registration;
- Reliability of the breeding value;
- AI tested proof sire;
- NVI-index;
- Conformation breeding values ;
- Udder health;
- Persistency, late maturity and individual lactation breeding values.

**Herd book registration**
Breeding values of a cow are published if the cow has a herd book registration from one of the organizations that supply pedigrees of the animals for the breeding value estimation.

**Reliability**
When calculating the breeding value, reliability is also calculated. This number, between 1 and 99, represents the amount of information on which the breeding value is based. It also represents the possible extent for a change of the breeding value if new information is added to the breeding value.

Reliability has to be at least 10 percent of the main trait of a trait group. When the main trait meets this requirement, the other breeding values of that trait group are also published. Table 1 shows an overview of the main traits per trait group.
For the Automatic milking traits, the publication rules are applied to each trait separately. The traits are; efficiency, milking interval and habituation of heifers.

Table 1 Overview of the main traits per trait group.

| **Trait group** | **Main trait** |
|---|---|
| Milk Production | Overall INET |
| Conformation | Final Score |
| Durability | Durability |
| Fertility | Overall Fertility |
| Somatic Cell Count | Overall Somatic Cell Count |
| Udder Health | Udder Health |
| Claw Health | Claw Health |
| NVI | NVI |
| Calving ease (paternal) | Calving ease |
| Maternal calving process (MCP) | Maternal calving process |
| Vitality (Paternal) | Vitality |
| Maternal vitality | Maternal vitality |
| Beef index characteristics | Beef index |
| Milking Speed | Milking Speed |
| Character | Character |
| Persistency | Overall Persistency |
| Late maturity | Late maturity |
| Urea | Overall Urea |
| Automatic Milking Traits | Every trait |
| Ketosis | Overall ketosis |
| Dry Matter Intake | Overall Dry Matter Intake |
| Resilience | Resilience |
| Methane | Methane |

**AI tested proof sire**
An AI tested proof sire is a sire that:
- has an AI code in the Netherlands and/or a semen number in Flanders;
- its owner is not a farmer, but, for example, an AI organization or an importer.

If the sire of a cow is an AI tested proof sire whose production/ conformation breeding value has not yet been published, then the production/ conformation breeding value of the daughter of this sire will also not be published. However, the rule for conformation is that if the sire of a cow has been born six years before the publication date, the conformation breeding value of that cow will be published if it complies with the reliability requirements.
For production however, the rule is that if the cow has been producing for at least 220 days, the production breeding values will be published if they comply with the reliability requirements.

**NVI**
In calculating the NVI, all published breeding values of a cow are used. Therefore, if a breeding value is not published, it will also not be used in the calculation of the NVI. The breeding value

type of the NVI is copied from the type for the breeding values of the milk production. A cow obtains an NVI index if its breeding value for overall milk production has been published.

**Conformation breeding values**
Conformation breeding values of a cow are published if the classification of the cow has been executed by CRV, VRV or FHRS.

**Persistency, rate of maturity and individual lactation breeding values**
Persistency, rate of maturity and individual lactation breeding values are published if the cow has a published milk production breeding value.

**Birth-index**
The birth index will be published if the breeding value of one of the four traits is published.