Version 2.0 2020-06-01

NorFor Feed Table Guidelines regarding nutritional composition of commercial compound feed

Objectives

The primary objective of these guidelines is to provide NorFor's perspective on the best praxis in securing accurate nutritional composition and feed value of compound feed in the NorFor Feed Table. This will ensure that reliable parameter values will be utilized in feed ration calculation and optimization on dairy and beef farms when using a NorFor Model based IT tool. The secondary objective is to ensure that the various feed manufacturers use as similar methods as possible, which are described in this guideline when compound feed is either added or edited in the NorFor Feed Table.

Creation of a compound feed and documentation of nutritional parameters

Feed mills can create and add compound feeds in the NorFor Feed Table to make the feeds easily available to farmers and advisors using the existing NorFor feed ration formulation tools, such as DMS in Denmark, IndividRAM/TypFoder in Sweden, Tine Optifor in Norway and Iceland, and NorFor Feed Ration Optimizer in other markets. Each feed mill is responsible for updating and aligning the NorFor parameters to the actual sold and delivered feed to the farm. For parameters such as DM, ash, CP, sCP, CFat, NDF, ST, and sugar, it is recommended to use its own reliable and/or available laboratory analysis for the feed ingredients in the compound feed if NorFor recommended methods have been used by that laboratory. However, in regards to the following nutrient characteristics; kdCP, iCP, kdST, iST, kdNDF, iNDF, fatty acids, and amino acids, one should use values from the NorFor feed table, see Table 1. The reason is that the values originate from several different sources and trials which have been thoroughly investigated by NorFor.

In a situation where a feed mill uses a specially treated ingredient that is not represented in the NorFor Feed Table, we recommend contacting NorFor first so the ingredient can be added into the NorFor Feed Table. Table 1 shows Norfor´s guidelines identifying which values the feed mill should analyze and which should be taken from the NorFor Feed Table.

Table 1. Guidelines and prioritization (1=Preferred or 2=Second best choice) of when to use own analyzed values or values from the NorFor Feed Table on feed ingredients used in a compound feed.

Parameter	Own Analysis/Value	NorFor Table values	Remark/Comment	Method
Dry matter (DM), g/kg	1	2		EC no. 152/2009
Ash, g/kg DM	1	2		EC no. 152/2009
Crude protein (CP), g/kg DM	1	2		EC no. 152/2009 or Dumas
Soluble CP (sCP), g/kg CP	1	1	Free choice between own value or table value	See NorFor book section 5.1.3
Ammonia nitrogen (NH3-N), g/kg N	*	1	Only relevant for compound feed containing urea	See NorFor book and user manual for FST admin tool.
Soluble+potential degradable CP	*	1		In sacco, see NorFor book section 5.2.2
Indigestible CP, g/kg CP	*	1		Mobile bag technique, see NorFor book: 5.2.4.
Degradation rate of pdCP, %/h	*	1		In sacco, see NorFor book section 5.2.2
Crude fat (CFat), g/kg DM	1	2		EC no. 152/2009
Neutral detergent fiber, g/kg DM	1	2		ISO 16472: 2006IDT (Mertens)
Indigestible NDF, g/kg NDF	*	1		In sacco, see NorFor book section 5.2.3.
Degradation rate of kdNDF %/h	*	1		In sacco, see NorFor book: 5.2.2.
Starch (ST), g/kg DM	1	2		Bach Knudsen, see NorFor book p. 41
Indigestible ST, g/kg ST	*	1		Based on In vivo digestibility (Laboratory method doesn't exist)
Degradation rate of ST, %/h	*	1		Calculation in NorFor
Sugar, g/kg DM	*	1		EC no. 152/2009

Fatty acids (total) and individual, g/kg CFat	*	1		See NorFor book
Amino acids (total) and individual, g/kg CP	*	1		EC no. 152/2009
Minerals	1	2		See NorFor book, page 41
Vitamins	1	2		EC no. 152/2009

*This guideline advises using parameter values from NorFor Feed Table when it comes to nutrient degradability parameters kdCP, iCP, kdST, iST, kdNDF, iNDF, Fatty acids, Amino acids.

Recommendations on how to document energy and protein values for compound feeds

NorFor recommends that feed mills use values according to the guidelines in Table 1 for each ingredient used in the recipe, in order to reproduce standard feed values, i.e. NEL20, AAT20, PBV20 for each compound feed listed in NorFor Feed Table.

Recommended frequency of updating compound feed

NorFor recommends that compound feeds be adjusted so that the NEL20 is expected to deviate less than 5% from the value in the NorFor Feed Table or less than 10% for AAT20 or PBV20.

NorFor values of a compound feed can be calculated

The NorFor values of a compound feed should be calculated according to the NorFor model in either national software tools (DMS, IndividRAM/TypFoder, Optifor) or in other software with integrated NorFor equations (e.g. AgroSoft software).