Concerted Action Animal Feed and Nutrition - Project N°2266

PROPOSAL FOR A EUROPEAN FEED NAMING SYSTEM

Final Draft - August 1996
Working Group on Feed Nomenclature
Edited by Gilles Tran[1], Scientific co-worker, Concerted Action Animal Feed and Nutrition

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1. INTRODUCTION

The efficient trade and handling of feeds as well as the management of feed data require that the materials being dealt with are properly named and described. This is particularly important at international level, because of the language barrier, but feed naming is indeed a fundamental concern at all the levels of the feed sector : trade, feed manufacturing, farmers, research, extension and education.

[1] Correspondence should be addressed to :
Gilles Tran, AFZ/INA P-G, 16 rue Claude Bernard, 75231 PARIS Cedex 05
Tel : 33 1 44 08 18 08 - Fax : 33 1 44 08 18 53
e-mail : tran@inapg.inra.fr

Because everything that may be eaten by an animal is likely to be used as a feed, an immense number of plants, animals, or other materials (minerals, chemicals, etc.), whole or not, raw or processed, can be considered for inclusion in a feed nomenclature. It is thus clear that a very sophisticated system is needed to describe and name feeds in a consequent, systematic, understandable and retrievable way. A further requirement is that not only the different feeds will be described and named unambiguously and uniquely but also that the system will be used generally.

This document is a proposal for a system allowing the description and naming of feeds in Europe, with regards to the dissemination of this system in the Feed Information Centres participating in the European Network of Feed Information Centres, and to its practical implementation.

2. DEFINITIONS AND ACRONYMS

2.1. Definitions

- *In this document*, **feeds** are single material feedingstuffs of either vegetable, animal or mineral origin which may or may not have undergone some further processing prior to being sold. Because they rarely provide, on their own, the complete nutritional requirements of the (farm) animals, feeds have to be mixed with other materials, on the farm or in a compound feed mill. Note that the definition of the word « feed » in this narrow sense is particular to this proposal : the EU term is « Feed material ». Other English or American synonyms include « feedingstuff », « feedstuff », « raw material », « ingredient », or « straight ».
- A **feed database** is a computerised structure containing both textual and numerical information related to the chemical composition, physical characteristics and bioavailabilities of **individual feed samples**. It usually contains also a **feed table** made of compiled data derived from the individual data.
- A **feed table** is a document presenting compiled data that may have been collected manually from different sources (literature, local data...) or computed from a feed database. Data presented are usually averages and other statistical parameters. A computerised feed table is often part of a larger **feed database** containing the original individual values.
- A **feed nomenclature** is both a list of feed names and a data structure containing such a list. In feed databases, feed samples are grouped according to a feed nomenclature.
- The **EU Directive** referred to in the Proposal is officially the 92/87/EEC Directive. The next to be released EU Directive on Feed Materials proposes the same feed codes, names and descriptions as Directive 92/87/EEC, completed with compulsory declarations.

2.2. Acronyms

- **FIC** stands for « Feed Information Centre ». The local FICs are the FICs maintained at national or regional level.
- **ENFIC** stands for « European Network of Feed Information Centres ». It is the network itself, consisting in a hub connected to all the local FICs.
- **EFIC** stands for « European Feed Information Centre ». It is the hub of the ENFIC. Its main tool is a feed database. The persons involved directly in the daily operation of the EFIC will be thereafter referred to as the **EFIC managers**.

- **EFN** stands for « European Feed Nomenclature ».
- **EFDBS** stands for « European Feed Database Management Software ». It is the feed database management software (part of the Feed Database Management Package) that will be created through the project and distributed to all European FICs. The EFDBS is supposed to be unique (a same software for everyone), but most of the data maintained through the EFBDS will be particular to each FIC.

3. PROPOSAL

3.1. General principles

The feed nomenclature used by European Network of Feed Information Centres is first designed for the people involved in the nutrition and practical feeding of (farm) animals. People not involved in animal feeding but dealing with feeds (trade, regulation, customs) should also be able to understand and use the nomenclature.

The feed naming system offers an rational, logical and comprehensive frame for naming and describing feeds. Retrieval and dissemination of feed names will be understandable and practical.

3.2. Summary

The European Feed Nomenclature is maintained at central level by the EFIC managers, with the help of the local FIC managers. The EFN contains feed names for concentrates and other feed materials with no limitation in number of registered materials. It is frequently updated. Its is first maintained in English with provision for other European languages.

There will be provision for the EFN in the EFDBS, but the use of EFN will not be mandatory for local FICs. EFN names should be used when communicating feed information, and local FICs should maintain a strong compatibility between their own feed names and EFN names.

The feed name consists in a common name in association with a longer description. Each feed name has a short numerical code. Each feed name is given an organised list of keywords (each one with a full definition) that will be used by end-users when querying the EFIC database. Keywords are described in a glossary.

3.3. Organisation

This part deals with the organisational problems of implementing the EFN in Europe.

3.3.1. EFN maintenance

3.3.1.1. Who is responsible for maintaining the EFN ?

- The EFN is maintained at central level by the EFIC managers. The EFIC managers are responsible for the creation and maintenance of feed names and feed glossaries.
- Local FIC managers will report new feeds or will ask for modifications of the names or descriptions of feeds already registered in the EFN.
- New feed names will be first worked out between the EFIC managers and the local FIC manager who required the creation or update.
- The new names will then be electronically circulated for comments among the other FICs (or within a Standing Committee of FIC representatives), and, once accepted, eventually created in the EFN.

In any case, the introduction/modification of a feed name should be a process as short, flexible and little bureaucratic as possible, though a general acceptance of new names by all the FICs is mandatory.

3.3.1.2. When should the EFN be updated ?

The EFN will be updated whenever a feed is reported as interesting by a FIC or the EFIC managers, after acceptance of the updates and modifications by the other FICs (or Standing Committee).

3.3.2. Relationships between the EFIC and the local FICs

3.3.2.1. Uses of EFN

The EFN is essentially a reference tool whenever an international level is to be considered for communicating about feeds or disseminating feed data. EFN names and codes will be used for exchanging data between FICs and EFIC, and between FICs. They will be used in official EU documents and in advisory or scientific publications. Also, a local FIC manager (or perhaps everyone in the European feed sector) will be able to query the future EFIC database, using standard EFN names, keywords or codes, for information on feeds.

In this respect, the relationship between the EFIC and the local FICs in the field of feed identification is, to use database terminology, a « server-client » relationship : the EFIC (« server ») - provides EFN names for the FICs (« clients »), who can easily retrieve the names and all kind of related data from the EFIC database, and use them as they want.

The EFN is not supposed to replace other naming systems (commercial, national, regional) though it should contribute to influence and harmonise them in the long term. Also, some data that have a precise and important meaning at local level may not be relevant at international level, so that it is not mandatory for a local feed to be included in the EFN list.

There may be two different situations regarding EFN usage at local level :

- A FIC can use its own, EFN-independent, feed naming system. It will be the case of already existing Centres or of some new Centres. Though creating and maintaining their own feed names and codes, these FICs will be interested in enforcing compatibility between their local system and the EFN by associating EFN codes to their local codes.
- A FIC can use the EFN system only. This could be interesting for Centres that do not really need a local nomenclature, provided that the EFN is comprehensive enough to cover most feeds available in Europe, and quickly updatable at central level.

3.3.2.2. Implementation of EFN in the EFDBS

The EFDBS is a feed database software designed to manage the data of local Feed Information Centres.

Though the EFDBS is supposed to be unique in Europe, it is probable that existing Centres maintaining large databases, like the CVB or the AFZ, will continue using their own customised, efficient and well-functioning systems.

The EFDBS will be important to new Feed Information Centres. This software could save them from « finding the wheel again » and will help them start a feed database in a short time. In this context, the local EFDBS would contain the whole European Feed Nomenclature list. The local FIC manager will be able to download the latest version of the EFN (from the remote EFIC database server) and to replace the former EFN list in the EFDBS with the new one. Also, a built-in facility of the EFDBS will allow him/her to create local feed names in the local language, with a structure similar to or simpler than the EFN one.

The situations in regard to the use of EFN and EFDBS could be the following :

Situation 1 : FIC having already its own database (and not willing to change it)

- No use of EFDBS for local feed data management
- No use of EFN for local purpose
- The EFN list is included in the local customised database and frequently updated by downloading the most recent European Nomenclature from the remote EFIC server.
- Links are established by the local FIC managers between the local codes and EFN codes : *AFZ code 224 « Avoine »= EFN code 1 « Oat »*

Situation 2 : FIC using the EFDBS and EFN only

- Exclusive use of EFDBS for local feed data management
- Exclusive use of EFN codes and names for local feed nomenclature management
- The EFN list is included in the local EFDBS database and frequently updated by downloading the most recent European Nomenclature from the remote EFIC server.

Situation 3 : FIC using the EFDBS and local names within the EFDBS

- Exclusive use of EFDBS for local feed data management
- No use of EFN for local feed nomenclature management
- The EFN list is included in the local EFDBS database and frequently updated by downloading the most recent European Nomenclature from the remote EFIC server.
- Links are established by the local FIC managers between the local EFDBS codes and EFN codes : *Spanish code 304 « Avena »= EFN code 1 « Oat »*

3.3.3. International aspects

It is proposed that the EFN is maintained first in English.

It is advisable, though, that the EFN names, definitions and keywords are translated in other European languages, with the active help of local FIC managers. This could ensure a more fluent dissemination of EFN terminology, and help local users to define their own feed names.

3.4. EFN content

3.4.1. What feeds should be included in the EFN list ?

It is proposed to begin with a list similar to the one in the EU directive and then to expand it to all the feeds for whom information may be required in Europe. The list should be quite comprehensive, with no limitation in size, and evolve continuously.

The list will start with simple concentrate products and minerals. More complex products will be added if appropriate.

Fresh products (wet brewers'grains, wet corn gluten feed...) will be included at a further stage. Roughages (hays, silages, fresh roughages including pasture) could be included in the list if they are relevant at an international level.

3.4.2. How to indicate the feed quality ?

Commercial grades (derived from commercial nomenclatures, such as « Soybean meal 48 ») and synthetic grades (generated at EFIC level from the analysis of feed variability) may coexist in the EFN list. Caution is required in the use of commercial grades, and it will be necessary that these grades be well defined.

The country of origin, the brand name or even a producer name are also important quality specifications and should therefore be taken into account at feed name level when necessary. However, since a country or a producer may change its production processes over the years, the signification of this kind of information with regard to quality may be short-lived, and caution should be excercised here too.

3.4.3. Monitoring the feed nomenclature

Because of the continuously evolving nature of feeds through genetic and technological improvements, the association between a feed name and the feeds it represents is likely to be modified after some time. For instance, what is called « Rapeseed meal » in Europe today is different from what was called by the same name before 1991, because all feed/food-grade cultivars or rapeseeds have been « 00 » types since this date.

For this reason, the EFN maintenance should include a yearly (at least) checking procedure to ensure that the EFN names still correspond to existing feeds, or still describe the right feed quality.

3.5. EFN structure

For a demonstration of the EFN, download the ENFEED software from the Animal Feed and Nutrition Home Page at :`http://www.pi.net/~enfic`

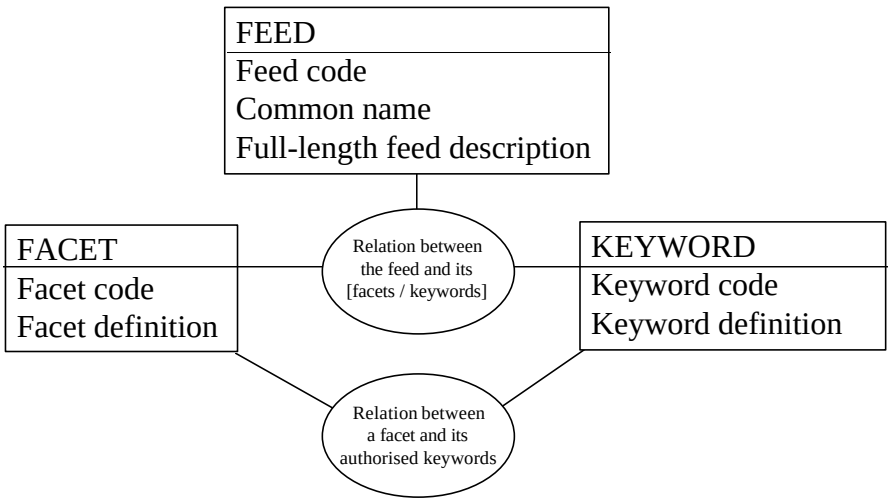
3.5.1. Outline

Each feed is identified by :

- A unique code number
- A unique common name
- A unique full-length, literal definition
- A list of facets, of variable length, associated with keywords

Note that there is no need, at this time, for a specific feed class system. Provision could be made for the implementation, within the EFDBS, of a user-defined feed class system identical to the system already used at local level (if there is such). At EFIC level, a multiple and flexible class system (one feed belonging to several classes) could be created though it does not seem mandatory for the moment.

Figure 1. Feed nomenclature database. (simplified model)
Proposal for a European Feed Naming System - EU/CA Animal Feed and Nutrition - June 1996



3.5.2. Code number

The feed code is a short single number. It is purely sequential : the code for a new feed is the code of the last entered feed plus one. It will be used for cross-referencing between future documents (computer files, scientific papers, feed tables) using EFN names. It has a technical purpose in the EFIC database, the EFDBS or even in the local non-EFDBS feed databases.

Each feed has its own code.

3.5.3. Commons names

The common name is the most basic representation of the feed name. It is the common name that « tells » first what is the feed to the end-user. It is based on an as short as possible and understandable way of naming a feed in common language, written or spoken. The common name should be as much as possible structured as the string «origin/part/process/quality », though this cannot be mandatory, since these facets are not relevant for all the feeds.

Common names in the EFN will be chosen so that a maximum number of people may understand them without resorting to the joined full-length description.

Each feed has its own common name.

3.5.4. Full-length description/definition

Because the common name does (can) not state all the textual descriptive/identifying information about a feed, it is necessary to associate it with a more comprehensive full-length description. This description will also be very helpful for all the feeds for which there is no obvious, universally understandable common name. This dictionary-like description/definition explains as much as possible the nature of the feed. For instance, in the case of meat meal, the full-length description contains exclusive statements, such as «exclusive of hair, hoof, horn, stomach content, feathers, egg shells or non animal products ».

Each feed has its own full-length descriptions/definitions.

3.5.5. List of facets/keywords

3.5.5.1. Rationale

When presenting feed data to users, in a feed table or any other human-readable document, the common name is the most practical way to name feeds. There is little doubt that short common names are more efficient for the comprehension of the user/reader than codes or even long strings of concatenated facets separated with commas. In some difficult cases where there is no obvious common name, a more lengthy description may be useful, as stated before.

Looking for a feed name in a large nomenclature is an altogether different matter. A common situation is the one of a feed buyer, or of a nutritionist, who is willing to buy or use a feed but has no or little data at hand : the only piece of information is a moderately precise, often local or commercial, feed name.

Typically, the search for composition and nutritional data in a computerised feed database begins by a search of this feed name. *If the search is based only on the common name*, the result is likely to be disappointing, since there is little chance that the name provided by the

user will match exactly some of the common names in the database : the choice of words, their sequence in the common names as well as their spelling may be different. This solution will work only with very short names or for users well acquainted with the feed nomenclature. Note that though it is technically possible to create a system apt to understand queries written in « natural language », i.e. able to parse a complete sentence into units meaningful for the glossaries stored in the nomenclature database, such a system would probably be outsized and too expensive to build and maintain in the light of present need and budget.

A simpler solution is the implementation of a keyword structure : to each feed is associated a list of normalised keywords. The query is made through the combination of different keywords. For instance, the search for a unusual sunflower process residue will begin by putting the word « sunflower » as a keyword. Built-in facilities help the user by proposing to him/her lists of relevant keywords with the right spelling. Most of the times, the user does not have to write a full keyword, but only the first letters [2].

3.5.5.2. Principles

The general purpose of the following structure is to help users to find feed names with as little difficulty as possible. A user with a few (minimal) notions about the feed he/she is interested in should be able to retrieve the feed name and any other related information from the EFN without outside help.

The keywords should be as « nuclear » as possible, i.e. they should represent only one object or concept at a time : this allows shorter keyword lists than if keywords are actually combinations of keywords.

Each keyword has a precise definition attached and belongs to a general glossary. It is also preferable that keywords are part of the feed common name itself.

Each feed is given a list of couples [facet, keyword] :

- A keyword is a word participating in the feed description : *Wheat*, *Seed*, *Extrusion* are keywords.
- A facet is class of keywords : the facet *Origin* contains keywords such as *Wheat*, *Barley* and *Animal*.
- It is possible to repeat a same facet, but with different keywords, so that complex product descriptions (when several processes are applied to a feed, for instance) may be appropriately given without resorting to concatenated keywords.
- Only the relevant facets have to be used : there is no point here for putting « blank » or « unspecified » or « irrelevant » in place of keywords for unused facets.

A basic list for wheat, for instance, would be :

Facet	**Keyword**
Origin	*Wheat*
Scientific name	*Triticum aestivum*

[2] A working example of this approach is the io-7 software, an stand-alone computerised feed table developed by the French Feed Database. io-7 contains data for more than 2000 feeds. This software has been used since 1991 in most of the INRA centres concerned with animal feeding and in many private businesses. io-7 users look for feed names (and then feed composition data) by choosing 1 to 4 keywords in a query form.

Part/product eaten *Grain*

In some cases, it could be interesting to maintain some kind of relationship or order between keywords within a feed, so that the keyword list appears logical : the different processes of a feed, for instance, will have to be sorted.

3.5.5.3. Facets

Basically, the setting of the facets follows the INFIC guidelines : there are facets describing the origin, part, process, stage of maturity, cutting or crop, grades and other feed characteristics.

Since a list of facet/keywords is for retrieval purpose exclusively, and is not meant to describe a feed in a unique way, two different feeds could have a same list of keywords. Also, it should be understood that the precise implementation of facets is less important here than in systems where facets are the sole feed descriptors : *it is the common name and the description that name and describe the feed, not the list of keywords*. The keywords associated to a feed will be changed if it appears that users do not agree with them, or new keywords will be added, or even new facets will be created.

Each facet has a code number (used for technical purpose in the EFIC and EFDBS databases).

The list of facets is presented below.

FACETS	Description
Origin	It is the origin or parent of the material eaten.
Origin specification	It specifies more exactly the origin of the feed.
Scientific name	Scientific name for origin and origin specification.
Part undergoing separation	In the case of by-products, it is the part submitted to the separation of the « noble » product (oil, starch, fat...).
Part/product eaten	Name of the material actually eaten.
Process	Process such as « solvent extracted », « starch extraction »...
Stage of maturity	Stage of maturity (for forages).
Cutting or crop	Sequence of cutting or crop (for forages).
Commercial grade	Commercial grade used in trade.
Synthetic grade	These grades separate feeds into nutritionally meaningful categories.
Brand name	Brand name given by the feed producer.
Country	Name of a country.
Producer	Name of the company producing the feed

Origin, **Scientific name**, **Part/product eaten**, **Process** are facets likely to be used on most feed materials, though none of them is mandatory for every feed. The use of the other facets could be restricted to particular feeds or group of feeds, as the need arises.

Here are some additional comments on these facets :

- **Origin** is the biological origin or parent of the material eaten, such as « Wheat » or « Barley ». Most of the feeds have only one origin, though some complex products will have several origin keywords attached. There will be also a few feeds without origin when this facet does not make sense (confectionery by-products...). For plants and animals (except

fish), the term used is the common name of the plant or animal in question, such as alfalfa, cattle, chicken, oats or soybean. The origin component for fish is « fish ». When the specific derivation of the feed is not recorded, the word plant, animal, fish or poultry is used.

- **Origin specification** specifies more exactly the origin of the feed. For instance, « wrinkled » could be attached as an origin specification to the wrinkled pea. There has been some discussion whether this keyword is useful or not, since users may not think of looking for feeds by using origin specification keywords. The problem resides in the fact that the origin (often a scientific genus or species) may cover several feeds of greatly varying nutritional characteristics that belong as varieties to that species, or as species to that genus. For instance, there are at least four kinds of lupine, (sweet white, bitter white, yellow and blue) with different levels of fat or alkaloids so that each kind should be one different item in the EFN. Having four different origin keywords (« Sweet white lupine », « Bitter white lupine », « Blue lupine » and « Yellow lupine » will not be very practical to users with little knowledge of the lupine family : in this respect, a unique « Lupine » keyword seems better. However, in this particular case, it could be interesting for users more conversant with legume terminology to have an accessory origin specification keyword specifying the sweetness and the colour of the seed. Other examples include barley (6-row, 2-row, naked), oat (normal, naked), wheat (soft, hard, durum), millet (pearl, finger), pea (round, wrinkled)... The association origin/origin specification is often redundant with the scientific name below.

- **Scientific name** is the scientific name for origin and origin specification. It contains both the genus and the species/subspecies, or the genus alone. Though the vernacular origin and origin specification keywords are generally more practical, some plants, often of the tropical and non-conventional sort, are known under many different common names : the only internationally-recognised way to name a plant is therefore the scientific name. Users who do not know the English origin name of a feed will be able to query the EFN database through the scientific name.

- **Part/product eaten** is the name of the material actually eaten. It can be a process residue, or a biological part having undergone no or little physical separation of its constituents. For example, « Seed » is a valid Part/product keyword for describing extruded soybean seed and « Oil meal » is the valid Part/product keyword for soybean meal. The Part/product facet will sometimes be the only descriptor for feeds with no clear origin or process.

- **Part undergoing separation** is, for process residues, the biological part submitted to the separation of the « noble » product (oil, starch, fat...). In the case of soybean meal, the Part undergoing separation is the seed. The use of such a facet is not immediately obvious since, after all, the Part/product eaten facet takes care of the name of the material. However, it should be understood that the Part name is a often very confusing item for process residues. Not only the part name is culture-dependent (there is no universal translation for « middlings » or « shorts », for instance), but the way the feed is considered is also culture-dependent. The best example of this are the oil meals, for which there is a specialised word in Latin countries (« Tourteau » in French) and none[3] in English : in front of a query form, the English-speaking user may consider the oil meal as a seed having undergone various processes while the Latin country user will be naturally inclined to consider it as a product in itself. This is where the *Part undergoing separation* facet may help : because this part (grain, seed, root...) is sometimes more obvious than the Part/product name, a user unable to

[3] Though the word « Cake » exists, it does not seem to be as popular as the « Torta/tourteau » family of Latin words for naming oil meals.

find the right part/product name will be at least able to retrieve all the products derived from a same biological part, and perhaps find his/her product in this list.

- **Process** is the process undergone by the Part undergoing separation (thus obtaining the Part/product eaten) or by the Part/product eaten itself. Different processes may be associated to a same feed, in which case the most relevant ones (according to the nutritional properties) should be recorded.

- **Commercial grade** is a commercial grade used in trade, like « 48 » for the soybean meal 48. The commercial grade may be a poor indicator of the quality of the material because it is not mandatory for a feed batch to comply with its commercial grade (soybean meal batches with less than 48% protein+fat will be sold at a lower price). However, the commercial grade is often the first approach, and the most natural one, of feed quality for end-users, and it may be quite logical for them to look for feed information by using such a facet. As indicated in § 3.4.2., caution will be required when establishing commercial grade keywords.

- **Synthetic grade** is a grade created by the EFIC manager for the special purpose of separating feeds into nutritionally meaningful categories. These grades may be threshold values (Crude fibre > 5% DM) or symbolic representations of these threshold values (type I, type II). In the latter case, the meaning of the grade will be found in the keyword description file. There is some doubt on the use of synthetic grades as keywords, since end-users will not be aware of their existence when they start using the EFN query forms. However, it could be an interesting way of accustoming users to the different EFN grades for a same feed.

- **Brand** name is the brand name given by the feed producer.

- **Country** is the name of a country where the feed is produced.

- **Producer** is the name of the company producing the feed.

The use of *brand*, *country* and *producer* facets has been discussed by members of the Working Group. There is no doubt that this kind of information will find its place at sample level. At feed name level, great caution is required because the meaning of such data is likely to be unstable : brand names may disappear, countries and producers may change their production process. In some countries, though, particular feeds may be better known by their brand names than by any other association of words. In other cases, the country or the producer name could be deemed reliable enough to be a good quality indicator.

Note on forages

Forages are complex materials and they are quite difficult to name and describe at an international level. It is not enough to describe a forage in terms of biological nature and technological process because a very large number of external factors (such as climate, nature of soil or storage conditions) participate in the forage quality. For instance, Feed N°479 and 480 in the French INRA Table are respectively « *Upland, natural grassland (Auvergne), 1^{rst} growth, 10 June, early cut, field-cured, with rain,* ***less*** *than 10 days in field* » and « *Upland, natural grassland (Auvergne), 1^{rst} growth, 10 June, early cut, field-cured, with rain,* ***more*** *than 10 days in field* ». In this example, it is clear that factors like « 10 June » or « more/less than 10 days in field » have little signification outside France because they are only relevant to

local circumstances. Taking all these factors into account in an international forage name is therefore questionable.

The INFIC feed naming system had two facets particular for forage description :

- **Stage of maturity** is the stage at which the forage is harvested (full-bloom, milk stage...).

- **Cutting of crop** : many forage crops are cut and harvested several times during the growing season. Each cutting has a unique nutrient content as well as characteristic physical properties. The cutting or crop component of the name refers to the sequence of cutting from the first to the last, as cut 1, cut 2 etc.

Though insufficient for a proper forage description, these facets have been put in the present facet list, mainly for backward compatibility with former INFIC names. It has been proposed in § 3.4.1. that only roughages relevant at international level should be included in the list. If the need arises, it will also be possible to add facets specific to forages, such as «storage conditions » or « weather at harvest ».

3.5.5.4. Keywords (see examples in § 3.6.2.)

The system provides a general **glossary** of keywords.

- A keyword is a single word or a short sequence of words.
- Each keyword has a code number (used for technical purpose in the EFIC and EFDBS databases)
- Each keyword has a full-length definition.
- A keyword is associated to one or several facets.
- Keywords are used for querying in the EFN-compatible databases.

3.6. Examples

3.6.1. Examples of feed names

The following examples are an EFN interpretation of some feeds from the EU directive. Though the future EFN will be based on this directive, *the EU feed names and descriptions are likely to be changed in the EFN*. The EU Code here is kept for compatibility purpose with the EU directive.

EFN Code	1
EU Code	1.1.
Common name	Oats
Description	Grains of Avena sativa L. and other cultivars of oats.
Origin	OAT
Scientific name	Avena spp.
Part/product eaten	GRAIN

EFN Code	3
EU Code	1.3.
Common name	Oat middlings
Description	By-product obtained during the processing of screened, dehusked oats into oat groats and flour. It consists principally of oat bran and some endosperm.
Origin	OAT
Scientific name	Avena spp.
Part undergoing separation	GRAIN
Part/product eaten	MIDDLINGS
Process	MILLING

EFN Code	10
EU Code	1.10.
Common name	Rice bran with calcium carbonate
Description	By-product of the polishing of dehusked rice. It consists principally of silvery skins, particles of the aleurone layer, endosperm, germ and small amounts of calcium carbonate resulting from use in the manufacturing process.(Maximum CaCO3- content 3 %).
Origin	RICE
Scientific name	Oriza sativa L.
Part undergoing separation	GRAIN
Part/product eaten	BRAN
Process (1)	POLISHING
Process (2)	CALCIUM CARBONATE ADDED

EFN Code	11
EU Code	1.11.
Common name	Fodder meal of pre-cooked rice
Description	By-product of the polishing of dehusked pre-cooked rice. It consists principally of silvery skins, particles of the aleurone layer, endosperm, germ and small amounts of calcium carbonate resulting from use in the manufacturing process.(Maximum CaCO3-content 3%)
Origin	RICE
Scientific name	Oriza sativa L.
Part undergoing separation	GRAIN
Part/product eaten	BRAN
Process (1)	COOKING
Process (2)	POLISHING
Process (3)	CALCIUM CARBONATE ADDED

EFN Code	36
EU Code	1.36.
Common name	Maize gluten feed
Description	Dried by-product of the manufacture of maize starch. It is composed of bran and gluten to which components of the steeping liquor, and possibly the germ, from which the oil may have been removed, may be added.
Origin	MAIZE
Scientific name	Zea mays L.
Part undergoing separation	GRAIN
Part/product eaten	GLUTEN FEED
Process (1)	STARCH EXTRACTION
Process (2)	WET-MILLING
Process (3)	DEHYDRATION

EFN Code	58
EU Code	2.15.
Common name	Soy (bean), extracted, toasted
Description	By-product of oil manufacture, obtained from soy beans after extraction and appropriate heat treatment. (Maximum Crude fibre content 8 % in the dry mater.)
Origin	SOYBEAN
Scientific name	Glycine max (L. Merr.)
Part undergoing separation	SEED
Part/product eaten	OIL MEAL
Process (1)	SOLVENT EXTRACTION
Process (2)	HEATING

EFN Code	100
EU Code	5.1.
Common name	Carob pods
Description	Product obtained by crushing the dried fruits (pods) of the carob tree (Ceratonia siliqua L.), from which the locust beans have been removed.
Origin	CAROB
Scientific name	Ceratonia siliqua L
Part/product eaten	PODS WITHOUT BEANS
Process (1)	GRINDING
Process (2)	DEHYDRATION

EFN Code	124
EU Code	9.1.
Common name	Meat meal
Description	Product obtained by heating, drying and grinding whole or parts of warm-blooded land animals from which the fat may have been partially extracted or physically removed. The product must be substantially free of hooves, horn, bristle, hair and feathers, as well as of digestive tract content. (Minimum crude protein content 50% on a dry matter basis).
Origin	ANIMAL
Part/product eaten	MEAT MEAL
Process	RENDERING

EFN Code	141
EU Code	11.6
Common name	Dicalcium phosphate
Description	Precipitated calcium monohydrogen phosphate from bones or inorganic sources (CaHPO4.xH2O).
Origin (1)	BONE
Origin (2)	INORGANIC SOURCE
Part/product eaten	DICALCIUM PHOSPHATE
Scientific name	CaHPO4.xH2O

EFN Code	150
EU Code	12.1
Common name	Bakery and pasta waste
Description	By-product obtained from the manufacture of biscuits, cake, bread or pastas.
Part/product eaten	BAKERY AND PASTA WASTE

EFN Code	153
EU Code	12.4
Common name	Salts of fatty acids
Description	Product obtained by salification of fatty acids with calcium, sodium or potassium-hydroxide.
Part undergoing separation	FATTY ACIDS
Part/product eaten	SALTS OF FATTY ACIDS
Process	SALIFICATION

3.6.2. Examples of keywords

Code	Keyword	Keyword Definition
4	OAT	Cereal (Avena spp.) whose grains are used as human food and animal feed. **[ORIGIN]**
12	RAPE	Plant of the brassica family (B. napus, B. campestris) whose seed is used for oil production **[ORIGIN]**
39	DURUM	Origin specification for wheat. Durum wheats (Triticum durum) are used for making pasta and semolina. **[ORIGIN SPECIFICATION]**
100	Hordeum distichon L.	Scientific name for barley (2-row type) **[SCIENTIFIC NAME]**
75	SEED	The fertilized and ripened ovule of a plant. **[PART UNDERGOING SEPARATION], [PART/PRODUCT EATEN]**
45	PROTEIN CONCENTRATE	Product consisting mostly of protein and extracted from plants or animals. **[PART/PRODUCT EATEN]**
130	GLUTEN FEED	By-product or the starch extraction process (wet-milling) composed of bran and gluten, to which components of the steeping liquor. and possibly the germ, from which the oil may have been removed, may be added. **[PART/PRODUCT EATEN]**
140	SOLUBLES	Dissolved substances (and perhaps fine solids) in a liquid obtained in processing animal or plant materials. Fish solubles are a by-product of the manufacture of fish meal **[PART/PRODUCT EATEN]**
47	STARCH EXTRACTION	Series of processes leading to the extraction of starch from materials such as grain, roots or tubers **[PROCESS]**
272	WET-MILLING	Mechanical separation of the component parts of kernel/grain after steeping in water with or without sulphur dioxide for the extraction of starch. **[PROCESS]**
72	SPRAY	Dehydration method obtained by spraying the material on the surface of a heated drum. Its is recovered by scraping from the drum **[PROCESS]**
84	RENDERING	Procedure by which lipid material is separated from meat tissue and water under the influence of heat and pressure. In the dry rendering process, the fatty tissue is heated in jacketed containers, mechanical agitation is provided, and the water is evaporated either at atmospheric or at increased pressure. **[PROCESS]**