



# EU Feed Protein Balance Sheet

## EXPLANATORY NOTE

### SCOPE

The 'EU Feed Protein Balance Sheet' covers a *broad range of feed protein sources*, including protein-rich materials as well as other sources with a lower protein content. The sheet also covers non-plant-based protein materials, such as fishmeal, processed animal proteins, whey, skimmed milk powder, and former foodstuff.

### PROTEIN SOURCES

The protein sources are classified into four main categories:

**Crops:** cereals, oilseeds and pulses. This category refers to whole grains and seeds that are directly fed to animals. Minimal processing, like toasting, is possible in this category. While it is quite common to use "un-processed" cereals and pulses, the direct feed use of oilseeds is limited. Oilseeds are normally crushed to produce vegetable oil and protein-rich meals used in compound feed.

**Co-products:** meals from crushing of soya, rapeseed and sunflower, and other protein-rich materials, by-products resulting from processing of arable crops:

- Oilseed meals: Within the category of oilseed meals, a distinction is made between soya bean, rapeseed, sunflower and other oilseed meals such as palm kern or linseed. For soya bean, rapeseed and sunflower, the sheet differentiates between meals from European sourced beans and seeds, meals from imported beans and seeds crushed in the EU, and meals imported to provide additional market insight.
- Other co-products: This category includes a broad variety of protein products (e.g. corn gluten meal, corn gluten feed, wheat gluten, wheat feed and potato and pea protein). In addition, Distillers' Dried Grains with Solubles (DDG) is mainly a co-product from ethanol production, while wet distillers' grain is a co-product from beer brewing. Wheat bran is a co-product from the milling industry and beet pulp and molasses are co-products from the sugar sector.

**Non-plant based sources:** fishmeal, whey powder, skimmed milk powder, processed animal proteins, and former foodstuffs. For processed animal proteins and former foodstuff, only figures on supply and feed use are available, there is no data on trade.

**Roughage:** grass, silage maize, and fodder leguminous. Roughage is the most important source of protein, predominantly for ruminants. Roughage is mainly produced and directly used on farm; production figures are calculated on area and yields. Therefore, the figures displayed in the balance sheet are based on yield estimates and not on actual production figures.

## DATA ELEMENTS AND SOURCES

The 'EU Feed Protein Balance Sheet' provides for each protein source data on the following elements:

### EU production

- Data from EU balance sheets for cereals, oilseeds, protein crops and sugar (produced by DG AGRI) are used for production figures of crops, oilseed meals (soya beans, rapeseed and sunflower), DDGs, wheat bran, beet pulp and molasses;
- For other oilseed meals (palm kern meal, linseed and other oilseeds) data is used from an external source (Oilworld);
- EUROSTAT database for whey powder and skimmed milk powder;
- EUROSTAT database for roughage production (data on 'temporary grassland', 'silage maize', 'legumes harvested green' and 'permanent grassland');
- Industry data on production of protein from the starch industry, brewing industry and fishmeal.

**EU trade** on imports and exports is extracted from the EUROSTAT – COMEXT database for trade data.

**Total EU domestic use** for feed, food and industrial purposes equals EU production of the protein source plus its imports minus its exports.

**EU feed use** (including the quantity of EU origin) is based on coefficients from literature and stakeholders' expertise.

**Protein content** is based on coefficients from literature and stakeholders' expertise. This data is an average value since protein content is subject to annual and regional variations.

**EU feed use** in crude proteins is a result of multiplying feed use by protein content. This facilitates the analysis and permits comparisons. It also defines the importance of a particular source in the overall protein feed supply.

**Percentage (%) of feed use of EU origin** illustrates the self-sufficiency of each source and for the total feed use in the EU.

**Percentage (%) of total feed** use illustrates the importance of a particular source in the overall protein feed supply.

## PROTEIN CONTENT CLASSIFICATION

In the feed sector, it is common to differentiate between protein levels. In cooperation with stakeholders, the following classification has been included in the balance sheet:

- Low-pro: less than 15% protein content;
- Medium-pro: 15-30% protein content;
- High-pro: 30-50% protein content;
- Super-pro: over 50% protein content.

## LIMITATIONS

There is only limited inter-changeability between proteins from different categories, for instance between proteins from cereals and roughage and proteins from soya meal. Due to its amino acid characteristics, soya protein is used more efficiently than other plant proteins in animal nutrition. Moreover, roughage is mainly suitable as feed for ruminants and not for pigs and poultry.