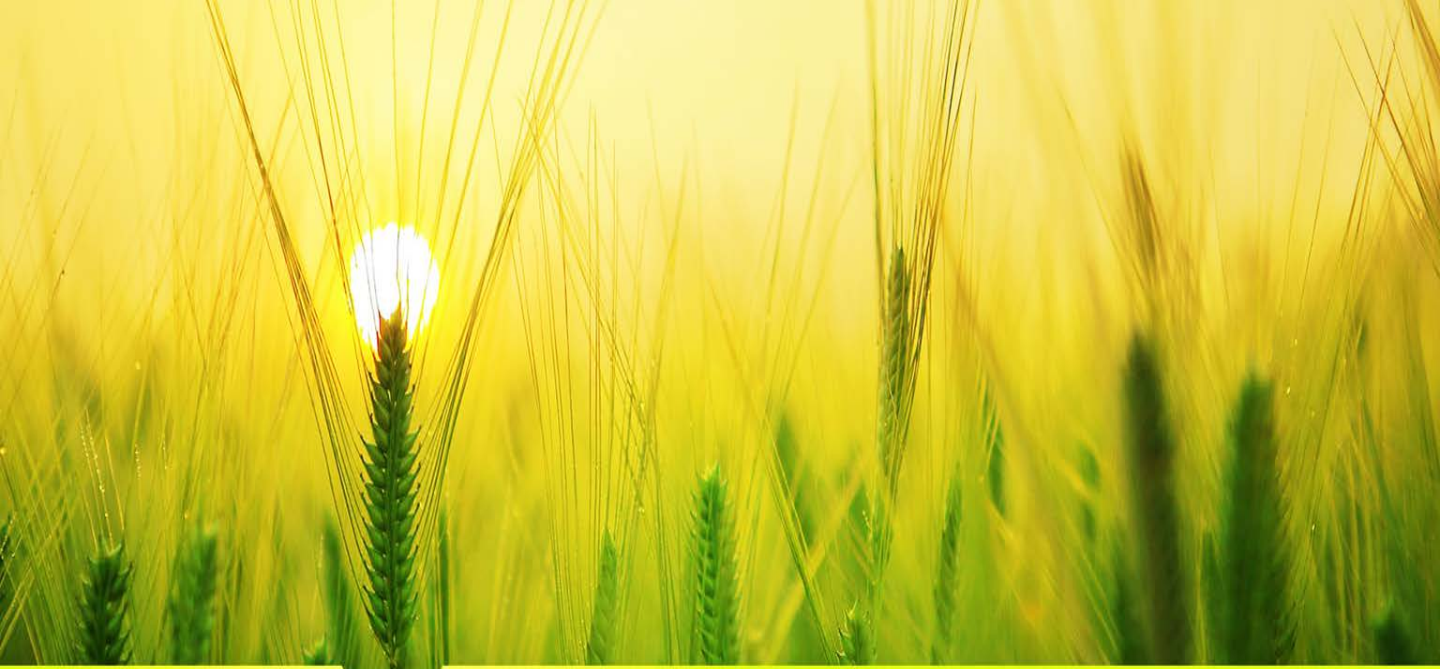

Food Balance Sheets (FBS)

Feed

Food and Agriculture Organization of the United Nations

Learning Objectives

At the end of this session, the audience will know:

a) Different data sources for feed

b) Recommended approach for Imputation and estimation of feed

Food and Agriculture Organization of the United Nations

Outline

1. Definitions
2. Data sources
3. Imputation and Estimation

Food and Agriculture Organization of the United Nations

1. Definition

1. Definitions

Feed = quantities of commodities (both domestically produced and imported) that are available for feeding to livestock.

- Many commodities that are used as feed are byproducts of industrial processes (examples oilcake, dregs, or distiller's dried grains with solubles (DDGS))

- While they are included in initial calculations most will not be aggregated up to the primary commodity level in order to avoid double counting.

2. Data Sources

2. Data Sources

Official data sources

Feed can be sourced from a variety of actors. Thus, having an accurate picture of aggregate feed production can require various types of surveys.

examples:

- questions can be added to **farm-level surveys** about own production reserved for feed;
- feed compounders can be surveyed as to their output, and pasture resources can be **estimated using a variety of methods**;
- then **ad-hoc surveys** on feed use.

NOTE THAT:

Official data on feed production must be cross-checked against actual livestock feed demands, in terms of (i) total energy and (ii) total protein requirements.

2. Data Sources

Alternative data sources

And if official data are incomplete or not available?

- Some unofficial data sources may also exist.

1) Measurement or estimate of the quantity or proportion

It is likely that commodity interest groups would either have some measurement or estimate of the quantity or proportion of their particular commodity that is being used as animal feed.

2) Livestock associations

Livestock associations may publish data on feed usage, or may be able to at least provide some indication as to the composition of feed rations for certain animal groups.

→ While these information may be an approximation, it could still be useful for estimating overall feed use, and feed use of a given individual commodity.

2. Data Sources

Imputation and estimation

REMEMBER THAT:

- feed sources tend to be substitutable in animal feed rations, and
- overall feed demand will shift based on livestock populations and productivity intensity levels.

The general approach suggested here is based on the reconciliation of aggregate feed demand and available feed supply.

3 steps:

Step 1: Understanding and estimating total feed demand

Step 2: Understanding feed supply

Step 3: Allocating feed supply

3. Imputation and estimation

3. Imputation and estimation

Step 1

Step 1: Understanding and estimating total feed demand

Total feed demand is a function of

(i) the total number of animals, and

(ii) the nutritional needs of those animals (both in terms of total energy and protein).

Total required feed demand, FD:

$$FD = \sum_i N_i * e_i$$

Where:

Ni = number of animals belonging to species i

ei = energy required per animal for species i

3. Imputation and estimation

Step 1

NOTE THAT:

- The amount of energy required per animal can vary widely even within species, depending upon
  - (a) the characteristics of the animal and
  - (b) the type of the production system.
- This imputation method estimates feed demand only for non-forage commodities
- At the same time, the supply of forage crops are necessary for the calculation of total feed supply under this method

3. Imputation and estimation

Step 1

Suggestions to accurately estimate feed demand:

a) Understand the different livestock production systems in practice in the country for each species.

b) Attempt to estimate the number of animals for each animal species raised in the country and the number of animals raised under each identified production system (including animals raised under nomadic or transhumant systems).

c) Determine the "average" animal's feed requirements for each production system.

d) Sum the feed needs of all animal species, both in terms of energy and protein.

3. Imputation and estimation

Step 2

Step 2: Understanding feed supply

a) An inventory of all of the products that are potentially used for feed in the country

b) An analysis or ranking of which commodities are most likely to be used for feed demand

NOTE THAT:

many byproducts from food processing can be assumed to be utilized exclusively as feed in the FBS setting (e.g. bran or fruit pulp).

3. Imputation and estimation

Step 2

c) After all commodities used as feed have been identified, the work of allocating supplies to match with the feed demand calculated in Step 1 can begin:

1. any official data on feed use should be recorded, converted to their total energy/protein equivalents (by multiplying quantities reported in MT by their unit dietary values), and subtracted from the total feed demand estimated in Step 1;

2. residual use (production net of trade) of commodities only used for feed (including forages, bran, and pulps) are considered;

3. These volumes should be converted to energy/protein equivalents and subtracted from the remaining total feed demand.

3. Imputation and estimation

Step 3

Step 3: Allocating feed supply

The final step is to allocate the remaining feed demand to available commodities.

- The recommended approach: assemble a technical working group to discuss the most likely feed commodities, and distribute feed demand amongst them accordingly.
- Alternatively, FBS compilers can use whatever information is gathered in the initial feed inventory at the beginning of Step 2, and allocate feed demand accordingly based on the ranking of which commodities are most likely to be used as feed.

References

- *Guidelines for the compilation of Food Balance Sheets* (FAO, 2017), chapter 3.5, section 3.5.6 (Global Strategy & FBS Team)
- *The FAO source book for the compilation of Food Balance Sheets* (FAO, 2016) (Global Strategy & FBS Team)

THANK YOU!

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