Different ways of processing and their impact on soy

1) Ways of processing soy

- Extraction: by steam heating, dehulling, solvent mixing and extraction, soybean extract is produced
- Toasting: toasted full-fat soybean is made by heating raw soy
- Toasting and pressing: soy pressing cakes are made by dehulling, heating and pressing
- Extrusion: soy pressing cakes are made by crushing, eventurally dehulling, by extrusion and pressing

2) Difference between soy extrate and soy pressing cakes

Soy extracted scrap has a residual oil content of 1 - 3%. To obtain a low residual oil content, a chemical solvent (hexane) is used. Depending on the quality, the protein content ranges from 42% (paddy beans) to 48% (dehulled beans).
Given the high humidity (approximately 13%), storage for more than 2 months is problematic, especially in summer.

Toasted full-fat beans have residual fat between 18 and 22 %. Protein content ranges from 36 to 40 %, moisture is around 9 %. Due to the high fat content, storage time is limited.

Soy pressing cakes have a residual oil content of 7 to 12%, depending on type of processing. Oil is obtained by purely mechanical processes without the use of chemicals. The protein content in soy pressing cakes is between 42 and 49%. Moisture is about 9% and because of the low fat and moisture content of the pressing cakes, the storage time is several months under suitable conditions.
Our soy pressing cakes have a protein content of 47-49% after the extrusion. The net fat content is approximately 7.0%, the fiber content is about 3.5% and the moisture content is about 6 to 7%.

3) Extrusion of soybeans – Company Grossschedl

- The term extrusion:
  Extrusion is a process that moves the material, heats it by compression and then compresses it (cold pressing). Mechanical and thermal processing in the extruder leads to a significantly better feed quality.
- Advantages of extrusion:
  - Good usability by mechanical shredding. Expansion at the extruder outlet disturbs the internal structure of the material, facilitates digestibility, and generates a porous feed structure, making nutrients in the digestive system more readily available.
  - Short-term heating under pressure inside the extruder causes very efficient protein transformation and therefore an increase in the energy value of the feed.
  - Soy extrusion results in a significant reduction in urease activity levels.
  - By temperature and pressure, the content of the germ particles is noticeably reduced. This ffectively fights the bacteria, fungi and other pests. Formation of

mold and subsequent mycotoxin production stops.
    - Improvment of the digestibility of feed by removing starches and sugars.

- Use of our products:
    - Full-fat soy: most suitable for pigs and nursing sows.
    - Pressing cakes: suitable for all livestock
    - Soy pressing cakes for ruminants (cattle, sheep, goats): The protein fraction is protected from the rumen environment and is digested in the small intestine. This leads to better use of protein in the digestive tract, not only in rumen!
    - Filtered soy oil: the best results of all polyunsaturated fatty acids ingredients (comparable to linseed oil) and vitamin E content.
      This oil is ideal for frying, cooking and baking cakes and other sweet pastries.
    - Better digestibility and lower consumption of feed come from extrusion.

Using extruded soy pressing cakes in feed, thanks to lower feed volume and animal living conditions is economical and at the same time you get the best quality!

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