

Sunflower oil cake

Problem

Sunflower oil cake is a high protein and fat feed source for livestock. It is a by-product obtained from the extraction of oil from sunflower seeds. It can be obtained by mechanical pressing resulting in a „cake“ (see Figure 1) containing 15-20 % oil or by solvent, which increases the quantity of oil. In organic farming, oil may only be extracted by mechanical pressing.

The quality of the oil depends on plant characteristics and on the processing.

Solution

The quality of the product can be increased by first de-hulling the seeds. This improves the pressing capacity as well as the oil and meal quality. Mechanical extraction is used by producers of speciality oils and smallholder farmers in both developed and developing countries.

Benefits

An advantage over soybean is that is generally not genetically modified so it is easier to include in organic feeding. Sunflowers can be included in the crop rotation (Pantipa Na Chiangmai et al., 2014).

Practical recommendation

Oil presses are used for the mechanical extraction of oil from oilseed crops. The procedure to obtain oil cake is as follows:

- The seeds are delivered to the press where they are crushed and squeezed.
- Under pressure, the oil leaks through the press holes and gathers into the oil repository underneath the press.



Figure 1: Organic sunflower oil cake. Picture: Savi Italo at saviitalosrl.com

Applicability box

Theme

Processing and handling of harvested feed

Context

Global, dry climate

Application time

After harvesting

Required time

It depends on the press machine.

Period of impact

Sequential cropping

Equipment

Oil press

Chemical characteristics of sunflower oil cake - Data Sheet

Analysis	Range	Unit of measurement
Moisture	10-12	%
Protein	26-29	%
Fat	11-13	%
Ash	4-5	%
Fibre	23-26	%

Figure 2: Technical sheet of organic sunflower oil cake. Source: Savi Italo at saviitalosrl.com

- The oil is filtered to remove any solids, which are then cleaned of unwanted substances.
- Together with the oil, an oil-rich press cake is produced.
- After the oil cake has been removed from the press, it is cooled down. It can be stored for up to 3 months.
- This procedure is a current processing technique that produces a good quality oil cake (see Table 1).

In terms of feeding, sunflower oil cake plays an important role in monogastric diets due to its high methionine content, similar to soy cake. It has a high fiber content; the well-structured raw fibre has a positive dietary effect on pigs. Its use in the finishing phase has to be limited because of the relatively high proportion of polyunsaturated fatty acids (PUFA), which can lead to an undesirable soft fat consistency in the carcass if the dosage is too high.

Further information

Video

- The video "[Oil press SP-1000 2015](#)" at shows the process of oil extraction and cake production.

Further readings

- Heuzé V., Tran G., Hassoun P., Lessire M., Lebas F. (2019): [Sunflower meal](#). Feedipedia, a programme by INRA, CIRAD, AFZ and FAO. Available at <https://www.feedipedia.org/node/732>. Last updated on September 25, 2019, 14:17
- Kartika, I. A. (2005): Nouveau procédé de fractionnement des graines de tournesol: expression et extraction en extrudeur bi-vis, purification par ultrafiltration de l'huile de tournesol. Thèse de doctorat. Institut national polytechnique de Toulouse, spécialité: Sciences des Agroressources.
- Pantipa Na Chiangmai et al. (2014): [Sunflower: A potential crop for rotating with rice in small farm setting](#). Available at https://www.researchgate.net/publication/264234313_Sunflower_A_potential_crop_for_rotating_with_rice_in_small_farm_setting

Weblinks

- Website of the [oil press supplier Bronto](#) with a selection of presses.

About this practice abstract and OK-Net EcoFeed

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