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# Peas

PURE QUALITY

**Peas** are a versatile addition to human- and animal diets. This GMO-free legume is high in energy, palatable and easily digestible. With high protein- and amino acid levels, while being low in fat and fibre pea seeds make for an excellent replacement for soybeans.

# PEAS

**Peas** are one of the biggest legume fodder crops cultivated in the world. Pea plants are fast-growing, green plants with mostly white waxy blooms. With a high genetic diversity, the plants produce protein-rich pea seeds, which are used both in human- and animal consumption. The plant itself can be used as a fibrous fodder for animal feed.

As the plant structure is similar to most forage crops, photosynthesis within the plant traps carbon dioxide, making peas a beneficial yielding cover crop with a low impact on the environment. With overall protein yield of peas and their reduction of carbon dioxide, it is an environmentally beneficial alternative to more traditional sources of protein such as meat - for which the animals produce carbon dioxide - or soybeans, requiring vast amounts of fresh water compared to the drought resistant pea plant.

In rotations peas are a valuable crop due to their cultivation breaking cereal disease cycles, facilitating weed control and moreover increasing soil condition and fertility. This increase in fertility results from the plant's characteristic to extract nitrogen from the air and to fix it in the soil, allowing for the cultivation following the harvest to benefit from soil conditions with an estimated reduced requirement for fertilisers up to 50 kg/ha.

Dried pea seeds have a fibrous and robust seedcoat, which make them easy to transport and store, with a shelf-life over one year without any reduction in nutritional aspects. Aside from direct use of fresh- or dry peas as a food, the human consumption applications of the crop mainly constitute the splitting or processing of the seed. By taking off the seedcoat and processing the starch- and protein-rich kernel, pea protein concentrate powder and structures are obtained.

These powders and structures are further utilised in the production of protein-rich meat replacers and provide a solid basis for the increasing range of vegetable protein products available. Where in the early stages similar products have predominantly been extracted from soybeans, the protein derivates as obtained through pea processing do not have any allergenic effects and are gluten-free.

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# Yellow Peas

The natural abundance of variety in pea strains allows for an easy growing plant with a high resistance towards drought and cold, removing any requirement for genetic modification, leading to a GMO free product.

Where applications of pea seeds in human consumption are very diverse and specialised, peas are also a very important part of animal feed diets. With possibilities to be fed directly, in combination with other feed materials, pea seeds offer a multitude of nutritional benefits for compound feed manufacturers as well. Being low in fat and fibre, pea seeds are a highly palatable and easy digestible protein source, offering an excellent amino acid balance and providing a ton of energy.

The energy source of peas is attributed to the high levels of starch in the seed's kernel, which is produced by conversion of sugar as part of the plant's photosynthesis process. Starch levels in peas show a strong inverse correlation to protein content. At 22 percent of protein, starch levels are approximately 45 percent. The remnant of the sugar amounts to a further five percent, making up for the overall energy potential of the peas.



With reference to the energy distribution, peas have a very high digestibility in pig diets. As starch is the main basis of the energy for peas, pigs are able to efficiently consume about 99 percent of the energy capabilities of the product.

In line with the high digestible energy, peas offer a vast protein base with a well-balanced amino acid pattern. The main amino acid peas are known and well-valued for is lysine, which is mainly found in legumes. While the body is not naturally producing this amino acid, it is vital for growth and meat quality to obtain this from the animal's feed.

Peas are mostly used and favoured in Pig diets in combination with rapeseed meal. Where the peas add lysine to the diet, it does lack the amino acids methionine and cystine, which are abundantly available in rapeseed meal. Where soybean meal is generally regarded as the optimal source of lysine and protein combined, peas have a higher concentration of lysine, with the difference of being unprocessed, non-GMO, non-allergenic and readily available within Europe, presenting themselves as a more sustainable option environmentally and financially.

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In poultry, the relative energy obtained from peas is approximately 80 percent due to a lower digestibility of legume starch. The combination of sufficient energy supply and proper protein source make peas a very economical ingredient for poultry. Further processing peas in a hammermill could be an option to further enhance the intercellular starch and increase digestibility. As for poultry the main limiting amino acids are methionine, cystine and tryptophan, it is important to ensure poultry feed containing peas are appropriately balanced for these amino acids.

The high rumen degradable protein and lower rumen degradable starch is highly soluble and advantageous for ruminant feeds, providing a more sustained release of nitrogen, improving the rumen microbial growth. In high concentration pea diets, the ruminal degradation is similar to that in corn, but much slower than that in wheat, oats and barley. This slow starch degradation helps control the rumen PH levels, especially in animals that are fed large amounts of grain, reducing the risk on acidosis. Stable PH levels further allow for a higher dry matter intake, positively impacting milk production and the butterfat percentage within.

In aquaculture, peas are an economic solution for species that have an intermediate requirement for energy and protein. Heat treatment further enhances nutrient and energy digestibility.

# Specifications

| | | | |
|---|---|---|---|
| Moisture | Abt. 13,0% | Sugar | Abt. 5,0% |
| Protein | Abt. 22,0% | Fat | Abt. 1,5% |
| Starch | Abt. 45,0% | Ash | Abt. 2,0% |
| Fibre | Abt. 6,0% | Metabolizable energy | 12,5 MJ/kg |



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