

Use of organic Camelina in laying hen feed

Problem

Soya bean is a major source of protein for laying hens, that cannot be cultivated everywhere and is unbalanced in terms of amino acids contents. An alternative, Camelina, contains interesting types and amounts of omega 3 fatty acids and tocopherols (Vit. E).

Solution

To use camelina cake as partial replacement of soya bean cake in laying hens feed and the addition of camelina oil to improve hen health and egg quality (Figure 1).

Benefits

To diversify hens' diet with a locally grown crop that can improve the quality of feed in terms of amino acids balance, omega 3 fatty acids and antioxidants content that improve hen health and productivity (Figure 2).

Practical recommendation

Camelina cake, on average, has 34% protein and 10% fat. The protein includes 38% of essential amino acids with a 2,65% of methionine. In the oil omega 3: omega 6 is 2:1.

Camelina can be included in the laying hens diet up to a maximum of 10% (due to anti-nutritional factors that, with higher contents, can affect animal health). In the practical trial, 3,5% of camelina cake replaced the same amount of soya bean cake (Figure 3). 1,5% of camelina oil was also added to the feed. Later trials support the possibility to increase the percentage of camelina cake and, with specific varieties characterized by low anti-nutritional factors, potentially no limits need be set.

The trial indicated that camelina cake and oil can be fed through the whole hens' productive life cycle and, compared to the usual feed (based on soya bean cake), resulted in:

- no negative effects on laying parameters (number of eggs, dimension of eggs etc.)
- no negative effect on physical egg parameters (i.e. albumen viscosity does not change; the shell is reported to be more resistant)
- higher omega 3 contents in eggs (Figure 4).
- longer productive life of hens.

Overall, the value of the eggs was increased, the production costs decreased and animal welfare improved.

Applicability box

Theme

Layers, Broilers

Context

Northern Italy

Application time

All hens' life cycle

Required time

Usual feeding practices

Period of impact

All hens productive cycle

Equipment

No specific needs

Best in

Good alternative or complementary feed to soya bean cake.



Figure 1: Laying hens. Photo: Cristina Micheloni, AIAB.



Figure 2: Laying hens. Photo: Cristina Micheloni, AIAB.



Figure 3: Camelia cake. Photo: Cristina Micheloni, AIAB.



Figure 4: Eggs enriched with camelina. Photo: Cristina Micheloni, AIAB.

Further information

Video

- Check the video "[Cultivation, processing and use of camelina for organic layers feed](#)"

Weblinks

- Check the [Organic Farm Knowledge](#) platform for more practical recommendations.

About this practice abstract and OK-Net EcoFeed

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