

News & Comments

Effect of Hemp Seed Cake (HSC) on Egg Quality in Commercial Laying Hens*Munir Anjum*

Cannabis sativa L., an annual herbaceous plant in the Cannabinaceae family, is commonly farmed for its seeds and fibre. Polyunsaturated Fatty Acids (PUFA) make up 75-80% of hemp seed oil, including 60% linoleic acid and 17-19%-linolenic acid (ALA). The nutritional makeup of hemp products shows that these substances could make valuable additions to livestock feed. Because there isn't enough evidence to support the safety and effectiveness of Hemp Seed Cake (HSC), it hasn't been approved for use in diets for any class of livestock in the United States.

The goal of the current study was to determine the impact of increasing dietary HSC levels on exterior egg quality indicators such as egg weight, egg mass, eggshell strength, and eggshell thickness.

The study was conducted at a commercial layer farm in Lancaster County, PA. A part of the commercial layer farm was ear-marked for the study. Based on the inclusion levels of HSC, 400 Bovan white caged hens in lay, 30 weeks of age, were divided into 4 treatments, each with 200 chickens. The cages were weighed individually for beginning weights to create population uniformity across treatments. Hens were then moved across cages to maintain a total body weight differential below 2.5%. In all treatments, study hens had a constant limited feed intake of 25 lbs/100 hens per day. By applying quasi-static compression with an Egg Force Reader device at least 24 hrs after collection at room temperature, eggshell breaking strength was ascertained. SAS was used to examine every parameter, excluding the heavy metals for HSC and cannabis.

For most of the trial, the egg weights from different treatments stayed within the allowed range of breed variance, with sporadic but inconsistent tendencies to increase with inclusion levels of HSC. Egg yolk pigmentation scores demonstrated a favourable effect of HSC feeding, albeit the trend was erratic. Although the exterior egg quality measures in the current study appeared to change at week 3, the treatment difference over the control group was not significant. Throughout the 16-week trial, all groups, including the control, had a drop in egg mass that was uncharacteristic of the breed, but there was no statistically significant trend or pattern. The high amounts of HSC in eggs may be responsible for their high quantities of essential fatty acids (Omega 3 and 6) and unsaturated fatty acids (Omega 3 and 6). This improvement in the nutritional profile of eggs results from the reduction in Omega 9 and saturated fatty acids. The lack of relevant published literature prevented a cross-verification of this finding, which adds to the body of knowledge now available about the safety of HSC feeding to laying hens. According to laboratory chromatographic techniques, the hemp cannabinoid levels in eggs were



reported to be below the detectable levels of 0.0025% and below the legal limits of 0.3%.

The current study found that dietary HSC up to 30% in layer feed had no negative effects on egg weight and mass and had adequately assessed and captured the effect of HSC on egg quality in commercial laying hens. Up to 30% of dietary HSC increased the amounts of omega 3 and 6 fatty acids and decreased their ratio while not affecting the eggs' heavy metal and cannabis residue profiles.

JOURNAL REFERENCE

Rajasekhar Kasula, Fausto Solis, Byron Shaffer, Frank Connett, Chris Barrett, Rodney Cocker and Eric Willingham, 2021. Effect of increasing levels of dietary hemp seed cake on egg quality in commercial laying hens. *Int. J. Poult. Sci.*, 20: 48-58.

KEYWORDS

Hemp seed cake, eggs, tetrahydrocannabinol, cannabinoids, laying hens

