

Research Note

INFLUENCE OF TUNA FISH OIL ON PALATABILITY AND ODOR OF EGGS¹

The objective of the present study was to determine whether tuna fish oil supplementation of chicken feed up to 6% affected the odor or the flavor of the eggs.

Eggs produced by hens that were fed diets containing 0, 2, 4, and 6% tuna fish oil, were stored under refrigeration for not over 7 days and then evaluated by trained panels. Four different tests were conducted in 1968 for flavor (with soft boiled eggs) and four for odor (with opened raw eggs). Table 1 summarizes the results obtained.

The data presented in table 1 indicates that the panels did not detect any undesirable fishy flavor or odor in three out of the four flavor tests, and in all four odor tests, even when levels as high as 6% tuna fish oil were used to supplement the diets.

TABLE 1.—Average ratings of a panel evaluation of eggs from hens fed diets containing different levels of tuna fish oil¹

Evaluation	Level of tuna fish oil (% of diet)			
	0	2	4	6
Trial Number				
Flavor-1	+1.2	+1.2	+0.5	+0.6
Flavor-2	+1.2	+1.2	+1.2	+1.0
Flavor-3	+1.7	+1.1	+1.3	+1.0
Flavor-4	+1.2	+1.3	+1.2	0.0 ²
Odor-5	+1.2	+1.2	+0.9	+1.0
Odor-6	+1.1	+1.1	+1.3	+0.8
Odor-7	+1.3	+1.3	+0.9	+0.9
Odor-8	+1.2	+0.8	+0.8	+1.0

¹The rating scale was as follows: Very acceptable +2; acceptable +1; questionable 0; slightly unacceptable -1; not acceptable -2.

²All groups in this test differed significantly ($P = .01$) from the group receiving 6% tuna fish oil. There were no statistical differences in the other seven evaluations.

Detection of off-flavors by one of the panels occurred in test number 4, in eggs from the diet containing 6% tuna fish oil.

Soldevila et al.² did not detect off-flavors or fishy odors in meat from birds receiving levels of tuna fishmeal as high as 24% in their diets.

¹Manuscript submitted to the Editorial Board August 15, 1975.

²Soldevila, M., Lefebre-González, L., and Morassi, J. A., Palatability of meat from chickens raised on diets containing different levels of tuna and meat meals, Evaluation by a trained panel, *J. Agr. Univ. P.R.* 54(1): 50-6, 1970.

Furthermore, Soldevila et al.³ established that in diets for laying hens, levels of tuna fishmeal as high as 18% may be used without affecting the flavor or the odor of the eggs produced.

Soldevila⁴ determined that tuna fishmeal contains an average of 5% oil. Thus, even in a diet that contains 24% of tuna fishmeal, the maximum required in complementing the cereal base when formulating a laying diet that contains 15 to 18% crude protein, it will only contain approximately 1% tuna fish oil. This would be a negligible level that should not cause any adverse odor or flavor effects in the eggs produced.

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³Soldevila, M., Rojas-Daporta, M., and González, L., Effect of different combinations of tuna fishmeal, meat meal with bone and soybean meal upon the laying intensity, egg quality and utilization of feed by hens, *J. Agr. Univ. P.R.*, 60(4): 626-30, 1976.

⁴Soldevila, M., Amino acid content and nutritive value of tuna (*Thunnus* sp.) fishmeals relative to their crude protein content. *J. Agr. Univ. P.R.* 54(3): 582-4, 1970.