

Dried distillers' grains with solubles changes egg yolk color without affecting egg production when included at 5 to 15 percent of a corn-soybean meal diet.

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Dried distillers' grains with solubles (DDGS) was obtained from an ethanol plant in Michigan and fed at 0, 5, 10, or 15 percent of a corn-soybean meal diet to Hy-Line W36 hens to determine if egg production or yolk color would be affected. In trial 1, diets were fed to 6 rows of 40 birds each (4 birds/cage) from 48 to 56 wk of age. Xanthophyll content was 29.9 mg/kg in the DDGS which had a light color. Egg production was analyzed weekly. Egg specific gravity and weight were determined biweekly with 30 eggs/row. Twelve eggs per row were broken out and yolk color was determined with a 1965 Roche Yolk Colour Fan. The hens were fed the control diet for 9 d before beginning trial 2 (hens-57 to 62 wk of age) using DDGS from the same source. Diets were reallocated among rows and similar measurements were taken as in trial 1. Xanthophyll content was 3.5 mg/kg in trial 2 in which DDGS had a dark color. A ME value of 2750 kcal/kg was used for DDGS in both trials. Yolk color of 10 eggs/row was measured after 3 wk with a Minolta chromometer in trial 2. There was a linear decrease ( $p=0.007$ ) in egg production as DDGS increased during Wk 6, but there was no effect in 8 of 9 wk in trial 1. Specific gravity was decreased linearly ( $p=0.013$ ) as DDGS increased during Wk 4, but there was no effect at Wk 2, 6 or 8. Egg weight was not affected. Yolk color was increased linearly ( $p<0.01$ ) as DDGS was increased in the diet throughout trial 1. In trial 2, DDGS did not reduce egg production, egg weight, or egg specific gravity through 5 wk of production. Lightness ( $L^*$ ) and yellowness ( $b^*$ ) of yolks were not affected, but redness ( $a^*$ ) was increased linearly ( $p<0.001$ ) by increasing levels of DDGS. In general, the results show that up to 15% ethanol-derived DDGS can be fed to laying hens without reducing egg production or quality. Differences in yolk color were detected subjectively when DDGS was light and objectively when DDGS was dark.

Key words: Dried Distiller's Grains with Solubles, Layer, Yolk Color