

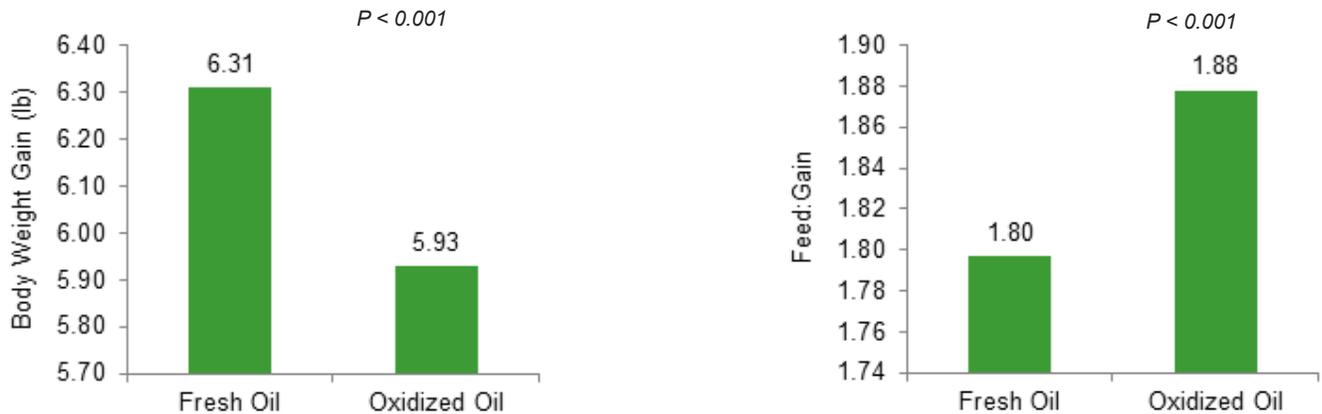


How Can Oxidation Effect Broiler Growth

Lipid oxidation can be a main factor in the reduction of feed and fat quality. Lipid oxidation is defined as the irreversible destruction of unsaturated fatty acids in the presence of oxygen. The oxidation process is initiated when fat is exposed to oxygen, metal ions, heat, enzymes, and light. As oxidation progresses, primary and secondary products of oxidation are created. This process can create off-flavors, reduce energy content of feed, and damage vitamins and proteins.

Feeding diets containing oxidized fats and oils has shown to reduce the growth performance of broilers.

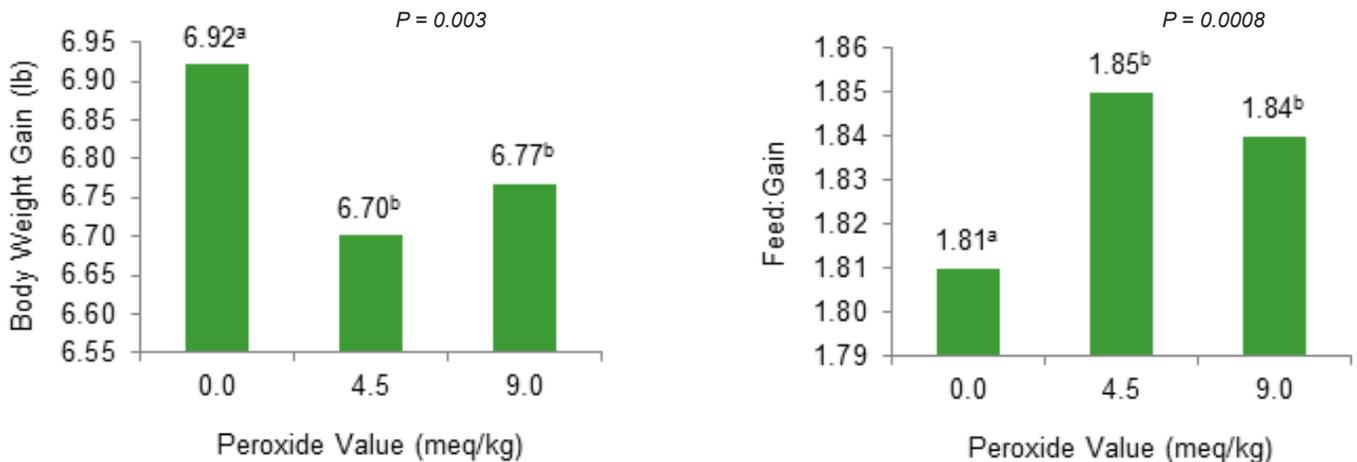
Figure 1 and 2. Effects of feeding diets containing either fresh (Peroxide Value < 1 meq/kg) or oxidized (Peroxide Value = 7 meq/kg) soybean oil, on body weight and feed efficiency of Ross 308 Broilers (1-39 d).¹



* Main effects of oil quality in a factorial arrangement that included 2 levels of antioxidants (0 vs 135 ppm).

** Oil inclusion level = 3 and 4% for d 1-10 and 11-39, respectively.

Figure 3 and 4. Effects of feeding diets containing 3% or 6% animal/vegetable blend oxidized at three levels on body weight gain and feed efficiency of Ross 708 Broilers (1-49d).²



* Main effects of oxidation level in a factorial arrangement that included 2 levels of antioxidants (0 vs 125 ppm).

** Oil inclusion level = 3 and 6% for week 0-3 and 3-7, respectively.

In both trials, feeding diets containing oxidized oils significantly reduced body weight gain and feed to gain ratio. In order to prevent this reduction in growth performance associated with lipid oxidation, an antioxidant system needs to be introduced in the diet.

Control Oxidation with a Kemin Antioxidant System

To prevent the negative effects of productivity associated with lipid oxidation, an antioxidant system should be used. An antioxidant system should contain a combination of the following:

- Synergistic blend of antioxidants to absorb free radicals before they destroy fatty acids.
- Metal chelators to bind metal ions, which may form free radicals.
- Oil-based carriers to better assimilate with fat molecules.

RENDOX®

When treating ingredients, identifying the correct antioxidant for your application can be the difference between success and failure. The RENDOX line of liquid antioxidants is formulated specifically for treating commonly used rendered fats and oils.

Benefits

- Maintains optimal nutritional value and palatability of the ingredient.
- Low ethoxyquin inclusion and ethoxyquin free products.
- Complete system containing antioxidants and chelators in an oil carrier.

Packaging and Conditioning

20-25 kg drum, 180-200 kg barrel, and 900-1000 kg IBC. Store in a cool, dark place and keep container closed when not in use.

ENDOX®

Stabilizing feed and premixes is important for maintaining energy and nutritive value. By adding an antioxidant system such as ENDOX dry, you can lower the oxidative stress provided to the animal through the feed.

Benefits

- Maintain optimal nutritional value and palatability of feed or premix.
- Complete system containing antioxidants and chelators.
- Unique production process coats each particle with antioxidants.

Packaging and Conditioning

50 lb. multi-layer bag. Store in a cool, dry place and keep container closed when not in use.

References:

¹Tavarez M.A., D.D Boler, K.N. Bess, J. Zhao, F. Yan, A.C. Dilger, F.K. McKeith, and J. Killefer. Effects of antioxidant inclusion and oil quality on broiler performance, meat quality, and lipid oxidation. *Poultry Science* 90:922-930, 2011.

²Mcgill J., E. McGill, A. Kamyab, and J.D. Firman. Effect of high peroxide value fats on performance of broilers in a normal immune state. *International Journal of Poultry Science* 10 (3): 241-246, 2011.

