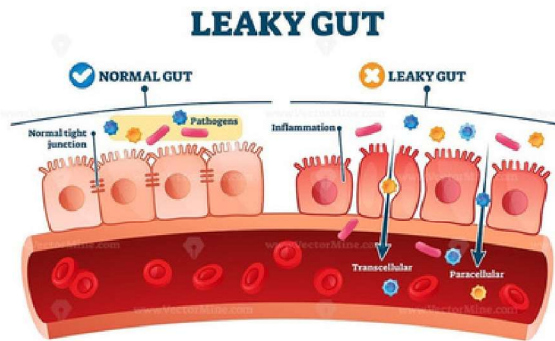


July and August bring seasonally high daily temperatures that can cause heat stress in our birds. Whether prolonged heat spells or spiking heat intervals, heat stress will occur to impact bird performance, health and livability.

While many modern houses have much improved ventilation to reduce the impact of heat, we still have many operations where birds are not as fortunate. During such periods of heat stress, blood flow is diverted from the gut to the periphery in an attempt to dissipate heat.

- This leads to a degradation of gut epithelial tissues causing a condition called "leaky gut".



- The tight junctions between the intestinal cells become damaged and their "barrier function" is destroyed. Consequently, the contents of the gut lumen (pathogenic bacteria, viruses, toxins, mycotoxins) will now be able to pass into the blood stream and circulated to body tissues.
- This action causes the immune system to be challenged to respond to fight the increasing disease challenges.

Vitamin supplementation via the drinking water is commonly recommended during hot summer days.

- *WattPoultry.com (June 2011)*
 - Supplementing antioxidant vitamins is also an effective way of alleviating summer stress in poultry.
 - Antioxidant vitamins such as vitamins A (retinol), E (α tocopherol) and C (ascorbic acid) are used because of their anti-stress effects and also because their synthesis is reduced during heat stress.
 - Heat stress also impairs absorption of these vitamins (A, E and C) and thereby increasing the dietary requirement of these vitamins.
- *Hybrid Info Sheet*
 - Use vitamins or electrolytes in the water during the summer to help birds recover the loss of vitamins due to reduced feed intake.
 - The use of ascorbic acid (vitamin C) in the feed and/or in the drinking water has become a common practice during the summer months.
- *Poultry Health Today (June 2021)*
 - Adding vitamins and electrolytes to the drinking water (of layers) helps replace lost sodium, chloride, potassium and bicarbonate, but they are best administered before the development of extreme heat.

Vitamins indeed have a beneficial value to support birds during **heat stress**.

- Vitamin E is one of the most important natural antioxidants and is an excellent biological chain-breaking antioxidant that protects cells and tissues from lipoperoxidative damage induced by free radicals. It has a significant role in the development of immune response.
- Vitamin C limits the metabolic signs of stress and alleviates the physiological consequences of stress. Vitamin C enhances the antioxidant activity of vitamin E.
- Vitamin D stimulates t-cell activity to fight disease impacted cells.
- Vitamin A has an effect on the immune function of birds.

You can offer your customers a variety of vitamin supplement products. Remember that **in-VIGOR-ate** is a **VITAMIN SUPPLEMENT!**

- Contains Vitamins A, D, E & C for support of the immune system.
- Contains Niacin and Pantothenic Acid to support energy metabolism during stress. Niacin is also known to act as a vasodilator.

Attached is a list comparing vitamin products available. **HOWEVER, in-VIGOR-ate** is a **MORE COMPLETE** product because it also provides vital --

- Probiotics (Lactobacillus acidophilus & Bifidobacterium longum)
- Electrolytes to maintain hydration (Na, K & Cl)

RECOMMENDATIONS:

During periods of heat stress implement a repeated interval program of **2 days on in-VIGOR-ate followed by 2 days off**.

Save more birds! **in-VIGOR-ate them!**