



Solutionsⁿ Security: How it works

Product Description:

Security is a proprietary blend of essential oils which have demonstrated improved animal health and performance. The essential oils used are selected from different classes of compounds which research shows to work synergistically when fed to animals.

Key functions:

More simply than improving rumen fermentation, essential oils have direct effects on the animal by signaling (like turning on/off a light) various bodily functions.

- **Vasodilation** of blood vessels, especially to the gastrointestinal tract, increases blood flow and oxygen supply to cells.
- Regulating pancreatic hormones.
- Enhanced intestinal structure and gut health allowing for improved nutrient absorption
- Improved Immune function
- Feed Intake Regulator
- Water Intake Stimulator
- Works in combination with current technologies

The Science:

- Certain essential oils (EO) are commonly recognized for their effects during heat stress
 - In swine, EO has been shown to improve gut health, reduce respiration rate, and lower skin temperature during heat stress.
 - Some EO are vasodilators allowing for greater blood flow to the intestinal tract. This is critical for gut health during heat stress when blood is shunted from the body core to the extremities.

- A large pen cattle finishing study (28 pens; 3,874 cattle) demonstrated under heat stress conditions that capsicum oleoresin reduced daily variation in DMI and slightly reduced panting scores.
- Impaired gut health is a physiological concern in both cold and heat stress.
 - Cold stress disrupts the prooxidant-antioxidant balance and compromises the intestinal epithelial cell development in rats. Essential oils with their antioxidant properties should be beneficial during cold stress.
 - Essential oil supplementation increased egg production in cold stressed hens.
 - Essential oils were shown to decrease the drop in core body temperature from cold exposure in rats.

Key point: Both cold and heat stress effects go across taxonomy classes (avian and mammalian). This leap across classes demonstrates the effectiveness of essential oils for reducing thermal stress across species.

Applications:

Security should be used to:

Heat abatement

Promote gut health and repair

Maintain body temperature in cold stress

Security should be fed to:

Growing and finishing cattle

Developing replacements

Cows on summer pastures

Feeding directions:

Security is fed at a rate of 150 mg/h/d to deer and small ruminants, 300 mg/h/d for beef cattle and 500 mg/h/d for dairy cattle.

Supplement Feeding rate, lb./d	Deer, Small Ruminants	Feedlot Cattle	Dairy Cows
	Lb. Security / ton supplement		
0.25	2.7	5.3	8.8
0.5	1.3	2.6	4.4
1.0	0.7	1.3	2.2

References:

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Solutionsⁿ provides practical and cost-effective technologies that address real world production issues so that producers can produce wholesome, healthy animals that perform profitably.