

MucuSol™ & UNI-SOL®

TAG-TEAM FOR RESPIRATORY RELIEF

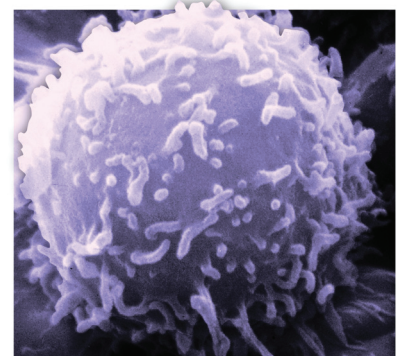
You've noticed the sunshine drifting south. Now you're trading daylight for dark as your days grow shorter and nights grow longer. Listen close and you'll soon hear the telltale sound of migrating geese, their honks filling the airways and ringing in a cooler season. It's a season that also brings vocal sounds from different airways, and if you're on the farm you won't have any trouble hearing it. Pigs coughing or thumping and poultry snicking and raling alerts you to a more threatening season- here it comes- flu season.

Cool nights, temperature swings and reduced ventilation conspire against you, setting the stage for respiratory troubles. Breathe easier though, there's a pair of products bringing pigs and poultry respiratory relief. Respiratory distress is a combination of airway inflammation and congestion caused by a multitude of infectious agents and irritants shown in the nearby table. Regardless of the infectious agent, the root causes of respiratory problems are airway inflammation and congestion. When you control inflammation and congestion, you've controlled the problem. In this case you've got two powerful problem stoppers... the top-performing anti-inflammatory Uni-Sol, and MucuSol, the market's newest and strongest expectorant. When flu or other respiratory problems threaten to plug-up your production, Uni-Sol and MucuSol clear it out with both barrels.

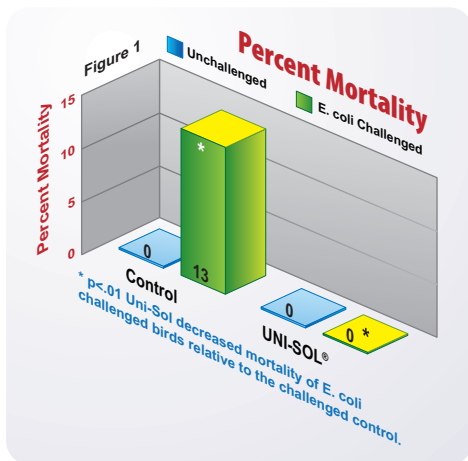
Diseases and Irritants in Pig and Poultry Respiratory Systems			
<i>Viral</i>	<i>Bacterial</i>	<i>Fungal</i>	<i>Other</i>
Influenza	Mycoplasma	Aspergillosis	Dust
Bronchitis	Bordetella		Noxious gas
Laryngotracheitis	Pasteurella/Actinobacillus		
Newcastle/Paramyxovirus	E. coli		
PRRSV	S. cholerasuis		
Pseudorabies/Aujeszky			

Tackle prostaglandins and inflammation

Injured airway tissues respond by releasing prostaglandins, responsible for the problems you see like fever, fluid accumulation, swelling and congestion. Prostaglandins also create problems you don't immediately see. Prostaglandins suppress immunity; they depress white blood cell and antibody production. In addition to its traditional use as a potent anti-inflammatory, Uni-Sol at higher doses blocks harmful prostaglandins. This means Uni-Sol not only relieves redness, fever, edema and swelling, it also supports healing by opening the gate to allow more natural defensive white cells into the fight. The types of white cells that respond best to Uni-Sol are lymphocytes, the specialized ones that create memory, recognize pathogens and rally protective antibodies.

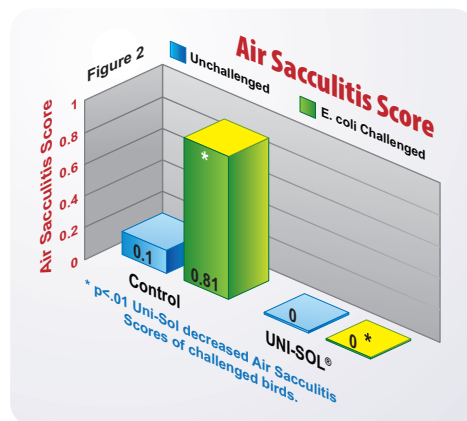


Lymphocytes like this one create the body's memory to attack invading pathogens

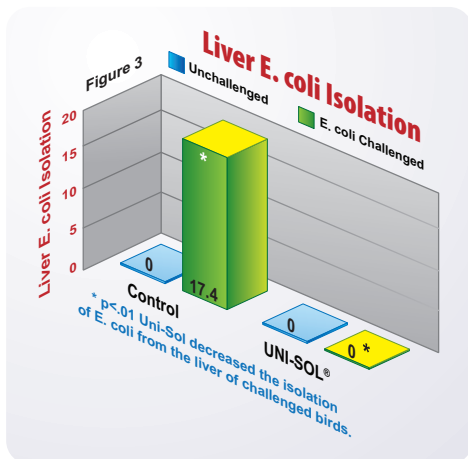


USDA-ARS researchers in Fayetteville, Arkansas successfully used Uni-Sol to increase resistance to respiratory disease. Scientists injected disease-causing E. coli bacteria into 5-week-old turkey poults' air sacs to infect the bird's airways. In their research, this respiratory infection reliably produces air sac lesions, spreads to injure and swell up other organs and results in high mortality. Half the poults in this research received a protective dose of Uni-Sol liquid concentrate (1.75 ounces per 1,000 lb bodyweight daily) diluted in their drinking water throughout trial. The other half served as unprotected controls.

As is typical, mortality was elevated, reaching 13% in infected control poults, while none of the birds receiving Uni-Sol died (Fig. 1). Significantly higher air sac scores in control turkeys confirmed the respiratory disease's effects (Fig. 2). After two weeks the researchers found live E. coli had



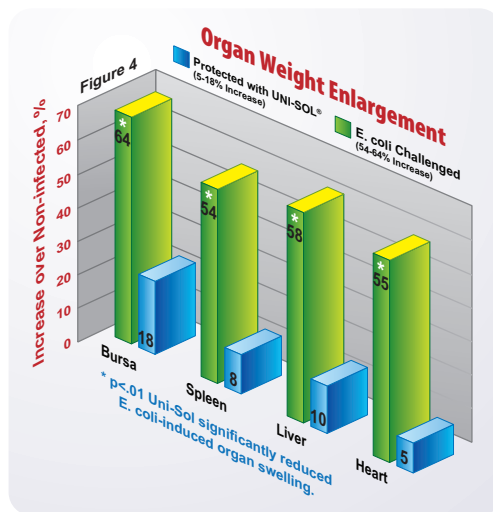
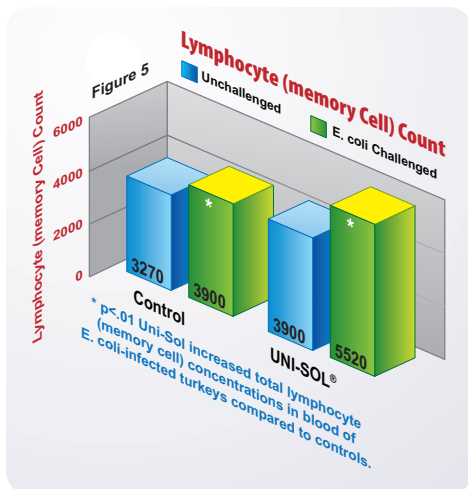
spread to 17.4% of the control turkeys' livers, compared to none being isolated from the livers of birds drinking Uni-Sol (Fig. 3). Importantly, Uni-Sol also reduced the body weight loss that affected the challenged controls.



The severely infected control birds suffered from enlarged organs, with bursa, spleen, liver and heart swelling 54-64% heavier than their normal, non-challenged controls. Uni-Sol significantly reduced swelling among the same organs in challenged turkeys, limiting them to a 5-18% increase over non-infected birds (Fig. 4).

Uni-Sol also boosted white blood cell status in challenged turkeys.

Compared to non-infected birds, total white blood cells (leukocytes) in infected poults increased 10%, while counterparts receiving Uni-Sol increased white blood cells by 20%. A much more dramatic improvement occurred among the memory- and antibody-building lymphocytes. Uni-Sol increased these cells to a concentration 69% higher than non-challenged controls, an increase that was over seven times higher than infected turkeys without Uni-Sol (Fig. 5).



The researchers concluded that using Uni-Sol “during an infectious challenge can guard against the debilitating effects of stress and infection.” Uni-Sol overwhelmingly protected the birds from the primary infection in their airways and organs, but Uni-Sol also needs a partner to help clear out the mucus congestion responsible for the secondary effect of poor breathing efficiency.

Blown away by MucuSol

Irritating coughs come with airway infection, or dust and gas in houses with poor quality air. If the cough is a dry one, it is not productive, meaning it irritates the respiratory tract further instead of dislodging phlegm and expelling the irritant.

If respiratory disease is a cage fight, then MucuSol and Uni-Sol are your “Respiratory Tag-Team.” Uni-Sol holds the animal’s prostaglandins down while MucuSol knocks the snot out of ‘em. MucuSol simply makes coughs more productive. MucuSol is a stable water-miscible syrup that delivers more phlegm-loosening power to eliminate the congestion during respiratory problems. That’s because MucuSol contains the richest concentration of water-soluble guaifenesin, the most recognized expectorant for human and animal use. The potent expectorant increases mucus volume and thins phlegm in the airway. By pulling water into the respiratory tract, MucuSol lubricates and stimulates the flow of secretions, allowing cilia to carry irritants up and generating a hearty cough to send them out. Thinning the mucus and promoting reflex movement increases the cough’s efficiency and speeds recovery, eliminating the costly secondary effects of respiratory disease.

Guaifenesin is originally extracted from gum guaiac, a GRAS plant resin, and it does not naturally dissolve well in water. This is why powdered expectorants (“anti-tussives” or “mucolytic agents”) marketed for animals contain only a small amount, along with soluble carriers. Low concentrations and poor solubility make traditional animal health expectorants disappointingly ineffective. These powdered products generally provide only 12.5% of the effective dose compared to MucuSol for pigs and poultry, or Mucinex for humans.

So this season you can breathe easier knowing your pigs and poultry can too. When you control inflammation and congestion, you’ve controlled the problem; and ASP’s two powerful problem stoppers... Uni-Sol and MucuSol can give you a clear advantage.

