

Silent Pandemic

%70			
Antimicrobial Resistance	Delayed Therapy	Production Loss	Death

The World Organization for Animal Health defines antimicrobial resistance as a "silent pandemic" because of the economic losses it causes in animal production and the threat it poses to public health.

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Resistant Bacteria: The Unseen Danger!

Antimicrobial resistance occurs when bacteria no longer respond to antibiotics. As a result of drug resistance, infections become difficult or even impossible to treat, increasing the risk of disease spread, economic losses, and death.

%70

There were up to 70% high levels of resistance against major antibiotics used against *M. haemolytica* and *P. multocida* isolates.

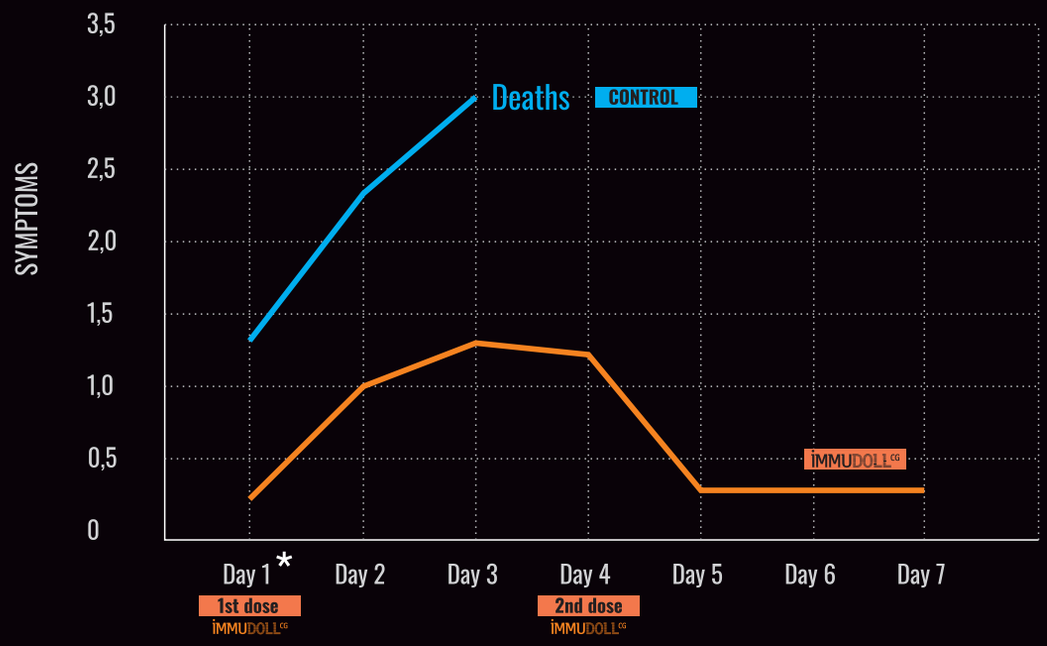
Net returns from cattle treated one, two, or three or more times were reduced by $38, $167, and $230, respectively, due to treatment costs, feed costs, and lower carcass weights.

Antibiotic residue withdrawal periods create cost and management challenges for businesses.

The successful treatment of bacterial infections is the product of a collaboration between antibiotics and the host's immune defenses.

- For many bacterial infections, drug resistant mutants are likely present by the time antibiotic treatment starts. Nevertheless, such infections are often successfully cleared. It is commonly assumed that this is due to the combined action of drug and immune response. A strong immune system helps with treatment and significantly reduces the emergence of resistance.
- Vaccination and immunostimulants strengthen the immune system, making it easier to fight diseases.
- A strong immune response can substantially reduce the need for long treatments.

Effect of IMMUDOLL^{CG} in cattle infected with *Mannheimia haemolytica* A1 on clinical parameters

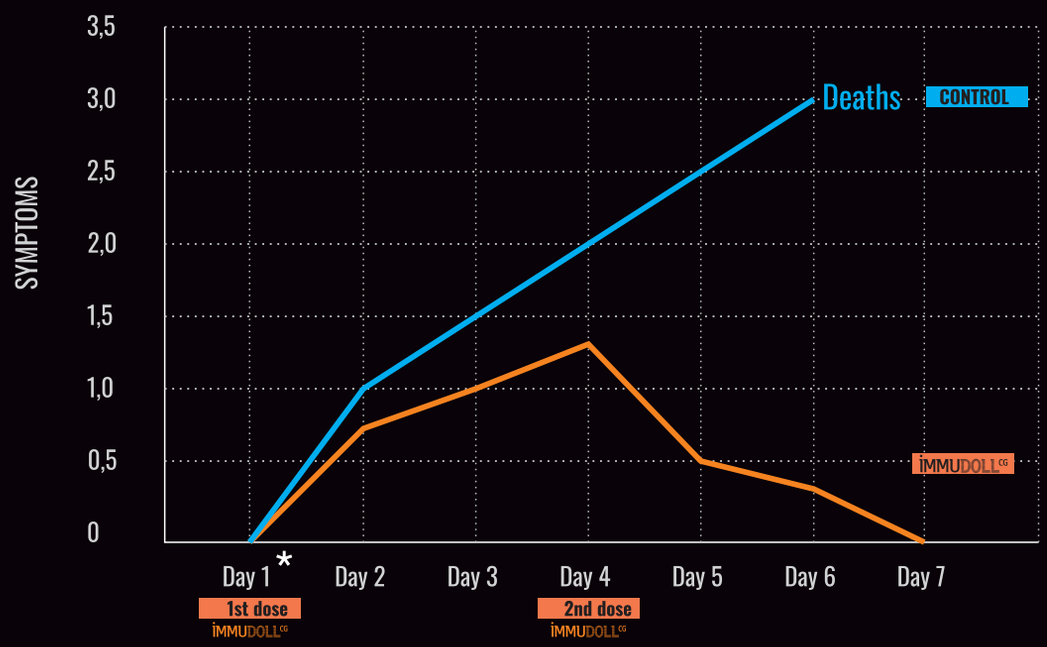


*24 hour after *Mannheimia haemolytica A1* challenge
İMMUDOLL^{CG} group: Average scores of 9 cattle
Control group: Average scores of 3 cattle

Severity of symptoms None: 0, High fever-Nasal drainage:1, Cough-Dyspnea:2, Death:3

Results: Cattle in the IMMUDOLL ^{GC} group showed greater resistance to *Mannheimia haemolytica A1* infection, with symptoms disappearing completely within a week, while all animals in the control group died due to severe infection. No antibiotics or other treatment was administered to either group.

Effect of IMMUDOLL^{CG} in sheep infected with *Pasteurella multocida* on clinical parameters



*24 hours after *Pasteurella multocida* challenge
Immudoll^{CG} group: Average scores of 6 sheep
Control group: Average scores of

Severity of symptoms None: 0, High fever-Nasal drainage:1, Cough-Dyspnea:2, Death:3

Results: Sheep in the IMMUDOLL ^{CG} group showed greater resistance to *Pasteurella multocida* infection, with symptoms disappearing completely within a week, while all animals in the control group died due to severe infection. No antibiotics or other treatment was administered to either group.

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Antibiotics and Natural Immunity:

Collaboration for the Successful Treatment of Infections

IMMUDOLL CG

NON-SPECIFIC IMMUNOSTIMULANT
SUSPENSION FOR INJECTION

It contributes to the development of the general immune response.

It increases the body's resistance to infections.

It helps treat diseases by strengthening the effectiveness of therapeutic interventions.

	Cattle Goats Sheep	Recommendation for Use
Route of Administration	Intramuscular or Subcutaneous	**For prevention:** 2 doses with 7 days interval **Aid for treatment:** 2 doses with 3 days interval **To immunize calves/lambs:** 2 doses with 7 days interval 30 to 60 days before calving/lambing
Dose of Administration	0,2 ml /10 kg body weight	

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