



Solutionsⁿ Caliber⁶: What are tannins and what do they do?

Product Description:

Solutionsⁿ Caliber⁶ is a proprietary blend of condensed and hydrolysable tannins and essential oils that positively affect rumen fermentation when fed at low inclusion rates as well as reduce effects of internal parasites and pathogenic organisms (both bacteria and protozoa) in ruminant animals.

Background:

- Secondary plant metabolites (tannins, saponins, and essential oils) exist in plants in low concentrations and act as their natural defense mechanism against pathogens.
- Secondary does not mean less important or non-essential to a plant. Rather, primary metabolites are involved in cell growth while secondary metabolites contribute to the resistance of pests, diseases, and stressors and as attractants of pollinators. Feeding **Solutionsⁿ Caliber⁶** is a way to take advantage of these functions in animals.
- **Solutionsⁿ Caliber⁶** reduces urinary N excretion and methane production (a greenhouse gas), which both effects are environmentally friendly.
- Tannins and essential oils are naturally effective against many common internal parasites and pathogenic organisms (both bacteria and protozoa).

The Science:

- There are huge differences in structures of tannins. Generic classifications of tannins (e.g. condensed vs. hydrolysable) doesn't adequately explain differences in effects from tannins
- Tannins **mitigate methane production** (a waste gas of fermentation) and improve amino acid supply to the lower gut.

- Reduction in methane production by tannins is related to modification of the rumen microbial population.
- Tannins complex with proteins allowing **more true protein to escape fermentation** and also reduces frothy bloat from soluble proteins.
- Meta analysis with sheep clearly shows that low doses of tannins fed for extended days improves animal performance (ADG, DMI, and F/G).
- Hydrolysable tannins exhibited bactericidal activity against *E. coli* O157:H7 which is **important for food safety**.
- Tannins act as an anti-virulent inhibitor against salmonella which means the mode of action involves signaling or interference with quorum sensing rather than killing the bacteria.
- Tannin-containing forages have decreased coccidiosis. Tannins fed with a total mixed ration to late gestation and early lactation beef cows has been reported from field experience to reduce coccidiosis and cryptosporidiosis in young calves.
- Tannins reduce peristaltic activity of intestines slowing the rate of digesta passage and helping reduce diarrhea.
- Tannins are very effective against intestinal worms and essential oils are effective against stomach worms. Therefore, a combination of tannins and essential oils provides broad-based anthelmintic effects.

How to use:

Feed based on average animal weight.

Supplement feeding rate, lb./h/d	300-650 lbs.	650+ lbs.	Mature Cows
	Lb. QC / ton of supplement		
0.25	104.0	160.4	223.8
0.50	52.0	80.2	111.9
1.00	26.0	40.1	55.9

References:

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