



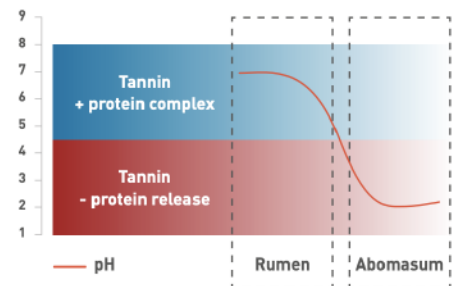
B- TANNIN

B-TANNIN is an additive for animal nutrition containing a natural chestnut extract, rich in hydrolysable tannin.

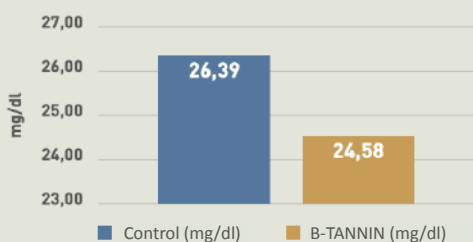
Protein by pass activity

B-TANNIN enhances correct digestion and absorption of amino acids in the intestinal tract because it has the capability to reduce the protein degradation in the rumen. B-TANNIN has the biological properties to form a tannin-protein complex (hydrogen bonds) at certain pH conditions [3.5 – 8.0]. These complexes, stable at rumen pH, dissociate when the pH falls below 3.5 (such as in the abomasum where pH is 2.5-3.0). In the rumen, tannins act as a protein carrier, reducing the protein attack by the ruminal microflora. Due to a lower pH in the abomasum compared to the rumen, a progressive release of proteins occurs from the tannin complex (by-pass effect).

Tannin protein complex capacity in relation to the gastrointestinal pH



Milk Urea Content mg/dl



Urea milk reduction

Milk Urea Content is lower when using B-TANNIN; field trial performed on 30 dairy cows demonstrates that dietary supplementation of B-TANNIN reduces the milk urea content (-7%) confirming the more efficient use of protein nitrogen.

[Carpaneta trial, unpublished]

Effect of addition of chestnut tannin on gas and methane production

	Dose (mg/ml)	Gas (ml)	CH (ml/l)
Control	0	83,8	198
Chestnut extract	0,5	82,2	195
	0,75	80,7	192
	1	78,7	185

[Jayanegara et al., 2015. Divergence between purified hydrolyzable and condensed tannin effects on methane emission rumen fermentation and microbial population in vitro. Animal Feed Science and Technology 209, 60-68]

Reduction of the methane emission

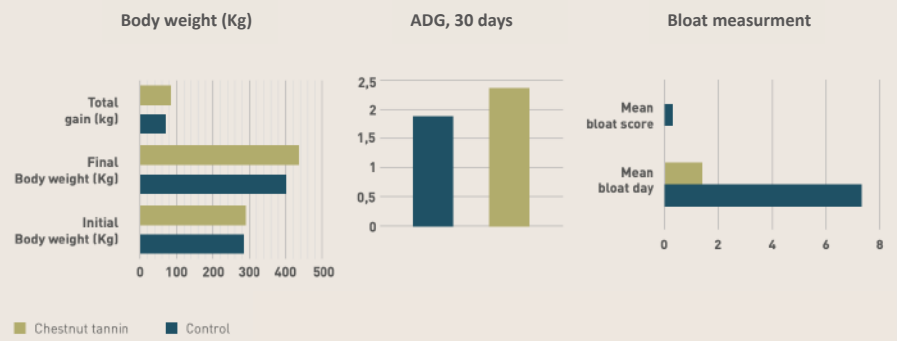
Methane produced during anaerobic fermentation in the rumen, represents a feed energy loss and contributes to an increase in the greenhouse effect. Chestnut extract, rich in Hydrolysable Tannins, decreases ruminal methane emission (in vitro trial) mainly due to inhibition of the growth of methanogens (protozoa responsible of methanogenesis in the rumen). Field experience confirms that animals, fed with Chestnut extract, have a lower methane emission.

Recommended instruction for use in final feed:

Dairy Cows: 20 – 30 g/head/day
Calves: 0.85 – 2.50 Kg/ton
Beef cattle: 20 – 40 g/head/day

Reduce bloat severity

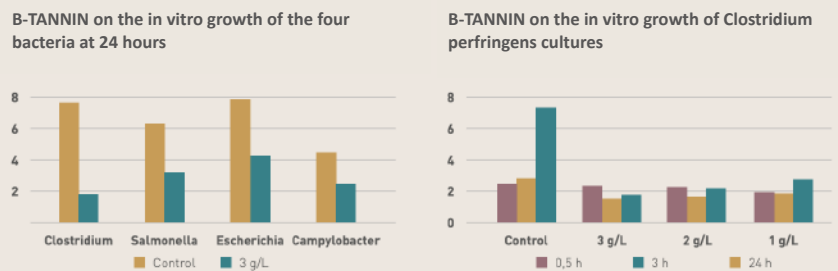
In vivo studies attested that supplementation of Chestnut Tannin reduces the rate and frequency of frothy bloat, and bloat frequency due to the precipitation of soluble proteins (tannin complex decreases Ruminal Degradable proteins and increases Undegradable Proteins) and through antimicrobial activity of tannins towards gram-positive bacteria. The study was carried out on twenty-six heifers (286 +/-26 Kg) visually monitored daily for bloat score (0= no bloat; 3= severe bloat). Chestnut tannin supplementation increased Average Daily Gain and mean bloat score and bloat day were greater for the control diet than for Chestnut tannin supplemented treatment groups.



[Min et al., 2012. Effects of plant tannin supplementation on animal responses and in vivo ruminal bacterial populations associated with bloat in heifers grazing wheat forage]

Intestinal microbiota control

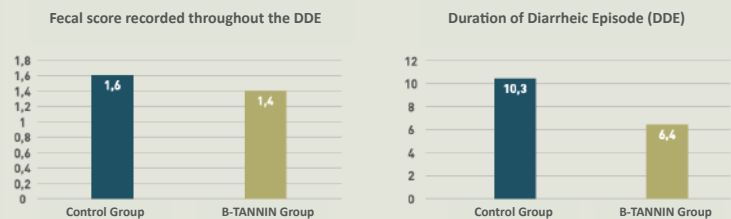
B-TANNIN interferes with the development of bacteria and parasite in gut because it complexes membrane protein altering the permeability of the cellular membrane. B-TANNIN antimicrobial activity was tested in vitro on Salmonella typhimurium, Escherichia coli, Campylobacter jejuni and Clostridium perfringens. Not all the four bacterial colonies reacted to B-TANNIN in the same way: Escherichia coli resulted the least sensitive and Clostridium perfringens the most sensitive.



[Antongiovanni, M., et al., 2018. Tannin as an antimicrobial agent. World Poultry Science Journal]

Diarrhoea control

Chestnut tannin controls diarrhoea through its antispasmodic effect (it slows the peristaltic movements of the intestine). In vitro result has been confirmed by in vivo trial: oral administration of B-TANNIN reduces the duration of neonatal diarrhea. Trial has been performed on 24 Italian Friesian calves, both male and female, and the results are reported here following: the duration of the diarrheic episode (DDE) was significantly reduced of 4 days and the Fecal Score was significantly better in the group treated with B-TANNIN (5g/liter).



[Budriesi et al., 2010]

[Bonelli et al., 2018. Oral administration of chestnut tannins to reduce the duration of neonatal calf diarrhea. BMC Veterinary Research, 14:227]

Antioxidant properties

B-TANNIN is a polyphenol and exhibits greater antioxidant activities than simple phenolics: the number of hydroxyl groups and the degree of polymerization of tannin are considered to be correlated with their ability to scavenge free radicals. Antioxidant activity has been evaluated in vitro by using Folin-Ciocalteu reagent. The results are expressed as total phenol content, measured as GAE (Gallic Acid Equivalents) which is considered to have an excellent correlation with the in vitro antioxidant activity.

FOLIN-CIOCALTEU [GAE equivalent, mg/g]	
B-TANNIN	57.0

[Campo et al., 2015. Hydrolysable Tannins from Sweet Chestnut Fractions Obtained by a Sustainable and Eco-friendly Industrial process. Nat. prod. Commun. 11:409-415]

Technical data sheet

B-TANNIN is an additive for animal nutrition. It is a natural chestnut extract, rich in hydrolysable tannin. Chestnut tannin is obtained by water extraction from chestnut wood, by an environmentally sustainable unique process.

CHARACTERISTIC	METHOD OF ANALYSIS	MEASURE UNIT	SPECIFICATION
Description	Visual	/	Free flowing dark brown powder
Tannin content	ISO 14088	% w/w	Min 75
pH	Internal method n. LAB 004		3.2 ±0.2