

Saviotan® Feed

MORE NATURE TO LIFE



Poultry

+ HEALTH + PERFORMANCE



PRODUCED BY

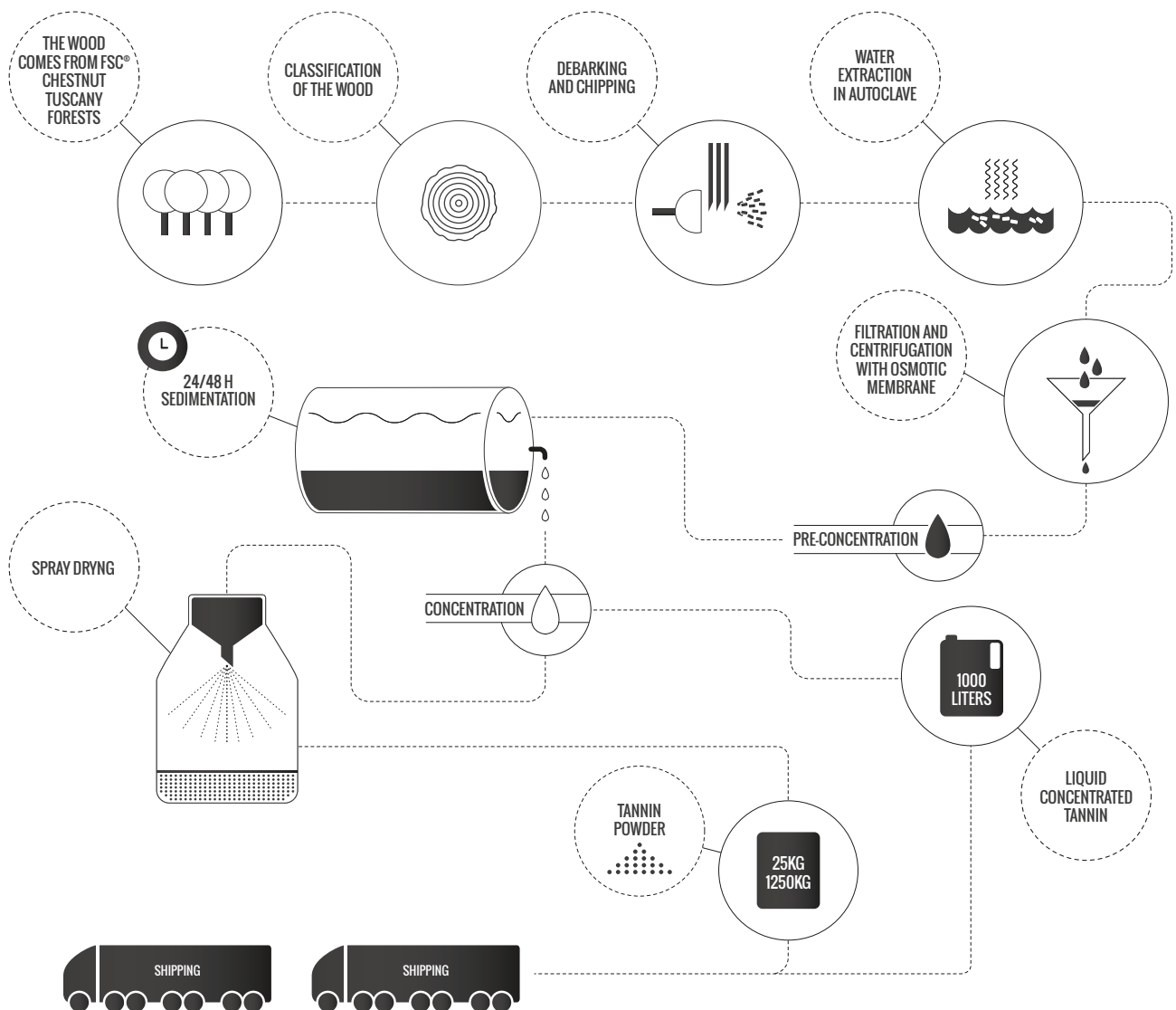




Saviotan® Feed is an additive for animal nutrition.
 Saviotan® Feed is a natural chestnut extract, rich in hydrolysable tannin.
 Production takes place in Radicofani, Tuscany, Italy.
 Woods come from FSC certified forests located in Tuscany.

Chestnut tannin is obtained by water extraction from chestnut wood, by an environmentally sustainable unique process.

Production flow chart

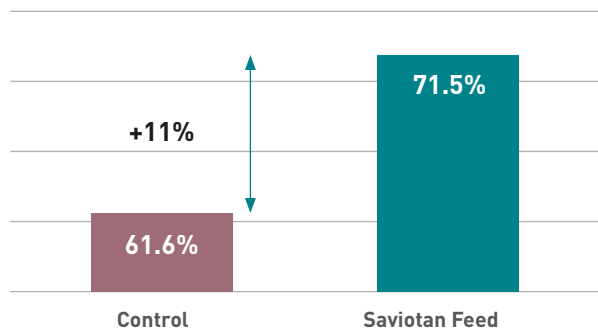


Radicofani manufacturing plant, Gruppo Mauro Saviola srl, is FAMI-QS, GMP+ and UNI EN ISO 22000 certified.



Saviotan[®] Feed for a potent upgrading effect on the metabolic utilization of absorbed nitrogen

Retained Nitrogen [%]



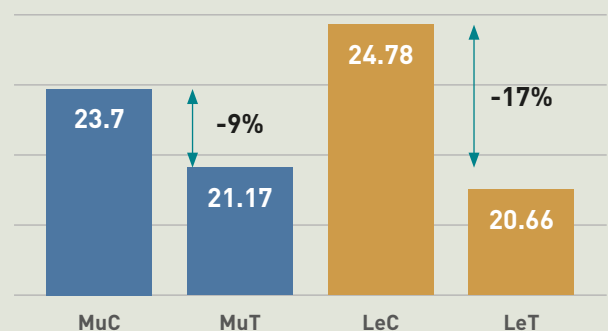
The study on digestibility and nitrogen balance has been performed with 175 female Ross 800 broilers. No difference in weight gains and nitrogen intakes but the percentages of retained nitrogen in droppings collected for one week result significantly different: 61.6% for the untreated group and 71.5% for tannin group. Decrease in total nitrogen in the litter and better utilization of the absorbed nitrogen have been observed.

[Antongiovanni et al., 2015. Effect of a hydrolizable tannin from Chestnut wood on digestibility and nitrogen balance in broiler chickens. 20th European Symposium on Poultry Nutrition. Prague, 24-27 August 2015].

Saviotan[®] Feed for cholesterol reduction in egg yolk

Saviotan[®] Feed was administered to laying hens aged 50 weeks, at the level of 0.2% in the complete feed. In the trial, lasted 5 weeks, two breeds, Mugellese (Mu) and Leghorn (Le), and two diets, with and without Saviotan[®] Feed, were compared. Egg yolk cholesterol reduction has been significant in both breeds, more evident in the Leghorn (-17% vs -9% in Mugellese). Shell thickness, egg weight and colour were not affected by the addition of Saviotan[®] Feed.

Cholesterol in egg yolk [g/Kg total lipids]



[Antongiovanni et al., 2015. Effect of a tannin from chestnut wood on cholesterol and fatty acids of eggs. World Poultry Sci. J., 71].

Where:

MuC = untreated Mugellese hens MuT = treated Mugellese hens LeC = untreated Leghorn hens LeT = treated Leghorn hens

Saviotan[®] Feed for diarrhoea control

Chestnut tannin controls diarrhoea through its antispasmodic effect (it slows the peristaltic movements of the intestine).

Administration of Saviotan[®] Feed often results in firmer droppings which positively affects the litter status thus improving the overall status and welfare of chickens in

intensive production system. Farm experience confirms that Saviotan[®] Feed improves litter quality and reduces footpad dermatitis.

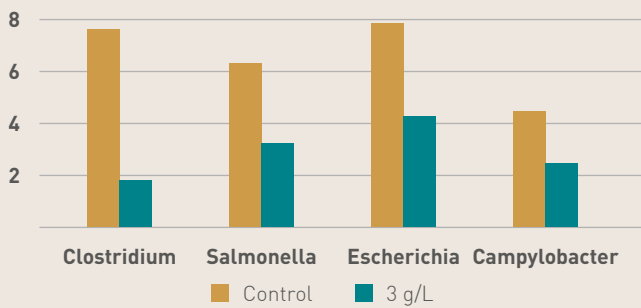
[Budriesi et al., 2010]

Saviotan® Feed for intestinal microbiota control

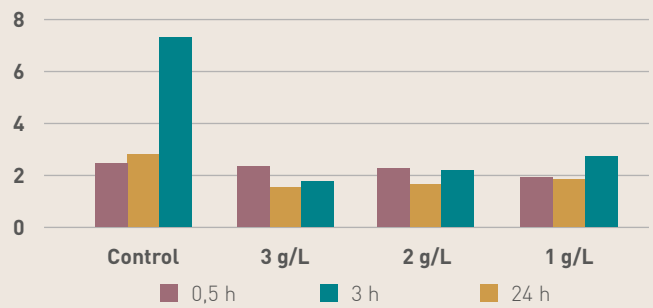
Saviotan® Feed interferes with the development of bacteria and parasite in gut because it complexes membrane protein altering the permeability of the cellular membrane. Saviotan® Feed antimicrobial activity was tested *in vitro* on *Salmonella typhimurium*,

Escherichia coli, *Campylobacter jejuni* and *Clostridium perfringens*. Not all the four bacterial colonies reacted to Saviotan® Feed in the same way: *Escherichia coli* resulted the least sensitive and *Clostridium perfringens* the most sensitive.

Saviotan® Feed on the *in vitro* growth of the four bacteria at 24 hours



Saviotan® Feed on the *in vitro* growth of *Clostridium perfringens* cultures



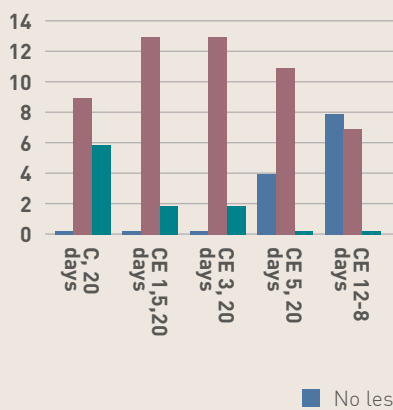
[Antongiovanni, M., et al., 2018. Saviotan® Feed as an antimicrobial agent. World Poultry Science Journal]

Saviotan® Feed for necrotic enteritis

Saviotan® Feed was tested *in vivo* for its efficacy in controlling the proliferation of *Clostridium perfringens* in the gut of broiler chickens challenged with coccidia. Chickens were euthanized at 20 and 25 days and examined for the level of gut infection by counting *Clostridium perfringens* and macroscopic gut lesions.

The extreme pathological conditions created in the broiler' gut by challenging them must be considered exceptionally uncommon in practice but also in this extreme condition, the addition of Saviotan® Feed resulted capable of limiting the infection, even at the lowest level.

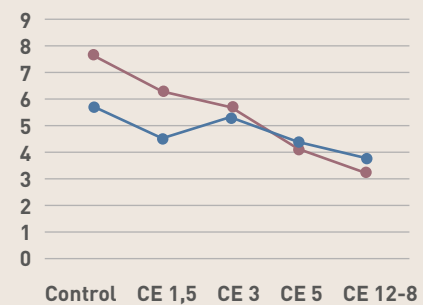
Number of broilers with more or less severe gut lesions at day 20



Number of broilers with more or less severe gut lesions at day 25



Counts of *Clostridium perfringens* [log10 of CFU/g gut content]



[Tosi G., et al., 2013. Efficacy Test of a Hydrolysable Tannin Extract against Necrotic Enteritis in Challenged Broiler Chickens. Italian Journal of Animal Science].

Saviotan® Feed for future

Ellagitannins (vescalagin, castalagin and roburin) have significant anti-HSV (Herpes simplex virus) activities against Aciclovir susceptible and Aciclovir resistant strains.

Lupini et al. (2009) showed that chestnut wood extracts have an inhibitory effect on avian reovirus (retrovirus) and avian metapneumovirus. Investigation on going.

Saviotan® Feed for its antioxidant properties

Saviotan® Feed 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)

Saviotan® Feed	57.0
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[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]

Saviotan® Feed technical data sheet

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

Saviotan® Feed for use in animal feedingstuffs

Recommended instruction for use:

Broilers: 0.4 – 1.0 Kg/ton

Laying hens: 0.35 – 1.0 Kg/ton

Turkeys (starter and finisher): 0.75 – 1,3 Kg/ton

Turkeys: 1.0 – 1.5 Kg/ton

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