Why Use Sodium Diacetate

Benefits: More consistent intake
Enhances natural buffering
Increases feed efficiency
Increases gains
Decreases wood chewing

When an animal consumes and digests roughage, the rumen produces acetic acid, which enhances proper rumen function. Sodium Diacetate in the Tend-R-Leen formulation supplies the acetic acid normally produced from the digestion of roughage.

This acts to balance the acid ratio in the rumen and enhance natural buffering. By enhancing buffering, Sodium Diacetate assures more consistent feed intake because cattle don't go off feed. In addition, decreased wood chewing demonstrates that Sodium Diacetate replaces the acetic acid produced from fiber digestion and cattle don't crave fiber.

These effects result in a healthier digestive tract. Sodium Diacetate is also beneficial as it increases feed efficiency. Less corn is required to bring an animal to market, which can pay for the cost of the Sodium Diacetate by itself.

More on the Benefits of Sodium Diacetate:

1. Sodium Diacetate is a natural flavor enhancer.

2. Sodium Diacetate enhances the natural buffering that takes place during digestion. It contains a mixture of 50% acetic acid and 50% Sodium Acetate (on an equal molecular basis.) A true buffer has one molecule of an acid and one of a salt from the same acid. A buffer reduces the pH variance in the rumen. A true buffer helps resist pH change when additional acid or alkali is added to the rumen solution.

3. Sodium Diacetate releases acetic acid. This is the acid produced by the rumen bacteria when they help digest roughages. Providing Sodium Diacetate helps to replace the acetic acid from roughage.

4. Sodium Diacetate inhibits mold. We really don't know how important this factor is in the rumen.

5. Sodium Diacetate is a chelating agent. This chemical process helps form structural rings with trace elements tied to it. The acetate is probably forming mineral acetates in the rumen, which helps the mineral to be more soluble and available for digestion.

Why Use Sodium Diacetate

University of Arkansas, Fayetteville - 1990

Average daily gain and feed intake results of steers fed sodium diacetate (SDA) versus control.

112 day trial
Starting weight = 717 pounds
Salt replaced by SDA (in the pellets) for treatment group. Both groups fed corn, pellets, and salt free choice.

Treatment	ADG	Daily feed intake	Dressing percent	112 day total gain	Feed/lb. gain	Fecal pH
Control	2.55	19.23	60.1%	286	7.54	5.7
SDA	2.73	19.8	60.0%	306	7.24	6.0
Variance	0.18	0.57	-0.1	20	-0.30	0.30*

*This shows that SDA acts as a buffer.
Carcass quality was similar for both treatments.
Abstract 66, Southern Section ASAS 1990
A.H. Brown, D.W. Kellogg, J.A. Clower, J.A. Hornsby, and J.J. Chewning
University of Arkansas, Fayetteville

Sodium Diacetate

The Economic Return of Feeding Sodium Diacetate (SDA) Daily

Corn savings using code 536 Tend-R-Leen beef finisher with the amino acids balanced and SDA with **$6.00** per bushel corn.

Month	Days	Weight Ranges	Weight Gain	Pounds Corn Saved	SDA Economic Return
4	**30**	264-346	82	29	$2.07
5	**30**	346-441	95	33	$2.36
6	**30**	441-542	101	35	$2.50
7	**30**	542-654	112	39	$2.78
8	**30**	654-766	112	39	$2.78
9	**30**	766-872	106	37	$2.64
10	**30**	872-975	103	36	$2.57
11	**30**	975-1070	95	33	$2.36
12	**30**	1070-1154	84	29	$2.07
13	**30**	1154-1227	73	26	$1.86
14	**30**	1227-1297	70	25	$1.78
Totals	**330**		**1033**	**361**	**$25.77**

Shelled Corn, price per bu.	$6.00		
11 months - days on feed	330		
Total SDA cost / hd	$13.20	$0.040	Per Day
SDA Return (from corn saved)		$0.12	Per Day

Gross savings per steer **$38.68**

Net Savings per steer **$25.48**

Savings per ton of feed (4 head per ton) **$101.90**

Savings per ton of Feed at Various Corn Price

Corn Price	$3.00	$4.00	$5.00	$6.00	$7.00	$8.00
Savings per Ton	$24.60	$50.30	$76.10	$101.90	$127.00	$153.00

Tend-R-Leen® Research Results

Growing Stage

	Start Weight	End Weight	Gain	Variance from Control
Control N-M	163	373	210	---
Supplement Deccox	167	393	226	+16
Supplement SDA-Deccox	181	423	242	+32

Growing Stage Economics

	Variance from Control	Selling Price per Pound	Economic Gain
Deccox	16	$1.30	$20.80
Deccox SDA	32	$1.30	$41.60

STEALTH 5® CONCENTRATE:

Mode of actions:

Improving rumen function means cattle get more nutrients from every mouthful of forage and grain they consume. Increased fiber, carbohydrate, and protein digestibility results in more dietary nutrients available to promote growth, reproduction, and health.

1. Feeding Good Bugs- provides complex carbohydrates consisting of mannans (MOS). They are extracted from yeast cell walls and found to stimulate immunity and health.
2. Pathogens Blocked - designed to reduce pathogen causing diseases from attaching to epithelial tissue in the intestine. MOS, found in the yeast cell walls, are proven to bind pathogens.
3. Triggers Antibodies – finds pathogens early before they attach to intestinal lining and colonize. Immune cells ingest and kill potential pathogens and increase the activity of natural defense in the animal.
4. Beta-Glucans - supports the immune system's ability to respond to challenges from bacteria, fungi, viruses, and parasites.
5. Glucosamine - contains a natural source of glucosamine which promotes joint health.

STEALTH 5 Concentrate Delivers:

Optimum Health	Better immune response, interferes with pathogens, less morbidity and mortality.
Flexible Use	Multi-specie: young to mature animals.
Proven Results	Effective against E. coli and Salmonella bacteria.
Stability	Consistent and reliable.
Palatability	Blends into any type of ration.

Beef

Producers have experienced the following benefits in starting beef cattle:

- Reduced treatment costs.
- Reduced death loss.
- Improved weight gain.
- Improved dry matter intake.
- Improved feed efficiency

Young Calves

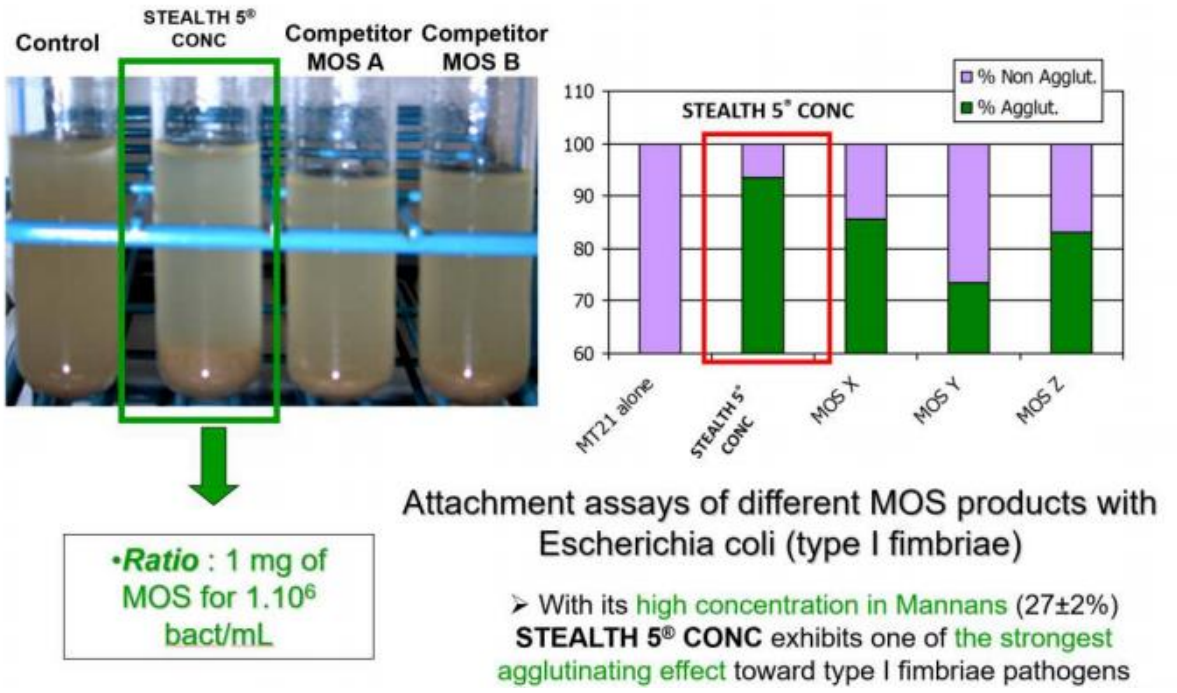
Trials with young ruminants show reductions in pathogens such as E. coli, Salmonella, and clostridia when MOS is added to milk replacer and starter feeds.

Limits Pathogenic Bacterial Development

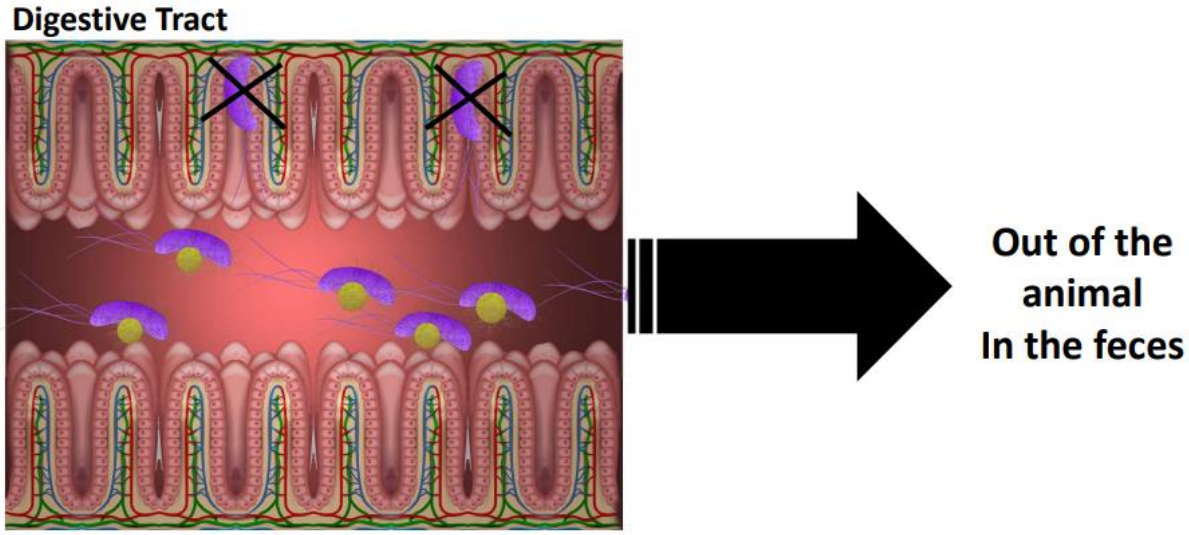
Action on the bacterial attachment

Stealth 5 Concentrate blocks type 1 Fimbriae specifically:

Inhibition properties of Mannose based oligosaccharides, non-damaged by digestive enzymes. It includes mainly ETEC and Salmonella strains.

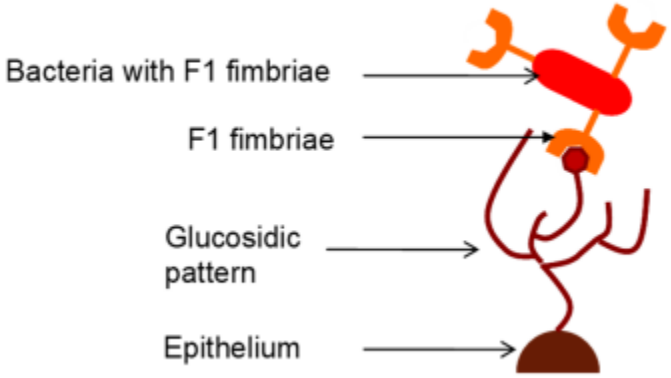


Stealth 5 Concentrate Pathogen Scavenger Capability

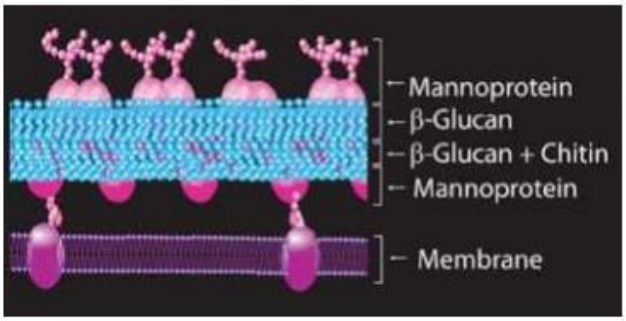


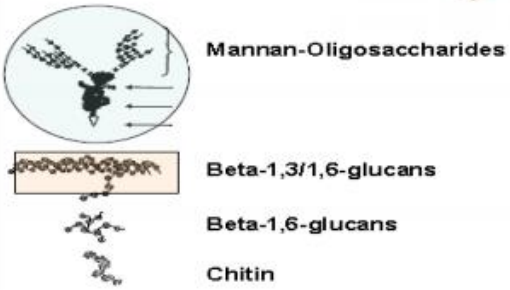
Pathogen Scavenger

- Some Type 1 fimbriae pathogenic bacteria (E. coli forms, Salmonella, Campylobacter, etc.) adhere to the digestive epithelium via lectins
- Type 1 fimbriae bacteria recognize glucosidic attachments at the surface of the digestive epithelium and adhere to cause damage

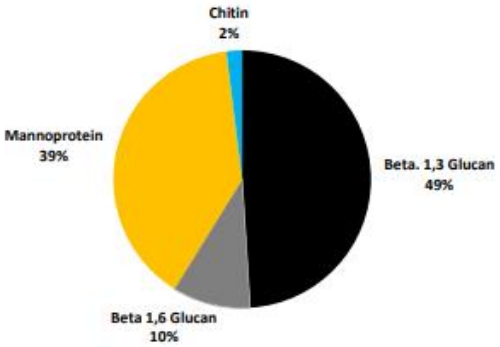


Yeast Cell Wall Components





Component Distribution of Cell Wall Mass



Lipke P., Cell Wall Architecture in Yeast; New Structure and Challenges, 1998, J. Of Bacteriology, Aug. p. 3735-40.

Aromax Essential Oil Technology

Targeted to improve feed efficiency and improve VFA profiles, while reducing ammonia concentrations. This technology maximizes animal performance, helps provide an optimal VFA profile, and maintains a healthy rumen pH.

What are essential oils?

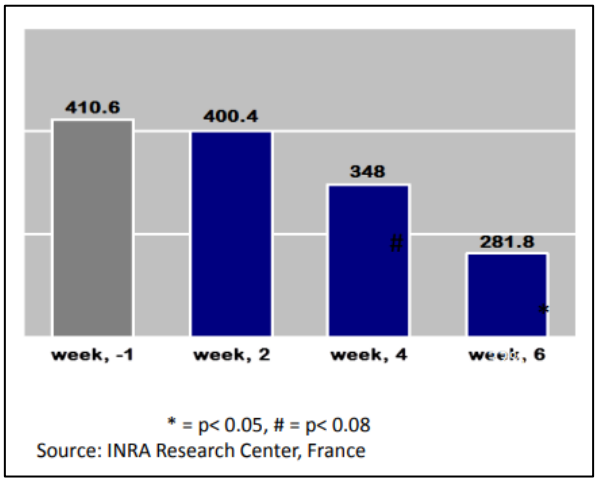
Very concentrated liquids extracted from plants, mainly herbs and spices. They are responsible for providing plants with natural defense against disease, fungi, and pests.

Their powerful range of activity in animal diets include:

- Natural anti-bacterial properties
- Preservative antioxidant qualities
- Immune stimulation
- Natural flavoring

Key Benefits to the Dairy and Beef Animal

1. Methane
   a) Belching methane represents between 2 and 10% of total dairy or beef energy intake lost to the atmosphere.
   b) A shift in the bacterial population can divert energy from methane into volatile fatty acids which the animal uses as energy for milk, milk components and body condition/weight gain.
   c) Three major, independent research institutes across Europe show an average drop in methane of around 25% after six week in vivo trials. No other product produces this level of effect.



Key Effects on the Dairy and Beef Animals

1. Ammonia
   a) Trials demonstrate a 10% reduction in rate of rumen ammonia production. Instead amino acids are protected and protein is used efficiently for milk and weight gain instead of being excreted in urine.

2. VFA Ratio:
   a) Increased propionate = increased milk and feed efficiency. Increased acetate = increased butterfat. Trials show both increase when Aromax essential oil blend added to feed.

	Control	Scentinol Essential Oils	Change, %
Acetate	1925	2050	+ 6.49%
Propionate	569	640 *	+ 12.48%
Butyrate	517	544	+ 5.22%
Propionate: Acetate Ratio	0.296	0.312	+ 5.62%

**P=<0.05*

Source: University of Aberystwyth, UK

Beef Response to EO Blend*

1. Average of 7% improved daily gain*
2. Average of 9% improved feed efficiency*
3. 10% Reduction in liver abscesses **

*Average of European field trials.
**Meyer, et.al. UNL 2007