

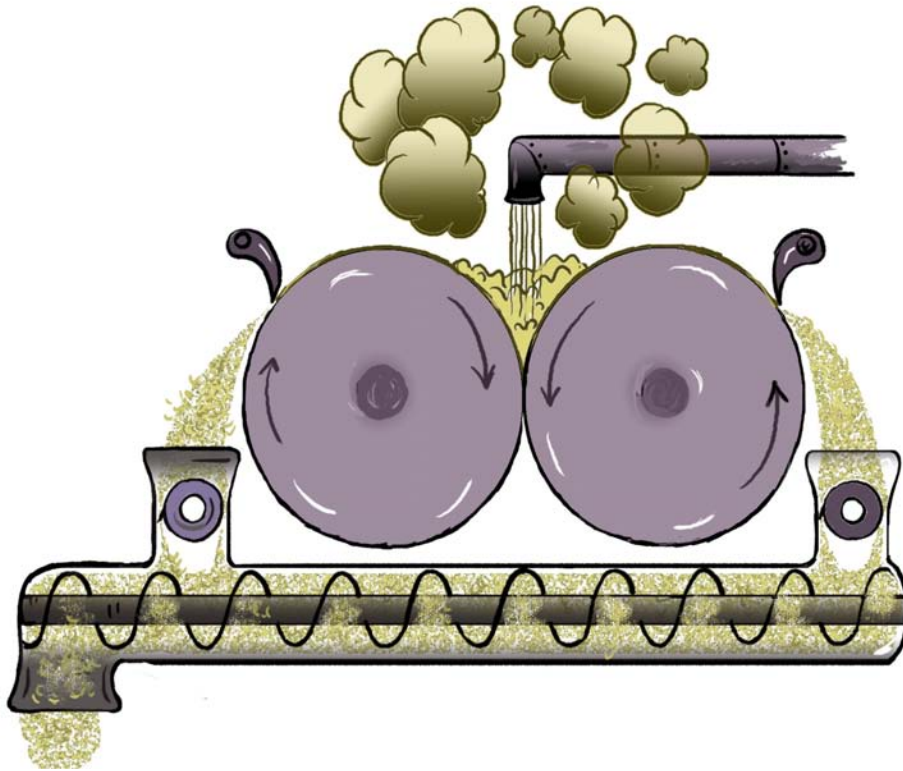
# SAF MANNAN

## Yeast Cell Wall Material

### The Control of gut Pathogen's in Animals

Yeast extracts are made around the world to make the things we eat taste good. Yeast extracts are used to impart savoury flavours to soups, stock cubes, convenience meals, meat and chicken products and food coatings and of course snack foods.

A by-product from the manufacture of yeast extract is Yeast Cell Wall Material, this is the biological substance which holds and surrounds the yeast cell. Yeast Cell Wall Material or SAF MANNAN was originally discarded until recent USA and European university studies demonstrated it to be a valuable prebiotic feed supplement benefiting a wide range of farmed species



The Yeast Cell Wall is ruptured and then is harvested by centrifugal separation from the yeast extract. It is washed and then dried and pasteurized on a steam drum dryer.

So what benefits does SAF MANNAN provide?

The Australian Pesticides and Veterinarian Medicines Authority's web site in 2003 allowed manufacturers of prebiotics to make the following claims;

Claims referring to prebiotic ingredients as 'non-digestible food ingredients that promote a healthy gut microflora'

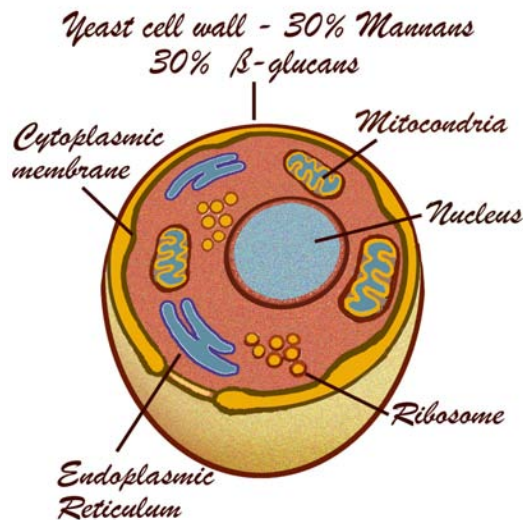
- "...helps maintain a healthy immune system..." or words to that effect
- "...supports natural defenses..." or words to that effect

Claims referring to flatulence, odour of stool, digestibility, well formed stools, consistency of stools, maintaining or promoting gut health

SAF MANNAN falls comfortably within these claims and this is how it works

The yeast cell wall comprises 35% to 40% of the yeast cell.

It is made up of material which form two rings surrounding the yeast cell, the SAF MANNAN is made up of Mannans and *B* Glucans



The outer layer is Mannan protein which is also known in technical documents and sales literature as Mannan oligosaccharides or MOS

Mannans is a non-digestible protein carbohydrate, this means when it is added to an animal's total feed it's complex nature prohibits it being digested by the animal, this makes it available to be used as a nutrient by the good bacteria or flor in the gut. The good bugs grow rapidly in the gut and provide an improved defense against harmful bacteria, the animal is now better equipped to fight against bad bugs. As SAF MANNAN assists the prevention of the establishment of bad bacteria in the gut it is called a prebiotic.

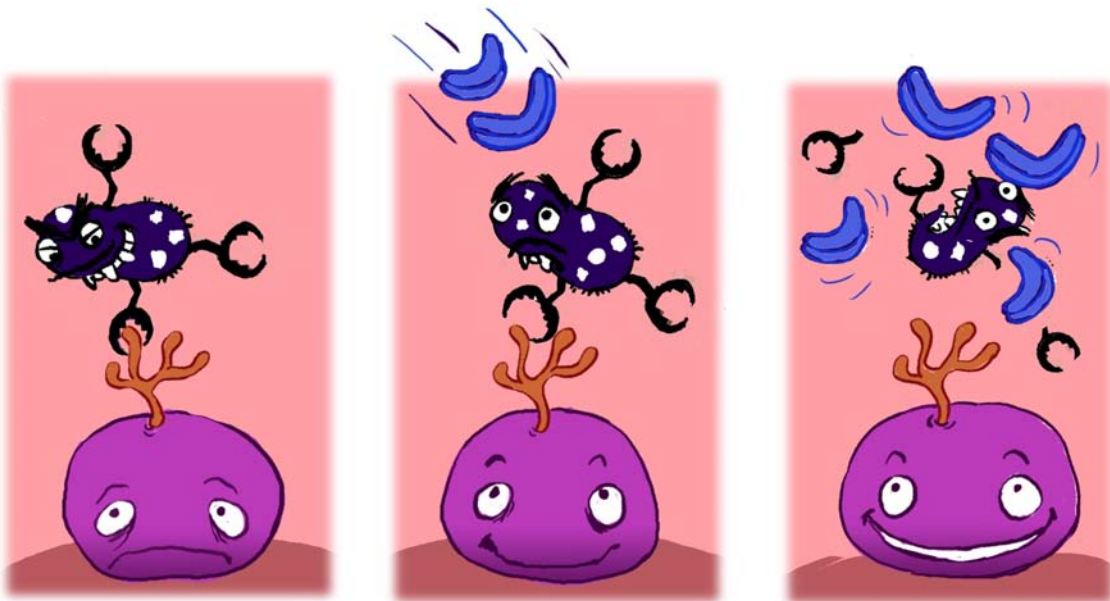
A **Prebiotic** can be described as a biological agent which stimulates preventative measures within the gut of an animal.

**Pathogens** are bad bacteria such as *E Coli* which when found in great numbers cause sickness and death. They enter the animal's gut and look for a place on the cells lining the gastrointestinal tract to bind and subsequently colonize and reproduce.

The bad bacteria have proteins on their surface called **Lectins** that recognize sugar compounds on the animal's cells lining its gut. These sugar compounds allow the bad bacteria to bind to the gut lining.

To prevent the establishment of bad bacteria, it is necessary to stop the binding process. The mannans do this by getting between the lectins on the bad bacteria and the sugar compounds on the intestinal lining. The lectins attach to the SAF MANNAN instead of the sugars on the cells of the gut wall lining .

After capturing the pathogens the SAF MANNAN is expelled naturally by the animal through the gut along with other waste material.



SAF MANNAN acts as a **Macrophage**

A macrophage is a cell in the blood stream which destroys and digests pathogens

The inner layer of the Cell Wall is made up by the extremely complex carbohydrate 1,3 1,6 Beta-glucan. It has been shown Beta-glucans interact with the immune system to increase its reaction capabilities.

SAF MANNAN is a component part of many specialty animal feeds formulated overseas, it has been used particularly in quality dog feeds manufactured in the US since the 1990's. SAF MANNAN has also been recognized for its ability to protect and foster juvenile animals and subsequently is now included as a vital ingredient in a wide range of overseas formulated commercial Milk Replacers.

Australian manufacturers of animal health products have also started using SAF MANNAN in their formulations.

SAF MANNAN can be used directly by the farmer by adding it into their animal's current feed. The usage rates listed below are given as guide line to SAF MANNAN's addition to the feed lots of a variety of farmed animals

#### **FEED INCLUSION RATES of SAF MANNAN**

CATTLE MANNAN/head/day	Into the feed@ 5-10grams SAF
HORSES MANNAN/head/day	Into the feed@ 25 grams SAF
PIGS (Starters) (Growers) feed	1kg SAF MANNAN/tonne of complete feed 500grams SAF MANNAN/tonne of complete
GOATS and SHEEP	250grams to -500grams SAF MANNAN/tonne of complete feed
DOGS	0.3%SAF MANNAN of wet or dry food
CATS	0.3% SAF MANNAN of wet or dry food
CHICKENS feed	500gramsSAF MANNAN/tonne of complete
FISH	1% of complete food
BEES	0.3% of total feed

As more research results are published overseas, and the list of pathogens controlled by SAF MANNAN increases it is being mooted that SAF MANNAN will eventually replace the antibiotics used as growth stimulants. Until these claims are accepted and approved by APVMA it would be prudent at this time to expect only the following performance claims and benefits:

- helps maintain a healthy immune system
- supports natural defences
- promotes a healthy gut flora
- maintains and promotes gut health

Introduce Yeast Cell Wall Material to an animal's feed and it would be reasonable to assume prevention is better than cure when maintaining the healthy growth of farmed animals.