

# Sarford's News

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## Effect of SarStart® plus on Protozoal counts in beef cattle

SarTec has been a leader in yucca-based products for over 20 years and has a well established record for bringing the benefits of yucca extracts to the cattle industry in the form of a grain conditioner, liquid and dry feed additives, as well as a family of drench products. This article focuses on the mode of action of SarTec products from the perspective of the yucca components and their effect on specific rumen micro-organisms. The specific biological effects of the yucca plant are generally thought to be derived from two main origins, namely the effect of the intact saponins themselves that naturally occur in the plant and the steroid portion of the saponin (called the sapogenin), which can be liberated through metabolic processes. While the specific mode of action of yucca saponins is still a topic of some debate, the performance benefits for cattle are well documented. Through careful formulation and a strong tradition of quality control, SarTec is able to offer our customers a

consistent feeding benefit backed by University tested products. Extracts of the *Yucca schidigera* plant have been shown to improve cattle growth (Goodall and Matsushima, 1979), reduce ruminal and fecal ammonia concentrations (cited in multiple reports), and increase *in vivo* propionate production (Hristov et al, 1999). The component of *Y. schidigera* extract that is credited for these effects is the group of steroidal glycosides called saponins. Saponins have been shown to have anti-microbial properties, particularly in decreasing protozoa (Wallace et al., 1994; Hristov et al., 1999), peptidase-producing bacteria (Wallace et al., 1994), and cellulolytic bacteria (Wang et al., 2000). Methanogenic bacteria were correlated positively with protozoa, and a decrease in protozoal numbers resulted in decreased methane production of 30-45% (Lila et

al., 2003). With the exception of decreased cellulolytic bacteria numbers, all of these effects are considered beneficial to cattle production. Recent University research (KSU, 2003) as well as anecdotal evidence observed by cattle feeders indicates that the saponin-containing product known as SarStart® (SarTec Corporation, Anoka MN) has beneficial effects on the health and performance of newly received cattle. One possible mechanism of this effect is an antiprotozoal effect. Protozoa greatly reduce the amount of bacterial nitrogen that flow out of the rumen and increase the amount of ruminal ammonia ([http://www.rowett.ac.uk/divisions/Gut/microbial\\_meta/rumen\\_prot/rumen\\_ciliate.pdf](http://www.rowett.ac.uk/divisions/Gut/microbial_meta/rumen_prot/rumen_ciliate.pdf)). Both of these could impact a newly received feedlot animal in a negative manner. The objective of this article is to report a new study designed to investigate the effect of SarStart® on ruminal protozoa counts and mass.

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### Special Points of Interest:

- SarStart® Plus study shows a significant decrease in rumen protozoa after a 50cc dose.
- SarFord's kitchen - Beef Fillets with Porcini Mushroom Sauce.
- Employee feature: Lee Taylor - Service Manager.



**Table 1. Preliminary Phase (baseline)**

Steer #	Volume (L)	Counts (10 <sup>4</sup> /ml)	Total Protozoa (x 10 <sup>9</sup> )
1	61.4	35.5 + 6.4	21.8
2	54.4	26.9 ± 6.9	14.6
3	50.9	49.2 ± 6.5	25.0
4	46.8	44.4 ± 5.0	20.8
mean	53.4	39.0 + 6.2	20.6

## SarFord's kitchen

This edition's recipe is from Denise McNeff from Anoka, MN. She calls her recipe "Beef Fillets with Porcini Mushroom Sauce." Thanks, Denise, for your contribution!

### Ingredients:

6 (6 ounce) fillets beef tenderloin  
 2 teaspoons chopped fresh tarragon  
 1/2 teaspoon ground pepper  
 5 tablespoons butter or margarine

8 ounces of porcini mushroom caps, sliced  
 1/3 cup dry red wine  
 1/2 cup sour cream  
 3 ounces blue cheese, crumbled & divided

### Preparation:

- 1) Rub fillets with tarragon and pepper.
- 2) Melt 2 tablespoons butter in a large skillet. Cook fillets 5 minutes on each side, or as desired.
- 3) Melt 3 tablespoons butter in skillet.

Add mushrooms, and sauté 3-4 minutes, or until tender. Add wine, and cook 1-2 minutes, stirring to loosen particles from the bottom of skillet. Stir in sour cream. Sprinkle 1/4 cup cheese into sauce, stirring until melted.

- 4) Arrange the fillets on a serving platter, and drizzle with sauce.

You'll be pleased with the results! Please send us your recipes and let us know if you enjoyed this one. Thanks, SarFord.

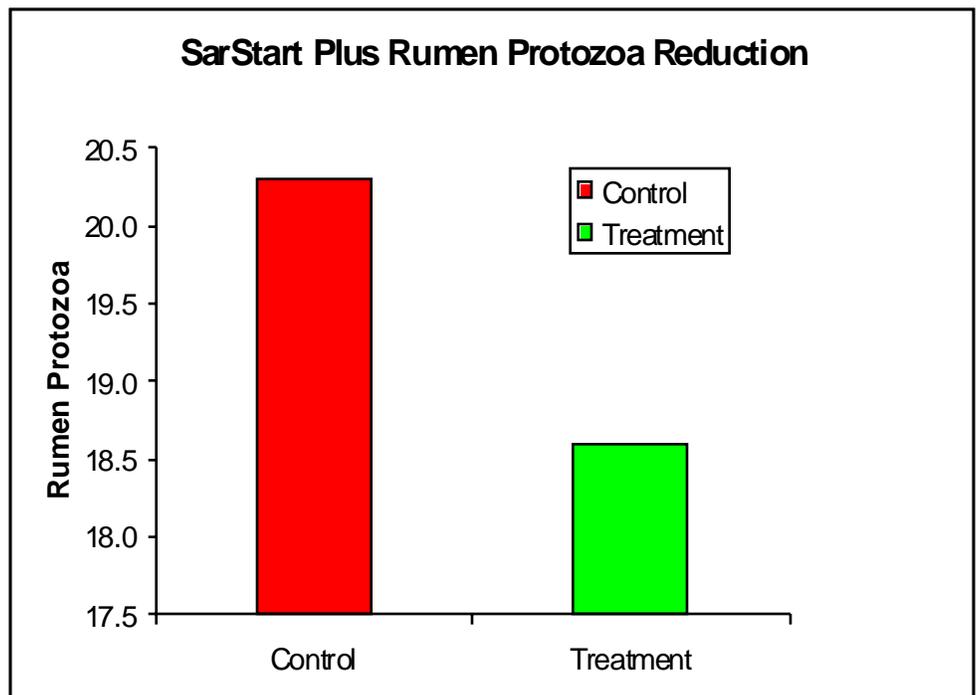
## Effect of SarStart plus on Protozoal counts in beef cattle (continued from page 1)

Four crossbred yearling cattle (born Fall 2002) were selected for this study. Cattle weighed an average of 725 lbs at the time of surgery. Rumen fistulas were installed and 4" cannulas were utilized to seal the fistula. Cattle were maintained on a forage ration for the duration of the study. The ration (grass hay; 10.5% CP, 55% NDF) was fed *ad libitum* access.

The preliminary phase involved establishment of baseline protozoal numbers. On day zero, rumen evacuations were done on each steer to estimate rumen volume. Following evacuation, samples were taken on each of seven consecutive days to determine day-to-day variation. Samples were collected each day between 0800 and 0900 and processed according to the methods of Dehority (1984). Data for the preliminary phase are shown in Table 1 (previous page).

The experimental phase involved dosing the cattle with SarStart® Plus to test the hypothesis that the product exhibits antiprotozoal activity. Two steers were chosen randomly (#1 and #4) to receive the experimental treatment which consisted of 50 cc of SarStart® Plus. The two remaining steers (#2 and #3) received a control treatment consisting of a 50 cc of isotonic saline. Steers were dosed at 0700 on a Monday and sampled at 12, 24, 48, 72, 96, and 108 hours post-dosing. Data for the experimental phase of this study are shown in Figure 1.

**Figure 1. Post-Treatment Monitoring of Protozoal Counts - after 50cc dose of SarStart® Plus**



The grand mean protozoal count for the preliminary phase was  $39.0 \times 10^4/\text{ml}$  of fluid (see Table 1). This number is within the range reported within the literature for cattle and other ruminants. Sheep on low-quality diets (e.g., wheat straw) have shown as little as  $20.4 \times 10^4/\text{ml}$  and cattle on rice straw supplemented with alfalfa meal pellets showed  $25.4 \times 10^4/\text{ml}$  (Towne and Nagaraja, 1990). In addition, the same report stated that sheep on a finishing diet may have as many as  $103.5 \times 10^4/\text{ml}$  and cattle on a similar

ration had  $174.8 \times 10^4/\text{ml}$ . A significant average percentage decrease was found in this study after administration of a 50 cc dose of SarStart® Plus (first step of the SarTec RSF program) which agreed well with the ranges previously reported in the open literature. The family of SarStart® drench products offered by SarTec is a cost-effective means of adding the natural feeding benefits of yucca extracts, essential vitamins, probiotics and egg culture to your cattle feeding program. Call your local SarTec Rep today to get more information.

## SARTEC® CORPORATION

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**SarTec®** is a family owned and operated corporation located in Anoka, MN. Established in 1983, our mission has been to provide high quality, natural products and service to the agricultural industry. From our equipment to our products, we have a number of ways to help you best reach your goals. Individually we can make a difference; together we can perform miracles.

# SarTec®

## SARTEC Employee highlight LEE Taylor

This issue's employee highlight focuses on one of the newer employees at SarTec, who has made a big impact on the SarTec team, Lee Taylor. Lee joined SarTec in May of 2000 right at the beginning of the new millennium. Lee and his wife, Heather, live in St. John, Kansas, which is where Lee grew up. He has been around the cattle business all his life. Lee epitomizes the spirit of SarTec in his hard work ethic and drive to be the best at what he does. He currently covers all of Kansas and Oklahoma for delivery of SarTemp grain conditioner. His father, Don Taylor, Jr. describes him as "Quiet . . . until you get to know him." His grandfather, Don Taylor, Sr. is a well respected cattleman who

managed Pawnee Valley Feeders located just outside of Hanston, KS for more than 32 years. Currently, Don Sr. is retired and enjoying his new Lund fishing boat in the pursuit of the mighty Walleye. We at SarTec would like to say a special thanks to Lee's grandfather for being such a good friend and customer over the past 18 years. Lee is a very family oriented young man. He and his wife also enjoy riding and they have 4 horses at home. In his recreational time he also enjoys bow hunting for deer and fishing. He used to ride bulls in the rodeo, which in my book makes him one of the bravest people I know. When you see Lee, please say hello and mention you saw him in the newsletter!

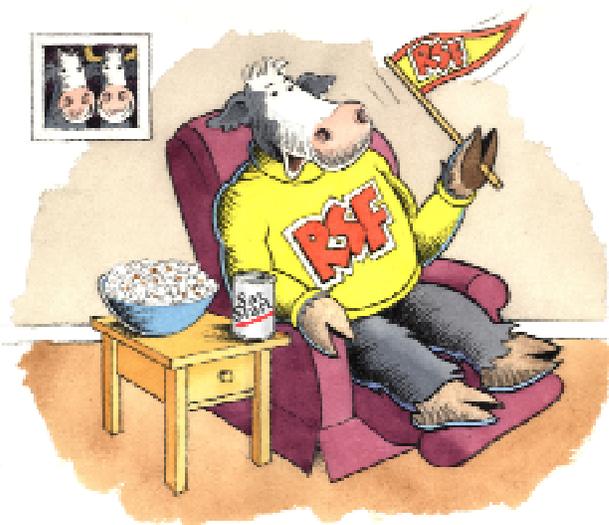


SarTec Highlight of Lee Taylor. Lee has been with SarTec since 2000 servicing Kansas and Oklahoma.

# See inside: New Research on the effects of SarStart® Plus on Protozoal Counts in Beef Cattle

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- SarBaldy