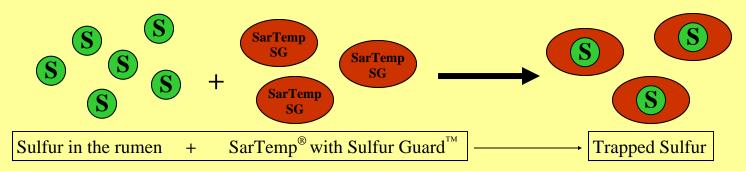
# SarTemp® SG

SarTec<sup>®</sup> Corporation continues to provide

SarTemp<sup>®</sup> SG with Sulfur Guard<sup>™</sup> to cattle feeders!

**SarTemp**<sup>®</sup> **SG** with **Sulfur Guard**<sup>TM</sup> contains all of the original ingredients contained in **SarTemp**<sup>®</sup>, plus additional ingredients which form insoluble complexes with sulfide ions. **SarTemp**<sup>®</sup> **SG** with **Sulfur Guard**<sup>TM</sup> ties up the sulfur so it can no longer accumulate in the rumen gas bubble.



Inorganic sulfur toxicity has always been a problem in the feedlot industry. Sulfur can be present in feed ingredients and in water. Today, with the increased feeding of distiller's grains (which may contain varying amounts of sulfur on a day to day basis), it is even more important to try and mitigate the effects of too much sulfur.

Sulfur is a required nutrient for beef cattle, however, too much sulfur in the diet can quickly become toxic. One of the first signs of cattle sulfur toxicity is reduced feed intake, which quickly translates into reduced gains and efficiency. As more sulfur is ingested, the animal may experience serious health effects such as restlessness, diarrhea, muscle twitching, dyspnea, inactivity or

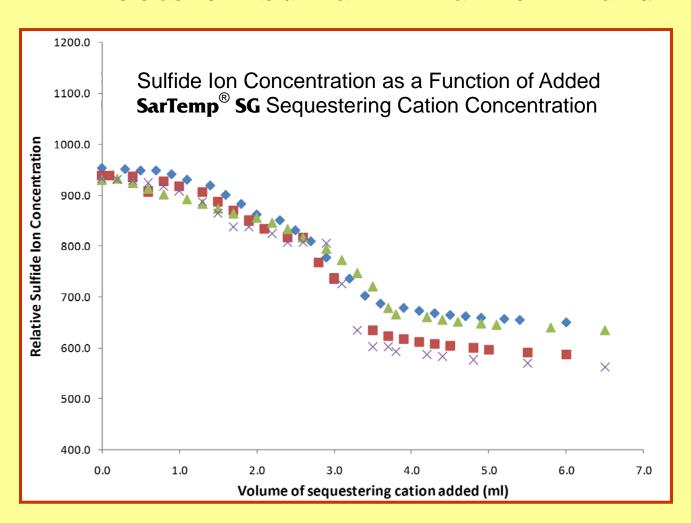
Some uses of this product are covered by U.S. Patent No. 5,279,838 and 7,544,376, other patents are pending.



On You Tube search for *SarTec Corporation* to learn more about SarTec's RSF program and other products.

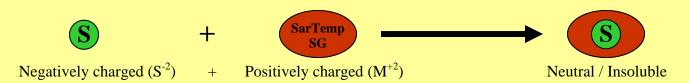


### **SarTemp<sup>®</sup> SG** with **Sulfur Guard**<sup>™</sup> Effects on sulfur in rumen fluid



#### The graph above shows...

Rumen fluid samples were collected from fistulated animals. The sulfur concentration of the rumen fluid was measured and adjusted to a normalized concentration of 200 mMol sulfide anion. Different cationic species were investigated for their ability to bind with and sequester sulfur (sulfide anion) contained in the rumen fluid. The above graph is a plot of some of the species used to sequester free sulfur in rumen fluid. As sequestering species are added to the rumen fluid, the concentration of free sulfur (sulfide anion) decreases. This is due to the nearly irreversible complexation of the negatively charged sulfur anions with the positively charged elements in **SarTemp**® **SG** with **Sul**-



## **SarTemp<sup>®</sup> SG** with **Sulfur Guard**<sup>™</sup> Effects on feed intake

	Control	SarTemp® SG
Number of head	23	23
Start wt, lb	972.45	966.05
End wt, lb	1133.30	1147.50
DMI, lb/hd/day	22.07	23.18
ADG, Lb/hd/day	3.45	3.58
Feed Efficiency (DM/gain)	6.41	6.48

In order to determine the feed intake effects of adding **SarTemp**<sup>®</sup> **SG** with **Sul- fur Guard**<sup>™</sup> to feedlot finishing diets, a research trial was performed at the
North Dakota State University Carrington Research Extension Center under the
direction of Professor Vern Anderson.

In this trial, forty-six Angus based feeder calves were blocked by sex (heifers and steers) and assigned within block to one of two treatments. One group (one pen of steers and one pen of heifers) was fed **SarTemp**<sup>®</sup> **SG** with **Sulfur Guard**<sup>™</sup>, mixed into the feedlot supplement. The supplement contained minerals, vitamins, Rumensin (300 mg/hd/d), and carrier feed products including corn, barley sprouts, and distillers grains. The other group (control) was fed the same supplement and diet without **SarTemp**<sup>®</sup> **SG** with **Sulfur Guard**<sup>™</sup>.

The cattle that received the **SarTemp<sup>®</sup> SG** with **Sulfur Guard**<sup>™</sup> treatment had substantially increased dry matter intake and average daily gains. The cattle were finished and shipped after 48 days on feed.

### **Product Research Feeding Trial Summary**

1 - SarTemp	Trial # - Description	ADG (Ib/day)	Efficiency (Feed Ibs/Gain Ibs)	Type of Processing	Trial Location
1 - Control	Description	(ID/day)	(Feed IDS/Gaill IDS)		
1 - Control	1 - SarTemp	3.34	5.2	DRY ROLL	University of California,
2 - SarTemp 3.8 5.87 DRY ROLL 2 - Control 3.41 6.47 DRY ROLL 2 - Control 3.41 6.47 DRY ROLL 2 - Control 3.41 6.47 DRY ROLL 2 - Control 5.46 DRY ROLL 3 - SarTemp 2.5 9.01 DRY ROLL 3 - Control 2.24 9.59 DRY ROLL 3 - Control 3.26 5.91 DRY ROLL 4 - Control 3.26 5.91 DRY ROLL 5 - Control 3.35 6.1 DRY ROLL 5 - Control 3.35 6.1 DRY ROLL 5 - Control 3.9 4.8 DRY ROLL 5 - Control 3.9 5 STEAM FLAKE 6 - Control 3.9 5 STEAM FLAKE 6 - Control 3.9 5 STEAM FLAKE 7 - Control 3.9 5 STEAM FLAKE 7 - Control 3.9 5 STEAM FLAKE 8	_	3.48	5.33	DRY ROLL	El Centro
2 - Control         3.41         6.47         DRY ROLL           2 - % Improvement         11.4         9.3         DRY ROLL           3 - SarTemp         2.5         9.01         DRY ROLL           3 - Control         2.24         9.59         DRY ROLL           3 - % Improvement         11.6         6         DRY ROLL           4 - SarTemp         3.7         5.46         DRY ROLL           4 - Control         3.26         5.91         DRY ROLL           4 - % Improvement         13.5         7.6         DRY ROLL           5 - SarTemp         3.48         5.81         DRY ROLL           5 - Control         3.35         6.1         DRY ROLL           5 - % Improvement         3.9         4.8         DRY ROLL           Trials 1-5         ADG         Efficiency           Avg % Improvement         7.2         6.1         DRY ROLL           6 - SarTemp         3.39         4.97         STEAM FLAKE         University of California           6 - Control         3.26         5.05         STEAM FLAKE         El Centro           7 - SarTemp         3.44         6.44         STEAM FLAKE         Independent Feedlot           7 - % Improvement	1 - % Improvement	-4.2	2.5	DRY ROLL	
2 - Control         3.41         6.47         DRY ROLL           2 - % Improvement         11.4         9.3         DRY ROLL           3 - SarTemp         2.5         9.01         DRY ROLL           3 - Control         2.24         9.59         DRY ROLL           3 - % Improvement         11.6         6         DRY ROLL           4 - SarTemp         3.7         5.46         DRY ROLL           4 - Control         3.26         5.91         DRY ROLL           4 - % Improvement         13.5         7.6         DRY ROLL           5 - SarTemp         3.48         5.81         DRY ROLL           5 - Control         3.35         6.1         DRY ROLL           5 - % Improvement         3.9         4.8         DRY ROLL           Trials 1-5         ADG         Efficiency           Avg % Improvement         7.2         6.1         DRY ROLL           6 - SarTemp         3.39         4.97         STEAM FLAKE         University of California           6 - Control         3.26         5.05         STEAM FLAKE         El Centro           7 - SarTemp         3.44         6.44         STEAM FLAKE         Independent Feedlot           7 - % Improvement					
2 - % Improvement         11.4         9.3         DRY ROLL           3 - SarTemp         2.5         9.01         DRY ROLL           3 - Control         2.24         9.59         DRY ROLL           3 - % Improvement         11.6         6         DRY ROLL           4 - SarTemp         3.7         5.46         DRY ROLL           4 - Control         3.26         5.91         DRY ROLL           4 - % Improvement         13.5         7.6         DRY ROLL           5 - SarTemp         3.48         5.81         DRY ROLL           5 - Control         3.35         6.1         DRY ROLL           5 - % Improvement         3.9         4.8         DRY ROLL           Trials 1-5         ADG         Efficiency           Avg % Improvement         7.2         6.1         DRY ROLL           Trials 1-5         ADG         Efficiency           Avg % Improvement         7.2         5.05         STEAM FLAKE           6 - Control         3.26         5.05         STEAM FLAKE           7 - SarTemp         3.44         6.44         STEAM FLAKE           7 - % Improvement         2.4         2.1         STEAM FLAKE <t< td=""><td>_</td><td></td><td></td><td></td><td>University of Nebraska,</td></t<>	_				University of Nebraska,
3 - SarTemp   2.5   9.01   DRY ROLL   3 - Control   2.24   9.59   DRY ROLL   3 - William   11.6   6   DRY ROLL   4 - SarTemp   3.7   5.46   DRY ROLL   4 - Control   3.26   5.91   DRY ROLL   El Centro   El Centro   5 - SarTemp   3.48   5.81   DRY ROLL   5 - Control   3.35   6.1   DRY ROLL   5 - William   DRY ROLL   5 - William   DRY ROLL   Trials 1-5   ADG   Efficiency   Avg Wilmprovement   4   1.6   STEAM FLAKE   El Centro   El Centro   El Centro   El Centro   El Centro   El Centro   Centrol   Centr					
3 - Control   2.24   9.59   DRY ROLL     3 - % Improvement   11.6   6   DRY ROLL	2 - % Improvement	11.4	9.3	DRY ROLL	
3 - Control   2.24   9.59   DRY ROLL   3 - % Improvement   11.6   6   DRY ROLL	3 - SarTemp	2.5	9.01	DRY ROLL	University of Nebraska.
3 - % Improvement         11.6         6         DRY ROLL           4 - SarTemp         3.7         5.46         DRY ROLL         University of California EI Centro           4 - Control         3.26         5.91         DRY ROLL         EI Centro           4 - % Improvement         13.5         7.6         DRY ROLL         Texas Tech University           5 - SarTemp         3.48         5.81         DRY ROLL         Texas Tech University           5 - Control         3.35         6.1         DRY ROLL         Texas Tech University           5 - % Improvement         3.9         4.8         DRY ROLL         DRY ROLL           6 - % Improvement         7.2         6.1         DRY ROLL         University of California EI Centro           6 - Control         3.26         5.05         STEAM FLAKE         University of California EI Centro           6 - % Improvement         4         1.6         STEAM FLAKE         EI Centro           7 - SarTemp         3.44         6.44         STEAM FLAKE         Independent Feedlot           7 - % Improvement         2.4         2.1         STEAM FLAKE         Texas Tech University           8 - SarTemp         3.64         5.16         STEAM FLAKE         Texas Tech University <tr< td=""><td>_</td><td></td><td></td><td></td><td>, , , , , , , , , , , , , , , , , , , ,</td></tr<>	_				, , , , , , , , , , , , , , , , , , , ,
4 - Control         3.26         5.91         DRY ROLL         El Centro           4 - % Improvement         13.5         7.6         DRY ROLL         Texas Tech University           5 - SarTemp         3.48         5.81         DRY ROLL         Texas Tech University           5 - Control         3.35         6.1         DRY ROLL         Texas Tech University           5 - % Improvement         7.2         6.1         DRY ROLL         DRY ROLL           6 - SarTemp         3.39         4.97         STEAM FLAKE         University of California           6 - Control         3.26         5.05         STEAM FLAKE         El Centro           6 - % Improvement         4         1.6         STEAM FLAKE         Independent Feedlot           7 - Control         3.36         6.58         STEAM FLAKE         Independent Feedlot           7 - % Improvement         2.4         2.1         STEAM FLAKE         Texas Tech University           8 - SarTemp         3.77         5.06         STEAM FLAKE         Texas Tech University           8 - Control         3.64         5.16         STEAM FLAKE         Texas Tech University           8 - % Improvement         3.6         2         STEAM FLAKE         Texas Tech University  <					
4 - Control         3.26         5.91         DRY ROLL         El Centro           4 - % Improvement         13.5         7.6         DRY ROLL         Texas Tech University           5 - SarTemp         3.48         5.81         DRY ROLL         Texas Tech University           5 - Control         3.35         6.1         DRY ROLL         Texas Tech University           5 - % Improvement         7.2         6.1         DRY ROLL         DRY ROLL           6 - SarTemp         3.39         4.97         STEAM FLAKE         University of California           6 - Control         3.26         5.05         STEAM FLAKE         El Centro           6 - % Improvement         4         1.6         STEAM FLAKE         Independent Feedlot           7 - Control         3.36         6.58         STEAM FLAKE         Independent Feedlot           7 - % Improvement         2.4         2.1         STEAM FLAKE         Texas Tech University           8 - SarTemp         3.77         5.06         STEAM FLAKE         Texas Tech University           8 - Control         3.64         5.16         STEAM FLAKE         Texas Tech University           8 - % Improvement         3.6         2         STEAM FLAKE         Texas Tech University  <					
4 - % Improvement         13.5         7.6         DRY ROLL           5 - SarTemp         3.48         5.81         DRY ROLL           5 - Control         3.35         6.1         DRY ROLL           5 - % Improvement         3.9         4.8         DRY ROLL           Trials 1-5         ADG         Efficiency           Avg % Improvement         7.2         6.1         DRY ROLL           6 - SarTemp         3.39         4.97         STEAM FLAKE         University of California           6 - Control         3.26         5.05         STEAM FLAKE         EI Centro           6 - % Improvement         4         1.6         STEAM FLAKE         Independent Feedlot           7 - Control         3.36         6.58         STEAM FLAKE         Independent Feedlot           7 - % Improvement         2.4         2.1         STEAM FLAKE         Texas Tech University           8 - SarTemp         3.77         5.06         STEAM FLAKE         Texas Tech University           8 - Control         3.64         5.16         STEAM FLAKE         Texas Tech University           8 - % Improvement         3.6         2         STEAM FLAKE         Texas Tech University	_	3.7	5.46		University of California,
5 - SarTemp         3.48         5.81         DRY ROLL         Texas Tech University           5 - Control         3.35         6.1         DRY ROLL           5 - % Improvement         3.9         4.8         DRY ROLL           Trials 1-5 ADG Avg % Improvement         ADG Avg % Improvement         Efficiency 6.1         DRY ROLL           6 - SarTemp         3.39         4.97         STEAM FLAKE         University of California El Centro           6 - Control         3.26         5.05         STEAM FLAKE         El Centro           7 - SarTemp         3.44         6.44         STEAM FLAKE         Independent Feedlot           7 - Control         3.36         6.58         STEAM FLAKE         Independent Feedlot           7 - % Improvement         2.4         2.1         STEAM FLAKE         Texas Tech University           8 - Control         3.64         5.16         STEAM FLAKE         Texas Tech University           8 - Control         3.64         5.16         STEAM FLAKE         Texas Tech University           8 - % Improvement         3.6         2         STEAM FLAKE         Texas Tech University	4 - Control	3.26	5.91	DRY ROLL	El Centro
5 - Control         3.35         6.1         DRY ROLL           5 - % Improvement         3.9         4.8         DRY ROLL           Trials 1-5 ADG Avg % Improvement         ADG Avg % Improvement         Efficiency 6.1         DRY ROLL           6 - SarTemp         3.39         4.97         STEAM FLAKE         University of California El Centro           6 - Control         3.26         5.05         STEAM FLAKE         El Centro           7 - % Improvement         4         1.6         STEAM FLAKE         Independent Feedlot           7 - Control         3.36         6.58         STEAM FLAKE         Independent Feedlot           7 - % Improvement         2.4         2.1         STEAM FLAKE         Texas Tech University           8 - SarTemp         3.64         5.16         STEAM FLAKE         Texas Tech University           8 - % Improvement         3.6         2         STEAM FLAKE         Texas Tech University           Trials 6-8         ADG         Efficiency         STEAM FLAKE         Texas Tech University	4 - % Improvement	13.5	7.6	DRY ROLL	
5 - Control         3.35         6.1         DRY ROLL           5 - % Improvement         3.9         4.8         DRY ROLL           Trials 1-5 ADG Avg % Improvement         ADG Avg % Improvement         Efficiency General Avg % Improvement         DRY ROLL           6 - SarTemp         3.39         4.97         STEAM FLAKE         University of California El Centro           6 - Control         3.26         5.05         STEAM FLAKE         El Centro           7 - SarTemp         3.44         6.44         STEAM FLAKE         Independent Feedlot           7 - Control         3.36         6.58         STEAM FLAKE         Independent Feedlot           8 - SarTemp         3.77         5.06         STEAM FLAKE         Texas Tech Universit           8 - Control         3.64         5.16         STEAM FLAKE           8 - W Improvement         3.6         2         STEAM FLAKE           Trials 6-8         ADG         Efficiency	5 C 7	2.40	F 04	DDV DOLL	Tayon Tools University
5 - % Improvement         3.9         4.8         DRY ROLL           Trials 1-5 Avg % Improvement         ADG 7.2         Efficiency 6.1         DRY ROLL           6 - SarTemp         3.39         4.97         STEAM FLAKE         University of California El Centro           6 - Control         3.26         5.05         STEAM FLAKE         El Centro           6 - % Improvement         4         1.6         STEAM FLAKE         Independent Feedlot           7 - SarTemp         3.44         6.44         STEAM FLAKE         Independent Feedlot           7 - % Improvement         2.4         2.1         STEAM FLAKE         Texas Tech University           8 - SarTemp         3.77         5.06         STEAM FLAKE         Texas Tech University           8 - Control         3.64         5.16         STEAM FLAKE         Texas Tech University           8 - % Improvement         3.6         2         STEAM FLAKE         Texas Tech University           Trials 6-8         ADG         Efficiency         STEAM FLAKE         Texas Tech University	_				l rexas rech University
Trials 1-5         ADG         Efficiency         DRY ROLL           6 - SarTemp         3.39         4.97         STEAM FLAKE         University of California El Centro           6 - Control         3.26         5.05         STEAM FLAKE         El Centro           6 - % Improvement         4         1.6         STEAM FLAKE         Independent Feedlot           7 - SarTemp         3.44         6.44         STEAM FLAKE         Independent Feedlot           7 - Control         3.36         6.58         STEAM FLAKE         Independent Feedlot           8 - SarTemp         3.77         5.06         STEAM FLAKE         Texas Tech University           8 - Control         3.64         5.16         STEAM FLAKE         Texas Tech University           8 - % Improvement         3.6         2         STEAM FLAKE					
Avg % Improvement         7.2         6.1         DRY ROLL           6 - SarTemp         3.39         4.97         STEAM FLAKE         University of California           6 - Control         3.26         5.05         STEAM FLAKE         El Centro           6 - % Improvement         4         1.6         STEAM FLAKE         Independent Feedlot           7 - SarTemp         3.44         6.44         STEAM FLAKE         Independent Feedlot           7 - Control         3.36         6.58         STEAM FLAKE         STEAM FLAKE           8 - SarTemp         3.77         5.06         STEAM FLAKE         Texas Tech University           8 - Control         3.64         5.16         STEAM FLAKE           8 - W Improvement         3.6         2         STEAM FLAKE    Trials 6-8  ADG  Efficiency	5 - % improvement	3.9	4.0	DRTROLL	
Avg % Improvement         7.2         6.1         DRY ROLL           6 - SarTemp         3.39         4.97         STEAM FLAKE         University of California           6 - Control         3.26         5.05         STEAM FLAKE         El Centro           6 - % Improvement         4         1.6         STEAM FLAKE         Independent Feedlot           7 - SarTemp         3.44         6.44         STEAM FLAKE         Independent Feedlot           7 - Control         3.36         6.58         STEAM FLAKE         STEAM FLAKE           8 - SarTemp         3.77         5.06         STEAM FLAKE         Texas Tech University           8 - Control         3.64         5.16         STEAM FLAKE           8 - W Improvement         3.6         2         STEAM FLAKE    Trials 6-8  ADG  Efficiency	Trials 1-5	ADG	Efficiency		
6 - Control         3.26         5.05         STEAM FLAKE         El Centro           6 - % Improvement         4         1.6         STEAM FLAKE         Independent Feedlot           7 - SarTemp         3.44         6.44         STEAM FLAKE         Independent Feedlot           7 - Control         3.36         6.58         STEAM FLAKE           7 - % Improvement         2.4         2.1         STEAM FLAKE           8 - SarTemp         3.77         5.06         STEAM FLAKE         Texas Tech University           8 - Control         3.64         5.16         STEAM FLAKE           8 - % Improvement         3.6         2         STEAM FLAKE    Trials 6-8  ADG  Efficiency				DRY ROLL	
6 - Control         3.26         5.05         STEAM FLAKE         El Centro           6 - % Improvement         4         1.6         STEAM FLAKE         Independent Feedlot           7 - SarTemp         3.44         6.44         STEAM FLAKE         Independent Feedlot           7 - Control         3.36         6.58         STEAM FLAKE           7 - % Improvement         2.4         2.1         STEAM FLAKE           8 - SarTemp         3.77         5.06         STEAM FLAKE         Texas Tech University           8 - Control         3.64         5.16         STEAM FLAKE           8 - % Improvement         3.6         2         STEAM FLAKE    Trials 6-8  ADG  Efficiency	0.6.7	2.22	107	OTEAN ELAKE	
6 - % Improvement         4         1.6         STEAM FLAKE           7 - SarTemp         3.44         6.44         STEAM FLAKE         Independent Feedlot           7 - Control         3.36         6.58         STEAM FLAKE           7 - % Improvement         2.4         2.1         STEAM FLAKE           8 - SarTemp         3.77         5.06         STEAM FLAKE         Texas Tech University           8 - Control         3.64         5.16         STEAM FLAKE           8 - % Improvement         3.6         2         STEAM FLAKE    Trials 6-8  ADG  Efficiency					-
7 - SarTemp         3.44         6.44         STEAM FLAKE         Independent Feedlot           7 - Control         3.36         6.58         STEAM FLAKE           7 - % Improvement         2.4         2.1         STEAM FLAKE           8 - SarTemp         3.77         5.06         STEAM FLAKE           8 - Control         3.64         5.16         STEAM FLAKE           8 - % Improvement         3.6         2         STEAM FLAKE    Trials 6-8  ADG  Efficiency					El Centro
7 - Control         3.36         6.58         STEAM FLAKE           7 - % Improvement         2.4         2.1         STEAM FLAKE           8 - SarTemp         3.77         5.06         STEAM FLAKE         Texas Tech University           8 - Control         3.64         5.16         STEAM FLAKE           8 - % Improvement         3.6         2         STEAM FLAKE           Trials 6-8         ADG         Efficiency	6 - % Improvement	4	1.6	STEAM FLAKE	
7 - Control         3.36         6.58         STEAM FLAKE           7 - % Improvement         2.4         2.1         STEAM FLAKE           8 - SarTemp         3.77         5.06         STEAM FLAKE         Texas Tech University           8 - Control         3.64         5.16         STEAM FLAKE           8 - % Improvement         3.6         2         STEAM FLAKE           Trials 6-8         ADG         Efficiency	7 - SarTemp	3.44	6.44	STEAM FLAKE	Independent Feedlot
7 - % Improvement         2.4         2.1         STEAM FLAKE           8 - SarTemp         3.77         5.06         STEAM FLAKE         Texas Tech University           8 - Control         3.64         5.16         STEAM FLAKE           8 - % Improvement         3.6         2         STEAM FLAKE           Trials 6-8         ADG         Efficiency	_				
8 - Control         3.64         5.16         STEAM FLAKE           8 - % Improvement         3.6         2         STEAM FLAKE           Trials 6-8         ADG         Efficiency					
8 - Control         3.64         5.16         STEAM FLAKE           8 - % Improvement         3.6         2         STEAM FLAKE           Trials 6-8         ADG         Efficiency					
8 - % Improvement 3.6 2 STEAM FLAKE  Trials 6-8 ADG Efficiency					Texas Tech University
Trials 6-8 ADG Efficiency					
	8 - % Improvement	3.6	2	STEAM FLAKE	
	Trials 6-8	ADG	Efficiency		
IAva % Improvement I 3.3   1.9   STEAM FLAKE	Avg % Improvement	3.3	1.9	STEAM FLAKE	

**SarTemp**<sup>®</sup> **SG** with **Sulfur Guard**<sup>TM</sup> contains the same formulation included in the original **SarTemp**<sup>®</sup>, plus extra ingredients which are designed to sequester sulfur ions with which they come into contact. This means that you are getting the same University and Commercial feedlot proven technology as before, only now it is improved.

**SarTec**® **Corporation** - From the developers of saponin technology for the cattle industry.

Some uses of this product are covered by U.S. Patent No. 5,279,838 and 7,544,376, other patents are pending.