



ARM & HAMMER ANIMAL NUTRITION

Stay ahead of the race.



ANIMALS FIRST.
PRODUCTIVITY ALWAYS.

OVERVIEW

- The CELMANAX™ Advantage
- Get the Winning Edge
- Pre-Race Research Pays
- Grow Fast, Young Calves
- More Ways to Win
- Fuel Up: Recommended Feeding Rates



THE CELMANAX ADVANTAGE

- Delivers more advantages than any single yeast culture, MOS or glucan feed ingredient
- Offers numerous benefits to animal health and immunity that can help enhance performance and increase productivity ^{1 - 13}



Reference citations on slide 13.



CELMANAX KEEPS YOUR HERD IN WINNING FORM

- Helps prepare immune system ahead of a challenge⁹
- Can decrease medical costs and mortality by binding harmful pathogens³
- Helps improve udder health^{5,6,9}
- Can minimize the transfer of aflatoxins into milk²
- Improves rumen fermentation and digestion for greater feed efficiency
- Maintains consistent milk production and milk quality, even when heat and humidity rise⁴
- Helps calves stay ahead of the race^{1,10,11,12} by reducing the incidence, severity and duration of scours^{7,13}

Reference citations on slide 13.



GET THE WINNING EDGE

- Revolutionary enzymatic hydrolysis process used to manufacture CELMANAX yields highly bioavailable Refined Functional Carbohydrates™ (RFC™)
 - MOS
 - Mannose
 - Beta-glucans
 - Other RFCs
- RFCs help minimize health issues and potentially allow additional energy to be available for growth



**ROAD
TIP**

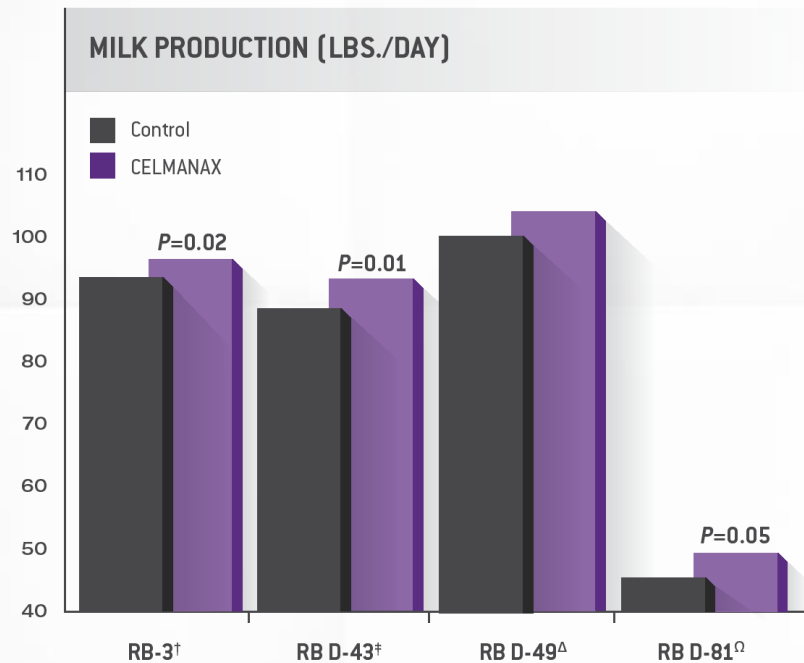
Speed past aflatoxin.

So much can slow down animals on the road to productivity. CELMANAX has been shown to effectively reduce carryover of harmful mycotoxins, such as aflatoxin, in the milk of cows.‡

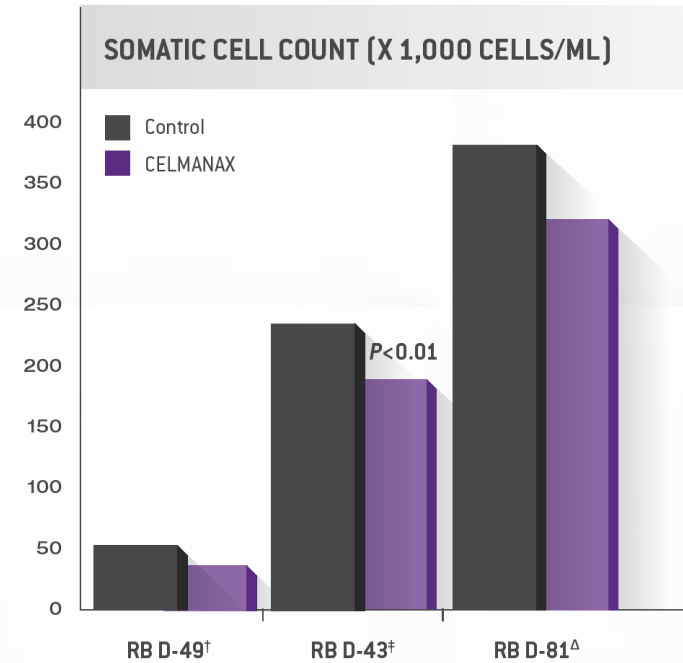
‡ Baines D. Evaluation of prebiotics and probiotics to reduce toxicity of pure and mixed-feed mycotoxins *in vitro* and to prevent carry-over of aflatoxin B1 in dairy cows. Symposium on Gut Health in Production of Food Animals; Abstracts 202-1 and 202-2. 2014.

CELMANAX™

PRE-RACE RESEARCH PAYS



*Pasture cow study in Costa Rica



*Pasture cow study in Costa Rica

Reference citations on slide 13.





Zoom past HBS.

Studies show that the RFCs™ in CELMANAX interact with pathogenic bacteria and mycotoxins which are known factors in the development of hemorrhagic bowel syndrome (HBS).^Δ

^Δ Baines , et al. A probiotic, CELMANAX, decreases *Escherichia coli* 0157:H7 colonization of bovine cells and feed-associated cytotoxicity *in vitro*. *BMC Research Notes* 2011;4:110.





ROAD TIP

Fast and healthy starts win the race. When your milk replacers and starter feeds are powered by CELMANAX, reduced incidence,[†] severity[‡] and duration of cryptosporidiosis[†] has been reported. Additionally, reduced incidence of BRD infections have also been seen.^Δ The healthy starts lead to increased weight gain by up to 8 lbs. while improving feed efficiency.^Ω

[†] Santos JEP. Prophylactic Feeding of Yeast Culture Enriched with Oligosaccharides from Cell wall Extract in Calves Experimentally Challenged with *Cryptosporidium parvum*. University of Florida, 2008: report on file.

[‡] Jalukar S, Nocek JE. Evaluation of enzymatically hydrolyzed yeast *in vitro* and *in vivo* for control of *Cryptosporidium parvum* infections in dairy calves. *J Anim Sci* 2009; Vol.87, E-Suppl. 2/*J Dairy Sci* Vol. 92, E-Suppl. 1. Research Bulletin D-61.

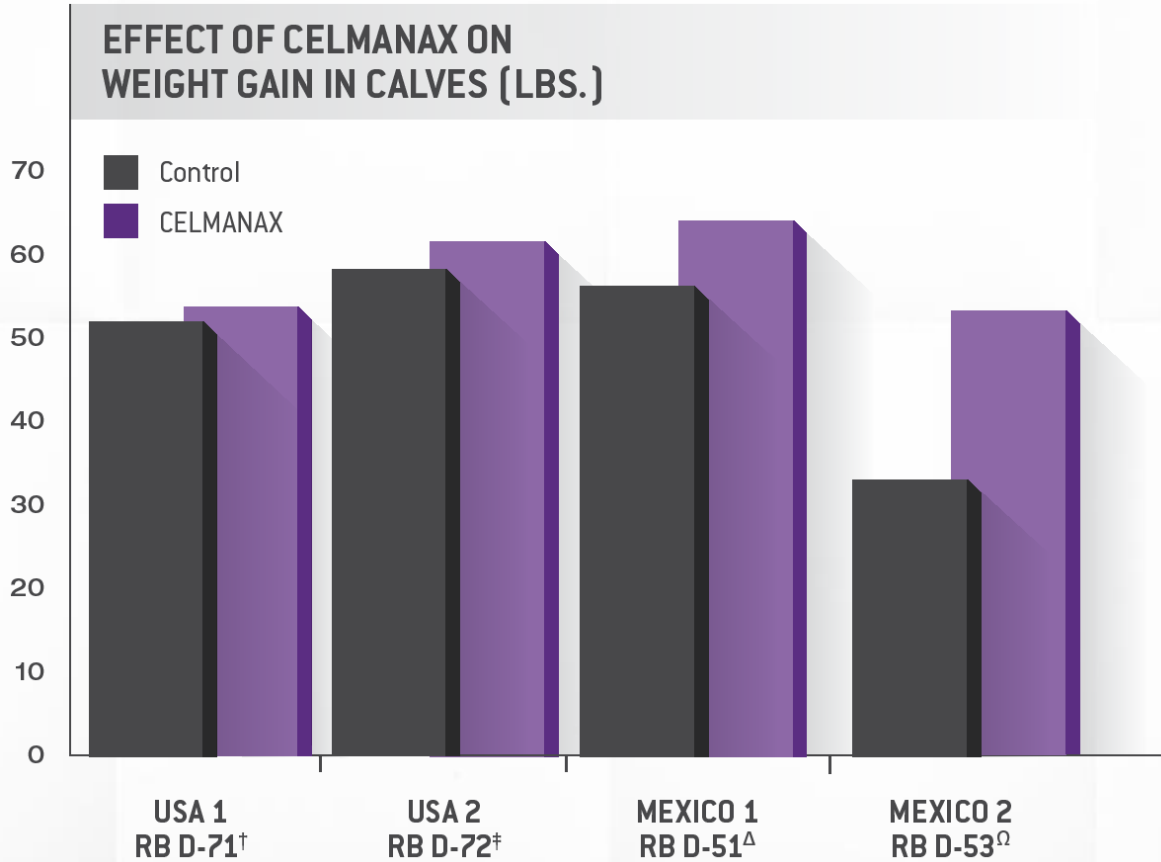
^Δ Ponce CH, Schutz JS, Elrod CC, Anele UY, Galyean ML. Effects of dietary supplementation of a yeast product on performance and morbidity of newly received beef heifers. *The Professional Animal Scientist* 2012;28:618-622. Research Bulletin B-77.

^Ω Dennis R, Jalukar S. Effect of CELMANAX SCP on calf performance when fed in the milk replacer and grower phase. *J Anim Sci* 2011;Vol.89, E-Suppl. 1/*J Dairy Sci* Vol. 94, E-Suppl. 1. Research Bulletin D-72.



CELMANAX™

GROW FAST, YOUNG CALVES



Reference citations on slide 13.



MORE WAYS TO WIN WITH CELMANAX

- Save time and money while increasing income and profit:
 - Eliminate time identifying sick animals
 - Minimize cows spending time in the sick pen
 - Speed up recovery rates and/or reduce risk of severity of *Cryptosporidiosis* and *Coccidiosis*^{7,13}
 - Save on treatment cost^{1,8,12}
 - Reduce labor/time treating and managing sick animals⁸
 - Minimize risk and severity of mastitis^{5,6,9}
 - Reduce the negative effects to performance caused by mycotoxins²
 - Boost milk production efficiency^{4,5,6,9}

Reference citations on slide 13.



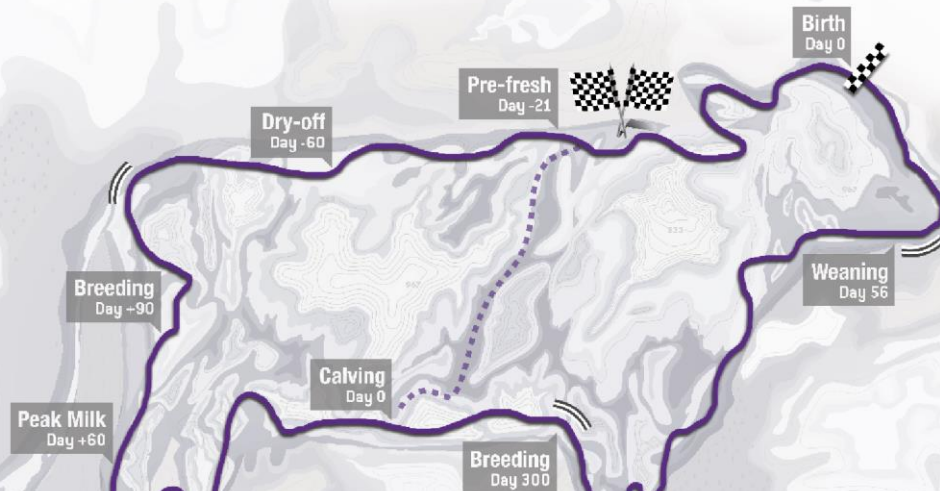
FUEL UP: RECOMMENDED FEEDING RATES

	Grams/Head/Day					Ounces/Head/Day				
	Dry & Transition Cow	Lactating Cow	Milk Replacer	Calf Starter	Heifer	Dry & Transition Cow	Lactating Cow	Milk Replacer	Calf Starter	Heifer
CELMANAX Dry	56	28		7	14	2.0	1.0		0.25	0.5
CELMANAX SCP	6	3	1	1	2	0.2	0.1	0.04	0.04	0.07
CELMANAX SCP Micro M	6	6		1	2	0.2	0.1		0.04	0.07
CELMANAX SCP Liquid	28	14	8	8	10	1	0.5	0.3	0.3	0.3

CITATIONS

1. Research Bulletin D-53: CELMANAX Liquid in dairy calf milk replacers.
2. Baines D. Evaluation of prebiotics and probiotics to reduce toxicity of pure and mixed-feed mycotoxins *in vitro* and to prevent carry-over of aflatoxin B1 in dairy cows. Symposium on Gut Health in Production of Food Animals; Abstracts 202-1 and 202-2. 2014.
3. Baines, et al. A probiotic, CELMANAX, decreases *Escherichia coli* 0157:H7 colonization of bovine cells and feed-associated cytotoxicity *in vitro*. *BMC Research Notes* 2011;4:110.
4. Bruno RGS, Rutigliano HM, Cerri RL, Robinson PH, Santos JEP. Effect of feeding *Saccharomyces cerevisiae* on performance of dairy cows during summer heat stress. *Animal Feed Science and Technology* 2009;150:175-186.
5. Nocek JE, Holt MG, Oppy J. Effects of supplementation with yeast culture and enzymatically hydrolyzed yeast on performance of early lactation dairy cattle. *J Dairy Sci* 2011;94:4046-4056. Research Bulletin D-43.
6. Research Bulletin D-81: Presented at CLANA 2012 in Mexico.
7. Jalukar S, Nocek JE. Evaluation of enzymatically hydrolyzed yeast *in vitro* and *in vivo* for control of *Cryptosporidium parvum* infections in dairy calves. *J Anim Sci* 2009; Vol.87, E-Suppl.2/*J Dairy Sci* Vol. 92, E-Suppl. 1. Research Bulletin D-61.
8. Ponce CH, Schutz JS, Elrod CC, Anele UY, Galyean ML. Effects of dietary supplementation of a yeast product on performance and morbidity of newly received beef heifers. *The Professional Animal Scientist* 2012;28:618-622. Research Bulletin B-77.
9. Proudfoot K, Von Keyseiling M, Weary D, Nocek JE. The effect of enzymatically hydrolyzed yeast on feeding behavior and immune function in early lactation dairy cows. *J Dairy Sci* 2009;92;E-Suppl.1.
10. Dennis R, Jalukar S. Effect of CELMANAX SCP on calf performance when fed in the milk replacer and grower phase. *J Anim Sci* 2011;Vol. 89, E-Suppl. 1/*J Dairy Sci* Vol. 94, E-Suppl. 1. Research Bulletin D-72.
11. Research Bulletin D-71: CELMANAX SCP in dairy calf milk replacers.
12. Research Bulletin D-51: CELMANAX liquid in dairy calf milk replacers.
13. Santos JEP. Prophylactic Feeding of Yeast Culture Enriched with Oligosaccharides from Cell wall Extract in Calves Experimentally Challenged with *Cryptosporidium parvum*. University of Florida, 2008; report on file.

Navigate the life cycle journey with CELMANAX.



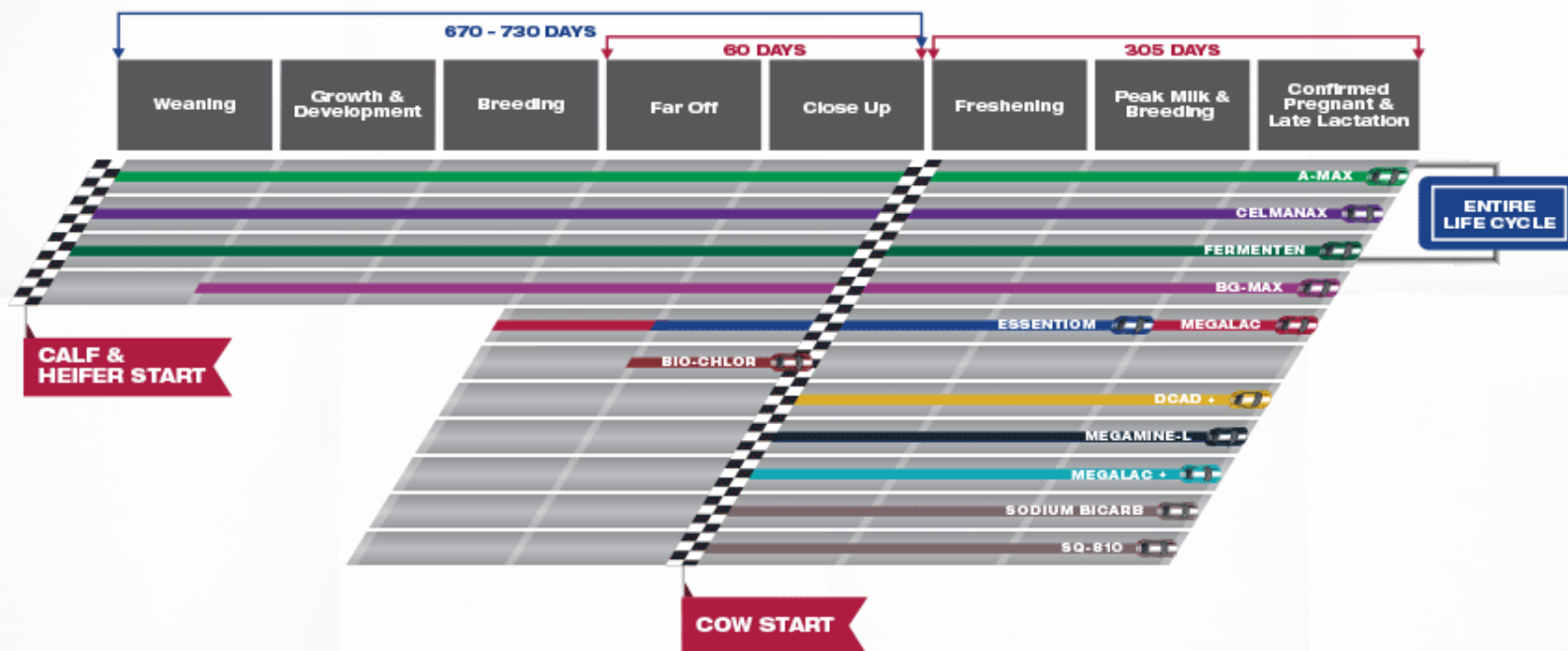
CELMANAX™

CELMANAX™

Navigate the life cycle journey with CELMANAX.

CELMANAX™

Entire life cycle



More products to help you get the job done.



It's about ANIMALS FIRST. PRODUCTIVITY ALWAYS.
See more at AHanimalnutrition.com

QUESTIONS?



To learn more about CELMANAX, your pit crew is standing by: contact your nutritionist, veterinarian or Arm & Hammer Animal Nutrition representative or fuel up at AHAnimalNutrition.com.



THANK YOU!

