Convert Immune Functions - White Paper

Convert Day-One Calf Gel

I. Two lines of bacterial L-Forms to improve overall gut health, combat Gram negative bacteria, and assist in resistance to other feed-borne challenges.

II. A panel of specialized proteins in processed egg yolks from hyper-immunized hens. Using bovine-specific antigens, these hens are inoculated and produce high levels of relevant antibodies. Among the antigens used are rotavirus (2 serotypes), coronavirus, 2 strains of E. coli (cross-reacting with 4 serotypes), 2 species of *Salmonella* (*typhimurium* and *dublin*) which cross-react with 25 others including *S. typhi, heidelberg,* and *derby*), *Cryptosporidium,* and *Clostridium perfringens* A and C.

   The produced antibodies are the IgY form which is the equivalent to mammalian IgG. IgY is generally preferred for such applications: a) IgY works well in the bovine immune system apparatus, b) it has better target specificity and binding strength than the equivalent IgG, c) it has better pathogen neutralization capacity than IgG and d) it can be produced at lower cost and is easier to incorporate in product formulations than IgG preparations.

III. Given within 12-15 hours of calving, Convert's antibodies will be absorbed in the still-open digestive tract and enter the calf's blood stream. There, they serve as a potent complement to any other maternal antibodies from the dam's colostrum, and they increase the total coverage against a broad spectrum of pathogens regardless of the dam's age and exposure or the quality of the colostrum administered. They have a half-life of just over 21 days and so provide the additional bridge between the innate immunity with which the calf is born and acquired immunity which takes that 21 days to develop. Unabsorbed antibodies remain in the GI tract and continue to recognize and act against intestinal pathogens.

IV. GI tract only ingredients include species of freeze-dried probiotic organisms (DFM) to help establish, improve and balance the gut microbiome of the neonatal calf. Other bacteria are included with a primary function of enzyme production, but, these, too, add to the developing microflora of the intestine complementing the DFM, giving Convert a total of seven DFM.

---

[1] Convert products are the only calf products in the world-wide market containing these active ingredients

[2] Convert has the highest number of such proteins currently on the market.

[3] Abbas, et al. (2019) IgY antibodies for the immunoprophylaxis and therapy of respiratory infections. Hum. Vaccine Immunother. 15:264-275

Don't let your calves have a bad day!

Historically, producers have used milk replacers containing sub-therapeutic levels of antibiotics. Recently this practice is being scrutinized citing the potential for resistant strains of bacteria, the higher cost of milk replacers, as well as noting the antibiotic levels are ineffective in preventing disease as reasons to discontinue this practice. Recommendations have been for producers to replace the use of sub-therapeutic antibiotics with proven practices such as good colostrum management, bio-security protocols,feeding coccidiostats and direct-fed microbials.

CONVERT™ Calf Products are a special blend of naturally occurring direct-fed microorganisms (Enteroccous faecium, Lactobacillus acidophilus and Bifi dobacterium), unique and proprietary L-form Lactobacillus, microbial sugars, enzymes and specialized proteins. These ingredients provide essential management tools for production and environmentally related challenges. These products do not contain antibiotics and are proven to be safe and effective.

*Study conducted by Oklahoma State University.

Table 7. Results of animal performance and health response by gel treatment.				
Parameter	No Gel (n =212)	Gel (n = 85)	SEM	Prob
Initial wt, lb	508	501	40	.15
Final wt, lb	575	572	36	.67
Daily gain, lb				
d 0 – 14	1.17	1.09	.53	.86
d 15 - 42	1.81	1.79	.42	.93
d 0 - 42	1.57	1.55	.28	.92
Morbidity, %[a]	100.0	100.0	--	--
Mortality, %[a]	1.4	.0	--	.27
Times pulled	1.99	1.75	.30	.15
Times treated[b]	1.63	1.57	.27	.76
Treated once, %[a]	100.0	100.0	--	--
Retreated, %[a]	25.5	12.9	--	.06
Treated twice, %[a]	20.8	12.9	--	.12
Retreated, %[a]	4.3	1.2	--	.39
Severity score	1.42	1.21	.18	.13
Treated thrice, %[a]	2.4	2.4	--	.99
Days on Feed				
Treatment 1	4.2	6.6	1.5	.02
Treatment 2	11.1	13.8	3.1	.27
Treatment 3	20.1	N/E[c]	--	--
Treatment cost, $[d]	14.02	13.73	2.81	.86

[a]Analyzed using Chi-Square analysis.
[b]Anti-microbial treatments required per sick animal according to protocol described in Table 3.
[c]Non-estimable means.
[d]Medical costs associated with anti-microbial drugs shown as dollars per treated animal.

![Agrarian Solutions logo]

801-7 West Wayne St. Middlebury, IN 46540 • (574) 825-1224
office@agrsol.com • **agrariansolutions.com**