



Forticept®
Advanced Animal Care

» Overview



Lidan, Inc was founded in 2014 with the mission to develop novel products based on proprietary polymer technology for various fields of life science using evidenced-based approach.

All of our products are based on proprietary platform that combines novel polymer technology with existing and well-studied active ingredients. This platform allows the development of products that are superior to the existing ones in every aspect.

The Research and Development team at Lidan has knowledge and experience in development of drugs, cosmetics, agricultural products, and in bioactive formulations for other consumer products.

Lidan's R&D department employs science-based approach to all formulations regardless of the type of application. It applies to all of our Forticept® products. In empirical tests our new products typically exceed the efficacy of the prior art without compromising the health or safety of the person, animal or plant that is being treated. In addition, our products are designed to be environmentally friendly and to comply with the applicable regulations.

Forticept® line of products is based on Lidan's proprietary polymer technology platform that combines novel polymer technology with existing and well-studied ingredients.

This technology empowers well known active ingredients to exhibit new levels of efficacy against various microorganisms, significantly improving safety, comfort, and quality of life. The mechanisms of action for the active ingredients used in our products are well studied by scientific community. Our products demonstrate results that significantly exceed all expectations!



» *Statement on sustainability from team Forticept – what it means to us*

Sustainability is a common goal today but, in practice, it is challenging to achieve. Lidan seeks to distinguish itself in this regard. Sustainability is important to us and we strive to go above and beyond. We are committed to sustainability because we know what it means to you, whether you are a farmer or a consumer.

Advancements in technology have always come with benefits or risks that must be understood and managed. Our ancestors understood to be careful with fire. Today, green chemistry helps us to ensure that our food is nutritious and safe. Consumers today are concerned about the chemical, antibiotic, or other harmful residues in our foods. We understand consumer concerns and, for this reason, we formulate only eco-safe, non-toxic, and biocompatible products!

There is sustained interest and growth for organic, biodynamic, and other environmentally compatible practices for food production. This is one of the strongest growth areas of the consumer economy - driven by demand from both grocers and consumers alike. More importantly, tens of millions of acres of American farmland are better managed every year using advancements in science and technology, using fewer, more effective, safer, and environmentally friendly products.

With consumers and farmers in mind, Lidan formulates human, veterinary, and agricultural products with high efficacy, safety, ecology, and sustainability as our guides.

Environmental values – “You are what you eat” is an expression that means a lot to us. We know that the quality of the food we consume is often linked to the agricultural practices. Consumers appreciate knowing that their food was produced with sustainability in mind.

» forticept® Advanced Animal Care



For large cattle & farm animals



Udder Wash™
Teat Cleanser &
Disinfectant
(Pre-Dip)



Udder Forte™
Sanitizing Teat Dip
(Post-Dip)



Blue Butter®
Antimicrobial Gel /
Wound dressing
hydrogel



Hoof-Forte™
Medicated Hoof
Ointment/Dressing

Forticept® line of products is based on proprietary platform that combines novel polymer technology with existing and well-studied active ingredients

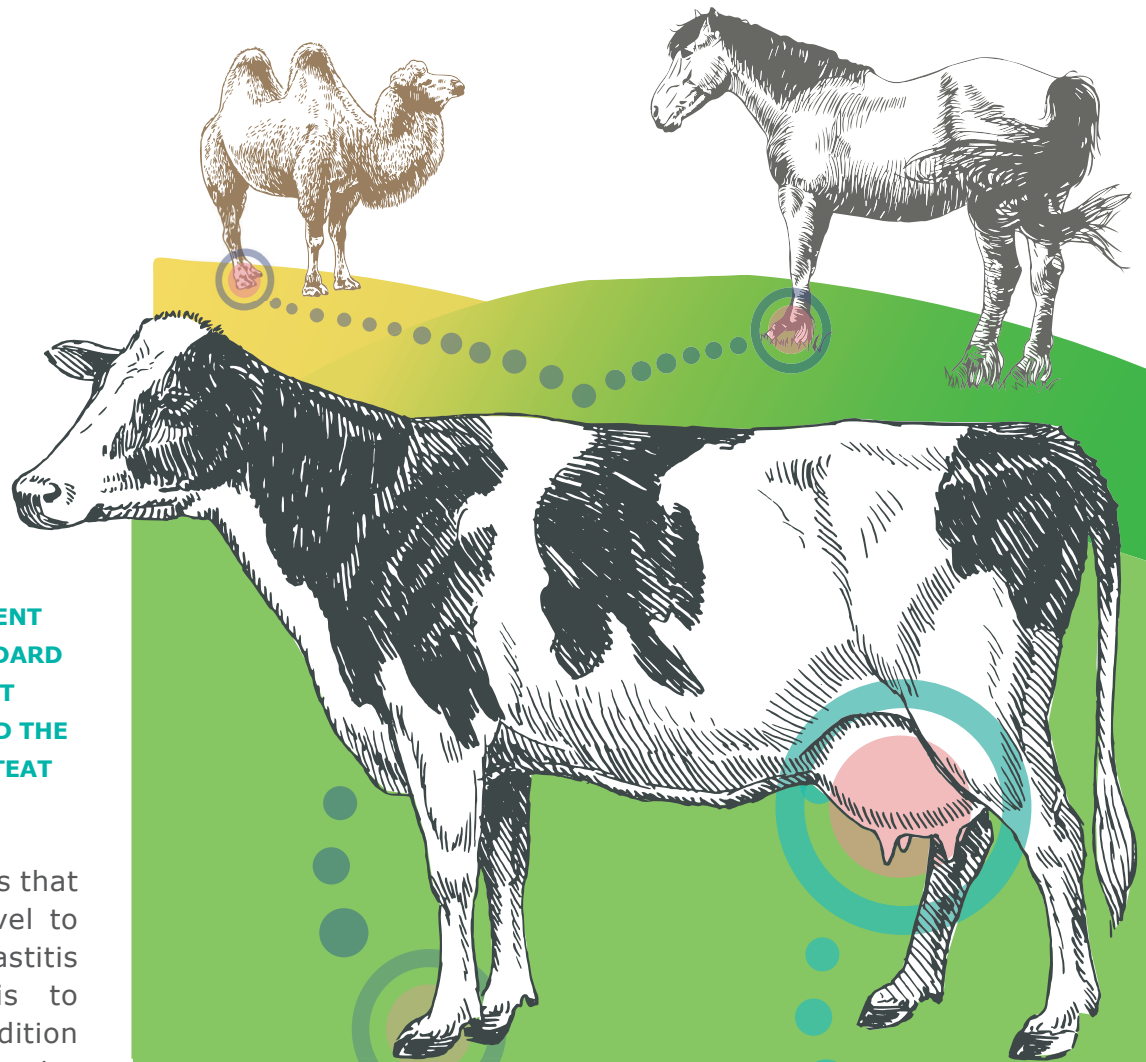
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**GOOD LIVESTOCK MANAGEMENT
REQUIRES THE USE OF STANDARD
PREVENTIVE PRACTICES THAT
INCLUDE GOOD HYGIENE AND THE
MAINTENANCE OF OPTIMAL TEAT
CONDITION**

One of the simplest things that can be done at farm level to reduce the impact of mastitis on herd profitability is to maintain good udder condition alongside rigorous parlor hygiene. Mastitis is not only a serious welfare issue on dairy farms but remains a major cause of financial loss each year. These losses come from direct costs such as treatment costs, but also indirect costs such as reduced yields, discarded milk, and fertility problems.



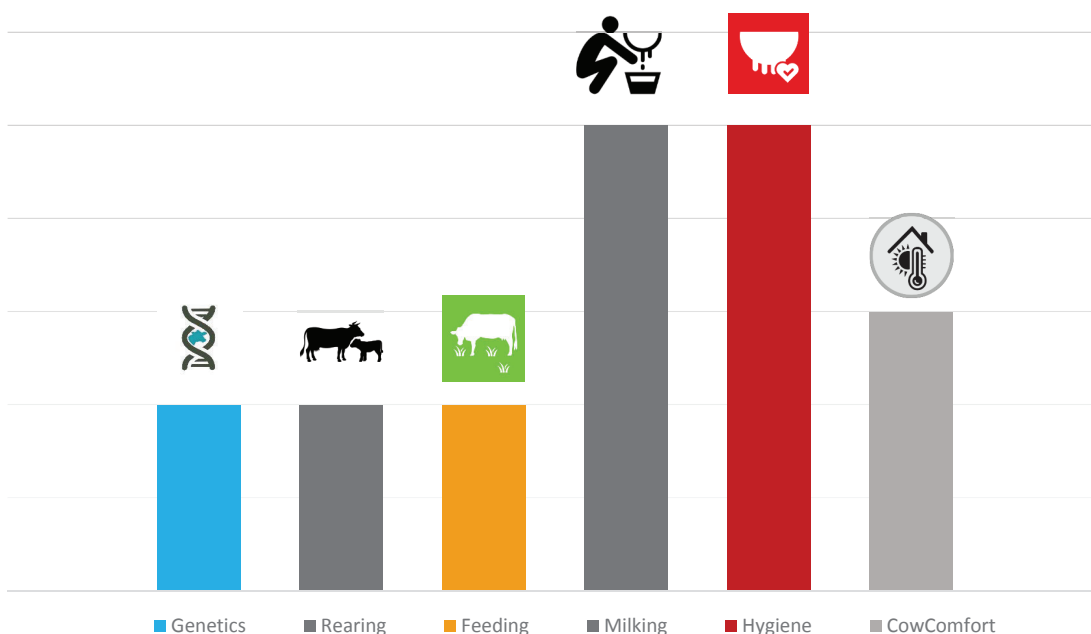
**HOOF FORTE
ANTIMICROBIAL
HOOF & FROG
OINTMENT**



**UDDER WASH
&
UDDER FORTE -
IODINE-FREE POST
MILKING TEAT DIP**

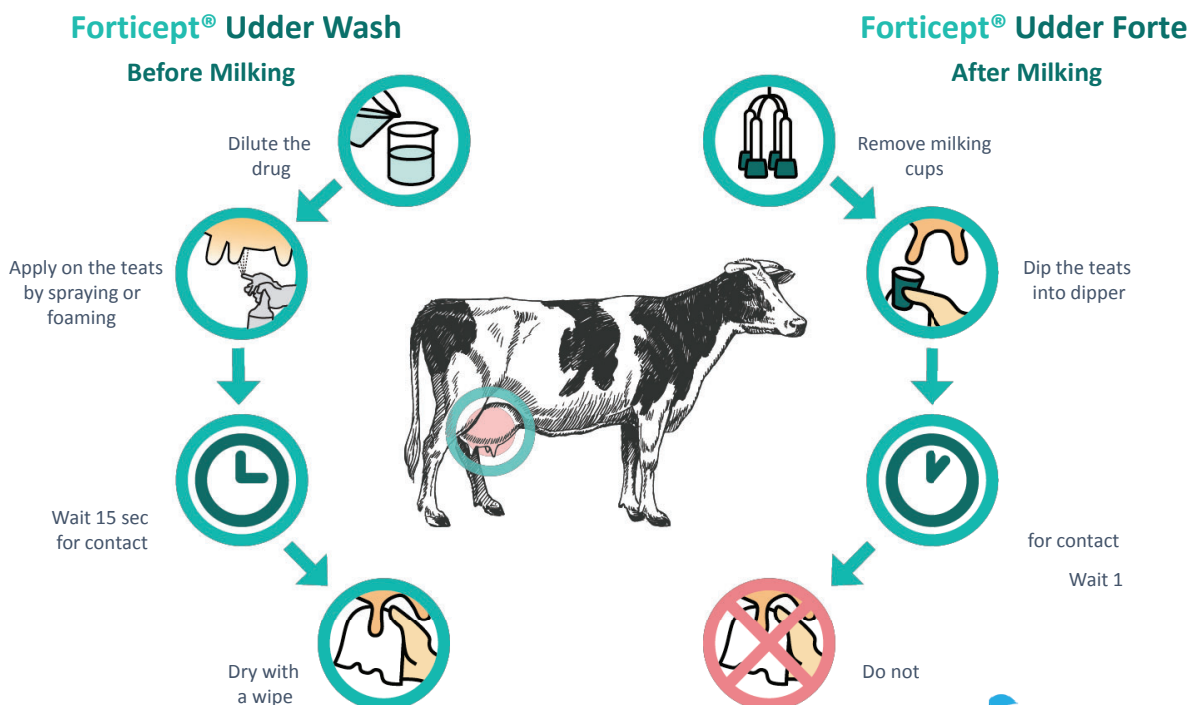


» Factors influencing udder health



The skin on the udder is sensitive and can easily become dry, sore or chapped. The skin needs to be protected from the influences of a wet and cold environment. If the skin is not in optimum condition and does become dry or chapped, the effectiveness of the cow's natural defenses to mastitis are reduced. Cracks and crevices provide a place for bacteria to hide and will reduce the effectiveness of the parlor hygiene regime. Sore, chapped skin may also mean that cows will not settle while being milked and may even increase milk let down time.

» Application





forticept® Udder Wash™ TEAT CLEANSER & DISINFECTANT (PRE-DIP)



Ingredients:

Benzalkonium chloride,
Chamomile extract,
Yarrow extract, and
surfactant complex

The Udder Wash™ has ideal properties for cleaning, sanitizing, and preparing udder teats for milking. Its stable foam provides persistent biocidal effect, and helps easily remove dirt.

- Accommodates all types of applicators for preparing udder teats before milking, including sprayers, wet wipes, foamers, and dip cups
- Enhances general udder hygiene of milking and dry cows;
- Disinfects skin before and after veterinary procedures;
- As a cleanser can be used with wipes before and after milking;
- Sanitizes operators hands



forticept® Udder Forte™ SANITIZING TEAT DIP (POST-DIP)



Ingredients:

Benzethonium chloride,
Thyme Oil, Chamomile
extract, Yarrow extract,
Lanolin, Shea Butter and
other emollients.

Ready-to-use teat dip that forms a soothing and softening skin-protecting film with superior broad spectrum antimicrobial properties. This flexible barrier helps prevent complications associated with bacterial and fungal infections of teat canal by environmental microorganisms.

- Creates a barrier in the form of a strong, thin, non-sticky, highly visible blue thin film to secure closure of the teat canal after milking;
- Protects teats and teat canals from ambient contaminants and environmental pathogens;
- Promotes healing of wounds, cracks, and abrasions;
- Softens and nourishes teat skin;
- Soothes itching and inflammation after insect bites;
- Helps reduce somatic cell count and control subclinical mastitis in dairy cows

» forticept® Blue Butter® ANTIMICROBIAL GEL



SIZE (OZ)	8 OZ
PRODUCT ID	FPTBB08
UPC	853559007323
UNIT DIMENSIONS (INCHES)	3.5X3.5X2.0
UNIT WEIGHT (LBS)	0,64
UNITS PER CASE	12
CASE WEIGHT (LBS)	7,72
UPC / CASE	853559007293

- + Antiseptic gel
- + Promotes healing of wounds, abrasions, burns, and cracked skin
- + Antibiotic-free & alcohol-free Steroid-free
- + Moisturizes, nourishes, and conditions skin
- + Provides soothing on sites of insect bites
- + pH-Balanced



NDC Code(s):

72127-0702-4,

72127-0702-8

Route of Administration:

Topical

Dosage Form:

Semi-solid, Gel

Size(s): 8 oz.

Active Ingredient:

Benzethonium Chloride – 0.1%,

Thymol – 0.1%



Blue Butter® is an antimicrobial hydrogel based on the our proprietary polymer technology that contains no antibiotics and is ideal for daily skin and wound care. It provides nourishment and deep moisturizing effect, promotes wound healing, protects udder skin from weather bites, sun exposure and frost, and helps reduce irritation caused by insect bites.

Application: the product can be used on a regular basis for daily udder & skin care, for moisturizing, protecting and preserving the natural barrier of the skin; used for treating cuts, cracks, irritation and burns, as well as of the sites of insect bites.

Forticept® Blue Butter® Antimicrobial Gel is biocompatible hydrogel wound dressing that promotes moist wound environment, aids debridement and promotes healing of acute wounds. It an effective broad-spectrum antimicrobial product with high efficacy against wide variety of standard and resistant pathogens. Blue Butter® antimicrobial gel contains Allantoin, which is a skin protectant, stimulates tissue growth; Glycerin, Lanolin, and Shea Butter help maintain an optimal moisture balance. Blue Butter is an opaque blue, biocompatible polyacrylate polymer gel which allows easy wound packing with high visibility. It is non-toxic, non-cytostatic or cytotoxic, and latex-free.

Blue Butter® helps resolve acute infection and prevent new incidents, while maintaining moist wound environment, that is a skin protectant that promotes healing.

Forticept® Blue Butter® Antimicrobial Gel is a part of new generation of antiseptic wound care products based on multidisciplinary research of conventional antimicrobials, botanicals, polymers, and emollients.

It helps control and resolve infection as well as support healing of various skin damage: traumatic wounds, lacerations, abrasions, and burns.

» forticept® Udder Forte™ & Udder Wash™ PRE & POST DIP



**daily
udder
care**

- Complex provides reliable care scheme for prevention of the emergence of resistance in bacteria
- Does not require rotation with other udder hygiene products
- Prevents contamination by environmental microorganisms
- Prevents the spread of bacterial infection from sick animals to healthy ones
- Helps reduce number of somatic cells and mitigate subclinical form of mastitis in dairy animals
- Helps reduce the number of clinical mastitis in the herd; therefore, reducing time and cost of the treatment
- Helps in reduction of total bacterial contamination of milk and improve quality
- Moisturizes, nourishes, and protects the skin in daily udder care



» *What's on the market?*

Today three active ingredients dominate the market for udder hygiene products: iodine, chlorhexidine and lactic acid. Yet each has major drawbacks, as shown below.

IODINE-BASED DIPS

Advantages	Disadvantages
Broad spectrum short-term antimicrobial	Chemically reactive
Anti-inflammatory properties	Incompatible with emollients and repellents
Pathogens do not develop resistance to it	Dries skin
	May contaminate milk with residue
	Absence of long-lasting bactericidal, fungicidal and sporicidal action.*

* K. Prasanthiet al., "Evaluation of antimicrobial activity of surface disinfectants by quantitative suspension method, Int. J. Res. Biol. Sci. 2(3):124-127 (2012).

CHLORHEXIDINE-BASED DIPS

Advantages	Disadvantages
Cheap and available	Narrow spectrum of activity
Instant disinfection	Pathogens develop resistance
	Dries and desiccates skin
	Needs regular rotation with other products

LACTIC ACID-BASED DIPS

Advantages	Disadvantages
Preservative effects	Antimicrobial action is weak
Skin moisturization	Does not disinfect at skin-safe concentrations
	Many yeasts and molds metabolize lactic acid and thrive in its presence

FORTICEPT UDDER CARE COMPLEX

Advantages	Disadvantages
Competitive Cost	
Pre and Post Milking Disinfection	
Broad spectrum antimicrobial protection	
No resistance development	
Skin Conditioning	
High Visibility when applied	
Non-toxic to animals and humans	
No toxic emissions (vs. Iodine)	

» ***UGA Field Trial of Forticept Udder Care Complex***

FORTICEPT UDDER FORTE & FORTICEPT TEAT WASH

In 2017 University of Georgia Department of Animal and Dairy Science has conducted a field trial to assess germicidal efficacy of Forticept Udder Care Complex in reducing the new intramammary infection rate and SCC under natural exposure to mastitis pathogens, with additional in vitro testing of germicidal activity. The trial was performed under the supervision of Dr. Steven Nickerson who have conducted more a dozen of such trials and has published a multitude of scientific articles on udder health of dairy animals.

The goal of the trial was to compare the novel udder care products developed by Lidan, Inc. with well established products "Bovadine" that is an industry "Golden Standard" and number 1 product for over 40 years. The reason for this trial was to understand how NON-IODINE udder care complex compares to the 1% Iodine based product in the real setting of dairy farm.

The outcome of the study is that Forticept Udder Care Complex is not inferior to the 1% Iodine based time tested product!

In the course of the trial UGA researches also determined certain areas where Forticept complex needed improvements and Lidan's R&D team worked hand in hand with UGA scientists to improve efficacy and performance. A post-trial study has confirmed that indeed the formulation "tweaks" have majorly improved overall efficacy and broadened the antimicrobial spectrum of Forticept Forte.

The major advantages of Forticept Udder Care Complex:

- ✚ No iodine residues in Milk
- ✚ Improved safety of humans and animals – no caustic chemicals
- ✚ No toxic fumes

BLUE BUTTER ANTIMICROBIAL GEL

Blue Butter Antimicrobial Gel (Blue Butter) was applied to various lesions, abscesses, and abrasions that were observed on the teats, udders, and legs of the UGA milking herd. As cows entered the milking parlor and were being prepped for milking, any of the skin abnormalities listed above were noted, and after the milking process was terminated, Blue Butter was topically applied, using a gloved hand in a liberal fashion, by the individual doing the milking.

Use of Blue Butter Antimicrobial Gel was beneficial in the healing of lesions, abscesses, abrasions, and areas of irritation on cows' teats, udder, and legs.

Although untreated control wounds were not included in this study, milking personnel and researchers believed that use of Blue Butter on such abrasions and lesions was far superior to not applying any type of antimicrobial or healing product.

» Udder Forte & Udder Wash Trials

RESULTS

The combined Forticept® protocols reduced the incidence of subclinical mastitis by more than half within 10 days, relative to the initial average incidence for livestock in the control group. The results are presented in

Indicators of manifestation of subclinical mastitis when using preparations for udder hygiene (n=47)

Subclinical mastitis	Experiment	Control
Before experiment 18.04.2016 (average index)	45.8	
27.04.2016	18.75	45.8
05.05.2016	20.8	43.75
17.05.2016	22.9	54.2

As the table shows, the Forticept® products reduced the incidence of subclinical mastitis by 60%, i.e., the incidence was 2.4 times higher in the control group that had been treated with iodine, and the Forticept® effects were rapid and persistent. Figures 1 and 2 show the incidence graphically over time for the control and study groups, and the average values.

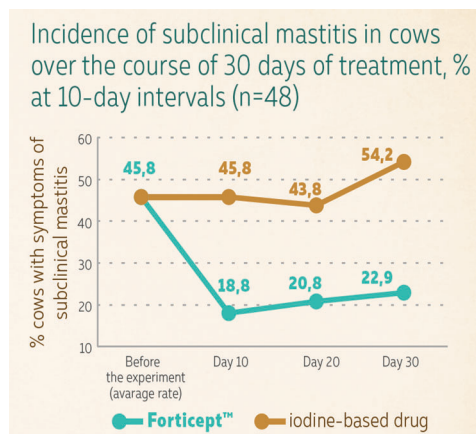


Fig. 1: Incidence over time of subclinical mastitis in animals in the experiment, n = 48.

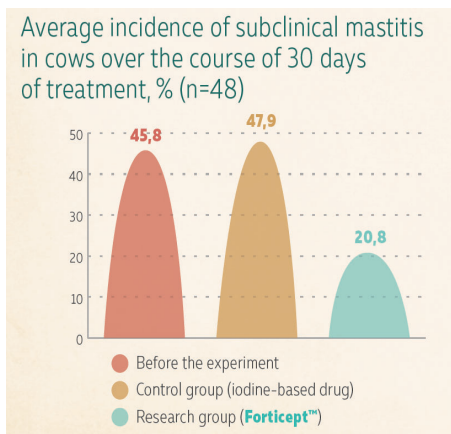


Fig. 2: Average incidence of cows with subclinical mastitis in cows for 30 days, % (n=48)

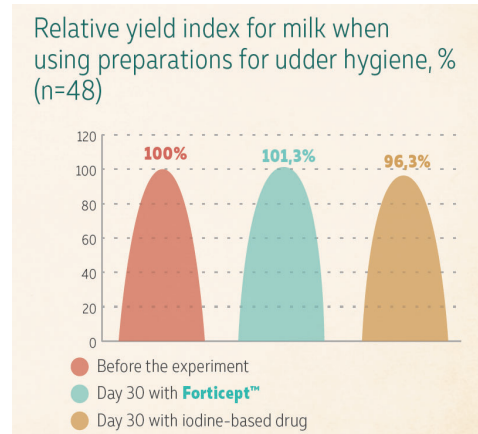


Fig. 3: The relative yield index when using drugs for udder hygiene (n=48).

The Forticept® protocol also had a slight advantage for milk production yields. Production by the control group actually decreased by 3.7% (from 1396 to 1345 liters) over the course of the experiment. By contrast, before the experiment the research group was producing 1200 liters of milk; by the 30th day of the Forticept® protocols it was 1.3% higher (1215 liters). (Fig 3).

CONCLUSIONS

Forticept® Udder Wash™ pre- and post milking Forticept® Udder Forte™ contributed to the:
improvement of the skin of mammary gland,
improved milk quality
increased yield

Proven to be more effective for hygiene than the iodine-based comparato



forticept® Hoof-Forte™

MEDICATED ANTIFUNGAL ANTIBACTERIAL HOOF DRESSING



Active Ingredients

Zinc Oxide 10%,

Benzethonium chloride

Inactive Ingredients

Emollients, waxes

botanical extracts,

and FD&C colors



Hoof-Forte™ is a water resistant hoof ointment and dressing based on the our proprietary polymer technology combined with Zinc Oxide that contains no antibiotics or hormones and is ideal for hoof care. It helps resolve persistent bacterial and fungal infections while providing water-resistant barrier.



- Helps prevent and treat hoof infections in cattle and horses
- Promotes healing of hoof injuries
- Helps treat and prevent infections in wounds, cuts, abrasions, etc.
- Helps in treatment of Digital Dermatitis and Hoof Rot

» forticept® Hoof-Forte™

CLINICAL EFFICACY

As the table shows, the Forticept® products reduced the incidence of subclinical mastitis by 60%, i.e., the incidence was 2.4 times higher in the control group that had been treated with iodine, and the Forticept® effects were rapid and persistent. Figures 1 and 2 show the incidence graphically over time for the control and study groups, and the average values.

Hematological indices of the cow suffering from digital dermatitis were within the known reference values (admissible), but a decrease in leukocytes level of 0.9 and color index of blood by 0.75 times were observed compared with the average normative indexes of blood of animals.

WBC, G/l	6.5	(8-10)
RBS, 10/L	4.95	(4.5-7.5)
HB, g/l	99	(95-160)
C.P.	0.6	(0.7-1.0)
PLT, G/l	495	()
White blood cell differential, % Neutrophilic leucocytes		
Rod nuclear cells	1	(2-6)
Segmentated cells	38	(20-35)
Lymphocytes	54	(45-70)
Monocytes	4	(2-5)
Eosinophils	2	(4-7)

After mechanical cleansing, hygienic treatment of the wound and drying it, the liniment FORTICEPT® hoof ointment was applied on the affected area and bandaged with it. On the fourth day of the study, the bandage was well maintained and dry enough. After removal, full epithelialization of the defect in the cow was observed (Fig. 4). After complex therapeutic measures, positive dynamics of the studied hematological parameters in the animal treated was noted.



WBC, G/l	8.1	(8-10)
RBS, 10/L	4.56	(4.5-7.5)
HB, g/l	107	(95-160)
C.P.	0.70	(0.7-1.0)
PLT, G/l	296	()
White blood cell differential, % Neutrophilic leucocytes		
Rod nuclear cells	1	(2-6)
Segmentated cells	38	(20-35)
Lymphocytes	54	(45-70)
Monocytes	4	(2-5)
Eosinophils	2	(4-7)



Fig. 1. Ulcer of the fleshy heel after cleansing of the hoof. March 27, 2018.



Fig. 2. Liniment on bandage

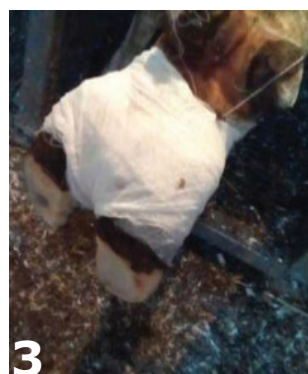


Fig. 3. Bandaging the limb



Fig. 4. Clinical picture of the wound after removal of the bandage



Due to the overall dynamics of leukocytes and blood color in the animal, there was a tendency to their number increase, and the clinical picture of the wound confirms the therapeutic efficacy of the FORTICEPT® hoof ointment in cow digital dermatitis with high therapeutic efficacy. The product is recommended for further therapeutic use under supervision of specialists. Active substances of the liniment are easily absorbed and work in the dermis. The ingredients composition of the drug are absolutely safe, have no systemic effect and, unlike antibiotic-containing drugs, do not affect the quality and safety of milk.