

# CORONA® Hoof Formula



Complete High-strength Supplement Rich in Biotin, MSM, Amino Acids, Minerals and Probiotics, Formulated to Prevent and Restore Damaged Hoofs

## Active ingredients (per dose):

Biotin (vitamin B7)	20 mg
Methylsulphonylmethane (MSM)	2,500 mg
Sulphur	1,485 mg
Calcium	42 mg
Copper	58 mg
Phosphorus	7.2 mg
Magnesium	10.2 mg
Zinc	290 mg
Aspartic acid	57 mg
Glutamic Acid	105 mg
Alanine	45 mg
Arginine	57 mg
Cystine	9 mg
Phenylalanine	24 mg
Glycine	450 mg
Histidine	27 mg
Isoleucine	54 mg
Leucine	84 mg
Lysine	60 mg
Methionin	3,015 g



Proline	60 mg
Serine	27 mg
Tyrosine	15 mg
Threonine	51 mg
Tryptophan	18 mg
Valine	84 mg
Saccharomyces cerevisiae	3x10 <sup>10</sup> CFU

**Composition:** Micronised and toasted carob pulp, sodium chloride, methylsulphonylmethane (MSM).

**Additives per kg:** Vitamins - Biotin 667 mg. Trace elements - E4 Copper chelate of glycine hydrate (Cu) 1,935 mg; E6 Zinc chelate of glycine hydrate (Zn) 9,666 mg. Amino acids - DL-Methionine 100 g. Gut flora stabilizers - 4b1710 Saccharomyces cerevisiae MUCL39885, 1x10<sup>12</sup> CFU. Antioxidants - E321 Butylated hydroxytoluene BHT 25 mg; E 324 Ethoxyquin 25 mg.

**Analytical constituents:** Crude protein 11.5%; crude oils and fats 0.2%; crude fibre 4.65%; crude ash 21%; sodium 6.3%.

## Mechanism of action:

- Biotin is a water soluble vitamin in the B vitamin group. All organisms need biotin, although not all synthesise it - mammals being among them - consequently, daily intake is necessary. Biotin plays a crucial role in cell replication (tissue renewal), metabolism of carbohydrates, lipids and amino acids and is involved in the synthesis of various proteins such as keratin, the major structural protein in the epidermis, present in the skin, hair and hoofs. Long term biotin supplementation improves the quality, and possibly, also the growth rate of the hoof. There are many biotin supplements; for a product to be effective it is very important that the biotin is provided in an optimum concentration (20 mg/dose) and that it is combined with other critical nutrients for the hoof such as zinc, copper, methionine, cystine, lysine, etc.
- Hoof supplements often contain methionine, however, this is only one of the amino acids forming the protein of the hoof and deficiencies in any essential amino acid can be as damaging as methionine deficiency. The hoof contains high levels of cystine, arginine, leucine, lysine, proline, serine, glycine and valine as well as lower levels of methionine, phenylalanine and histidine. The sulphur amino acids (methionine and cystine) are vital for keratin production.



## Features

Recommended by veterinarians to prevent and restore dry, brittle, cracked or damaged hoofs.

Promotes thicker and more elastic hoof walls to facilitate shoeing and avoids the usual loss of horseshoes.

Complete: Biotin, MSM, Methionine, Cystine, Lysine, Zinc, Copper, Calcium, Sulphur, Probiotic...

High-strength: high concentrations of active ingredients and with the ideal proportions.

Chelated Zinc and Copper - Better absorption and bioavailability.

MSM - Anti-inflammatory and analgesic action without side effects.

Contains a probiotic to balance the gut flora, thus bolstering overall health, immunity and resistance to diseases and it improves the digestibility and utilisation of food.



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- Trace minerals such as zinc and copper are needed for keratin and collagen synthesis, consequently, they play a critical role in maintaining the skin, coat and hoofs. Zinc and copper are chelated in the CORONA® formula for improved absorption and bioavailability.
- Calcium, phosphorus, sulphur and magnesium are also part of the CORONA® composition. Calcium is important to maintain the integrity of the hoof wall since it is essential for joining the keratin. The calcium: phosphorus ratio should be 3:1 in foals and up to 6:1 in adult horses.
- Methylsulphonylmethane (MSM) is a mild action analgesic and anti-inflammatory. MSM is also very rich in sulphur, a mineral involved in the integrity of collagen, cartilage, joint fluid, hoofs and hair. It has also been reported that organic sulphur inhibits the proliferation of scar tissue and slows neurotransmitters, causing muscular relaxation. It is ideal for prolonged use due to its lack of side effects.
- *Saccharomyces cerevisiae* is a probiotic which helps maintain a balanced flora in the intestine, thus boosting overall health and growth, the immune system, digestion and utilisation of feed, resistance to stress etc.

## Indications:

- To stimulate an optimal hoof growth, promoting strong, resilient and healthy hoofs.
- To help prevent and restore dry, brittle, cracked, damaged, split, etc., hoofs.
- To promote thicker and more elastic hoof walls to facilitate shoeing and avoid the usual loss of horseshoes.

**Target species:** Equidae.

**Dosage and administration:** The scoop included, up to the mark, equivalent to 30 grams. Administer directly in the feeder or mixed with feed. It is recommended to stir the product before use.

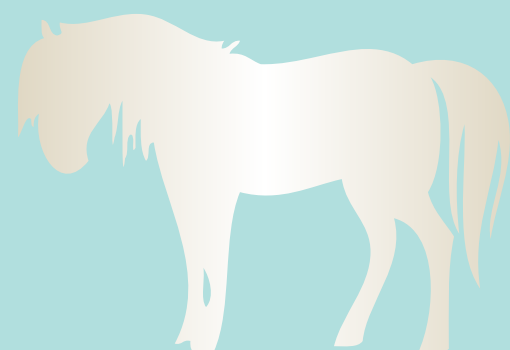
- Recovery of damaged hoofs - Adult horses (average weight 500 kg): 1 scoop (30 g) per day. Foals and Ponies: 1/2 scoop (15 g) per day. In hoofs with severe problems it may be necessary to administer CORONA® for up to 6 consecutive months for a full recovery.
- To maintain healthy hoofs: 1/2 scoop (15 g) per day until finishing the container, once a year.

**Warnings:** This product does not contain any substances which are banned in competition. Keep the container tightly closed in a cool, dry place, away from direct sunlight and out of reach of children and animals. Complementary feed for horses, not intended for human consumption.

**Presentation:** 1.35 kg (45-90 doses, 1.5 months' supply for the standard dose and 3 months for the maintenance dose).

## Bibliography:

- Buffa, E. A., S. S. van den Berg, F. J. M. Verstraete, and N. G. N. Swart. 1992. Effect of dietary biotin supplement on equine hoof horn growth rate and hardness. *Equine Vet. J.* 24:472-474.
- Butler, K. D., Jr., and H. F. Hintz. 1977. Effect of level of feed intake and gelatin supplementation on growth and quality of hoofs of ponies. *J. Anim. Sci.* 44:257-261.
- Coenen, M., and S. Spitzlei. 1997. The composition of equine hoof horn with regard to its quality (hardness) and nutrient supply of horses. *Proc. 15th Equine Nutr. Physiol. Symp.* p. 209-212.
- Comben, N., R. J. Clark, and D. J. B. Sutherland. 1984. Clinical observations on the response of equine hoof defects to dietary supplementation with biotin. *Vet. Rec.* 115:642-645.
- EFSA (European Food Safety Authority). 2006. Opinion of the Scientific Panel on Additives and Products or Substances used in Animal Feed on the safety and efficacy of the product BiosafSc 47, a preparation a *Saccharomyces cerevisiae*, as a feed additive for horses. *The EFSA Journal*, 384, 1-9
- EFSA (European Food Safety Authority). 2009. Safety and efficacy of Yea-Sacc1026® (*Saccharomyces cerevisiae*) as feed additive for horses. *The EFSA Journal*, 991, 1-14



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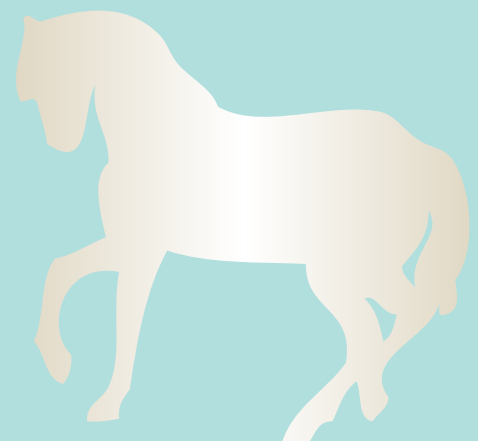
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## Data Sheet

- Ekfalck, A., L. E. Appelgren, B. Funkquist, B. Jones, and N. Obel. 1990. Distribution of labeled cysteine and methionine in the matrix of the stratum medium of the wall and in the lamellar layer of the equine hoof. *J. Vet Med. Series A* 37:481-491.
- Flamm G., W. Glinsmann, D. Kritchevsky, L. Prosky, and M. Roberfroid. 2001. Inulin and oligofructose as dietary fiber: A review of the evidence. *Critical Rev. Food Science and Nutrition*. 41:353-362.
- Geyer, H., and J. Schulze. 1994. The long-term influence of biotin supplementation on hoof horn quality in horses. *Schweiz. Arch. Tierheilkd.* 136:137-49.
- Goodspeed, J., J. P. Baker, H. J. Casada, and J. N. Walker. 1970. Effects of gelatin on hoof development in horses. *J. Anim. Sci.* 31:201 (abstr).
- Graham, P. M., E. A. Ott, J. H. Brendemuhl, and S. H. TenBroeck. 1994. The effect of supplemental lysine and threonine on growth and development of yearling horses. *J Anim. Sci.* 72:380-6.
- Hihami, A. 1999. Occurrence of white line disease in performance horses fed low-zinc and low-copper diets. *J. Equine Sci.* 10:1-5.
- Harper, F. Feeding Your Horse's Hooves
- Hood, D. M., C. K. Swenson and A. B. Johnson. 2002 Building the Equine Hoof. Zinpro Corp. Eden Prairie, MN.10
- Jackson, S. 1996. Nutrition & The Equine Foot: Some Things to Think About. Bluegrass Laminitis Symposium. Lexington, KY.
- Josseck, H., W. Zenker, and H. Geyer. 1995. Hoof horn abnormalities in Lipizzaner horses and the effect of dietary biotin on macroscopic aspects of hoof horn quality. *Equine Vet. J.* 27:175-182.
- Kempson, S. A. 1993. How Nutrition Plays a Key Role In Hoof Horn Growth and Structure. *American Farriers Journal*. March/April.
- Kempson, S. A. 1996. Why Dietary Excesses Are Bad for Hooves. *American Farriers Journal*. November.
- Kempson, S. A. 1987. Scanning electron microscope observations of hoof horn from horses with brittle feet. *Vet. Rec.* 120:568.
- Lewis, L. D. 1995 In: *Equine Clinical Nutrition*. Williams and Wilkins, Philadelphia.
- Longland, A., and A. Cairns. 1998. Sugars in grass: An overview of sucrose and fructan accumulation in temperate grasses. In: *Proceedings of the Dodson and Horrell International Research Conference on Laminitis*. Stoneleigh, Warwickshire, England. pp 1-3.
- Mayland, H. F., G. E. Shewmaker, P. A. Harrison, and N. J. Chatterton. 2000. Nonstructural carbohydrates in tall fescue cultivars: Relationship to animal preference. *Agron. J.* 92:1203-1206.
- McMeniman, N. P. 2000. Nutrition of grazing broodmares, their foals and young horses. RIRDC publication 00/28. <http://www.rirdc.gov.au/reports/HOR/00-28.pdf>.
- Moore, J. M., D. Allen, and E. S. Clark. 1989. Pathophysiology of acute laminitis. In: *Vet. Clinics North Amer. Equine Practice* 5:67-72.
- Mungall, B. A., M. Kyaw-Tanner, and C. C. Pollitt. 2001. In vitro evidence for a bacterial pathogenesis of equine laminitis. *Vet. Microbiol.* 79:209-223.
- Niness, K. R. 1999. Inulin and oligofructose: What are they? *J. Nutr.* 129(7):1402S1406S, Suppl. S.
- National Research Council. 1989. *Nutrient Requirements of Horses*, 5th Rev. Ed. National Academy Press, Washington, DC.
- Ott, E. A., and E. L. Johnson. 2001. Effect of trace mineral proteinates on growth and skeletal development in yearling horses. *J. Equine Vet. Sci.* 21:287-292.
- Ott, E. A., and E. L. Johnson. 2002. Nutritional factors influencing hoof development in horses. In: *Proc. Bluegrass Laminitis Symposium*.
- Pollitt, C. C. 1996. Basement membrane pathology: A feature of acute laminitis. *Equine Vet. J.* 28:38-46.
- Pollitt, C. C. 1999. Equine laminitis: Current concepts of inner hoof wall anatomy, physiology and pathophysiology. In: *Large Animal Proc. of the 9th Ann. Amer. College of Vet. Surgeons Symp.*, pp. 175-180. San Francisco.
- Pollitt, C. C., and M. Daradka. 1998. Equine laminitis basement membrane pathology: Loss of type IV collagen, type VII collagen and laminin immunostaining. *The Equine Hoof. Equine Vet. J. Suppl.* 27:139-144.
- Pollitt, C. C., and Davies, C. L. 1998. Equine laminitis: Its development post alimentary carbohydrate overload coincides with increased sublamellar blood flow. *The Equine Hoof. Equine Vet. J. Suppl.* 26:125-132.
- Pollitt, C. C., M. A. Pass, and S. Pollitt. 1998. Batimastat (BB-94) inhibits matrix metalloproteinases of equine laminitis. *The Equine Hoof. Equine Vet. J. Suppl.* 26:119-124.
- Pollitt, C. C., and van Eps, A. W. 2002. Equine laminitis: A new induction model 36 Nutrition and the Equine Foot based on alimentary overload with fructan. In: *Proc. Austr. Equine Vet. Assoc. Bain-Fallon Memorial Lectures (Abstr.)*.



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- Pollock, C. J., and A. J. Cairns. 1991. Fructan metabolism in grasses and cereals. *Annu. Rev. Plant Physiol. Plant Mol. Biol.* 42:77-101.
- Reilly, J. D., D. F. Cottrell, R. J. Martin, and D. J. Cuddeford. 1998. Effect of supplementary dietary biotin on hoof growth and hoof growth rate in ponies: A controlled trial. *The Equine Hoof. Equine Vet. J. Suppl.* 26:51-57.
- Richardson, G. L., and E. A. Ott. 1977. Influence of protein source and lysine intake on growth and composition of hoofs of yearling foals. In: 69th Ann.Meeting Amer. Soc. Anim. Sci. p. 105 (Abstr.).
- Samata, T., and M. Matsuda. 1988. Studies on the amino acid compositions of the equine body hair and the hoof. *Jpn. J. Vet. Sci.* 50:333-340.
- Siciliano, P. D., K. D. Cully, T. E. Engle, and C. W. Smith. 2001. Effect of trace mineral source (inorganic vs organic) on hoof wall growth rate, hardness, and tensile strength. In: *Proc. 17th Equine Nutr. Physiol. Sym.*, p. 143-144.
- Swenson, C., L. Sward, J. Karlsson. 1996. Cryotherapy in sports medicine. *Scan.J. Med. Sci. Sports* 6:193-200.
- USDA. 2000. Lameness and Laminitis in US horses. National Animal Health Monitoring System. Fort Collins, CO. #N318.0400.
- Weiss, D. J., O. A. Evanson, J. MacLeay, and D. Brown. 1998. Transient alteration in intestinal permeability to technetium Tc99m diethylenetriaminopentaacetate during the prodromal stages of alimentary laminitis in horses. *Am. J. Vet. Res.* 59:1431-1433.
- Worster, A. A., E. M. Gaughan, J. J. Hoskinson, J. Sargeant, and J. H. Erb. 2000. Effects of external thermal manipulation on lamellar temperature and perfusion scintigraphy of the equine digit. *N. Z. Vet. J.* 48:111-116.
- Zenker, W., H. Josseck, and H. Geyer. 1995. Histological and physical assessment of poor hoof horn quality in Lipizzaner horses and a therapeutic trial with biotin and a placebo. *Equine Vet. J.* 27:183-191.

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