MULTIMIN®90 Sure Trace Mineral Supplementation by Timed Injection
**WHAT IS MULTIMIN® 90?**

**ANSWER:** MULTIMIN® 90 is Sure Trace Mineral Supplementation given by timed injection. Adequate levels of the essential trace minerals (Zinc, Manganese, Selenium and Copper) as chelates can be injected SC/IM to significantly increase trace mineral status and functions. This is true especially before critical events like drying off, calving, breeding, stress, young growing animals, etc. University studies and trial data show that adequate levels of these essential trace minerals demonstrate increased reproduction efficiency and improved immune response. MULTIMIN® 90 is not intended as a replacement for minerals in the feed. It is a pre-treatment to help prevent trace mineral deficiencies and thus help prevent production and reproduction failures in cattle.

**WHY DO YOU NEED MULTIMIN® 90?**

**ANSWER:** A variety of factors negatively impact the absorption of orally consumed trace minerals. These can include poor or inadequate trace mineral supplementation strategies, large variations in oral mineral intake and the presence of antagonists in feed, forages, distillers grain and drinking water that reduce the absorption or bio-availability of these critical trace minerals. This reduced absorption or bio-availability makes it difficult, if not impossible, to optimize trace mineral status and functions at critical production periods using only the oral intake route. Injecting MULTIMIN® 90 before these critical events will help compensate for these negative effects. This will ensure a more optimal trace mineral status and function when needed most such as during calving, breeding, dry-off, weaning and transition periods.

**HOW DOES MULTIMIN® 90 WORK?**

**ANSWER:** By injecting MULTIMIN® 90 a minimum of four weeks before critical events like calving, breeding, and at dry-off and in bulls 90 days before breeding, metalloenzymes levels are enhanced at these critical stages resulting in increased immunocompetence and reproduction efficiency.

**WHEN DO WE INJECT MULTIMIN® 90?**

**ANSWER:** Metalloenzymes usually peak between 25-30 days after essential trace mineral has been injected into the animal. It is therefore recommended that MULTIMIN® 90 be injected at least 4 weeks before critical/stressful events. MULTIMIN® 90 is recommended in beef cows 4 weeks before breeding and again 4 weeks before calving. MULTIMIN® 90 is recommended in dairy cows at dry-off, 4 weeks before calving, and 4 weeks before AI. MULTIMIN® 90 is recommended in heifers every 3 months and especially 4 weeks before breeding. Calves may be injected with MULTIMIN® 90 at birth and at 3 months of age and at weaning. Due to the fact that semen production takes about 2 months and the peak in metalloenzymes takes about 30 days, it is recommended that bulls are injected with MULTIMIN® 90, 90 days before breeding/semen collection or at least 3 times a year.
Cow/Calf Production

1. A recent study conducted at Kansas State University injecting MULTIMIN® 90 at pregnancy diagnosis and again 30 days before start of breeding indicated that:
   - Conception to Fixed Time AI was greater in cows receiving MULTIMIN® 90 (P=0.05) (60.2% vs. 51.2%).
   - Overall pregnancy rate was better in cows receiving MULTIMIN® 90 (93% vs. 89.9%).
   - Cows receiving MULTIMIN® 90 had greater body condition score gain between calving and breeding.
   - MULTIMIN® 90 benefits calving distribution – 77.49% calves were born during the first 20 days of the calving season.

2. In a trial at Texas A&M University cows showed an improvement in pregnancy rate from 81% to 94% (+13%).

3. New trial data from a study by the University of Sao Paulo, Brazil, on the effect of MULTIMIN® on the pregnancy rate of crossbred heifers synchronized for timed embryo transfer (FTET) indicated that the subcutaneous injection of MULTIMIN® 17 days prior to FTET could increase pregnancy rates by increasing early embryonic survival.

Stocker/Feeder Cattle Production

1. University studies indicated that including MULTIMIN® in a processing protocol in starter and finishing cattle can contribute to:
   - Reduced BRD Treatment
   - Fewer sick animals = less antibiotic use
   - Improved performance (ADG+FEED:GAIN)
   - Reduced transport shrinkage
   - Better beef quality:
     - Improved hot carcass weight
     - Larger rib eye area
     - Improved marbling score

Return On Investment

This study indicated that using MULTIMIN® 90 resulted in a net profit between $32 and $42 per cow per year using a bonus average of $0.20 /cwt.

2. Study data compiled by Cornell University also indicated that treatment of dairy cows with MULTIMIN® 90 reduced the presence in the uterus of bacteria that can be detrimental to uterine health and reproductive performance.

For the complete trial data please visit our website
www.MultiminUSA.com
Optimal trace mineral status of the relevant trace minerals have been shown to increase (▲) or decrease (▼) certain functions/events*

*Data on file
Did you know that modified live vaccines negatively affect the trace mineral status of recently vaccinated animals? This is due to different trace minerals playing an active role in different pathways of the acquired immune response. This may be critical for disease prevention in cattle.

Study data indicated that **MULTIMIN** treatment at the same time as vaccination maintains/improves the animal’s trace mineral status. This may be critical in driving the immune response for better health. Researchers at University of Florida have also reported that the concurrent application of **MULTIMIN** and modified live vaccines increased the production of neutralizing antibody titers against IBR (Infectious Bovine Rhinotracheitis)/ “Rednose” virus significantly in beef steers as early as 14 days after vaccination, maintaining this difference for at least 60 days.

**Effects of Prenatal and Prebreeding Trace Mineral / Vitamin E Injections on Calf Health and Reproductive Performance of Beef Cows.**

Department of Animal Science, Texas A&M University, College Station; Department of Large Animal Medicine and Surgery, Texas A&M University, College Station.

**Cows rapidly deplete the trace minerals they were born with, due to rapid growth rate and the fact that the cow’s milk is a poor source of trace minerals**

**Branum, Jay Christopher, “Impact of Prenatal Dietary Copper Level on Copper Status.”**
Submitted to the Office of Graduate Studies of Texas A&M University. May 1999.
FUNCTIONS OF THESE ESSENTIAL TRACE MINERALS:

**ZINC**
- Reproduction / fertility
- Healthy feet / hooves
- Healthy skin / coat
- Spermatogenesis
- Cell division

Oral Absorption Rate (coefficient)*: 10-20%
Common Antagonists tying up orally supplied Zinc: Calcium, Phosphorus, Iron, Sulfur

**SELENIUM**
- Reproduction / fertility
- Reduced retained placenta
- Disease resistance
- Embryo survival

Common Antagonists tying up orally supplied Selenium: Calcium, Iron, Sulfur

**MANGANESE**
- Spermatogenesis
- Reproduction / fertility
- Embryo survival
- Ovulation
- Proper bone development

Oral Absorption Rate (coefficient)*: 0.01-1.2%
Common Antagonists tying up orally supplied Manganese: Calcium, Phosphorous, Iron, Sulfur

**COPPER**
- Reproduction / fertility
- Reduced retained placenta
- Disease resistance
- Hair color

Oral Absorption Rate (coefficient)*: 1-5%
Common Antagonists tying up orally supplied Copper: Calcium, Iron, Sulfur, Molybdenum

* 2001 INRC
CAUTION:
Federal Law restricts this drug to use by or on the order of a licensed veterinarian.

GUARANTEED ANALYSIS:
Zinc .............................................................................. 60 mg/mL
Manganese ..................................................................... 10 mg/mL
Selenium ........................................................................ 5 mg/mL
Copper ........................................................................... 15 mg/mL

CAUTION:
Slight local reaction may occur for about 30 sec. after injection. A slight swelling may be observed at injection site for a few days after administration. Use standard aseptic procedures during administration of injections.

Store Between 15˚C and 30˚C (59˚F and 86˚F). Protect from Light.

INGREDIENTS: Zinc oxide, manganese carbonate, copper carbonate, sodium selenite, disodium EDTA, sodium hydroxide, benzyl alcohol 1% (as preservative).

DIRECTIONS: USE ONLY IN CATTLE BY SUBCUTANEOUS OR INTRAMUSCULAR INJECTION.

DOSAGE RECOMMENDATIONS:
CALVES: up to 1 year .................. 1mL/per 100 lbs. bodyweight
CATTLE: From 1-2 years ..............1mL/per 150 lbs. bodyweight
CATTLE: Over 2 years ..................1mL/per 200 lbs. bodyweight

SUPPLEMENTATION PROGRAM:
Bulls........................................3 times per year
Beef Cows .................4 weeks before breeding
 ..................4 weeks before calving
Dairy Cows .....................4 weeks before calving
 ..................4 weeks before insemination
 ..................4 weeks before dry-off
Calves..............................at birth
 ..................at 3 months and/or weaning
Heifers ..........................every 3 months – especially 4 weeks before breeding
Additional..................every 2 months in wet conditions

(Program gives planned dates that can be varied to suit management programs)

Packaged in 100 mL & 500 mL size

NDC No. 49920-006-01
NDC No. 49920-006-05

RX REQUIRED
US PATENT # 7,285,292

MANUFACTURED FOR:
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Get the Facts
www.multiminUSA.com

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