Q&A

BASIC FACTS ABOUT

Sure Trace Mineral Supply by Timed Injection

Learn More
Visit www.MULTIMINUSA.com
**WHAT IS MULTIMIN® 90?**

**Answer:** MULTIMIN® 90 is an injectable, aqueous supplemental source of zinc, copper, selenium and manganese. It is formulated according to the NRC requirements of cattle. Trace minerals are important for reproduction, immunity and immune response to vaccines. MULTIMIN® 90 is not intended as a replacement for trace minerals in the oral feed. It supports an existing well designed oral feed program to help optimize immunity and reproduction. It is a prescription required product, so please talk to your own veterinarian about MULTIMIN® 90.

**HOW DOES MULTIMIN® 90 WORK?**

**Answer:** University study data indicated that uptake of zinc, manganese, selenium and copper from the injection site occurs within 8-10 hours of treatment. Followed by exposure of all tissues and enzyme systems to significantly elevated mineral levels for at least 24 hours. Trace minerals are stored well in the liver for later use. Functional enzymes relying on trace minerals show significant increases as early as 15 days post injection. MULTIMIN® 90 injectable supplements minerals rapidly, so cattle respond rapidly.

**WHY DO YOU NEED MULTIMIN® 90?**

**Answer:** Trace minerals such as Zinc, Manganese, Copper, and Selenium are important for optimal immune function and reproduction in cattle. Stressed animals have decreased appetite, resulting in less feed intake which means reduced trace mineral intake. Typical stressful times for cattle are around calving in cows and breeding in heifers/cows/bulls or during handling of calves and yearlings at branding, weaning, transporting and feedlot receiving time. Inadequate trace mineral supplementation and large variations in oral mineral intake may also negatively impact the trace mineral status. Antagonists such as sulfur, molybdenum, iron and calcium in feed and water may impair absorption and/or bio-availability of orally consumed trace minerals. The trace mineral requirements of cattle are not static and change during their production cycle and also during these times of stress. When the trace mineral status of cattle declines, immunity, enzyme functions, growth and fertility are compromised. One way to rapidly increase the trace mineral status of cattle is through use of an injectable trace mineral supplement such as MULTIMIN® 90.

**WHEN DO WE INJECT MULTIMIN® 90?**

**Answer:** Metalloenzymes usually peak about 30 days after a MULTIMIN® 90 treatment. 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. It is recommended that bulls are injected with MULTIMIN® 90, 45-60 days before breeding/semen collection or at least 3 times a year. Do not treat cattle with MULTIMIN® 90 more often than every 3 months.

**HOW DO WE INJECT MULTIMIN® 90?**

- **Always** read the label first!
- Determine the weight of the animal and calculate the correct amount of product based on label directions.
- Perform a proper tented technique for subcutaneous injections using the middle of the side of the neck.
- Always follow Beef Quality Assurance principles – www.BQA.org
- Inject MULTIMIN® 90 on the other side of the neck if multiple products are injected.
- Minimum distance between injection sites is 4 inches.
- Max volume per injection site for all products is 7ml.
- Do not inject MULTIMIN® 90 behind the shoulder.
- Do not inject cattle in wet weather or cattle with muddy/dirty skin. Injecting cattle during wet weather increases the potential for carrying a contaminant into the injection site.
- Use clean needles and change needles often.
Optimal trace mineral status of the relevant trace minerals have been shown to increase (▲) or decrease (▼) certain functions/events:

*Data on file
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

**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

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

Common Antagonists tying up orally-supplied Selenium: Calcium, 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

WHY WORRY ABOUT ANTAGONISTS?

**WHY WORRY ABOUT ANTAGONISTS?**

**MULTIMIN® 90** rapidly increased TRACE MINERAL status of cattle even in presence of strong TRACE MINERAL antagonists

Supplementation of TRACE MINERALS at 150% NRC with inorganic sources took about 42 days to achieve similar TRACE MINERAL status compared to **MULTIMIN® 90**.

Supplementation of TRACE MINERALS at 150% of NRC with inorganic/organic blend took about 28 days to achieve a similar TRACE MINERAL status compared to **MULTIMIN® 90**.

**IOWA STATE UNIVERSITY STUDY DATA INDICATED:**

**MULTIMIN® 90** rapidly increased TRACE MINERAL status of cattle even in presence of strong TRACE MINERAL antagonists

**IOWA STATE UNIVERSITY STUDY DATA INDICATED:**

**WHEN TRACE MINERAL STATUS OF CATTLE ↓:
- the Immunity of Cattle ↓
- Fertility ↓
- Growth ↓**

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**Adapted from Wikse, 1992 Texas A&M Beef Cattle Short Course**

**Comparison of Trace Mineral Repletion Strategies to Overcome a High Antagonist Diet**

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* 2001 NRC
RISK PERIODS IN CATTLE WHERE TRACE MINERAL PRE-TREATMENT MAY BE CRITICAL

Use **MULTIMIN® 90**
3-4 weeks prior to, or at a stressful event

**Stressful Event**
- Cows/Heifers:
  - Pregnancy Check or 30 Days Before Calving
  - 30 Days Prior to Breeding
- Calves:
  - At Branding/First Vaccination
  - At Weaning/Pre-Conditioning

**Time**

**MULTIMIN® 90** supplies the mineral component of enzyme levels. Increased enzyme levels lead to increased various enzymes. It leads to a significant increase in natural resistance and better reproduction efficiency.

**When?**

**BEef Cattle**

- **Cow**
  - Pre-Calving
  - 30 Days Pre-Breeding

- **Heifer**
  - 30 Days Pre-Breeding
  - Pre-Calving

- **Calf**
  - Birth
  - Branding/First Vaccination
  - Weaning/Pre-Conditioning

- **Stockers**
  - Arrival at Stocker Operation

**When?**

**Dairy Cattle**

- **Cow**
  - At Dry-Off
  - 30 Days Pre-Calving
  - 35 Days in Milk

- **Heifer**
  - 30 Days Pre-Breeding
  - 30 Days Pre-Calving

- **Bull**
  - Developing Bulls
    - At Weaning
    - 90 Days Later
  - Breeding Bulls
    - 45-60 Days Before Breeding Season

- **Calf**
  - Birth
  - Every 3 Months

Elevating trace mineral status before calving and breeding is critical for:
- Calf Performance & Immunity
- Breed Back

Learn More Visit [www.Breed Ready.com](http://www.Breed Ready.com)
Can You Afford Not Including MULTI MIN® 90 in Your Cattle Health Program?

Learn More Visit www.SaveTheLung.com
**KEEP OUT OF REACH OF CHILDREN**

**MULTIMIN® 90**

An injectable aqueous supplemental source of zinc, manganese, selenium, and copper

**CAUTION:** FEDERAL LAW RESTRICTS THIS DRUG TO USE BY OR ON THE ORDER OF A LICENSED VETERINARIAN.

**ACTIVE SUBSTANCES PER ML:**
- Zinc: 60 mg/mL
- Manganese: 10 mg/mL
- Selenium: 5 mg/mL
- Copper: 15 mg/mL

**OTHER SUBSTANCES:** Chlorocresol 0.1% w/v (as preservative).

**DOSE RECOMMENDATIONS:**

**CALVES:** Up to 1 yr
- 1 mL/100 lbs. body weight

**CATTLE:**
- From 1-2 yrs
  - 1 mL/150 lbs. body weight

- Over 2 yrs
  - 1 mL/200 lbs. body weight

**PRECAUTION:**
- Selenium and copper are toxic if administered in excess.
- Do not overdose.
- It is recommended that accurate body weight is determined prior to treatment.
- Do not use concurrently with other injectable selenium and copper products.
- Do not use concurrently with selenium or copper boluses.

Do not use in emaciated cattle with a BCS of 1 in dairy or 1-3 in beef.

Consult your veterinarian.

**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 at dry-off

**CALVES**
- at birth
- at 3 months and/or weaning

**HEIFERS**
- every 3 months – especially 4 weeks before breeding

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

**DOSAGE TABLE**

<table>
<thead>
<tr>
<th>ANIMAL WEIGHT (lbs)</th>
<th>CALVES UP TO 1 YEAR</th>
<th>CATTLE 1-2 YEARS</th>
<th>CATTLE &gt; 2 YEARS</th>
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<tr>
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<td>1.5 ml</td>
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<td>6.5 ml</td>
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<tr>
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<td>7 ml</td>
</tr>
</tbody>
</table>

** PACKAGED IN 100 ML & 500 ML SIZE**

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

**MANUFACTURED FOR:**
MULTIMIN NORTH AMERICA, INC.
Fort Collins, CO 80528

**DIRECTIONS:**

- Slight local reaction may occur for about 30 seconds 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 to reduce the risk of injection site abscesses or lesions.

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**ANIMAL WEIGHT (lbs)**

- calves up to 1 year
- cattle 1-2 years
- cattle > 2 years

**BULLS**
- 3 times per year

- BEEF COWS
- 4 weeks before breeding
- 4 weeks before calving

- DAIRY COWS
- 4 weeks before calving
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