Focus on Healthy Calves
Effect of an injectable trace mineral supplement containing selenium, copper, zinc, and manganese on immunity, health, and growth of dairy calves


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**THE BOTTOM LINE**
- Health
  - less time spent looking after sick calves
  - less antibiotics use
  - less treatment cost

**CORNELL UNIVERSITY STUDY DATA**

Brief Protocol:
- 790 Holstein Heifer Calves
- 2 subcutaneous injections – one at day 3 and one at day 30 after birth.
- Calves were fed raw colostrum (pooled and refrigerated) within 12 hours after birth.
- Calves were fed a total of 6L of pasteurized non-saleable milk divided equally twice per day.
- Water and calf starter diets were offered ad libitum starting at day 3 of life.
- IgG levels indicated successful transfer of passive immunity.
- Serum samples indicated that the calves were not deficient in Se, Cu, Mn & Zn at the start of the study.
- Weaning at day 45±5 after birth - Study period 50 days.

**Study Results**

The study results indicated that MULTIMIN® 90 at early postnatal life was beneficial to calves' immunity and antioxidant status!

**MULTIMIN® 90 - WHEN FEEDING TRACE MINERALS IS NOT ENOUGH!**

**CATTLE SCOURS**

**Otitis/Pneumonia/Both**

**Otitis**

**Pneumonia**

**Immunity**

**Antioxidant Status**

**Neutrophil Phagocytosis**

**Oxidative Burst**

Formation and Elimination of Reactive Oxygen Species (ROS)

\[
\text{O}_2^- \rightarrow \text{H}_2\text{O}_2 \rightarrow \text{H}_2\text{O}
\]

**Superoxide Dismutase**

**Glutathione Peroxidase**

**Catalase**

Movement to site of infection

**Health**

- less time spent looking after sick calves
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- less treatment cost
University of Idaho Calf Study

Brief Protocol:

- 58 day-old individually housed Holstein bull calves were randomly assigned to treatment and control groups.
- Pre-treated calves were injected with 1 mL of MULTIMIN® 90.
- Control calves were treated with saline.
- Serum was collected at 0, 5, 24 and 168 hours and analyzed.
- Calves were monitored for adverse reactions and injection site abnormalities.

Trial Results:

Trial study data indicated that injecting day-old Holstein calves with MULTIMIN® 90 is a safe way of pre-treating calves with zinc, selenium, manganese and copper. No adverse tissue reactions or any injection site abnormalities were detected in MULTIMIN® 90 injected calves.

"MULTIMIN® DOESN'T COST - IT PAYS!"

With the dairy market like it’s been, every dairy is looking for ways to improve profits and cut expenses. MULTIMIN® has helped us improve our calf and heifer program and it’s here to stay!

Complete trial data available on request

www.multiminusa.com