Review of: "Effect of Bromide on Livestock Development: a Review"

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Potential competing interests: No potential competing interests to declare.

Review of the Article "Effect of Bromide on Livestock Development"

This review article examines the effects of bromide (Br-) on livestock, particularly focusing on its potential to disrupt thyroid hormone (TH) production. Here's a breakdown of the key points:

Introduction:

- Bromide is a naturally occurring element found in water, soil, and air.
- It recently gained recognition as an essential element for collagen structure.
- Bromide exposure can be toxic at high doses.

Sources of Bromide for Livestock:

- Groundwater is a major source of Br- for livestock, especially in dry climates.
- Seawater naturally contains high Br- concentrations.

Interaction with Thyroid Function:

- Bromide competes with iodine (I-) for uptake by the thyroid gland.
- Excessive Br- can lead to hypothyroidism (low TH production).
- TH is crucial for growth, development, and metabolism in animals.

Effects of Bromide on Livestock:

- May decrease growth rate and feed efficiency.
- Can negatively impact embryo development and hatchability in birds.
- Might affect milk production in lactating animals.
- Potential risk of hypothyroidism in humans consuming animal products.

Key Findings:

- A safe level (NOAEL) of Br- in drinking water for livestock has been proposed (0.01 mg/L).
- Chicken embryo studies suggest negative effects of Br- on development at higher concentrations.
- Further research is needed on the impact of Br- on other livestock species and production stages.

Strengths:

- Provides a comprehensive overview of Br- sources, essentiality, and potential toxicity.
- Highlights the competition between Br- and I- for thyroid function.
- Emphasizes the importance of Br- management in livestock production.

Weaknesses:

- Lacks detailed information on the methodology used in the studies cited.
- Doesn't discuss potential mitigation strategies for Br- toxicity.
- Could benefit from a clearer explanation of the "in ovo" injection technique.

Overall:

- This review effectively highlights the potential dangers of excessive Br- exposure in livestock. It emphasizes the need for further research to establish safe Br- levels and mitigation strategies for different livestock species and production stages.