

The Challenges of Free Choice Mineral-Vitamin Premixes

Many farmers and ranchers have adopted the practice of providing free choice mineral (and vitamin) supplements to allow animals to make up critical deficiencies that are not in their diet or ration. Minerals and vitamins that are available in forages are truly natural, organic and therefore highly bioavailable.

The **macro (major) elements** are calcium, phosphorus, magnesium, sulfur, sodium and chloride. The **minor (trace) elements** are boron, iodine, selenium, iron, zinc, manganese, copper, chromium, vanadium and actually dozens more in even smaller trace amounts.

The major elements found in forages typically are much, much higher in %'s than are the minor elements. For example, calcium at 1.2% in a forage is actually 12,000 ppm; a trace element such as zinc may only be 35 ppm- big difference.

When animals are engorging on premixes that contain a blend of all the minerals, they are most likely **a)** either **deficient**; or **b)** they are under some kind of **stress** increasing the need; **c)** they are challenged with **parasites or infections** that are consuming mineral nutrition; **d)** they are getting an **excess of certain minerals** in their ration which is suppressing the availability of other nutrients.

Edible Clay

When it comes to eating edible **clay** (e.g. Dyna-Min™) animals may also be desirous **1)** of the **minerals** found in the clay; or **2)** they are utilizing the clay to **absorb** some kind of **toxin** (e.g. mold, endophyte); **3)** their diet may be **too high in protein** or soluble protein causing an elevation of **rumen ammonia** leading to high BUN or MUN; or **4)** they're suffering from **acidosis**. Like manufactured premixes, many animals inhale the clay; others ignore it for reasons that can also include the following:

Mineral Refusal

Many times, farmers and ranchers are curious, confused or frustrated as to why their animals won't free choice miscellaneous mineral mixes. The answers are typically the subsequent factors:

- They're getting adequate nutrition already from **nutrient dense forages** growing on **good soils**. Check the Agri-Dynamics catalog for optimum levels of minerals for soils.
- Ground up "rocks" (e.g. limestone, magnesium oxide, phosphates, etc.) and sulfated trace elements may appear to be **bitter or metallic**. Remember, naturally occurring minerals occurring in plants don't have a stand-alone mineral flavor but a "bouquet" of tastes from hundreds to thousands of compounds found in plants. Check the Agri-Dynamics catalog for optimum levels of forage nutrients.
- The **drinking water** has elevated **iron** and/or **manganese** and/or **sulfur**. Livestock have to consume water as their primary nutrient, even before feed. If water is high in elements, they can't "stomach" any more of a metal overload. Clean up your water and consumption of water, feed and even minerals will

increase, as will the health of your animals. Check the Agri-Dynamics catalog for ideal water parameters.

- Livestock are subject to different mineral requirements at various **stages of growth, gestation and lactation**. The **endocrine (hormonal) system** is associated to mineral metabolism and mineral metabolism is associated with the endocrine system.
- As the **seasons change** (temperature & moisture) so do the requirements for livestock and so do the nutritional parameters of forages. That's why animals may not touch any premixes for months and then they suddenly seem to crave premixes as the fresh or stored feeds change.
- Like water, **soils that are minerally imbalanced** can create minerally imbalanced forages that could be excessive in minerals like potassium and iron, throwing off intake.

The “Novel” Feeds Syndrome

Animals are creatures of habit and much of what they consume is a **learned behavior**, based upon a) their initial experience with feed or mineral. If it causes nausea, the reaction can be imprinted in the nervous system to avoid that substance later on. Moreover, that experience can be **“taught”** to others, **in the womb**, to **nursing animals through the milk**, or just **via behavior**. So it's important to make a “first good impression.”

Improving Mineral Feed Intake

To get skittish animals to become beneficially acquainted with mineral-vitamin premixes, it may be wise to introduce other palatable substances into the premixes for at least a few days. Examples:

1. Remove the salt block or lick and **mix the total premix 50/50 with salt** for 5-7 days. Replace the regular salt in about a week and allow the mineral premix to be available “as-is.” Eventually, **reduce the salt dilution downward to 25%, to 10%** over the next few months before eliminating it completely.
2. Add **10-20% dried molasses** to the premix and maintain that concentration for 1-2 months and then gradually reduce it to zero over the next few months.
3. If feeding kelp, you could **mix the premix @ 1/3 salt, 1/3 kelp, 1/3 premix**. Have this mix available for one month. **Then** move it up to **50% premix, 25% salt, 25% kelp** for another month. At the end of the second month, provide **50/50 blend of kelp/salt** and **50/50 blend of premix/salt**. Eventually reduce salt/premix amounts to very little <10% salt to no salt in the premix. In lieu of kelp, you may wish to use alfalfa meal.

It's important to know that all livestock are not created equally; that weather plays a large role; soil geology and biology are tantamount to free choice behavior; stress from parasites or microbes are a factor; stress upon the endocrine (hormonal) system is involved. Also, when certain animals (the “alpha” livestock) begin to take in premix supplements, often other livestock begin to emulate the behavior of their “teachers”.