

## Meeting Sheep Mineral Requirements at Pasture

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### **GETTING MINERALS INTO SHEEP**

For a starting point, all sheep in Ontario need some selenium supplementation as this Province's soils are selenium (Se) deficient. We need a selenium source, so 'no supplement' is not an option! Often people struggle with whether or not the requirements of the sheep are being met. Now assuming an appropriate pasture mineral supplement product is being used, the only way to determine if the intake is according to specifications is to read the label of the product as to what intake should be attained per head per day on any product! That said, 15 to 25 g per head per day is pretty typical intake recommendation for a commercial mineral premix ('free choice mineral'), and in turn, a 25 kg bag of mineral premix should last 1000 to 1660 ewe-days per bag. This calculation must also be done for trace-mineralized (TM) salt when used, but will certainly result in approximately double the number of ewe-days per 25 kg product compared to premix. Since Se deficiency is a big deal in Ontario, look for a sheep mineral that provides it at the highest levels possible; any higher you'd need a vet script which some farms may. But this is a result of Federal rules that need to be relevant in high selenium provinces too. If you are considering a TM salt product on pasture, look for TM salt that is 120 mg/kg selenium or formulated for higher intake. There are a few add-ons you may consider with mineral premix or TM salt such as adding a coccidiostat for cocci control in lambs.



### **WHAT ARE MINERAL SUPPLEMENTATION REQUIREMENTS**

The key to determining what level your animals need to be supplemented at is a forage test. Table 1 illustrates the **minimum** levels of various minerals this author would recommend in sheep forages (fresh perennial forages). The upper section contains standard minerals reported on, the next two are optional, and then trace minerals which cannot easily be tested for, so should be assumed as deficient. These values are based on requirements for critical stages such as late pregnancy/lactation for ewe lambs, and then extrapolated to ewes. It is a 'worst case scenario' [for the ewe flock for each of the mineral parameters](#), as those ewe-lamb requirements are higher than for ewes at any stage of production. Similarly, the same has been done for [a growing lamb](#).

Dr. Kendall Swanson, a researcher at the University of Guelph comments that "typical average to good quality pastures in Ontario may not need supplementation of most minerals and vitamins, but there likely are some quite low quality pastures that do." How do you know where your pastures fit in? Feed analysis compared to requirements is the only way to tell! A farm should build an inventory of forage tests over time to account for seasonal and weather variations on mineral uptake by the pasture. If, over time, the forage test is above the levels in Table 1, then no further action is needed on that nutrient. In looking at this information many people farming on high fertility soils will realize there is no need to routinely supplement calcium, phosphorus, potassium, and perhaps other minerals. High phosphorus (P) minerals (1:1 and even 2:1 Ca:P ratio) are typically over-supplementing P levels, because of the high manure or fertilizer levels in parts of

the province that have been farmed for several decades. The only way to be sure is a forage test for minerals! All sheep in Ontario need Se, and if that can be done with a TM salt, then perhaps that is all a given farm needs. Some flocks on very low P soils may need a source of that macro-mineral, which is absent in TM salt.

### **BOTTOM LINE ON MINERALS AT PASTURE**

The only way to really tell what you need is a forage test, and to accept Ontario is selenium (Se) deficient. Once you have done these two things you can figure out whether you really need a complete premix or a trace-mineralize (TM) salt to meet the mineral needs of your sheep at pasture. And remember, at pasture all of the vitamins A, D, and E sheep could ever need are there for free. Get it while you can!

**Table 1.** Minimum requirements for macro and micro-mineral for mature ewes and growing lambs on pasture assuming highest level of requirement within that class, as adapted by Christoph Wand from Nutrient Requirements of Small Ruminants, 2007. Calcium, phosphorus, manganese and molybdenum recommendations still stem in part from Nutrient Requirements of Sheep, 1985 and other sources for economy, safety and clarity reasons.

| <b>Nutrient</b>                                      | <b>Unit of Measure*</b> | <b>Mature</b>  | <b>Lambs</b> |
|--|-------------------------|----------------|--------------|
| <i>Standard on forage test</i>                       |                         |                |              |
| Calcium (Ca)   | %                       | 0.30           | 0.35         |
| Phosphorus (P)                                       | %                       | 0.25           | 0.30         |
| Potassium (K)  | %                       |                | 0.50         |
| Magnesium (Mg)                                       | %                       |                | 0.11         |
| Sodium (Na)  | %                       |                | 0.06         |
| Sulphur (S)  | %                       |                | 0.16         |
| Zinc (Zn)  | ppm or mg/kg            |                | 36           |
| Manganese (Mn)                                       | ppm or mg/kg            |                | 20-40        |
| <i>Optional on forage test</i>                       |                         |                |              |
| Copper (Cu)  | ppm or mg/kg            | 6 (maximum 15) |              |
| Molybdenum (Mo)                                      | ppm or mg/kg            | 0.5            |              |
| <i>Not likely on forage test – separate analysis</i> |                         |                |              |
| Cobalt   | ppm or mg/kg            |                | 0.17         |
| Iodine (I)   | ppm or mg/kg            |                | 0.65         |
| Iron (Fe)  | ppm or mg/kg            | 30             | 75           |
| Selenium (Se)  | ppm or mg/kg            |                | 0.3          |

\* in total ration or as reported on forage test assuming 100% pasture intake. Ppm or mg/kg are the same unit of measure, both measuring number of units per million units.

\*\* Supplementation ingredient for single mineral, if required