



# How Much Selenium Can My Goats Have?

Selenium is one of the most consumed minerals in the mineral buffet and we frequently hear from concerned goat owners asking if their goats are eating safe amounts. While I don't see a need to limit intake, especially in goats that have been depleted for some time, it can be helpful to have a guideline for how much is acceptable *by the books*.

## *How Much Selenium Can Goats Have Per Day?*

First, let's take a look at published data on daily selenium amounts for goats. In [this article](#), we have:

"The ruminant animals have a general requirement of 0.1–0.3 mg/kg Se in the diet (NRC, 2007)..."

Second, this [PubMed article](#) concludes with:

"Thus the maximum level of supplemental selenium in feeds for dairy goats should be less than 0.5 mg/kg."

Based on this information, if we wanted to have an upper limit of consumption we could aim for no more than 0.5 mg/kg per day, while knowing that short bursts of higher consumption are unlikely to cause issues, *as long as we maintain a stance of never forcing supplementation*.

## *Let's Do the Math*

One pound is equal to .45 kilograms, so to figure out how much we can give, we first need to determine the weight of our animal. (For most folks outside America, you're set! 😊) A typical Nigerian Dwarf adult weighs around 75 pounds/34kg, while a standard dairy goat weighs around 140 pounds/63kg.

At a rate of 0.5mg/kg, this looks like:

- 17mg of selenium per day for a Nigerian Dwarf goat
- 32mg of selenium per day for a standard dairy goat
- 0.23mg per pound (or 23mg per 100 pounds) of body weight if you know your goat's weight

## *Converting to PPM*

Here's where we run into trouble. Our research tells us how much goats can have in milligrams, but feed sources will relay their selenium levels in parts per million (PPM).



We need to do a little more math to find out exactly how much volume of our mineral we can give to stay within that upper limit.

First, let's weigh a volume measurement of our mineral mix. I am using Free Choice Enterprises selenium, which weighs 150g per 1 cup.

According to the [labeling](#), selenium is 200ppm. Here's how we do the math to figure this out:

- 1. Converting the Total Weight:** We have a total mixture that weighs 150 grams. Since ppm deals with millions, and there are 1,000 milligrams in a gram, we convert grams to milligrams. So, 150 grams is 150,000 milligrams (since  $150 \times 1,000 = 150,000$ ).
- 2. Calculating the Amount of Selenium:** To find out how much of our mixture is selenium (200 ppm), we use this formula: Amount of selenium = Total weight in milligrams x PPM/1,000,000. Plugging in our numbers:  $150,000 \times 200/1,000,000$ . We could first find for the PPM by dividing  $200/1,000,000$  (0.0002), then multiplying that by 150,000.
- 3. Getting the Result:** Doing the math, we find that 30 milligrams of our 150,000 milligram mixture is selenium.

### *Translate it Back to Volume*

We're not usually weighing our minerals when we feed them out, so let's bring it back to that one-cup measurement. All of this math we did tells us that 1 cup of selenium from Free Choice Enterprises contains 30mg of selenium. With that result in hand, we can say that the max daily dose in cups per goat looks like approximately this:

- ½ cup of selenium per day for a Nigerian Dwarf goat
- 1 cup of selenium per day for a standard dairy goat
- ¾ cup per 100 pounds of body weight

Whew! That was a brain pain, but we made it through!