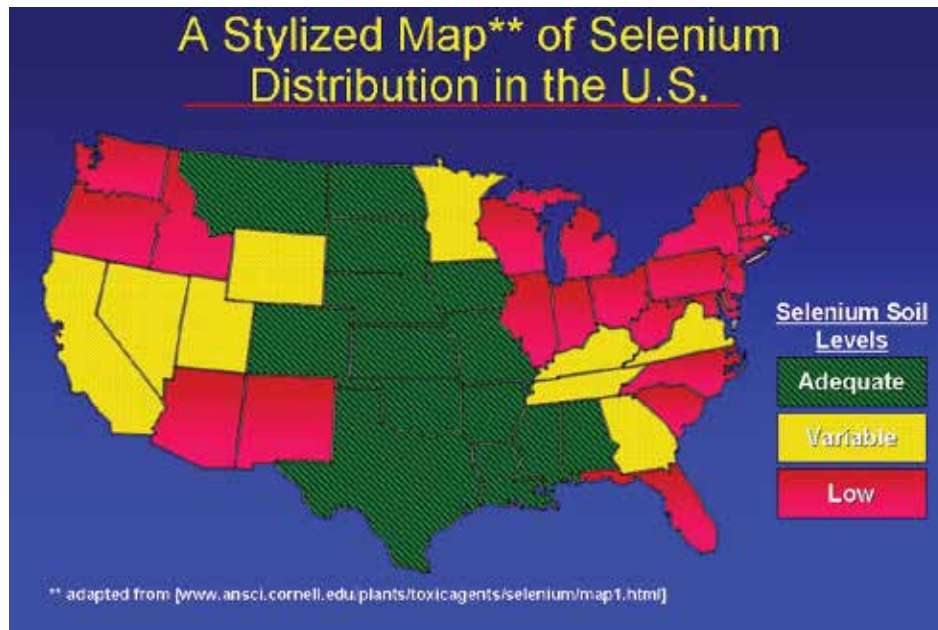


Selenium Paranoia

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While it is true that selenium can be toxic, so can many other nutrients. Focusing on toxicity leads to unjustified fears of supplementing this mineral which can do more harm than good.



In the map of soil selenium levels above, adequate only means that there might be enough selenium in the crops to support the bare minimum requirements for selenium – not necessarily that there will be. Local soil conditions, especially pH, will also influence levels in the crops.

Poisoning may occur when horses are on range grazing for many months with poor grass availability and easy access to weeds that concentrate selenium (seleniferous plants). Selenium toxicity from properly formulated and manufactured supplements, grains or from hays is virtually unheard of, even if you use more than one source of selenium.

The recommended minimum daily intake of selenium for an average sized, idle, adult, nonbreeding horse is 1 mg/day, or 0.1 mg/kg (= 0.1 ppm) in the total diet. The suggested maximum safe intake, above which toxicity may develop over weeks or months, is 20 mg/day or 2 mg/kg (2 ppm). That's a big difference.

Let's take a look at how this might break down for an average horse. We'll assume the hay is coming from an adequate selenium area and provides 1 mg/day. This horse is also getting 5 lbs/day of a supplemented grain which has 0.6 ppm. That's 0.6 mg per kg or $0.6 \times 5 / 2.2$ (2.2 lbs in one kilogram) = 1.36 mg for a total of 2.36 mg. Let's say the owner is also feeding a vitamin and mineral concentrate with 3 mg/dose. That brings the total to 5.36 mg/day. Even if you add a vitamin E and selenium supplement with 1 to 2 mg/dose (35 to 70 ppm if you feed 1 ounce/day), you are still way, way below the upper safe limit of 20 mg/day.

An additional factor to consider is that arsenic and sulfate, often present in generous levels in waters and feeds from adequate or high selenium areas, decrease the absorption of selenium. So does copper which is present in

generous levels in supplemented grains and mineral supplements.

Finally, the minimum requirement of 1 mg/day for inactive adult horses can change significantly with work, allergy, inflammation or infectious disease challenge, as well as high levels of minerals that interfere with absorption. For example, many endurance riders feed 5 to 7 mg/day routinely.

If you are concerned about the amount of selenium you are feeding, either too much or too little, consider blood testing. Whole blood selenium levels are a good estimate of total body selenium content.

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