

Stunted Wheat May Test Toxic for Nitrates

A potential use for the freeze-stunted wheat that is common in Missouri is some type of forage. Persons considering this use should be aware that the wheat plants might contain unsafe concentrations of nitrate. Nitrate accumulates in plants when live roots continue to take up nitrogen, but plants are unable to use the nitrogen because of reduced growth. The situation is aggravated by plentiful nitrogen supply, for example, nitrogen fertilizer applied shortly before the recent freeze event. The following table contains warning levels for forage nitrate content.

Nitrate concentration		Forage status	Comments
0 to 0.25 percent	0 to 2,500 ppm	SAFE	Forage is generally safe to feed at these levels to all classes of livestock.
0.25 to 0.50 percent	2,500 to 5,000 ppm	CAUTION	Forage with this nitrate (NO ₃) content can cause a problem with pregnant and young animals. Do not feed forage with nitrate levels this high in combination with nonprotein nitrogen supplements, and limit forage with NO ₃ levels this high to one-half of total ration.
0.50 to 1.5 percent	5,000 to 15,000 ppm	DANGER	Limit forage with this NO ₃ level to one-fourth of total ration. Should supplement forage of this type with energy, minerals and vitamin A.
Over 1.5 percent	More than 15,000 ppm	TOXIC	Forage with this NO ₃ level or higher is toxic and should not be fed under any circumstance. If forage with this NO ₃ concentration must be fed, it should be mixed with other feed and make up no more than 15 percent of the total ration.