Fertilizing Established Grass, Native Grass, Irrigated Grass and New Seedlings of Grass

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Yields in North Dakota are limited largely by the available water supply. The plant nutrients that most often limit production are nitrogen and phosphorus.

Nutrient Recommendations:

Nitrogen fertilizer recommendations for grasses are not based on a nitrate-nitrogen test. The reason for this is that the soil nitrate-nitrogen level under a perennial crop such as grass, alfalfa, sweet clover, etc., is always at a very low level. This is because when a crop is continuously growing on the soil, accumulations of nitrate-nitrogen never occur unless excessive amounts were applied. The nitrogen, phosphate and potash recommendations for tame and native grass are given in Table 1.

Nutrient recommendations for established grass, native grass, irrigated grass, and new seedings of grass.

			Soil Test Phosphorus, ppm				
Yield goal	Soil N plus fertilizer N required	Bray-I Olsen	VL 0-5 0-3	L 6-10 4-7	M 11-15 8-11	H 16-20 12-15	VH 21+ 16+
ton/a	lb/acre-2'		- - - - - lb P2O5/acre - - - - -				
2	50		40	20	10	0	0

			Soil Test Potassium, ppm				
Yield goal	Soil N plus fertilizer N required	Bray-I Olsen	VL 0-40	L 41-80	M 81-120	H 121-160	VH 161+
ton/a	lb/acre-2'		- - - - - - lb K2O/acre - - - - -				
2	50		70	50	25	0	0

Nitrogen recommendation = 25 YG
Bray-I P recommendation = 45.0-2.5 STP
Olsen P recommendation = 45.00-3.45 STP
Potassium recommendation = 80.00-0.53 STK

The abbreviations used in the equations are as follows:
YG = yield goal
STN = soil test nitrogen
STP = soil test phosphorus
STK = soil test potassium
SDA = sampling date adjustment
PCC = previous crop credit

Time of Application:

Fall nitrogen application on sandy soils is not recommended. On all other soils apply fertilizer in late fall or early spring. Continued application of nitrogen in late fall or early spring will favor the growth of cool season grasses at the expense of warm season grasses in native pasture. If you want to promote the growth of warm season grasses, apply nitrogen in early summer.

Other Nutrients:

Sulfur deficiencies are not common but may occur on sandy soils after several heavy applications of nitrogen. If your grass appears to be deficient in nitrogen (yellow) after an application of nitrogen, test for sulfur. Response to iron, zinc, copper or manganese by grass is unlikely in North Dakota.

Grass Tetany:

This is a disease that sometimes occurs when lactating animals eat nitrogen fertilized grass in early spring. Apparently it is partly associated with lower levels of magnesium found in lush growth that occurs during cool wet springs. It occurs most often on soils high in potassium and low in magnesium. While most soils in North Dakota are high in potassium, they are also high in magnesium, reducing the likelihood of this disease occurring.

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