

What Fertilizer should I use?

By

Emil Truog, C.J. Chapman and

K.C. Berger

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Practically all soils in Wisconsin which are being cropped need fertilization. The question no longer is—should I use fertilizer?, but rather—what kind and how much? The kind and amount depend upon the state of fertility of the soil and the crop to be grown. Quite generally, sandy soils need a complete fertilizer, mucks and peats one high in potash, and silt and clay loams one containing varying proportions of phosphate and potash. In general, non-legume pasture and haylands require a fertilizer high in nitrogen; legumes, a fertilizer high in potash and grains, one high in phosphate. *When in doubt about the fertilizer to use, have the soil tested. If the soil is acid and clover or alfalfa are to be sown, lime should always be added.* Fertilizer alone will not produce its full benefit when lime is needed.

Fertilize Sufficiently for the Rotation

In a three to five-year rotation, liberal application (400 to 1000 pounds per acre) of a phosphate-potash mixture is recommended at the time of seeding down to clover or alfalfa with nurse crop. Increases in the yield of grain the first year will often pay the entire cost of the fertilizer. But by far the greatest benefit from the fertilizer will come the second year and later in better yield and quality of legume hay. Heavier applications of fertilizer at the time of seeding down are now being recommended, because results of experiments show this is profitable, and increased supplies of fertilizer make it possible. If rate of application is 800 pounds per acre or more, it is often advisable to apply one-half of it before plowing and the other one-half after plowing so as to provide fertilizer throughout the plow layer.

More Potash and Some Nitrogen Recommended

Soil tests and field experiments are showing the need for more potash in fertilizer mixtures.

Some nitrogen can be used for small grains even where seedings of clover and alfalfa are made, especially on soils where the growth is apt to be short. Ammonium nitrate applied at rates of from 60 to 90 pounds per acre as a supplement to the regular phosphate-potash fertilizers has proven to be profitable in many cases. Rye and winter wheat will often benefit greatly from a top dressing with nitrogen in early April. Corn, particularly on sandy land, will often respond to a side dressing of nitrogen at the time of the last cultivation.

University of Wisconsin — EXTENSION SERVICE
COLLEGE OF AGRICULTURE, MADISON

FERTILIZER RECOMMENDATIONS FOR WISCONSIN

When soil tests indicate needs at variance with recommendations below, such as need of straight phosphate or potash, then treatment should be in accordance with soil tests.

Crops and Methods of Fertilizer Application	Sands and sandy loams		Silt and clay loams		Mucks and peats		Precautions, Explanations and Remarks
	Kind of fertilizer	Lbs. per acre	Kind of fertilizer	Lbs. per acre	Kind of fertilizer	Lbs. per acre	
Corn (field, seed, and sweet): (a) In hill or row-drilled	3-12-12 3-9-18	100 to 200	3-12-12 4-12-8 3-9-18	125 to 250	3-9-18 0-20-20 0-9-27	200 to 350	In hill, rate per acre should be limited on sands to 100 lbs. and on other upland soils to 150 lbs. When drilled in row, rate may be increased 50 to 100%. Hill or row applications are advised even when preceded by broadcast or plow-sole fertilization. For hill fertilization of sweet corn on light colored soils, add copper and zinc sulfates to fertilizer in amounts to give 5 lbs. of the former and 10 lbs. of the latter per acre.
	(b) Also if unmanured, broadcast or place on plow-sole	8-8-8	800 to 1000	8-8-8	800 to 1000	3-9-18 0-20-20 0-9-27	
Small Grains with legume seedings: With grain-fertilizer drill or broadcaster	3-12-12 3-9-18 0-9-27	300 to 800	3-12-12 0-20-10 0-20-20 0-9-27	300 to 800	0-20-20 0-10-20 0-9-27	300 to 800	Limit amount drilled in contact with seed to 200 lbs. per acre on sandy soils and 300 lbs. on other soils. Broadcast additional amounts needed for legumes. For oats on poorer soils, use some nitrogen. If rock phosphate is used, apply about 1000 lbs. per acre.
Alfalfa and Clover (Established hay or pasture): Top dress	0-20-20 0-10-20 0-9-27	300 to 600	0-20-20 0-10-20 0-9-27	300 to 600	0-20-20 0-10-20 0-9-27	300 to 600	Whenever alfalfa shows lack of vigor, top dress with 0-9-27 or 0-10-20 at rates of 300 to 600 lbs. per acre. If lack of boron is indicated by stunted top growth or soil test, apply 20 to 40 lbs. of borax per acre.
Grasses: Timothy, brome, reed canary, June grass (established hay or pasture) and rye: Top dress	8-8-8 Nitrogen fertilizer	400 to 600 See last page	8-8-8 Nitrogen fertilizer	400 to 600 See last page	8-8-8 Nitrogen fertilizer	400 to 600 See last page	On heavier soils of fair fertility, nitrogen fertilizer alone is recommended. If soil is poor and run out, supplement nitrogen with lime, phosphate and potash as needed.
Soybeans: With grain-fertilizer drill, broadcaster or plow-sole attachment	0-20-20 0-10-20 0-9-27	100 to 500	0-20-10 0-20-20 0-10-20	100 to 500	0-20-20 0-10-20 0-9-27	100 to 500	When broadcasted or plow-soled, apply 300 to 500 lbs. per acre, and when placed at side of seed, limit rate to 150 lbs. Do not drill in direct contact with seed.
Canning Peas: With grain-fertilizer drill and broadcaster. See precautions.	3-12-12 4-12-8 0-20-10 0-20-20	150 to 800	3-12-12 4-12-8 0-20-10 0-20-20	200 to 1000	0-20-20 0-9-27	200 to 1000	Limit amount per acre in contact with seed to 150 lbs. on sandy loam and to 200 lbs. on silt and clay loams. Broadcasting of an additional amount is especially important, if alfalfa is seeded. Use mixtures containing nitrogen with early plantings and on acid soils.
Potatoes: (a) With attachment on planter	6-6-18 3-9-18 3-12-12	500 to 800	6-6-18 3-9-18 3-12-12	500 to 800	0-9-27 0-10-20 3-9-18	500 to 1000	When more than 800 lbs. per acre is used, it is best to apply part broadcast and disk in or plow down. With use of animal manure, lessen fertilizer application accordingly. On upland soils it is always advisable to turn under a green manure crop such as red clover for potatoes.
	(b) Broadcast or plow down	6-6-18	500 to 1500	6-6-18	500 to 1500	0-9-27 3-9-18	
Beets (sugar and table): (a) In row with beet drill	3-12-12 3-9-18	100 to 150	3-12-12 3-9-18	125 to 200	3-12-12 3-9-18	150 to 300	Without manure, make broadcast or plow-sole application in addition to that in row. On alkaline and light colored soils, apply borax at following acre rates: 30 lbs. for sugar beets and 75 lbs. for canning beets when broadcasted, or 15 to 20 lbs. for either at side of a row. For weed control (safe for heavy soils only), apply 40 lbs. at side of seed. Lime acid soils.
	(b) Broadcast or plow down	3-9-18 6-6-18	500 to 1000	3-9-18 6-6-18	500 to 1000	3-9-18 0-9-27	
Tobacco: (a) With attachment on setter	3-9-18s 3-12-12s	150 to 250	3-9-18s 3-12-12s	150 to 250	Crop not adapted to muck or peat soils		Most of potash should be in sulfate form as indicated by S in formula. When manure is applied, broadcast or plow down fertilizer application is reduced accordingly.
	(b) Broadcast or plow down	3-9-18s 6-6-18s	500 to 1500	3-9-18s 6-6-18s			
Truck Crops and Gardens: Apply in rows, broadcast, plow down, or side-dress	3-12-12 3-9-18 8-8-8 6-6-18	200 to 1500	3-12-12 3-9-18 4-12-8 6-6-18	200 to 2000	3-9-18 0-10-20 0-9-27	200 to 2000	Row application is usually limited to 200 to 800 lbs. per acre. Additional amounts should be broadcasted both before and after plowing. Kind and amount of fertilizer should be adjusted to soil fertility and manure used.

Orchards: Application in fall or early spring of about one pound of nitrogen (equal to 3 lbs. of ammonium nitrate) in any common form for an average mature tree is a common dosage. For larger or smaller trees, use proportionately more or less. In some cases, lime, phosphate, potash, and minor elements may be required, singly, or in combination.

Top Dress Alfalfa with Potash and Phosphate

The top-dressing of new or old alfalfa stands with mixtures rich in potash or with straight potash containing in either case some borax if need exists is now recommended whenever the alfalfa begins to show lack of vigor and deficiency symptoms. (A deficiency of boron has become more acute in recent years, especially in dry seasons. A Special Circular No. 296 entitled "Boron for Alfalfa" is available.)

Alfalfa is a very heavy feeder on potash, and 0-9-27 is generally recommended for top-dressing purposes. Applications may be made during spring, summer, or fall months.

Top Dress Hay and Pasture with Nitrogen

Nitrogen fertilizers such as ammonium nitrate, ammonium sulphate, cyanamid, nitrate of soda, or uramon applied early in the spring as a top dressing (providing 50 to 75 pounds of nitrogen per acre) to non-legume pastures and haylands usually greatly increases the yield and improves the quality of the forage. In the case of grass pasture, this fertilization frequently doubles the production and provides grazing a week earlier. Continued use of nitrogen fertilizers will eventually deplete the supplies of available phosphate and potash in the soil. Application of phosphate and potash will then be desirable. Since legumes, when properly inoculated, get nitrogen from the air, nitrogen fertilizer for them is not generally advised.

Buy and Apply in the Fall

Fall purchase of fertilizers will help to relieve lack of factory storage space, and lessen congestion in manufacturing and delivering the fertilizer. All this will tend to provide better service in delivery, and will increase the supplies available to farmers who can also relieve their rush of spring work by fall application. Here are a number of suggestions for fall use:

1. Top-dress new seedings of clover and alfalfa or old established fields of alfalfa in early fall with 300 to 600 pounds per acre of such mixtures as 0-9-27 or 0-10-20 containing borax if needed whenever lack of vigor and growth indicate need of such treatment. The resulting increased vigor often prevents winterkilling.
2. Fertilize fall-seeded wheat or rye at the time of seeding.
3. Lime and fertilize permanent pastures being renovated in the fall at the time the land is being worked up.
4. Pastures not being renovated may be top-dressed with phosphate-potash mixtures at any time, but fall application of nitrogen fertilizer should be in late fall (November).
5. Apply fertilizer to fall-plowed fields which are to be seeded to small grain and legumes the following spring.
6. Apply fertilizer with a plow-sole attachment to land being fall plowed for corn.

