

# 1946 Fertilizer Recommendations

## For Field Crops, Permanent Pastures and Hay Fields

By EARL JONES, Extension Agronomist, The Ohio State University, and  
ROBERT E. YODER, Chief Agronomist, Ohio Agricultural Experiment Station

The judicious and liberal use of fertilizers is one of the most important steps in the economical production of food and feed. For soil building and conservation, the total fertilizer usage for the rotation should equal or exceed 150 pounds per acre per year. Higher acre rates of application are required if manure is wasted or crop residues or hay sold from the farm.

It appears that there will be adequate supplies of nitrogen, phosphorus, and potash this season.

*Order Fertilizer Early.*—The fertilizer industry still has labor, storage, transportation, and materials problems with a heavy demand for fertilizers. These conditions make it imperative that the farmer order fertilizers early and accept deliveries whenever the fertilizer is available.

The fertilizer should be stored in a dry building, preferably one with a wood floor. The bags should be set on end in a vertical position. If stored in a building with concrete or dirt floor, the fertilizer should be placed on a wooden platform raised 4 to 8 inches off the floor to permit free air movement beneath the platform.

*High Quality Sod Crops Essential.*—It is of paramount importance that every farmer adequately fertilize the small grain crop in which "soil building" legumes are to be seeded. On the average farm this is the most important fertilizer application made in the rotation. Heavier applications are recommended when the meadow seeding is to be held more than one year.

Seedings, including legumes for hay, pasture, green manure or seed production, should be planned for all small-grain fields. Such action would be the first step in improving the productivity of Ohio soils which has been decreasing because of large wartime acreages of depleting crops.

The regular fertilization of permanent pastures and of hay fields to be kept for two years or more is essential and profitable.

*Fertilizer Grades.*—From 85 to 90 grades of mixed fertilizer were manufactured and sold each year in Ohio from 1939 to 1941. There is no justification for such a large number of grades. Their manufacture is an expensive luxury and it is desirable that the number manufactured in Ohio be limited to 12 to 15 standard grades and their multiples. Regulations of the War Production Board kept the number to this limit during the war.

Each year recommendations will be limited to a carefully selected "standard dozen" grades and their multiples. Long-time experiments and extensive farmer experience have shown that the standard fertilizer ratios and grades are quite adequate to serve the needs of Ohio Agriculture.

It is recommended that higher analysis grades be used to replace low analysis grades such as 2-12-6 and 0-14-7 as soon as the materials supply will permit the manufacture of an abundant supply of 3-12-12, 4-12-8 and multiple strength grades of other ratios.

# Recommended Use of Approved Grades of Fertilizers for Field Crops

## MODIFYING CONDITIONS:

"Manured" means that 8 tons or more of manure was used per acre on the immediate crop or during the preceding year.

"Legume sod in rotation" means that clover, alfalfa or sweet clover, alone or in mixtures, are grown regularly in the rotation and that good sods of these legumes are plowed down.

## RATES OF APPLICATION:

Figures directly beneath grades are recommended rates in pounds per acre.

Only the most commonly available grade in a ratio class is shown. Multiple grades are equally satisfactory. Apply them at proportionate rates of application.

## GRADE

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CROP	LIGHT COLORED SOILS		
	Manured	Legume sod in rotation	Ne
CORN	4-12- 8	3-12-12	3-1
	0-14- 7	4-12- 8	4-1
	150 (Hill) 300 (Row)	2-12- 6 150 (Hill) 300 (Row)	2-1 150 (Hill) 300 (Row)
FALL SOWN WHEAT, BARLEY, RYE*	0-14- 7	0-12-12	3-1
	2-12- 6	3-12-12	4-1
	4-12- 8	4-12- 8	
A. Following soybeans	400	450	4
B. To be seeded to meadow to be held 2 years or longer	350	400	4
C. To be seeded to 1-year meadow or a green manure crop	300	350	3
SPRING SOWN OATS OR BARLEY, OR MEADOW SLEDINGS MADE WITHOUT A COMPANION CROP <sup>1</sup>	0-14- 7	0-12-12	3-1
	0-20- 0	4-12- 8	4-1
		2-12- 6	2-1
		0-14- 7	
A. Seeded to meadow to be held 2 years or longer	300	350	3
B. Seeded to meadow to be held 1 year	250	300	3
TOBACCO, BURLLY (Type 31)	4-12- 8	4-12- 8	5-1
	500 (Row)	3-12-12 700 (Row)	4-1 700 (Row)
TOBACCO, CIGAR (Types 42-43-44)	4-12- 8	3-12-12	
	400 (Row)	600 (Row)	
SUGAR BEETS			
POTATOES:			
A. Early planted	5-10-10 750 (Row)	5-10-10 1000 (Row)	5-1 1500 (Row)
B. Late planted	3-12-12 4-12- 8 750 (Row)	3-12-12 4-12- 8 1000 (Row)	3-1 4-1 1500 (Row)
ESTABLISHED ALFALFA			
Apply in fall, winter or early spring second year after seed- ing and then every other year	0-14- 7 200-300		0-1 300
PERMANENT PASTURE			
Apply mineral fertilizers as a top dressing every fourth year	0-20- 0 400		0-1 5
TIMOTHY OR PREDOMINANTLY GRASS MEADOWS (hay or grazing)	Where early spring feed shortage exists on dairy f		
	Apply 40 to 60 lbs. per acre of nitrogen broadc		
SOYBEANS	On acid soils soybeans give a marked response Soybeans give less response to direct application on other rotation crops such as corn, sugar beet 200 to 300 pounds of 0-12-12 per acre should beans grown in rotation are to be fertilized dir		

\* Grades containing only phosphorus and potash are recommended for grain on highly productive land fly-free date. Mixed fertilizers containing nitrogen are recommended on land where the wheat is not

# Crops on Ohio Soils — 1946

## Mixed Fertilizer Grades Approved for Ohio, 1946

### GRADES AND ANALYSES

The series of figures by which a grade or analysis is designated expresses the percentage of total nitrogen, available phosphoric acid, and water-soluble potash respectively.

The grades of mixed fertilizers recommended for manufacture, sale and distribution in Ohio in 1946 are shown on the right.

RATIO	ANALYSIS AND MULTIPLE GRADES	
0-2-1	0-14-7	0-20-10
0-1-1	0-12-12	0-20-20
0-1-2	0-10-20	
0-1-3	0-9-27	
1-1-1	5-8-8	
1-6-3	2-12-6	3-15-9
1-4-4	3-12-12	
1-3-6	3-9-18	
1-3-2	4-12-8	
1-2-2	5-10-10	
2-1-1	10-6-4	

DARK COLOR'D SOILS			MUCKS AND PEATS		
Neither	Manured	Legume sod in rotation	Neither	Manured	Not Manured
3-12-12* 4-12-8 2-12-6 150 (Hill) 300 (Row)	0-14-7  150 (Hill) 300 (Row)	0-12-12 0-14-7  150 (Hill) 300 (Row)	3-12-12 4-12-8 2-12-6 150 (Hill) 300 (Row)	0-12-12  150 (Hill) 300 (Row)	0-10-20 3-9-18  150 (Hill) 300 (Row)
3-12-12 4-12-8  450 400 350	0-14-7  350 300 250	0-12-12 3-12-12  400 350 300	0-12-12 3-12-12 2-12-6 400 350 300	0-12-12 0-10-20  350 300 250	0-10-20 3-9-18  400 350 300
3-12-12 4-12-8 2-12-6  350 300	0-14-7 0-20-0	0-12-12 0-14-7 2-12-6	0-12-12 0-14-7 2-12-6 4-12-8 300 250	0-12-12 0-14-7  250 200	0-10-20 0-12-12  300 250
5-10-10 4-12-8 700 (Row)					
	2-12-6 400 (Row)	3-12-12 500 (Row)	3-12-12 600 (Row)		
	4-12-8 2-12-6 300 (Row) Apply 40 to 50 lbs. of nitrogen per acre, preferably before plowing	3-12-12 4-12-8 350 (Row)		3-12-12 350 (Row)	3-9-18 350 (Row)
5-10-10 1500 (Row)	5-10-10 750 (Row)	5-10-10 1000 (Row)	5-10-10 1500 (Row)		0-9-27 0-10-20 1000 (Row)
3-12-12 4-12-8 1500 (Row)	3-12-12 4-12-8 750 (Row)	3-12-12 4-12-8 1000 (Row)	3-12-12 4-12-8 1500 (Row)		0-9-27 0-10-20 1000 (Row)
0-12-12 300-500	0-14-7 200-250		0-12-12 300-500	0-12-12 200-300	0-10-20 300-400
0-14-7 500	0-20-0 300		0-14-7 400	0-14-7 400	0-12-12 400

on dairy farms, apply in fall, winter or early spring 40 to 60 lbs. of nitrogen per acre on bluegrass pastures. Treat 1/3 acre per cow.

gen broadcast in fall, winter or early spring where more hay or pasture is needed.

l response to applications of limestone.

applications of fertilizers than do other field crops. The best way to fertilize soybeans is to increase the rates of fertilization sugar beets, truck crops, and small grains in which meadow seedings are made. If soybeans are grown continuously on a field, ure should be applied every year in a separate operation prior to planting the beans. The same application is suggested if soy-tilized directly.

ctive land where the grain is likely to lodge and where wheat is sown on or immediately following the eat is not apt to lodge or where seeding of grain is delayed following soybeans or corn.

*Other Soil Management Practices for Productivity Maintenance.*—Best returns from commercial fertilizers are obtained where other sound soil management practices are a part of the program.

Lime should be applied as needed to control soil acidity and supply calcium and magnesium, essential plant nutrients. Most common field crops, and especially the “high powered” legumes—alfalfa and sweet clover—do best when soils are limed to approximate neutrality.

Manure is an excellent fertilizing material as well as an improver of soil structure when properly supplemented with commercial fertilizers. Manure is a perishable product: the nitrogen and potash are rapidly lost by careless handling and storage in open barnyards.

Whenever practical, manure should be stored under cover or hauled directly from the stable to the land. Winter topdressing of wheat with 5 to 8 loads of manure per acre helps insure meadow crop seedings, particularly on light colored soils. On highly productive soils where wheat frequently lodges, only strawy manure should be used for winter mulching.

Under cash grain systems of farming, residues like straw, stover and soybean haulm should be left on the land. Plowing under nitrogen materials with these carbonaceous materials “makes manure in the soil.”

Legume-grass sod crops are the most effective means of renewing the favorable soil structure or “tilth” required for high crop yields and efficient use of chemical fertilizers. Soil depleting row crops like corn, soybeans, and sugar beets should be grown in rotation with high quality legume-grass sod crops which restore organic matter, nitrogen supply, and the desirable soil structural condition called “good tilth.”

Thick-growing sod crops can be used as the backbone of conservation farming in Ohio, but they cannot do the job alone on rolling or hilly lands. Best returns from good fertility practices are invariably obtained where soil and water conservation practices such as strip cropping, contour farming, terracing, and other conservation measures are used to keep soil, water, organic matter, lime and fertilizer at home on the field.

*Plow-under Fertilization of Corn.*—When plowing under materials low in nitrogen, such as corn stalks, straw, grass sods, soybean straw, strawy manure, etc., additional nitrogen fertilization is very frequently profitable.

Option 1.—Plow under 40 to 50 pounds of nitrogen per acre. (The nitrogen carrier may be broadcast before plowing.) Apply 300 pounds of 3-12-12 per acre drilled in the row. Where straight nitrogen carriers are plowed under, 300 pounds per acre of the complete fertilizer should be *drilled* (not hill-dropped) regardless of whether the corn is drilled or check rowed.

Option 2.—Plow under 300 to 500 pounds of 8-8-8 or 10-6-4. Apply the usual mixed fertilizer at planting time, 150 pounds per acre in the hill or 300 pounds per acre if the corn is drilled. Preferably the plow-under application should be banded, using either the special plow attachment or applying before plowing with the grain drill, preferably with alternate openings of the drill closed.

Plowing down of fertilizers for corn will not be profitable under all conditions. More experimental work and additional trials by farmers are needed. It should be highly profitable under the above conditions if the stand of corn is adequate. Thicker than average stands must be obtained if the benefits of heavy fertilization are to be realized. In general, this means that planting rates should be increased from 3 kernels to 4 kernels per hill, or its equivalent if the corn is drilled, on land where yields of 70 bushels or more per acre may be expected. Proper balance must also be maintained between nitrogen, phosphorus, and potash if heavy nitrogen fertilization is to be profitable. Give the plowing down of fertilizers a trial, observing carefully the above instructions.