FACT SHEET

ORGANIC MATTER PERCENT AND ESTIMATED NITROGEN RELEASE

Pounds per acre Nitrogen

% ORGANIC MATTER	CLAY LOAM		SILT LOAM		SANDY LOAM	
0.0 – 0.3	VL	0 – 15	VL	0 – 22	VL	0 – 26
0.4 – 0.7	VL	16 - 20	VL	23 - 26	L	27 – 32
0.8 – 1.2	VL	21 – 25	L	27 – 32	L	33 – 37
1.3 – 1.7	L	26 – 30	L	33 – 37	M	38 – 42
1.8 – 2.2	L	31 – 35	L	38 – 42	M	43 – 47
2.3 – 2.7	M	36 – 40	M	43 – 47	H	48 – 52
2.8 – 3.2	M	41 – 45	M	48 – 52	H	53 – 57
3.3 – 3.7	M	46 – 50	H	53 – 57	VH	58 – 62
3.8 – 4.2	H	51 – 55	H	58 – 62	VH	63 – 67
4.3 – 4.7	H	56 – 60	VH	63 – 67	VH	68 – 72
4 8 – 5.2	H	61 – 65	VH	68 – 72	VH	73 – 77
5.3 – 5.7	VH	66 – 70	VH	73 – 77	VH	78 – 82
5.8 – 6.2	VH	71 – 75	VH	78 – 82	VH	83 – 87
6.3 – 6.7	VH	76 – 80	VH	83 – 87	VH	88 – 92
6.8 – 7.2	VH	81 – 85	VH	88 –92	VH	93 – 97
7.3 – 7.7	VH	86 – 90	VH	93 – 97	VH	98 – 102
7.8 – 8.2	VH	91 – 95	VH	96 – 102	VH	103 – 107
8.3 – 8.7	VH	96 – 100	VH	103 – 107	VH	108 – 112
8.8 – 9.2	VH	101 – 105	VH	108 – 112	VH	113 – 117
9.3 – 9.8	VH	106 – 110	VH	113 – 117	VH	118 – 122
9.9+	VH	111+	VH	118+	VH	122+

The estimated lbs/acre of nitrogen released through decomposition of organic matter is dependent upon climatic conditions, soil pH, type of material undergoing decomposition, and other factors. Therefore, the amounts mentioned in this table is strictly estimates

Nitrogen rate adjustments based upon soil texture, organic matter, and time of major crop growth.

Soil Texture	C.E.C. Meq/100g	Organic matter %	Cool season Crops (lbs. N/A)	Warm season Crops (lbs. N/A)
Sands – Sandy loam	<10	<0.5	10	20
		1.0	20	40
		>1.5	30	60
Silt loams – loam	10 – 18	<2.0	20	40
		3.0	30	60
		>4.0	40	80
Clay loams – Clays	>18	<2.0	10	20
		3.0	15	30
		4.0	20	40
		>5.0	25	50

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The non-symbiotic bacteria live independently and without the support of higher plants. There are two different groups of non-symbiotic bacteria, the aerobic, which requires oxygen, and the anaerobic, which do not need oxygen. These bacteria can supply as much as 50 pounds of nitrogen per acre per year, but generally supply less than 20 pounds.

Nitrogen is also returned to the soil in the form of manure and the remains of former plant and animal life. These materials are reduced by biological decomposition, oxidation and reduction, and are finally mineralised to yield nitrate nitrogen for plant use.

Test results report the organic matter content as a percent of the soil weight. Organic matter usually contains about one-twentieth for 5% nitrogen. Thus, a 3% organic matter soil (considering a 7 inch plow layer of a soil to weight 2,000,000 lbs.) would contain about 3,000 lbs. Nitrogen/ acre. However, only 2% to 4% of the total nitrogen in the organic fraction in the soil will become available to the plant during an average growing season, Deviations form this amount will be found in poorly drained soils and very highly organic (muck) soils, etc. The type of material undergoing decomposition, the stage of decomposition, the soil temperature and aeration will also affect these values. Ignoring the deviations and using averages the normal soil above would supply about 90 lbs. Nitrate N per acre to the crop during a normal growing season. But remember, these calculations are based on a 7 inch depth and a soil of 2,000,0000 lbs./acre. As other organic matter in some soils does extend down past the plowlayer in some concentration, additional allowance may be necessary.