

These setbacks and vegetative treatment requirements were primarily established to reduce loss risk associated with pathogens. CAFO's must additionally follow the setbacks defined in the Ohio Department of Agriculture (ODA) rules regarding manure application (Ohio Administrative Code 901:10-2-14).

Additional setbacks may apply to sludge that is regulated by the Ohio Environmental Protection Agency (OEPA) and septage regulated by the Ohio Department of Health.

Type of Sensitive - Setback Area	Manure Surface Application	Manure Incorporation or Direct Injection
Residences / Private Wells down slope from the application area	100 ft	100 ft
Sinkholes	300 ft	100 ft
Pond or Lake	100 ft. at a minimum 35 ft of the 100 must be Vegetative Barrier ² Or 300 ft	35ft. Vegetative Barrier
- Streams¹ - Ditches¹ - Surface Inlets	35 ft Vegetative Barrier Or 35 ft with 50% residue cover at time of application Or 100 ft	None
Grassed Waterway	35 ft	None
Field Surface Drains	35 ft	None
Public Wells	300 ft	100 ft
Developed Springs down slope from the application area.	300 ft	300 ft
Public Surface Drinking Water Intake	300 ft	300 ft

1. All listed measurements are from top of bank.
2. Vegetative Barriers are permanent vegetation consisting of grass, grass/legume mix, trees/shrubs, or trees/shrubs and grass/legumes.
3. Setback requirement for field surface drains are only required if the criteria listed Nutrient application Timing and Placement section are not met. When this criterion is not met the applications of manure must abide by this 35 ft setback distance.

Table 2.

Available Water Capacity (AWC): Practical Soil Moisture Interpretations for Various Soil Textures and Conditions to Determine Liquid Manure Volume Applications not to exceed 100% AWC (Field Capacity).

The table below shall be used to determine the percent AWC at the time of application and the liquid volume in gallons that can be applied not to exceed the 100% AWC (field capacity). To determine the percent AWC in the upper 8 inches use a soil probe or similar device to evaluate the soil to a depth of 8 inches. Use the descriptions below to determine the percent AWC for the soil texture being evaluated. The planned application rate of liquid manure must not exceed the listed amount to reach 100% AWC. This is a general assessment procedure to determine an application rate that will not exceed the water holding capacity at the time of application. Field conditions may vary greatly. Producers should monitor tile and watch for excessive surface ponding and reduce application rate as needed to prevent discharge.

For liquid manure applications on subsurface (tile) drained fields maximum application rate is the lesser of 13,500 gallons/acre or the listed rate in the table below.

Currently available soil moisture as a percent Field Capacity	Sands Loamy Sands	Sandy Loam Fine Sandy Loam	Very Fine Sandy Loam, Loam, Silt Loam, Silty Clay Loam, Clay Loam Sandy Clay Loam	Sandy Clay Silty Clay Clay
<25% AWC Amount to reach 100% AWC	Dry, loose and single-grained; flows through fingers 20,000 gallons/ac	Dry and loose; flows through fingers. 27,000 gallons/ac	Powdery dry; in some places slightly crusted but breaks down easily into powder. 40,000 gallons/ac	Hard, baked and cracked; has loose crumbs on surface in some places. 27,000 gallons/ac
25-50% AWC Amount to reach 100% AWC	Appears to be dry; does not form a ball under pressure. 15,000 gallons/ac	Appears to be dry; does not form a ball under pressure. 20,000 gallons/ac	Somewhat crumbly but holds together under pressure. 30,000 gallons/ac	Somewhat pliable; balls under pressure. 20,000 gallons/ac
50-75% AWC Amount to reach 100% AWC	Appears to be dry; does not form a ball under pressure. 10,000 gallons/ac	Balls under pressure but seldom holds together. 13,500 gallons/ac	Forms a ball under pressure; somewhat plastic; slicks slightly under pressure. 20,000 gallons/ac	Forms a ball; ribbons out between thumb and forefinger. 13,500 gallons/ac
>75% AWC Amount to reach 100% AWC	Sticks together slightly; may form a weak ball under pressure. 5,000 gallons/ac	Forms a weak ball that breaks easily, does not stick. 7,000 gallons/ac	Forms ball; very pliable; slicks readily if relatively high in clay. 11,000 gallons/ac	Ribbons out between fingers easily; has a slick feeling. 7,000 gallons/ac
100% AWC or Field Capacity	On squeezing, no free water appears on soil, but wet outline of ball on hand.	On squeezing, no free water appears on soil, but wet outline of ball on hand.	On squeezing, no free water appears on soil, but wet outline of ball on hand.	On squeezing, no free water appears on soil, but wet outline of ball on hand.
Above Field Capacity	Free water appears when soil is bounced in hand.	Free water is released with kneading.	Free water can be squeezed out.	Puddles: free water forms on surface

Table 3.

Determining the Most Limiting Planned Manure Application Rates. Additional limitations may be required for liquid manure applications based on the soil moisture at the time of application; see Table 1 (Available Water Capacity).

Time of Year	Drainage	Field Situation	Limiting Application Rate Criteria ¹			
			Tons/Ac Gallons/Ac	Nitrogen ²	P ₂ O ₅	K ₂ O
April - June	Subsurface Drained or High N Leaching Potential	Steep fields ³	13,500 gal/ac	Next Crop Needs ⁴ factoring N Losses	Recommendation or Crop Removal < 250 Lbs/ac ⁵	500 Lbs/ac
	Not Subsurface Drained		10 tons, 5,000 gal. or contoured strips or incorporated immediately			
July - Sept	Subsurface Drained or High N Leaching Potential	No Growing Crop	13,500 gal/ac	50 lbs/ac ⁶	Recommendation or Crop Removal < 250 Lbs/ac ⁵	500 Lbs/ac
		Growing Crop or Cover Crop		Next Crop Needs ⁴ factoring N Losses		
		Steep fields ³	10 tons, 5,000 gal. or contoured strips or incorporated immediately	50 lbs/ac ⁵		
	Not Subsurface Drained			Next Crop Needs ⁴ factoring N Losses		
Oct - March	Subsurface Drained or High N Leaching Potential	Steep fields ³	13,500 gal/ac	Next Crop Needs ⁴ factoring N Losses	Recommendation or Crop Removal < 250 Lbs/ac ⁵	500 Lbs/ac
	Not Subsurface Drained		10 tons, 5,000 gal. or contoured strips or incorporated immediately			

1. Planned manure application rates cannot exceed any of the listed rate criteria for the planned month, field drainage status and field situation. Additional limitations may be required for liquid manure applications based on the soil moisture at the time of application; see Table 2 (Available Water Capacity).
2. Nitrogen limitation should be based on the likely nitrogen available to the next crop. Typically, 1/3 of the organic N will be available the first year after application and consideration should be given to volatilization losses.
3. Steep fields are defined as Pasture > 20% slope or Cropland > 15% slope. If parts of the field are steep implement the additional criteria to the extent needed to minimize in field movement of manure.
4. Next crop needs should be the N recommendation for non-legume crops and no more than 150 lbs/ac for legume crops.
5. In cases where liquid manure exceeds 75 Lbs P₂O₅ per 1000 gallons or solid manure exceeds 100 Lbs P₂O₅ per ton the P₂O₅ rates can be increased up to a maximum of