# TECHNICAL NOTES

U.S. DEPARTMENT OF AGRICULTURE STATE OF OKLAHOMA NATURAL RESOURCES CONSERVATION SERVICE

**AGRONOMY TECHNICAL NOTE OK-18** **August 28, 2014**

TO: All Offices

FROM: Steven J. Glasgow
State Resource Conservationist

**Re: Determining Infiltration Rates when Irrigating with Liquid Animal Waste**

The purpose of this technical note is to describe the method for determining the liquid animal waste effluent infiltration rate in soils. This information is then used in the development of a Comprehensive Nutrient Management Plan (CNMP).

To calculate the application rate for liquid effluent, the CNMP planner must first determine the water infiltration rate of the soil, to prevent runoff and ponding. Water infiltration is the downward entry of water into the soil as associated with the water intake rate. The water intake rate is the maximum rate at which a soil can absorb water before running off or ponding. The water intake rate differs considerably for the various soil series, primarily due to variations in soil texture and structure.

The table(s) below shall be used to determine the "Intake Rate" of each soil series within each field designated for application of liquid animal waste. If the solid content is greater than 0.5%, the "Intake rate" shall be reduced according to the information found in Table 2 below, to account for decreases in hydraulic conductivity because of a layer of manure which forms on the soil surface.

Once the soil intake rate is determined, decisions can be made pertaining to effluent irrigation timing and amounts. The application rate should not exceed the intake rate.

Example 1: A CNMP indicates that the liquid animal waste effluent from a swine lagoon can be irrigated to a bermudagrass field at a one inch depth of application, to efficiently utilize the nutrients found within the effluent. The Animal Waste Analysis Report indicates that moisture within the effluent is 99.9%. The soil map units found within the field are Bergstrom *silt loam* and Amber *very fine sandy loam.*

The intake rate of each soil is listed on the table below: Bergstrom sil = 0.65 and Amber vfsl = 0.85. The Bergstrom *sil* soil contains the most limiting intake rate for the field, therefore **0.65** in/hr will be used as the allowable maximum application rate for the field.

Because the solid content of the effluent is less than 0.5% (100% - 99.9% = 0.1%), a reduction of the intake rate from information found in Table 2 is not needed.

The landowner in this example intends to apply liquid effluent through a big-gun irrigation system with an application circle diameter of 180 feet, at a rate of 200 gallons/minute. Below are calculations to determine the amount of minutes to operate the big-gun so that the maximum intake rate is not exceeded:

- There are 27,154 gallons of liquid in 1 ac-in of water, therefore applying 0.65 in/hr equals a maximum application rate of 17,650 gallons/acre/hr (27,154 gal/ac-in X 0.65 in/hr = 17,650 gal/ac/hr).
- The coverage area of the big-gun is 0.58 acres ($\pi 90^2$ = 25,434 sqft; 25,434 sqft ÷ 43,560 sqft/ac = 0.58 ac).
- It will take 10,237 gallons of effluent to apply 0.65 in. within the big-gun coverage area (17,650 gal/ac X 0.58 ac. = 10,237 gal).

- Applying 200 gal/min within the big-gun coverage area to a maximum depth of 0.65 in. will take 51 minutes (10,237 gal ÷ 200 gal/min = 51 minutes)

In this example, the landowner will be required to move the big-gun irrigation system to a new location within the field every 51 minutes.

Example 2: The same scenario exists as above, with the exception of the Animal Waste Analysis Report indicates that the moisture in the effluent is 98.0%.

Because the solid content of the effluent is greater than 0.5% (100% - 98% = 2%), Table 2 will be used to reduce the intake rate: 0.65 in/hr X 0.91 = **0.59** in/hr.

- 27,154 gal/ac-in X 0.59 in/hr = 16,021 gal/ac/hr
- 0.58 acre coverage area
- 16,021 gal/ac/hr X .58 Ac = 9,292 gal
- 9,292 gal ÷ 200 gal/min = 46 minutes

In this example, the intake rate is 0.59 in/hour and the landowner will be required to move the big-gun irrigation system to a new location within the field every 46 minutes.

***Table 1 – Maximum Intake Rate (in/hr)*** ***Source: National Engineering Handbook, Part 652 - Oklahoma Supplement 652.0204 and interpolation from official series descriptions located in NASIS.***

| Soil Name | Texture* | Intake Rate (in/hr) | Soil Name | Texture* | Intake Rate (in/hr) | Soil Name | Texture* | Intake Rate (in/hr) |
|---|---|---|---|---|---|---|---|---|
| Abbie | l, cl | 0.45 | Aydelotte | cl | 0.10 | Bocox | lfs | 1.20 |
| Abbie | fsl | 0.65 | Aydelotte | l | 0.30 | Boggy | fsl | 1.00 |
| Abilene | cl | 0.15 | Barge | sl | 0.30 | Boley | sil | 0.30 |
| Abilene | l, sil | 0.45 | Barge | sicl | 0.15 | Bolivar | fsl | 0.65 |
| Acme | l, sil | 0.45 | Barnsdall | vfsl | 0.85 | Bosville | fsl | 0.45 |
| Adaton | l | 0.30 | Bastrop | fsl | 1.00 | Bosville | l | 0.30 |
| Agan | l, sil | 0.30 | Bastrop | l | 0.85 | Boxville | fsl | 0.65 |
| Agra | sil | 0.30 | Bates | fsl | 1.00 | Braman | sil | 0.30 |
| Aledo | grl | 0.65 | Bates | l | 0.85 | Brewer | sil | 0.30 |
| Aliceville | sicl | 0.15 | Bathel | ls | 2.00 | Brewer | sicl | 0.15 |
| Alikchi | l, sil | 0.45 | Beckman | c, sic | 0.10 | Brewless | sicl | 0.15 |
| Aline | fs | 3.00 | Bengal | stfsl | 1.00 | Brico | cbl | 0.85 |
| Altus | fsl | 1.00 | Berda | cl | 0.15 | Britwater | grsil | 0.65 |
| Alusa | l | 0.30 | Berda | l | 0.45 | Britwater | sil | 0.45 |
| Amber | l, vfsl | 0.85 | Bergstrom | sil | 0.65 | Bukreek | l | 0.45 |
| Apache | cbcl | 0.15 | Bergstrom | sicl | 0.45 | Bunyan | l | 0.85 |
| Apperson | sil | 0.30 | Bernow | fsl | 1.00 | Burford | cl | 0.15 |
| Apperson | sicl | 0.15 | Bernow | lfs | 1.20 | Burford | l, sil | 0.30 |
| Arnett | sl | 1.20 | Berthoud | l | 0.85 | Burleson | c | 0.10 |
| Asher | sil | 0.30 | Bethany | sil | 0.30 | Buttermilk | sil | 0.45 |
| Asher | sicl | 0.15 | Bethany | sicl | 0.15 | Cadeville | l | 0.30 |
| Ashport | cl, sicl | 0.45 | Binger | fsl | 1.00 | Cahaba | fsl | 0.65 |
| Ashport | l, sil | 0.65 | Bippus | cl | 0.45 | Cahaba | lfs | 1.20 |
| Aspermont | sil | 0.45 | Blevins | fsl | 0.65 | Canadian | fsl | 1.20 |

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|---|---|---|---|---|---|---|---|---|
| Canadian | l | 1.00 | Crisfield | fsl | 1.20 | Eram | sil | 0.30 |
| Captina | sil | 0.30 | Crockett | l | 0.30 | Eufaula | fs | 3.00 |
| Carey | l | 0.85 | Cupco | sil | 0.15 | Eufaula | lfs | 2.00 |
| Carey | sil | 0.65 | Cyril | fsl | 1.00 | Eva | lfs | 2.00 |
| Carnasaw | stl | 0.45 | Cyril | l | 0.65 | Ezell | l | 0.45 |
| Carnero | l | 0.30 | Dale | cl | 0.45 | Farnum | fsl | 1.00 |
| Carwile | l | 0.45 | Dale | l | 0.65 | Farry | fsl | 1.00 |
| Caspiana | l, sil | 0.65 | Dalhart | fsl | 1.00 | Farry | l | 0.65 |
| Caspiana | sicl | 0.30 | Dalhart | lfs | 1.20 | Felker | l | 0.30 |
| Catoosa | sil | 0.65 | Dalupe | fsl | 1.00 | Ferris | c, sic | 0.10 |
| Ceda | grsil | 0.45 | Darnell | stsl | 1.00 | Fitzhugh | fsl | 1.00 |
| Cherokee | sil | 0.15 | Darnell | fsl | 0.65 | Fitzhugh | l | 0.45 |
| Chickasha | fsl | 1.00 | Darrouzett | cl | 0.15 | Foard | sil | 0.15 |
| Chickasha | l | 0.85 | Darrouzett | l | 0.30 | Foraker | cl | 0.15 |
| Chigley | grfsl | 0.85 | Daycreek | lfs | 2.00 | Fortyone | sl | 1.00 |
| Choska | sil | 0.65 | Decobb | vfsl | 0.85 | Frankirk | l, sil | 0.30 |
| Choska | vfsl | 0.85 | Deep wood | l | 0.65 | Freestone | fsl | 0.65 |
| Choteau | l, sil | 0.45 | Dela | fsl | 1.20 | Frioton | sicl | 0.30 |
| Choteau | vfsl | 0.85 | Dennis | l, sil | 0.45 | Frizzell | l | 0.45 |
| Clairemont | sil | 0.65 | Dennis | sicl | 0.15 | Gaddy | fs | 3.00 |
| Clairemont | sicl | 0.30 | Derby | lfs | 2.00 | Gaddy | fsl, lfs | 2.00 |
| Clairemont | l | 0.85 | Devol | fsl | 1.20 | Gaddy | l | 0.85 |
| Clarita | c, sic | 0.10 | Devol | lfs | 2.00 | Galey | fsl | 1.00 |
| Clarksville | grsil, stsil | 0.45 | Devol | ls | 3.00 | Galey | lfs | 1.20 |
| Clarksville | vgsil | 0.65 | Dill | fsl | 1.20 | Gallion | vfsl | 0.85 |
| Clearview | fsl | 0.65 | Dill | vfsl | 0.85 | Garton | cl, sicl | 0.15 |
| Clebit | stfsl | 1.00 | Dilworth | sicl | 0.30 | Garton | sl | 0.30 |
| Cleora | fsl | 1.20 | Dodson | l, sil | 0.45 | Garvin | c | 0.10 |
| Cobb | fsl | 1.00 | Doniphan | grsil | 0.65 | Garvin | sicl | 0.15 |
| Collinsville | fsl | 1.20 | Doolin | sil | 0.30 | Gasil | fsl, grsil | 0.65 |
| Collinsville | l | 0.45 | Dougherty | fs | 3.00 | Gasil | sl | 1.00 |
| Collinsville | stl | 0.65 | Dougherty | lfs | 2.00 | Glenpool | fs | 3.00 |
| Conlen | cl | 0.45 | Drummond | l, sil | 0.30 | Glenpool | lfs | 2.00 |
| Conlen | fsl | 1.00 | Duke | sic | 0.10 | Glenrio | cl | 0.15 |
| Conlen | l | 0.65 | Durant | cl | 01.0 | Glentosh | fs | 3.00 |
| Convent | vasil | 0.30 | Durant | l | 0.30 | Glentosh | lfs | 2.00 |
| Cordell | sicl | 0.30 | Durant | sil | 0.15 | Goltry | fs | 3.00 |
| Corlena | lfs | 2.00 | Easpur | l | 0.45 | Goodnight | fs | 3.00 |
| Counts | l | 0.30 | Eastall | sic | 0.10 | Goodnight | lfs | 2.00 |
| Coushatta | lfs | 2.00 | Eda | lfs | 2.00 | Gotebo | l | 0.45 |
| Coushatta | sil | 0.65 | Eda | s | 3.00 | Gowton | cl | 0.30 |
| Coushatta | sicl | 0.45 | Elandco | cl, sicl | 0.45 | Gowton | fsl | 1.00 |
| Coweta | fsl | 1.00 | Elandco | sil | 0.65 | Gowton | l | 0.65 |
| Coweta | stfsl | 1.20 | Eldorado | grsil, stsil | 0.65 | Gracemont | cl | 0.30 |
| Cowton | l | 0.30 | Eldorado | sil | 0.45 | Gracemont | fsl | 1.00 |
| Coyle | fsl | 0.65 | Elsah | grl, grsil | 0.65 | Gracemont | l, sil | 0.45 |
| Coyle | l | 0.45 | Elsah | vgrl | 0.85 | Gracemont | sicl | 0.30 |
| Craig | grsil | 0.65 | Emachaya | sil | 0.30 | Gracemont | sic | 0.10 |
| Craig | sil | 0.45 | Enterprise | vfsl | 1.00 | Gracemore | cl | 0.30 |
| Crevasse | lfs | 2.00 | Eram | cl, sicl | 0.15 | Gracemore | fs | 2.00 |

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|---|---|---|---|---|---|---|---|---|
| Gracemore | fsl | 1.00 | Jay | sil | 0.45 | Lincoln | ls | 2.00 |
| Gracemore | l | 0.45 | Jester | fs, s | 3.00 | Lincoln | fsl | 1.20 |
| Gracemore | lfs | 1.20 | Jester | lfs | 2.00 | Lincoln | cl | 0.45 |
| Grainola | cl | 0.10 | Justin | l | 0.45 | Linker | l | 0.65 |
| Grainola | cbcl | 0.30 | Kamie | lfs | 1.20 | Linker | fsl | 1.00 |
| Grainola | sicl | 0.15 | Kamie | fsl | 1.0 | Littleaxe | fsl | 1.00 |
| Grandfield | lfs | 1.20 | Kanima | stsicl, vgsicl | 0.30 | Littleaxe | lfs | 2.00 |
| Grandfield | fsl | 1.00 | Kanima | grcl, grsil | 0.45 | Loco | sicl | 0.30 |
| Grandfield | ls | 2.00 | Kanima | grsicl | 1.00 | Lofton | cl | 0.10 |
| Grandmore | fsl | 1.00 | Karma | lfs | 1.20 | Lomill | sicl | 0.15 |
| Grandmore | lfs | 2.00 | Karma | fsl | 1.00 | Lomill | sic | 0.10 |
| Grant | l, sil | 0.85 | Kaufman | c, sic | 0.10 | Lovedale | fsl | 1.00 |
| Gruver | cl | 0.15 | Keo | vfsl | 0.85 | Lovedale | sl | 1.20 |
| Gruver | l | 0.30 | Keokuk | l, sil | 0.65 | Lugert | l | 0.85 |
| Guadalupe | fsl | 0.85 | Keokuk | vfsl | 0.85 | Lugert | sil | 0.65 |
| Guyton | sl | 0.30 | Kim | fsl | 1.00 | Lula | l | 0.85 |
| Hamden | fsl | 1.00 | Kim | l | 0.65 | Lynnville | vasic | 0.10 |
| Happyditch | lfs | 2.00 | Kingfisher | sil, l | 0.45 | Macedonia | sil | 0.30 |
| Hardeman | fsl | 1.20 | Kinta | cl | 0.15 | Madge | fsl | 0.65 |
| Hardeman | l | 0.45 | Kiomatia | lfs | 3.00 | Madge | l | 0.45 |
| Harjo | c | 0.10 | Kiomatia | fsl | 1.00 | Madill | fsl | 1.20 |
| Harrah | fsl | 1.00 | Kiomatia | sicl | 0.45 | Mangum | c, sic | 0.10 |
| Hawley | fsl | 1.00 | Kiomatia | vfsl | 0.85 | Mangum | sicl | 0.15 |
| Hawley | lfs | 2.00 | Kirkland | sil | 0.15 | Mansic | cl | 0.45 |
| Hayfork | sicl | 0.15 | Kirkland | sicl | 0.10 | Mansic | l | 0.30 |
| Headrick | fsl | 1.00 | Konawa | lfs | 1.20 | Manzano | cl | 0.30 |
| Headrick | ls | 2.00 | Konawa | fsl | 1.00 | Masham | cl, sicl | 0.15 |
| Healdton | sil | 0.15 | Konsil | lfs | 1.20 | Masham | c | 0.10 |
| Healing | sil | 0.30 | Konsil | fsl | 1.00 | Mason | sil | 0.65 |
| Heatly | s | 3.00 | Kullit | fsl | 0.65 | Mason | l | 0.45 |
| Hector | fsl | 1.00 | La Casa | sicl | 0.15 | Matoy | sicl | 0.15 |
| Hector | stl | 0.65 | Larton | lfs | 2.00 | Mayes | sil | 0.30 |
| Hector | stsl | 1.20 | Larue | lfs | 2.00 | Mayes | sicl | 0.15 |
| Heiden | c, stc | 0.10 | Latanier | c | 0.10 | McKamie | l | 0.30 |
| Heman | c | 0.10 | Latimer | sil | 0.30 | McKnight | fsl | 1.00 |
| Highview | c | 0.10 | Latrass | l | 0.30 | McKnight | lfs | 1.20 |
| Hilgrave | grsl, grv | 1.20 | Lawrie | fsl | 0.65 | McLain | sicl | 0.15 |
| Hinkle | l | 0.15 | Lawrie | l, sil | 0.45 | McLain | sil | 0.45 |
| Hollister | sicl | 0.15 | Lawrie | sicl | 0.30 | Meno | lfs | 1.20 |
| Hollister | sil | 0.30 | Lawton | l | 0.45 | Milan | fsl | 1.00 |
| Hollywood | sicl | 0.10 | Lawton | vacl | 0.15 | Milan | l | 0.65 |
| Hopco | sicl | 0.30 | Lebron | c | 0.10 | Miller | cl | 0.15 |
| Husca | sil | 0.15 | Lela | c, sic | 0.10 | Miller | c, sicl | 0.10 |
| Idabel | sil | 0.85 | Lela | vfsl | 0.85 | Miller | fsl | 0.45 |
| Indiahoma | sicl | 0.10 | Lenapah | sicl | 0.15 | Minco | l, vfsl | 0.85 |
| Irene | cl | 0.15 | Lesho | cl, sicl | 0.15 | Minco | sil | 0.65 |
| Irene | sil | 0.30 | Lightning | sil | 0.45 | Mobeetie | fsl | 1.00 |
| Ironmound | l | 0.45 | Lightning | sicl | 0.30 | Moreland | sicl | 0.15 |
| Ironmound | stl | 0.65 | Likes | lfs, grlfs | 3.00 | Moreland | c, sic | 0.10 |
| Ironmound | vfsl | 0.85 | Lincoln | s, lfs, fs | 3.00 | Muldrow | sicl | 0.10 |

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|---|---|---|---|---|---|---|---|---|
| Mulhall | l | 0.30 | Pharoah | sil | 0.30 | Rosston | c | 0.10 |
| Muskogee | l, sil | 0.30 | Pickens | grl, grsil | 0.45 | Roxana | vfsl | 0.85 |
| Nahatche | sl | 1.20 | Pickton | lfs | 2.00 | Rups | sicl | 0.15 |
| Naldo | fsl | 1.00 | Piedmont | sil | 0.30 | Ruston | lfs | 1.20 |
| Nash | l, sil | 0.65 | Piedmont | sicl | 0.15 | Ruston | fsl | 1.00 |
| Nash | vfsl | 0.85 | Pirum | fsl | 1.00 | Saffell | grfsl, grsl | 1.00 |
| Navina | fsl | 1.00 | Pledger | c | 0.15 | Sallisaw | l | 0.65 |
| Navina | l | 0.45 | Plemons | l | 0.45 | Sallisaw | stl | 0.85 |
| Neff | sil | 0.30 | Pocasset | sicl | 0.45 | Scullin | cl | 0.15 |
| Ness | c | 0.10 | Pocasset | cl | 0.30 | Scullin | l | 0.45 |
| Newalla | fsl | 1.00 | Pocasset | fsl | 1.00 | Selman | sil | 0.45 |
| Newalla | scl | 0.45 | Pocasset | l | 0.65 | Seminole | l | 0.30 |
| Newellton | c | 0.10 | Pocola | sil | 0.30 | Severn | fsl | 1.20 |
| Newtonia | sil | 0.65 | Pond Creek | sil, l | 0.45 | Severn | sil | 0.65 |
| Nipsum | sicl | 0.15 | Pond Creek | fsl | 0.65 | Severn | vfsl | 1.00 |
| Nixa | grsil | 0.45 | Port | fsl | 1.00 | Sherm | cl | 0.15 |
| Noble | fsl | 1.20 | Port | l, sil | 0.65 | Shermore | fsl | 1.00 |
| Nobscot | fs | 2.00 | Port | cl, sicl | 0.45 | Shermore | l | 0.45 |
| Nobscot | s | 3.00 | Porum | fsl | 0.65 | Sherwood | fsl | 1.00 |
| Norge | sil | 0.30 | Potter | l | 0.30 | Shidler | sicl | 0.10 |
| Norge | l | 0.65 | Prue | l | 0.65 | Shidler | stsicl | 0.15 |
| Normangee | cl | 0.15 | Pulaski | fsl | 1.20 | Ships | c | 0.10 |
| Normangee | l | 0.30 | Pulaski | lfs | 2.00 | Shrewder | fsl | 1.00 |
| Norwood | sil | 0.65 | Pulman | cl | 0.10 | Shrewder | vfsl | 0.85 |
| Norwood | sicl | 0.45 | Purves | c | 0.10 | Slaughterville | fsl | 1.00 |
| Nowata | sil | 0.30 | Pushmataha | l | 0.45 | Smithdale | fsl | 1.00 |
| Oakley | l | 0.30 | Quanah | sil | 0.65 | Sobol | cl | 0.15 |
| Obaro | sil | 0.65 | Quarles | sil | 0.30 | Sobol | sil | 0.30 |
| Obaro | sicl | 0.45 | Quinlan | l | 0.85 | Sogn | sicl | 0.15 |
| Octavia | stl | 0.45 | Radley | sil | 0.65 | Somervell | vcbl | 0.65 |
| Okay | fsl | 1.00 | Ravia | l | 0.10 | Speer | fsl, l | 1.00 |
| Okay | l, vfsl | 0.85 | Rayford | cbl | 0.65 | Spiro | sil | 0.65 |
| Okemah | sil | 0.30 | Razort | grl, grsil | 0.65 | Spur | l | 0.85 |
| Okemah | sicl | 0.15 | Razort | sil | 0.45 | Spur | cl | 0.65 |
| Oklared | fsl | 1.20 | Redlake | c | 0.10 | St. Paul | sil | 0.45 |
| Oklared | vfsl | 1.00 | Redport | sicl | 0.65 | St. Paul | cl | 0.15 |
| Oklared | sicl | 0.15 | Reinach | l, sil | 0.65 | Stamford | c | 0.10 |
| Zaneis | l | 0.65 | Reinach | vfsl | 0.85 | Stamford | sicl | 0.15 |
| Osage | c, sic | 0.10 | Renfrow | cl, sil, sicl | 0.10 | Stapp | fsl | 1.00 |
| Osage | cl, sicl | 0.15 | Renfrow | l | 0.30 | Steedman | cl, sil | 0.15 |
| Otero | lfs | 2.00 | Renthin | cl, sicl | 0.10 | Stephenville | fsl | 1.00 |
| Otero | fsl | 1.00 | Renthin | sil | 0.15 | Stidham | lfs | 1.20 |
| Ozark | fsl | 1.00 | Retrop | sicl | 0.45 | Stigler | vfsl | 0.30 |
| Ozark | fsl-sal | 0.65 | Rexor | l, sil | 0.65 | Stigler | sl | 0.45 |
| Paloduro | cl | 0.30 | Rickmore | fsl | 0.65 | Summit | sicl | 0.10 |
| Panola | sil | 0.15 | Riverton | grl | 0.45 | Sumter | sicl | 0.15 |
| Panola | sicl | 0.10 | Riverton | l | 0.30 | Sunray | cl | 0.15 |
| Parsons | sil | 0.10 | Roark | l | 0.30 | Sweetwater | sil | 0.30 |
| Pawhuska | sil | 0.15 | Roebuck | sicl, c | 0.10 | Sweetwater | sicl | 0.15 |
| Paymaster | fsl | 1.00 | Roscoe | c | 0.10 | Tabler | sil, cl, sicl | 0.15 |

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|---|---|---|---|---|---|---|---|---|
| Talihina | cl | 0.10 | Tuskahoma | l | 0.30 | Wetbeth | sicl | 0.10 |
| Taloka | sil | 0.15 | Tuskahoma | stl | 0.45 | Wetsaw | fsl | 0.65 |
| Talpa | l | 0.30 | Tussy | c | 0.10 | Wewoka | grsl | 1.20 |
| Tamaha | sil | 0.15 | Ulysses | sil | 0.65 | Whakana | vfsl | 0.85 |
| Tarrant | cbc, cbsic, vcbc | 0.10 | Ulysses | cl | 0.45 | Whakana | fsl | 1.00 |
| Tearney | sic | 0.10 | Ustibuck | c | 0.10 | Whakana | lfs | 2.00 |
| Teller | fsl | 1.00 | Ustibuck | sicl | 0.15 | Wheatwood | sil | 0.45 |
| Teller | l | 0.85 | Valent | fs | 3,00 | Wilburton | cbl | 0.45 |
| Teller | sil | 0.45 | Vanoss | sil | 0.65 | Willow | l | 0.45 |
| Tenaha | lfs | 1.00 | Vanoss | l | 0.45 | Wilson | sil | 0.15 |
| Teval | l, sil | 0.45 | Verdigris | sil | 0.85 | Windthorst | fsl | 0.85 |
| Texroy | l | 0.45 | Verdigris | sicl | 0.45 | Windthorst | sl | 1.00 |
| Tiak | fsl | 1.00 | Vernon | c, cl, sicl | 0.10 | Wing | sil | 0.15 |
| Tillman | sicl, cl | 0.10 | Vernon | sl | 0.65 | Wisby | fsl | 1.00 |
| Tillman | sil | 0.30 | Vian | sil | 0.45 | Wisby | sl | 1.20 |
| Tilvern | cl | 0.10 | Vona | lfs | 2.00 | Wister | sil | 0.15 |
| Timhill | stsil | 0.45 | Vona | fsl | 1.20 | Wolco | sicl | 0.15 |
| Tinn | c | 0.10 | Wabbaseka | sic | 0.10 | Woodford | chsil | 0.65 |
| Tipton | fsl | 1.00 | Waben | grsil | 0.65 | Woods | cl, sicl | 0.15 |
| Tipton | l | 0.85 | Wagstaff | sicl | 0.15 | Woodson | sil | 0.15 |
| Tipton | sil | 0.45 | Waldeck | fsl | 1.00 | Woodson | sicl | 0.10 |
| Tivoli | fs | 3.00 | Waldeck | l | 0.45 | Woodtell | l | 0.30 |
| Tivoli | lfs | 2.00 | Watonga | c, sic | 0.10 | Woodward | fsl, vafsl | 1.00 |
| Tobosa | cl | 0.10 | Watonga | sicl | 0.15 | Woodward | l, sil | 0.85 |
| Tomast | sil | 0.30 | Waurika | sil | 0.10 | Wrightsville | sil | 0.15 |
| Tonti | grsil | 0.45 | Waynoka | fsl | 1.00 | Wynona | cl, sicl | 0.15 |
| Travertine | chsil | 0.45 | Waynoka | l | 0.45 | Wynona | sil | 0.30 |
| Travessilla | stl | 0.45 | Weatherford | fsl | 1.00 | Yahola | fsl | 1.20 |
| Treadway | c | 0.10 | Weleetka | sl | 1.00 | Yahola | vfsl, l | 1.00 |
| Treadway | sicl | 0.15 | Westill | cl | 0.15 | Yahola | lfs | 2.00 |
| Tribbey | fsl | 1.20 | Westola | fsl | 1.00 | Yanush | gr, sil | 0.65 |
| Trinity | c | 0.10 | Westola | sl | 1.20 | Yomont | l | 0.65 |
| Tullahassee | fsl | 1.20 | Westsum | sicl | 0.15 | Zaneis | l | 0.65 |
| Tullahassee | lfs | 2.00 | Westview | l, sil | 0.30 | | | |
| Tuscumbia | c | 0.10 | Westview | sicl | 0.15 | | | |

* *s* – sand, *l* – loam, *si* – silt, *c* – clay, *f* – fine, *v* – very, *gr* – gravelly, *st* – stoney, *sh* – shale, *ch* – channery, cb – cobbly, va - variant

| ***Table 2 – Reduction coefficients by percent solids*** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Soil Texture** | **Percent solids (by wt.)** | | | | | | |
| | **0.5** | **1.0** | **2.0** | **3.0** | **5.0** | **7.0** | **10.0** |
| *Sand* | 0.88 | 0.55 | 0.31 | 0.22 | 0.13 | 0.10 | 0.07 |
| *Loamy Sand* | 0.70 | 0.54 | 0.37 | 0.28 | 0.19 | 0.14 | 0.10 |
| *Sandy Loam* | 0.87 | 0.77 | 0.63 | 0.53 | 0.40 | 0.32 | 0.25 |
| *Loam* | 0.97 | 0.93 | 0.88 | 0.83 | 0.74 | 0.67 | 0.59 |
| *Silt loam* | 0.98 | 0.95 | 0.91 | 0.87 | 0.81 | 0.75 | 0.68 |
| *Sandy clay loam* | 0.99 | 0.97 | 0.95 | 0.92 | 0.87 | 0.83 | 0.78 |
| *Clay loam* | 0.99 | 0.99 | 0.98 | 0.97 | 0.94 | 0.92 | 0.89 |
| *Silty clay loam* | 1.00 | 1.00 | 0.99 | 0.99 | 0.98 | 0.97 | 0.96 |
| *Sandy clay* | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 0.99 | 0.99 |
| *Silty clay* | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| *Clay* | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| ***Source: Agricultural Waste Management Field Handbook – Table 11-3*** | | | | | | | |