

MANURE NUTRIENT LOSS TABLES – WESTERN WASHINGTON

TABLE WA11-9b ESTIMATED MINERALIZATION OF MANURE – CONTINUOUS APPLICATION

| | Percent of Nutrients Retained | | | |
|---|---|------------|-----------|-------|
| | Nitrogen | Phosphorus | Potassium | |
| Fresh Manure (0-3 days old) | | | | |
| • Poultry | 93 | 93 | 98 | |
| • Cattle, Sheep, Goats, Swine | 81 | 93 | 98 | |
| • Horses | 73 | 93 | 98 | |
| Poultry layer manure from covered storage | 83 | 93 | 98 | |
| Waste storage pond | 73 | 90 | 93 | |
| Solid manure in roofed storage | 73 | 90 | 93 | |
| Manure & bedding or separated solids in roofed storage | 68 | 90 | 93 | |
| Manure stored in open lot, cool-humid climate | 57 | 90 | 93 | |
| <i>For application on previously unmanured fields, see AWMFH, Chapter 11.</i> | | | | |
| ESTIMATED SOIL NITROGEN MINERALIZATION GUIDLEINES – typical soils and management situations | | | | |
| <p>Estimated pounds of nitrogen per acre per year contributed by mineralization of soil organic matter. These categories assume the plants are large, healthy and vigorous. If plants are small, stressed, overgrazed, or pastures mostly “naturalized” species such as sweet vernalgrass, and/or if a significant amount of bare soil is present, use the most applicable previous category for the soil. It is assumed that drainage is adequate to grow the crop. Select the category which best fits the situation, or average between two categories if necessary. If organic nutrients (manure, biosolids, cannery waste, etc.) were applied to the field, select the category below which reflects the average applications to the field for the past 3-5 years.</p> | | | | |
| | Organics annually supplied the following percentage of agronomic rate for nitrogen (in lb/acre/year): | | | |
| | 0%-50% | 50%-90% | 90%-110% | >110% |
| Newly established ag land (just converted from woodland) | | | | |
| Everett/Indianola/Neilton and similar soils | 15 | 20 | 25 | 30 |
| Alderwood/Kapowsin/Lynden/Spanaway and similar soils | 25 | 30 | 40 | 50 |
| Kitsap/Skipopa/Giles/Yelm/Bow and similar soils | 40 | 50 | 60 | 80 |
| Bellingham/Lacamas/Rennie/Chehalis/Mt.Vernon etc. | 60 | 75 | 90 | 120 |
| Developing ag land (approx. 3-10 years after conversion) | | | | |
| Everett/Indianola/Neilton and similar soils | 25 | 30 | 40 | 50 |
| Alderwood/Kapowsin/Lynden/Spanaway and similar soils | 40 | 50 | 60 | 80 |
| Kitsap/Skipopa/Giles/Yelm/Bow and similar soils | 50 | 65 | 75 | 100 |
| Bellingham/Lacamas/Rennie/Chehalis/Mt.Vernon etc. | 70 | 90 | 105 | 140 |
| Peats and Mucks | 90 | 115 | 135 | 180 |
| Mature ag land (longer than 10 years after conversion) | | | | |
| Everett/Indianola/Neilton and similar soils | 40 | 50 | 60 | 80 |
| Alderwood/Kapowsin/Lynden/Spanaway and similar soils | 50 | 65 | 75 | 100 |
| Kitsap/Skipopa/Giles/Yelm/Bow and similar soils | 60 | 75 | 90 | 120 |
| Bellingham/Lacamas/Rennie/Chehalis/Mt.Vernon etc. | 80 | 100 | 120 | 160 |
| Peats and Mucks | 100 | 125 | 150 | 200 |
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TABLE WA11-5a ESTIMATED NUTRIENTS RETAINED AFTER STORAGE

| Storage System | Percent of Nutrients Retained | | |
|--|-------------------------------|------------|-----------|
| | Nitrogen | Phosphorus | Potassium |
| Waste Storage Pond/Tank – cattle | | | |
| Unseparated slurry | 70 | 90 | 90 |
| Separated liquid: | | | |
| Flush system with recycling of liquid for flushing | 50 | 85 | 90 |
| Minimal recycling of liquid | 65 | 85 | 90 |
| Separated solids – cattle | 80 | 90 | 90 |
| Daily spread | | | |
| Cattle, Horses, Sheep, Goats, Swine | 95 | 90 | 90 |
| Poultry | 90 | 90 | 90 |
| Dry Storage Under a Roof or Cover | | | |
| Cattle, Horses, Sheep, Goats, Swine | 75 | 90 | 90 |
| Poultry | 65 | 90 | 90 |
| Dry Pit Storage, long-term, poultry | 70 | 90 | 90 |
| Grazing | 100 | 100 | 100 |

TABLE WA11-8a DENITRIFICATION ESTIMATED BASED ON EFFECTIVE SOIL DRAINAGE

| Depth to water table at the time of manure (or other organics) application | % Nitrogen Remaining |
|---|----------------------|
| Very gravelly or sandy soil, water table greater than 2 feet below soil surface | 90 |
| Soils other than above, water table greater than two feet below soil surface | 85 |
| All soils, water table at 1-2 feet below soil surface | 70 |

TABLE WA 11-6a ESTIMATED NITROGEN VOLATILIZATION

| Application Method: | % Nitrogen Remaining |
|---|----------------------|
| Soil injection | 95 |
| Broadcast Spreader or Tankwagon, soil incorporation within 12 hours | 90 |
| Broadcast Spreader or Tankwagon, soil incorporation otherwise | 80 |
| Sprinkler application, soil incorporation within 12 hours | 80 |
| Sprinkler application, soil incorporation otherwise | 75 |
| Grazing | 70 |