



Biosolids Land Application Program

PROGRAM DETAILS AND PROPOSED APPROACH

July 2017

Program Details	Proposed Approach
Working with farm producers	<p>The City of Winnipeg will work with farm producers who are interested in receiving biosolids on their land. Biosolids will be integrated into the farm producers' existing nutrient management programs.</p> <p>The intent is to establish a three or four year land rotation, which means returning to the same farmland once every three or four years.</p> <p>There will be a land use agreement between the cooperating farm producer and the City.</p> <p>Each parcel will be evaluated for suitability in accordance with the Environmental Act Licence.</p>
Nutrient content	<p>It is currently estimated that each tonne of biosolids will provide 9 kilograms (19 lb/ton) of plant available nitrogen and 20 kilograms (40lb/ton) of P₂O₅, the approximate an N:P ratio is 1:2.</p> <p>Based on a two times crop removal of phosphorus for a cereal, the application rate is approximately 17 wet tonnes (4.4 dry tonnes).</p> <ul style="list-style-type: none">• Plant available nitrogen: 35 – 40 kg/ha (31 – 35 lb/ac), Year 1• P₂O₅: 80 – 90 kg/ha (70 – 80 lb/ac) <p>Typically, additional nitrogen will be required.</p>
Micro-nutrients and other metals	<p>Biosolids also have many micro-nutrients and other metals. Metals such as arsenic, cadmium, copper, chromium, lead, mercury, nickel and zinc are present in trace concentrations and all governed by regulatory guidelines.</p>
Application rates	<p>Application rates will be matched to crop uptake and removal for crop nitrogen and phosphorus. Target application rates will likely be based on phosphorous at a two times crop removal rate. These rates will be developed and managed by a registered Professional Agrologist.</p>
Application timing	<p>During the growing season, biosolids will be transported to the temporary storage site(s). Biosolids will be applied to farmland after crop harvest. Application may take four to six weeks per year, depending on the type of crop and the weather.</p>



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Crops	Application will be restricted to certain crops. Biosolids may be applied to cereal crops, forage crops, oil seed crops, soybeans, lentils, and corn. Biosolids land application is not permitted on direct edible crops (i.e. potatoes, carrots, onions, etc.).
Soil monitoring	Soil will be sampled for three years after biosolids application to monitor nitrogen and phosphorus concentrations. Annual monitoring and reporting is required by the Province of Manitoba.
Principles of 4R Nutrient Stewardship	The Biosolids Land Application program will follow the principles of 4R Nutrient Stewardship, including the use of the right fertilizer source at the right rate , at the right time and in the right place .
Good neighbour principles	The City is committed to working with community leaders and residents to maintain good neighbour practices.
Setback distances	The Biosolids Land Application program will respect minimum setback distances from homes, wells, water bodies, flood zones, etc.
Hauling	During the growing season, biosolids will be transported from the North End Sewage Treatment Plant to the temporary storage site(s), at an estimated four to six trucks per day (Monday to Friday). A truck traffic management plan will be developed to minimize impact on road infrastructure.
Temporary field storage	There is a need to establish annual temporary field storage of biosolids. The objective is to have field storage that is sufficient for a large portion of the total biosolids. Considerations for field storage will include; site selection, odour management, stormwater management, timing of storage, security, site restoration.

For more information, please visit: winnipeg.ca/BiosolidsLandApplication

If you have any questions or comments about the program, please email

BiosolidsLandApplication@winnipeg.ca or call 1-888-882-3391

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