CITY OF DAUPHIN BIOSOLIDS LAND APPLICATION PROGRAM

Biosolids land application means applying biosolids to soil to supply nutrients to crops and improve soil structure. Land application is a widely accepted method to reuse biosolids. Biosolids land application is regulated by the Province of Manitoba, including requirements for soil suitability, timing of application, rate of application, setback distances, etc. Outlined below is additional information regarding a land application program.

WORKING WITH LOCAL FARM PRODUCERS.

The City of Dauphin (City) will work with local farm producers who are interested in receiving biosolids on their land. The land application of biosolids will be integrated into the cooperating farm producers' existing nutrient management program. Each parcel of agricultural land will be evaluated for suitability in accordance with best practices and the City's Environment Act Licence.

There will be a land use agreement between the cooperating farm producer and the City of Dauphin.

MACRO-NUTRIENT CONTENT.

Biosolids are an organic, nutrient-rich resource. The City's biosolids provide approximately 1.5 kg per dry tonne of plant available nitrogen and 1.5 kg per dry tonne of P_2O_5 and also provide sources of potassium and sulfur.

Biosolids in Manitoba are land applied based on agronomic recommendations for crops and their target yield. Application rates will be matched to crop uptake and removal for 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.

MICRO-NUTRIENTS AND TRACE ELEMENTS.

Biosolids also include the essential micronutrients including boron, copper, iron, manganese, molybdenum, nickel, and zinc and contribute to crop health and yield. While the concentrations of these micronutrients are minor, they still do contribute to crop production.

Trace elements such as arsenic, lead, mercury and cadmium are also present in biosolids in trace concentrations, these trace elements are monitored in both the biosolids and soil and are regulated through the Environment Act Licence. Over the years, many studies have been conducted on trace elements and have found that these elements do not demonstrate a human or environmental risk.

LAND APPLICATION TIMING.

Land application will occur after crop harvest. Following crop harvest, soil samples are taken to determine the residual soil nutrient and trace element concentrations. The soil nutrient values are used to determine the land application rates for the crops to be planted the following year.

CROPS

Land application of biosolids will be restricted to certain crops. Biosolids may be applied to land used to crop cereals, oil seeds, field peas, soybeans, lentils, and corn. Biosolids land application is not permitted on land used for direct edible crops (i.e., potatoes, carrots, onions, etc.) or direct grazing by livestock.

SOIL MONITORING.

In the fall, after crop harvest, the soil will be sampled for three years after biosolids application to monitor nitrogen and phosphorus concentrations. Annual monitoring and reporting is required by the granted Environment Act Licence.

PRINCIPALS 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 (biosolids)** at the **right rate**, at the **right time** and in the **right place**.

SETBACK AND BUFFER DISTANCES

The Biosolids Land Application program will respect minimum setback distances from homes, wells, water bodies, waterways, and drains. For example, 400 metres setback from residential areas, 75 metres set back from occupied residence properties, 15 metres from first order waterways, and 30 metres from second order waterways or higher and 50 metres setback from groundwater well.

COOPERATING FARM PRODUCER COMMITMENT

Following the land application event, the cooperating farm producer is required to till the soil to ensure the biosolids are incorporated into the soil within 48 hours of the application operation. It is also required to permit the soil to be tested for three years following the land application event.