



May 16, 2022

Siobhan Burland-Ross
Engineering Manager
Industrial and Wastewater Section
Manitoba Sustainable Development
1007 Century Street
Winnipeg, MB R3H 0W4

Dear Ms. Burland-Ross:

Louisiana Pacific Ltd. formally requests permission to apply wood ash on agricultural land with pH values outside of the parameters set out in the restrictions and guidelines of the existing land application agreement, for a pilot project to further monitor the effects of applying wood ash on neutral soils. The rationale for this request is detailed in the text below:

LP Swan Valley has been land applying wood ash since 2006 under the terms and conditions specified in the "User Agreement Wood Ash Land Spreading Program". The program since inception has proved successful by way of positive feedback from landowners as it serves as a neutralizing agent on low pH soils which has resulted in improved yields in areas of lower quality soils. Under the Agreement, LP is restricted from land applying wood ash to soils with pH of 6.5 or below with a maximum allowable application rate of 9 tons per acre (20 tonnes per hectare). As an aside, new methods of spreading ash have demonstrated the ability to consistently spread at 3 - 4 tons per acre. The lower application rate still provides the neutralizing effect but the ash is also high in potassium, an essential nutrient in fertilizer, and an additional benefit to the land owner.

In 2019, LP Swan Valley partnered with New Era Ag Research Ltd. and is currently performing studies on the effects of ash application on crop yields in neutral soils and gall formation on club root infested canola. Favorable results in the first two years of plot scale testing in both studies has led to the interest in extending testing to field scale trials to further understand the effects of applying wood ash on soils

P.O. Box. 189
Minitonas, MB
204.525.2479
204.525.4327
www.lpcorp.com

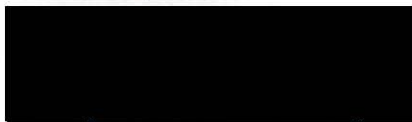


with more neutral pH values (6.5 – 7.5). The current research has indicated that there is minimal risk in applying ash on soils with these pH values and the potential for crop benefit warrants further testing at field scale levels. Agronomists at New Era Ag Research verify this sentiment and have provided documentation in favor, which is attached, including a letter of recommendation for performing the pilot project and a technical protocol for the project plan. Two separate landowners interested in participating in the study have been identified and two separate fields have been designated. All soil samples from the fields have returned pH levels between 6.5 and 7.

As such, LP Swan Valley requests permission to apply ash on soils between 6.5 and 7 pH for the pilot project exclusively. Upon approval, LP will work under New Era Ag Research to apply wood ash at advised rates, and New Era will monitor how these lower application rates affect crops grown in more neutral soils as detailed in the technical protocol. The timing to apply the wood ash is rapidly approaching as landowners are itching to start working their fields as early as possible. The anticipated start date for ash application is the week of May 23.

Thanks for your time and consideration of our request. We eagerly await your reply.

Sincerely,



Lyle Sagert
Plant EHS Manager
Cc: Kevin Betcher

P.O. Box. 189
Minitonas, MB
204.525.2479
204.525.4327
www.lpcorp.com



New Era Ag Research
520 3rd Ave South
Swan River MB
R0L1Z0
204-734-5795

To whom it may concern,

This letter is to indicate my support for field scale research using the wood ash product from Louisiana Pacific. To date my research team has investigated the effects of wood ash on 4 commonly grown crops in the Swan Valley over 2 growing seasons in a small plot test field with a soil pH 7.8. The research will continue into the 2022 growing season for a final year. These trials have indicated promising results and support the application to extend the criteria to a soil pH up to 7 for potential field scale trials. To date there have been no negative effects on the growth and yield of wheat, canola peas and soybeans associated with a change in soil pH from wood ash application. Continued testing in a larger field scale trial is required to measure the effects over a greater variety of soil conditions, textures, and topography to ensure its safe use as an agriculture input. Wood ash possesses high levels of micronutrients that are lacking in local soils including boron, copper, and zinc. This local source of nutrient has potential to improve soil health and crop yields in the area and investigations into its use should be continued.

Sincerely,



Meghan Rose
Research Manager
New Era Ag Research



Technical Protocol for Field Scale Trials

Experiment Design and layout

- Strips will be arranged as a paired-strip (two treatments) or randomized complete block design (three treatments), with treatments randomized within replicates where possible for both two and three treatment trials.
- Treatments will be replicated 4-6 times dependant upon field dimensions
- The trial will be in a representative area of the field
- Strip plots will be no shorter than 1000ft in length

Data Collection

- Spring soil tests at 2 sampling depths - Composite sample across trial site
- Plant heights measured in 20 plants per treatment strip
- Drone images at vegetative, flowering and ripening stages
- Yield to be assessed using a calibrated grain cart or weigh wagon
- Samples from each strip collected and moisture tested
- T-test or multiple comparison tests and analysis of variance performed on collected data

Field Operation Records

- Previous crop(s)
- Pre-seed tillage
- Seeding equipment
- Seeding date
- Variety
- Seeding rate
- Seed treatment
- Fertilizer applied
- Herbicide (product, rate, date, crop stage)
- Fungicide application date and crop stage
- Desiccant (if applicable, product, rate, date, crop stage)
- Harvest Date
- Harvest method
- Seasonal weather data provided from nearest MB Ag weather station or producer weather station if available.