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ECONOMIC EVALUATION OF POLICIES TO ENCOURAGE ADOPTION OF SHELTERBELTS IN SASKATCHEWAN

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Introduction

Following the improvements in agricultural production methods and practices on the Canadian Prairies, landowners planted shelterbelts on their farms to reduce damage done by wind erosion. With improvement in farming technology (zero-till, reduced summer fallowing), these damages have been reduced, making shelterbelts unnecessary in the minds of some producers. Landowners now regard these shelterbelts as an economic nuisance. Many have proceeded to remove them, particularly the field shelterbelts. Although many of the barriers to adoption and retention of shelterbelts by landowners could be related to their economic costs, a poor understanding of their environmental benefits may also have played an important role. In the wake of future changing climates, reduction of greenhouse gas emissions has become a major objective of various national governments, including Canada. To succeed in producers having more shelterbelts, some public intervention may be needed. This study aimed to provide answers to the question, what policies could encourage the use of shelterbelts by landowners in different soil zones in Saskatchewan?

Objectives of the Study and Brief Methodology

The objective of this study was to identify any policy measures (economic or non-monetary) that can also provide sufficient incentives to landowners for the renewal and planting of shelterbelts. The study was also designed to understand any differences that might occur between the primary soil zones in Saskatchewan. The focus of the study was to identify factors that motivate landowners to plant and maintain shelterbelts.

The study methodology included an analysis of data collected through landowner surveys complimented with a review of relevant literature.

Results of the Study

The following results were identified from the study:

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- For landowners in the three (Brown, Dark Brown, and Black) primary agricultural soil zones, factors such as years of farming experience, educational level and farm sizes influence their decision to plant or maintain shelterbelts on their fields. For instance, the study results indicated that landowners' with higher educational levels (Bachelor's or Master's degrees) are more likely to plant and / or maintain shelterbelts when compared with landowners' with lower educational levels (Elementary or Some High School).

- The study also found that landowners in the Black and Brown soil zones are more willing to plant shelterbelts compared to those in the Dark Brown soil zone.

- Based on a review of the literature, it appears that incentive-based policies could be more intensive in the Dark Brown soil zone, as landowners are less likely to adopt shelterbelts compared to the other soil zones.

- Landowners who recognized the environmental benefits of shelterbelts (carbon sequestration, improved air quality, etc.) are more likely to plant shelterbelts in the three study soil zones.

- It was earlier hypothesized that a landowner's decision to plant shelterbelts would be based on the shelterbelts impact on farm profitability; however, the study results suggests that landowners' adoption decisions are based on the other non-economic factors of shelterbelts.

- The study results also suggest that information-based initiatives highlighting the full range of shelterbelt benefits delivered through extension services to landowners could be appropriate since landowners' perceptions of the environmental benefits of shelterbelts increased their willingness to adopt shelterbelts.

- **CONTACT FOR MORE INFORMATION: SASKAGROFORESTRY.CA/**

- **ACKNOWLEDGEMENTS & COPYRIGHT**

Work on this factsheet was done by Bright Nana Baffoe, a graduate student in the Department of Agricultural and Resource Economics under the supervision of Professor Suren Kulshreshtha and Professor Ken Belcher, both at the Department of Agricultural and Resource Economics, University of Saskatchewan, Saskatoon, SK, Canada. This factsheet was completed in March 2021.