Determining the In-Field Life Span of Various Types of Plow Blades and the Potential Cost Benefits Associated with Implementing a Specialty Blade Instead of a Standard Flame Harden Steel Blade.

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The main technique for removing accumulated snow from roadways is through the use of snow plows and snow plow blades (blades), or cutting edges. The blade is bolted to the snow plow, and it is the component of the plowing system that makes contact with the roadway surface. Multiple blades are currently on the market that may last longer than the standard flame harden steel blades, which encouraged state department of transportation to pursue further research to compare the cost-effectiveness of using the specialty blades compared to the costs for using a flame-hardened steel blade (standard blade). The learning outcomes for this presentation is to determine if any specialty blades have a longer life span compared to the standard blade. If there is a long life span, does that equate with a cost savings. As with any new equipment, a thorough in-field assessment of the various specialty blades is needed in order to determine which are prudent to implement. The goal of the data collection is to obtain information on all of the contributing factors associated with the wear of a blade. These factors include: speed of the truck while plowing, the pavement type of the plowing area, the duration and miles plowed, and the operator variability. The blades tested during this study included standard blades in various configurations, carbide tipped, JOMA, PolarFlex, and BlockBuster XL Classic. During field research activities, data must be collected at multiple locations, which receive various average annual snowfall amounts, throughout the entire winter season. The optimal way to collect such a large amount of data is through a digital video recorder (DVR) equipped with a global positioning system (GPS) and an infrared vision camera for each truck in the study. Blade measurements are taken in five location along the blade periodically through the season to track the wear of each blade. When analyzing the data from first year, the results indicated implementing the carbide and XL Classic blades will result in a cost savings. The remaining blades would cost more to utilize than the equivalent number of standard blades. The second year data results in a savings from the all blades test except the single stacked carbide tipped blade and the truck with a standard blade but no counterbalance. When reviewing two years of data an average savings of $778 per PolarFlex blade and $426 per XL Classic blade implemented in place of a standard blade.