



## NORTH DAKOTA'S CUTTING EDGE LIFT WINS 'MOUSETRAP' AWARD

North Dakota's cutting edge lift was a winner in national LTAP's "Build a Better Mousetrap" national competition (2011). The competition's purpose is to collect and disseminate real-world examples of best practices and tips from the field and assist in the transfer of technology for local and county transportation workers and other LTAP/TTAP clients. More about the cutting edge lift is outlined below:

**Agency:** *Dunn County in North Dakota*

**Project leader:** *Randy Keller, designer, 701-938-4485*

**Problem statement:** The changing of cutting edges on a piece of equipment has been a hardship to employees because of their size and weight. An 8-foot cutting edge can weigh up to 110 pounds. Cutting edges are normally stacked in piles and must be lifted and moved to a piece of equipment to be mounted. It requires two people, who are still prone to injury. Back and foot injuries are very common.



**Solution:** Randy Keller built a cutting edge lift to transport a cutting edge from a stack to the piece of equipment to be mounted. This cutting edge lift is unique because it has multiple adjustments. The adjustments include being able to raise the lift arm by a means of a ratchet from ground level to a height of 6 feet. The cutting edge can be secured to the lift arm by two screw clamps on each end of the arm. The lift arm can be angled so a single person can remove an old cutting edge and mount a new cutting edge on a piece of equipment without getting on the ground or under the equipment.

The cutting edge lift can be used to mount cutting edges on motor graders, front-end loaders, and snowplow truck wings and plows. On a motor grader, the moldboard can be angled so the old cutting edge can be removed and a new one mounted from a standing position. Keller has built two lifts to date.

**Cost:** The cost of the material to build the cutting edge lift was approximately \$200. That included the purchase of a ratchet, three caster wheels, and various sizes of steel square tubing. The cost of labor was 10 hours at \$30/hour for a cost of \$300. All the labor was done in the shop during slack periods of time in the winter when there was no snow removal required. Total cost of material and labor was approximately \$500.

**Safety:** The design of this cutting edge lift requires minimal manual lifting. It has multiple adjustments that limit the amount of lifting and the need for an operator to get under a piece of equipment. Other cutting edge lift designs are built from modified jacks having limited height capabilities and still require two operators to do the job safely. Keller's design eliminates hazards from manual lifting and getting into awkward working positions.

Reference: Technology Exchange, Minnesota LTAP, Fall 2011