

## **DISK FOR MOTOR GRADER**

### ***STUTSMAN COUNTY***

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### **PROBLEM STATEMENT:**

Stutsman County has always had issues with vegetation and debris along the edges of the roadway. During regular maintenance of the roadway the vegetation has caused problems during grading operations to obtain acceptable performance. With the debris on the roadway it has been necessary to leave the material in a windrow on the edge of the roadway to become dry. This is not acceptable, especially in the winter, when plowing snow and the gravel gets removed.

### **SOLUTION:**

We determined we could fabricate a disk to mount on the front of the motor grader. It would chop up the debris, allowing the operator to spread the material and blade the roadway in one pass, thereby eliminating the need for a windrow being left on the roadway.

One-way disks were obtained from area farmers, who had discontinued using them, and were pleased to give them to us. The disk was then modified, using salvaged steel material, for a quick hitch attachment to the motor grader, as noted in the photo. The disk width is approximately 8 feet, with the disk spacing of 6 inches. When operated at an angle it covers a width of 4 feet. The circular disks were replaced with notched disks, enhancing the disk rotation and mulching ability through the vegetation.

We initially had a rigid frame mount on the disk assembly. While it worked well, there were some difficulties when rocks (small aggregates) were in the windrows. After some experimentation we came up with the idea of having a spring cushion system, with a spring suspension on each end of the disk assembly. In this manner, if a hard object is encountered, such as rocks, there is some give in the suspension, allowing it to move with the terrain and greatly reduce breakdowns..

### **LABOR, MATERIALS AND COSTS**

The disk assembly was obtained from local area farmers at no cost. Material for modifying the assembly for attachment to the motor grader was salvaged yard material. New disks were purchased for a cost of \$260.00 and labor estimated to be \$560.00 per unit.

## SAVINGS AND BENEFITS

Breaking up the vegetation and grading the roadway in one pass has reduced the number of times the roadway has to be graded each season, perhaps by two or more passes. This is very significant in savings, particularly on the township road system. Also, eliminating the windrow has considerably reduced the aggregate loss on the roadway. Eliminating the windrow on the edge of the roadway is also a very important safety feature to the traveling public.

We have been very pleased in how well and advantageous this has worked out. We feel the savings in less passes while grading the roadway, saving on aggregate loss from the roadway and the safety to the traveling public is well worth the expense of having the disk. The operators are very pleased to be using them. We built one for each of our motor graders.

