

Grading Gravel Roads

by Walter Somero

Last year the T² Center hosted a grader operator training course run by the Maine T² Center staff. We put 20 operators through a one-day classroom style workshop and a full day of one-on-one "hands-on" grader training. Gordon Huckins, road agent for the town of New Hampton graciously helped us with this course.

Earlier this year we began a new grader operator program geared to New Hampshire municipalities. Twenty operators were trained at a one-day classroom and later had a full day of "hands-on" training in their own town from Walter Somero of Sharon, NH. In assisting us with his experience and wit, Walter did a great job. Both experienced and unexperienced operators have expressed a high appreciation for the one-on-one training with Walter.

One of the byproducts of the course was a written statement from Walter giving some tips on the basics of grading in New Hampshire. It was a statement designed to be used as a general understanding of grading for the inexperienced operator. However, we liked it so much that we thought you might be interested in a copy -- to this purpose we've printed it below.

Thank you Walter for traveling all around our state and for a job well done!

I hope I can help you people on the maintenance and grading of your gravel or dirt roads.

Each and every road is different as to the material, width, elevations of grades, ditches, slopes etc...

If I am on a road which has a lot of leaves in the ditches, I will take the grader and set the blade on a fairly straight angle, leaving the crown side up and the ditch side touching the dirt a little bit. The leaves are pushed up or down the road until I come to a place where I can push them off the road or over a bank. A front end loader or backhoe loader is a great help for doing this.

Next, I start down the middle of the

road with the blade at a slight angle and cut the old crown and potholes and washboard. This also loosens the old hard surface. With the new graders you can roll the moldboard where it will cut a lot easier and dirt will move a lot easier. I have a 57 Cat 12 grader with manual controls. Sometimes they kick back at me, so I have to work a little harder.

My theory on cutting the old crown is that a road should have a good flat base to start building the crown. Cutting also lets the material that I bring into the center to start my crowns adhere to the base.

When I am making my first pass and the blade hits, rocks, or nuggets I dig them out. I push them into the side of the road or over a bank where they will not bother you the next time you grade the same road. When I dig out a big rock I fill in the hole with dirt and roll it with the tires for a little compaction.

On my next pass, from the outside edge towards the middle, I leave dirt in the middle. On these first passes from the ditch, angle the blade, so the blade in the ditch has a tendency to cut instead of bulldoze. You'll find that when you do this, the dirt will move along the moldboard a lot easier. Do not run the rear wheels on this windrow. I always try to straddle the windrow both with front and rear wheels. With the new machines you can articulate the machine to keep off the windrow.

When I start the second and third passes I try to take as much of the old windrows as possible, that are left from previous work, and mix it in with its gravel to make a binder. It also makes your road a little wider each time you grade. The dirt out there on the edge is winter sand and dust and it is good usable material.

After I get much of this material out into the road, I start mixing it back and forth always keeping in mind where the center of the road is; as that's where the crown starts to form.

Angle the blade so you carry the dirt along with the machine, you don't have to have dirt coming out of both ends of the blade. When the machine moves along, the dirt will drop and fill hollows and sags.

Once you set the blade to begin to finish, leave the controls alone; this way the road will be a lot smoother.

I don't believe you can grade and shape a gravel road with two or three passes. I was working with a man one time, he said, "How do you know when it's coming okay? Do you look back?" I told him, "I never look back for fear of what it looks like." While you are grading you can feel the machine as it's forming the crown in your road. I make six or seven passes on some roads. The width has a lot to do with determining the number of passes.

Do not go too fast when grading, as the rubber tires have a tendency to bounce. The slower you go the better your road will come. And people will say "Who did this work?" not,

"How much did it cost?"

Take pride in your work. If you have to make a couple of extra passes to make it look good, do so. I carry a stone picker with me and when I am finishing I do not leave stones in peoples driveways. Get out if you have to and put them on a stonewall or on the banks, or whatever.

Anticipate what is going to happen when you are grading and shaping your roads. Where is the water going? How can you make it go to a culvert? Water is one of the problems we are trying to eliminate.

Making ditches is also another problem on some roads. I do not make deep ditches on hills, as the water running down a hill will make a ditch deeper. Try to keep big rocks out of these ditches. If you have to, take the moldboard and push them into the banks. In the spring of the year when ditches are full of water and soft, I run the grader tire in the ditch to make what I call a "Wheel Ditch".

I believe most of the towns use York rakes for finishing off. What I do is start on the ditch side and rake to the center from both sides and then I rake from the center out. Do not grade too deep and pull all this good dirt back into the ditch, let it feather out. There again, if you have some bigger stones roll out, stop and throw them off. Also, do not go too fast, as this rake will make some of the best washboards you can ask for.

I have a tow roller that I use. I pull it with a pickup truck after raking. Mine was made from the front roller of an old three-wheeled roller. This rolling pushes in a lot of the rocks and also smooths the road surface. On some hills I roll with the grader tires as it makes the ditches a little harder and prevents wash.

I hope this information will be helpful to you. If there are any questions I will be glad to try and answer them.

Grading is an art, a skill, and a science. It is extremely important for most of the towns in our state to have a good grader operator and maybe a backup operator as well. Due to the positive feedback that we have received, we are going to continue this training program. It will begin again in the Spring. Should you or anyone in your town be interested in grader operator training please contact the New Hampshire T² Center for more information or to get on the list for our next session.

We recommend this course to beginners, intermediates, and advanced operators alike. ■