

“The Hillside Shined Like a Mirror”

or

Just Because it is Called a Soil Aerator Doesn't Make it One

Written by Jim Martindale and Friends

We were in Mitchell, Indiana to look at a 30 foot AerWay soil aerator. I had met Charlie Parks at an auction and after we talked he suggested I come look at his machine to evaluate various design features for him. We rode around till we found one of Charlie's lead people unloading a tanker of 28% into storage. He began immediately to tell me of one of the experiences they had when they first started running one of the AerWay™ tool in the spring of the year. They had run on a field in the morning, which sloped toward the roadway. While they were at lunch it rained about an inch. They drove back by the field and upon looking at the hillside he said, “it shined like a mirror, cause of the water that was sitting in the holes the aerator had made.” Unfortunately, I did not have the presence of mind to ask how long it took for the field to dry out to plant compared to soils left untouched.

I got my answer to that question without asking it. It would only be few days later; Jeff was talking to Darrell from Kentucky. We had completely redesigned his machine after three years of frustration with it. As they talked, Darrell related that, “The dealer who brought my machine told me that if I was running it in the spring, don't use it just before a rain. If you can't get it planted before the rain then wait till after the rain because it will take longer to be able to plant if you have run the machine than if you had not.”

Then there was the talk with Lee, a custom manure applicator. We met at the National Machinery Show in 2001. He had been using a fifteen-foot AerWay to incorporate dairy manure and had made similar observations. When I asked him how many gallons he applied, he said, “I put on no more than 18,000 gallons per acre on rolling ground.” When I asked why so little, he replied, “At that point the manure starts to overflow the holes.” When I asked how long it sat in the holes he said he never waited around long enough to see when it was gone.

Here was the bell-ringer. I related these conversations to Paul Mason, a 16-year user of the AerWay from northern New York. He said, “If we think it's going to rain that's when we run our AerWay cause the ground will dry out faster where we have run it. We do just the opposite of those fellows.”

So Why the Difference?

Thanks for asking. The machines are all made by AerWay but Mason and these other farmers do not have the same machine. If you will notice there are two US patent numbers on the literature for AerWay. Mason's machine, built in 1985, and shown here, is the original patent rendering of the invention. These other machines farmers have talked about are built more or less according to the second patent number, registered by Matthew Meyer, an employee of AerWay for nearly 18 years. They are not built the same way. The results are not the same either.

The Research Said So

The National Soils Dynamics Laboratory located at Auburn University researched three tools simultaneously in the early 90's. I talked with the head researcher on the telephone before he sent me a copy of the research report. The two soil aerators made by Rhino and AerWay and the paraplow data is summarized in the study report. That report will be available here in the near future.

In the mean time the abbreviated report shows that the amount of soil disturbance was almost identical to doing nothing. (Click here to see graphs.) The crop response was significant. Was that a reason to buy an AerWay instead of the Rhino or running a disc? The response obtained was more a result of how badly the soil needed disturbance of any kind compared to doing nothing.

The researcher said, “I called the company to ask them to look at the machine we had received to be sure it was assembled correctly. They assured me it was and so we ran it the way it was.”

Unfortunately, the researchers have never had an opportunity to evaluate the original machine built according to the New Zealand patent registered in 1983 and produced exclusively until about 1989.

Putting the Skid Back in the Point- or Avoiding “Ducksfoot Syndrome”

Bill said it so well. He was at the Indiana-Illinois Farm show representing the Phillips rotary harrow folks. His training is as a civil engineer, building roads. “I’ve studied the AerWay and it is just a ducksfoot roller. I know what they do. We use them all the time to build good roadbeds.” All that education is good for something after all, especially when it’s coupled with experience.

That explained why the manure sat in the holes. That’s why the soils stayed wetter after the rain. And that was a problem on the machines built after 1988.

Back to the Early Days and Digs

The shovel saw lots of service in those consulting days when we first began to use the AerWay in northern NY. It was very obvious to any observer that the plant roots loved the results of the aerator tine action. Click here to see corn planted after one pass with a six-inch long tine on the “old-style machine”. Notice how the corn roots grew on the sides and through the bottom of the tine slot.

The roller needs to turn slower than the forward speed would dictate. In other words, the roller should turn as if there was a brake set on the shaft. If the tines are configured correctly, this is what happens and the point of the tine creates vertical stress cracks in the soil at the base of the tine penetration area. It is the same thing that happens at the base of a ripper or chisel plow point.

So What Do I Do Now, You Ask?

Genesis Tillage Innovations is helping farmer’s everyday to change their soil aerators to the original rendering of the technology as the Holy Spirit gave it to Peter Bannin. On machines built prior to 1999 this requires reversing the helix on one side of the machine. Click here for more information on helixes. If you want to see how the field looks when the machine does not have a mirror-image helix, go to the AerWay web site. (Click here). The diagonal pattern means both sides of the machine have the same helix. The pattern should be a chevron pointed in the same direction as the tractor tire lug marks in the soil. If you have a really old frame when the swing offset the rollers forward the chevron would be reversed.

Number two; it requires placing tines so that they enter with minimal resistance and no smearing action, by having them tipped toward the machine centerline. Placing the roller assemblies on the opposite side of the machine can do this. Click here for more details from the retrofit guidelines section.

Lastly, reverse the twist of the AerWay tine by installing five degree mounting shims with longer bolts ([click here to see this modification](#)) or by installing a replacement tine with either a ten or five degree mounting shim from Genesis Tillage Innovations. [Click here for pictures of our tine and mounting shims.](#)

Happy aerating for a “change” that makes a profound difference in how God’s Good Earth works to bless you!

You’ll want to read the piece on “How can I make the most important nutrient for plants more available.” [Click here for “My Soils Diaphragm”.](#)