

# Tech Notes- If It's Not Broke- Don't fix it!

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By John Dignan

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Preventative maintenance is one of those things that, just doesn't happen in most cases. Just ask my wife. I don't practice what I preach around the house. For custom applicators and farmers, down time is very costly. When I started Agri-Tech back in 1985 my mission was to service control systems that were showing up on all the new machines in the custom application business.

There were hundreds of spreaders and sprayers in the three states I was working most equipped with Dickey-john DG60 and The 215 series spray controllers. No digital display. Loud beepers went off telling the operator something was wrong but no clue as to what. Speed sensors were installed in the speedometer line to measure ground speed through rotation of the speedometer cable.

Preparing for this column was a lot like a trip in the way-back machine for me as I visited with Wollam Ag Center in Continental Ohio. A great family owned Retailer and Applicator. They never were into buying the latest new rig. They took care of what they owned and built much of the new equipment themselves.

It was a treat visiting with them and sure enough they had lots of examples of where preventative maintenance could be in order.

## Cable Inspection



Most of the machines out there use controllers that have been retrofitted over the years with different controllers. Many times they are installed by guys that really don't understand the environment they are used in.

The first step in preventative maintenance is to take care of the cabling. I used to, as part of my program, actually touch and flex every inch of the cable. Doing that forces you to find nicks and scrapes of the cables. Little nicks in a cable can shut the machine down once corrosion starts. Re-tie all the cables after the inspection and you should be good.

## Check and Dispose of Bad Connectors and Quick Fixes



Over the years lots of quick fixes get used to get the machine back in the field with the plan to fix it right later. Later never comes so you don't think about it until the machine quits again in the field. Take time to Fix it Right. Believe me, wire nuts are not meant to be a long term fix on a machine exposed to the environment of a fertilizer rig.

Pull the connectors apart and closely inspect the pins. Use contact cleaner to clean them and then protect them with a non-conductive grease.

## Software Up-Dates

I have never been a fan of doing software updates unless there is a problem that the update hopes to fix. The problem with the update is it may affect all the pieces involved in the system. When the rig hits the field it doesn't work because the modules also need upgraded.

Don't do the upgrade unless you are in a position to fully run the machine before you call the upgrade done. Many times through the re-boot process little things like calibration numbers are set back to defaults. The display looks good but the rates are off.

## Speed Sensors



I wanted to include this photo which shows two problems getting ready to cause trouble. The rig needs some cable ties but it is also still using the Dickey-john radar that was probably installed 25 years ago.

These were on all the early machines. This one is on the wrong angle so it won't calibrate as normal but still works. Don't bother with the angle because the bracket will fall apart.

Today and for the last 10 or more years speed input is provided by the GPS receiver or a dedicated GPS to substitute for radar. The system speed will use a calibration number for set-up. They still need to be checked especially after a software update.

## Product Distribution- Dry Spreaders



Back in the days before precision ag we used to do any job related to the proper distribution of the material across the spread or spray application width. That meant with air spreaders we actually hung bags on the drops and measured the amount of material at each spot. With spinner spreaders it was pan testing.

The first rule with dry spreaders is Must Be Clean! The job of the product drop control is to correctly place the product of the spreader disk. Then the correctly adjusted blades will throw the material where it belongs in the spread pattern.

Believe me please; when product is built up on the blades, the pattern is not right. Take time to clean things up. You can buy test pattern kits from your dry box supplier.



The couplers on rate sensors can get loose. When that happens, the rig will appear to work but the rates become very erratic.

Take a quick look to verify the sensor is tight on the shaft.

## Product Distribution- Liquid Machines



Liquid machines also have product distribution across the application width as a concern. With electronic controllers the gallon counters built into the system should be very accurate. If the display says you sprayed 965 gallons, that should be correct.

That's the overall product delivered to the boom. The big question becomes, where is it going across the boom. Catch testing is the only good way to know where the flow is going.

Years ago catch testing was complicated. You needed calibrated containers and accurate timing. Then you did the math to calculate the flow rate checking each nozzle.

Catch testing will find partially closed valves, crimped hoses, bad nozzles and plumbing errors.

Spot On has a test unit that I am told is the easy way to test flow. It's all automatic. Catch testing is worth the effort. Your customers will appreciate the accuracy. Contact your spray nozzle supplier to check out the Spot On unit.

I hope you have found this Tech Notes Column to be useful. Have a safe and accurate, trouble free season.

Please take a minute to check out my web site, [agtester.com](http://agtester.com) for tools for the Ag-Technology Specialist. I appreciate your feedback. You can contact me at [johnd@agtester.com](mailto:johnd@agtester.com).

Remember, Tech Notes is for the field guys. Please pass it on!

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