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<tr>
<th>Section 1 - Please rate following information</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
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<td>1. DNR Rules</td>
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<td>2. Land Application and Separation Distances</td>
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<td>5. Reading an MMP</td>
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<td>6. Manure Application Uniformity</td>
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<td>8. MAC Enforcement</td>
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<td>9. Injector Options</td>
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<td>Section 2 - Overall Evaluation</td>
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<td>11. The information presented was useful to</td>
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<td>17</td>
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<td>me as a commercial manure services employee?</td>
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<td>12. The presenters were prepared and</td>
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<td>13. Because of Hydrogen Sulfide training,</td>
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<td>Hydrogen Sulfide?</td>
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<td>14. Because of last year's training, did</td>
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<td>Equipment?</td>
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<td>15. Because Manure Management Plans are</td>
<td>See tab 15.</td>
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<td>required for many farms, how do they impact</td>
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<td>you?</td>
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<td>fertilizer value. What did you learn to</td>
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<td>improve performance of the manifold of your</td>
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<td>equipment?</td>
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<td>17. The nutrient reduction strategy details</td>
<td>See tab 17.</td>
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<td>practices like cover crops, reduced tillage,</td>
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<td>nutrient management to reduce nitrogen and</td>
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<td>phosphorus losses to rivers, streams, and</td>
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<td>lakes by 45%. How has this strategy changed</td>
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<td>what your customers expect from you during</td>
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<td>manure application?</td>
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<td>18. Is there a topic you would like to hear</td>
<td>See tab 18.</td>
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<td>about during next year’s training?</td>
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</table>
### 15. Because Manure Management Plans are required for many farms, how do they impact you?

<table>
<thead>
<tr>
<th>Set manure rate for each field</th>
<th>Protect water quality</th>
<th>More paperwork</th>
<th>Set manure rate, protect water quality</th>
<th>Set manure rate, more paperwork</th>
<th>Protect water quality, more paperwork</th>
<th>No response</th>
<th>Total Responses</th>
</tr>
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<tbody>
<tr>
<td>448</td>
<td>145</td>
<td>76</td>
<td>258</td>
<td>45</td>
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<td>21%</td>
<td>4%</td>
<td>14%</td>
<td>0%</td>
<td>7%</td>
</tr>
</tbody>
</table>
16. Manure application uniformity impacts fertilizer value. What did you learn to improve performance of the manifold of your equipment?

A good way to check it
Agitator in the distribution manifold
Air vents and hose locations.
Air vents are helpful, angles make a difference, straighter hoses are better, type of manifold makes difference.
Air vents can ??? Control flow out of manifold
air vents clean
Air vents clean and functioning properly.
All are different; put as high as you can on tank.
All manifolds are different and the flow needs to stay the same
All manifolds don't distribute the same, don't use book value for manure rates.
Already do what they said
Already in use; self-experimented
Already knew it
Already practice what info presented
Already taken care of
Always clean manifold
Always make sure its calibrated correctly.
Amount of CF
Application and better uniformity
Application rates impact also design of the manifold.
Apply manure more uniform.
Apply proper rates for size and type of manifold
Appropriate flow rate each manifold has different capabilities, the way the hoses lay changes the way it flows straight hose flows better, clean air vent
Area-volume calibration
Assure even flow of manure by using appropriate distributor for low flow application.
Avoid really low pressure rates and minimize hose loops and make sure there are air vents that are working
Back pressure - different kinds of equipment
Based on slope & GPM/GPA can affect proper distribution of manure to properly apply to field to sue the most nutrient correctly
Be careful how hoses are laid, and vents aren't plugged. Mount manifold high as possible.
Be more uniform
Be safer with manure
Be sure distributor is clear of plugs.
Be uniform
Better air vents on manifold
Better distribution
Better fertilizer rates.
Better fertilizer rates.
Better injection with bars
Better maintenance
Better quality ?? The better rate you will get and manifold will distribute manure evenly.
Bigger the hose the better
Breather must be clean
Buy a good one to start
Buy PCE manifold
Buy PCE mechanical distributor.
Buy the right one. More research, name the brands that work and don’t work. Don’t worry about sending someone to their cry room. Compare more ms Iowa.
By adjusting flow through them to acquire the proper rate and even distribution through all injector nozzles.

Calibrate equipment before using
Calibrate equipment each year
Calibrate it
Calibrate it make sure it is all even
Calibrate manifold and tool bar to provide uniformity and keep love CV. Test with water/barrels one way. Know your equipment. Many different equiprr
Calibrate manifold. Check hose routing. Not all manifolds are the same. Check air vents on manifold.
Calibrate the equipment
Calibrate to ensure manifold (???) is exposed to right flow!!!
Calibrate to ensure uniformity/use higher speeds to lower variability
Calibrate to see if the manifold is getting the right amount of flow
Calibrate your machinery, move manifold high n your machine.
Calibration
Calibration - how hose lay.
Calibration importance and the different manifold performances.
Calibration of manifold, outlet size, location, plugged up air vents
Calibration, distribution variability
Calibration, no loops, air vents clean
Can vary a lot
Caution should be used when selecting manifolds.
Certain ones let it flow better
Change manifolds - mount manifolds higher on tank
Change the way the hoses are routed.
Check
Check air intakes, try to run higher rates whenever possible.
Check air vents
Check air vents and hose drooping.
Check all outlets open so flow is the same out of each outlet
Check and measure distribution of each outlet of manifold. Make sure no blockage and good even flow, and eliminate loops. Select appropriate mani
Check application rate and calibration rates. Check distribution line more often. I found it interesting on the distribution of each outlet lines (discharge
Check area volume calibration
Check by doing verifying the manifold, check amount of water in barrels
Check calibrations
Check each line
Check equipment better for lower rates
Check flow
Check for equal flow, check for different manifold
Check for plugs
Check for uneven hoses, Be sure all ports of manifolds are clear of debris.
Check for uniformity
Check for water tight seals
Check hose layout and vents
Check hose length and make them as straight as possible.
Check hose lengths and check with water. Think about slopes, keep all air vents clean.
Check hoses
Check hoses and vents
Check individual lines
Check individual lines, improve gpm or get the proper manifold
Check it
Check it out. Can spend money to improve otherwise your fertilizer is not getting evenly spread.
Check it over.
Check manifolds
Check manifolds to see if there is even flow
Check manifolds, air vents, make sure not plugged
Check manure flow rates.
Check over everything, calibrate often to make sure everything is on point.
Check preseason for calibration
check them
Check thing over
Check to make sure the manifold is not plugged
check vents
check vents
Check working order, choose correct manifold
Check your equipment
Choose correct manifold
Clean air breathers/calibrate
Clean air vents
Clean air vents.

Clean equipment, some manifold are better than others, higher flow rates = lower CV
Clean it out
Clean it out, run through it every season
Clean manifolds
Clean off hoses and the bar
Clean the air inlet vents. Straighten hoses.
Clean vent hoses
Clean vents
Clean vents
Clear off all blockages

Concise
Constant if not routine inspection/cleaning of manifold/vents/hoses and injectors

Control flow rates
Control tractor speed increase or decrease depending on field application.

Correct calibration
Correct flow amount

Costs
Design is important. Maintain manifold pressures for even distribution.

Determine what rate our manifold works best and play those rates into our MMP. Keep vents clean and hoses run correctly.

Did not learn much. All were good reminders however.

Did not pertain to me at all
Did not realize it was so highly variable
Different levels of hose hurt uniformity.
Different manifolds for different applications
Different styles and techniques may be essential
Different styles and which ones work the best.
Different things to check and ways to change. Very interesting.
Different type of manifolds effect flow
Distance (hose length) and resistance of fluid make the difference.
Distribution, what we have is one of the best
Do more research on my manifold distribution
Do your different tests
Doesn't apply to me
Don't apply at low rates
Don't apply to already applied poo?
Don't apply to applicator more for farmer
Don't buy a Jamesway tank
Don't need to have a good one
Don't over apply
Don't over apply
Don't set your speed higher than the flow can handle, otherwise the application is going to be uneven.

Don't take on low gpa jobs
Down tube configuration
Drive faster
Drive faster
dryer? clean
Each manifold are different and mount as high as possible for the manifold you are using.
Each manifold has its own capabilities.
Eliminate any loops in discharge hoses.
eliminate hose loops
Eliminate loops in hose, keep air vents clean, slope has major effect on variation.

Eliminate loops in hoses; clean air vents.

Eliminate loops of discharge hoses and air vents are open.

Ensure all air vents on a manifold are clean and functioning

Ensure manure is discharging evenly by checking for obstructions.

Ensuring it's distributed evenly.

Equal distribution

Equal distribution

Equal distribution

equal flows

Even application

Even distribution

Even flow

Every manifold is different so checking each one's performance to make sure each rig is doing a uniform job.

Every manifolds is different

Faster

Faster application speed will increase accuracy

Faster seep, higher distribution box

Faster speed might give us less variability.

Flow needs to be direct - clean vents.

Follow the manure management plan, no problems.

Gallons per acre

Get a different distributor

Get a Houle tank and hose length matters

Get a new one.

Get a power manifold and drive faster.

Get the right equipment

Getting fertilizer on even across the field.

Give us gal/min not a rate of mph or gpa; measure the pressure in manifold for dragline.

Glad that I have the best equipment for uniform application

Go faster to even out flow in low rate fields

Go faster while applying same rate to push more gallons through manifold to apply more uniformly. Keep hoses straight.

good info. Current issue for me.

Got a new plow

Got the best

Haul litter only

Have 1 tube its now 100%

Have enough back pressure to have unity throughout the outlet hoses.

Have hoses run correctly and make sure air valves are clean.

Have minimal loops in the discharge hoses

Have the correct manifold and hoses

Have the good inverted one.
Have your hoses as straight as possible and have all your ventilation unplugged.
Having high enough rate
High application rates are more within 10% with the cutter bar.
High as possible
High gallons
Higher and not loops in hoses
Higher application rates have less variability, clean and check air vents on manifold
Higher better
Higher gallons per minute.
Higher manifold is more likely to put down correct rate.
Higher manifold straighter hoses
Higher MPH
Higher rates and lower rates impact uniformity
Higher rates are better
Higher the better, tubes all the way around
Higher the manifold, better the flow
His numbers aren’t accurate for what we do. Its more about gpm than what type of best? used
Hose angles matter
hose higher and length
Hose length
Hose placement

Hose without loops are better/straight hoses. Dirty air vents can greatly affect uniformity. Some manifolds are better for high rates. Increase ground speed can improve.
Hoses dripping down no good for flow resistance.
Houle is good
How the angle impacts flow
How the slopes affect the flow out of the manifold.
How they each perform.
How to adjust it
How to test them to get the same flow.
How you lay your hoses.
Hydraulic distribution
I build the best manifold/distributors on the market.
I do my job correct so I already understood what a manifold does and to service and check it.

I fought with a manifold fall 2016. I used 2 different companies, the one that came on the flow didn’t feed all ports. Your info was accurate on my exp. I found we are using the most efficient manifold built for the different rates.
I have good equipment
I have the best. Great info.
I just haul the manure
I liked that had the Jamesway went to Houle big difference
I set the standards
I use the right equipment
I would think it would be more correlated with pressure.
If equipment with air vents make sure they're clean and aren't plugged letting air back in.
In low rate application, keep pressure up if possible
Inconclusive on the drag line because what was the flow??? For the different rates because are grounds speed is a huge difference. 1,000 gallons or hard.
Incorporate in 4 inches or more
Increase drive speeds - higher gallons per minute
Increase ground speed + more manifold pressure
Increasing ground speed increases pressures in the manifold for more even applications
Increasing speed helps with uniformity
Inspect manifold and air intakes on manifold
It is important to make sure we are putting on evenly. Make sure it is not plugged etc.
It was interesting, don't have to do anything, have the one that performed the best.
It works good
It works just fine.
It works prime
It works to have good manifold
It's fine
It's important to have it calibrated and have the right one.
It's important to make sure it's applied equally.
Keep a constant rate
Keep a good pressure
Keep air holes clean
Keep air inlets clean
Keep air tubes open
Keep air vent clean
Keep air vent clean
Keep air vents clean and functioning properly.
Keep air vents clean.
Keep air vents clean.
Keep air vents open and keep loops out of hoses.
Keep air vents open, eliminate any loops in discharge hoses, slope effects equipment, certain manifolds perform better at lower rates.
Keep air vents unplugged.
Keep clean
Keep clean
Keep clean
Keep clean and hoses kink free.
Keep clean and test manifold
Keep clean to get even flow
Keep distances and coverage even
Keep equipment clean and clear. Set and check calibrations
Keep equipment clean and working properly.
Keep everything open and clean for even flow. Hose lay evenly across bar/air vent are clean/keep manifold high as possible.
Keep flow rates high and consistent.
Keep flow rates as high as possible.
Keep gal/acre above 3000.
Keep hose as straight as you can.
Keep hose from plugging up.
Keep hose straight and vents open.
Keep hoses clear of plugging.
Keep hoses even length.
Keep hoses from sagging.
Keep hoses straight.
Keep hoses straight or without big loops. Regular maintenance and higher rates work better.
Keep hoses tighter, no loops.
Keep it clean.
Keep it clean.
Keep it clean.
Keep it clean.
Keep it clean.
Keep it clean of obstructions.
Keep it clean, good coverage.
Keep it clean.
Keep it clean/need to inspect daily/know equipment. Pay attention to raven/keep it up as high as possible/no loops in hoses.
Keep it cleaned out, check daily.
Keep it clear of debris.
Keep it even.
Keep it higher on the tank.
Keep it in the ground, GPS.
Keep it pressure charged, vent top hoses.
Keep it up high.
Keep it well maintained.
Keep it well maintained.
Keep level.
Keep lines clean.
Keep lines level - do not put down loops in hoses.
Keep loops out of hoses, land slope.
Keep manifold free of debris, allowing proper flow.
Keep manifold clear.
Keep manifold pressurized.
Keep open and clean to all ports
Keep outlets clear of obstructions
Keep plugs from hoses and manifolds to keep uniform coverage. Also keep the vents open.
Keep pressure up and keep vent valves open
Keep slack out of hoses
Keep speed up for better flow rate
Keep stuff sealed up and no leaks
Keep sure hoses don’t have too much of a dip in them and make sure air breading hoses are clean, change speed.
Keep the check valves clean and minimized loops
Keep the hoses straight to keep uniform flow.
Keep the hoses straight.
Keep the pressure higher with higher rate and speed
Keep the pressure up in the manifold as much as possible when applying lower rates.
Keep tubes clean up top
Keep vents clean.
Keep vents clean.
Keep vents clear.
Keep volume over 3000 gal/acre
Keeping hoses tight and taunt seems to give good results in uniformity
keeping hoses tight, keep uniformity and maintenance levels low.
Keeping hoses uniform
Keeping manifold clean helps distribute manure more evenly.
Keeping outlet hose lengths equal as possible.
Keeping the manifold clean has a lot to do with how the manure is distributed across the field.
Keeping this working properly - no obstructions make sure all manifold lines are equal discharge
Know what the manifold is capable of and how it works.
Know when you're doing lower rates and what to use.
Know your stuff.
learned a lot
Learned that it is important to make sure my manifolds are putting out even gallons to all outlet
Learned there was a lot of manifolds that don’t work well on low rates
Learned to check to make sure flow coming out is uniform.
Less hose better flow
less low spots in your hose
Limitations, data would be useful at different application speeds
Looked good
Lots, don't slow down the flow rate on a drag hose.
Low CV is better, all manifolds are different.
Low rates are difficult, get the right kind
Low rates doesn’t flow so well
Low volume doesn’t work very well
Lower rates are less evenly distributed
Lower rates can lead to variability
Lower your coefficient of variabilities
Make it as high as possible
Make it higher
Make sure air vent working.
Make sure air vents are working and no loops in the hoses.
Make sure air vents are clean
Make sure all nozzles have the same distribution
Make sure breathers are not plugged
Make sure calibration is correct and make sure manifolds aren’t plugged, test your manifold
make sure calibration is good.
Make sure come out each hose evenly.
make sure distribution is even, verify it.
Make sure each knife is delivering the same rate.
Make sure equipment is kept up and flow meters are calibrated regularly.
Make sure equipment is kept up and flow meters are calibrated regularly.
Make sure equipment works properly which is already done on a scheduled basis
Make sure everything is sealed for no spillage

Make sure everything is working the way it should be and make sure the person that is using it knows what they are doing and know what to do when
Make sure flow is equal
Make sure hoses and air inlets aren’t blocked. Know whether your manifold works best in high or low flow rates. Eliminate loops in discharge hoses.
Make sure hoses are straight going from manifold to toolbar.
Make sure it has been calibrated and pressures are accurate to the tool bar, eliminate loops on hoses and make sure air vents are clean
Make sure if not abnormally restricted
Make sure it is calibrated, to application rate, checking flow from all outlets, verify manifold
Make sure it is clean and working properly. Keep hose as straight as possible.
Make sure it's all working properly.
Make sure it's calibrated and not plugged
Make sure its calibrated to the right application.
Make sure it's clean and flow evenly
Make sure it's not plugged
Make sure it's not plugged and everything is spreading even.
Make sure it's working properly
Make sure lines are equally distributed.
Make sure manifold isn’t plugged make sure it pressurized
Make sure manifold stays clear of plugs and all ports remain open.
Make sure manifolds are distribution evenly
Make sure manure flows evenly out of all tubes/hoses
Make sure no air locks
Make sure no objects are stuck in manifold
Make sure outlets aren’t plugged.
Make sure rate is set correctly on computer monitor. Equipment is working properly.

Make sure that equal amount of liquid goes through each tube.

Make sure the manifold flows properly.

Make sure the manifold is calibrated and verify test the manifold is working properly.

Make sure the monitors are operating correctly, all toolbars hoses in good shape, having the discs, shanks in good shape for proper coverage.

Make sure there are no blockages in air inlets or discharge lines. Figure out what manifold works best for your application. For more even flow, make some discharge lines.

Make sure there is an even flow out each tube.

Make sure they are performing uniform.

Make sure to calibrate your manifold chamber to ensure the correct flow.

Make sure to check flow and adjust to get even flow to each knife.

Make sure vents are not plugged, drive 5 to 7.5 mph, eliminate looks in discharge hoses.

Make sure vents are not plugged.

Make sure vents are open and how the hoses lay across the bar, and to drive faster.

Make sure you have even flow.

Make sure you have even flow coming out so it's equal throughout the field.

Make sure you have even pressure.

Make sure your hoses don't have too many twists or kinks in them.

Make sure your putting on the right amount per acre.

Make sure you're getting the proper gallons per minute and everything is calibrated for the GPA you need to incorporate. Make sure as well that your help with distribution.

Make sure you're injecting manure deep enough.

Manifold equation verifying manifold.

Manifold can plug up. Many differences in manifold.

Manifold graphs are not needed. Make sure all parts are feeding at the same flow.

Manifold maintenance.

Manifold should be clean, flow easily, no debris.

Manifold should be pressurized.

Manifolds effect performance.

Manure test.

May need to change manifolds.

Minimize overlap and missed spots for even crop yield, ensure calibration for even distribution.

Monitor amount of manure coming out of hoses more.

Monitor individual hoses closer so that they evenly apply manure.

More accurate rates I would think but I am not an applicator.

More observation will improve performance.

More pressure, drive faster.

More sensitive to the (some word--dibbels??) involved in matching manifold to the particular configuration and application.

More you put on, more it cost.

Most manifold perform badly because of vacuum pressure inside manifold because of hose and air inlets.

Mount high as possible.

Mount the manifold as high as possible.

Na, only spread solids.
Need even flow in order to do a good job.
Need more pressure
Need to check to see what works best.
Need to go back to school to learn algebra
Need to see more data
No bellies in the hoses
No Bend in hoses
No Curves
No hose kinks, bottom fed manifold, air valves work
No hose loops. Keep volume and pressure up to get effective flow
No loops in discharge hoses.
No loops in hoses
No loops in hoses
No loops in hoses
No loops in hoses
No loops in hoses and pushing more liquid through manifold.
No loops in hoses, clean vents
No Manifold
no manifold dry applicators
no response
no response
no response
no response
Not all manifold are designed and work the same. Apply the same amount of manure to each discharge hose.
Not all manifolds are alike.
Not all manifolds are the same.
Not all manifolds operate the same, choose the correct manifold for your application.
Not all toolbars are created equally.
Not every manifold built is equally efficient
Not every manifold is the same. Slope also can change the distribution of the manure.
Not my job
Nothing
Nothing
Nothing
Nothing
Nothing
Nothing I didn't already know, but it was interesting and good to know.
Nothing I didn’t already know.
Nothing new
Nothing new here. According to test, currently using best manifold design & already keep air inlets clean.
Nothing. It was all pretty well common sense.
Nothing. I’ve been pumping manure for 11 years. I’ve gained information from field testing that I’ve done. Info is good for new applicators.
Nothing. I've been pumping manure for 4 years. I've gained information from field testing that I've done. Info is good for new applicators.

Nothing. We traded manifolds a year ago to get better performance and did.

On board flow meter does most of the work

Only run GEA

Other options for application.

Over kill, repeated too often

pay attention to how hoses are laid out.

Pick the right manifold

Pick the right manifold

Pick up speed to improve distribution at low application rates, eliminate any lags

Place the manifold as high as possible.

Placement and speed

Placement of distributor and pressure and volume

Plugged air vents can be harmful.

Plugged holes affected flow

Plugged hoses

Plugged hoses are important

Pretrip?

Probably need a new one

Proper selection of manifold per/gpa

Purchase a different manifold.

Put a lower rate on.

Put can as high as possible, don't have bends in hosing.

Put it higher in the air.

Put it on a lighter level of the tank

Put manifold high

Put more gallons per acre on

Quite a difference between systems

Raise manifold higher. Make sure breathers are unblocked. Make sure hoses are straight as can be.

Rate changes dramatically even in the same fields.

Rates

Reduce bends in hoses

Regular maintenance

Remove loops in hoses

Remove loops, mount manifold as high as possible.

Right manifold for the right application.

Rotating distributor and raising the distributor, so lines are straight down the toolbar.

Run more volume

Run test and make sure manure is coming out equally.

Run the best equipment

Run water through tank, make sure evenly flowing

Running higher gallon/minute improves manifold uniformity.
Same
Select proper manifold, reduce loops, and clean air vents, mount as high as possible.
Select the right manifold
Set all hoses at the same height & angle with equal pressure.
Setting the speed correct
Shields
Shorten loops in hoses
Size matters
Slope of hoses
So manure application gets applied equally, eliminate any loops in the discharge hoses.
Soil maps.
Some brands of manure manifolds are bad.
Speed flow
Speed up to create equal pressure in manifold on low application situations.
Speed, efficiency
Spread evenly
Stay off side hills
Straight hoses
Straight line hoses from manifold outlet to tool bar set up.
Straight lines work better.
Straighten your hose
Take time to set up.
Test and make sure to have even distribution.
Test flow rates from manifold
Test flow through hoses. If your flow isn't uniform the fertilizer won't be thoroughly applied.
Test flow with water
Test is important
Test it.
Test it. Make sure it's the right one for your applications.
Test manifold
Test manifold discharge
Test your equipment.
Testing is important
Testing it.
Testing the flow will help ensure proper performance of your equipment. Also keeping vents cleaned out.
That are systems is a good option for what is available
That not all of the hoses are getting the same flow of manure.
That our equipment works well
That the outside wings are not always getting manure at full capacity
That there is better manifolds on the market today.
That there's little to no overlap and the entire field is covered evenly.
That we have good ok
That we use one of the best manifolds that was tested
That you should check your manifolds
The 2x4 and bucket measuring strategy would be a nice way to check and measure flow.
The does not apply to me
The efficiency of each manifold and how to be proactive and operate the toolbar for more potential
The higher the better
The higher the rates, the more uniformity
The higher up the distributer the better
The laying of your hoses makes a difference in application rates
The manifold we have is rated to be accurate at all levels.
The manifold we use is the best for uniformity.
The negative effects of plugged or dirty air vents.
The one I have is already the best performing.
The one is use does fine.
The one we have runs good
The sum of the whole does not equal the sum of the parts. No matter what it's a losing battle.
The testing of manifolds was good. It maybe make sense to include what flow volume (gal/min) correlates to you gal/ac.
The type of manifold we have is appropriate for the type of application we do.
There are different factors to consider
There is a lot of differences in distributors
There is a need for a new style of a manifold.
There is quite a difference in application equipment
They were good
They were good
This information verified what we have seen in our operation in the last 15 years
To adjust and maintain equipment
To be sure all outlets are equal
To calibrate
To check and verify actual CV on own equipment
To check it if uniform
To check that we have the right manifold for the range of rates we apply.
To check the air vents from the manifold to outlet hoses to prevent inconsistency.
To get a better manifold.
To get even manure across field, make sure in working order.
To get manure pattern as even as possible
To keep clean and allow less air flow.
To keep things flowing at proper rates.
To know what rate you want and a field description.
To make sure hose are straight and keep air vents clean and functioning
To make sure it's cleaned out
To make sure manifold is distributing out all units rows correctly so farmer has no skips through to field
To make sure that everything is working properly and that the manure is all coming out equally.
To make sure the manure gets evenly distributed for quality application.
To make sure everything is up to date as in oil changes, new filters, no leaks, running great, no broken parts
To slope your hoses after the manifold in a very gradual way. Also, to clean out breathers more often. 3% is the best slope for the drag bars.
Try to be more uniform
Try to get your hoses straight as you can
Try to keep clean/up to date
Turn pump pressure up.
Uniform application is key
Uniform application is very critical.
Use equipment made by PCE.
Use manifolds that give best distribution
Use PCE manifold
Use Raymond Zimmerman’s manifold distributor.
Use smaller nipples in the distributor. Also buy a PCE distributor.
Use tests to check output.
Use the correct system
Use the correct type of manifold for accuracy
Use the inverted outlets for low output
Use the right manifold
Use the right one.
Use vented manifolds
Using a VTI toolbar to improve to improve performance and using precision equipment such as auto steer.
Vent on Houle needs checked.
Vented manifold work better. Use a manifold that has a coefficient of variation below 10-20% across a wide range of application rates.
Ventilation is key
Vents clean/keep hoses straight.
Verify manifold distribution, we already do.
Verifying the manifold
Very good segment
Very good video, learned a lot
Very interesting we run Houles and keep vents clean
Want one that distributes evenly.
Was informative to see comparisons
Was the best according to charts.
Waste of time
Watch for plugging
Watch for uniform coverage in the field.
Watch how hoses lay
Watch your flow
We already knew this
We already monitor manifold flow
We are using good equipment
We are using good equipment
We bought the correct model
We don't use manifold system
We got new manifolds fall of 2016

We have checked this many years ago. Had to change tank company. Didn't get even flow as of manifold Nuhn made a manifold that you could change plugged.
We have good equipment
We have the best manifolds
We have the spinner manifold this which was better than our horse shoe type.
We just haul
We just transport cattle manure, no application
We knew this years ago and are using one of the top 2 on your charts. Thanks, good information.
We need to look over how our hoses are laying
We run Houle tanks, that manifold is one of the 2 best manifolds
We spread dry
We use a Houle, seems to be the best accurate.
We use good equipment
We use good manifolds
We used two of the top manifolds
We worked with a company out of Washington to improve manifold precision.

What manifolds to use
What manifolds work best.
What one are below 10% coefficient what ones aren't working properly for equal dispersal of manure out of the tool bar.
Would have like to see the actual flow rate (gpm) added to the chart.
You need to have pressure at manifold.
You want to have your manifold up high and try to not have dips in your hoses so that your rate does not vary.
The nutrient reduction strategy details practices like cover crops, reduced tillage, and nutrient management to reduce nitrogen and phosphorus losses to rivers, streams, and lakes by 45%. How has this strategy changed what your customers expect from you during?

?? We are injecting stay off around?? Pipes and waterways

A lot of customers have been taking these steps over the last couple of years (Mostly cover crops)

Accurate application methods

Apply rates per acre according to pH levels in the soil. Minimal runoff and making sure they manure is being injected into the soil.

Already using proper practices

Always cover the tile inlets and keep safe distances from any waterways.

Application distances must be followed.

Application rate

Apply correct amount

Apply in better conditions.

Apply right.

Apply the correct amount of nutrients according to their farms and crop removal needs.

Apply with weather conditions in mind; keep distance from water areas

At this point, not much.

Attempt to leave more residue

Attention to details

Bar used to apply

Be a better person of judgement when making choices of application problems.

Be aware of distances needed to be and no till bars.

Be aware of where manure is stockpiled in fall away from waterways and streams.

Be careful, watch where you are spreading

Being aware of surroundings, rivers, and streams

Being aware of the regulations.

Being cleaner and more efficient.

Being more aware

Being professional, know you care about your environment

Best cover up's best fertilizer

Better application techniques

Better coverage

Better Coverage

Better coverages and more nutrient to the crop.

Better field coverage, lower application rates = more acres covered

Better job

Better rate accuracy

Better results

Better satisfaction

Better, more even application.

Both parties understand set back distances on waterways and we use best tool bar possible to reduce erosion on highly erodible land.

Buffer strips are put in, more waters, ditches are closed up.

By keeping adequate distances from field lines and waterways.

By making sure the ground is dry.

By staying away from water sources

Change knife set up

Change rate of application

Changed to a no-till operation

Clean previous inconsistent application/time management.

Closer application and separation.

Communication

Considering a not till bar

Contour and rates that are useful

Contour more.

Coverage, rates

Customer expectations generally have not changed with the exception of they want to get nutrient for next to nothing. Usually have to tell the customer that what they expect is not practical or even legal.

Customer expects the manure management plan to be followed for their manure to field.

and make it uniform.

Customers expect us applicators to help the environment and keep the NPH levels out of the streams/lakes/streams.

Customers expect us to come in and get the job done right the first way, not too much travel in the field and tearing up their farm.

Customers expect us to follow all the laws and rules for it.

Deep tillage is best.

Different rates

Distances between application and building sites and waterways

Do a better job

Do a good job.

Do an uniform cover area, Do not over apply

Do it right.

Do not apply manure too close to waterways to keep nutrient levels out of the water

Do not apply to water ways and field barriers.

Does not pertain to me at all

Does not pertain.

Doesn’t

Doesn’t change anything

Doing a better job.

Don’t apply near water

Don’t apply wetlands and or buffer strips.

Don’t get as close to rivers and make sure all manure is covered.

Don’t have direct contact

Don’t show the farm.

Don’t spill, get injected, meet the MMP rate

Don’t spread by creeks

Don’t think it will change much how we apply.

Earlier adoption

Everyone is aware of reducing waste. It really comes down to being profitable.

Expect a more manageable application rates

Expect better injection.

Expect us to eject manure through heavy trash odor complaint (complaints?)

Expect us to keep up with the new technology.

Expect us to know right and wrong

Farm Star is the best

Farmer always right

Farmer are putting grass waterways back in, better buffering.

Follow guidelines when applying

Follow MMP/cover crop still living after application

Follow the rules and discussions to their expectations.

Follow water rules

Follow your MMP rates

For us nothing - farmers need to do more themselves to do more, waterways, cover crops, less deep tillage

Get as close to rates as possible and use low disturbance blades

Get checked for value
Get it all filled in and keep the rate the same.
Going great distances to other fields that have not had manure.
Going to a no till toolbar.
Has become a lot safer
Has not change the strategy of what we do. We still do application the same.
Has not changed
Has not changed much in our area.
Has not had much affect--YET!
Has not impacted, just do it right
Hasn’t changed much. I just go off of the manure management plan. Be less aggressive on the soil.
Hasn’t really
Hasn’t that much
Haul litter to field only
Hauling dry chicken litter.
Have correct application rate and bugger distances to rivers and streams.
Have it spread evenly.
Have not seen a big change. Have always used minimum tillage injection so not a lot of change required from customers.
Have some crops produce their own nitrogen like soybean to know how you can use this. Actual farmer’s opinions about this.
Haven’t applied yet.
Haven’t dealt with cover crops.
Haven’t had any conversation with my customers on that subject yet.
Having manure well covered.
Helps to properly apply the correct amount to expect best yields for future crop, with loss of product & damages to the environments or water.
How to simplify the training - long winded.
Hurry up and be everywhere at one time so everyone can seed their cover crops.
I bought cutter till injectors.
I don’t control that, just apply
I don’t have any customers.
I don’t think so
I haul stockpile manure.
I have invested in different application units on the tanks
I needed to change the way I inject to get through the cover crop.
I typically don’t deal with customers.
I use vertical tillage injectors with cover up wheels and use nitrogen stabilizers.
I was forced to purchase no till application to reduce tillage.
I would like to see a multi-year license for those of us who have been doing this for a long time. Most of us have very good safety records.
Incoporating solids immediately helps farmers nutrients being saved. Increased cost on applicators and application cost
Inject the correct amount of manure
Injecting manure - keep from making puddles or running
Injecting manure to keep nutrients in the field and the odor low.
Injection and rate for coverage
Injection applications
It all came down to the no till toolbars, has been what the customer wants
It didn’t change.
It doesn’t.
It doesn’t.
It has change the application bar we use to apply manure
It has not changed in my area.
It has not.
It hasn’t
It hasn’t
It hasn’t
It hasn’t.
It hasn’t.
It hasn’t
It hasn’t.
It hasnt.
I just expect good job done.
Just make sure you are doing everything you are supposed to do and don’t break the law. Having these rules make people think a lot more on
Keep clear of any knoll ??, such as stand pipes, waterways, or any low lying spots that might run off course.
Keep distance from streams
Keep doing daily checks
Keep more cover on top by different type of application types
Keeping environment clean
Keeping manure out of our resources. They are more open to manure application with a safer strategy.
Know all the rules
Know where the rivers and streams are.
Know your rates
Knowing your surrounding is key. It helps when you know where your are during application
Late fee should be gone. You’re making enough money at least until April 1st.
Lay of the land, previous crop, application rates
Leaving buffers along creeks and intakes
Less application and run faster to cover better so it doesn’t run down
Less application/acre
Less customers wanting to over apply
Less gallons per acre and uniformity problems may happen.
Less gpa
Less ground disturbance toolbar.
Less soil disturbance
Less soil disturbance where cover crop is used follow rows to help in using no-till.
Less soil disturbance, lower rate = a to e. Don’t over apply
Less soil disturbance.
Less soil disturbance. Leave more residue on the soil surface.
Less tillage
Less tillage wanted
Low disturbance tool bars.
Lower application rates
Lower rates
Lowering application rate then coming in later if needed side dressing N.
Make better application and improved the qualities of the work that is done.
Make sure all the manure is incorporated properly
Make sure good flow rates; even manifold distribution
Make sure it is covered.
Make sure its all injected - none on the surface.
Make sure manure is applied equally on the fields to its conditions.
Make sure manure is incorporated properly
Make sure the manure gets covered and we are not overlapping or over applying.
Make sure to keep your distance from waterways.
Manure testing so the applicator knows the proper ratio to apply.
May need to avoid applying in areas of a field close to risk areas.
Minimal disturbance better incorporation
Minimal till/vertical tillage incorporation is standard practice.
Minimize runoff
Minimize soil disturbance
Minimum till/low impact
More aware of situations.
More careful with application rates.
More commercial hauling dry
More concern
More concerned about using filter strips and pre testing the manure.
More consistency in application and more coverage.
More contour
More customers expect to plant into injected manure.
More customers want no-till application.
More injections
More intensive scrutiny of nutrients levels applied and consistent coverage
More intensive
More limited till
More manure
More need for minimum till injectors
More no till request
More no-till equipment
More no-till or minimum till
More of a no till application is needed.
More on transportation of dry manure.
More precise and accurate application.
More precise application
More safety minded expectations from farmers
More sensitive to rates and manure value.
More sensitivity
More timely application required.
More vertical tillage injection.
Most have a buffer strip along streams.
Most want VTI injectors
My customers didn't watch the video. They don't know.
Need to adhere to MMP! Especially rate & uniformity
Need to be more aware of the conditions you have.
Need to do an accurate job
Never had a complaint from them. Have a few that like new minimum till tool bar.
New updated equipment
No change in requirements from customers
No change, customers know we are professional organization and business and is treated as such.
No cover crops
No cover crops used.
No show that to farmers not applicators
No till apply
No till bars
No till toolbars and minimal compaction.
No, only haul.
None, they still expect perfection.
None, you always do the best job possible.
Not much, more no till.
Not much, usually have maintained low soil disturbance to minimize erosion.
Not really, low corn prices have a bigger impact.
Not till applicators.
Not to tear up their cover crops
Nothing from some; lower application rate from some.
Nothing has changed so far
Nothing. Just tell them we have rules to follow
No-till injection.
Nutrient management plans, buffer strips, all manure injected.
Nutrient Reduction with increased animal production ruins expectations for what is capable for application rates.
Only apply to our own ground.
Only apply to our own ground.
Our customers expect greatness.
Pay more attention to rates and agitation of manure
Practice much a s possible
Precise applying.
Prevents run off of manure
Proper rate application, less ground disturbance
Proper rate applications, less ground agitation
Put more gallons per acre on
Quality job done right
Reducing the risk of over applying which leads to leaching and runoff.
Require a close coordination among applicator crew-to ensure compliance with guidelines.
Responsible application waterways.
Right now there has been little communications from customers, RE the Strategy
Running no-till injectors to reduce erosion/increase farmability? in no-till planting.
Safety of water
Same
Same application
Same as our customers always do.
Samples, maps for manure application rates following strict guidelines.
Separation distances
Separation distances.
Set back distances
Settling exact rates
Shower application window
Since our customers aren't LAFO's the really aren't very well informed, so our education will benefit them in carefulness to maintain water quality.
Slightly depends on the customer
Some have used cover crops on early corn that come out.
Stay alert and know your surroundings
Stay away form streams and rivers. If not put lower rate.
Stay away from water and drainage
Stay away from waterways
Stay back proper distances.
Stay away from water.
Stay within the rules.
Staying a safe distance away from buffers and not tilling manure in the ground in ravines.
Switch to no-till
Switched to no-till toolbars to reduce tillage and soil disturbance.
Take a closer look at the field for different vegetation
Take more steps/strategy to prevent this
Take proper steps to do the job right.
That we are educated as to what we are doing
That we stay away from those areas.
The direction driven while applied (contour applying) to prevent runoff.
We need to be stewards of the land. We need to be more aware of the soil conditions and surroundings. We inject the manure without disturbing the ground too much. We have incorporated these nutrient reduction strategy into our custom manure application to work together with the farmer. We don't have cover crops in our area. We do our best to contour apply. We do have some request to adjust the depth that our disc covers cut. We changed from shovel injection to vertical tillage for erosion and able to do no till. We can use less manure and get the same value of nitrogen putting it on in the spring. We can apply at a lower rate and get same nitrogen benefit in spring. We already knew this and made changes years ago and make changes all the time. We already had the correct toolbar so didn't see much change. Vertical tillage injectors - everyone has liked them very much. Verify distribution, manifold. They expect you to follow MMP and have your equipment working properly. Vegetation buffers. Using the best systems to get manure injected into the ground for less movement of nutrients. Uniform application rates to provide for crop without causing over application. To stay away a safe distance. To try to minimize soil disturbance. Try your best. Uniform application rates to provide for crop without causing over application. Uniform rates and coverage is critical. Uniformity and runoff prevention. Unsure. Use drag line for less compaction and making sure no product is left on top. Use minimum tillage. Use till cultivators. Use the right equipment and apply it if the right conditions. Useful to know the kind of degree to position them. Using the best systems to get manure injected into the ground for less movement of nutrients. Very much. Wait for ideal conditions. Want a good job done. Want less compaction. Want more residue left behind. Want no-till bars. Want to save cover crop. Watch the gage. Watch what kind of injection you are using. Not tearing out the cover crop. Watch what you are doing closer. Watch where you spread. Watch your application rate/adjust if needed. We already had the correct toolbar so didn’t see much change. We already knew this and made changes years ago and make changes all the time. We can apply at a lower rate and get same nitrogen benefit in spring. We can use less manure and get the same value of nitrogen putting it on in the spring. We changed from shovel injection to vertical tillage for erosion and able to do no till. We have incorporated these nutrient reduction strategy into our custom manure application to work together with the farmer. We inject the manure without disturbing the ground too much. We need to be more aware of the soil conditions and surroundings. We need to be stewards of the land.
We no till apply manure so not so much
We try to keep everyone happy - DNR and customers
We use a no till toolbar now
We use good equipment
We use reduced tillage applications
Went to all no till toolbars 3 years ago
What customer wants, the customer will get.
What they want to have it applied and amount we apply.
Where and when you can apply manure, manure rate, how much ground you need to apply manure.
Where to place product in regards to water sources or homes, farm sites.
Working around weather conditions
You can't just spread anywhere. You need to be careful of creeks and water.
You have to stay 250 feet away from lakes and streams and rivers when spreading manure
You might not get as much of the field covered as they would like.
Your application is more valuable.
18. Is there a topic you would like to hear about during next year's training?

20 years of getting recertified can be done in less than 3 hours. Most of this doesn't change, we could do this in 2 hours.

More diversity of injectors and the rates applicable for each one.

Actual applications - spill response kits, ideas, components, etc.

Advantage of manure compared to bought fertilizer

Agitating pit to get more uniform manure for application.

All of them.

Any new laws and regulations, if any.

Any studies on nutrient availability and or stabilization of nutrients applied in fall and availability in the spring for crops. Keep it short!

Anything to do with solid manure instead of a video 3/4 about liquid / what farmers need to know not applicators

Applying when soil temps are higher or lower for best nutrient retention

Are our IA licenses legal in other states (South Dakota)?

Biosecurity poultry

Bird flu

By using a bad year to lower overall average yield does not make sense. We farm for profit. We don't fertilize for a bad year. We would go broke cutting back. If there is a history over 10 years with 2-3 bad years they should be thrown out.

Cell phone use

Chart on phosphate and nitrogen levels in Iowa waterways.

Chicken manure

Chicken manure, hauling, dry manure

Class for 1 hour on just trucker responsibility

Compaction

Compaction of the different tanks.

Compact

Compost

Compost (equations for local manure) cattle

Covered everything I wanted it to.

Definitely DO NOT want to hear about application uniformity

Different sizes of tanks

Dissolving the DNR MMP's

Don't drag on about common sense stuff. You are just trying to fill in 3 hrs. How we can get this down to a 1 hour session. Too much useless info.

Don't repeat yourself so much

DOT, can we use signs on side of road?

Drag hose

Drag hose application

Drag lines

Dry - chicken turkey and cattle, side dump load hauling

Dry Litter spreading

Dry litter, chicken turkey, cattle

Dry litter, Dust and Health Hazards

Emergency spills, other methods of transport and dangers.

Equipment

Equipment safety is always a good topic.

Equipment up keep

Everything was covered very well.

Everything was covered.

Everything was great!

Everything was present very good. Add spill clean up methods shown.

Faster application speeds - 8-10 mph with injection

fail tractor and road speed.

Flow control monitors and GPS mapping

Gas training

Get rid of manure application uniformity.

Glad it was geared to commercial haulers

GPS electronic equipment, Graphs, mapping.

Handling of manure applicators are not scientific don't understand this info.

Hauling and transporting dry manure.

Hauling chicken manure

Hauling dry litter for other people

Hauling manure with semi trucks and tanks

Hauling safety not stuff for farmer

Haven't changed. Expect the beat.

Health aspects on the customers animal & transmitting. Keep on the program. A $20,000 application cost could turn into several hundred thousand dollars of loss.

Hire of people under 18 years old. Is this safe and advisible?

Hous tanks

House application.

How it affects bees.

How to be more efficient.

How to find accurate rate/manure application.

How to get rid of pit foam.

How to increase tank and toolbar efficiency/potential. Thanks for not selling equipment on this year's video! Get the video closer to two hours.

How to increase the nutrient value in manure.

Hydrogen Sulfide

Hydrogen Sulfide

Hydrogen sulfide

Hydrogen sulfide

I feel this year's training is a lot better than last. Last year there was a lot of advertisement for new equipment coming out. This year was focused on safety and more.

I like it was about the custom hauler more!

I like the topics on the equipment. Helps with what we may purchase to meet environmental customer needs.

I liked the emphasis on how to read & understand MMP but I think it could and should be covered better.

I liked the equipment portion - comparisons and preferences

I liked the info about on road travel. More on Public perception and how to be a better industry in their eye. Activist groups are always talking bad about our industry.

I think they cover everything very well

I thought I got more this time.

I thought it covered quite a bit.

I want to hear more about manifolds. I would also like to hear from Pucks again.

I would like to hear more about bar manifolds and maybe how to improve them better at low cost.

I would like to know where all the money that is collected from manure applicators and the annual MMP fees goes?

I'd rather hear from custom applicators

Ideas to add value to manure and its application. What is the nutrient value over time with fall spring manure application?
IDOT axle weight requirements for tractors and tanks. I think a commercial manure applicator needs to pay heavy road use tax and use them to haul products because people who own trucks are doing a job for hire and causing damage to our roadways.

If there was to be a spill in a river, how is it cleaned up? What is faster building a dam before the spill or downstream first, then back upstream? More info on the steps for a clean up. More hands on in field videos.

Injector types
Irrigation - pivots
It is important that you continue to teach about the poisonous gases, monitoring and prevention of deaths (animal and human). This is becoming more of a problem. It was good.

Know what goes on
Less about liquid manure, more about dry. Does my side dump load of litter need to be tared?
Less overlap on information - lots of time talking on common sense issues that operators should already know.

Little more on monitor operating H2S
Make class shorter or loose last 2 years instead of 1.

Mainstream pressure changes with rate on how thick the manure is having less trouble with thick manure really need to watch on more thinner or watery manure.

Manifolds
Manure application uniformity
Manure sampling
Manure sampling
Manure transportation
Mapping and rate controllers
Mapping coverage - shared coverage - how everyone does billing with maps and such.

More about crop rotation
More about hoses, less about tanks
More area and tanks
More about MMP. Safety & Cell phone use!!
More about NMPs and record keeping needed or suggested that applicator should give back to growers. Applicators rarely ask for NMP. =How many are keeping appropriate documentation??

More about the MMP
More about types of agitation equipment
More about umbilical
More biosecurity information
More clarification on water sources, i.e. waterway? video like a 50' buffer
More details and regulations on spills.
More dry manure - videos are not helpful to dry manure applicators.

More emergency
More equipment study.
More equipment video on applicators
More general day to day operations - equipment, etc.

More information on different toolbars
More information on the foaming issues in the pits.
More information on the manifolds used for distribution.

More on distribution at manifold.
More on farm safety-still like 2015 videos
More on gassing and dangers of it
More on irrigation

More on manifolds and maintenance.
More on manifolds and toolbars.
More on manure value

More on selecting the right manifold for the job.

More on the performance of manifolds and toolbars.

More on the topic of transportation of manure

More on tile intakes
More on transportation

More pictures of spills

More PTO safety and safety around all pumping equipment and lagoon agitators.

More solid manure topics

More solid manure topics

More studies on drag hose systems, speed vs wear and tear on hose from different companies.

More videos next year.

More videos so no so boring
My job is to fill the tanks in a timely matter with no spills
My responsibility is to haul manure from a facility to the field. While the info in the video is good, most of info does not pertain to what I'm doing.

Need info on dry cattle manure, stockpiling.

Need to see more equipment, like hydrogen sulfide monitoring. A lot of the info goes towards barn owners, not applicators.

Need to target more on hydrogen sulfide safety. Thanks!

New equipment and technology for manure application.
New equipment and technology. INCLUDE more videos visually describing as well as verbally. Be out in the area where information is covered. Slide shows are for 90's.

Nitrogen stabilizers
Nitrogen stabilizers return on investment (instinct)

No, all topics covered well.
No, everything was covered pretty good.
No, less topics over 3 hours!!
No. Would be nice to hear a little less actually. Biosecurity is not helpful. Each grower has own sets of guidelines to follow. We get that info from them.

Not everyone has swine - maybe more dairy info
Not of the top of my head.
Not really. If we are just reviewing, think 3 hours is a little lengthy. Some things covered 2-3 times.

Not sure but this year was much more useful information than usual. Thanks.

Not really. If we are just reviewing, think 3 hours is a little lengthy. Some things covered 2-3 times.
Not sure but this year was much more useful information than usual. Thanks.

Nothing. Everything was covered good.

Organic nitrogen carryover

Overall this was a good program.

Parts of the information is important to an operator/other info is not needed.

Pass vs. fail of the job a injector does injecting

Pit gas
Pivots

Price of application, why we have to have our address on our equipment? =Stupid.

Price per gallon

Proper equipment maintenance and scheduling.

Question and answer
Quit repeating info.

Research on agitation. How long do I need to agitate a pit to keep the solids in suspension and to get the best fertility. Also to be as efficient as possible.

Reverse osmosis water filtration from manure.

Road safety
Safe agitation methods. How to deal with foam or thick manure, etc.

SAFO requirements for commercial applicators: do some laws apply to commercial applicators since it’s a SAFO?

See more pictures and videos of equipment working separate tank and umbilical video

Separation distances

Shorten the class

Show how your properly clean manifold relief valves.

Show more injection equipment.

Show more that pertains to what we do such as spills and clean up

Soil compaction

Something to do with manure hauling.

Spanish translation and subtitles: I have a deaf person and a Spanish speaking person working for me.

Speed/tool bar width/process of how to calculate application rate during application of dragline.

Spill case studies.

Spill clean ups

Spill management especially small spills on highways

Spill management strategies

Spills

Stress relief during off duty hours

Tank and pump maintenance.

Tank applicators: what is better

The dangers of high PSI in the hoses and safety in the types of PSI in umbilical cord applications.

The different rates of different tank pumps that might change the coefficient of the variations on the different applicator injection or incorporation bars.

The effects of leaking

They should test the Balzer/Sioux Automation Manifold

They were all good.

This could be and should be done online.

This is too long every year.

Tips and procedures for dragline pumping

To make it shorter

Too long, went over time.

Tool bar and tank comparison

Topica were good, but would rather see more hands on interviews with actual farmers - makes things more convincing.

Tractor/equipment new stuff, better stuff

Training that is more focused on the representative and not managers. There are one manager for every 10 reps.

Training should be more hands on. There is no real training when you get your training in a manual.

How is that handled & who gets fined and stuck with the clean up bill. Smart phone apps are any apps out for use in aid to recordkeeping & data input. Use of gps maps for recordkeeping will they work on DNR visits to show dates hauled, rates but lack correct legal description. What is a comparison of lawn fertilizer runoff vs manure—any study on that? Ways to better inform general public on how & why we use manure and benefits of it.

Truck driver class

Truck driver class: I’m paying truck drivers to sit here.

Try anything to do with trucking or transportation of solids. Class was to be about solids and over 1/2 was about liquid. Waste of time.

Used monitors for 4 years; most applicators have no idea how much gas they are exposed to.

Very Good

VTI manifold

VTI, Zimmerman manifold is the best option

VTI’s new manifold out of Washington

Ways to be more efficient

Ways to properly apply manure and contouring practices.

We as custom haulers have found our best to not use amber flashes until we make a turn at intersections. People get used to seeing them on all the time, so when we use them only on a turn, they notice them immediately.

We don’t care about liquid manure, we spread dry solids

We dont need to see about dry manure injection.

Weight limits

What age limits or requirements are there?

What are considered veg buffers?

What are other states along the Mississippi River doing to prevent the ever growing dead zone from fertilizer runoff in the Gulf?

What are the best air inlets, best manifold, name product, company name.

What injectors are best

What is the average application price per gallon across the state?

What products to use to treat pits to get most out of the manure.

What toolbar works best was good?

When treating a pit, what treatment maybe works best?

When using umbilical injection, does it count as injection for separation distances when you have to pick up the tool bar to turn around and it puts manure on the surface?

Why not make all set back rules the same. How do you know what is actually in tank and not what is stamped on the side? Does anyone actually calibrate their fuel meters? Less talk more video of showing Injector Options and how they work with different systems.

Would like to hear everything once; maybe do without the second video.

Yes - if manure is injected at a depth of 6" or more is there a yield loss if applied to soil temps above 50 compared to cold soils.

yes, 5 year renewal class

Yes, I would like to hear that they are going to reduce the training time substantially and that there is no cost for registration/certification.

You had better subject that apply to use, but there is rarely info on the bookwork involved with the DNR requirements.

Zimmerman manifold - VTI