Understanding System Is Key To Uniform Application Of Anhydrous Ammonia

COLUMBIA, MO.

For uniform application of anhydrous ammonia, it's important to understand the system you're using, said an agricultural engineer at University of Missouri's recent Crop Management Conference in Columbia.

Division of flow is often the cause of non-uniform application, said Mark Hanna of Iowa State University Extension.

"Because you have not just a liquid but a liquid and gas trying to flow through the system, it can be very challenging to disperse it uniformly," he said.

For producers using an older, conventional open-chamber manifold, Hanna suggests looking at newer systems that might do a better job. However, there are also changes that can be made in the current system.

"If you are still using the open-chamber style model, recognize there are different areas of that manifold that will have high and low outlet flows," Hanna said. "Some people just sequentially hook up hoses to the application ports. That will almost guarantee high and low spots, so mixing and matching the hoses to the outlets rather than sequentially attaching them can help."

Hanna offered additional recommendations: keep hose lengths equal; when using a heat exchange flow controller, match vapor lines with outlet ports that have a lower application rate; and do your homework to fully understand your application system.

Hanna says many producers don't like to use anhydrous ammonia because of safety hazards and the fact that gases boil off as liquid moves through the system and pressure drops.

"It makes it a little bit more difficult to distribute that way," Hanna said. "People are often a little bit nervous about how uniform their distribution is and that is a reason why some change to other forms of nitrogen."

However, because of its high concentration of nitrogen and its lower cost compared to other sources of nitrogen, many people continue to use it, he said.

"Respect the material and follow the proper guidelines to be successful," Hanna said. "There is also a slight possibility of nitrogen loss through shallow application or ammonia burn with plants, but otherwise it is a pretty good product. Δ