

Myths about Anhydrous Ammonia

Garfield Co. Notill

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Anhydrous Ammonia

- Popularity based on
 - Price point
 - Concentration
 - Applied into the Soil
- Not popular because
 - Dangerous.....
 - Other uses..
 - Limited top-dress

Source	\$ / lb N
82-0-0	.49
46-0-0	.59
28-0-0	.64

Anhydrous Ammonia

- Anhydrous is a Gas as it enters the soil.
- Stored as a liquid under high pressure.
- Extremely Water LOVING.

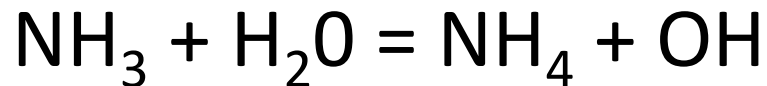


NH₃ in the Soil

- When Anhydrous Ammonia (NH₃) is applied into a soil it immediately seeks out WATER H₂O.

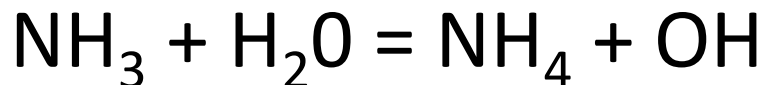
- In seconds Ammonium NH₄ is formed.

- Chemically



More Acidifying

- Soil acidification is important at pH <6.0
- Application of N is one of 3 primary soil acidifying mechanisms
 - Weathering
 - Removal of Base Cations
 - Application of Ammonical N.



Soil pH

- @ 25
 - .0125
- @ 50
 - .025

Lime required to neutralize the soil acidity produced by fertilizers if all ammonium-N is converted to nitrate-N.

<i>Nitrogen source</i>	<i>Chemical Formula</i>	<i>Composition</i>	<i>Lime required (lb CaCO₃/ lb N)</i>
Anhydrous ammonia	NH ₃	82-0-0	1.8
Urea	(NH ₂) ₂ CO	46-0-0	1.8
Ammonium nitrate	NH ₄ NO ₃	34-0-0	1.8
Ammonium sulfate	(NH ₄) ₂ SO ₄	21-0-0-24	5.4
Monoammonium phosphate	NH ₄ H ₂ PO ₄	10-52-0	5.4
Diammonium phosphate	(NH ₄) ₂ HPO ₄	18-46-0	3.6
Triple super phosphate	P ₂ O ₅	0-46-0	0.0

Adapted from Havlin et al., 1999.

Anhydrous Ammonia

- Makes Soil Hard
 - 30 yrs of N source work at Lahoma
 - No difference in Bulk Density
 - Anhydrous
 - Urea
 - Ammonium Nitrate
 - Sulfur coated urea
- Reduces Organic Matter
 - No long term research supports this.

Anhydrous Ammonia

- Anhydrous Kills Microbes
- True
 - But no IMPACT
- Microbes are killed in small zone around release point, few inches
- Within a few weeks zone is completely recolonized, often at higher levels.

Anhydrous Ammonia

- Anhydrous Kills Worms
- True
 - Impact is unknown.
- Worms killed in small zone around release point, few inches
- Worms also killed/ injured anytime steel in pulled through soil.
- Look at volume of soil impacted vs total.

Delay Planting

- You can not Plant immediately after application
- VERY VERY TRUE
- 5 days on average
- AA Rate, soil moisture/texture, depth, and row spacing all factors.
- If planting between little time needed.
- Under ideal conditions, could apply also immediately but this is **NOT** I repeat **NOT** Recommended.

Why so many myths

- One,
 - No one wants to work with it.
- More than any other N source application is localized
- Since typically cheaper higher rates were applied.

Keep up the Great Work!!!



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