Implications of EPA RMP Inherently Safer Technology (IST) Regulation on Nitrogen Fertilizer

THE FERTILIZER INSTITUTE

AGRICULTURAL RETAILERS ASSOCIATION

Impact on the Fertilizer Industry

- Ammonia is a nitrogen fertilizer that should not be subject to an Inherently Safer Technology (IST) requirement as part of any new proposed EPA Risk Management Program (RMP) regulations.
- IST provisions in bill will impact all segments of the nation's agricultural industry, including farmers.
- Wholesalers and retailers have warned that they will stop carrying product to avoid onerous and costly regulations

If regulated under IST provision

Replacing some to all of the millions of tons of nitrogen currently used by U.S. farmers in the form of anhydrous ammonia will be difficult, if not impossible, and very costly.

- An EPA RMP IST requirement will create disincentives for retailers to continue to carry anhydrous ammonia.
- IST will require Agricultural retailers to assess if substitute products exist for anhydrous ammonia; the most likely substitutes are UAN solutions and urea.
- A significant number of Retailers would drop anhydrous ammonia from their product line to avoid falling under IST.
- Farmers across the United States, and particularly in the Midwest, would no longer have access to the lowest cost form of nitrogen.

Impact on Retailers

- Loss of specialized anhydrous ammonia infrastructure – Lost value!
- Extra Cost to purchase larger amounts of substitute nitrogen fertilizers – UAN and Urea
- Extra Cost for increased storage capacity
- Extra cost for application equipment
- Employee workloads would be concentrated in spring planting season since urea or nitrogen solutions can not be applied in the fall in some parts of the U.S.
- Transportation costs will increase with imports

Impact on Farmers

- Reduction on returns on investment
- Increased demand for substitutes could delay product availability
- Application of fertilizer is seasonal – only two windows a year available for application – spring and fall
- Ammonia substitutes are not viable for fall application in some parts of the U.S.
- Product storage cost is passed on to American farmer and ultimately to consumer of food and fiber
- Increase the need for nitrification inhibitors – adds cost!
- Access to substitute products in a timely and efficient manner may not be available at any cost

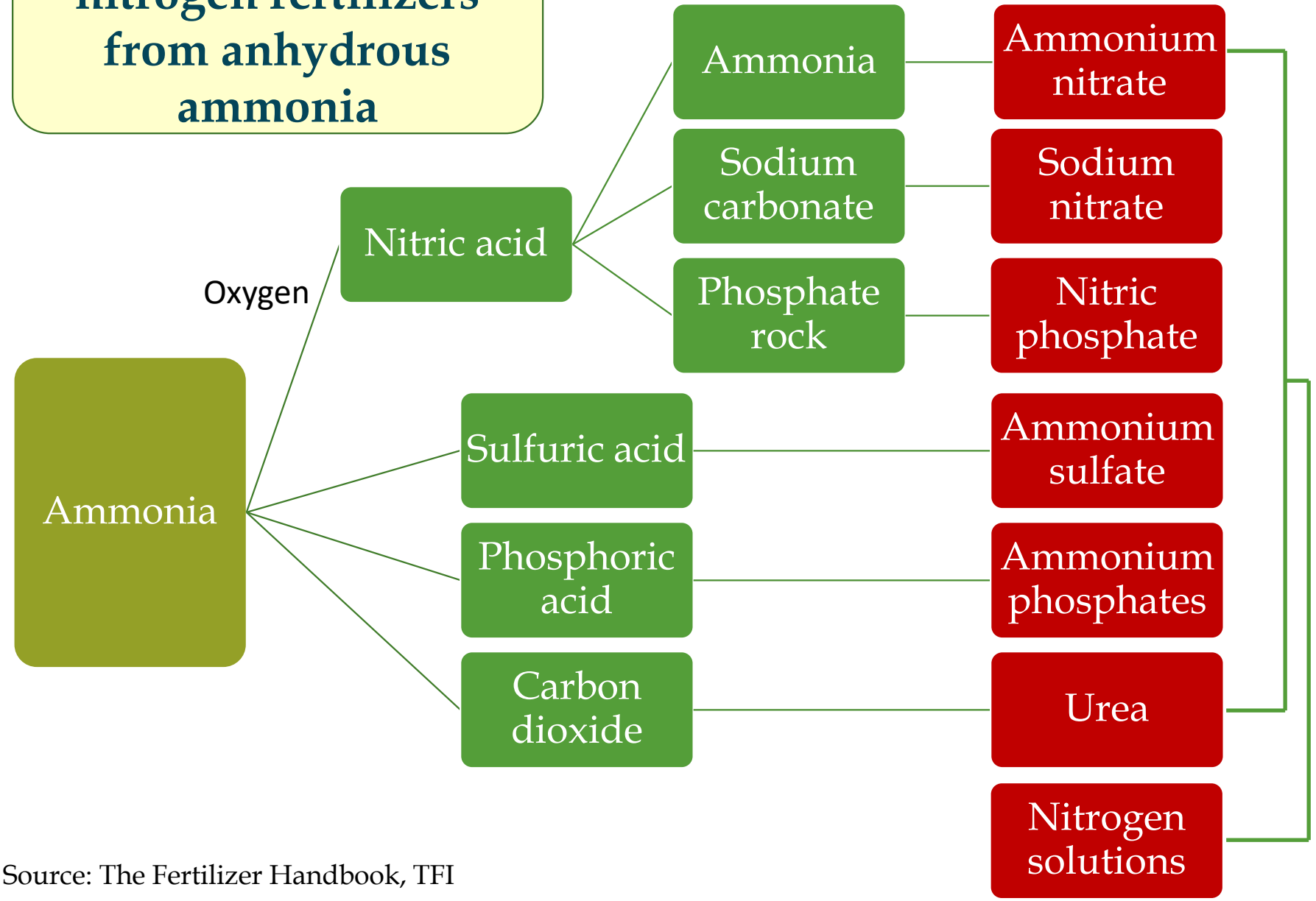
What is anhydrous ammonia?

- Nitrogenous fertilizer
  - Note: Nitrogen is largely responsible for significantly increased crop yields.
- Also referred to as **ammonia**
- A **gas,** stored as a liquid under pressure
- Source of nearly all nitrogen fertilizer – may be directly applied to soil or converted into other nitrogen fertilizer materials

Value of Anhydrous Ammonia

- Most cost-effective source of N for grower
  - Greatest bang for the buck
  - Anhydrous ammonia = 82% Nitrogen
- Major feedstock into other nitrogen fertilizers such as urea, ammonium nitrate, nitrogen solutions, ammonium sulfate and others
  - Key ingredient in phosphate fertilizer manufacturing (MAP & DAP)
- More efficient source of Nitrogen
  - More environmentally friendly and fewer greenhouse gas emissions in field than some other N substitutes

"Downstream" nitrogen fertilizers from anhydrous ammonia



Source: The Fertilizer Handbook, TFI

Unique Infrastructure!

Nitrogen Product Distribution

Mode used depends on the product, quantity moved, and distance traveled.

Pipeline

Barge

Rail

Truck

Source: Agriculture Retailers Association

Why is ammonia infrastructure unique?

Specialized Equipment

- Vessels
- Terminals
- Rail cars
- Trucks
- Storage Facilities
- Farm application equipment

- Transportation of gas is a specialized process
- Specialized equipment is used for loading and unloading, transporting, storing and field application of ammonia
- **Unique equipment – cannot be used for substitute fertilizers (ammonia is the only fertilizer transported and stored under pressure)**

Potential Ammonia Substitutes

Most likely are **urea** and/or **nitrogen solutions**

Urea

Solid

46% Nitrogen

UAN (urea-ammonium nitrate) **Solutions**

A.K.A. Nitrogen solutions

Liquid

28-32 % N (Ave. of 30.4% by use)

Nitrogen

- **Both have less nitrogen content than ammonia which means more fertilizer material must be applied to get the same quantity of N;**
- **Neither product can utilize infrastructure already in place for anhydrous ammonia;**
- **If anhydrous ammonia is discontinued – infrastructure (including farm equipment) must be scrapped;**
- **Additional use of ammonia substitutes would put significant strain on entire transportation system (ocean freight, barge, rail, truck).**

U.S. Fertilizer Manufacturing = High paying, productive jobs!

These jobs are very significant to the mostly rural communities they support!

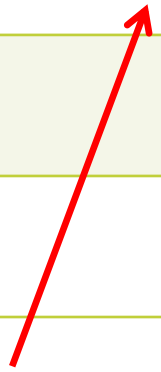
Impact on World Fertilizer Market

- Substitution will place strong upward pressure on the world price of urea and nitrogen solutions
- Urea is the material of choice in rice production - countries dependent on agriculture production like Asia, India and Africa, will be faced with higher urea prices, resulting in smaller harvests of rice and other agricultural products
- The decline in agricultural production will lead to tighter food supplies, resulting in an increase in world hunger!

Concentration of Nitrogen by Material

Product	Percent N by weight	lbs N/ton of material
Nitrogen Solutions (28-32%N)	30.4%	608
Anhydrous Ammonia	**82.0%**	**1,640**
Urea	46.0%	920
Ammonium Nitrate	33.9%	678

N = Nitrogen
1 ton = 2,000 lbs.



More Nitrogen per ton of Material