

# Nitrogen 101

**Nitrogen (N)** is required by every living cell. It is a fundamental building block of plant proteins that improve crop yield and quality and is essential for proper animal nutrition and maturation.

**Ammonia (NH<sub>3</sub>)** is a concentrated source of nitrogen and the basic feedstock for all upgraded nitrogen products, including to make industrial products and as a direct-application fertilizer. Ammonia is synthesized from hydrogen sources, primarily natural gas, steam and nitrogen from the air.

The most commonly used nitrogen fertilizer is urea as a **Urea Ammonia Nitrate (UAN)** solution. Ammonium nitrate is made by combining ammonia with nitric acid and has both industrial and agricultural uses.

Low-carbon and clean ammonia are expected to play a key role as a fuel and hydrogen carrier.

## Nutrien's Role

- ◆ Nutrien is the **third-largest nitrogen producer in the world** with **7.1 million tonnes of installed ammonia capacity** which provides the feedstock to produce **more than 11 million tonnes of total nitrogen products** in the US, Canada and Trinidad.
- ◆ Nutrien's nitrogen production network is low-cost and diversified, with opportunities to execute high-return and low-risk brownfield projects, expand our production of sustainable products and significantly lower our carbon footprint. The first phase of brownfield projects, completed in 2021, added just under 1 million tonnes of gross production capacity. The second phase of projects is underway and is expected to add approximately 0.5 million tonnes of incremental production capacity through 2025.
- ◆ Our network includes strategically located assets that have access to lower-cost natural gas and close proximity to key nitrogen markets.
- ◆ Our sales portfolio represents a well-balanced combination of agricultural and industrial products, providing flexibility to optimize our product mix during changing market conditions. Fertilizer sales represent approximately 55% of our nitrogen sales.

## Where We Operate

- ◆ Nutrien operates **nine nitrogen facilities** across North America and Trinidad, serving an array of fertilizer and industrial customers. Our North American operations have access to some of the lowest cost natural gas feedstock in the world and represent approximately **80% of our total nitrogen sales volume**.



**Nutrien produces 16 nitrogen products and earned \$3.9 billion adjusted EBITDA in 2022.**

## Nitrogen is used for:

- Fertilizer, for essential protein synthesis and speeding plant growth.
- Feed, playing a key role in animal growth and development.



## Where We Operate (cont.)

- ◆ We distribute our nitrogen products by vessel, barge, railcar, and truck to our customers and, in high-consumption areas, through our strategically located storage terminals.
- ◆ We have an extensive network of approximately **190 distribution points** and **5,500 leased railcars**.
- ◆ We distribute products from Trinidad primarily to markets in the US, South America, Europe, Asia and North Africa.

## Environmentally Smart Results

- ◆ We are focusing on reducing the carbon footprint of our nitrogen operations through energy efficiency, carbon capture and CO<sub>2</sub> abatement initiatives.
- ◆ We captured and sold 1.1 million tonnes of CO<sub>2</sub> equivalent in 2022.
- ◆ We are a leading low-carbon ammonia producer, with one million metric tonnes of production capability and several low-risk pathways to expand production.



Top: Trinidad Aerial  
Middle & Bottom: Trinidad ships loading

### NITROGEN BY THE NUMBERS

**7.1Mmt**

Nameplate Ammonia  
Capacity

**~5,500**

Leased  
Railcars

**190**

Distribution  
Points

**1 Mmt**

Low-Carbon Ammonia  
Production Capability