



Knowledge grows

# Yara and the Future of our Fertilizer Industry

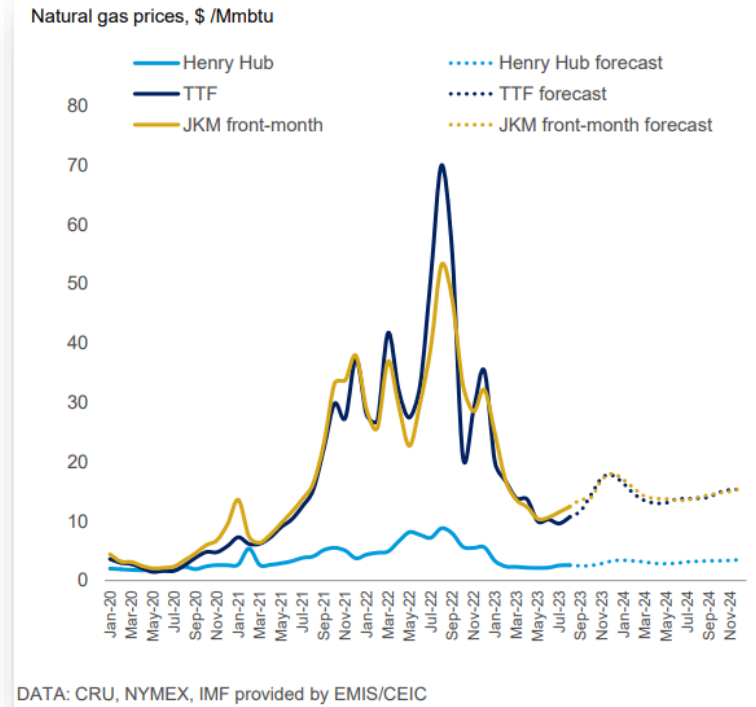
1/18/24

Brady Stover—Senior Sales Agronomist



# Points to Cover

- Current global and local landscape
  - Fertilizer prices, geopolitical landscape & local impacts
- Local strategy to supply the market
  - Challenges and opportunities
  - Logistical difficulties- Rail and Vessel freight
- Yara strategy and industry trends
  - Long term direction- Blue and Green ammonia
  - Food companies & governments- 'Decarbonization'

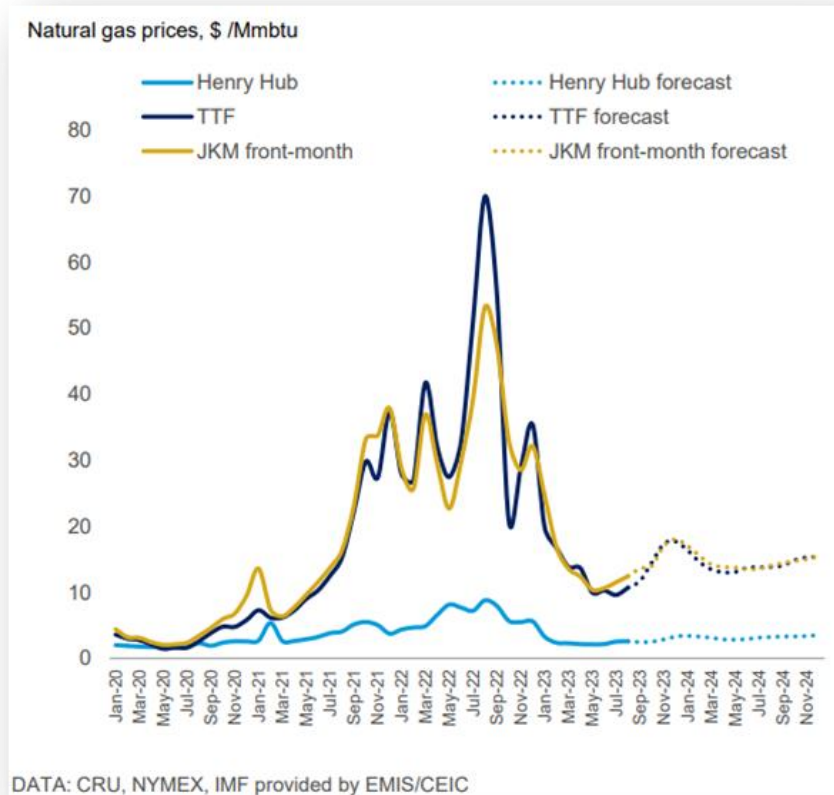


# Nitrogen

- In a modern plant, nitrogen fertilizer is produced from natural gas. In several transformation steps, natural gas, essentially methane, is upgraded by combination with nitrogen from the air to form nitrogen fertilizer. 80% of the gas is used as feedstock for fertilizer, while 20% is used for heating the process and producing electricity.
- Gas is the major input and is why gas prices effect fertilizer production

# Pricing and Factors- Volatility!

- Natural Gas- Fall '23



October 30, 2023

## Egypt Cuts Gas to Urea Factories; Europe Gas Prices Jump

Egypt's state-owned gas company, Gasco, has reportedly sent a letter to the country's urea factories informing them that their gas supply will be cut. The reason was not mentioned in the announcement but is likely linked to the shutdown of Israel's Tamar gas field, which was supplying around a third of Egypt's natural gas imports.

European natural gas prices jumped 4.5% on Oct. 30 after the halt in Egyptian imports dashed hopes for a resumption of deliveries to Europe, *Bloomberg* reported. European gas prices are now around 30% higher than before the war in the Middle East erupted three weeks ago. Gas flows from Norway, Europe's biggest supplier, also dipped over the weekend after a compressor failure at the Nyhamna gas processing plant.

- Dutch TTF (Europe basis) around \$16mmBtu with forward prices expected to rise. Spike and drop since Israel War.
- Henry Hub (North American basis) around \$3.50mmBtu with forward prices expected to stabilize/rise slightly.
- Israel war- major uncertainty with impending escalation.

**European Gas:** Dutch TTF gas prices have eased to below €30MWH for February contracts despite a cold spell in the weather. Of note, this is the lowest gas price since before Q1 2022.

The latest gas prices are equivalent to \$8.70mmBtu.

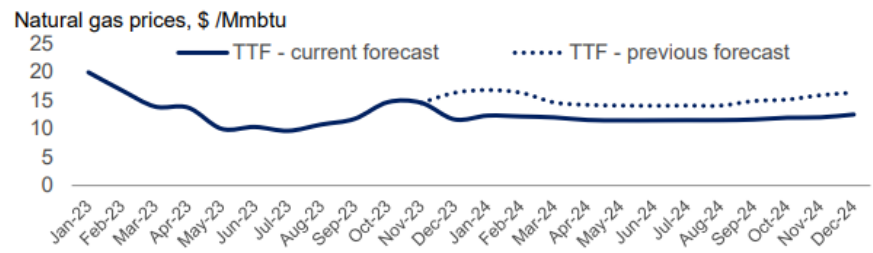
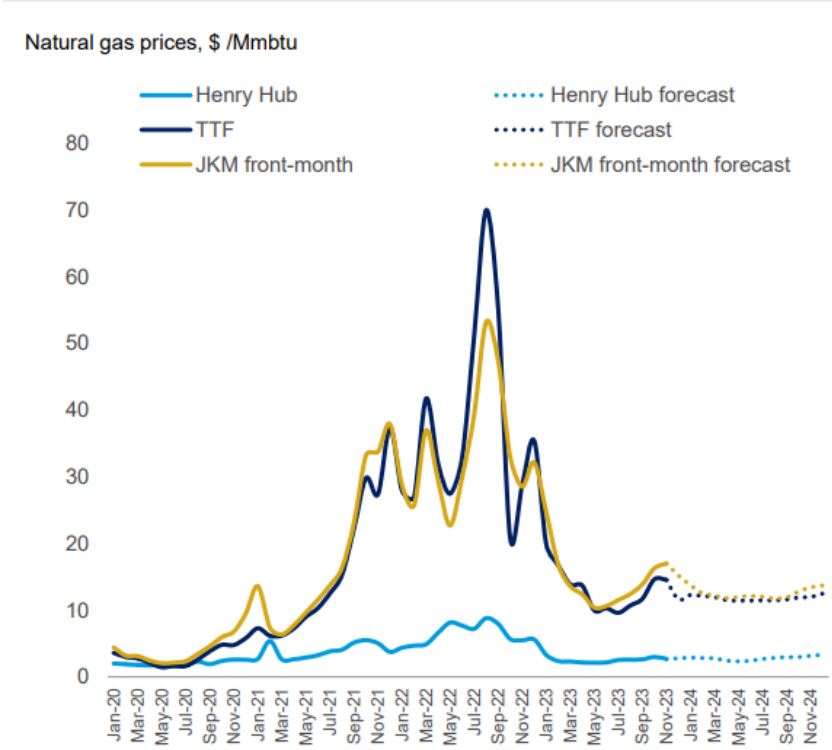
With the European Spring nitrogen demand season on the horizon, if not already tentatively beginning in some areas, further production cutbacks now appear highly unlikely in Europe.

# Pricing and Factors- Volatility!

- Natural Gas- Winter '24

The average annual 2024 LNG price will be lower than in 2023

- Dutch TTF (Europe basis) around \$8mmBtu (as of 1/16) with forward prices expected to rise. Henry Hub (North American basis) around \$3.50mmBtu with forward prices expected to stabilize/rise slightly.
- Israel war- major uncertainty with impending escalation.



We forecast TTF prices will generally remain at EUR35-40 /MWh December-February before falling slightly further. JKM front-month prices will follow a similar trajectory with a small premium to TTF partly because US LNG shipments to East Asia are slower due to restrictions at the Panama Canal.

Price upside remains dependent on stronger-than-expected winter temperatures.

A weaker-than-expected gas demand recovery (partly due to lower demand), warmer-than-expected temperatures, and supply constraints pose downside price risks over the 2023/2024 winter.

After winter, we forecast European and Asian gas prices to remain at energy crisis levels as international markets remain tight.

Our TTF/JKM front-month forecasts have been revised lower, meaning the average 2024 price is now lower than 2023. Though there will be some recovery in European gas demand and increased demand in China and several other Asian countries, gas inventories in the US and Europe will be healthy. No significant nuclear and renewable power generation problems are anticipated, and more LNG import and export capacity will be added.

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DATA: CRU, NYMEX, IMF provided by EMIS/CEIC



# What impacts will come with the Israel war?


- Main direct risk to potash and phosphate disruption
  - Israel the 4<sup>th</sup> largest MOP exporter in the world
- Escalation (broader arab conflict)
- Oil & Gas- worldwide impact

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### Oil could soar to record high of \$150 if Israel-Hamas war escalates further, World Bank says

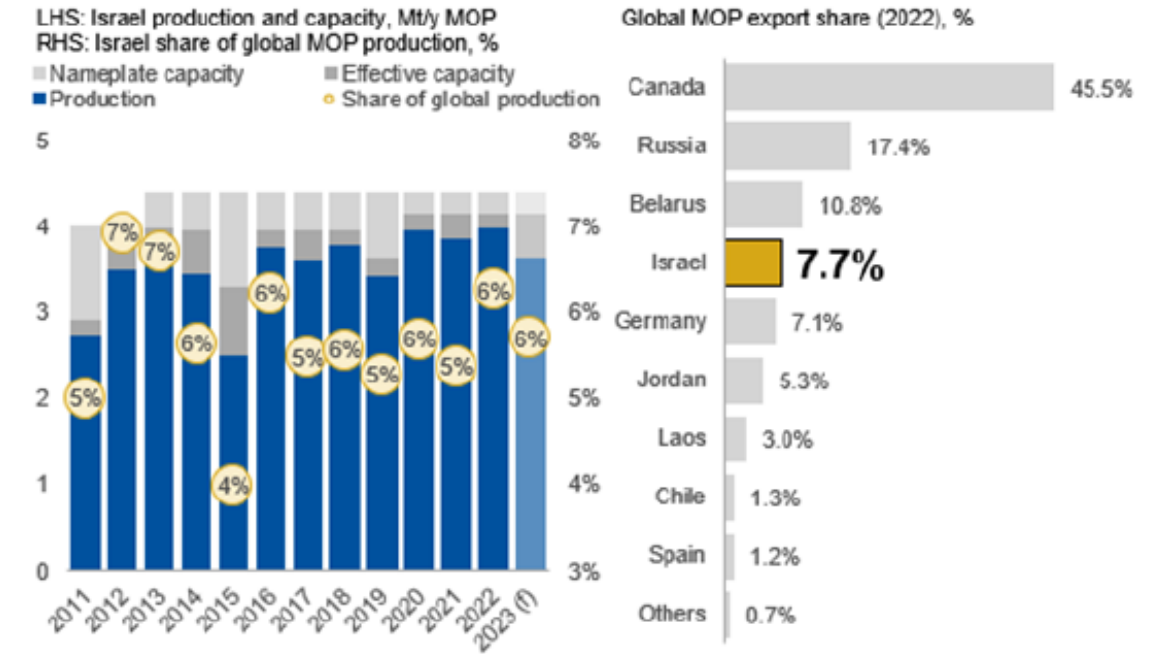
Story by Lee Ying Shan • 2d

IN THIS ARTICLE ...

 [USOIL](#)  Rising fast

- Record high oil prices could be on the horizon in the event of a conflagration of the ongoing Israel-Hamas war, the World Bank cautioned.
- Should the conflict expand beyond the borders of the Gaza Strip to a repeat of the Arab oil embargo in 1973, oil prices could surge to \$157 per barrel.
- The highest price of oil on record was in July 2008, when Brent traded as high as \$147.5 per barrel, according to data from LSEG.

Israel the fourth largest MOP exporter in the world

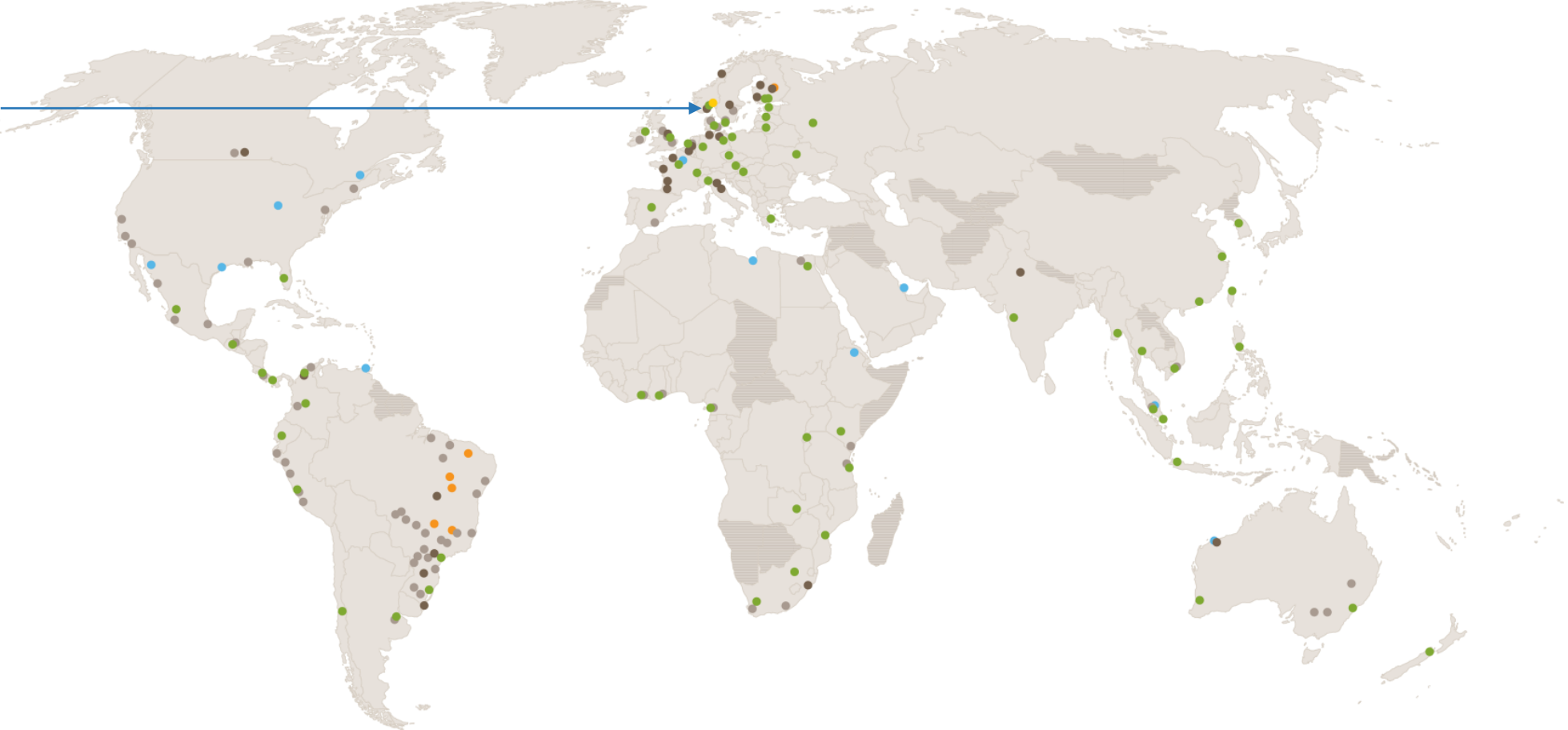


DATA: CRU Potassium Chloride Market Outlook, ICL Group

# Yara's Global Presence provides resilience

## Porsgrunn Production Plant

- Largest nitrate production in world
- 3 nitric acid plants
- Calcium Nitrate & NPK production
- Pilot project for CO2 free fertilizer



- Countries with sales
- Sales offices and R&D sites
- Yara Plants
- Smaller sites <sup>1)</sup>
- Phosphate mines
- Joint ventures
- Head office

1) Yara operated terminals and logistical production sites

# Porsgrunn



# Porsgrunn



# Porsgrunn



# Porsgrunn

- Ammonia traditionally produced using hydrogen from fossil fuels.
- Clean ammonia- Hydrogen coming from water using electrolysis based on renewable electricity.

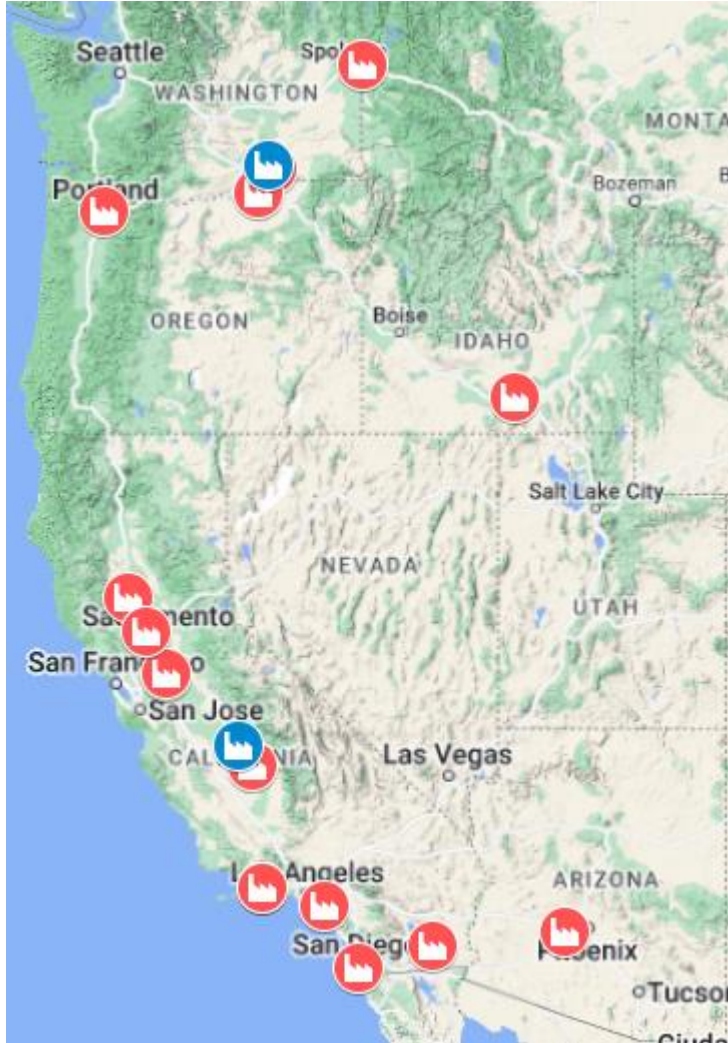
## Egypt, Energy China Ink \$6.75B Deal for Green Hydrogen and Ammonia Plant

The Egyptian government has inked a \$6.75 billion deal with a subsidiary of China Energy Engineering Group (Energy China) for the construction of a green hydrogen and ammonia plant within the Suez Canal Economic Zone, according to a report by India's *Industrial Products Finder*. The project marks Energy China's inaugural hydrogen venture overseas, and follows reports in June that the two parties were close to activating a Memorandum of Understanding (MOU) they had signed.

Originally planned for 140,000 mt/y of hydrogen, the plant will now produce 210,000 mt/y, and around 1.2 million mt/y of ammonia.



# Local Yara footprint and supply



- Adding terminals to supply the market
  - Liquid storage of CN9 in WA & OR
  - Dry storage Tropicote & CAN27
  - Packaged goods (YaraVita)
- Forecasting important with retailer!
- Build comprehensive programs with purpose.

# Panama Canal Impact on fertilizer distribution in Western US

- Will see delays in all products.
- Delays 10-15 days, with reduced vessels allowed to 15.
- Bid system implemented which has gone up to \$1.5m and unknown passage.
- Diversion costs still high, but less than bid. But adding time to total voyage.
- Potential watch out: lack of storage built up in fall causing much less inventories.
- Yara position: filling up storage facilities across the region with liquid and dry products.

**Green Markets**  
A Bloomberg Company

**Breaking Industry Alert**

November 2, 2023

## **Panama Canal Reduces Allowable Crossings**

The Panama Canal Authority announced it was reducing the number of allowed daily crossings to 25 vessels beginning Nov. 3, and then down to 24 per day beginning Nov. 7. December crossings will be cut to 22 per day and January 2024 to 20 crossings. February 2024 slots will be limited to 18 vessels per day.

The reduction is due to record low water levels in the canal. Approximately 90 vessels were in the queue to transit the canal on Nov. 2, with about 31 vessels currently allowed to cross daily.

# Yara Strategy: Growing a Nature Positive Food Future

*Supply and grow the core while preparing for the future*

- Continue enhancing crop programs focused on grower ROI.
- Decarbonize fertilizer production and reduce field emissions to offer full solution.
  - Driven by consumer and food company goals.
  - Must be connected to grower economics and potential premiums on a production basis.
- Investment projects in North America: Blue/Green ammonia as feedstock for upgraded fertilizers for ‘Green Fertilizer’.
  - Over \$3b in proposed investment.

**Fertilizers Are Essential For Sustainable Food Production**

 Samson Mahari  
Communication specialist

Balanced and integrated crop nutrition consisting of mineral and organic fertilizers and cultivated through a science-based approach are vital for ensuring sustainable food production. This is according to findings from the Hanninghof classical long-term trial from over the past 65 years.

One of the major takeaways from the long-term trial has been the value of mineral fertilizers, consisting of Nitrogen (N), Phosphorus (P), Potassium (K) and Magnesium (Mg), in meeting the nutrient needs of crops. Moreover, achieving high, sustainable crop yield will require a balanced crop nutrition comprising of these necessary nutrients. To achieve this, farmers should use all available organic fertilizers, as well as complement and balance plant nutrition with mineral fertilizers.

“Sustainable food production will require mineral fertilizers. 65 years of research shows this,” says Markus Himken, Senior Vice President R&D and Agronomy YARD.



**Enabling the hydrogen economy**

The world needs a clean energy transition

Yara is uniquely positioned to enable the hydrogen economy in a market expected to grow by 60 percent over the next two decades

# Recent News and Takeaways

- Natural gas in Europe has dipped to \$8.50/mmbtu. Great sign for European production.
  - North America still in \$3.50/mmbtu range
- Market could change dramatically with escalation of Israel War
- More green projects announced
  - Companies making major investments to adjust to new market demands and regulations
- Transportation issues and cost are major issues adding to current fertilizer costs and availability



Knowledge grows

