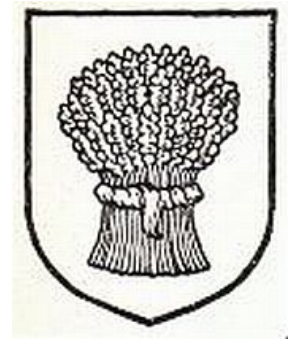


Friday, October 3, 2025



HALLGARTEN + COMPANY

Sector Coverage

Joshua Mayfield
jmayfield@hallgartenco.com

Growth Minerals Review Brazil as the Holy Grail of Fertilizer Markets

October 2025

Growth Minerals Sector

Brazil as the Holy Grail of Fertilizer Markets

- + Servicing the insatiable demand of Brazilian agriculture is the desire of just about everybody in the international growth minerals trade
- + MLP's stock is soaring among the more potash friendly investment space
- + A number of fertilizer players (producers/traders) see rising (& potential output) from Paraguay as a game changer in the dynamics of fertilizers in Latin American markets
- + The US added Potash to its list of critical metals, while some are pushing for phosphate to also be added to reduce fertilizer imports
- ✗ Phosphate explorers and developers are having a moment with simmering unrest in Morocco being a positive sign for upcoming projects in Tunisia Riots and unrest in Morocco makes this newly respectable jurisdiction look less reliable than many had thought
- ✗ Global fertilizer production and pricing dilemmas give Russia and China more leverage
- ✗ Nigeria's and Ethiopia's domestic agriculture demand will play into the hands of questionable actors in the various African fertilizer development projects
- ✗ The BRICS are coming to the table with little to offer in pursuit of North American grains and oilseeds consolidation
- ✗ Rising production costs for fertilizer producers will see a strategic shift from global to local in the U.S. and E.U. markets

Autumn in Brazil...

October is here. Autumn harvests are in focus, and so is Brazil. Of all the U.S. and E.U. media's focus on the geopolitical risk of mineral fertilizers, none of the commentaries have given any foresight into the Brazilian fertilizer market. Many readers probably missed out on the recent news headlines for Brazil's National Fertilizer Plan, which was announced at the 12th Brazilian Fertilizer Congress held in Sao Paulo.

Brazil intends to expand its national fertilizer strategy by boosting domestic production capacity to 73 million tons by 2036. At present, Brazil's domestic fertilizer production is below 50 million tons per year. The Ministry of Agriculture and Livestock (MAPA) and delegates of the Brazilian Association for Fertilizer Diffusion (ANDA) were keen on providing support to the new goals for Brazil's domestic fertilizer production. High profile domestic fertilizer production projects are in place to meet the rising fertilizer demand for Brazil's agriculture industry, including Brazil Potash's (NYSE: GRO) Autazes Project, which intends to develop an in-country muriate of potash (MOP) resource for Brazil to reduce dependence on imports from Canada, Russia and Belarus.

Friday, October 3, 2025

Brazil's fertilizer import dilemma is a classic example of how potash resources fit into the geopolitical risk for a country's domestic agriculture production and national food security, especially one which has a GDP-driven export economy like Brazil. There were other issues addressed at the Sao Paulo event, such as the Bioinputs Law and credit issues for Brazilian farmers. Both of those topics are related to fertilizer affordability.

There were also discussions about Brazil's biofuels production (hitherto sourced from sugar cane production), which will further increase the need for fertilizers from foreign import sources in the near term. Corn production hasn't generally been carried out for biofuels in the Brazil market, so this is a growth market scenario for potash producers to compete in this dynamic global market trend. Brazil is already in competition with the U.S. for ethanol investments, at least Brazil will have the ability to compete decisively with the U.S. in biofuels exports globally.

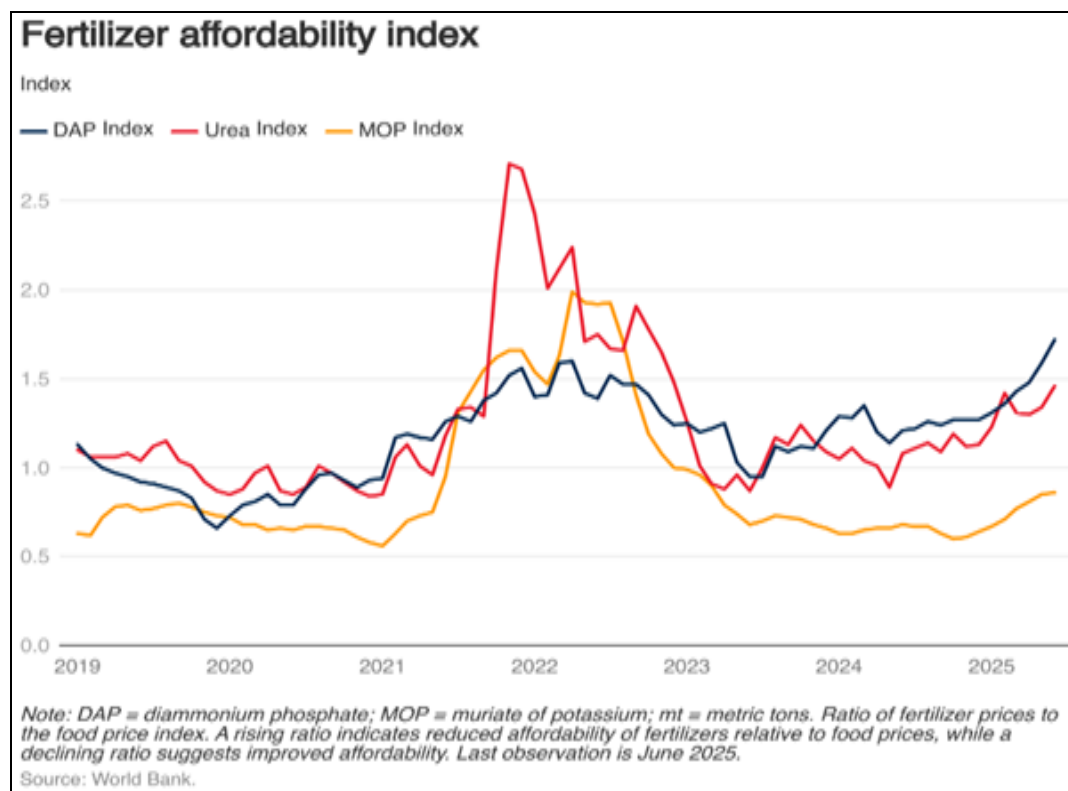
The United Kingdom showed interest in all the discussions in Sao Paulo. The U.K. and Brazil governments signed a memorandum of understanding (MOU) to address the sustainability issues in Brazil's domestic fertilizer production. The agreement is about being more environmentally friendly in the lead up to COP30, but it's also about the global agriculture market trends. More agriculture industry consolidation in the U.S. and Canada opens the door to new opportunities for Brazilian agriculture companies and farmers. The most promising fact of this MOU is that the U.K. is willing to provide research and development (R&D) expertise to address the needs of Brazilian farmers, of whom are important to the global fertilizer market at large. For example, Brazilian farmers pay a hefty premium for sulfate of potash (SOP) supplies. SOP producers were staring down a price range of USD \$870–USD \$900 per metric ton for the Brazilian market at the beginning of 2025. SOP demand makes for another volatile trading scenario in Brazil's potash imports.

MOP vs SOP

However, it is trivial to make claims that all the global potash supplies are subject to sanctions on Russia or Belarus. SOP is indeed a diversified commodity being produced around the world. SOP is notably produced in the U.S. as well as in China. There is already a push for more SOP projects in Ethiopia and Eritrea, so SOP has the potential to be a well-supplied market in the future. On the other hand, it's in the MOP supply chain where geopolitical risk is a concern for Brazil and other countries that depend on fertilizer imports. Brazil Potash CEO Matt Simpson stated that Brazil Potash will solve the problem of Brazil's dependence on MOP imports, since output from the Autazes Potash Project will be 100% secured for the local Brazilian agriculture markets in Mato Grosso.

All the recent developments at Brazil Potash are somewhat overshadowed by the fact that the company still needs to foot a large capex bill of USD \$1.8 billion. The Autazes Potash Project will serve Brazilian markets with around 2.2-2.4 million tons of MOP supplies. The company is currently searching for a third offtake agreement, which will secure customers for the entire potash mining output of 2.2-2.4 million tons of MOP production capacity.

Friday, October 3, 2025



Source: World Bank - <https://blogs.worldbank.org/en/opendata/fertilizer-prices-gain-momentum-amid-strong-demand-and-geopoliti>

In addition to potash, phosphate dependency is also a concern for Brazil's National Fertilizer Plan. Due to high prices for DAP and MAP, Brazilian farmers decided to buy more single super phosphate (SSP) from Egypt and China this year. China apparently exported phosphate fertilizer supplies to Brazil in lieu of many other markets. Triple super phosphate (TSP) also became an attractive product in Brazil this year, with Morocco exporting more TSP supplies. Phosphate doesn't have the same problems with potash, considering that mining exploration and developments for phosphate projects are happening globally. There are new phosphate mines in Egypt and Russia, but there are also some lesser-known junior phosphate mining projects in Tunisia, Angola, Brazil, Canada and New Zealand.

Paraguay – the Quiet Achiever

While Brazil Potash looks for new offtake agreements, Paraguay's fertilizer project received a notable investment from Yara International for 260,000 tons per year of low-carbon calcium ammonium nitrate (CAN) over a period of ten years. That's a whopping total of 2.6 million tons for a specialty nitrogen-based fertilizer product. This means that not only are countries like Brazil taking the volatile fertilizer prices seriously, but so are the multinational fertilizer companies. The fertilizer project in Paraguay, known as the Villetta project, is being developed by Atome. It is a renewable energy play, using hydropower, or green hydrogen, as the ammonia feedstock source to produce the CAN specialty

Friday, October 3, 2025

fertilizer product.

Most importantly, the deal with Yara gives Atome a strong footprint in key agriculture markets, such as Argentina and Brazil. China's export restrictions on nitrogen-based fertilizers, as well as for future nitrogen-based fertilizer projects in China, is where Yara sees an opening into new specialty fertilizer markets. Argentina also imports CAN, so this is where Yara's premium fertilizer product will potentially have buyers for the long term. The construction of the Villeta fertilizer facility is expected to commence in the fourth quarter of this year.

Yara – a Willingness to Please

Yara International has already been successful in its strategy to supply nitrogen-based fertilizers, including the specialty fertilizers, in markets where China was once the primary fertilizer supplier. Yara pivoted away from trading with Chinese suppliers by investing more funds into Norway's domestic production capacity. This has been one of the company's biggest advantages to supply the global fertilizer market during higher nitrogen fertilizer prices this year. The company claims that it will rely on its 70-30 model for fertilizer production capacity—70% domestic production and 30% imports. That 30% of fertilizer imports are made up of certain phosphate and potash supplies from the Middle East and North Africa regions.

India is quite happy to have Yara International as a reliable fertilizer supplier, given the ongoing geopolitical tensions during the Russia-Ukraine War, Middle East Conflict as well as China's uncertain position in the fertilizer trading market for the foreseeable future. We covered more details about the India-China fertilizer relationship in the previous monthly: China & India in a Fertilizer Love-In.

Africa Continues its Rise in Fertilizer Development

Brazil and India are not the only countries with concerns about fertilizer imports and volatile trading prices. Most countries on the African continent are dependent on fertilizer imports as well. Three countries to watch for upcoming domestic fertilizer projects are Nigeria, Ethiopia and Kenya.

Nigerian news agencies reported that the country has already imported a total of 560,000 mts of fertilizers in 2025. Nigeria has its own national fertilizer plan, known as the Presidential Fertiliser Initiative (PFI). This fertilizer strategy is completely different from Brazil's National Fertilizer Plan, considering that Nigeria exports a large share of its domestic fertilizer production, putting the country's agriculture sector at a big disadvantage in relying on fertilizer imports. The PFI was launched by the Nigerian government in 2016 to encourage the buildout of more NPK fertilizer blending plants and operations for exports. OCP Group is also attempting to attract more foreign investments at its Jorf Lasfar facility in El Jadida, Morocco, for more NPK production and exports.

Ethiopia became the African continent's largest fertilizer importer, according to International Fertilizer Development Center (IFDC) data. The data compiled about 2024 total fertilizer imports revealed that Ethiopia imported 1.97 million tonnes of various fertilizer products. Ethiopia consumes over 90% of

Friday, October 3, 2025

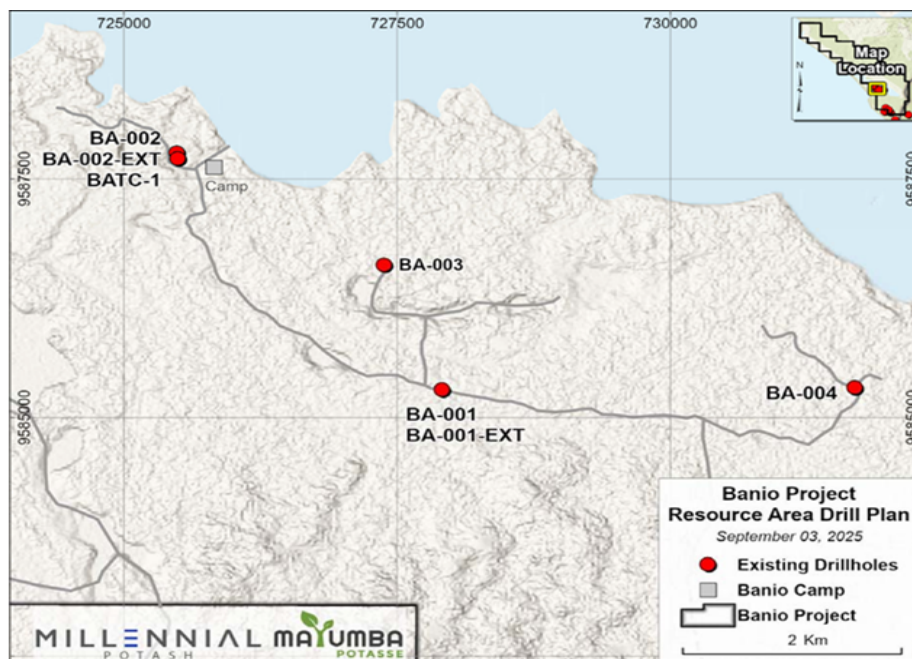
fertilizer imports for domestic agriculture needs.

The biggest story for Africa's food and fertilizer industries this year is the Dangote fertilizer investment into Ethiopia. Nigeria's Dangote Fertilizer Ltd made a deal with Ethiopia's regulator, Ethiopian Investment Holdings, to build a USD \$2.5 billion domestic fertilizer plant. It plans to carry out a urea fertilizer production capacity of 3,000,000 tons per year. This urea fertilizer project relies on Ethiopia's natural gas reserves in Somali Regional State. This fertilizer project will also be a competitor to Morocco's OCP Group, which also has a strategy in place to supply NPK fertilizers to more African markets.

Kenya, on the other hand, re-exports fertilizer imports with the participation of various fertilizer traders and import-export companies. Kenya is known for having NPK blending capacity designed for export markets to compensate for overcapacity in the domestic agriculture sector. Ethiopia might seek to carry out a similar strategy in the future. The country already has the import capacity to produce fertilizers from raw materials.

The Russia-Ukraine war has had an outsized effect on African food and fertilizer imports. Thus, there is a kind of gold rush scenario to boost domestic production of agriculture and fertilizers within the African continent. The devil is lingering in the details. Nigeria and Morocco are both relying on their single commodity advantages to expand into large-scale NPK fertilizer manufacturing throughout the African continent. Nigeria has natural gas; Morocco has phosphates. So, where are the potash reserves?

Millennial Potash (TSX-V: MLP) in Gabon has the only MOP project at the Banio potash mine being developed on the African continent to date. MLP published new drilling results from the mine site, including existing drillhole findings from BA-001 and BA-002.



Friday, October 3, 2025

MLP's stock price has been going wild on the TSX-V. The thought of having access to the key potash markets in Brazil and U.S. have finally given the company the attention it deserves in the junior potash mining space.

There are also MOP reserves in the Republic of Congo, but project financing has caused delays to the exploration and development programs there. The latest drilling results confirm the company's progress at the Banio potash mine. The company re-examined an existing drill hole (see BA-001-EXT) and found 50% thicker cumulative potash seams at approximately 112m thick with an average grade of 15.9% KCl. The new finding will be a boon for the company's upcoming Mineral Resource Estimate (MRE). The ongoing drill results at the Banio potash mine have given the company's leadership more confidence in explaining the food security objectives of the MOP development project in Gabon. MLP's Banio mine has an NPV of USD \$1.7 billion.

Rising EU Angst

It is not only in the U.S. politics where regulations around fertilizers are wallowing in the mire. The E.U. announced that it will carry out an antidumping probe against Russia's urea fertilizer exports to E.U. There is kind of oligopoly emerging between Russia's Eurochem and Norway's Yara International to supply the E.U. markets with nitrogen-based fertilizers. The E.U. tariffs and sanctions on Russia still haven't been enough to deter Russian fertilizer exports to various E.U. member states this year.

Singing the Blues in Flyover Country

We have seen an array of politicians and CEOs getting the limelight for fertilizer issues. In the U.S., Willie Nelson and the Farm Aid crowd gave a much-needed spotlight to U.S. farmers who are also struggling with high fertilizer prices this year. Fertilizer prices have been one of the top concerns for U.S. farming communities, in addition to the industrial agricultural interests that have lost access to the China market for grains and soybeans.

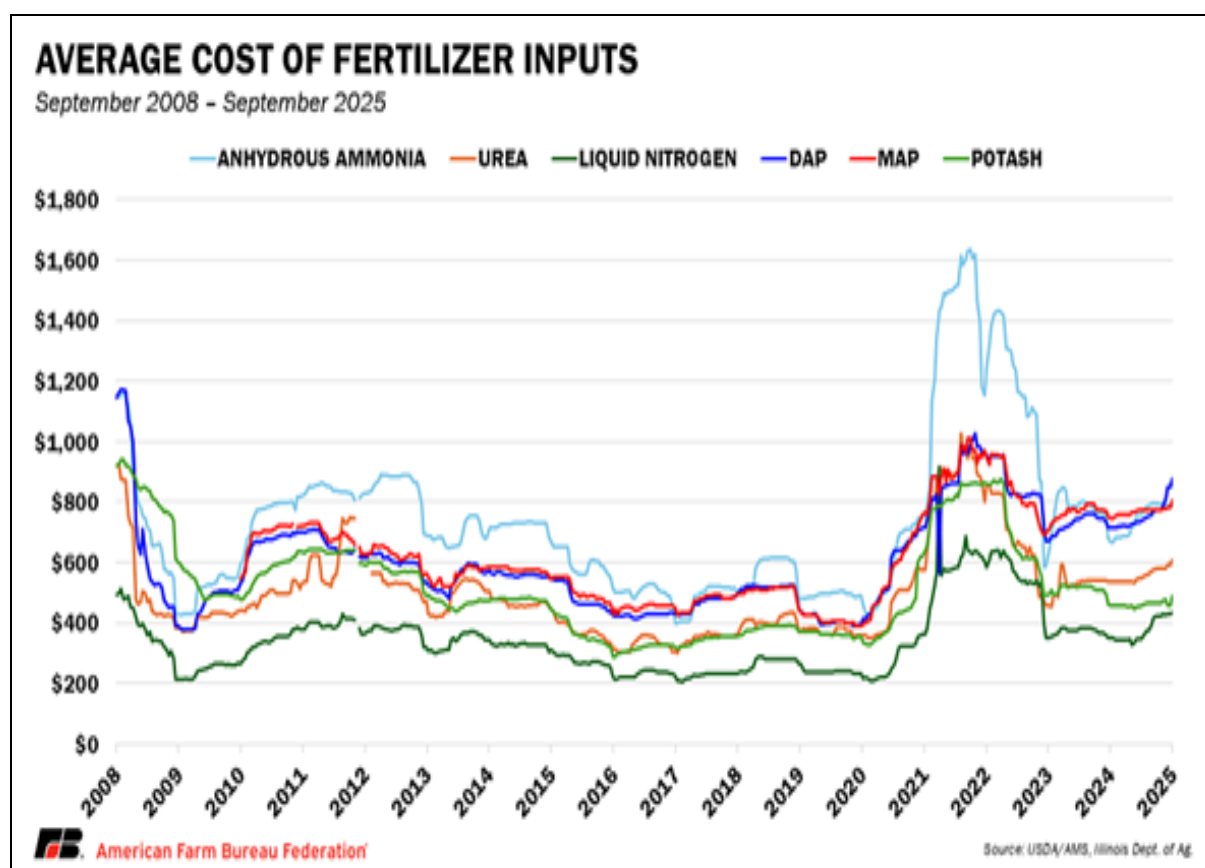
The Farm Aid concert initially launched in 1985, so this year was a pivotal 40th anniversary. It even got off to a rocky start, as Willie Nelson himself had to lobby Minnesota Governor Waltz (the former U.S. Vice President candidate with Kamala Harris) to let the show go on. All politics aside, it was a fortuitous moment to see legendary musician Bob Dylan show up for the Farm Aid 40 concert, in support of American farmers, but also to give a spotlight to the main issue of concern for U.S. agriculture producers: the loss of margins due to high costs of fertilizers to farmers.

Obviously, this is a sign of the times moment for agriculture and fertilizers around the world. From Bob Dylan to Belarusian President Lukashenko, the growing concerns around global food insecurity have direct links to supply chains and pricing trends in global fertilizer markets.

At the same time, the E.U. and the U.S. governments are mired in their regulatory hammocks, trying to cause some kind of "regime change" around Russia's and Belarus's fertilizer exports. The Trump Administration, led by Secretary of Agriculture Rollins, are foolishly trying to outdo the Biden

Friday, October 3, 2025

Administration's previous work in the USDA on regulatory foresight into U.S. fertilizer imports. The Trump Administration has directed the USDA to team up with the Antitrust Division of the DOJ in a desperate move to make the Biden Administration appear shameless about U.S. fertilizer imports and prices.



Source: American Farm Bureau Federation/USDA - <https://www.fb.org/market-intel/fertilizer-outlook-global-risks-higher-costs-tighter-margins>

During the Biden Administration, U.S. Senators from Iowa and Wisconsin released a bipartisan bill called “Fertilizer Research Act of 2023” with the purpose to scrutinize anticompetitive practices in the global fertilizer industry, which also infamously required the Secretary of Agriculture to publish a report on the fertilizer industry. Well, anyone following U.S. politics closely would know that publishing a report about food insecurity doesn’t bode well for the Trump Administration.

Massaging Criticality Lists to Suit the Mood

After a successful bid to get potash added to the USGS critical mineral list, U.S. senators are now trying to get phosphate added to the USGS critical minerals list as well. The timing is perfect, as DAP and MAP

Friday, October 3, 2025

prices in the U.S. retail market data are hovering at extreme highs of USD \$847-\$921 per tonne. This time, it's another Iowa senator, backed up by a Michigan senator, who issued an official letter to the U.S. Department of the Interior requesting to make phosphate a critical mineral in the U.S. The objective of this critical mineral push, according to their letter, is to increase domestic phosphate production within the U.S. It also mentions that it would decrease dependence on China for phosphate fertilizer imports.

China hasn't been relevant to the U.S. market for phosphate fertilizers since export restrictions and quotas during the Covid-19 Pandemic, which is one of the key reasons that U.S. phosphate fertilizer prices are high in the first place. China hasn't targeted any specific markets with the fertilizer export restrictions; this has been the main cause for high phosphate fertilizer prices across the entire global fertilizer market spectrum since 2021.

Phosphate – Transitioning to Critical?

It's also interesting that a senator from Michigan would like to see phosphate added to the USGS critical minerals list, when the state has already boasted about its own potash project, the Michigan Potash Project. The U.S. doesn't know how to respond to the geopolitical risk of mineral fertilizers but continuing to drive the critical minerals aspect will not solve the problem for phosphate supplies. Phosphate minerals should not be characterized as having a critical nature from a regulatory point of view, due to the failures in a variety of lithium iron phosphate (LFP) battery projects, especially in North America.

Lowering phosphate fertilizer prices and decreasing dependence on imports will require more than just boosting domestic production in the U.S. There must be a complete rethink of how the phosphate narrative is being carried out at present. Phosphates should be reserved (pun intended) for fertilizer projects and national food security programs, without the need for consideration of LFP battery plants and rare earth elements (REEs). The latter might cause people to think that phosphate should be a critical mineral, but in terms of phosphate fertilizer production, the global market will be diversified in the long term. This isn't the same scenario for potash. MOP supplies alone are controlled by a massive reserve base in Saskatchewan, Canada, while Russia and Belarus have the benefit of low production costs and accessibility to East of Suez markets and the E.U. supply chain.

Phosphate Projects to Conjure With

As previously mentioned, there are many upcoming phosphate mining projects, such as in Tunisia, Angola, Brazil, Canada and New Zealand. We previously covered Aguia in Brazil, Kap Minerals in Ontario, Canada and Minbos Resources in Angola. We have also recently added more junior phosphate explorers and developers to the Model Resources Portfolio for Growth Minerals.

PhosCo (ASX: PHO) in Tunisia has re-emerged as a significant phosphate exploration and development project for the global fertilizer market. PhosCo's initial discovery of the phosphate deposits in Tunisia were found in 2012. Regulatory concerns held the mining project back, but in 2024 PhosCo's phosphate

Friday, October 3, 2025

exploration and development programme received the auspices of the European Bank of Reconstruction and Development (EBRD). The company also signed a joint non-binding MOU with Tunisia's Ministry of Industry, Mines and Energy and EBRD to extend the exploration and development program for phosphate mining in Northern Phosphate Basin of Tunisia.

This eventually coincided with the Tunisian government issuing a new exploration permit to PhosCo for the Gassaat phosphate deposit in the Northern Phosphate Basin. At the beginning of 2025, PhosCo then received another exploration permit for another phosphate deposit called Sekarna. The company now has two exploration permits granted by the Tunisian government in the Northern Phosphate Basin. The Tunisian government wants to play a bigger role in the global phosphate market, and the country has plenty of reserves and production capacity to do so. Phosphate mining could be a new source of strong GDP earnings for the country, especially with the phosphate fertilizer price volatility in the global market at this time. PhosCo's phosphate project will set the benchmark for Tunisia's phosphate mining programs going forward.

BRICS – Much Ado About Acronyms

We've continued the BRICS theme in this monthly due to current events. BRICS are pertinent to food and fertilizer markets in a variety of ways. The BRICS Group jointly published a new report to share the multilateral organization's concerns about the ongoing mergers and acquisitions in the global food supply chain. It even created a new concept—"ABCD+"—to show the deepening economic power of a few global agricultural companies. The ABCDs took up this new concept in a BRICS Competition Law and Policy Centre report, entitled "From Fields to Futures: Competition, Financialization and Digitalization in Global Grain Value Chains".

The merger between Bunge and Viterro has already created a new global agriculture powerhouse to go along with the rest of the ABCDs—ADM, Bunge, Cargill and LDC. China didn't seem to have any issues when it approved the Bunge-Viterro merger from their regulatory bodies; and the rest of the BRICS are obviously upset that they didn't have a seat at the table during the deal. The 126-page report by the BRICS Group is a bold attempt to get their voices heard multilaterally in the public domain, but the BRICS have a much bigger problem than their opinions being heard: BRICS are food insecure.

The Russian government declared a federal-level emergency due to the country's declining wheat yields in the southern Rostov region. While Russia has plenty of other wheat fields, the decline in any Russian wheat production will influence the global wheat markets. Russia also has the problem of supplying food to their own massive population clusters, so Russia is not likely to be the savior for BRICS when it comes to securing food supplies in the future.

On the flipside, the merger between Bunge and Viterro caused some pivotal outcomes in the grains and oilseeds space. Cargill is moving ahead with a new canola crushing facility in Saskatchewan, Canada, which will allow for around 1 million tons of processing capacity. Cargill and Bunge will go head-to-head in Canada's grain space since Bunge acquired the North West Terminal in Saskatchewan. LDC picked up Bunge's grain assets in Poland and Hungary from the regulatory leftovers of the Bunge-Viterro merger.

Friday, October 3, 2025

All these dynamics make for a more concentrated global agriculture market in North America for a world that is becoming increasingly less food secure. Global food supply chains will likely depend more on Canada and U.S. agricultural commodities due to the outcomes of the Russia-Ukraine war. There's also Latin America, where the EU-Mercosur deal will have a big impact on the food supply chains in Europe.

Conclusion

As we always attempt to demonstrate in the Growth Minerals Review, the geopolitical dynamics around supply risks to food and fertilizer supplies are interlinked with the agriculture and mining sectors. More investments are needed to boost new sources of mineral fertilizers from around the world. The narrative shouldn't always be about reducing dependence on imports, since food imports will always be needed from global sources to ensure various food security scenarios. However, the ones who dismiss the need for mineral fertilizers and chemical processing do not understand the imminent threats to food supply chains. The last thing we need is another war over grains and fertilizer supplies.

GROWTH MINERALS STOCKS

	Security	Ticker	Rating	Currency	Price	Market Cap. mns	Status	Country
Potash	Kore Potash	KP2.L	Neutral	GBP	0.0368	£161	Developer	Congo
	Millennium Potash	MLP.v	LONG	CAD	3.11	\$332	Developer	Gabon
	Brazil Potash	GRO	Neutral	USD	2.69	\$103	Developer	Brazil
	Nutrien	NTR.to, NYSE: NTR	Neutral	CAD	81.73	\$39,711	Producer	Canada
	Intrepid Potash	NYSE: IPI	Neutral	USD	30.58	\$407	Producer	USA
	Verde Agritech	NPK.to	Neutral	CAD	0.5	\$26	Producer	Brazil
	Sage Potash	SAGE.v	Neutral	CAD	0.45	\$48	Developer	USA
	South Harz Potash	SHP.ax	Neutral	ASX	0.05	\$5.755	Developer	Germany
	Peak Minerals		Neutral	Private			Developer	USA
	Karnalyte Resources	KRN.to	Neutral	CAD	0.11	\$6	Developer	Canada
	American Critical Minerals	CSE: KCLI	Neutral	CAD		\$0	Explorer	USA
	Gensource Potash	GSP.v	Neutral	CAD	0.08	\$31	Developer	Canada
	The Mosaic Company	MOS	Neutral	USD	34.68	\$11,210	Producer	Canada/US
Phosphate	First Phosphate	CSE: PHOS	LONG	CAD	0.54	\$67	Developer	Canada
	Nevada Organic	CSE:NOP	Neutral	CAD	0.09	\$6	Explorer	USA
	Agua Resources	AGR.ax	Neutral	AUD	0.03	\$50	Developer	Brazil
	PhosCo	PHO.ax	Neutral	AUD	0.07	\$32	Developer	Tunisia
	Castle Rock Phosphate	CRP.v	Neutral	CAD	0.05	\$0	Explorer	(off NZ)
	Minbos	MNB.ax	LONG	AUD	0.05	\$46	Developer	Angola

Important disclosures

I, Joshua Mayfield, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

Hallgarten's Equity Research rating system consists of LONG, SHORT and NEUTRAL recommendations. LONG suggests capital appreciation to our target price during the next twelve months, while SHORT suggests capital depreciation to our target price during the next twelve months. NEUTRAL denotes a stock that is not likely to provide outstanding performance in either direction during the next twelve months, or it is a stock that we do not wish to place a rating on at the present time. The information contained herein is based on sources that we believe to be reliable, but we do not guarantee their accuracy. Prices and opinions concerning the composition of market sectors included in this report reflect the judgments of this date and are subject to change without notice. This report is for information purposes only and is not intended as an offer to sell or as a solicitation to buy securities.

Hallgarten & Company or persons associated do own securities described herein (i.e. Millennial Potash). Additional information is available upon request.

© 2025 Hallgarten & Company Limited. All rights reserved.

Reprints of Hallgarten reports are prohibited without permission.

Web access at:

Research: www.hallgartenco.com