Investor Information

Second Quarter 2019

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Forward Looking Statements

This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Such statements include, but are not limited to, statements about the anticipated benefits and synergies of our acquisition of the global phosphate and potash operations of Vale S.A. previously conducted through Vale Fertilizantes S.A. (which, when combined with our legacy distribution business in Brazil, is now known as Mosaic Fertilizantes) (the "Transaction"), other proposed or pending future transactions or strategic plans and other statements about future financial and operating results. Such statements are based upon the current beliefs and expectations of The Mosaic Company's management and are subject to significant risks and uncertainties. These risks and uncertainties include, but are not limited to: difficulties with realization of the benefits and synergies of the Transaction, including the risks that the acquired business may not be integrated successfully or that the anticipated synergies or cost or capital expenditure savings from the Transaction may not be fully realized or may take longer to realize than expected, including because of political and economic instability in Brazil or changes in government policy in Brazil such as higher costs associated with the new freight tables and new mining regulations; the predictability and volatility of, and customer expectations about, agriculture, fertilizer, raw material, energy and transportation markets that are subject to competitive and other pressures and economic and credit market conditions; the level of inventories in the distribution channels for crop nutrients; the effect of future product innovations or development of new technologies on demand for our products; changes in foreign currency and exchange rates; international trade risks and other risks associated with Mosaic's international operations and those of joint ventures in which Mosaic participates, including the performance of the Ma'aden Wa'ad Al Shamal Phosphate Company (also known as MWSPC), the ability of MWSPC to obtain additional planned funding in acceptable amounts and upon acceptable terms, the timely development and commencement of operations of production facilities in the Kingdom of Saudi Arabia, and the future success of current plans for MWSPC and any future changes in those plans; the risk that protests against natural resource companies in Peru extend to or impact the Miski Mayo mine, which is operated by an entity in which we are the majority owner; difficulties with realization of the benefits of our long term natural gas based pricing ammonia supply agreement with CF Industries, Inc., including the risk that the cost savings initially anticipated from the agreement may not be fully realized over its term or that the price of natural gas or ammonia during the term are at levels at which the pricing is disadvantageous to Mosaic; customer defaults; the effects of Mosaic's decisions to exit business operations or locations; changes in government policy; changes in environmental and other governmental regulation, including expansion of the types and extent of water resources regulated under federal law, carbon taxes or other greenhouse gas regulation, implementation of numeric water quality standards for the discharge of nutrients into Florida waterways or efforts to reduce the flow of excess nutrients into the Mississippi River basin, the Gulf of Mexico or elsewhere; further developments in judicial or administrative proceedings, or complaints that Mosaic's operations are adversely impacting nearby farms, business operations or properties; difficulties or delays in receiving, increased costs of or challenges to necessary governmental permits or approvals or increased financial assurance requirements; resolution of global tax audit activity; the effectiveness of Mosaic's processes for managing its strategic priorities; adverse weather conditions affecting operations in Central Florida, the Mississippi River basin, the Gulf Coast of the United States, Canada or Brazil, and including potential hurricanes, excess heat, cold, snow, rainfall or drought; actual costs of various items differing from management's current estimates, including, among others, asset retirement, environmental remediation, reclamation or other environmental regulation, Canadian resources taxes and royalties, or the costs of the MWSPC, its existing or future funding and Mosaic's commitments in support of such funding; reduction of Mosaic's available cash and liquidity, and increased leverage, due to its use of cash and/or available debt capacity to fund financial assurance requirements and strategic investments; brine inflows at Mosaic's Esterhazy, Saskatchewan, potash mine or other potash shaft mines; other accidents and disruptions involving Mosaic's operations, including potential mine fires, floods, explosions, seismic events, sinkholes or releases of hazardous or volatile chemicals; and risks associated with cyber security, including reputational loss; as well as other risks and uncertainties reported from time to time in The Mosaic Company's reports filed with the Securities and Exchange Commission. Actual results may differ from those set forth in the forward-looking statements.

Non-GAAP Financial Measures

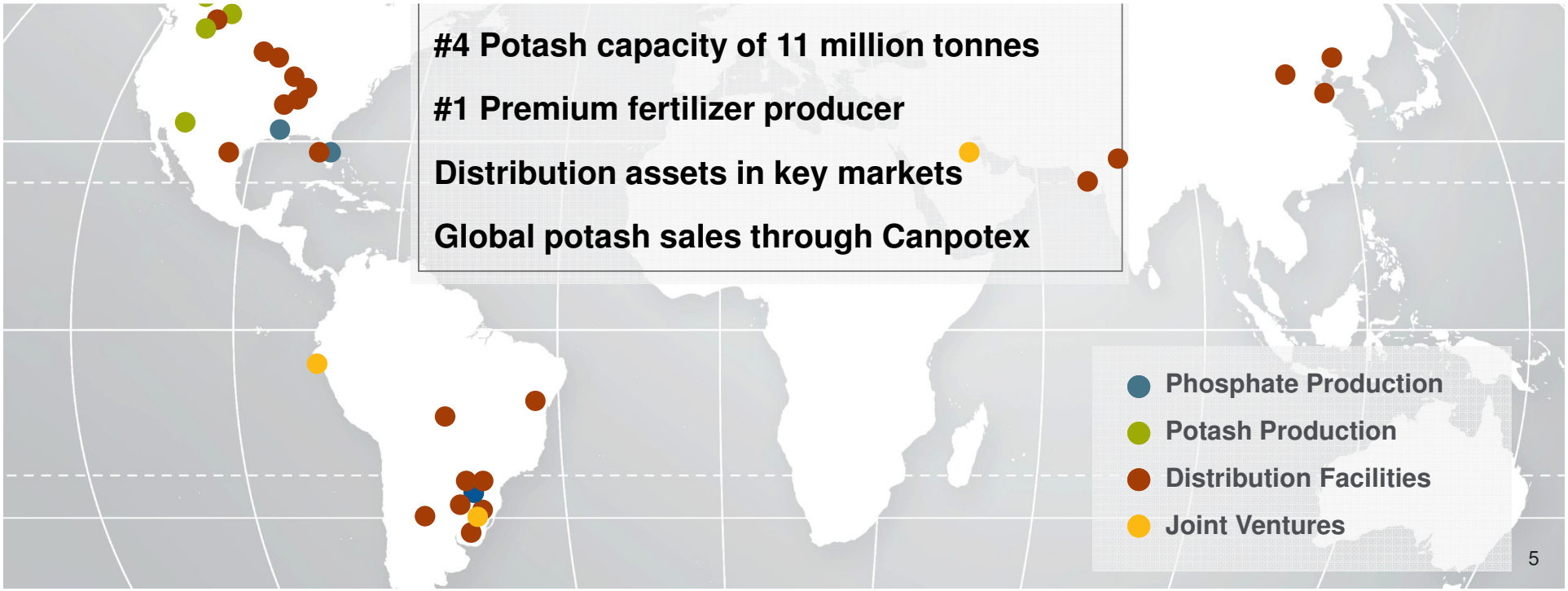
This presentation includes certain non-GAAP financial measures, including adjusted EBITDA, adjusted gross margins, adjusted earnings per share. Management believes these adjusted measures may be useful in providing supplemental information regarding our performance. For important information regarding the non-GAAP measures we present, see "Non-GAAP Financial Measures" in the appendix to this presentation. Non-GAAP financial measures should not be considered as substitutes for, or superior to, measures of financial performance prepared in accordance with GAAP. We are not providing forward looking guidance for U.S. GAAP reported diluted net earnings per share, or a quantitative reconciliation of forward-looking adjusted EPS and adjusted EBITDA because we are unable to predict with reasonable certainty our notable items without unreasonable effort.

The Mosaic Company Overview

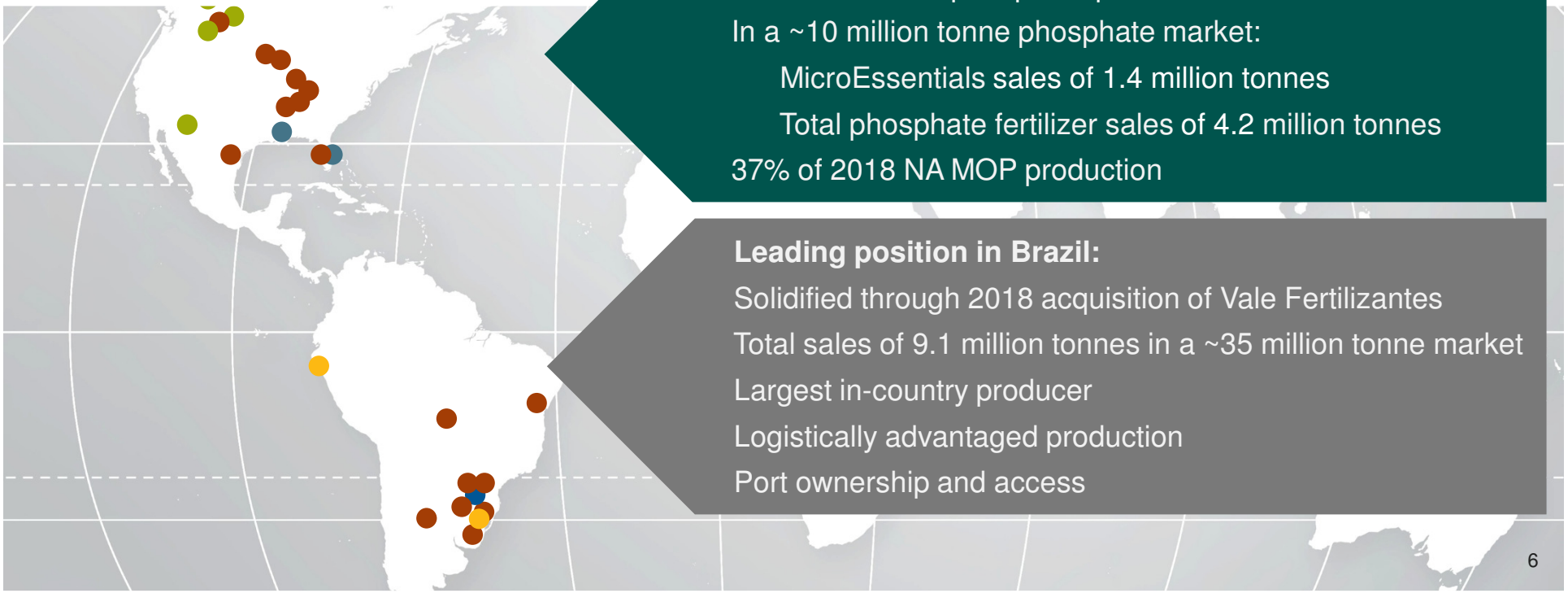


High Quality Asset Portfolio

Largest global finished phosphate and potash producer



Focused on The Americas



Home base in North America:

73% of 2018 NA phosphate production

In a ~10 million tonne phosphate market:

- MicroEssentials sales of 1.4 million tonnes
- Total phosphate fertilizer sales of 4.2 million tonnes

37% of 2018 NA MOP production

Leading position in Brazil:

Solidified through 2018 acquisition of Vale Fertilizantes

Total sales of 9.1 million tonnes in a ~35 million tonne market

Largest in-country producer

Logistically advantaged production

Port ownership and access

Executing Our Strategy

By transforming business operations, lowering costs and increasing leverage to improving markets, Mosaic is well positioned to generate strong shareholder returns.



We Help the World Grow the Food it Needs.

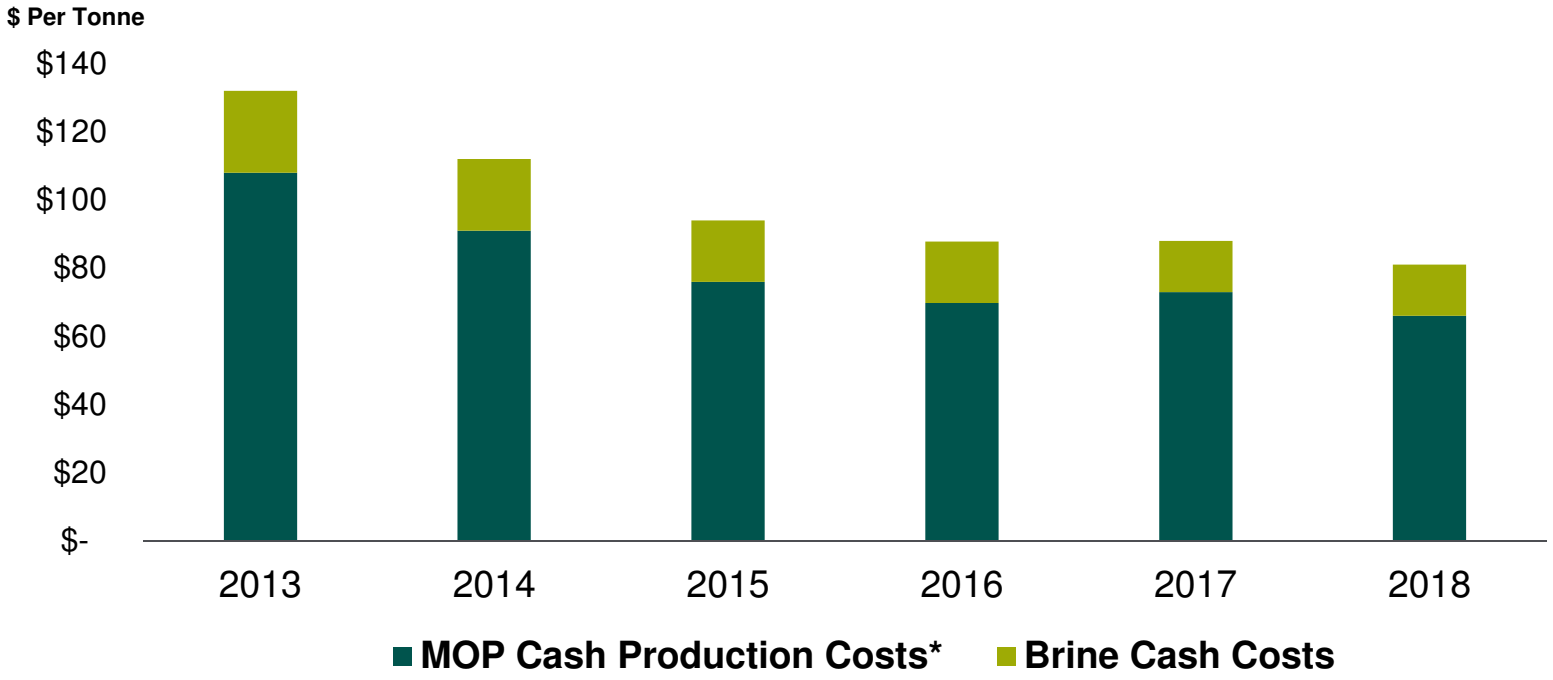
Increasing Our Competitiveness To Win

- Optimized our assets, driving permanent structural improvements
- Accelerated plan to complete K3, a path to de-risking our business and improving margins and costs
- Lowered SG&A / tonne to increase our operating leverage
- Lowered financial leverage to improve risk profile and create the capacity to capture opportunities

Growing Organically and Inorganically

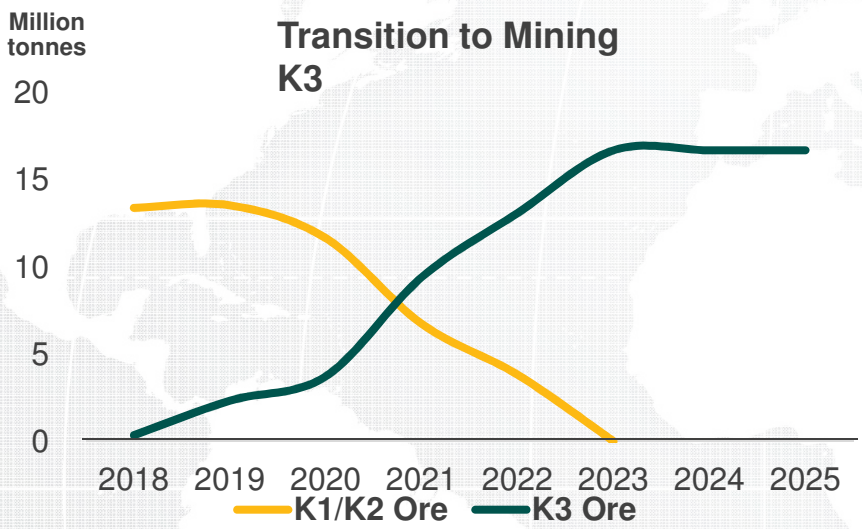
- Delivered record volumes of premium margin products
- Acquired Mosaic Fertilizantes assets at the trough and are a full year ahead of our integration and synergy targets

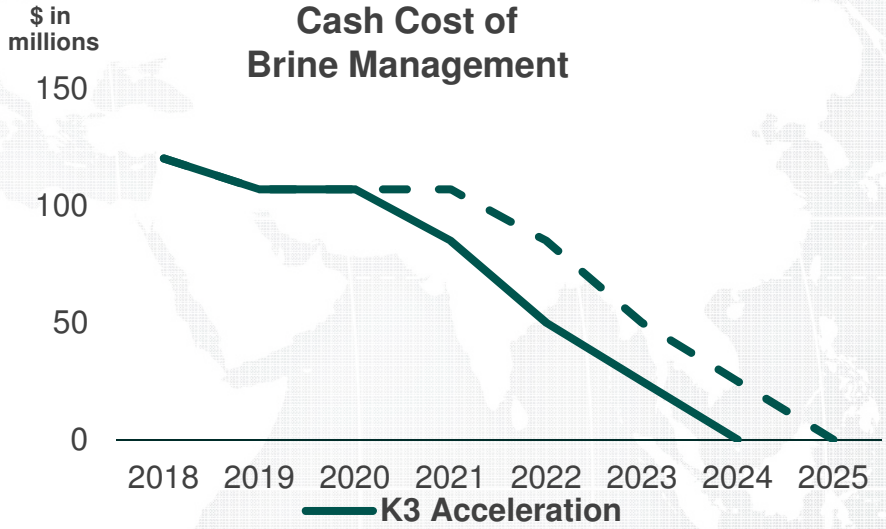
Potash: Increasing Our Competitiveness



*MOP cash production costs are reflective of actual costs during the quarter, excluding CRT and realized mark-to-market gains and losses and including turnarounds. Turnaround costs are captured as period costs while the rest are capitalized into inventory. As such, the costs presented are not necessarily reflective of costs included in costs of goods sold for the period.

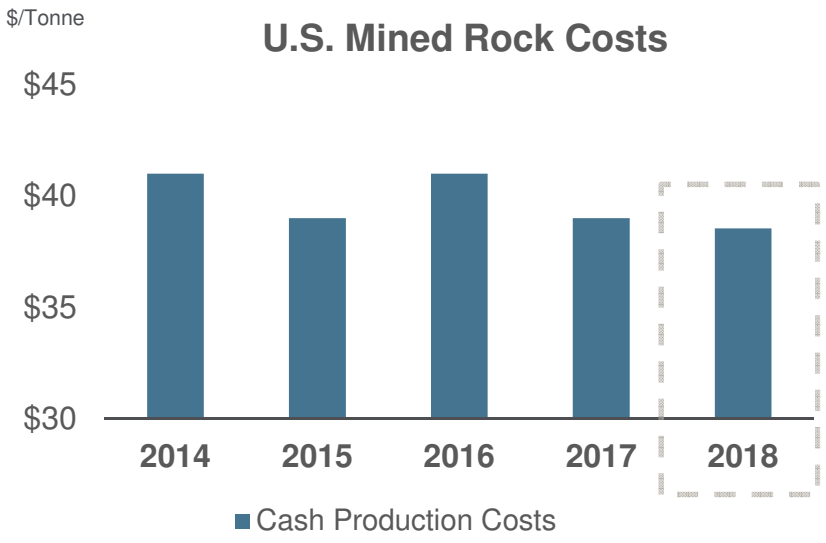
K3 Acceleration

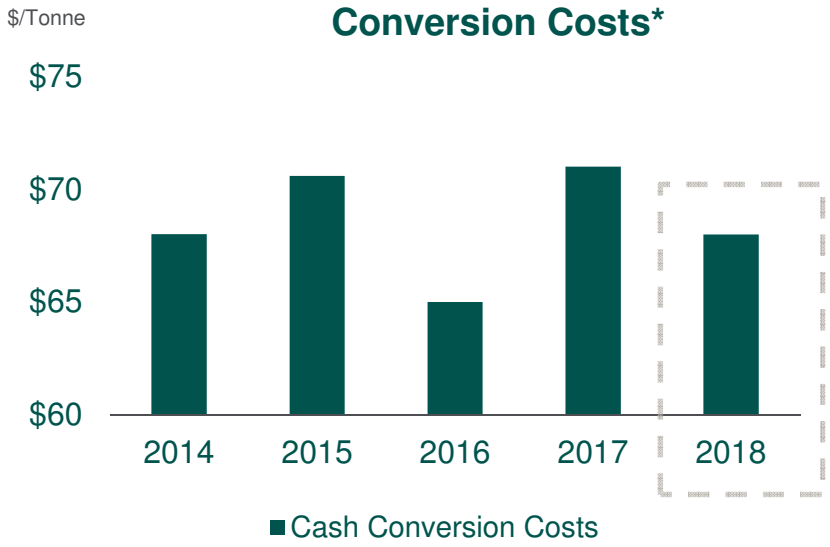




- K3 is being accelerated and is now expected to fully replace K1 and K2 mining by the end of 2023
- Acceleration of K3 completion by 12 months will result in **$110 million reduction** in total brine spending

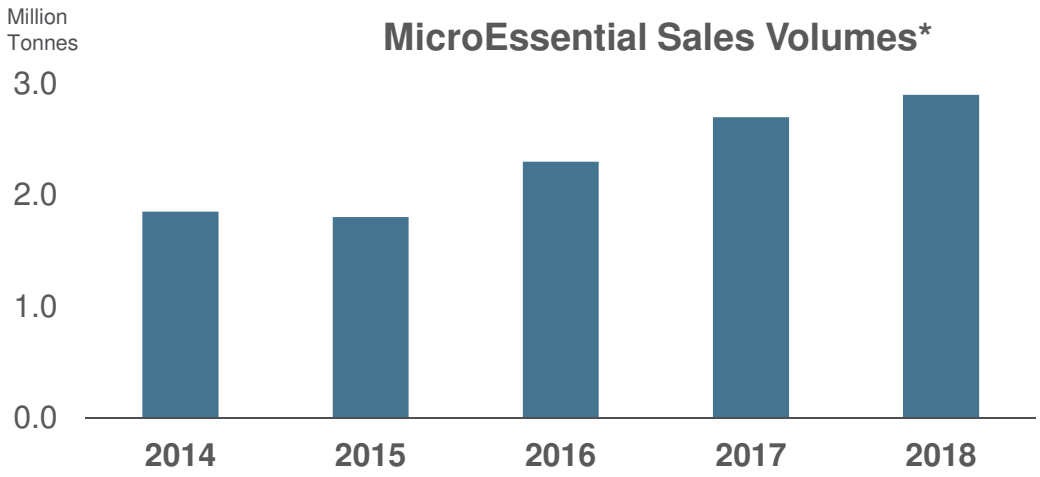
Phosphates: Increasing our Competitiveness





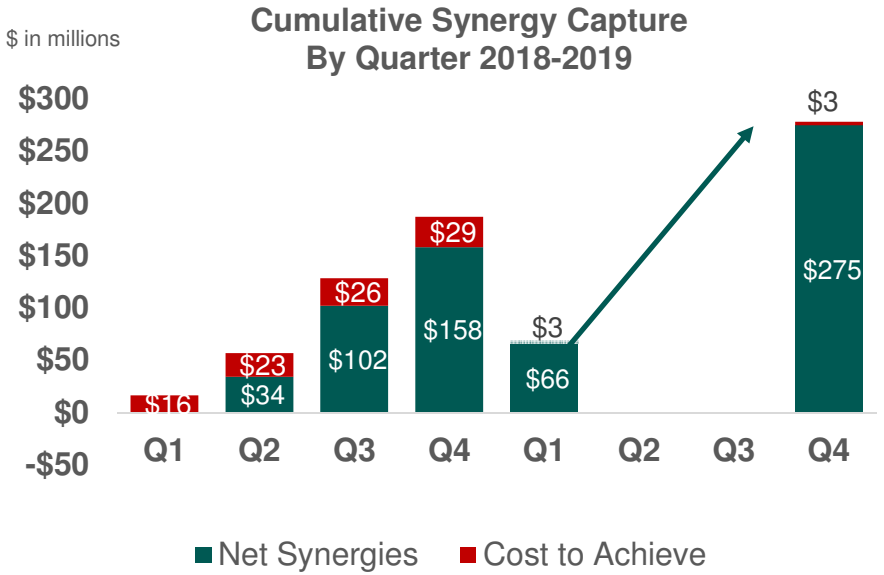
* Phosphate cash conversion costs, as shown, are reflective of actual costs, excluding realized mark-to-market gains and losses and including the cost of turnarounds. Turnaround costs are captured as period costs while the rest are capitalized into inventory. As such, the costs presented are not necessarily reflective of cost of goods sold for the period.

Phosphates:
Growing Margin by Growing Premium Products



* Includes intercompany sales

Mosaic Fertilizantes Transformation Progress



($ in millions except per tonne)	2018	2017
Sales Volumes (mm tonnes)	9.13	6.02
Pro Forma Sales Volumes		9.3
Operating Earnings	$238	$63
Pro Forma Operating Earnings		$(35)
Adjusted EBITDA[1]	$429	$73
Pro Forma Adjusted EBITDA		$81
Q4 Sales Volumes (mm tonnes)	2.1	1.4
Q4 Pro Forma Sales Volumes		2.2
Q4 Gross Margin $ / Tonne	$56	$23

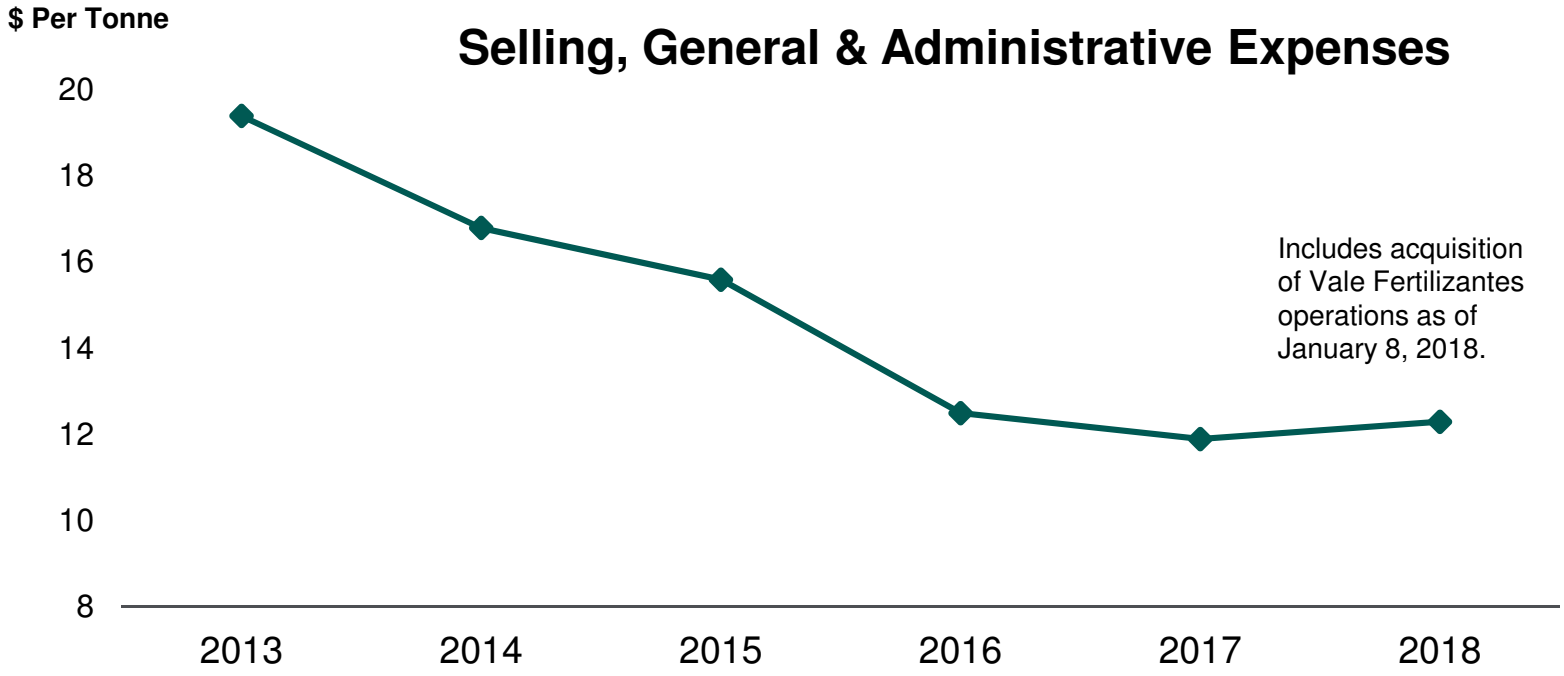
- Expect to realize target of $275 million of net annual synergies in 2019, a full year ahead of schedule, despite regulatory driven challenges
- Quarterly realization of synergies is seasonal, and driven by sales patterns

[1]See Non-GAAP Financial Measures for additional information

Mosaic Fertilizantes: Tailings Dams

Date	Event
1/25/19	Vale's iron ore tailings dam at Brumadinho fails.
2/15/19	Brazil passes new regulation, stipulating new dam safety requirements.
2/20/19	Mosaic enhances review of dams with consultants in response to new regulation requirements.
2/25/19	Mosaic announces earnings, including that a dam at Araxa will not pass the new standard and that the mining complex will be idled while the Company takes action to increase the undrained safety factor.
3/28/19	The Company announces on Analyst Day: • Capital requirements to comply with new Brazil regulation are expected to be $40 to $50 million, • Comfortable with where we're at, but any one of the new criteria could trigger us to stop using a dam, • Committed to providing an update on next earnings call.
4/11/19	Mosaic issues a press release stating it is required to stop using dams at Catalao and Tapira while it completes its engineering and geotechnical assessment, expected by the end of April.
5/6/19	Mosaic announces earnings, including the results of geotechnical analysis that will require Catalao and Tapira mines to remain idled, and that costs of importing rock and operating mines and chemical plants at lower operating rates could be up to $100 million in 2019.
2Q 2019	Catalao is expected to restart by the end of the second quarter. Restart announced May 28, 2019
3Q 2019	Plans anticipate that all mines are at full operating rates by the end of the third quarter.

Visible Cost Controls

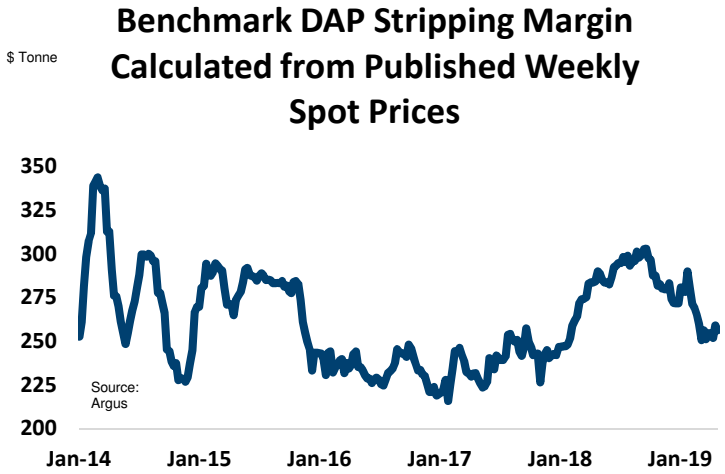


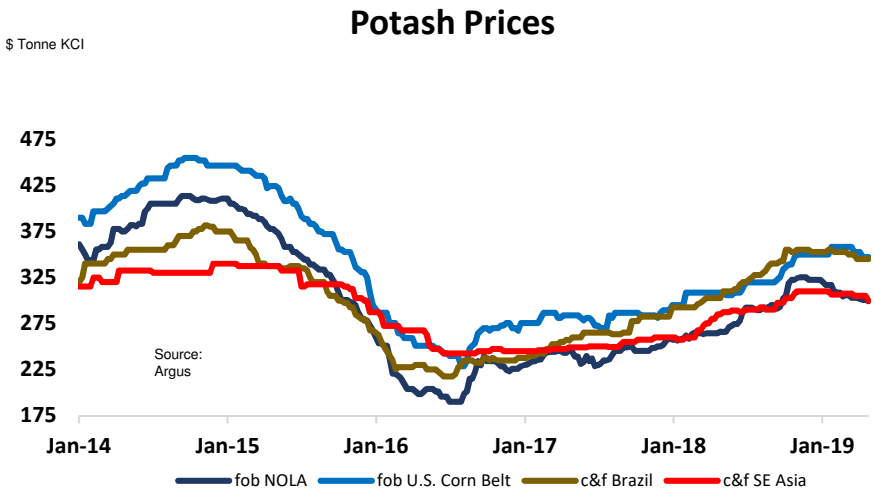
**Tonnes do not include the intra-segment volume eliminations, which are negatively impacting SG&A/Tonne metric starting in 2018 as a result of the Vale Fertilizantes acquisition*

First Quarter 2019



Supply & Demand in 2019: Balanced to Tightening
Seasonal Pressures in First Quarter





- We are expecting a balanced potash market through 2019 and a return to balance/tightening in the phosphate market after a loosening of the S/D in Q4 2018 that carried over into Q1 2019.
- Mosaic has a strong in-country competitive position in both North America and Brazil.

Strong Operations Mitigate Seasonal Softness

$ in million, except per share	1Q 2019	1Q 2018
Diluted Earnings Per Share (EPS)	$0.34	$0.11
Adjusted diluted EPS[1]	$0.25	$0.20
Net Income	$131	$42
Adjusted EBITDA[1]	$430	$399

Guidance Update *(as of May 7, 2019)*	Full Year 2019
Adjusted EBITDA	$2.0 - $2.3 billion
Adjusted diluted EPS[1]	$1.50 - $2.00

We revised the top end of our Adjusted EBITDA guidance range lower by $100 million, reflecting the impact of the new Brazilian dam regulations and the impact of higher Canadian taxes on our potash margins. We also widened the range to acknowledge the increased logistics related risks impacting spring demand and slowing the recovery in phosphate margins.

[1]See Non-GAAP Financial Measures for additional information

Progress on Operating Targets

		2018 actual	1Q 19 4Qtr Ave	2021 target
Phosphates	Cash cost of mined rock ($/tonne)	$38	$41	$39
	Cash costs of conversions ($/tonne)	$63	$63	$56
	Sales of MicroEssentials (mm tonnes)	2.9	2.9	3.7
	Average MicroEssentials margin, premium to MAP ($/tonne)(1)	$43	$46	$40 - $50
Potash	Cash costs of production (excluding brine) – MOP ($/tonne)	$66	$66	$62
	Cash brine management costs ($ in millions)	$123	$120	$85
Mosaic Fertilizantes	Cash costs of rock (R$/tonne)	R$346	R$349	R$320
	Cash costs of conversion - Phosphates (R$/tonne)	R$265	R$271	R$275
	Total Selling, General & Administrative Expenses ($ in millions)	$341	$341	$340

(1) Includes margin premium to end customer through local ID volumes.

The Company does not expect to make significant progress toward Mosaic Fertilizantes targets until the phosphate mines and chemical plants are operating at full capacity.

Potash

(in millions except per tonne)	2018	2017	Q1 2019	Q1 2018
Sales Volumes (tonnes)	8.8*	8.6	1.86	1.69
Operating Earnings	$511	$344	$176	$92
Adjusted EBITDA[(1)]	$866	$648	$256	$174
Gross Margin $ / Tonne	$68	$45	$100	$61
Adjusted Gross Margin $ / Tonne[(1)]	$69	$47	$100	$64

For the first quarter of 2019:

- MOP cash costs of production, including brine, increased to $84 / tonne, down from last year, but up sequentially reflecting a lower operating rate.
- The operating rate declined to 86% as slow movements of product away from the mines, primarily as a result of delayed North American demand, led to a slow down in production.
- K3 continues to ramp up on schedule and on budget.

[(1)]See Non-GAAP Financial Measures for additional information
* Negatively impacted by a change in revenue recognition policies.

Phosphates

(in millions except per tonne)	2018	2017	Q1 2019	Q1 2018
Sales Volumes (tonnes)	8.4*	9.5	1.79	1.95
Operating Earnings	$473	$256	$44	$78
Adjusted EBITDA[(1)]	$966	$640	$168	$198
Gross Margin $ / Tonne	$69	$35	$31	$49
Adjusted Gross Margin $ / Tonne[(1)]	$72	$35	$36	$57

For the first quarter 2019:

- Blended rock costs were up slightly due to the impact of transitioning to new mining areas in Florida.
- Cash conversion costs were $68 per tonne, including turnarounds and reflecting the impact of curtailments.
- The operating rate declined to 82% in the quarter, as a result of the Company's previously announced curtailment.
- MicroEssentials delivered gross margin per tonne premiums above MAP of $62.

[(1)]See Non-GAAP Financial Measures for additional information
*Reflects the impact of the idling of Plant City

Mosaic Fertilizantes

(in millions except per tonne)	2018	2017*	Q1 2019	Q1 2018
Sales Volumes (tonnes)	9.13	6.02	1.53	1.58
Operating Earnings	$238	$63	$27	$13
Adjusted EBITDA[(1)]	$429	$73	$62	$68
Gross Margin $ / Tonne	$41	$21	$34	$37
Adjusted Gross Margin $ / Tonne[(1)]	$41	$21	$34	$37

In the first quarter of 2019:

- Costs were higher due to idling of the Araxa mining complex and turn arounds.
- During Q2 2019, the Company expects to incur approximately $50 million in expense related to the impact of the new tailings dam regulations in Brazil, and up to $100 million in the full year.
- The Company continues to expect to achieve $275 million in net synergies in 2019.

[(1)]See Non-GAAP Financial Measures for additional information
* Actual segment results; Pro forma results for 2017 are presented on slide 13.

Leveraging Global Asset Portfolio

Our global integrated footprint allows us to mitigating the challenge of the near-term idling of our Brazilian mines:

- Leverage our Peruvian mining joint venture by shipping up to 600,000 tonnes of rock to our Brazilian chemical plants.
- Leverage Florida phosphate production to ship an incremental 100,000 to 300,000 tonnes of MAP to Brazilian customers.

Managing on a global basis also allows us to mitigate a short-term regional supply overhang in North America (NOLA) by meeting the needs created by the temporary Brazilian supply shortfall.

Financial Guidance

Consolidated Full-Year Estimates		2019
Adjusted EPS[(1)]		$1.50 to $2.00
Adjusted EBITDA[(1)]		$2.0 to $2.3 billion
Less: Cash Interest Expense		~$170 million
Cash Taxes		~$75 million
Sustaining Capital		~$720 million
Available		**$1.04 to $1.34 billion**
2019 Capital Plan		
Common Stock Dividend	$0.20 / share up from $0.10 / share	~$80 million
Esterhazy K3	Accelerating timeline by 1 year	~$300 million
Florida Mine Life Extension	Extending mine lives	~$130 million
Purchase of Pine Bend	Upper Mississippi warehouse capacity	$55 million
Opportunity Investments	Portfolio IRR* > 20%; 70% of projects < 2 year payback	~$55 million
Remaining	Weighted towards back half of 2019	**$420 to $720 million**

[(1)]See Non-GAAP Financial Measures for additional information
* Unlevered, after tax

Capital Allocation Philosophy



Markets

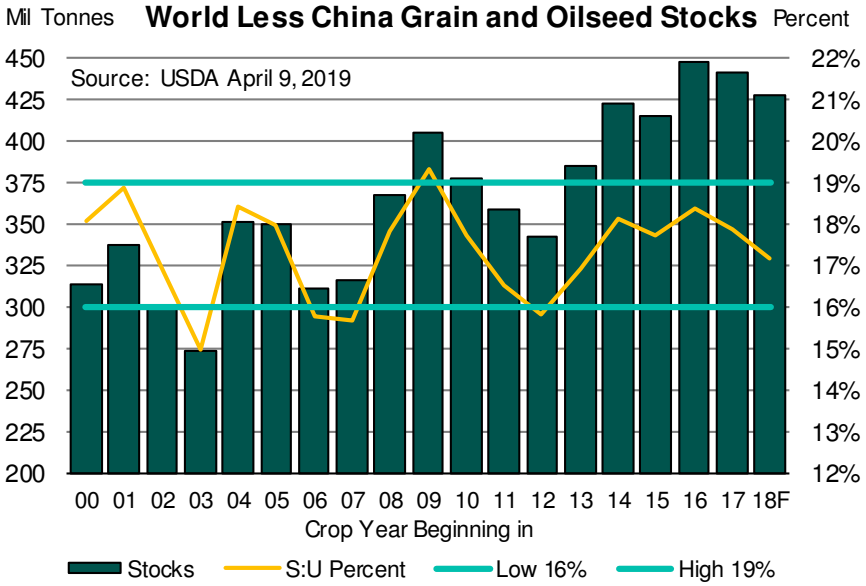
Agricultural Outlook



Take-Aways

- Key crop prices remain subdued due to the carryover from big global harvests the past few years, as well as uncertainty about global economic growth, how the U.S.-China trade war plays out, and a stronger dollar.
- However, droughts cut output in several key exporting regions in the past year, and steady demand growth has caught up to the last big step-up in global production.
- Global grain and oilseed inventories declined in 2017/18, and stocks are projected to drop again in 2018/19. Wheat stocks are forecast to fall, but soybean inventories are projected to increase again in 2018/19 despite recent downward revisions to Brazil's crop. The latest projections show corn inventories rising in the U.S. in 2019/2020, but we believe this may be hampered by the slow spring planting season.
- The long term food story is still intact.
- U.S. agriculture continues to be disadvantaged due to fall-out from the current trade dispute with China, though there appears to be meaningful progress towards a resolution in early 2019. The prospects for continuation of a strong dollar are also a headwind for prices.
- P&K agronomic and economic demand drivers still point positive.

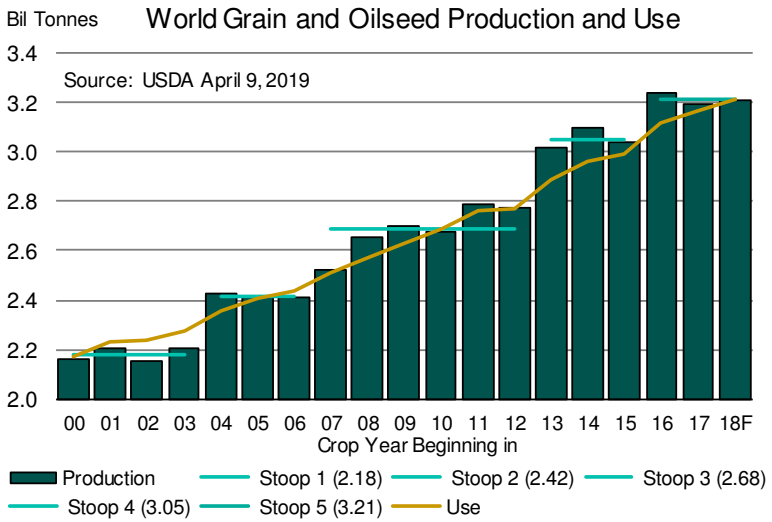
Agricultural Fundamentals Begin to Tighten as Demand Catches Up to Supply



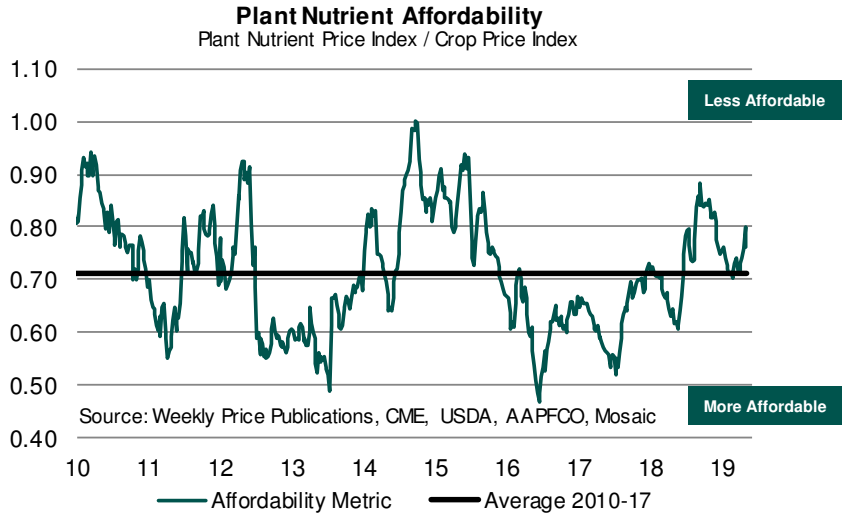
- A big step-up in global production since 2012/13
- But continued strong and steady demand growth
- Inventories ex China declined in 2017/18
- Stocks as a percentage of use projected to drop to the bottom half of the 16%-19% range by the end of 2018/19
- The Food Story is still intact

Positive Agronomic & Economic Demand Drivers

Record Harvests Remove Record Amounts of P&K



Plant Nutrients Still Affordable



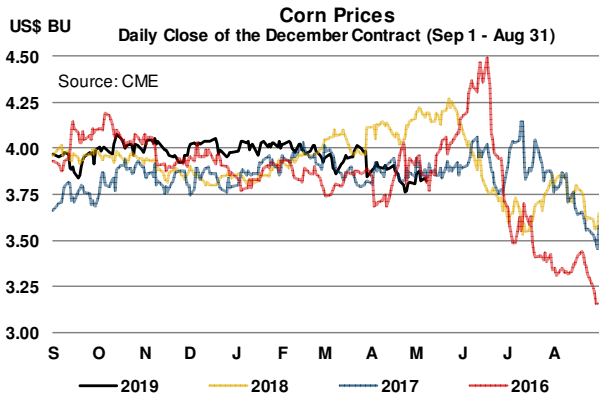
Estimated World Grain & Oilseed Nutrient Removal

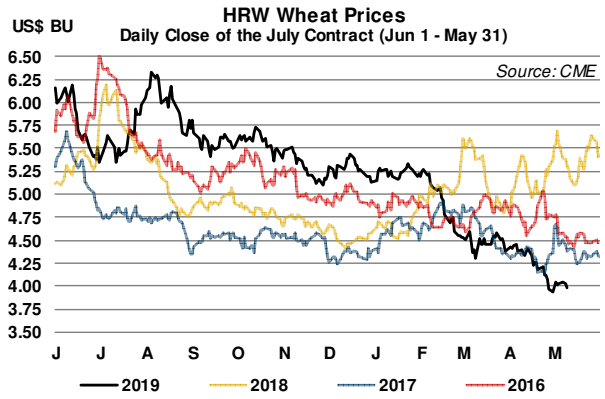
Mil Tonnes	2007-12 Stoop (2.7 bmt)	2016-18 Stoop (3.2 bmt)	Change	Percent Change
N Removal	57.7	69.2	11.5	19.9%
P_2O_5 Removal	22.2	26.3	4.1	18.3%
K_2O Removal	18.7	22.4	3.7	19.8%

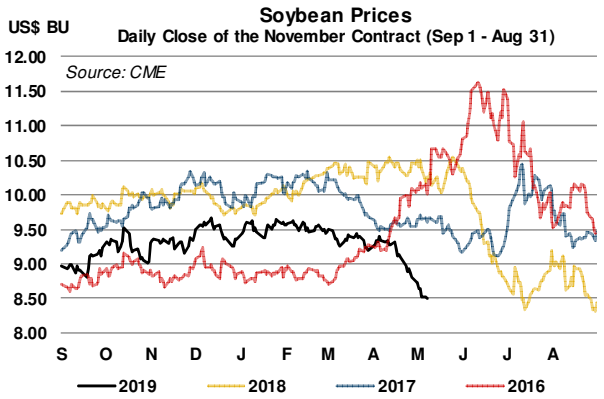
Source: USDA, IPNI, Mosaic

Agronomic & Economic Demand Drivers:

2019 new crop prices are generally lower than the last three years

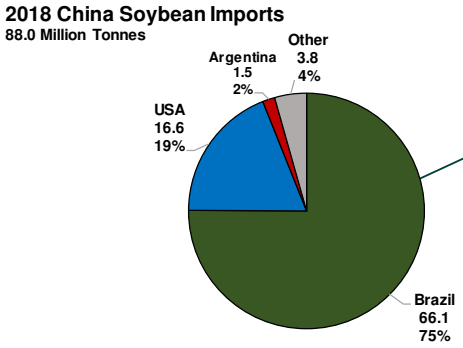






The 2019 new crop soybean/corn price ratio of 2.24 boosts the prospects for more corn acres

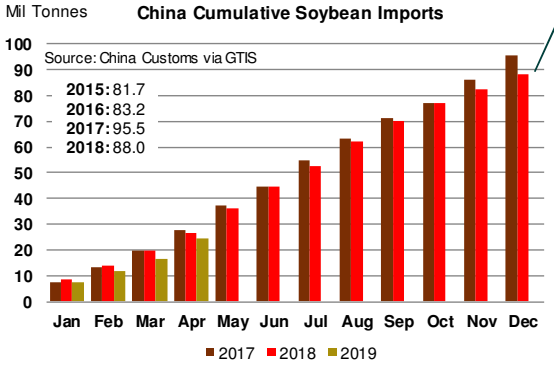
The U.S.-China Soybean War Battlefield



Source: China Customs via GTIS

Brazil and the United States are the dominant exporters of soybeans to China, accounting for 82.7 of the 88.0 million tonnes imported last year.

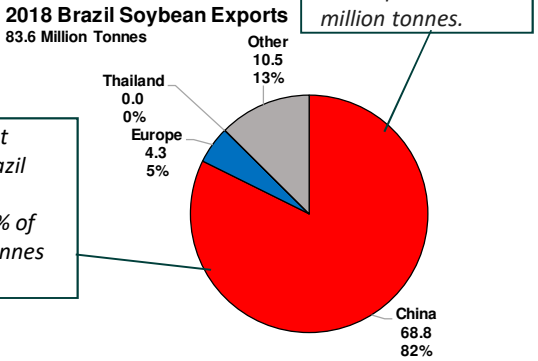
Brazil accounted for 75% of China's imports in 2018, up from an average of 49% in the prior three years, while the U.S. fell to 19% versus 36% from 2015-17.



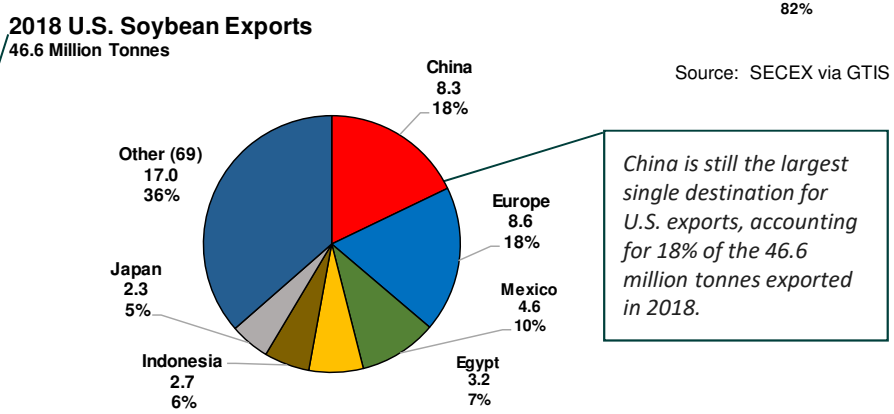
China soybean imports in 2018 totaled 88.03 million tonnes, off 8% from 2017 but up 6% from two years ago.

U.S. soybean exports in 2018 were down 16% or 8.7 million tonnes versus 2017. Shipments to China were down 74% or 23.4 million tonnes.

Brazil exports were up 22.7% or 15.5 million tonnes from last year. Shipments to China were up 28% or 15 million tonnes.



China is the largest destination for Brazil soybean exports, accounting for 82% of the 83.6 million tonnes exported in 2018.



Source: SECEX via GTIS

China is still the largest single destination for U.S. exports, accounting for 18% of the 46.6 million tonnes exported in 2018.

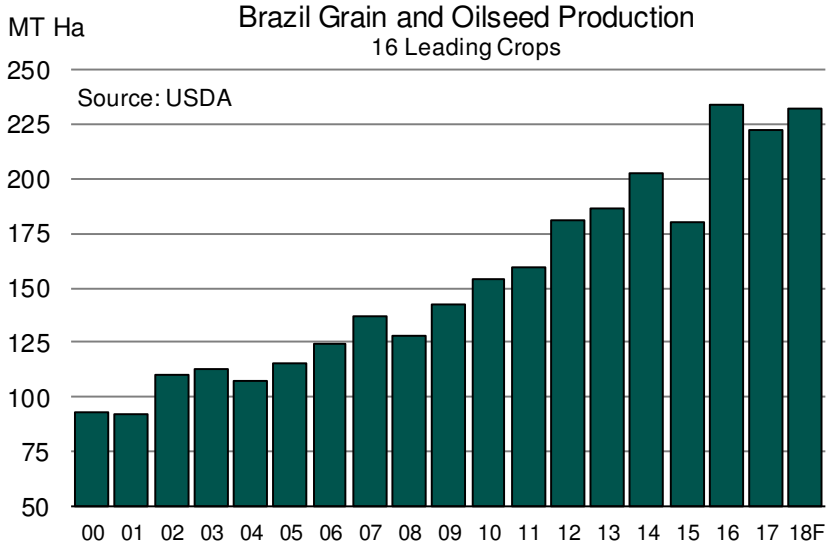
Source: U.S. Department of Commerce via GTIS

Markets

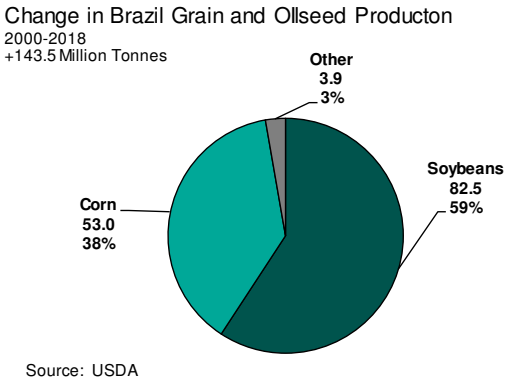
Brazil

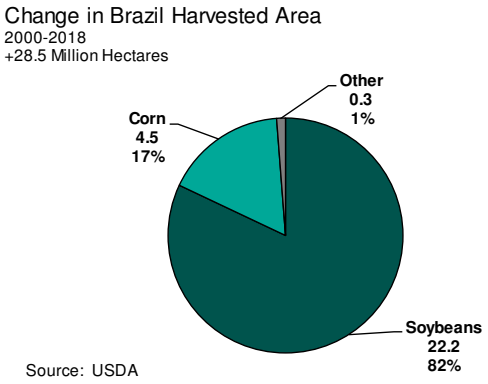


An Agricultural Powerhouse

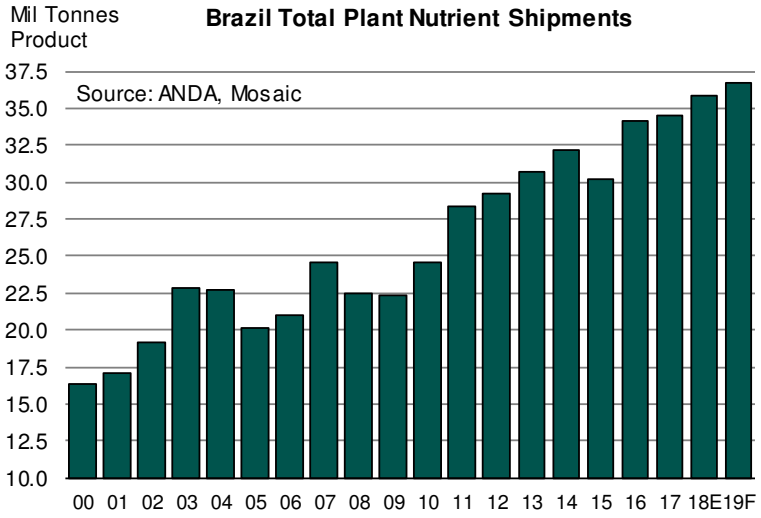


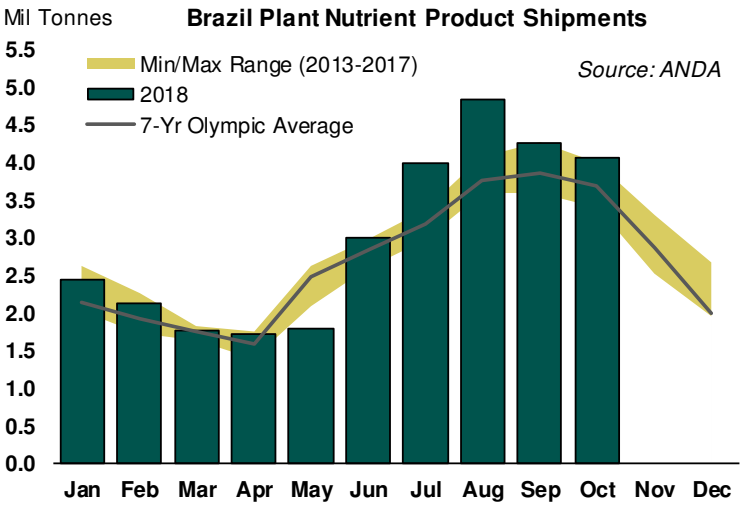
Grain and oilseed production has more than doubled since the turn of the century. Soybeans and corn have accounted for 94% of the gain in output and nearly all of the increase in harvested area during this period. The increase so far this century exceeds the largest crop ever produced in Argentina!





A Plant Nutrient Powerhouse





Plant nutrient use has more than doubled since the turn of the century. Shipments of plant nutrient products increased at a compound annual growth rate (CAGR) of 4.4% from 2000 to 2017.

Our Brazilian team has estimated that plant nutrient shipments increased 3.8% or 1.3 mmt to 35.8 million tonnes this year. Shipments are projected to increase another 2.7% or 1.0 mmt to 36.8 million in 2019.

The truckers' strike reduced May shipments, but shipments during peak months from June through October surged and set new monthly highs.

Shipments through October totaled 30 million tonnes, up 4% from a year ago (ANDA has moved to a delayed reporting schedule, and as such October data is the most current as of mid-February 2019)

Markets

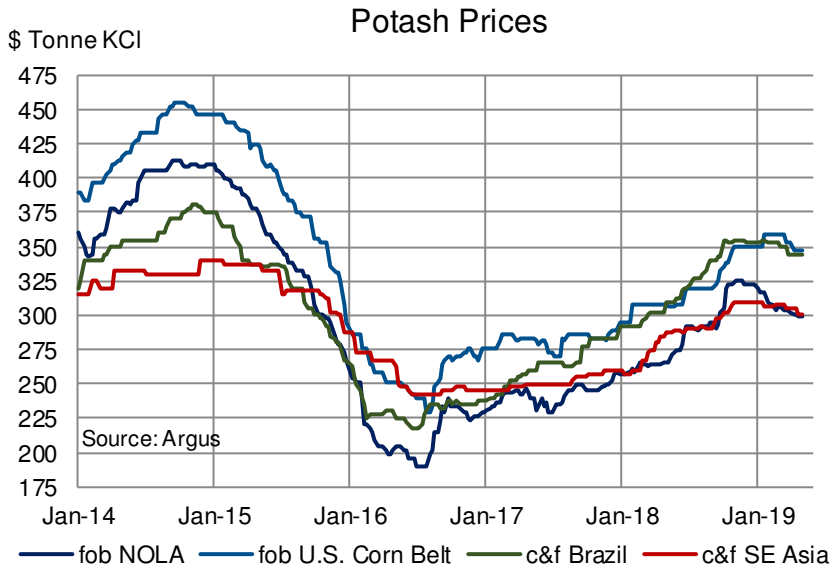
Potash Outlook



Take-Aways

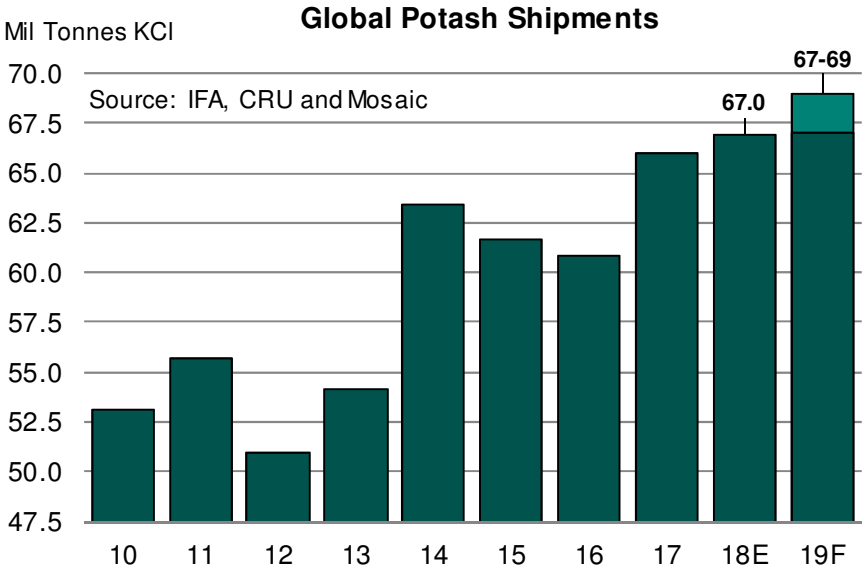
- Prices have plateaued recently, but constructive fundamentals still in play.
- Broad-based demand growth remains a key driver.
- New capacity is starting up later and ramping up more slowly than expected.
- No chronic long term supply/demand imbalance is forecast, but demand gains may outpace supply increases at times (e.g. in 2018) and capacity surges may exceed demand growth at other times.

Prices Level Off



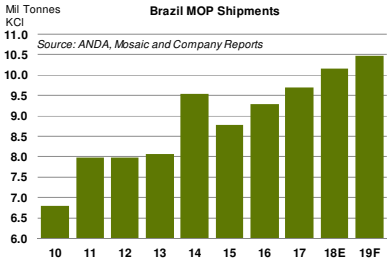
- Indian and Southeast Asian affordability becomes an issue, tempering demand
- Global S/D remains balanced with…
- Slower-than-expected ramp ups of new capacity

Strong, Broad-Based and Less Volatile Demand Growth

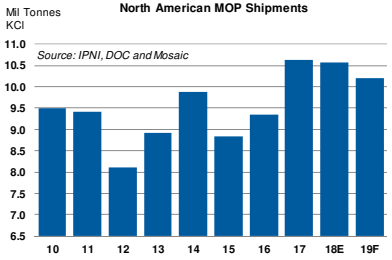


- Global potassium chloride (KCl) shipments now are estimated to have increased to 67.0 million tonnes in 2018, a 1.4% or 0.9 million tonne increase from an upwardly-revised estimate for 2017.
- After declines in 2015 and 2016, shipments rebounded a whopping 8.4% or 5.1 million tonnes to 66.0 million in 2017.
- Shipments in 2019 are forecast to increase to 67-69 million tonnes with a point estimate of 67.5 million, up another 0.8% or 0.6 million tonnes from our 2018 estimate. The slowdown in demand is largely a function of recent weakness in ag commodity markets that have weakened affordability.

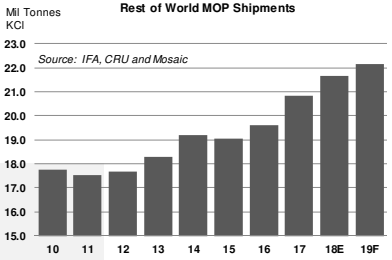
Strong and Broad-Based Demand Growth



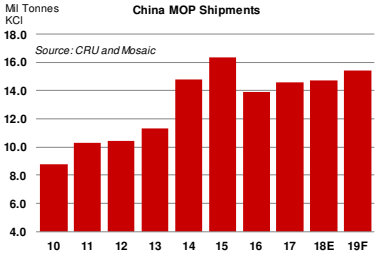
Brazil demand continues its upward march driven by steady increases in agricultural production. Shipments are estimated at 10.3 mmt in 2018 and should move higher this year on prospects for another good growing season and a ~3% expansion of soybean area.



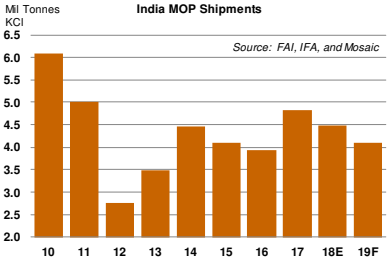
Poor weather conditions in the fall of 2018 led to a buildup of inventories in the distribution pipeline last year, so we are projecting that due to working through this inventory overhang that shipments will fall closer to the 10 mmt mark in 2019.



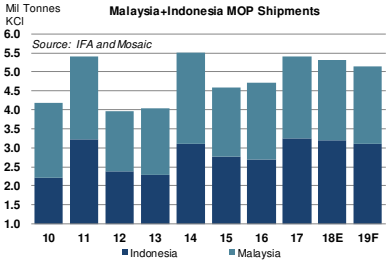
Shipments outside the “Big Six” countries/regions have taken off led mostly by other Asian and other Latin American countries, as well as a doubling of African use during the last five years (albeit from a low starting point).



Chinese shipments are trending up due to rising crop production as well as efforts to improve nutrient balance. Higher domestic MOP production met much of the recent growth, but domestic output likely has plateaued, implying stronger growth in import demand.



India shipments have been slowly recovering following 2010/11 subsidy changes that resulted in a near tripling of retail potash prices. High minimum support prices for key crops, expectations for a near-normal monsoon and greater NPK use underpin demand. However, sharply higher MRPs in the face of higher international prices are expected to trim demand this year.



Indonesian and Malaysian shipments also have trended upward with surges in 2011, 2014, and 2017. Demand weakened in the second half of 2018 as palm oil prices fell and it appears that this has carried over into 2019.

Global Potash Shipment Forecasts by Region (May 2019)

Muriate of Potash Million Tonnes (KCl)	2017R	2018E	Low 2019F	High 2019F	Source: IFA, CRU and Mosaic (Numbers may not sum to total due to rounding) Comments
China	14.6	14.8	15.3	15.5	The spring season, while not yet complete, appears likely to underperform expectations, at least slightly. We maintain our projection of 15.3-15.5mmt in 2019 (~7.6mmt production plus ~7.9mmt of net imports), given a boost from greater volumes of NPK and SOP exports (NPK exports totaled 191,000 tonnes in Q1 versus 26,000t in Q1 2018; SOP exports totaled 36,000t in Q1 versus 1,000t in Q1 2018).
India	4.8	4.5	4.0	4.3	We have left our 2019 shipment forecast unchanged, showing a modest decline y-o-y. This is a function of higher carry-in inventory, expectations of an unchanged subsidy (though a possibility of a small increase), a relatively range-bound rupee around 70 INR/$ and prospects for a near-normal (IMD forecast) or slightly below normal (Skymet forecast) monsoon.
Indonesia+Malaysia	5.4	5.3	5.1	5.4	We have pared back our shipment forecast for 2019 on growing concerns that drought conditions owing to El Niño could impact demand in key countries. In addition, palm oil prices, while up from the lows posted in Q4 2018, remain stuck around 2000 ringgits per tonne and are impacting farmer economics and sentiment. We believe that buyer deferral in late-2018, however, has kept channel inventories from becoming burdensome, and expect normal buying patterns to reassert in the near term.
Other Asia	4.9	5.2	5.3	5.5	Demand growth over the past several years has been rapid, but as with Indonesia and Malaysia, the threat of El Niño is likely to pare back demand growth in the region this year and we have tempered our forecast to reflect this. Farm economics remain largely constructive in the region, though there are a few yellow flags – e.g. political uncertainty in Thailand as well as concerns over drought (though the latter has abated somewhat recently); hot, dry weather remains a concern in Vietnam.
W. Europe	4.9	5.0	4.8	5.0	European shipments are projected to be flat to lower in 2019 after a rather lackluster spring season despite the improved weather outlook versus last year's severe drought. It also appears that some channel inventory was built in Q4, which crimped some spring demand.
E. Europe+FSU	5.3	5.3	5.5	5.7	Improved weather sets the stage for a resumption of shipment growth in 2019, aided by continued local currency weakness as well as an expected boost to potash consumption from NPK manufacturing.
Brazil	9.7	10.2	10.5	10.7	Our shipment estimate for 2019 is unchanged, after a slight downward adjustment to our 2018 estimate (which remains a new record). Improved weather towards the tail end of the soybean growing season have resulted in upwardly-revised harvest estimates and have carried over into improved prospects for safrinha corn yields. While US dollar prices for both crops remain subdued, the offsets of higher yield and a weak currency have kept farmer economics solid and we continue to project another record shipment year (~0.5mmt production, plus ~10.0mmt imports).
Other L. America	2.9	2.9	2.9	3.0	Shipments in the rest of Latin America look to remain stable due to generally favorable farm economics and a mostly OK weather outlook.
N. America	10.6	10.6	9.9	10.2	The poor fall application season led to a notable channel inventory build, and weather-induced delays to spring fieldwork pose a risk to spring volumes as well. Our forecast is little-changed, as we expect on-farm demand to be strong with the shift to corn acreage, but full-year shipment volumes are expected to tick lower as the higher carry-in inventory is worked through.
Other	2.9	3.3	3.2	3.4	After the big jump last year, shipments in the region are forecast to hold broadly flat this year.
Total	**66.0**	**67.0**	**66.5**	**68.7**	Record shipments in 2018 of 67.0mmt set a high bar for 2019: Our new point estimate is revised slightly lower to 67.5mmt (from 67.7mmt in February) due primarily to the reduced expectations in Asia, with the 0.5mmt shipment gain representing 0.8% y-o-y growth.

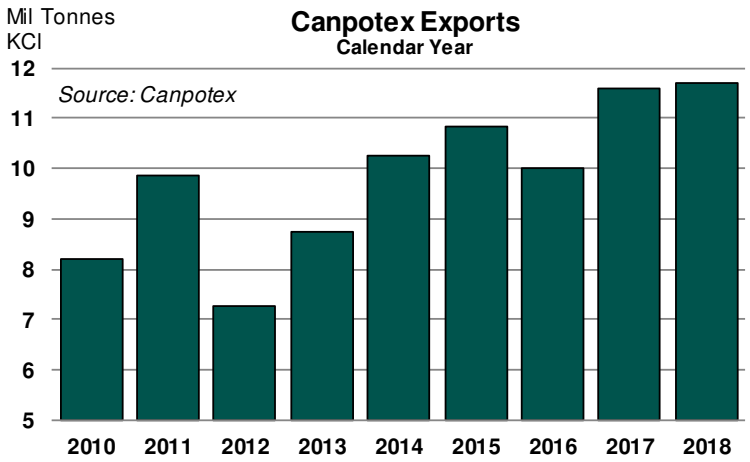
Fundamentals Math: 2019

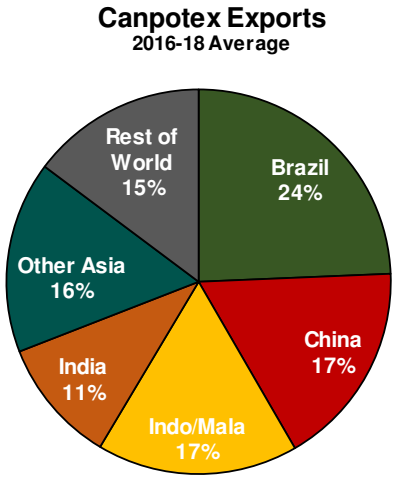
Potential Potash Supply & Demand Changes Excluding Canpotex

Mil Tonnes KCl	2019	
Projected Shipment Changes	**0.57**	← *Slowdown in demand growth projected due to weakness in global agricultural commodity prices and weather concerns surrounding El Niño.*
Percent Change	*0.8%*	
Potential Supply Changes	**0.19**	← *There are several puts and takes on the supply side. ICL ended KCl production at its UK Boulby mine around mid-year 2018 and K+S closed its Sigmundshall mine at the end of 2018. SQM is maximizing lithium production at the expense of KCl output, and K+S lost production at their Werra complex due to low river levels in 2018. Uralkali faced increased water inflow issues that impacted production at their S2 mine, which are expected to persist in 2019.*
Producer Inventory Draw (+) or Build (-)	0.25	
ICL Boulby Closure 6/30/18	-0.23	
SQM Maximizing Lithium Production	-0.31	
K+S Werra Mine Idlings Due to Low River Levels	0.15	
K+S Sigmundshall Closure 12/31/18	-0.45	
K+S Bethune Ramp-Up	0.30	
Uralkali S-2 Inflow Net Impact	-0.30	
Eurochem Usolskiy+Volgakaliy Ramp-Up	0.74	← *The above are offset by output from the ramp up of the four greenfield projects, though these were fairly underwhelming in 2018. Moreover, it appears that output from the project in Turkmenistan may be many years away from achieving advertised rates. At Eurochem's Volgakaliy mine, shaft issues continue to delay progress.*
Usolskiy Ramp-Up	*0.50*	
Volgakaliy Ramp-Up	*0.24*	
Acron Talistsky Ramp-Up	0.00	
Belaruskali Petrikovsky	0.00	
Garlyk Ramp-Up	0.00	
Miscellaneous Changes	0.03	
S/D Surplus (+)/Deficit (-)	*-0.37*	← *Based on these assumptions, the global market looks balanced through 2019, after running a roughly three-quarters of a million tonne deficit in 2018.*

Source: Mosaic

Record Canpotex Exports Required to Meet Record Demand

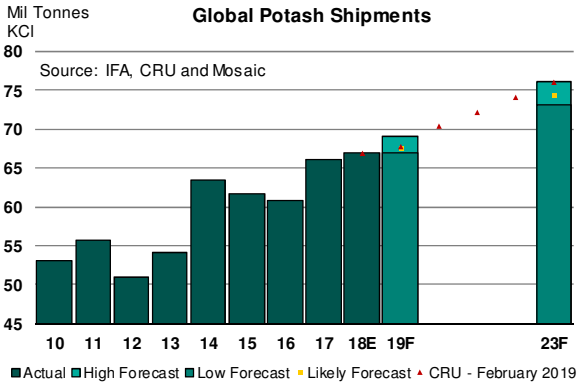


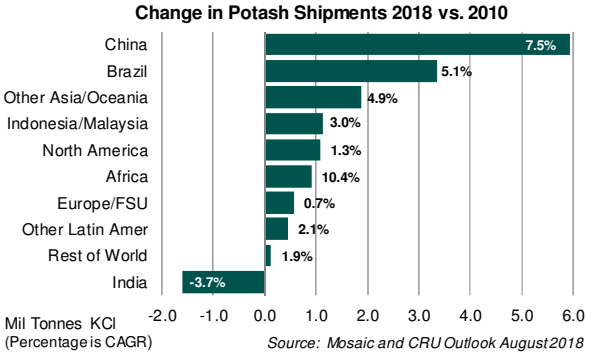


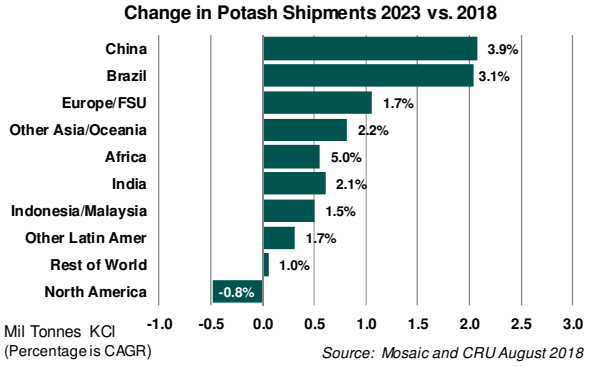
- Canpotex exported* a record 11.7 million tons in 2018 in order to meet the big jump in global demand last year.
- Exports are projected to increase to another record this year, climbing to around 13 million tonnes in 2019.

** The volume of Canpotex exports in 2018 reflects the change to revenue recognition*

Five-Year Outlook: Strong, Broad-Based and Less Volatile Demand Growth the Key Feature







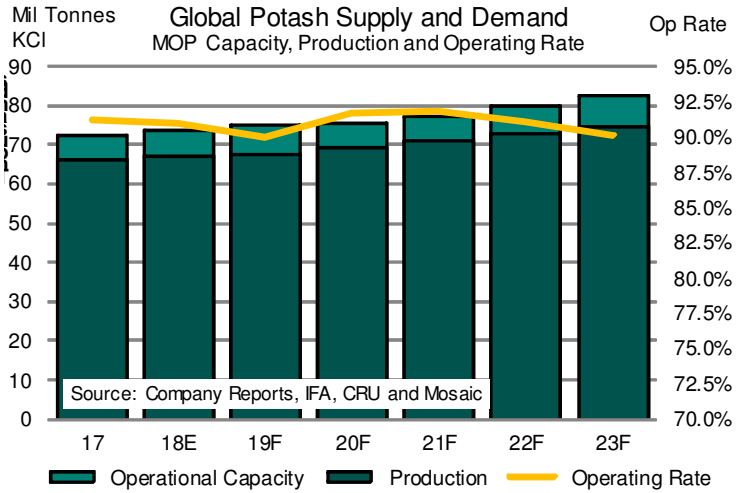
Global Potash Shipments

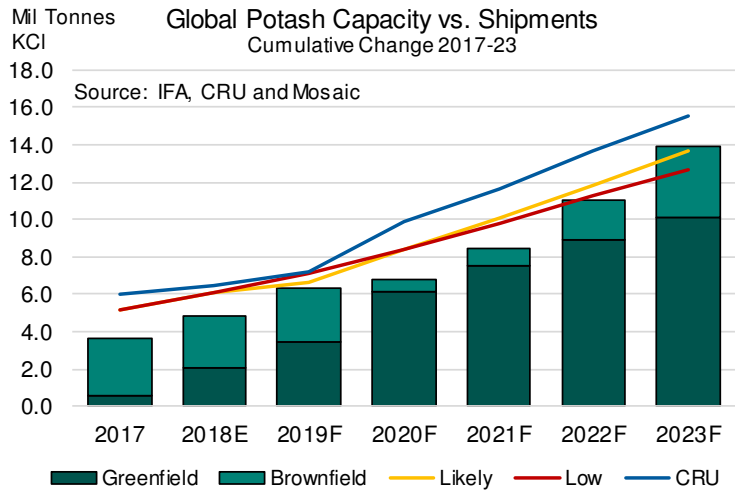
Mil Tonnes KCl	Mosaic Scenario Low	Likely	High	CRU Aug 18
2010 Shipments	na	53.1	na	53.6
2018 Shipments	na	67.0	na	66.9
Change 2010-18	na	13.8	na	13.3
CAGR 2010-18	na	2.9%	na	2.8%
2023 Forecast	73.1	74.5	76.2	76.0
Change 2018-23	6.1	7.6	9.2	9.2
CAGR 2017-23	1.8%	2.2%	2.6%	2.6%

Source: Mosaic, CRU Potash Outlook August 2018.

- By our most recent count, global shipments increased 2.9% per year or 13.8 million tonnes from 2010 to 2018. Growth was erratic with most of the gain coming in 2014 and 2017. Shipments increased in four years and decreased in three years. India was a drag on growth due to subsidy cuts and a tripling of retail MOP prices in 2010/11.
- Shipments are forecast to increase 2.2% per year or 7.6 million tonnes from 2018 to 2023. Agronomic and economic demand drivers continue to look positive, and strong and less volatile growth is expected during the next five years given more moderate and stable potash prices as well as stable to potentially stronger agricultural commodity prices during the forecast period. Continued growth in Brazil and China lead the demand parade.
- The traditional growth geographies - Brazil, China and elsewhere in Asia/Oceania – account for over 70% of the projected gain from 2018 to 2023, but other regions such the former Soviet Union (FSU)/Eastern Europe and Africa are expected to post notable increases as well.

Demand Growth Projected to Keep Pace with the Likely Ramp-Up of New Capacity





- We project no chronic or severe long term supply and demand imbalance. The global operating rate is forecast to range between 93% and 89% during the next five years.
- A comparison of cumulative changes in demand vs. new capacity shows that shipments are projected to increase 8.5 million tonnes from 2017 to 2023 while operational capacity is projected to increase 10.3 million tonnes (with nearly all of the net increase coming from K+S Bethune, Eurochem's two new mines, the project in Turkmenistan and two new mines in Belarus). Demand growth outpaces capacity additions until the last year of the 2017-2023 period when the Slavkaliy project in Belarus is expected on line and the first phases of the two projects in Russia have ramped up to full capacity.

Factors to Watch

- Agricultural commodity prices
  - Farm or food crisis and impact on potash demand?
- FSU production
  - Can Belaruskali maintain 2018 rates in 2019 and beyond? Is Uralkali S2/S1 at risk?
- Ramp-up of new capacity
  - Slower-than-expected by many analysts. How successful will Eurochem's Volgakaliy ramp-up be?
- Competitor strategies and behaviors
  - Price over volume or volume over price?
- Currency risks/opportunities and macroeconomic/political shocks
  - Devaluation or appreciation of the key 6R potash currencies? (Ruble, RMB, Real, Rupee, Rupiah, Ringgit)
  - Trade war(s) or peace?

Markets

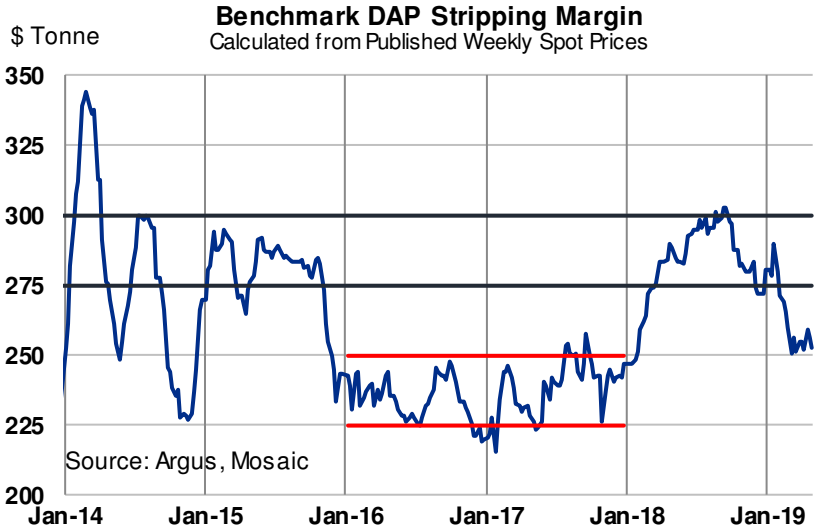
Phosphate Outlook



Take-Aways

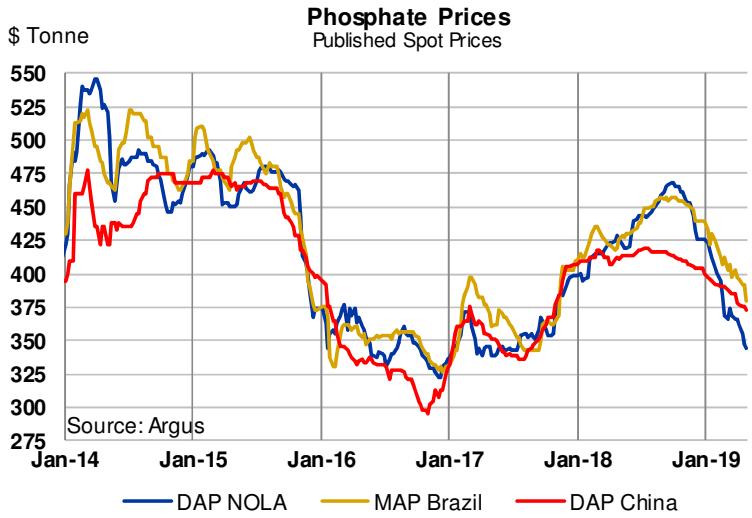
- Seasonal factors began pressuring prices and margins in Q4 of last year, but disappointing spring demand in several regions has resulted in a loosening of the global S/D and kept pressure on prices and margins.
- From its peak in September, NOLA DAP fell by ~$100/tonne by early May, while the benchmark stripping margin fell by about $50/tonne over the same time period.
- Fundamentals look constructive with continued, albeit slower, demand growth and no world-scale projects in the pipeline behind the Moroccan and Saudi projects that are ramping up today and continued restructuring taking place in China.
- Despite the recent weakness, prices/margins are expected to remain elevated in order for the global market to reach an equilibrium by trimming a little demand and pulling out a bit more supply, with Chinese exporters to fill the role of swing supplier.
- Key factors to watch include China industry restructuring, the ramp up of new capacity, crop prices, and exchange rates.

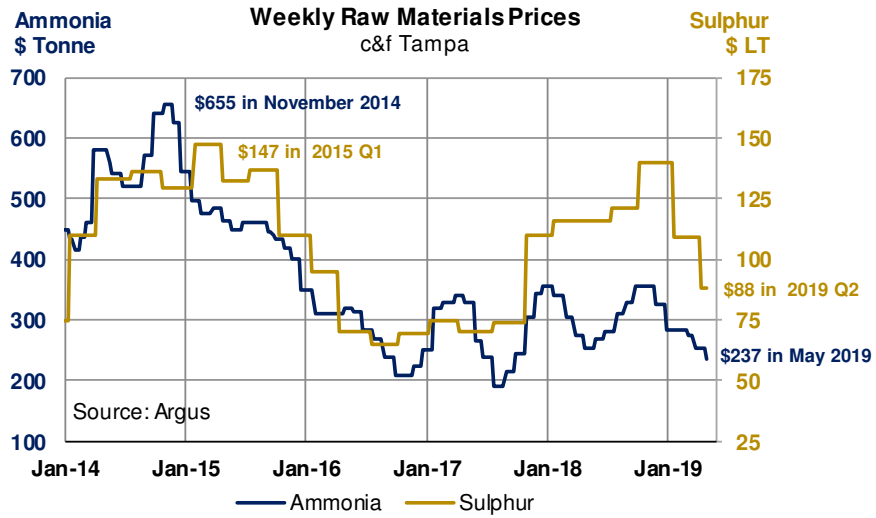
Margins Soften on a Seasonal Basis as S/D Moves into Better Balance than the Tight 2018



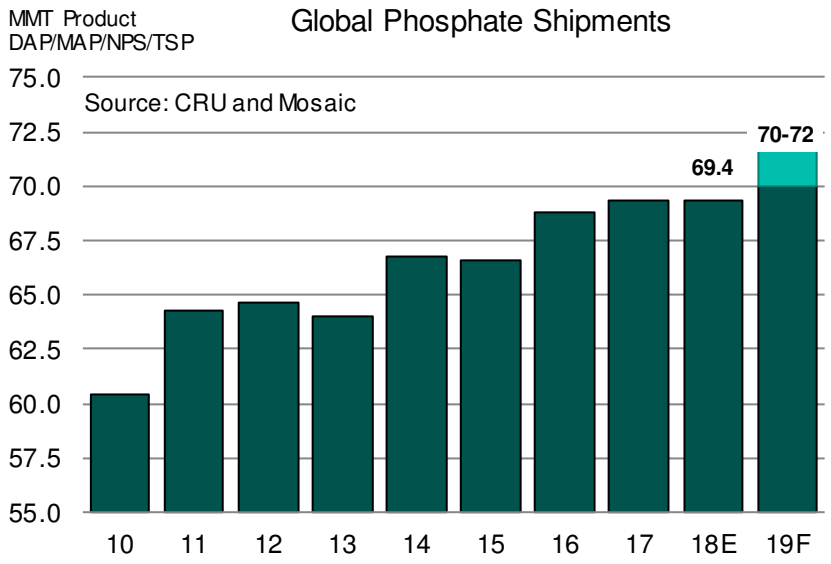
- Strong, broad-based (excluding China) demand
- Big supply adjustments in 2018:
  - Idling of Mosaic's Plant City facility
  - Slower-than-expected ramp-ups of new capacity
- Typical seasonal pressure, demand deferral, logistical issues in North America and a loosening of the global S/D has resulted in a shift in sentiment…
- …but we do not see a substantial change in fundamentals and expect a balanced S/D for the remainder of 2019

Seasonal Price Softness in Extends into 2019; Raw Material Costs Provide an Offset



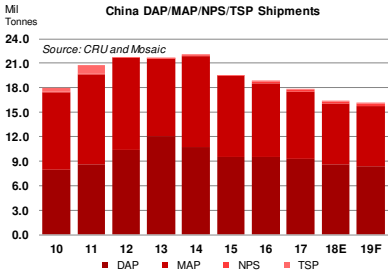


Strong, Broad-Based Demand Growth; Chinese Domestic Demand Remains a Drag

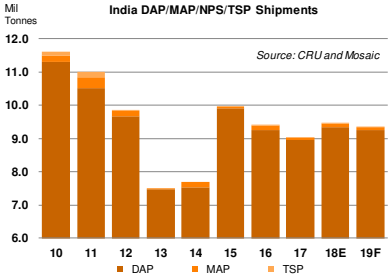


- With upwardly-revised 2017 figures and downwardly-revised figures for 2018, our estimate for shipments of the leading finished phosphate products shows demand holding flat on a global basis at 69.4 million tonnes last year. Excluding China, shipments rose 1.5 million tonnes of 3.0% y-o-y.
- We maintain our shipment forecast range of 70-72 million tonnes for 2019, but our point estimate has fallen to the bottom of the range with a point estimate of 70.0 million, a 1.0% or 0.7 million tonne gain. We project shipments outside China will increase 1.7% or 0.9 million tonnes this year.
- China has been a significant drag on global shipments in the past few years. Excluding China, demand increased 6.2% or 2.9 million tonnes in 2016, 2.9% or 1.4 million tonnes in 2017 and 3.0% or 1.5 million tonnes in 2018.
- Our latest estimates for 2019 are a bit cautious due to: 1) continuation of subdued crop prices, 2) inventory overhang in a few geographies, 3) continued pullback in Chinese domestic demand, and 4) trade and other policy issues.

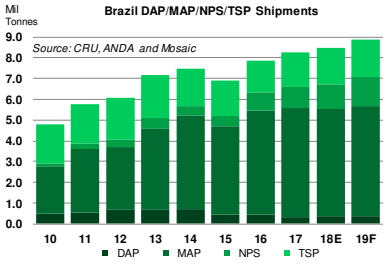
Broad-Based Demand Growth



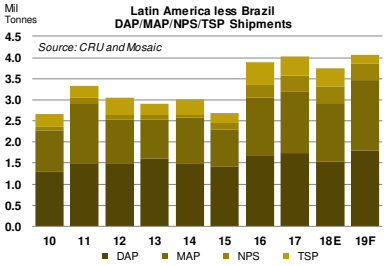
Chinese shipments peaked at about 22 million tonnes in 2014, driven by high support prices for leading crops and a build-up of strategic reserves. Shipments are expected to stabilize in the 16 million tonne neighborhood in the new economic/policy environment.



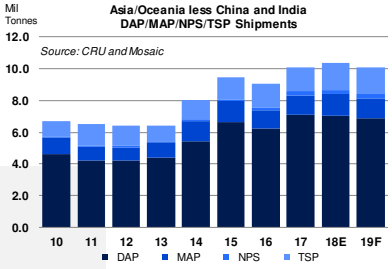
Indian shipments plummeted following changes in the subsidy and a doubling of retail DAP prices in 2010/11. The quality of the monsoons and shifts in channel stocks explain most of the noise in the fairly flat shipment volumes for the past four years. Some channel build in 2018 likely portends a small decline in shipments this year.



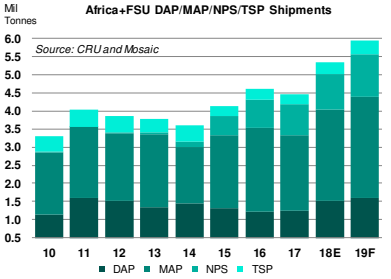
Phosphate demand in Brazil continues its strong upward trend driven by steady increases in agricultural production. The growth in NPS shipments – mostly Mosaic's MicroEssentials® – is noteworthy.



Shipments in the rest of Latin America surged in 2016, led by large gains in Argentina following the elimination or reduction of grain export taxes. Demand dropped off but remained at elevated levels in 2017, with Argentina pulling back due to drought. Demand deferral saw shipments slip in 2018, but we expect a rebound in 2019.



Shipments in the rest of Asia have increased significantly since 2013. The biggest gains were in India, Pakistan and Vietnam, but most countries registered increases during this period. Profitable farm economics due to steady crop prices and moderate phosphate costs underpinned demand growth.



African demand is taking off (and these statistics exclude NPKs) due to good public-private sector programs to boost productivity. In addition, the pace of recovery in the former Soviet Union has been picking up in response to moderate crop prices, weak currencies and a run of generally good harvests.

Global Phosphate Shipment Forecasts by Region (May 2019)

DAP / MAP / NPS* / TSP (Million Tonnes)	2017R	2018E	Low 2019F	High 2019F	Source: IFA, CRU and Mosaic (Numbers may not sum to total due to rounding) Comments
China	17.9	16.4	15.8	16.2	Our 2019 estimate is unchanged, as we continue to believe that the rate of decline in Chinese phosphate shipments will slow this year, and given a poor winter stockpiling season it means that spring demand which picked up in April will need to be met via new shipments (given little upcountry inventory). Domestic demand is expected to divert tonnes away from the export market, which during Q1 was ahead of last year's pace by about 550,000 tonnes DAP/MAP/TSP at nearly 1.8mmt.
India	9.0	9.4	9.2	9.5	We have left our India forecast unchanged: Favorable importer economics resulted in atypical imports from late 2018 and has carried through to the present. This has resulted in a notable stock build, and we expect that India will slow purchases over the next couple of months. We expect that the pace of imports will now slow down as buyers wait for clarity on pricing and subsidy levels after this month's elections. Our expectation is that on-farm demand will tick slightly higher in 2019 on a lower MRP, unchanged subsidy, a stable rupee and near-normal monsoon.
Other Asia/Oceania	10.1	10.6	10.0	10.2	We have revised our historical data higher based on new statistics, but have revised slightly lower our 2019 volume forecasts for most countries on demand concerns across the region. This has to do with expectations for poor moisture due to El Niño conditions and above-average inventories to start the year, but farm economics, with the notable exception of palm oil, generally remain constructive. The most notable expected decline is in Pakistan, where poor Rabi applications portend a greater than 10% y-o-y decline in 2019 (from ~2.5mmt to ~2.2mmt).
Europe and FSU	5.9	6.1	6.5	6.7	We have left our 2019 forecast range unchanged, as what appears to be a relatively disappointing spring season in Western Europe is offset by strong demand in Russia and parts of Eastern Europe.
Brazil	8.3	8.5	8.8	9.0	Farm economics continue to look attractive despite generally weak ag commodity prices, aided in particular by a weak currency. Phosphate shipments to date are ahead of last year's pace, and we continue in our view of another year of modest demand growth.
Other Latin America	4.0	4.0	4.0	4.2	Our 2019 forecast is unchanged, with solid farm economics expected to result in a modest uptick in demand, though we are monitoring the recent speculation of an increase in export tariffs in Argentina (10% for grains / 30% for soybeans).
North America	9.8	9.8	9.7	10.0	We continue to expect phosphate shipments to be broadly flat versus last year's downwardly-revised figure, though the spring season is late and logistical difficulties could result in some demand being lost if product cannot be placed where needed. Relatively high channel inventories, the result of a poor fall application season and the surge of imports in Q4 and Q1 (up 900,000 tonnes y-o-y to nearly 2.2mmt) are expected to be largely worked through by the close of the spring season.
Other	4.4	4.6	5.3	5.5	Our 2018 estimate was revised lower on a reassessment of our estimates for both Africa and the Middle East, notably for NPS products that meet our high-analysis definition. In addition, demand deferral late in the year (e.g. delays to the Ethiopian tender shipments) were also significant, but set the stage for a strong rebound in 2019.
Total	**69.3**	**69.4**	**69.3**	**71.3**	Our point estimate for 2019 is revised lower to 70.0mmt, a function of small downward revisions to several regions. The nearly 700,000 tonne y-o-y increase or 1.0%. Excluding China, global shipment growth is forecast 1.7% or 900,000 tonnes.

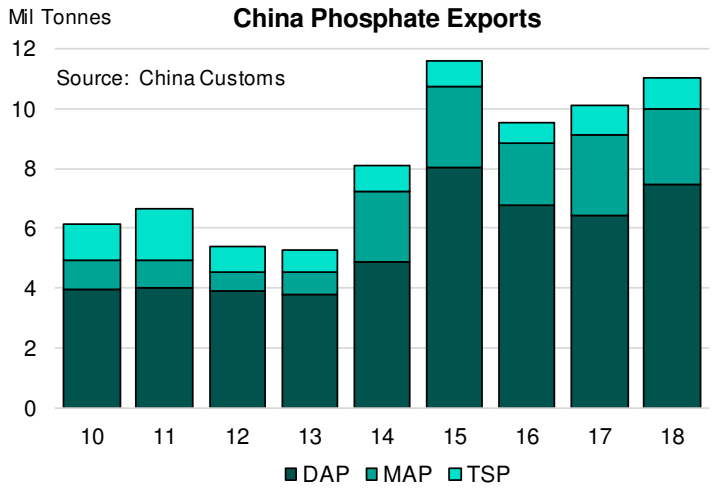
** NPS products included in this analysis are those with a combined N and P_2O_5 nutrient content of 45 units or greater.*

Supply Adjustments are Taking Hold

- Mosaic's idling of its Plant City facility in December 2017 took ~1.3 million tonnes off the market in 2018, while the slower ramp up of new capacity at the MWSPC JV in Saudi Arabia and the JPH 4 in Morocco resulted in output from those locations falling short of most expectations by over 1 million tonnes.
- Indian imports surged to 6.1 million tonnes (up 2.0 million tonnes year-over-year) in 2018.
- Chinese phosphate exports rose to meet the shortfall in supply, as margins were sufficient to incent those volumes (and it appears that domestic channel inventories were drawn down at the same time).

China Phosphate Exports						
	January-December				2018 vs. 2017	
1000 Tonnes	2015	2016	2017	2018	Change	Pct Chg
DAP	8.0	6.8	6.4	7.5	1.1	16.7%
MAP	2.7	2.0	2.7	2.5	-0.2	-8.2%
TSP	0.9	0.7	1.0	1.1	0.1	7.9%
Total	11.6	9.5	10.1	11.0	0.9	9.1%

Source: China Customs



China Exports Strong in Q1 as Domestic Demand Disappoints

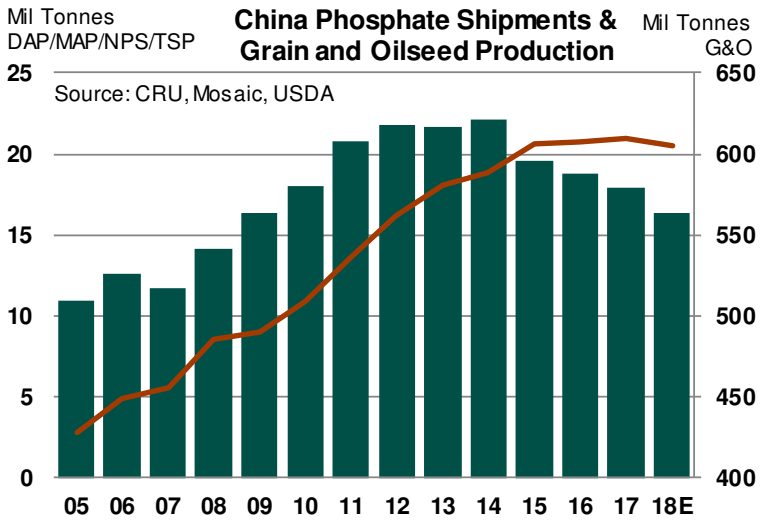
- Early indications are that domestic demand during the spring season was lower year-over-year.
- With broadly flat production, China's DAP/MAP/TSP exports were up by over 500,000 tonnes y-o-y in Q1 2019.
- We expect domestic phosphate demand to stabilize, in part because Chinese grain and oilseed production has flattened, which we do not believe is a sustainable or acceptable outcome.

China Phosphate Exports							
	January-March					2019 vs. 2018	
1000 Tonnes	2015	2016	2017	2018	2019	Change	Pct Chg
DAP	935	564	770	649	1,109	459	70.8%
MAP	481	324	480	338	442	104	30.7%
TSP	167	135	162	225	205	-20	-8.9%
Total	1,584	1,023	1,412	1,213	1,756	543	44.8%

Source: China Customs

China DAP/MAP/NPS/TSP

(mmt)	2014	2015	2016	2017	2018E	2019F
Production	27.2	29.7	27.8	27.6	27.2	26.4
Domestic	22.1	19.5	18.7	17.7	16.2	15.9
Exports	7.7	11.6	9.5	10.1	11.1	10.3
Inventory Δ	-2.6	-1.4	-0.4	-0.2	0.0	0.2



Fundamentals Math: 2019-20

Potential Phosphate Supply and Demand Changes

Mil Tonnes DAP/MAP/NPS/TSP	2019
Projected Shipment Changes	**0.66**
Potential Supply Changes Excluding China	**1.04**
Producer Inventory Draw	*0.25*
OCP Curtailments	*-0.30*
OCP Ramp-Up and Debottlenecking	*0.75*
MWSPC Ramp-Up	*0.70*
Nutrien Redwater Closure (May)	*-0.25*
Nutrien Geismar Closure	*-0.17*
Other Ramp-Ups / Closures	*0.40*
Miscellaneous Changes (Tunisia/Mexico/Australia/South Africa)	*-0.35*
S/D Surplus (+)/Deficit (-) Excluding Chinese Export Changes	***0.38***
Chinese Export Changes	
Less Than Expected	0.00
Expected	-0.79
Greater Than Expected	-1.00
S/D Surplus (+) / Deficit (-)	
Less-than-Expected Decline in Chinese Exports	0.38
Expected Decline in Chinese Exports	-0.41
Greater-than-Expected Decline in Chinese Exports	-0.62

← *Moderate gains are forecast outside of China and India; expected growth has been revised lower due to the weaker ag commodity environment.*

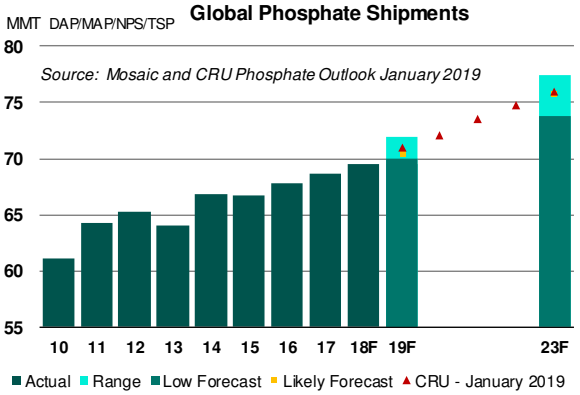
← *OCP ramp ups were the largest addition to global supply in 2018, but 2019 expected to see just incremental tonnes from JPH 4 and possibly some gains from debottlenecking, partly offset by Q1 announced curtailment.*

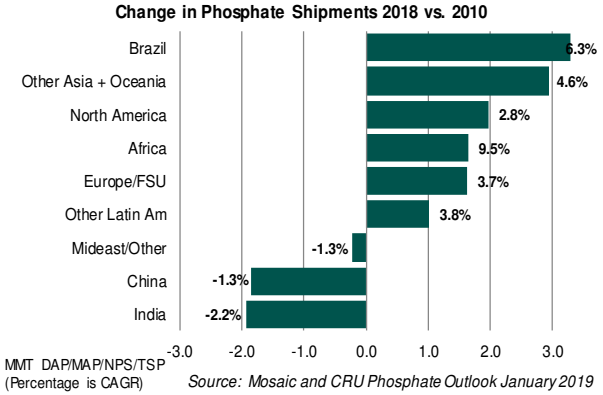
← *MWSPC expected to show a slightly smaller production improvement in 2019 as they did a year ago, with the incremental improvement weighted towards the back half of the year.*

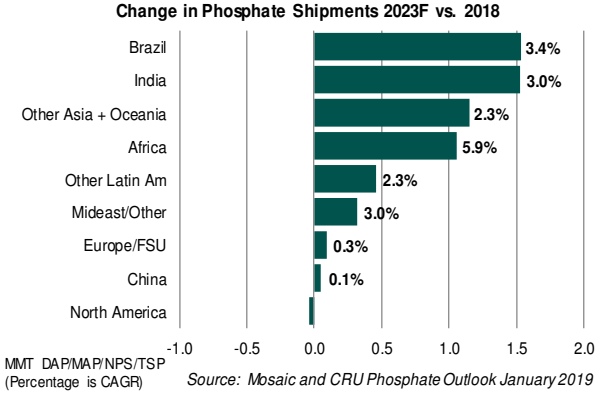
← *Nutrien closures will reduce P_2O_5 production, and invariably impact ammonium phosphate fertilizer output (either directly or indirectly – for example, by reducing merchant phosphoric acid sales to India that would have been used to produce phosphate fertilizers).*

← *Expected changes in supply and demand likely will result in a small surplus in 2019, before accounting for any changes to Chinese exports. If prices/margins remain at recent lower levels, we would expect that their export volumes will be constrained in the back half of the year.*

Five-Year Outlook: Positive Demand Outlook







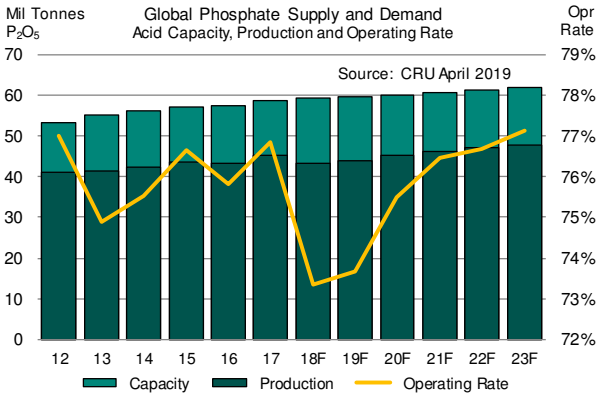
Global Phosphate Shipments

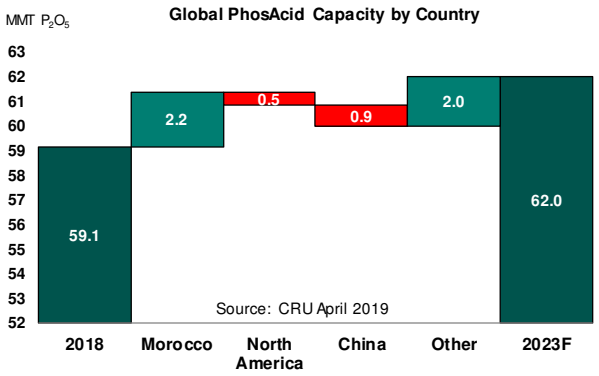
Mil Tonnes DAP/MAP/NPS/TSP	Mosaic Scenario Low	Likely	High	CRU Apr 2019
2010 Shipments		60.4		60.2
2018 Shipments		69.4		68.9
Change 2010-18		9.0		8.8
CAGR 2010-18		1.7%		1.7%
2023 Forecast	72.6	74.6	76.2	74.6
Change 2018-23	3.2	5.2	6.8	5.7
CAGR 2018-23	0.9%	1.5%	1.9%	1.6%

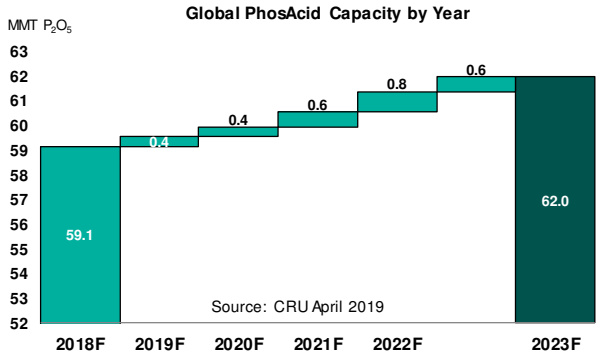
Source: Mosaic and CRU Phosphate Outlook April 2019

- By our most recent count, global shipments of the leading phosphate products increased 1.6% per year or 9.0 million tonnes from 2010 to 2018. India was a drag on demand with shipments dropping 1.9 million tonnes during this period due to subsidy cuts that resulted in a doubling of retail phosphate prices. Demand declined by a similar volume in China with shipments increasing significantly during the first half of this period but then declining during the second half.
- Shipments are forecast to increase 1.5% per year or 5.2 million tonnes from 2018 to 2023. Indian demand is expected to recover due to generally favorable farm economics and expectations of a workable subsidy. Chinese shipments are projected to stabilize following a notable drop in 2018. Brazil, Other Asian countries and Africa are projected to post strong gains during this period.
- CRU projects that demand will grow at 1.6% from 2018 to 2023.

Five-Year Outlook: CRU Forecasts (January 2019)







- CRU projects that global phosphoric acid capacity will increase 2.8 million tonnes P_2O_5 from 59.1 million in 2018 to 62.0 million in 2023. Morocco accounts for most of the net increase.
- OCP is expected to add 2.2 million tonnes P_2O_5 from the ramp up of JPH 4 (0.26 mmt), the addition of Line F in 2020 (0.45 mmt), the debottlenecking other Jorf lines (0.5 mmt), the start-up of the Laayoune project in Western Sahara in 2021/22 (0.33 mmt) and the start-up of JPH 5 in 2022 (0.45 mmt) and JPH 6 commissioning in 2023 (0.23 mmt), though the latter two projects are not firm as yet.
- CRU assumes Chinese phosphoric acid capacity will shrink 900,000 tonnes P_2O_5 as a result of industry restructuring and the enforcement of more stringent environmental regulations during this period, and they note the Nutrien closures this year (-0.5 mmt). Several capacity changes are expected in the rest of the world, with expansions in the FSU the most notable, accounting for 1.1mmt of the 2.0mmt "other" increases.
- CRU estimates that the global operating rate dipped in 2018 due to a rapid ramp up of new capacity in Morocco and Saudi Arabia. The rate then trends upward during the rest of the forecast period.

Factors to Watch

- Agricultural commodity prices
  - Food or farm crisis and impact on phosphate demand?
- Demand developments in key regions
  - Zero growth or further declines in China?
  - Recovery in India?
  - An African take-off?
  - Trajectory of FSU/Eastern Europe growth
- Ramp-up of new capacity
  - Continues to be slower-than-expected?
- Restructuring of the Chinese phosphate industry
  - Significant closures due to environmental regulations or environmental policy backtracking and government lifelines?
  - China becomes the world's residual supplier
- Competitor strategies and behaviors
  - Price over volume or volume over price?
- Raw materials costs
  - Price/demand impact and relative advantage or disadvantage?
- Currency risks/opportunities and macroeconomic/political shocks
  - Devaluation or appreciation of key phosphate currencies? (Real, Rupee, RMB, Ruble, Dirham)
  - Trade war or peace?

Additional Information



Reconciliation of non GAAP measures

Consolidated Earnings (*in millions*)	1Q 2019	1Q 2018	2018	2017
Consolidated net earnings attributable to Mosaic	$131	$42	$470	$(107)
Less: Consolidated interest expense, net	$(47)	$(49)	$(166)	$(138)
Plus: Consolidated depreciation, depletion and amortization	$218	$217	$884	$665
Plus: Accretion expense	$15	$12	$48	$25
Plus: Share-based compensation expense	$15	$15	$27	$28
Plus: Consolidated provision for (benefit from) income taxes	$47	$(50)	$77	$495
Plus: Notable items	$(42)	$115	$432	$15
Adjusted EBITDA	$430	$399	$2,104	$1,260
Diluted net earnings (loss) per share	$0.34	$0.11	$1.22	$(0.31)
Notable items impact on earnings per share	$(0.09)	$0.09	$0.90	$1.40
Adjusted diluted net earnings per share	$0.25	$0.20	$2.12	$1.09

Reconciliation of non GAAP measures

Phosphates Earnings (*in millions*)	1Q 2019	1Q 2018	2018	2017
Operating earnings	$44	$78	$473	$256
Plus: Depreciation, depletion and amortization	$103	$99	$403	$338
Plus: Accretion expense	$12	$9	$37	$21
Plus: Foreign exchange gain (loss)	$2	$4	$11	$(11)
Plus: Other income (expense)	$1	$(5)	$(15)	$(1)
Plus: Equity in net earnings (loss) from nonconsolidated companies	$0	$(4)	$(6)	$16
Less: Earnings (loss) from consolidated noncontrolling interests	$1	$(1)	$1	$2
Plus: Notable items	$7	$16	$64	$23
Adjusted EBITDA	$168	$198	$966	$640
Gross Margin / tonne	$31	$49	$69	$35
Notable items in gross margin / tonne	$5	$8	$3	$0
Adjusted gross margin / tonne	$36	$57	$72	$35

Reconciliation of non GAAP measures

Potash Earnings (*in millions*)	1Q 2019	1Q 2018	2018	2017
Operating earnings	$176	$92	$511	$344
Plus: Depreciation, depletion and amortization	$78	$76	$302	$287
Plus: Accretion expense	$1	$1	$4	$4
Plus: Foreign exchange gain (loss)	$37	$(30)	$(117)	$80
Plus: Other income (expense)	$1	$0	$1	$0
Plus: Notable items	$(37)	$35	$165	$(67)
Adjusted EBITDA	$256	$174	$866	$648
Gross Margin / tonne	$100	$61	$68	$45
Notable items in gross margin / tonne	$0	$3	$1	$2
Adjusted gross margin / tonne	$100	$64	$69	$47

Reconciliation of non GAAP measures

Mosaic Fertilizantes Earnings (*in millions*)	1Q 2019	1Q 2018	2018	2017
Operating earnings	$27	$13	$238	$63
Plus: Depreciation, depletion and amortization	$32	$37	$159	$17
Plus: Accretion expense	$2	$2	$7	$0
Plus: Foreign exchange gain (loss)	$(9)	$(5)	$(85)	$(24)
Plus: Other income (expense)	$(2)	$0	$(1)	$(4)
Less: Earnings (loss) from consolidated noncontrolling interests	$0	$0	$3	$4
Plus: Notable items	$12	$21	$114	$24
Adjusted EBITDA	$62	$68	$429	$73
Gross Margin / tonne	$34	$37	$41	$21
Notable items in gross margin / tonne	$0	$0	$0	$0
Adjusted gross margin / tonne	$34	$37	$41	$21

Components of Adjusted EBITDA[(1)] Growth:

2019 initial guidance of $2.2 to $2.4 billion to 2021 target

	Price Changes 2019 to 2021 ~$200 million impact	Volume Changes 2019 to 2021 ~$100 million impact	Controllable Cost Improvements ~$300 million impact
Phosphates	DAP stripping margin: $263 to $300 / tonne	2019 midpoint: 8.8 to 9.5 million tonnes	~$85 million
Potash	MOP price at the mine: $228 to $180 / tonne	2019 midpoint: 9.2 to 9.0 million tonnes	~$145 million
Mosaic Fertilizantes	MAP up country price: $497 to $510 / tonne	2019 midpoint: 9.6 to 10.3 million tonnes	~$100 million (discounted)

Phosphates adjusted EBITDA[(1)] change	Potash adjusted EBITDA[(1)] change	Mosaic Fertilizantes + Corp & Other adjusted EBITDA[(1)] change
~$700 mm	~$(300)	~$200

2018 DAP stripping margin: $270 / tonne
2018 MOP at the mine: $213 / tonne
2018 Brazil MAP upcountry: $491 / tonne

Phosphate cost improvements: transformation + lower idle plant
Phosphates adjusted EBITDA growth also includes higher MicroEssentials sales
Potash cost improvements: brine and other transformation
Mosaic Fertilizantes: continued transformation beyond $275 target

[(1)]See Non-GAAP Financial Measures for additional information

Details of Adjusted EBITDA[(1)] Growth to 2021

Including Canadian Resource Tax increase:

Phosphates	
Volume: 300 stripping margin *0.7 million tonnes	$210 million
Price: $37 stripping margin increase * 8.8 million tonnes	$326 million
Cost savings initiatives	$85 million
Higher percentage of MicroEssentials sales	$50 million
Total Phosphates Change	**~$700 million**
Potash	
Volume: $180 net back price * (0.2) million tonnes	$(16) million
Price: $48 net back price decrease * 9.0 million tonnes	$(432) million
Cost savings initiatives	$145 million
Canadian Resource Tax increase	$(50) million
Total Potash Change	**~$(350) million**
Mosaic Fertilizantes and Other	
Volume: $50 gross margin per tonne *.7 million tonnes	$35 million
Price: $13 gross margin per tonne increase * 10.3 million tonnes	$134 million
Cost savings initiatives	$100 million (discounted)
Total Mosaic Fertilizantes and Other Change	**~$250 million**

[(1)]See Non-GAAP Financial Measures for additional information

Drivers of Lowering 2019 Adjusted EBITDA [1] Guidance and Impact Beyond 2019

Initial 2019 Adjusted EBITDA [1] Guidance		**$2.2 to $2.4 billion**	
	Brazilian Dam Costs	$(50) to ($100) million	*Transitory*
	Canadian Resource Tax	$(35) to ($50) million	*Ongoing*
	Lower phosphate price offset by higher potash price (plug)	($65) to ($15) million	*No change to 2021 target*
Total Change		**($200) to ($100) million**	
Revised 2019 Adjusted EBITDA[1] Guidance		**$2.0 to $2.3 billion**	

[1]See Non-GAAP Financial Measures for additional information