

# The Mosaic Company

**Modeling with New Disclosures  
Linking Price & Drivers to Financial Results**

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# Forward Looking Statements & Non-GAAP Financial Measures

*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 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: political and economic instability in Brazil or changes in government policy in Brazil, such as higher costs associated with the new mining rules or the implementation of new freight tables; 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 Wa'ad Al Shamal Phosphate Company (also known as MWSPC), 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.*

*This presentation includes certain non-GAAP financial measures, including adjusted EBITDA, adjusted gross margins, adjusted earnings per share. For important information regarding the non-GAAP measures we present, see "Non-GAAP Financial Measures" in our February 19, 2020 earnings release and the performance data for the fourth quarter of 2019 that are available on our website at [www.mosaicco.com](http://www.mosaicco.com) in the "Financial Information – Quarterly Earnings" section under the "Investors" tab. The earnings release and performance data are also furnished as exhibits to our Current Report on Form 8-K dated February 19, 2020.*



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# Overview of Approach

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***At their simplest, the fundamental drivers of our financial performance are volumes, prices, and costs.***

Complexities arise primarily in understanding the delay between the market prices you see and prices realized in our financial results.

- For revenues, sales may be priced a quarter before the product is delivered, depending upon the season and depth of order book.
- For raw material costs, purchases go through raw material inventory, are used in production. The costs are then realized when the product is delivered. Again, this could result in a delay of a quarter or more, depending upon the season, depth of order book and length of raw material inventory.

Costs, excluding raw materials, are over 85% fixed in our production businesses, and our long-term operating targets can help you identify how we are driving our cost trends beyond the current year.

## 1. Market Price Drivers Provided

- Sensitivity of our earnings to changes in P and K price for all segments
- Historical data by product and geographic mix, to help you align to market prices
- Historical detail on raw material sourcing for phosphates, to help you assign appropriate costs

## 2. Cost Drivers Provided (excluding raw materials of sulfur and ammonia)

- Known nonmarket driven changes to the base costs of the prior year
- Published and tracked progress toward multi-year targets
- Costs estimates necessary to reconcile adjusted EBITDA to adjusted EPS

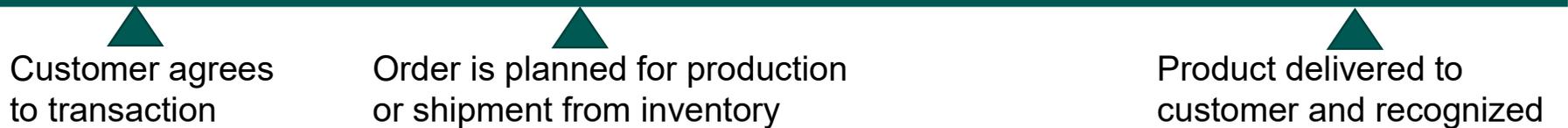
## 3. Volume Drivers Provided

- Mosaic's expectations for global shipments by country. In normal periods, we would expect our volumes to reflect overall market growth.
- Volumes can be constrained by production capacity, and we will continue to disclose our operating capacity.

# Understanding the lag between market pricing and financial results

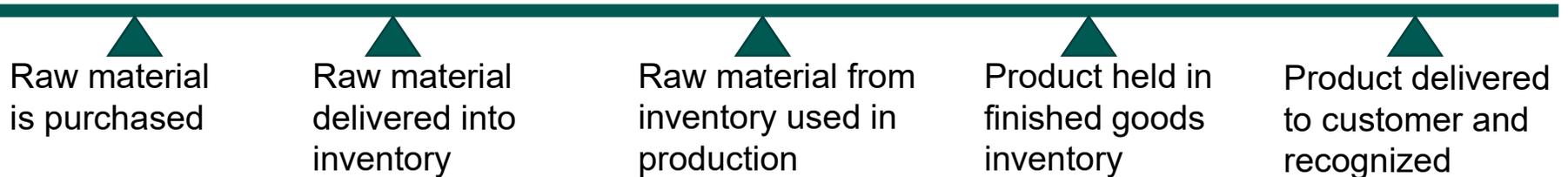
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## For Finished Products



*Time lines varies with finished goods inventory levels, seasonality and logistics timing.*

## For Raw Materials



*On average, the company holds 20 days of ammonia and 35 days of sulfur inventory.*

# Sensitivities using 2019 Cost Structure

Based on 2019 Actuals	
Adjusted EBITDA <sup>(1)</sup>	\$1.35 bn
Known non-market growth 2020 vs. 2019	\$.225 bn

Sensitivity	Full year adj. EBITDA impact	2019 Actuals
Average MOP Price / tonne (fob mine)	\$10/mt price change = \$55 million <sup>(2)</sup>	\$237
Average DAP Price / tonne (fob plant)	\$10 / mt price change = \$95 million	\$325
Average BRL / USD	\$0.10 change, unhedged = \$21 million	3.94
Average CAD / USD	\$0.01 change, unhedged = \$14 million	1.33

- Based on 2019 conversion costs
- The EBITDA sensitivity to average MOP and DAP price/ tonne includes Mosaic Fertilizantes
  - ~10% of the average MOP price per tonne impact to EBITDA relates to Mosaic Fertilizantes
  - ~15% of the average DAP price per tonne impact to EBITDA relates to Mosaic Fertilizantes
- ~85% of Potash cash costs were fixed, excluding brine and CRT
- ~88% of Phosphates cash conversion costs were fixed

<sup>(1)</sup> See Non-GAAP Financial Measures for additional information

<sup>(2)</sup> Includes impact of CRT, which is expected to average 20-22% of Gross Margin excluding CRT in 2020, and 35% on a marginal basis

# Mosaic's Posted Price Dashboard

[http://www.mosaicco.com/documents/20200214\\_Price\\_Dashboard\\_External.pdf](http://www.mosaicco.com/documents/20200214_Price_Dashboard_External.pdf)

## Plant Nutrient Price Dashboard

Week Ending February 14, 2020



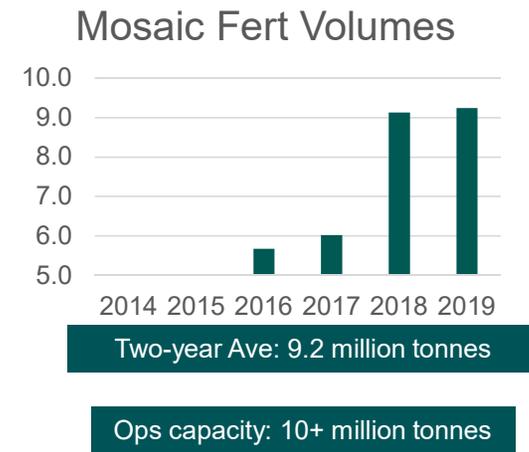
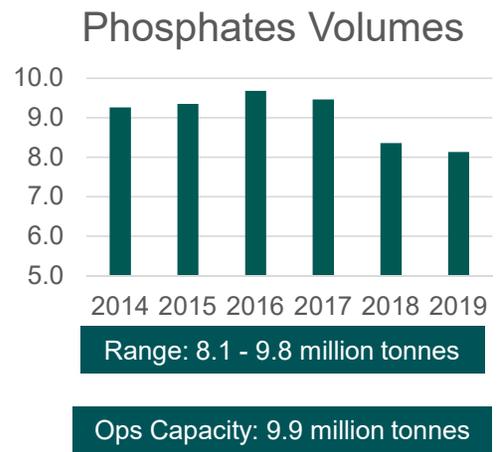
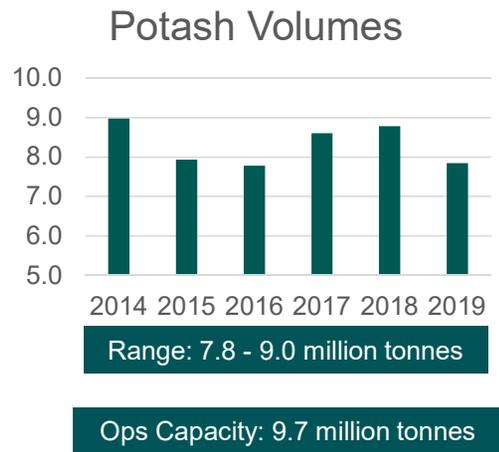
		Publication Date: Feb 13, 2020			Average vs.		Weekly Change	UoM
Market Average <sup>1</sup>		Low	High	Average	Prev Wk	Prev Yr		
<b>Phosphate</b>								
DAP	Tampa	300	302	301	294	391	↑	\$/MT
	NOLA	273	279	276	282	357	↓	\$/ST
	CFL	296	296	296	296	415	⇒	\$/ST
	Morocco	299	309	304	300	416	↑	\$/MT
	Saudi Arabia	288	297	292	289	407	↑	\$/MT
	China	290	296	293	290	390	↑	\$/MT
	India C&F	299	303	301	296	404	↑	\$/MT
MAP	Brazil C&F	318	325	321	317	411	↑	\$/MT
	NOLA	277	284	281	278	362	↑	\$/ST
<b>Potash</b>								
Granular MOP	NOLA	209	217	213	217	287	↓	\$/ST
	Corn Belt	250	262	256	257	325	↓	\$/ST
	Brazil C&F	241	244	242	254	353	↓	\$/MT
Standard MOP	SE Asia C&F	250	263	257	263	306	↓	\$/MT
<b>Urea</b>								
Granular Urea	NOLA	227	235	231	225	239	↑	\$/ST
	Brazil	240	244	242	238	263	↑	\$/MT
<b>Raw Materials</b>								
Phosphate Rock	Morocco	68	76	72	72	102	⇒	\$/MT
Ammonia - Contract	Tampa C&F	250	250	250	250	285	⇒	\$/MT
Sulphur - Contract	Tampa C&F	36	36	36	36	109	⇒	\$/LT
<b>High-Analysis Phosphate Global Net Price<sup>2</sup></b>				225	221	287	↑	\$/MT

# Operating Driver Targets

	2018 actual	2019 actual	2021 target	
Phosphates	Cash cost of U.S. mined rock (\$/tonne)	\$38	\$41	\$39
	Cash costs of conversion (\$/tonne)	\$63	\$65	\$56
	Sales of MicroEssentials (mm tonnes)	2.9	2.7	3.7
	Average MicroEssentials margin, premium to MAP (\$/tonne) <sup>(1)</sup>	\$43	\$45	\$40 - \$50
Potash	Cash costs of production (excluding brine) – MOP (\$/tonne)	\$66	\$74	\$62
	Cash brine management costs (\$ in millions)	\$123	\$101	\$85
Mosaic Fertilizantes	Cash costs of rock (R\$/tonne)	R\$346	R\$331	R\$320
	Cash costs of conversion - Phosphates (R\$/tonne)	R\$265	R\$321	R\$275
	Total Selling, General & Administrative Expenses (\$ in millions)	\$341	\$354	\$340

<sup>(1)</sup> Includes margins earned locally on sales by Mosaic Fertilizantes and Mosaic China.

# Volumes Ranges



None of our segments are expected to be operationally constrained in 2020.

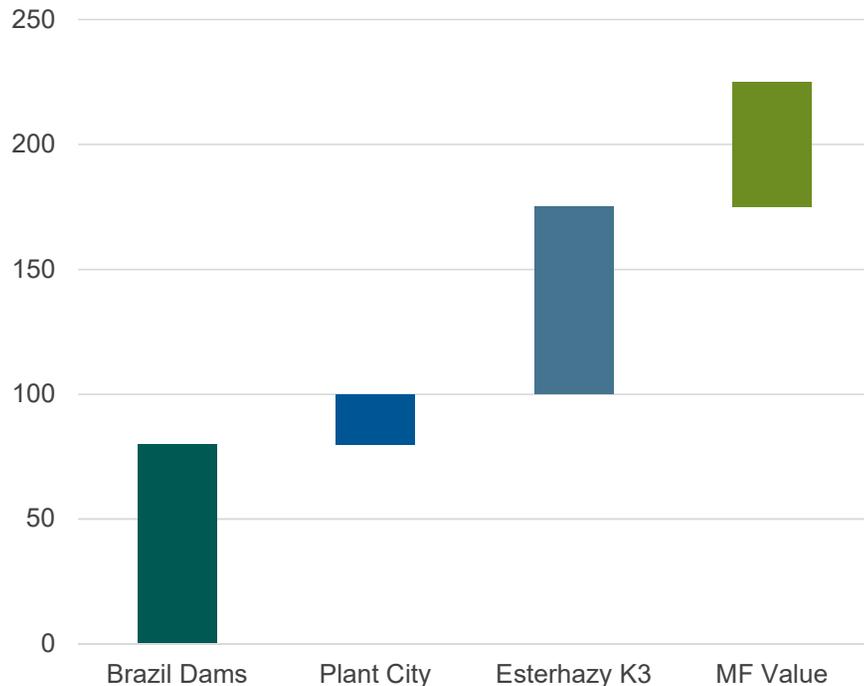
Potash operating capacity excludes Colonsay.

Phosphates volumes reflect the curtailment of Plant City production beginning with 2018.

# Expected Non-market Growth 2019 to 2020



**Non-Market Growth 2019 to 2020  
Adjusted EBITDA<sup>(1)</sup>**



<sup>(1)</sup>See Non-GAAP Financial Measures for additional information

**Mosaic expects ~ \$225 million of adjusted EBITDA<sup>(1)</sup> growth, all else equal, due to the following:**

- The Brazilian phosphate mines resumed full operations in September, with the outages in 2019 expected to cost an estimated \$80 million.
- Plant City costs to hold the plant idle will be eliminated with its closure announced in June of 2019, eliminating ~\$20 million in costs.
- Shifting production of 600,000 tonnes to Esterhazy K3 is expected to increase EBITDA by ~\$70 to \$80 million.
- Mosaic Fertilizantes expects to realize incremental value from transformation of \$50 million in 2020.

# Additional Modeling Assistance

<b>Estimated reconciling items EBITDA to EPS</b>	<b>\$ in millions</b>
Adjusted Depreciation, Depletion & Amortization	\$915
Net Interest Expense	\$180 - \$190
Non-Notable Adjustments	\$80 - \$90
Effective Tax Rate	Low 30's%
<b>Capital Expenditure Expectations</b>	<b>\$ in billions</b>
Sustaining Capital*	\$0.80
Growth Capital	\$0.40
Total Capital Expenditure Estimate	\$1.20

\* Includes ~\$75 million in RCRA related capital spending that is not expected to continue beyond 2020.

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



# Aligning Seasonality to Quarterly Expectations

We plan to provide incremental monthly data on sales revenues and volumes to provide better transparency of the lag between market prices and realized prices, and the seasonality of volumes, which can vary significantly from year to year. This is expected to aid analysts in developing quarterly estimates.

\$ in millions*	1/19	2/19	1Q19	4/19	5/19	2Q19	7/19	8/19	3Q19	10/19	11/19	4Q19
Phosphates Sales	\$234	\$221	<b>\$806</b>	\$271	\$325	<b>\$917</b>	\$226	\$262	<b>\$820</b>	\$215	\$188	<b>\$698</b>
P Volumes mmt	.51	.46	<b>1.79</b>	.61	.75	<b>2.18</b>	.58	.70	<b>2.19</b>	.59	.52	<b>2.01</b>
Potash Sales	\$159	\$161	<b>\$504</b>	\$179	\$204	<b>\$599</b>	\$212	\$198	<b>\$616</b>	\$158	\$92	<b>\$395</b>
K Volumes mmt	.56	.63	<b>1.86</b>	.64	.74	<b>2.16</b>	.79	.76	<b>2.32</b>	.61	.36	<b>1.50</b>
Mosaic Fert Sales	\$261	\$245	<b>\$698</b>	\$202	\$251	<b>\$833</b>	\$437	\$499	<b>\$1388</b>	\$350	\$253	<b>\$864</b>
MF Volumes mmt	.55	.51	<b>1.53</b>	.52	.62	<b>2.10</b>	1.03	1.24	<b>3.42</b>	.89	.64	<b>2.19</b>

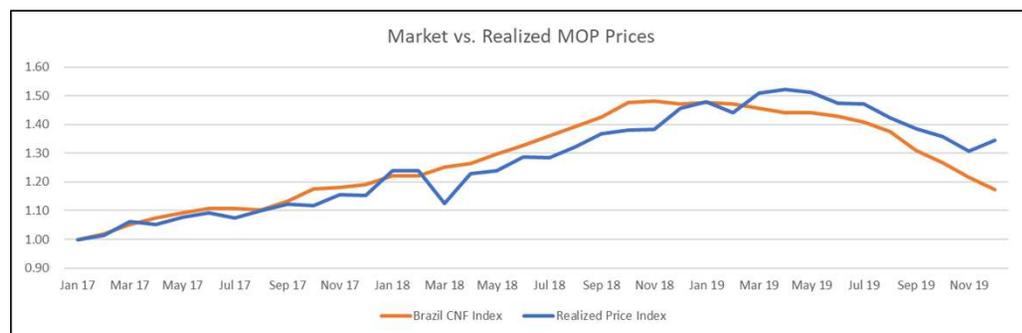
\* These values are recognized in the period and reflect prices when product is delivered. The implied prices (Sales / Volumes) reflect market prices when the deliveries were committed, which may lag reported market prices by as much as 3 months, or longer for potash international contracts with China and India.

# By Segment Considerations



# Potash

- Product mix:
  - Standard product is the primary product sold under China and Indian contracts.
  - Granular product is the primary product sold into North America and Brazil.
  - Granular product is generally priced at a premium to standard, covering the slightly higher costs associated with the granulation process.
- In the short term, 85% of cash production costs are fixed.
- On average, Canadian Recourse Taxes can be estimated by applying the rate of 20 to 22 percent of GM excluding CRT. For marginal volumes, the marginal CRT rate is approximately 35%.
- Tonnes sold through Canpotex are priced net, with Canpotex responsible for transportation costs. Ergo, Canpotex revenues reflect net pricing.
- Tonnes sold in North America are priced delivered and both revenues and COGS include transport costs.

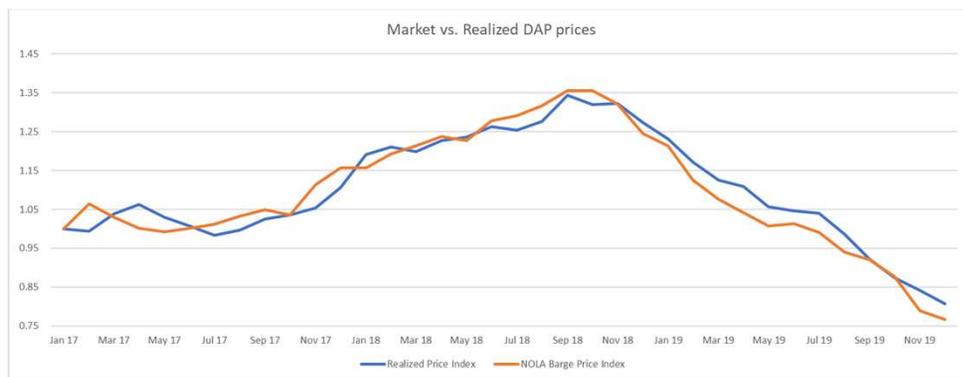


Based on 2018 and 2019 monthly averages:

- Logistics costs / tonne = \$78 N.A.; \$90 Export
- Days lag pricing to revenue recognition:
  - Average = 53
  - Median = 55
  - Range = 25 to 85
- Lag varies with seasonality and sentiment. The pace of buying and delivery increases when prices are rising. Fixed price contracts for China and India dampen correlations.
- Export logistics costs are not included in Mosaic's COGS or revenues.

# Phosphates – finished products

- Product mix
  - DAP/MAP product relative prices can vary based on geographic supply / demand considerations.
  - India is primarily a DAP market, while Brazil is primarily a MAP market.
  - MicroEssentials is a MAP based product, with finished product prices closely tied to MAP prices.
  - The company has significant flexibility in the manufacturing mix between MAP, DAP and MicroEssentials
- In the short term, 88% of cash conversion costs are fixed.
- Relative Product costs
  - DAP contains more ammonia than MAP, at .23 tonnes of NH<sub>3</sub> per tonne of DAP, and .15 tonnes NH<sub>3</sub> per tonne of MAP.
  - MAP contains more phosphoric acid, generally 52% P<sub>2</sub>O<sub>5</sub> vs. 46% for DAP.
  - MicroEssentials contains less phosphoric acid, but incremental micronutrients..
- All product revenues are based on delivered prices, and both revenues and COGS include transport costs.



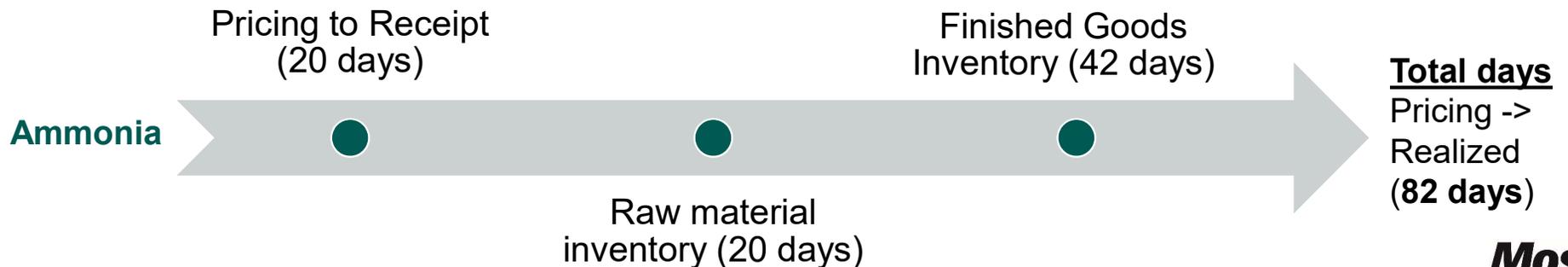
Based on 2018 and 2019 monthly averages:

- Logistics costs / tonne = \$40 - \$45, fairly stable
- Days lag pricing to revenue recognition:
  - Average = 42
  - Median = 45
  - Range = 19 to 64

Lag varies with seasonality and sentiment. The pace of buying and delivery increases when prices are rising.

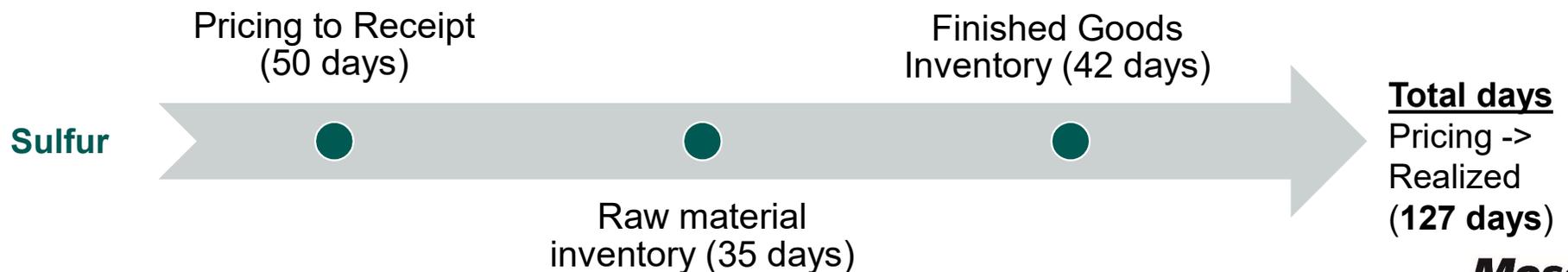
# Phosphates – ammonia

- Ammonia is used to granulate phosphate products used in agriculture (DAP, MAP, & MicroEssentials)
- The Company has three sources of ammonia:
  1. Contract with CF Industries for a minimum of 540,000 tonnes annually, and up for renewal in 2025
    - These tonnes are generally taken pro rata through the year.
    - Contract pricing includes a capital charge component.
    - The company views this contract as a hedge, and it is currently above market price.
  2. Manufactured ammonia from Faustina, with an annual capacity of approximately 450,000 tonnes.
    - This is the company's lowest cost source of ammonia, generally 40 mmBTU's of natural gas plus \$70 / tonne of ammonia conversion costs, including ~\$10 / tonne of depreciation.
  3. Spot purchases to supplement the above sources.
    - Market prices to benchmark should align to Port of Tampa delivered prices.
- The company averages 20 days of storage capacity for ammonia at the port and chemical plants.
- Ammonia is primarily transported from the port to the plants via pipeline.
- Incremental transportation and storage costs are as follows:
  - To get CF ammonia from Louisiana to the port of Tampa is estimated to be ~ \$35 / tonne of ammonia.
  - Incremental storage costs and transport from the port to the chemical plants is estimated to be ~ \$35/ tonne of ammonia.
  - Excess manufactured ammonia is currently sold in Louisiana, but is expected to be transported to FL with CF ammonia tonnes later in 2020.



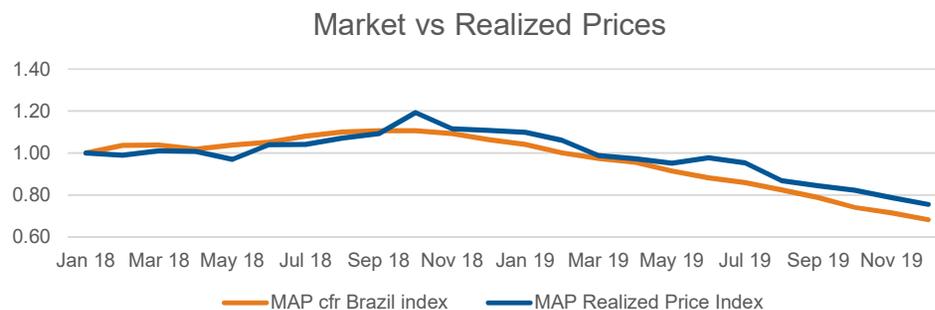
# Phosphates – sulfur

- The company uses sulfur to create sulfuric acid. The process is exothermic, and cogenerates electricity for the company's chemical plants and phosphate mines.
- The sulfuric acid is used to create phosphoric acid from the phosphate rock.
- At the plant, it takes approximately 1 tonne of sulfur and 3.6 tonnes phosphate rock to create 1 tonne of phosphoric acid.
  - It takes ~.46 tonnes of phosphoric acid to create a tonne of DAP, ~.52 tonnes to create a tonne of MAP, and ~.38 tonnes to create a tonne of MicroEssentials.
- The company uses two sources of sulfur, molten and prilled.
  - The company can take molten sulfur directly from gulf refineries and transport it cross-gulf in special barges, then to the chemical plants in specially designed trucks. The molten sulfur must be heated to be kept in the liquid state.
  - The market price benchmark for sulfur reflects the molten, delivered Tampa price. By the time it is realized in COGS, there is an additional \$25 - \$30 / tonne cost of logistics.
  - Prilled sulfur is delivered in the solid form, then melted for use. Because of the energy used to transform it to molten sulfur, the costs are about \$50 / tonne higher than molten by the time it is used in production, but may vary depending on the cost differential between prilled and molten.
  - The company uses 10 – 20 percent prilled sulfur, depending upon availability of molten sulfur.
- The company has storage capacity for ~35 days of production for molten sulfur at the ports and chemical plants, and ~15 days of prilled, however the company only used 10 to 20 percent prilled in production.
  - If there is no need for use of prilled, the realization of prilled sulfur costs may be even further delayed.



# Mosaic Fertilizantes – finished product production

- Mosaic refers to this portion of Mosaic Fertilizantes as the B2B business
- The costs in this business are primarily BRL based, with 25% in USD related to raw materials of sulfur and ammonia. As a result the segment is short BRL for months longer than 3 months. Approximately 50% of this exposure is hedged, with the unrealized gain / loss on these hedges flowing through the corporate segment.
- Once the finished product is priced, with pricing generally tied to the USD price of the global product, the business is actually long BRL, and the company hedges net cash proceeds into USD.
- Mosaic Fertilizantes produces several phosphates products which generally trade relative to MAP prices. General ratios are: TSP = 80% MAP; SSP = 40% MAP
- Mosaic Fertilizantes also sells other products like animal feed, as well as co products like gypsum.
- Our disclosures include produced volumes, which are typically recognized as sales on a one quarter lag.
- Only MAP uses ammonia, so the volumes used in production are significantly less than Mosaic's Florida phosphate operation.
- We've also included MAP delivered prices to third parties in our performance data, to help track B2B realized sales price vs. market prices.
- Mosaic Fertilizantes produced potash is generally sold to the local market.
- Of the phosphate tonnes produced in Brazil, approximately 20 percent are sold through the distribution business in Brazil.



Based on 2018 and 2019 monthly averages:

- Mosaic priced MAP on a delivered basis, inclusive of transpiration costs from the plant to the customer.
- The chart shows realized pricing lagging market price, similar to Florida DAP
- Days lag pricing to revenue recognition:
  - Average = 45
- Lag varies with seasonality and sentiment. The pace of buying and delivery increases when prices are rising.

# Mosaic Fertilizantes – distribution

- Mosaic refers to this portion of Mosaic Fertilizantes as the B2C business.
- Costs and finished product are generally tied to the USD price of the global product. However, with margins, the business is actually long BRL in months 0-4, and the company hedges net cash proceeds into USD.
  - The company is short BRL for months 4 through 12, as we have BRL expenses but revenues have not been locked in.
  - After sale of product, where prices are pegged to the USD prices but the company received BRL, the company is long BRL in months 0 through 3.
  - On average, 50% of our exposure to BRL changes is hedged in the medium term, with close to 100% hedged in the short-term (our net cash balances).
- The fixed costs consist of warehouses and blending facilities, while variable costs include raw materials of N, P and K granular products, and logistics costs.
- Mosaic's B2C business sells primarily blends which historically have been comprised of:
  - Phosphates 45%; approximately 30% from Brazil production and 70% from North American production
  - Potash 35%; 100% from Canpotex
  - Nitrogen 20%; from third party suppliers
- The distribution logistics costs average approximately \$60 / tonne.
- The phosphates from North American production includes MicroEssentials, which has higher distribution margins than commodity products.
- The company targets distribution margins of ~\$25 / tonne on commodities, but margins can be impacted by changes in prices on inventory and product mix.
- Distribution volumes are closely tied to seasonal volumes in Brazil, with the peak season falling in the third quarter.

## Corporate & Other\*

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There are four primary categories of revenues and expenses in this segment

1. Profit in inventory (PII)
  - This offsets intersegment profit before sales to final third party customers. For example: Phosphates segment will recognize sales and profits for MicroEssential products sold through transfer pricing to our Brazil distribution business, but those revenues and profits will be unwound in the corporate segment until that product is sold to independent third parties.
  - We have PII for Phosphate products and Potash products sold to Mosaic Fertilizantes or our China and India distribution businesses.
  - There is no PII recorded for intra segment sales from production to distribution within Mosaic Fertilizantes
  - PII is seasonal, negative when Brazil is building inventory before their seasonal peak in the third quarter, and positive when inventory from intersegment sales is being drawn down.
2. SG&A
  - This is primarily corporate functions not directly aligned or allocated to the operating segments
  - 2019 is higher than normal run-rate due to the corporate office move and related costs (severance and dual roles for a period), as well as investments in consulting for North American transformation
3. Distribution businesses in China and India
  - These businesses sold 1.5 million tonnes of products, over 50% supplied from Canpotex.
4. Unrealized gain or loss on derivatives in COGS
  - This primarily relates to medium term hedges on BRL, and is excluded from adjusted EBITDA and adjusted EPS

\*Other also includes Streamsong in this segment.

# Demand Growth vs. Mosaic's Volumes

Mm tonnes	2015	2016	2017	2018	2019e	2020f
Global K shipments	61.7	60.8	65.0	67.0	65.2	67.3
Mosaic tonnes sold	7.93	7.78	8.60	8.78	7.84	Note (4)
Percent share	12.85	12.80	13.23	13.10	12.02 <sup>(3)</sup>	
Global P shipments	67.6	70.3	71.6	72.2	70.7	73.2
Mosaic tonnes sold <sup>(1)</sup>	9.35	9.68	9.46	8.39	8.18	Note (5)
Percent share	13.83	13.77	13.21	11.62 <sup>(2)</sup>	11.57	

(1) Phosphates tonnes sold reflect finished tonnes, only.

(2) 2018 was the first full year Plant City phosphates production was idled.

(3) Mosaic's large share of N.A. market resulted in a disproportionate volume impact by poor North American weather.

(4) Considerations for 2020 potash volumes:

- Mosaic does not expect to be capacity constrained.
- New supply from ramp up of greenfield production is expected to take share.

(5) Considerations for 2020 phosphates volumes:

- All facilities are expected to be ramped up by the end of Q1 2020.
- Over time, expect improved efficiencies and recovery rates to increase operating capacity.
- The majority of new greenfield projects have completed their ramp up.

# Finished Product Tonnes

## Distribution of Sales by Quarter

		2016	2017	2018	2019	Average
Phosphates Segment	Q1	23%	24%	23%	22%	23%
	Q2	25%	27%	28%	27%	27%
	Q3	26%	22%	27%	27%	25%
	Q4	26%	26%	22%	25%	25%
Potash Segment	Q1	20%	23%	19%	24%	21%
	Q2	26%	25%	27%	28%	27%
	Q3	28%	26%	28%	30%	28%
	Q4	26%	26%	26%	19%	24%
Mosaic Fertilizantes	Q1	19%	18%	17%	17%	18%
	Q2	21%	22%	20%	23%	21%
	Q3	33%	34%	39%	37%	36%
	Q4	28%	26%	23%	24%	25%

# Global Potash Shipment Forecasts by Region (February 2020)

Muriate of Potash Mil Tonnes KCl	2018	2019E	Low 2020F	High 2020F	Comments
China	14.4	15.9	15.3	15.6	Modest demand growth is expected to be offset by some drawdown of channel inventories, resulting in a potential y-o-y retreat in total MOP shipments in 2020 (our point estimate of 15.5mmt is still the 4 <sup>th</sup> highest on record). The current situation (weak CNY and Coronavirus) implies a slow Q1 after net imports surged 22% to almost 8.9mmt (9.1mmt imports, 0.2mmt exports) in 2019.
India	4.6	4.1	4.1	4.4	Lower prices, limited carry-in inventories and good demand are expected to drive recovery in Indian shipments this year. Demand prospects in India remain positive as above-average rainfall boosts Rabi harvest expectations, coupled with higher minimum support prices. Ample pre-monsoon rain and higher reservoir storage could also encourage Kharif sowing of major crops. Potash sales have improved in recent months and we expect the trend to continue into the start of the Kharif season, and assume little change to the potash MRP in 2020 (possibility for lower subsidy, but offset by lower international prices).
Indonesia & Malaysia	5.2	3.7	4.6	5.0	We remain optimistic of a strong demand recovery in the region in 2020 due to the tightening of the palm oil S/D and y-o-y improved CPO prices (~2,700 MYR/t mid-Feb). The uncertainty around palm oil export demand ( <i>China/India import appetite</i> ) has tempered nearby demand expectations, but we expect very strong buying activity as we move toward the second half of the year.
Other Asia	4.9	4.5	4.7	4.9	MOP shipments in 2019 were hampered by unfavorable weather in key countries in the region. We expect a decent recovery of demand this year as farm economics have improved with rice prices now at levels above those in 1H 2018, combined with expectations for a return to a 'normal' weather pattern.
W. Europe	5.0	4.9	4.8	5.0	We continue to project generally flat European shipments (industrial and ag demand) in 2020.
E. Europe & FSU	5.7	5.7	5.7	5.9	Continued expansion of the agricultural sector in the region provides a good demand base and we expect potash demand to continue to grow modestly. The key uncertainty remains around the potential for extreme weather events in the region.
Brazil	10.4	10.6	10.6	10.8	On-farm potash demand is forecast to grow another 2% this year in the face of good farm economics and favorable crop conditions. However, total shipments are expected to grow at a slower pace due to some drawdown of in-country inventories. MOP imports reached a record of 10.2mmt last year and we expect a similar level in 2020. MOP stocks have crept up to almost 1.5mmt at the end of 2019, but this is only 100 basis points higher than the 10-year average stocks-to-use ratio.
Other L. America	3.2	3.1	3.2	3.4	Shipments in the rest of Latin America look to increase modestly due to generally favorable farm economics.
N. America	10.4	9.2	9.8	10.1	We expected a healthy rebound of demand in 2020 as farmers are expected to plant as much as 15 million more acres of corn and soybean combined this spring and look to catch up on missed applications in seasons prior. Concerns about potentially high soil moisture levels yet again impacting spring fieldwork, logistics constraints and lingering channel inventories have prevented us from forecasting shipments to return to the circa 10.5mmt level seen in 2017 and 2018.
Other	3.1	2.9	3.0	3.3	Demand is also expected to return to moderate growth partly driven by higher NPK production in Africa.
<b>Total</b>	<b>66.8</b>	<b>64.4</b>	<b>65.7</b>	<b>68.4</b>	We have revised our shipment forecast modestly lower than previously and have narrowed our forecast range to 66-68mmt and a point estimate of 67.3mmt. We remain very bullish on demand in 2020, as the revised figures still represent a 2.9mmt or 4.5% y-o-y increase.

# Global Phosphate Shipment Forecasts by Region (February 2020)

DAP / MAP / NPS* / TSP (Million Tonnes)	2018	2019E	Low 2020F	High 2020F	Comments
China	18.7	17.6	16.9	17.5	We have rebased our China figures higher to be more comprehensive in our counting of formerly excluded tonnages used for NPK manufacturing in particular, though our estimate for 2019 shipments continues to show a decline of over 1mmt y-o-y. We continue to believe that domestic shipments will stabilize around that level, though the impact of coronavirus on production and consumption, particularly NPKs, is a yellow flag for 2020. These impacts are also likely to be seen in the way of lower DAP/MAP/TSP exports in the first half of the year.
India	9.9	10.5	9.8	10.1	Our projection for both 2019 and 2020 have been revised higher. Domestic production in 2019 surged to 4.8mmt (vs. 3.6mmt in 2018), offsetting a 600,000 tonne decline in imports to 5.6mmt. We assume both production and imports will moderate in 2020 to around 10mmt combined, as a small inventory build is worked through. Last year's above average monsoon and recent rains keeping reservoirs flush, coupled with higher minimum support prices, a lower MRP y-o-y, and assuming a stable and normal monsoon this year, we anticipate on-farm demand in 2020 will again surpass 10mmt.
Other Asia/Oceania	10.1	9.8	10.0	10.3	A meaningful recovery in palm oil and rice prices, up circa 20% and 30% y-o-y, respectively, is the main impetus of our expectation for a rebound of demand in 2020. Drought in Australia has eased, mitigating our previous demand concern there.
Europe and FSU	5.8	6.3	6.3	6.6	Channel inventories are understood to have closed out the year about average, and we are keeping our previous demand forecast unchanged. Farm economics are robust, though drought incidence in the Black Sea region and parts of Germany remain a yellow flag.
Brazil	8.5	8.8	8.8	9.0	Our shipment estimates for both 2019 and 2020 are unchanged. The ag sector in Brazil continues to perform very well, and steady growth is again anticipated after phosphate inventories ended the year around average levels.
Other Latin America	4.0	3.8	3.9	4.1	2019 revised lower as buyers stepped away from typical fill volumes in Q4, drawing down inventories. While this should set the stage for strong buying as we move through 2020 given robust farm economics, we have moderated our forecast slightly to account for concerns over potential demand disruption in Argentina due to government intervention (export taxes).
North America	10.2	9.4	9.8	10.3	A weather-shortened application window in fall 2019 resulted in a small downward adjustment to our estimate, though there was a long tail to the season that extended into Q1 in the Cornbelt that has allowed fieldwork to resume and channel inventories to work lower. Imports also tapered off in December and January (combined imports for those two months were 500,000 tonnes lower y-o-y). With a return to more normal weather in spring 2020, we expect robust on farm demand given the likelihood of 10-15 million additional corn/soybean acres, decent farm economics (assisted by MFP payments) and the historically low phosphate prices at present.
Other	5.0	4.5	5.1	5.3	Our 2020 forecast calls for a sharp rebound in Africa, led by big slate of shipments to East Africa that slipped from 2019 into 2020.
<b>Total</b>	<b>72.2</b>	<b>70.7</b>	<b>70.6</b>	<b>73.2</b>	The rebasing of our Chinese data shifts our global demand figures higher, but still shows a y-o-y decline in 2019 of 1.5mmt (-2.0%), as weak shipments in China and North America were only partly offset by growth in India, Brazil and the FSU. For 2020, we continue to expect the pluses to outweigh the minuses – a rebound in North America and Africa offsets the potential for another drop in China and retrenchment in India – with global shipments posting a moderate 2% increase on average. This would bring global shipments to 71-73mmt, with our point estimate at 72.2 million tonnes.

Source: IFA, CRU and Mosaic  
(Numbers may not sum to total due to rounding)

\* NPS products included in this analysis are those with a combined N and P<sub>2</sub>O<sub>5</sub> nutrient content of 45 units or greater.