

Overview of the global fertilizer market situation

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XX International Palm Oil Conference September 2022

Market Reporting

Consulting

Events

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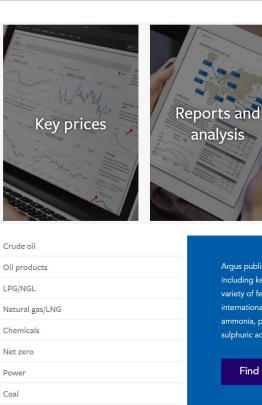
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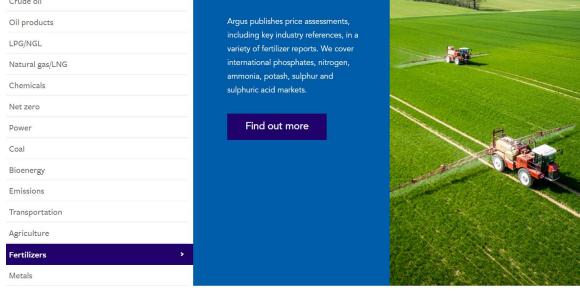
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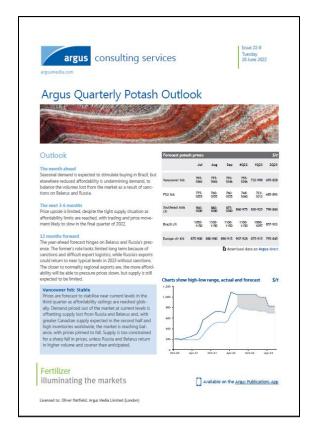
Argus fertilizer market subject matter expertise

Current market pricing and news, short to long term market forecasts - nitrogen, phosphates, potash & sulphur

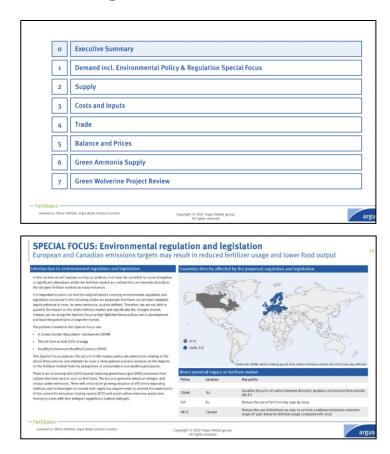
Daily and weekly news and market pricing



Monthly short term outlooks



Analytics services – medium to long term outlooks



Presentation overview

- 1. Quick intro to oil palm and fertilizers
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- 3. Potash
- 4. Phosphate
- 5. Nitrogen

At global level, oil palm is relatively insignificant in world fertilizer markets

Crop category	FUBC 2018 Mean nutrient application rate (kg N+P2O5+K2O/ha)	FUBC 2018 Share of total consumption of N+P ₂ O ₅ +K ₂ O (%)
Wheat	156	15
Rice	197	15
Maize	214	19
Other cereals	72	4
Soybeans	103	6
Oil palm	298	3
Other oil crops	88	4
Fibre crops	236	4
Sugar crops	255	4
Roots/tubers	138	3
Fruits/tree nuts	232	5
Vegetables	415	10
Grassland	10	3
Other	86	6
Total	113	100

Source: IFA

It is more important for potash...

Crop category	FUBC 2018 Mean application rate (kg N/ha)	FUBC 2018 Share of total consumption (%)
Wheat	102	18
Rice	118	16
Maize	123	20
Other cereals	48	5
Soybeans	15	2
Oil palm	92	2
Other oil crops	54	5
Fibre crops	141	4
Sugar crops	132	4
Roots/tubers	65	2
Fruits/tree nuts	110	4
Vegetables	190	8
Grassland	6	3
Other	55	7
Total	61	100

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Crop category	FUBC 2018 Mean application rate (kg P₂O₅/ha)	FUBC 2018 Share of total consumption (%)
Wheat	38	15
Rice	46	13
Maize	52	18
Other cereals	15	3
Soybeans	46	11
Oil palm	45	2
Other oil crops	21	4
Fibre crops	63	4
Sugar crops	53	3
Roots/tubers	37	3
Fruits/tree nuts	63	5
Vegetables	126	11
Grassland	2	3
Other	17	5
Total	29	100
Course: IEA		

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Crop category	FUBC 2018 Mean application rate (kg K₂O/ha)	FUBC 2018 Share of total consumption (%)
Wheat	16	8
Rice	33	12
Maize	39	17
Other cereals	9	2
Soybeans	43	13
Oil palm	161	9
Other oil crops	13	3
Fibre crops	33	3
Sugar crops	70	5
Roots/tubers	36	3
Fruits/tree nuts	60	6
Vegetables	99	11
Grassland	2	2
Other	14	5
Total	23	100
Course: IEA		

Source: IFA

...And it is of great importance in two countries

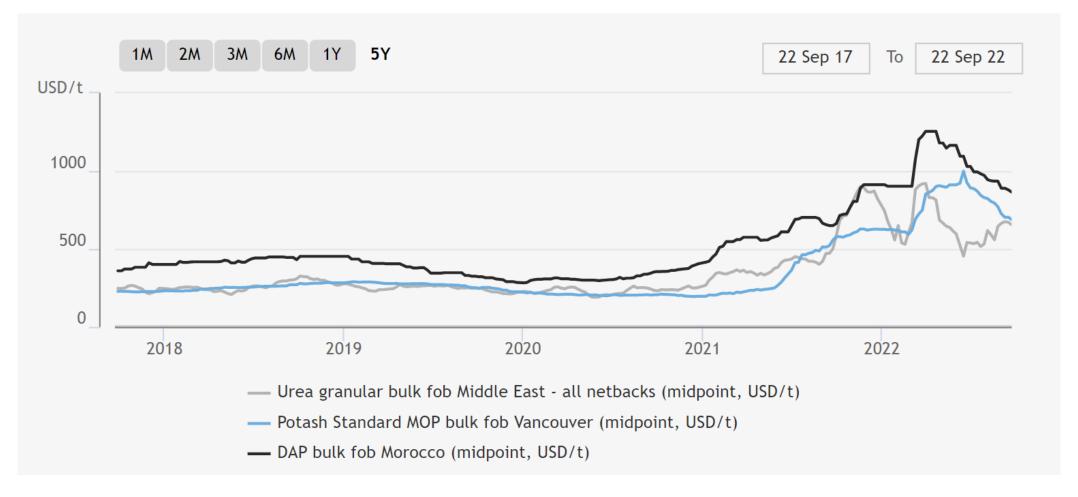
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4C				Cereals				0	il crops						Fruit/tree	enuts/veges			
		Wheat	Rice	Maize	Oth cer	S	Soybe	ans O	il palm	Othe	r OC	Fibre	Sugar	R&T	F+T	Vege	Grass	Other	Total
Region/country	Nutrient	%	%	%	%	-	%		%	9	6	%	%	%	%	%	%	%	%
Malaysia	N	NA	13	0	NA		NΑ		80	N	IA	NA	0	0	3	2	NA	1	100
	P2O5	NA	12	0	NA		NA		77	N	IA	NA	0	0	6	3	NA	1	100
	K20	NA	5	0	NA		NΑ		94	N	IA	NA	0	0	0	0	NA	1	100
ı	N+P2O5+K2O	NA	7	0	NA		N.A		89	N	ΙĄ	NA	0	0	2	1	NA	1	100
Indonesia	N	NA	28	19	NA	0)	40)	0		0	1	2	3	4	NA	2	100
	P2O5	NA	19	11	NA	1	1	56	j	1		0	1	1	3	4	NA	2	100
	K20	NA	5	4	NA	0)	83	}	1		0	1	1	2	3	NA	1	100
	N+P2O5+K2O	NA	19	12	NA	1		57	7	0		0	1	1	3	4	NA	2	100
																		Sc	ource: IFA

Source: IFA

Presentation overview

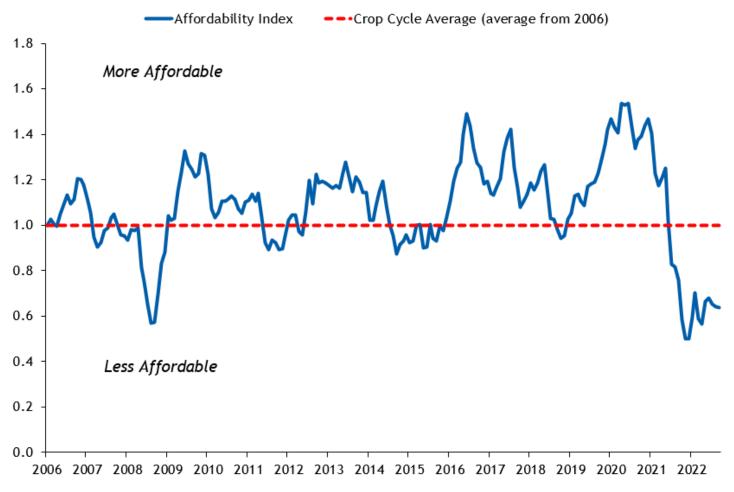
- 1. Quick intro to oil palm and fertilizers
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Summary of recent price developments



Source: Argus Direct

Global affordability is weak compared to historic levels

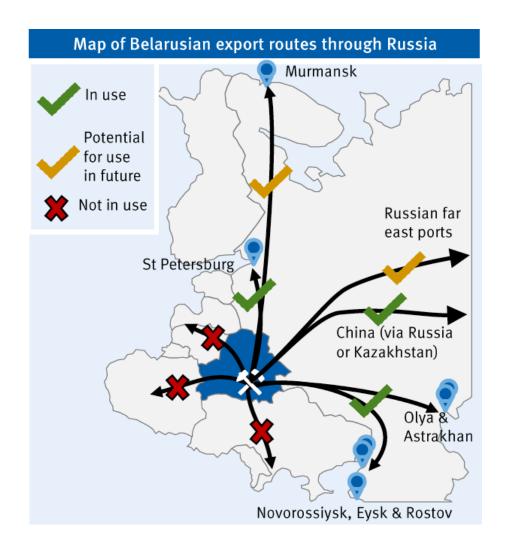


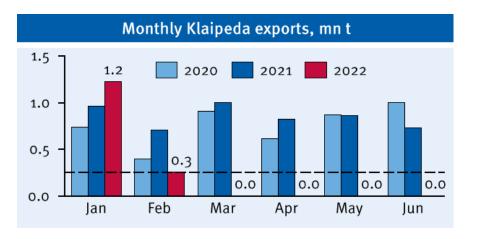
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Tracking Belarus exports since February

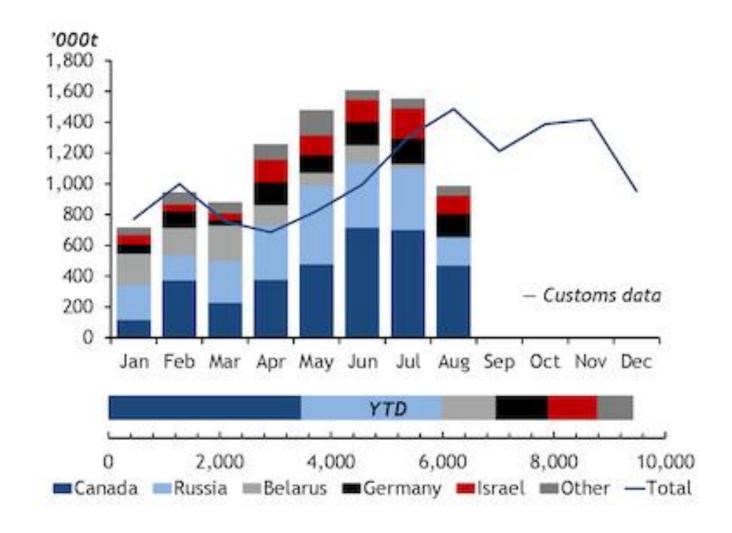
Exports primarily through St Petes and to China by rail, but still far below Klaipeda level



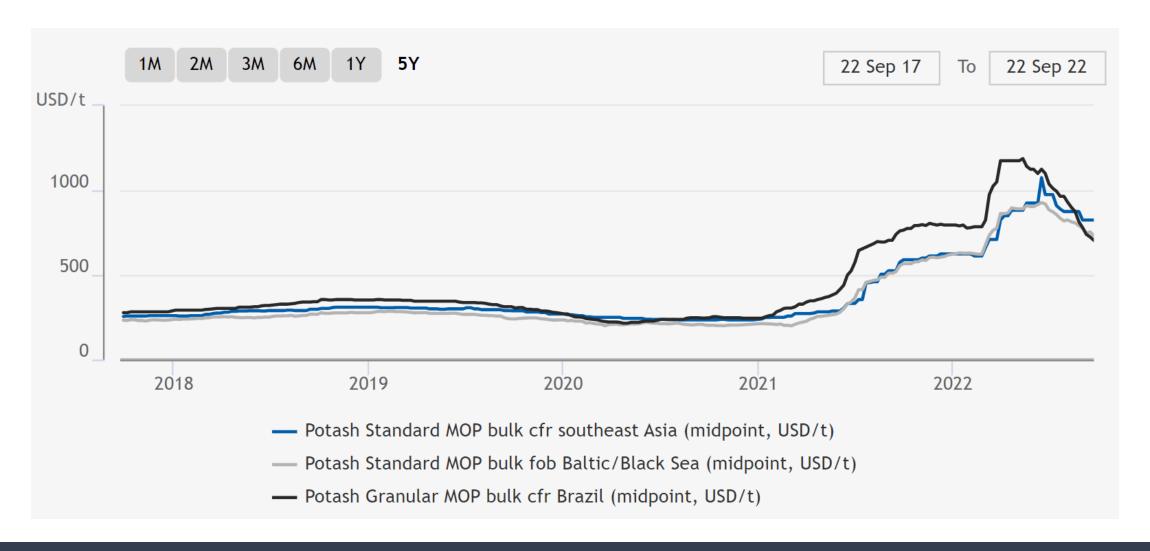




Brazilian monthly potash imports show buying ahead, then reversal



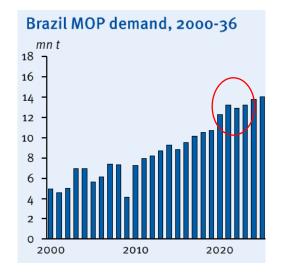
Price differentials

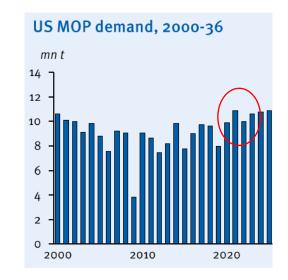


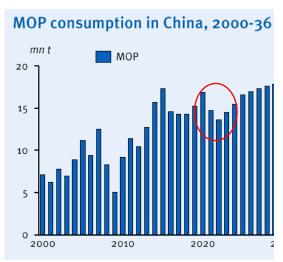
Significant contraction in global demand in 2022

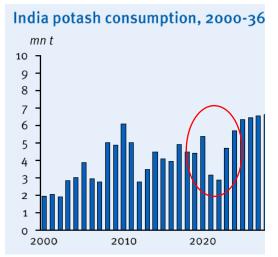
Supply constraints and decline in affordability in key regions

Global MOP dem	Global MOP demand forecast					
	2020	2021	2022			
Global	72.60	72.20	63.40			
Northeast Asia	18.40	16.20	15.00			
– China	16.90	14.70	13.60			
Latin America	15.30	15.90	15.10			
– Brazil	12.30	13.20	12.90			
North America	11.20	12.40	11.30			
-US	9.90	10.90	10.00			
Southeast Asia	6.90	7.60	5.90			
- Indonesia	3.00	3.40	2.80			
– Malaysia	1.70	2.00	1.40			
South Asia	6.30	4.00	3.40			
– India	5.40	3.20	2.90			
Western Europe	5.30	5.60	4.20			
– France	0.60	0.70	0.60			
Russia & C Asia	2.60	3.70	3.00			
C&E Europe	3.10	2.90	2.40			
Africa	1.60	1.70	1.30			
– Morocco	0.30	0.40	0.40			
Middle East	1.10	1.30	1.10			
Australasia	0.70	0.80	0.70			
	•		•			







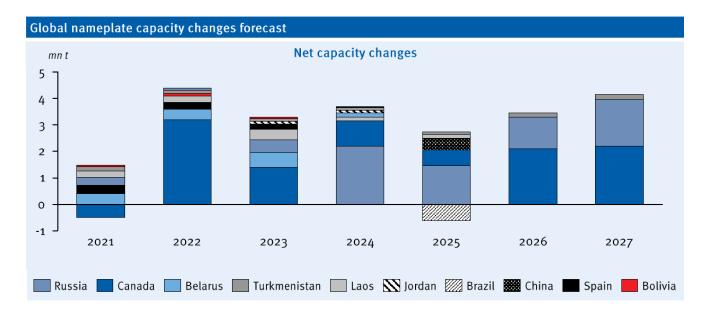




Market expected to continue to soften

Affordability questions remain; new capacity is coming but with questions on timing and effectiveness

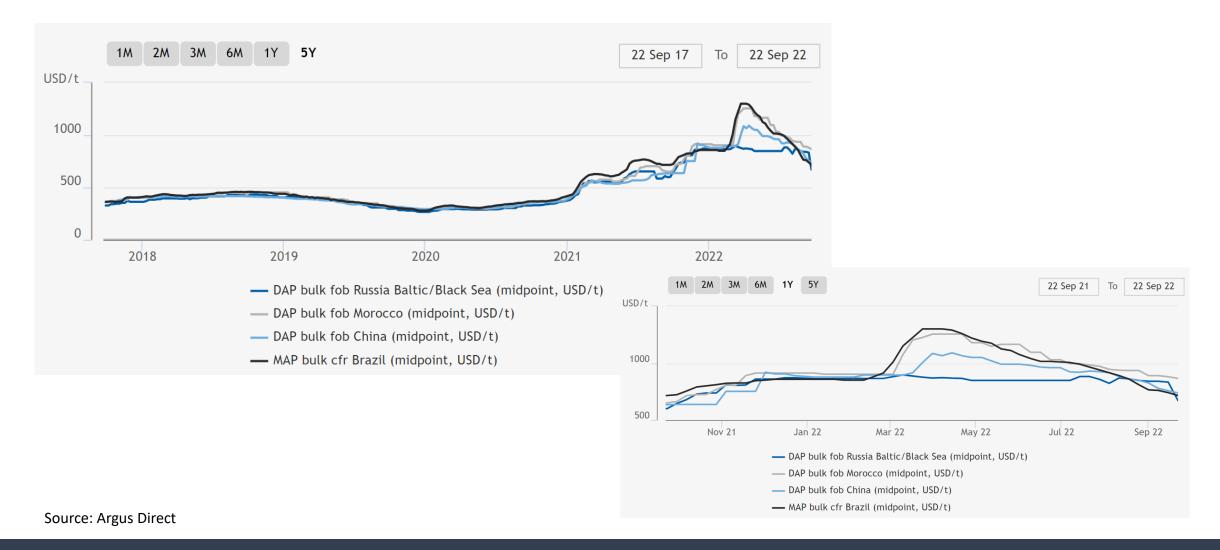
2022 potash price drivers										
Indicator	Value	Δ'21-22	Signal	Indicator	Value	Δ'21-22	Signal			
New capacity	6.7mn t	+2.2mn t	Fall	Corn CBOT 1 month	620 c/bsh	+58 c/bsh	Rise			
Closures	2.3mn t	-1.3mn t	Fall	Soybean CBOT 1 month	1,496 c/bsh	+137 c/bsh	Rise			
Demand growth	-8.8mn t	-8.4mn t	Fall	Palm oil Bursa Malaysia	\$910/t	-\$165/t	Fall			
Chinese contract price	\$590/t	+\$243/t	Neutral	India MOP NBS	15,186 Rs/t	+9,116 Rs/t	Rise			
Indian contract price	\$590/t	+\$145/t	Neutral	Brazil Rondonopolis barter ı	rates	60kg bags of p	oroduct/t of NPK			
Brazilian exchange rate	R5.18/\$	R-0.15/\$	Rise	• Corn	60.92	+16.5	Fall			
Russian exchange rate	Rbs61.42/\$	Rbs-12.1/\$	Fall	• Soybeans	21.79	+2.65	Neutral			



Presentation overview

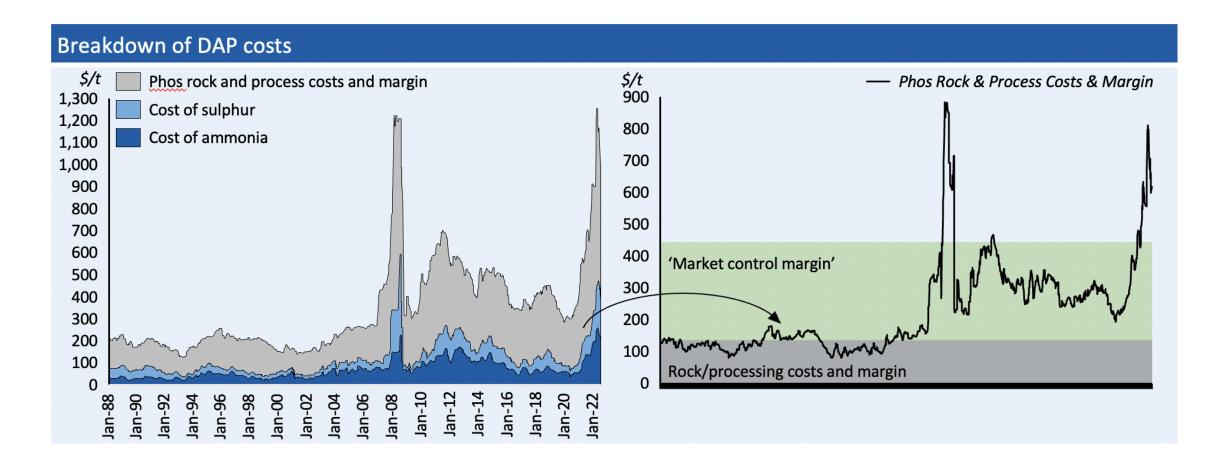
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The war in Ukraine has led to significant changes in price differentials



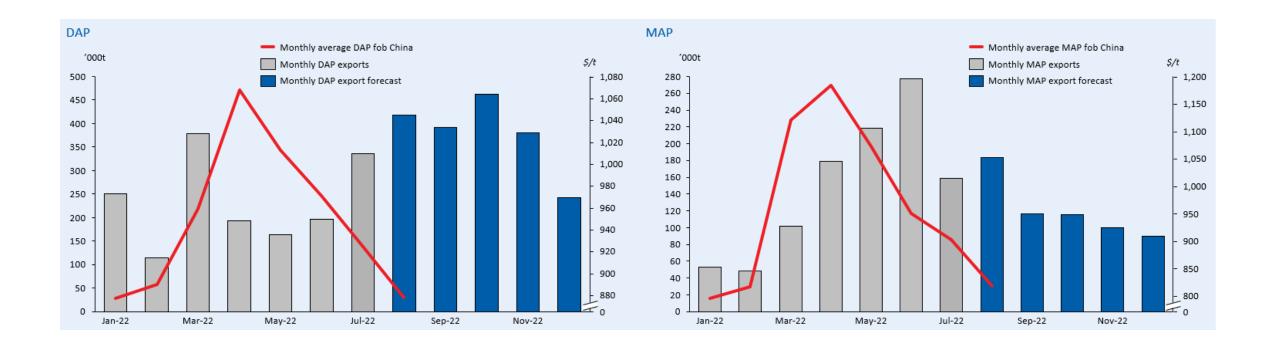
Processed phosphate producers have benefited from tight market

Raw material costs have increased, but margins for integrated producers are also up



Chinese export restrictions

Some uncertainty remains around quarterly allowance splits; But MAP will suffer more than DAP



Demand destruction from high prices and short supply

Imports are down in 2022 for some important countries and regions

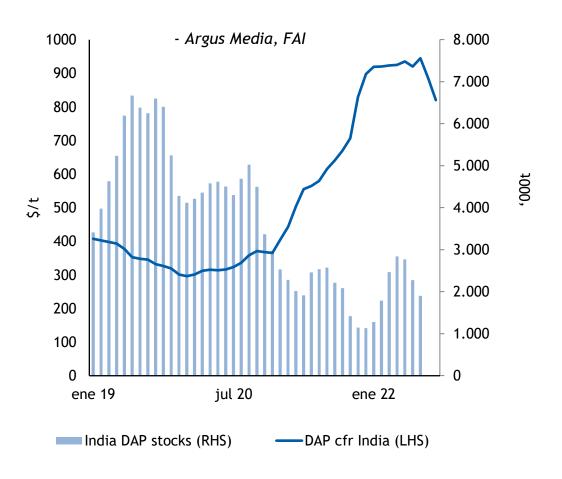
DAP imports ('000t)								
	2021	2022	2023					
West Europe	1,814	1,480	1,925					
Africa	618	352	409					
North America	1,357	982	1,390					
South America	1,398	1,295	1,533					
Argentina	404	243	331					
Brazil	461	437	543					
South Asia	7,497	7,298	7,891					
India	4,766	5,580	5,695					
Pakistan	1,513	628	1,200					
SE Asia	1,604	1,468	1,667					
World	16,664	14,198	16,187					

MAP imports ('000t)			
	2021	2022	2023
North America	2,940	2,437	2,816
South America	6,954	5,531	6,061
Brazil	5,103	4,217	4,651
World	12,202	11,721	12,783

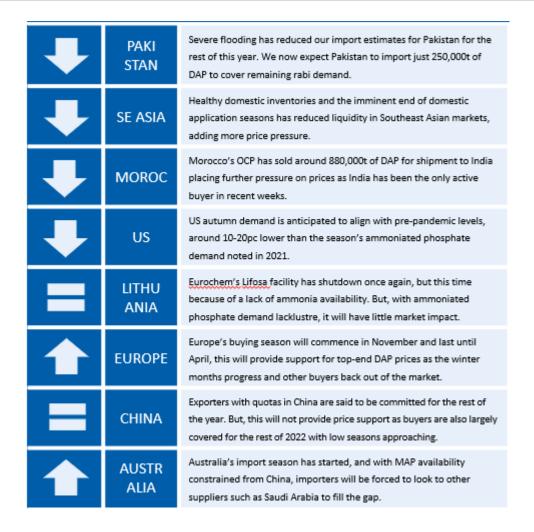
Phosphate market current situation

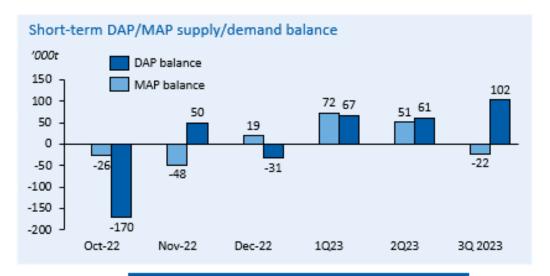
- India's DAP stocks crumbled through 2021, but have slowly climbed this year – bolstering importers' negotiating positions
- Significant Indian purchases 800,000t last couple of weeks, will ease rabi pressure
- Pakistan demand hit by floods but buying will come;
 - 250kt for rest of year, vs normal 750kt-1mt
- Nola demand for autumn application has begun to stir barge prices for MAP and DAP have begun to rise from steep discount
 - Not much buying left in the US, well stocked 80% already, 20% less than in last Autumn (pricing/D destruction
- Producers will now chase demand elsewhere with OCP mopping up India
- Nola, Europe and Australia will now shift into focus
 - Europe should be buying normal vols, because they skipped spring, but likely to remain lower buying because OCP won't drop price

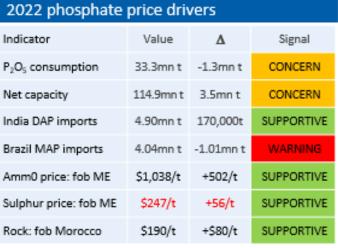
India DAP price vs stocks



Outlook: DAP market surplus on the way, MAP market finely balanced in Q4



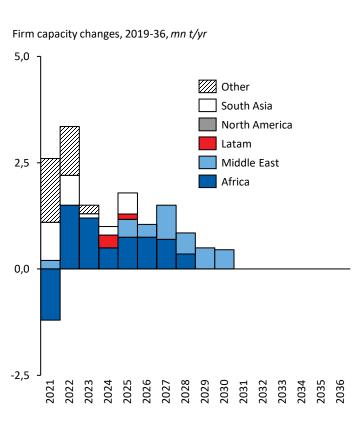


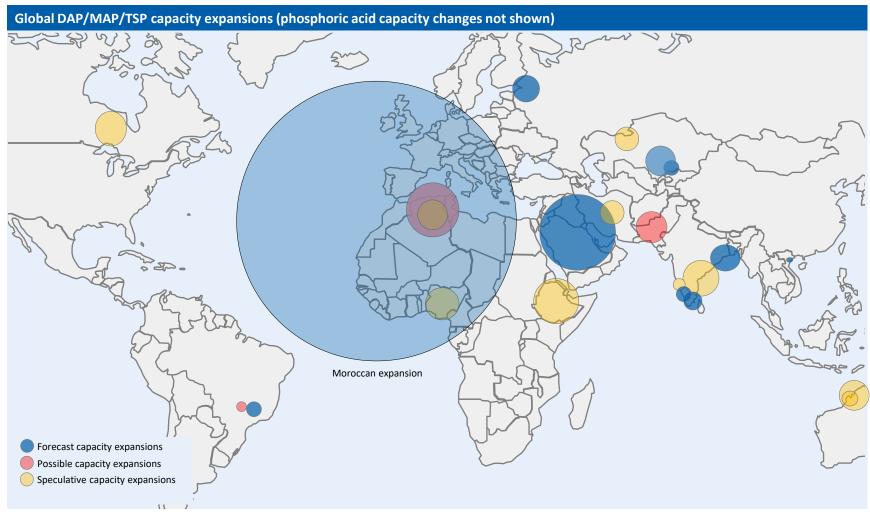


change vs 2021

Global processed phosphates capacity forecast (excl China)

Our firm forecast is led by Moroccan capacity additions; there are some temporary closures in China

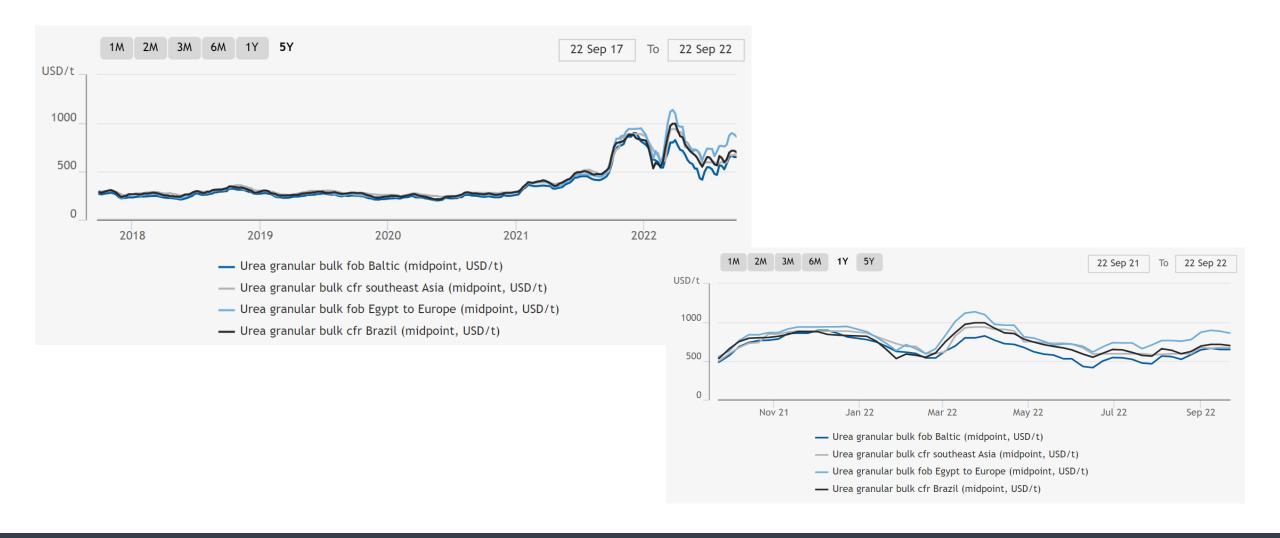




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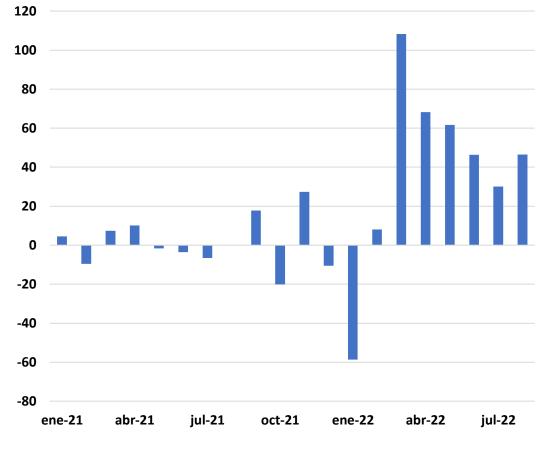
Urea price volatility amplified after war in Ukraine



Russia urea prices discounted

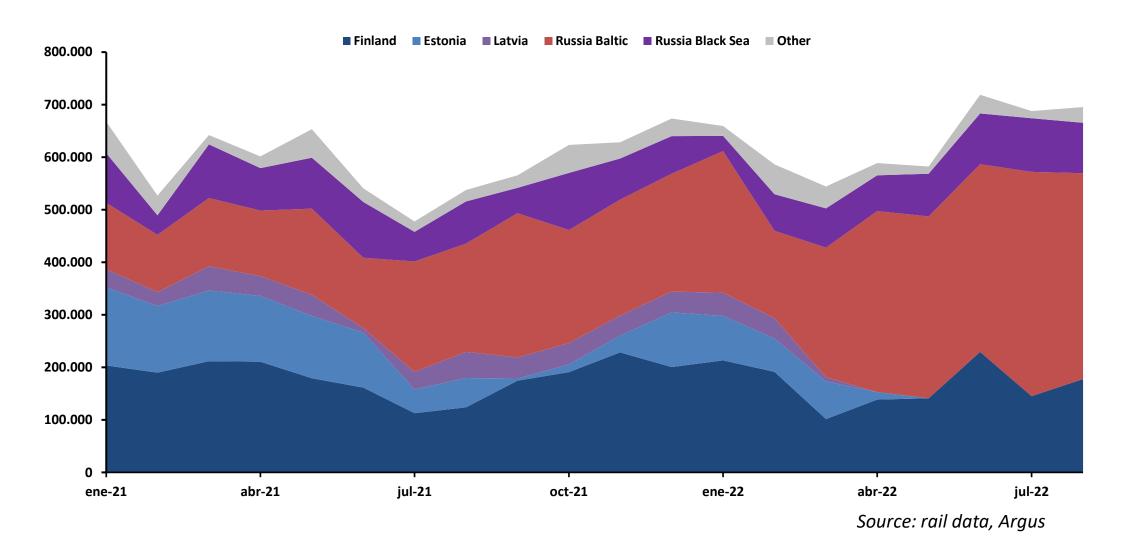
- Big discounts for Russian urea producers but these have reduced as market adapts to US and EU sanctions
- Many producers only had options for sales to Americas, Africa, Turkey and India for several months
 - But now, crisis in EU and clarification of sanctions policy giving Russia producers more access to Europe
- Ship chartering still expensive and time-consuming for Russia, hurting fob levels

Middle East fob premium over Baltic fob

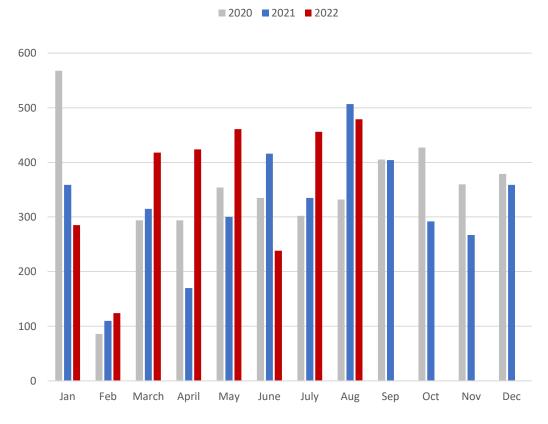


Source: Argus

Russian urea shipments



Iran exports – rising because of new production



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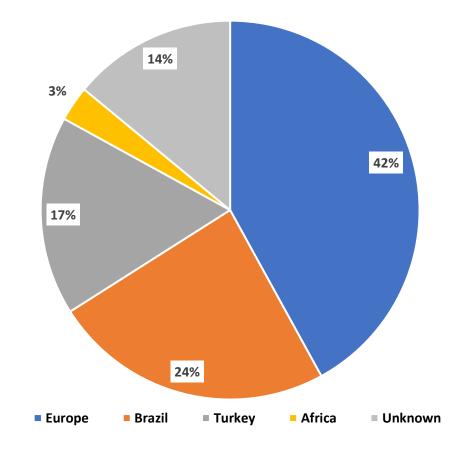
—2020 **—**2021 **—**2022

source: Iran customs, Argus

Iran outlets limited but expanding in Europe

- Major destinations: Turkey, Brazil, Europe
- How it trades:
 - Tenders as the first step in negotiations for most producers, long-term offtakes for Pardis
 - Cash up front to the factory (typically 20-30pc within a week of PI, remaining 70-80pc before loading).
 Sometimes delivered in person.
- Iran fob prices so far in 2022 about 20% discount to non-sanctioned Middle East product

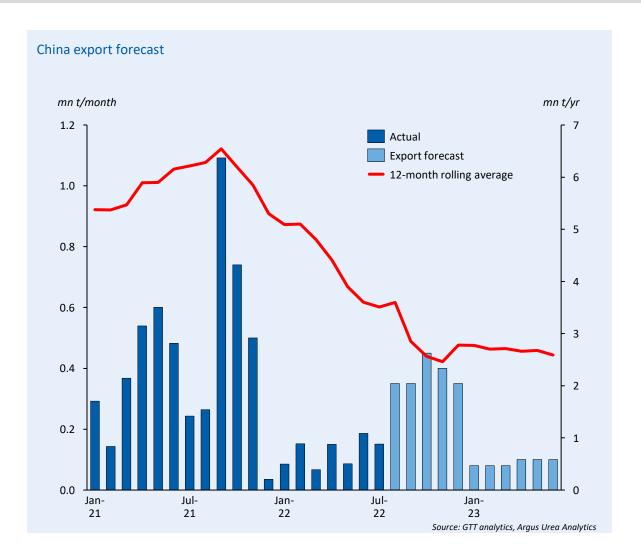
August urea exports from Iran



source: Iran customs, Argus

China's export controls and supply expectations

Exports remain hindered by lengthy customs inspections; controls expected to last until mid-2023 at least



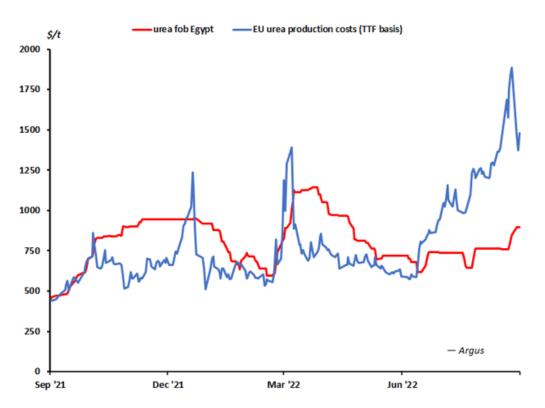
Name	Province	Raw material	Capacity, '000 t/yr	Start-date
Haoyuan	Anhui	Anthracite	(300)	2022
Erdos Wulan	Inner Mongolia	Lignite	800	May-22
Zhongneng	Xinjiang	Bituminous	800	Oct-2022
Haoyuan	Anhui	Bituminous	1,000	2023
Hualu Hengsheng	Hubei	Bituminous	1,000	2024
Yiding	Inner Mongolia	Bituminous	520	2024
Jinkai Yanhua	Henan	Bituminous	800	2025
Total forecast capacity			4,620	

- Export controls expected to remain in place until the end of May 2023 at the earliest
- Producers have reported sending cargoes to seaports in the hope to participate in India's next tender, but inspections reportedly lasting between 60-80 days, longer in some cases, will likely limit participation to 50,000-100,000t

European N closures likely to boost urea import demand

High gas prices prompt widespread closures, likely leading to higher urea imports to close the supply gap

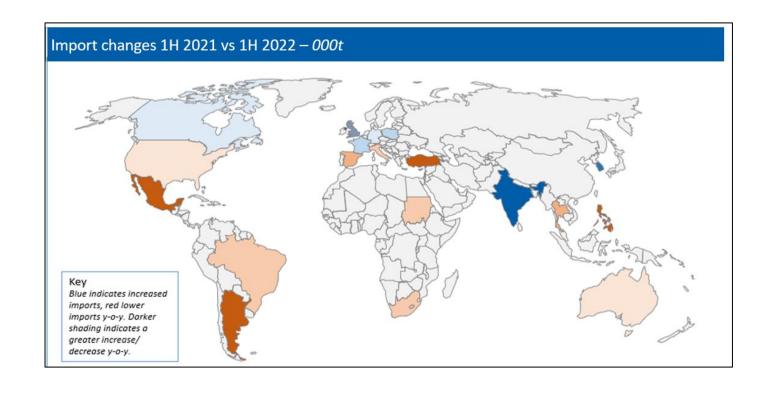
Spread between EU urea production and import costs \$/t

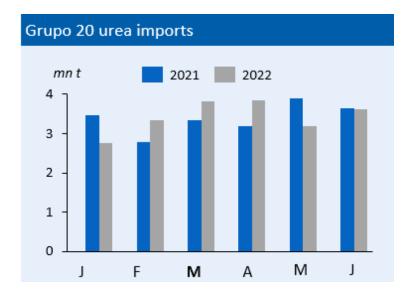


Europe nitroge	n fertilizer plan	t operating stat	us		
Country	Producer	Plant	Product	Total NH3 capacity ('000 t/yr)	Status
Austria	Borealis	Linz	CAN	500	reduced rates, appears still producing some CAN
Belgium	Yara	Tertre	AN, CAN	400	awaiting Yara response; probably shutting down
Belgium	Eurochem	Antwerp	CAN	0	running off imported ammonia
Bulgaria	Neochim	Dimitrovgrad	AN, NPKs	450	off line
Bulgaria	Agropolychim	Devnya	AN, UAN, NPKs, DAP, MAP, TSP	0	running off imported ammonia since 2019
Croatia	Petrokemija	Kutina	urea, CAN, NPKs	450	off line since March 2022
Czech Republic	Agrofert	Lovosice	CAN, UAN, AN	350	running at 80pc
France	Yara	Le Havre	urea	400	awaiting Yara response; probably shutting down
France	Yara	Montoir	CAN, NPKs	300	awaiting Yara response; could run in part off importe
France	Yara	Ambes	AN	500	awaiting Yara response; could run in part off importe
France	Borealis	Grandpuits	AN, UAN	350	off line September-October
France	Borealis	Grand Quevilly	AN, CAN	400	reduced rates
France	Borealis	Ottmarsheim	AN	250	reduced rates
Germany	Yara	Brunsbuttel	urea	750	awaiting Yara response
Germany	Yara	Rostock	CAN, UAN, AN	1,100	awaiting Yara response; could run in part off import
Germany	Agrofert	Piesteritz	urea, CAN, UAN, Adblue	1,100	off line, will aim to restart one ammonia unit in Sep
Greece	Hellenic	Nea Karvali	CAN, NPKs	150	running
Hungary	Nitrogenmuvek	Petfurdo	CAN, urea, NPKs	450	off line
Italy	Yara	Ferrara	urea	600	off line
Italy	Yara	Ravenna	CAN, AN, NPKs	0	running on imported ammonia at 80pc on nitrate, 50
Lithuania	Achema	Jonava	UAN, AN, CAN	1,000	will shut down on 1 September
Netherlands	Yara	Sluiskil	urea, CAN, AN, UAN	1,600	awaiting Yara response; could run in part off import
Netherlands	OCI	Geleen	CAN, AN, UAN	1,000	running partly off imported ammonia, no UAN produ
Poland	Grupa Azoty	Tarnow	CAN	300	off line
Poland	Grupa Azoty	Pulawy	urea, AN, UAN, Adblue	1,200	off line
Poland	Grupa Azoty	Police	urea	500	off line
Poland	PK Orlen	Anwil	AN, CAN	500	off line
Poland	Grupa Azoty	Kedzierzyn	CAN, AN	450	reducing to 43pc operating rate
Portugal	Fertiberia	Avercal	AN, CAN	0	running off imported ammonia
Romania	Ameropa	Azomures	urea, AN, CAN, UAN, NPKs	600	off line since June 2022
Romania	Nitroporos	Slobozia	urea, AN	300	off line
Serbia	HIP Azotara	Pancevo	urea, CAN, UAN, NPKs	300	off line
Slovakia	Agrofert	Duslo	urea, AN, UAN, CAN	550	off line until end-September
Spain	Fertiberia	Huelva	urea, DAP, MAP	400	off line
Spain	Fertiberia	Puertollano	AN, CAN, urea, UAN	200	running
Spain	Fertiberia	Aviles	CAN, NPKs	0	running off imported ammonia
Spain	Fertiberia	Sagunto	CAN, adblue	0	running off imported ammonia
UK	CF Industries	Ince	AN, NPKs	250	offl ine since September 2021
UK	CF Industries	Billingham	AN	550	will run off imported ammonia

High prices prompting demand losses or deferrals in many markets

But changed Indian buying patterns maintains global import demand in 1H22

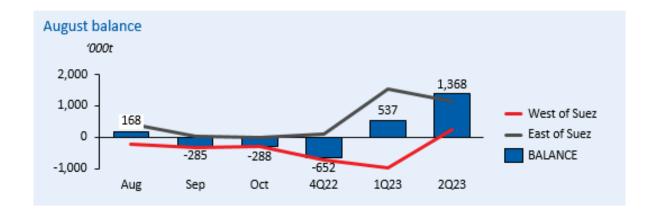


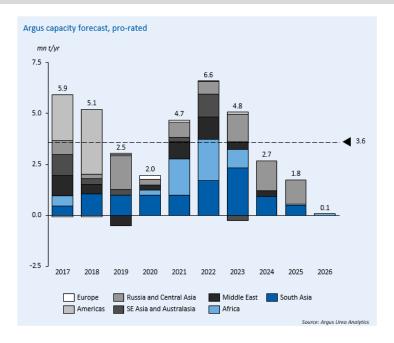


Near term balance shows surplus, but Europe changes that picture

Further out, limited permanent closures, plenty of new capacity, but some risk of delays

- China exports ▼ 70pc, 2.4mn t to 0.7mn t and restrictions to remain in place until May 2023 at least





Company	Site	Country	Capacity, '000 t/yr	Start-date	
MSPC (MIS)	Khuzestan	Iran	1,188	Feb-22	
HURL	Gorakhpur	India	1,271	May-22	
Dangote	Lekki II	Nigeria	1,328	Jun-22	
Metafrax	Gubakha	Russia	578	Q4-22	
Koch	Enid	USA	158	Q4-22	
HURL	Sindri	India	1,271	Q4-22	
ToAz	Togliatti	Russia	726	Q4-22	
Incitec Pivot	Gibson Island	Australia	(280)	Dec-22	
HURL	Barauni	India	1,271	Q2-23	
NCIC	Ain Sokhna	Egypt	380	Q1-23	
Kuibyshevazot	Togliatti	Russia	495	H2-23	
Gemlik Gubre	Gemlik	Turkey	566	H2-23	
Shchekinoazot	Efremov	Russia	700	H2-24	
Eurochem	Kingisepp, NW2	Russia	1,320	H2-24	
Acron	Novgorod I-IV	Russia	385	H2-24	
BCIC	Polash	Bangladesh	966	H2-24	
Abu Qir Fertz.	Abu Qir III	Egypt	148	H2-25	
Total forecast capacity 12,471					



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Sources

Argus Consulting Analytics Reports; Argus Monthly Outlook reports; IFA; GTT

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