STONE X FERTILIZER OUTLOOK JANUARY 27TH, 2022

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U.S. Crop Acreage Outlook

(MM Acres)

			Base		Current Indu	ıstry
	<u>2020</u>	<u> 2021</u>	<u>Case</u>	Change	Forecast Ra	<u>ange</u>
Corn	90.7	93.3	91.0	-2.3	87.0 -	93.0
Soybeans	83.4	87.2	88.2	1.0	86.0 -	90.0
Wheat	44.5	46.7	49.5	2.8	48.0 -	53.0
Cotton	12.1	11.2	13.0	1.8	11.0 -	15.0
Other	79.4	77.7	78.0	0.3	77.0 -	78.5
Total	310.1	316.2	319.7	3.5		

Acreage Shifts:

- Only minor changes expected acreages in the cornbelt but that could shift depending on relative crop prices.
- Drop in corn acres expected to be mostly outside of the corn belt.
- Increase in wheat and cotton expected to be in the south primarily at the expense of corn and to a lesser extent

What happened to the urea market?

From near historic lows to nearly historic highs

NOLA Urea May 29, 2020 - \$182 NOLA Urea November 12, 2021 - \$810

\$628 or 345% increase in 18 months

Urea Situation & Outlook

Factors Driving Current Markets:

Aug 2020	Derecho	Drop in crop production / spike in crop prices
	Covid Checks	Massive influx of cash to the farmgate
Feb 2021	Spike in US NG \$	Plant shutdowns – lost production
Mar-Jun	Strong '21 Spring	Low downstream/producer ending inventory
Aug	Hurricane Ida	Plant shutdowns – lost production
		Logistics – Damaged barges, river restrictions
Summer	Drought UMW	Reduced corn production
	Turnarounds/Outages	Lower than expected output
Sep	Supply Chain Issues Energy Crisis	Lack of vessels / long demerge / jump in rates
	- EU	Plant shutdowns / jump in imports
	- China export ban	Reduced production / Export ban
	- India	Reduced production / Supply shortfall
Oct	India tenders	Limited tonnage offered / record prices
Oct-Nov	Russia export caps	Limited tonnage available to the world

Net Impact – Extremely Tight Supply / Demand Balance / Rising Prices

What happened to the urea market?

Since the high was set:

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NOLA Urea December 22, 2021 - $765
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NOLA Urea January 5, 2022 - \$620

NOLA Urea January 6, 2022 - \$715

NOLA Urea January 11, 2022 - \$625

NOLA Urea January 12, 2022 - \$575

NOLA Urea January 17, 2022 - \$625

NOLA Urea January 20, 2022 - \$540

NOLA Urea January 21, 2022 - \$590

NOLA Urea January 24, 2022 - \$564

NOLA Urea January 26, 2022 - \$485

NOLA Urea January 27, 2022 - \$570

Over \$500 of volatility since Christmas

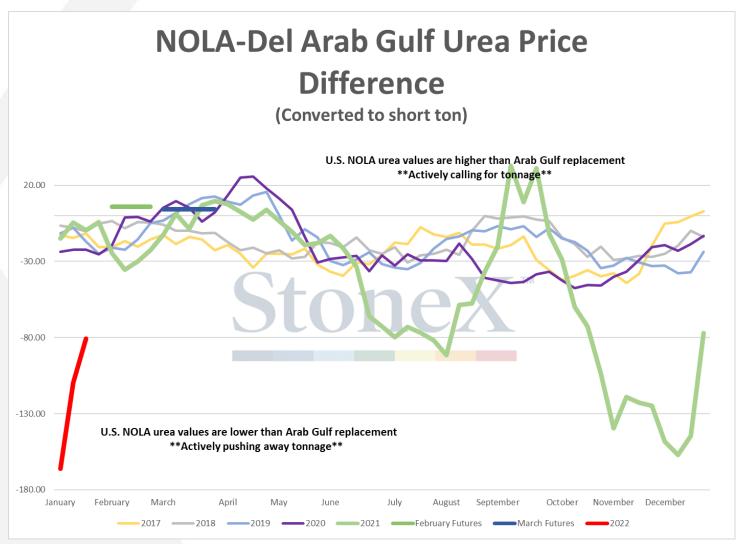
NOLA Barge Prices (\$ / Product Ton)



Arab Gulf Prices (\$ / Product Ton)



U.S. Gulf Urea Barge Price vs. Arab Gulf Del'd Values (\$/ton)



"Normal" imports

October

2018 – 338KMT

2019 - 337KMT

2020 - 342KMT

"Normal" U.S. imports

October

2018 - 338KMT

2019 - 337KMT

2020 - 342KMT

2021 - 628KMT

"Normal" U.S. imports

November

2018 – 337KMT

2019 - 299KMT

2020 - 301KMT

"Normal" U.S. imports

November

2018 - 337KMT

2019 - 299KMT

2020 - 301KMT

2021 - 743KMT

"Normal" YTD U.S. imports

2018 – 1.4MMT

2019 - 1.39MMT

2020 - 1.2MMT

"Normal" YTD U.S. imports

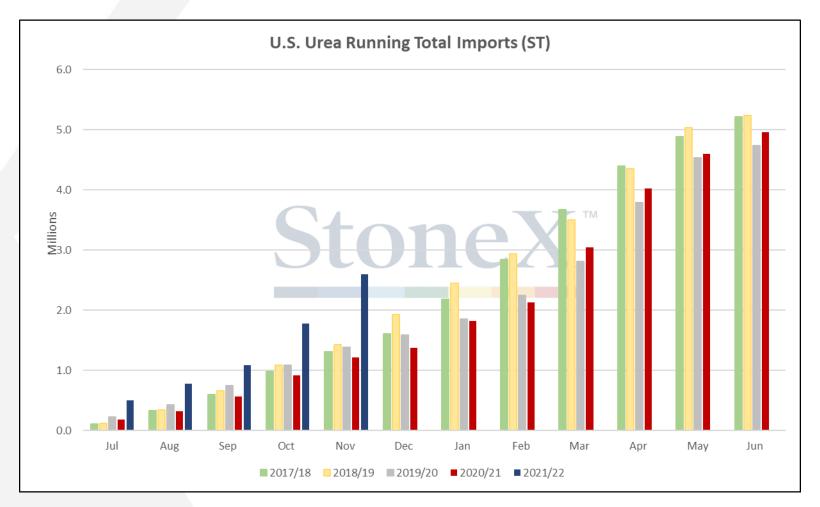
2018 - 1.4MMT

2019 - 1.39MMT

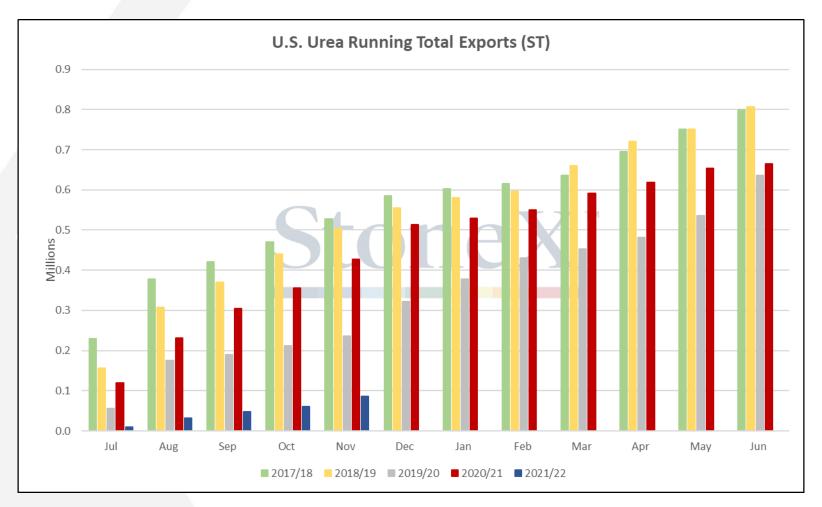
2020 - 1.2MMT

2021 - 2.4MMT

NOLA Barge Prices (\$ / Product Ton)



NOLA Barge Prices (\$ / Product Ton)



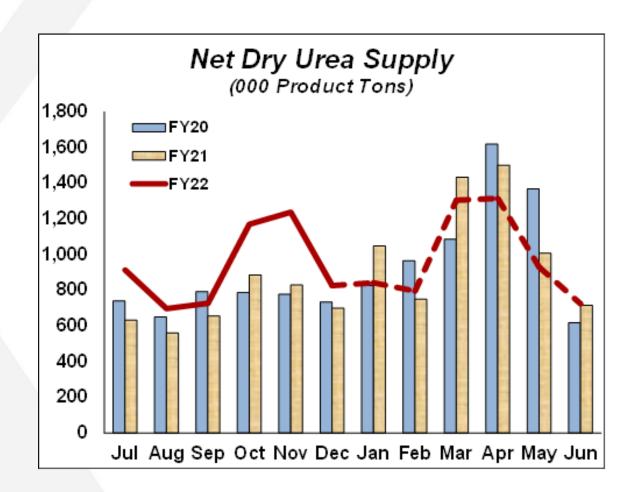
U.S. Dry Urea Supply/Demand Balance (000 Product Tons)

				Fct	Char	ige
	FY19	FY20	FY21	FY22	<u>Volume</u>	<u>%</u>
Supply						
Production	6,688	6,867	6,384	6,305	-79	-1.2%
Imports	5,286	4,792	5,063	5,687	625	12.3%
Beg. Inv.	365	428	396	251	-145	
Total	12,339	12,087	11,843	12,244	401	3.4%
Demand						
Domestic	11,021	10,990	10,859	11,347	488	4.5%
Exports	890	701	733	561	-172	
Total	11,911	11,691	11,592	11,908	317	2.7%
End Inv.	428	396	251	335	84	
% of New Supply						
Domestic	54%	57%	54%	51%		
Imports	43%	40%	43%	46%		



Imports in 1H more than double FY21, but still need to import 2.9M in 2H of year.

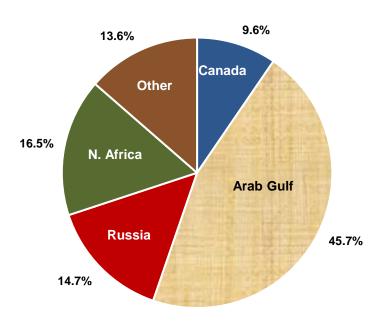
What to expect going forward



U.S. Dry Urea Imports (MM Product Tons)

"U.S. Imports so far this year are approximately double year-ago volumes"

	<u>Canada</u>	<u>AG</u>	<u>Russia</u>	N. Afr.	<u>Other</u>	<u>Total</u>
FY21 YTD	171	739	195	1	83	1,189
FY22						
Jul	40	167	133	57	72	469
Aug	51	90	12	55	47	254
Sep	69	149	1	21	22	262
Oct	43	222	119	189	86	659
Nov	30	482	91	77	104	784
YTD	232	1,110	356	400	330	2,427
Change						
Volume	61	371	160	399	247	1,238
% of Total	10%	46%	15%	16%	14%	100%



Factors Affecting World Nitrogen Markets

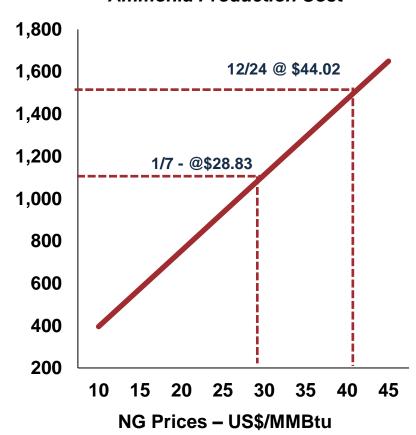
- Strong Import Demand
 - India
 - Brazil
 - U.S.
- ☐ Tight Supply Availability
 - Covid delays (plant turnarounds)
 - European Energy Prices
 - China Export Ban
 - Possible Russian invasion

Dutch TTF Natural Gas Prices – (End of Week Close – US\$/MMBtu)

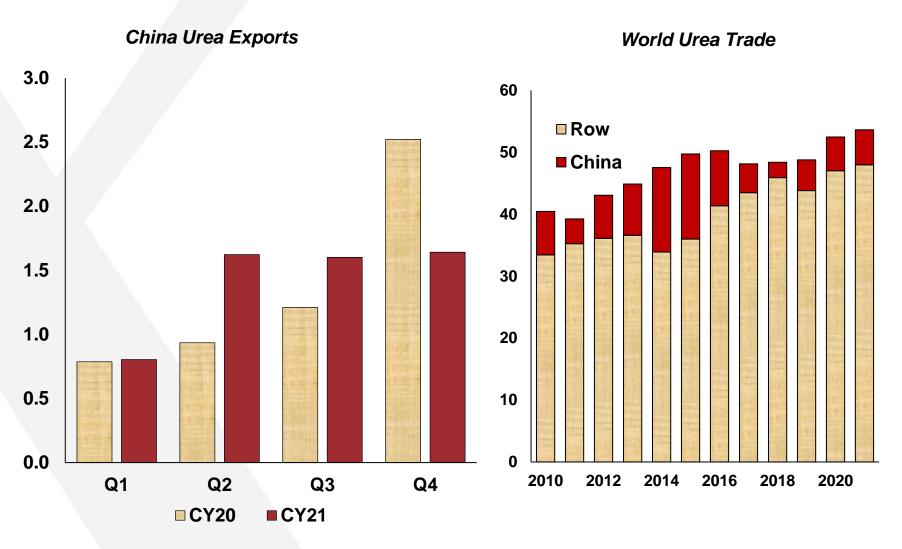
"Price peaked mid-week to as high as \$44/MMBtu"



Ammonia Production Cost



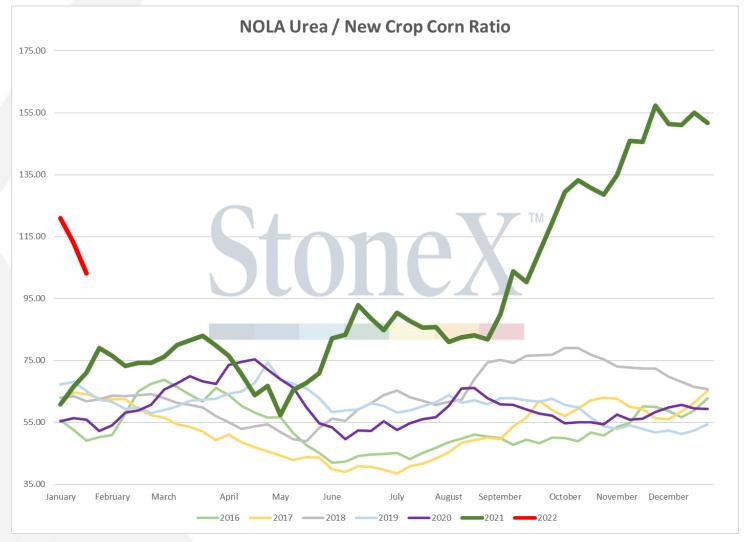
China Bans Urea Exports (MM Product Tons)



What a Russian invasion could mean

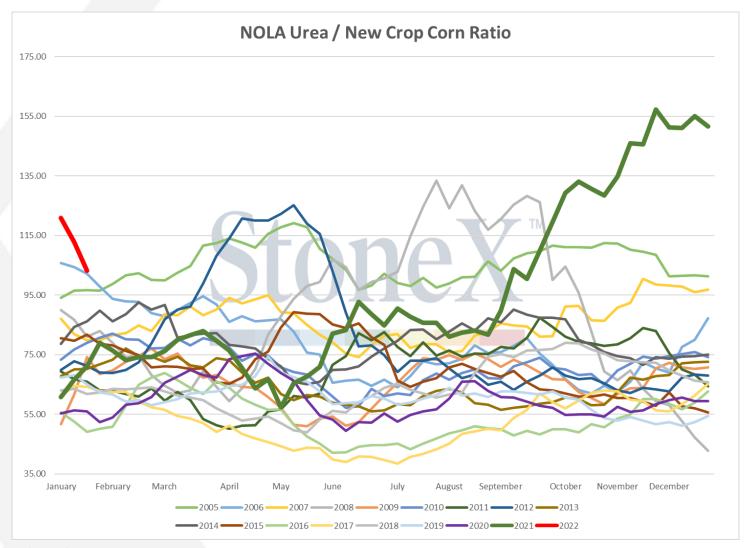
	CY18	CY19	CY20
Russian Urea Exports	6,956	6,975	7,292
Total World Exports	48,408	48,756	52,031
Russia Percent World Exports	14.4%	14.3%	14.0%

NOLA Urea Barge / Cash Corn Price Ratio (Bushels of Corn per ton of Urea)



Source:Barchart,, Argus

NOLA Urea Barge / Cash Corn Price Ratio (Bushels of Corn per ton of Urea)



Source:Barchart,, Argus

Urea Barge Price Outlook

Bullish Factors

- Tight global S&D thru Q1 '22
 - Where is demand?
- UAN/Urea price spread
 - North America loses urea production
 - Might be the thing that sneaks up on us
- NOLA urea huge discount to international urea
 - If imports stay well ahead of schedule, does it matter?

Bearish Factors

- Slide in grain markets
 - Continue to see even to higher grain values
- Emotional trading beats fundamental trading
 - Unfortunately, this has been playing out
- Weaker than expected international market
 - What if China's changes course?
 - What if we overstate demand?

Source: NPKFAS 27

What to watch for going forward

- China reentering the export market
- Russia invasion of Ukraine and subsequent reaction from NATO/Europe/U.S./Canada/etc.
- Major impacts to North American production (like Artic Blast 2021)
- Reappearance of major global demand with positive price reaction
- Large gains/losses in grain markets

Source: NPKFAS 28

UAN

What happened to the UAN market?

From near historic lows to historic highs

NOLA UAN July 17, 2020 - \$117 NOLA Urea December 9, 2021 - \$562

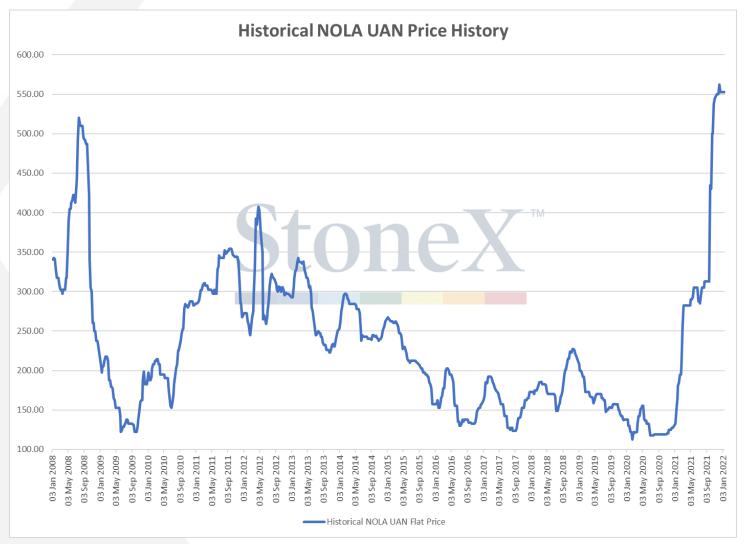
\$445 or 380% increase in 17 months

What happened to the UAN market?

Since then...crickets.

NOLA UAN Prices

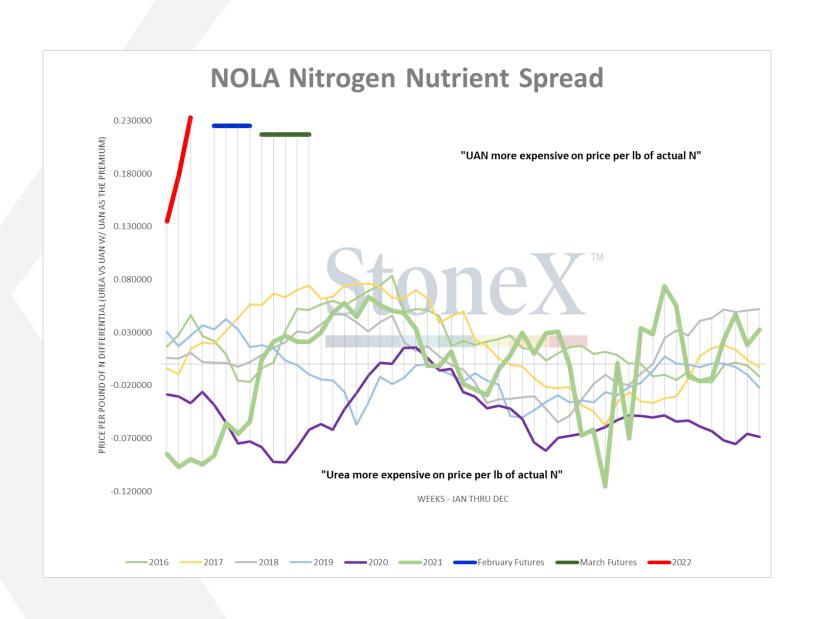
(\$/ton - 32%)



UAN Situation & Outlook

Factors Driving Current Markets:

Aug 2020	Derecho	Drop in crop production / spike in crop prices
	Covid checks	Massive influx of cash
Feb 2021	Spike in US NG \$	Plant shutdowns – lost production
Mar-Jun	Strong '21 Spring	Low downstream/producer ending inventory
Aug	Hurricane Ida	Plant shutdowns – lost production
		Logistics - Damaged barges, river restrictions
Summer	Drought UMW	Reduced corn production
	Turnarounds/Outages	Lower than expected output
	CF CVD/A-D FILING	Shuts off import flows from Russia/Trinidad
Sep	Supply Chain Issues	Lack of vessels / long demerge / jump in rates
	Energy Crisis	
	- EU	Plant shutdowns / jump in imports
	- China export ban	Reduced production / Export ban
	- India	Reduced production / Supply shortfall
Oct	India tenders	Limited tonnage offered / record prices
Oct-Nov	Russia export caps	Limited tonnage available to the world
Net Im	pact – Extremely Tight S	Supply / Demand Balance / Rising Prices



U.S. UAN Supply/Demand Balance

(000 Product Tons – 32% Equiv.)

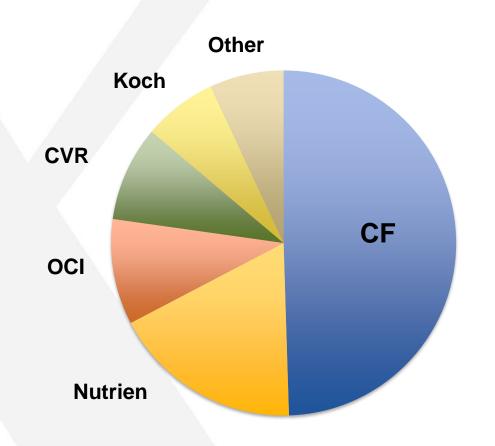
			Est	Fct	Change
	FY19	<u>FY20</u>	<u>FY21</u>	<u>FY22</u>	<u>Vol.</u>
Supply					
Production	12,999	12,785	12,881	12,799	-82
Imports	2,860	2,914	2,674	2,409	-265
Beg. Inv.	696	1,178	1,081	716	-365
Total	16,555	16,877	16,636	15,924	-711
Demand					
Dom. Shipments	14,092	14,798	15,130	14,597	-533
Exports	1,285	998	789	760	-29
Total	15,377	15,796	15,920	15,358	-562
End Inv.	1,178	1,081	716	566	-150
Net Imports	1,575	1,916	1,885	1,648	-236

Key Factors:

- AD/CVD case
 - O What will Russia do?
 - Limited offshore alternatives
- Higher U.S. production in 2nd half will partially offset lower imports
- S/D balance and supply availability expected to remain tight through FY22
- Reduced supply expected to result in a decline in overall shipments
- Urea/UAN price spread expected to favor urea

Source: TFI, NPKFAS

U.S. UAN Capacity (000 Product Tons)



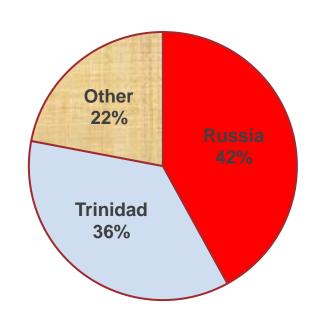
	2021	2021
CF	8,278	50%
Nutrien	2,974	18%
OCI	1,726	10%
CVR	1,415	9%
Koch	1,087	7%
Other	1,150	7%
Total	16,630	100%

What happens with the anti-dumping duty rate?

U.S. UAN Imports (000 Product Tons)

"Russia and Trinidad combined have accounted for roughly 80% of U.S. Imports"

	FY18	FY19	FY20	FY21
Russia	987	1,418	1,435	1,123
Trinidad	806	920	954	927
Canada	476	442	452	442
N. Africa	-	-	-	103
Other	171	80	74	79
Total	2,440	2,860	2,914	2,674
% of Total				
Russia	40%	50%	49%	42%
Trinidad	33%	32%	33%	35%
Combined	73%	82%	82%	77%



World UAN Capacity and Exports (000 Metric Tons of Product)

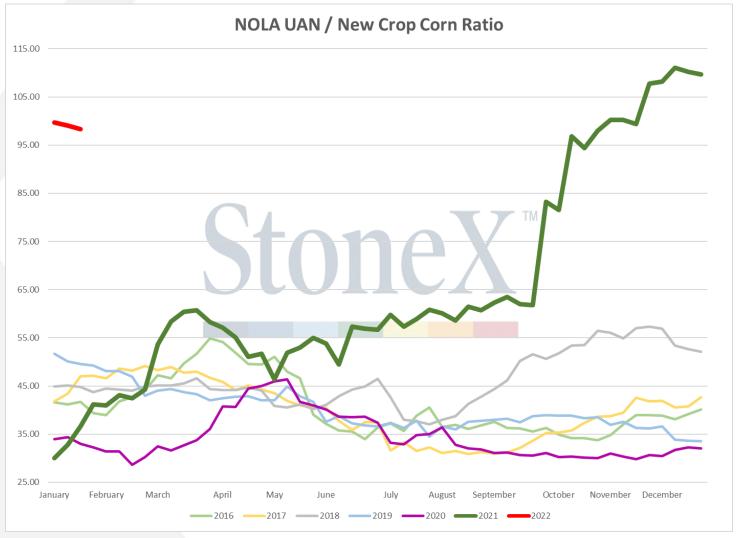
"Russia and Trinidad account for roughly half of total world trade"

					Primary
	Capac	ity	Exports		Destination
	<u>Volume</u>	<u>%</u>	<u>Volume</u>	<u>%</u>	
U.S.	14,320	40%	964	12%	L. America
Canada	1,629	5%	429	5%	U.S.
Trinidad	1,420	4%	1,461	18%	U.S. / Europe
W. Europe	2,959	8%	939	12%	Inter-regional
C. Europe	4,334	12%	230	3%	W. Europe
E. Eur / C. Asia					
Belarus	1,120	3%	518	6%	W. Europe
Lithuania	1,320	4%	320	4%	
Russia	3,070	9%	2,719	34%	U.S., L. America
Ukraine	1,000	3%			
Sub Total	6,595	19%	3,237	40%	
N. Africa	1,062	3%	350		
China	2,600	7%			
Other	537	2%	174	10%	
World Total	35,456	100%	8,103	100%	

What a Russian invasion could mean

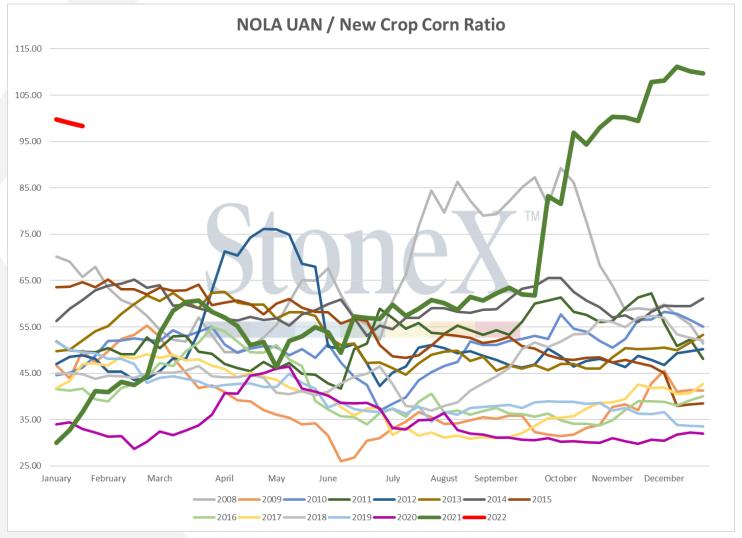
	CY18	CY19	CY20
Russian UAN Exports	2,276	2,715	1,824
Total World Exports	8,208	8,703	7,904
Russia Percent World Exports	27.7%	31.2%	23.1%

NOLA UAN Barge / Cash Corn Price Ratio (Bushels of Corn per ton of Urea)



Source: Argus, NPKAS, StoneX, CME

NOLA UAN Barge / Cash Corn Price Ratio (Bushels of Corn per ton of Urea)



Source: Argus, NPKAS, StoneX, CME

UAN Barge Price Outlook

Bullish Factors

- Tight supply/demand outlook
 - Spring '21 ended low inventories + import issues but do not discount surge in North American production rates
- AD/CVD Case
 - What happens tomorrow?
- Steady/higher corn acreage expectations
 - We do not have the reserves in place for a demand surge last minute.

Bearish Factors

- Potential buyer resistance to higher price levels
 - At these price levels, why not consider other crops/lower app rates/switch to urea?
- Significantly better spring NH3 application
 - Perfect weather scenario could raise spring NH3 application and steal from UAN demand
- Urea price destruction
 - This has obviously started

Source: NPKFAS 43

What to watch for going forward

- Urea market if the slide continues, watch out
- Tomorrow's anti-dumping announcement will it surprise us higher/lower?
- Production hiccups we do not have the excess inventories to weather the storm
- Preplant NH3 application success...or failure

Source: NPKFAS 44

AMMONIA

What happened to the NH3 market?

From near historic lows to historic highs

Midwest NH3 average September 3, 2020 - \$279 Midwest NH3 average December 9, 2021 - \$1,350

\$1,071 or 384% increase in 15 months

What happened to the NH3 market?

Also, since then, crickets.

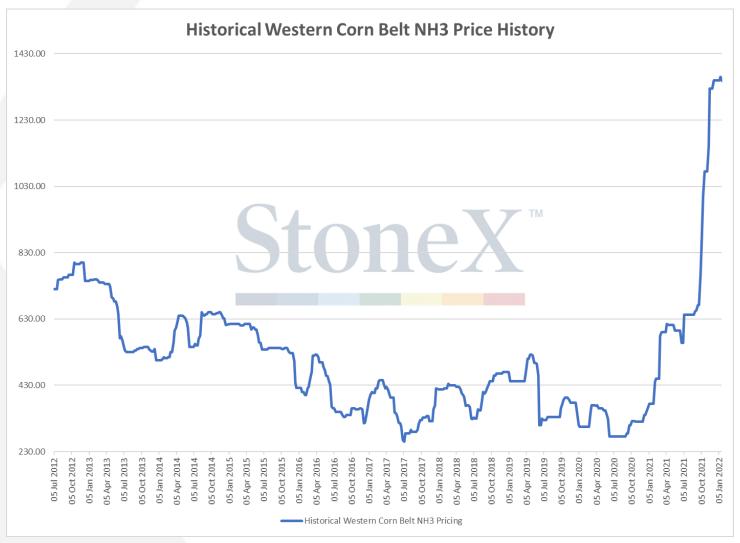
NH3 Situation & Outlook

Factors Driving Current Markets:

Aug 2020	Derecho	Drop in crop production / spike in crop prices
	Covid checks	Massive influx of cash to the farmgate
Feb 2021	Spike in US NG \$	Plant shutdowns – lost production
Mar-Jun	Strong '21 Spring	Low downstream/producer ending inventory
Aug	Hurricane Ida	Plant shutdowns – lost production
		Logistics - Damaged barges, river restrictions
Summer	Drought UMW	Reduced corn production
	Turnarounds/Outages	Lower than expected output
Sep	Supply Chain Issues Energy Crisis	Lack of vessels / long demerge / jump in rates
	EU	Plant shutdowns / jump in imports
Nov/Dec	Huge fall run	Inv. Reduced / tightens the system for spring

Net Impact – Extremely Tight Supply / Demand Balance / Rising Prices

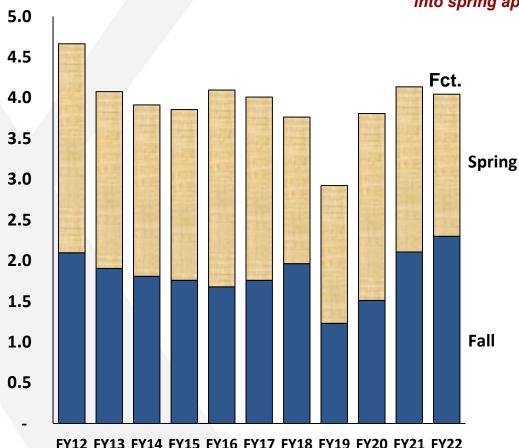
Ammonia Prices (\$/Product Ton)



Source: Argus, NPKFAS

Direct Application Ammonia Demand (MM Product Tons)

"As a result of ideal weather conditions, fall season application is expected to be the highest in ten years. However, high prices and high fall demand expected to cut into spring applications"

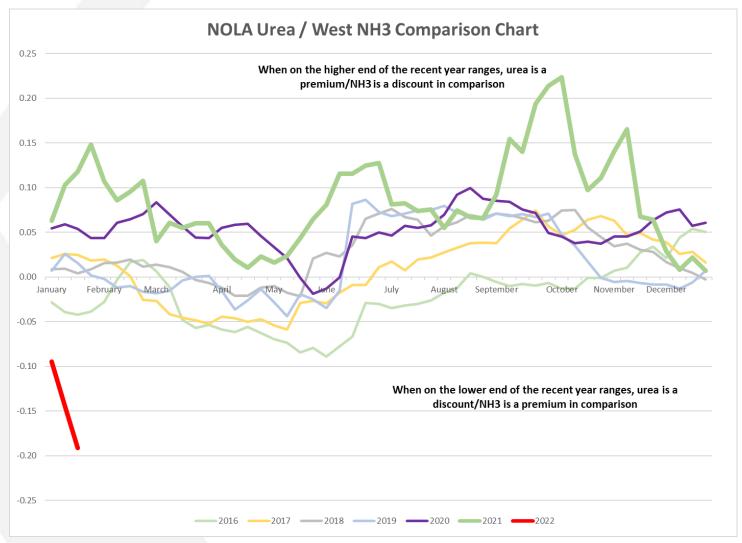


Direct Appl. Ammonia Demand (MM Product Tons)

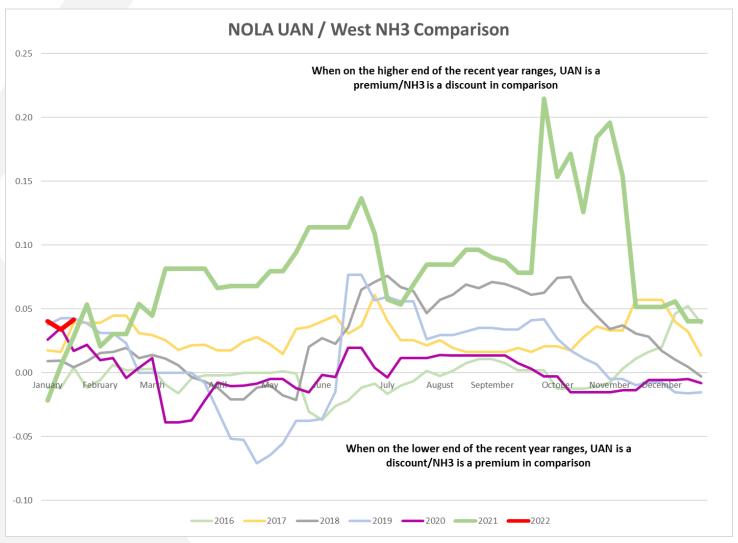
	<u>Fall</u>	<u>Spring</u>	<u>Total</u>
FY17	1.76	2.25	4.01
FY18	1.96	1.80	3.76
FY19	1.23	1.69	2.92
FY20	1.51	2.30	3.81
FY21	2.11	2.03	4.13
5-Yr Avg.	1.71	2.01	3.73
FY22 Est. Change - F	2.30 Y21	1.75	4.05
Volume	0.19	(0.28)	(0.09)
%	9%	-14%	-2%

Source: AAFCO, NPKFAS

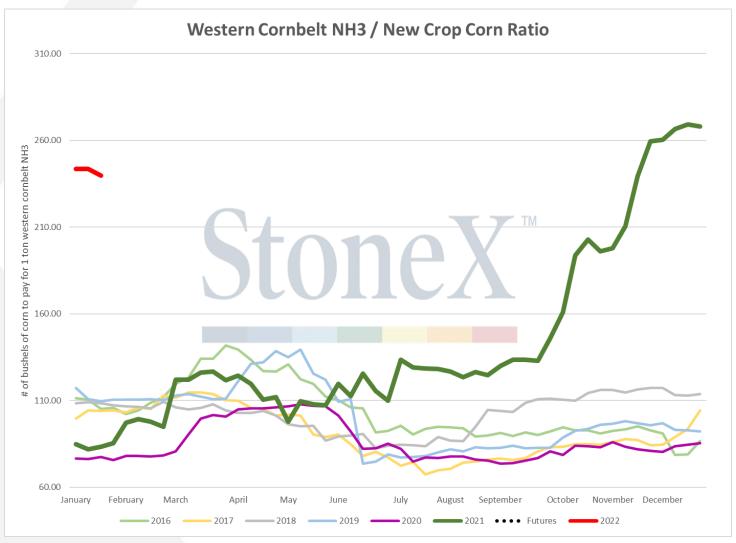
NOLA Urea/Ammonia Price Spread (cents/lb of N)



NOLA UAN/Ammonia Price Spread (cents/lb of N)



MW Ammonia / Cash Corn Price Ratio



Source: Argus, NPKFAS, CME

NH3 Midwest Price Outlook

Bullish Factors

- Huge fall application reduced available inventories
 - The system isn't designed to get refilled in 60 90 days
- International market continues to hold high prices
 - If N.A. producers cannot sell here, they will find a home
- Corn/wheat/etc. acreage continue looking strong for 2022
 - Very few signs pointing at lower demand for N

Bearish Factors

- Corn price/acreage destruction
 - It could happen...
- Urea/UAN markets collapse
 - We are seeing it in urea. Could we see UAN affected?
- Wet/cold start to spring could ruin preplant demand
 - If farmers cannot apply before planting and there is no demand, run for the hills

Source: NPKFAS 54

What to watch for going forward

Weather going forward

- Demand loss to urea

Source: NPKFAS 55

DAP/MAP

What happened to the phosphate market?

From near historic lows to really high prices

NOLA DAP May 22, 2020 - \$257 NOLA DAP November 25, 2021 - \$745

\$488 or 190% increase in 18 months

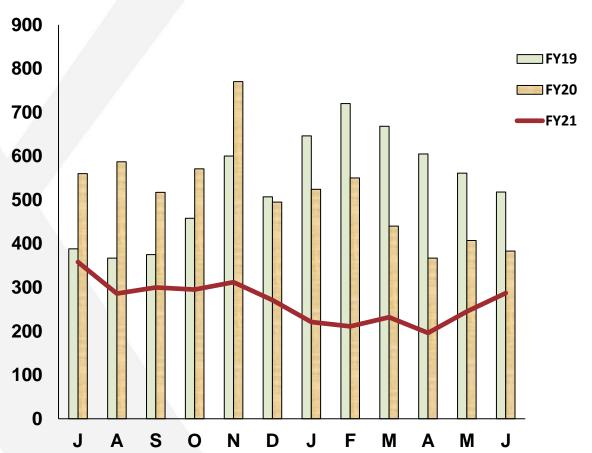
What happened to the phosphate market?

Since then:

January 24th, 2022 - \$665 Prices have fallen \$80 since the high

DAP/MAP Producer Inventory (000 Tons P2O5)

"Lowest ending inventory level on record"



DAP/MAP	Inventory
(000 Ton	s P2O5)

FY14	456
FY15	514
FY16	651
FY17	538
FY18	383
FY19	518
FY20	383
FY21	287

Source: TFI, NPKFAS

Phosphate Situation & Outlook

Factors Driving Current Markets:

Mosaic's counter vailing duty case
Loss of Chinese exports causing domino effect
Derecho event rallying grain pricing
Covid checks boosted farmgate cash flows
Strong fall '20 / spring '21 demand – low inventory levels
Repeated loss of Chinese exports
Continued "strong" grain values incentivizing phosphate applications
Extremely tight inventories in major markets such as India/Pakistan

U.S. DAP Prices (\$/Product Ton)



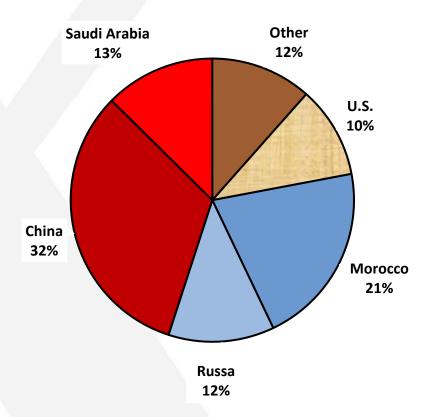
U.S. DAP/MAP Imports by Origin (000 Product Tons)

	Morocco	Russia	S. Arabia	Jordan	Australia	Other	Total
FY16	537	694	-	-		369	1,601
FY17	966	582	37	-		226	1,811
FY18	1,572	668	90	-		166	2,496
FY19	1,732	1,189	213	-	92	240	3,466
FY20	2,002	433	189	-	- '	137	2,761
FY21	161	126	790	413	261	699	2,450
Change	(1,841)	(307)	601	413	261	562	(311)
% of Tot	al						
FY20	73%	16%	7%	0%	0%	5%	100%
FY21	7%	5%	32%	17%	11%	29%	100%

Source: USDOC

World DAP/MAP Trade (CY18/19 = 14.1 MM Tonnes P2O5)

Exports

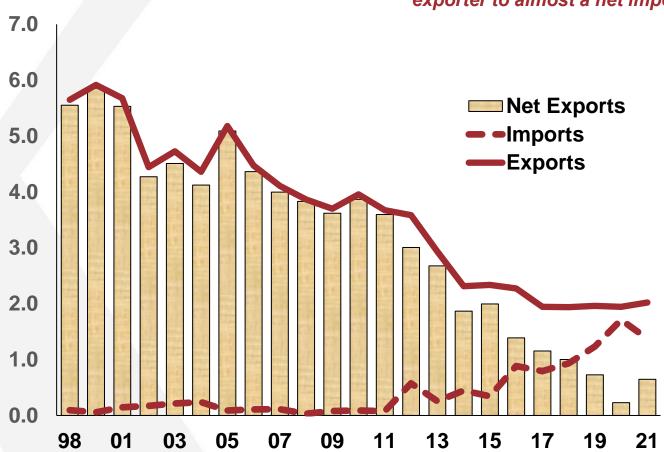


"Morocco, Russia and China account for roughly two-thirds of total world trade"

	Capaci	Capacity		ts
(000 Tonnes))			
China	16,903	39%	4581	32%
U.S.	5,744	13%	1,482	10%
Morocco	4,710	11%	2,953	21%
India	4,070	9%	-	0%
Saudi Arabia	3,060	7%	1,779	13%
Russia	2,861	7%	1,708	12%
Brazil	964	2%	-	0%
Australia	540	1%	206	1%
Mexico	532	1%	283	2%
Jordan	530	1%	340	2%
Tunisia	501	1%	113	1%
Lithuania	455	1%	343	2%
Sub-Total	40,870		13,788	
Other	2,900	7 %	348	2%
Total	43,770		14,136	

U.S. DAP/MAP Trade Balance (MM Tons P2O5)



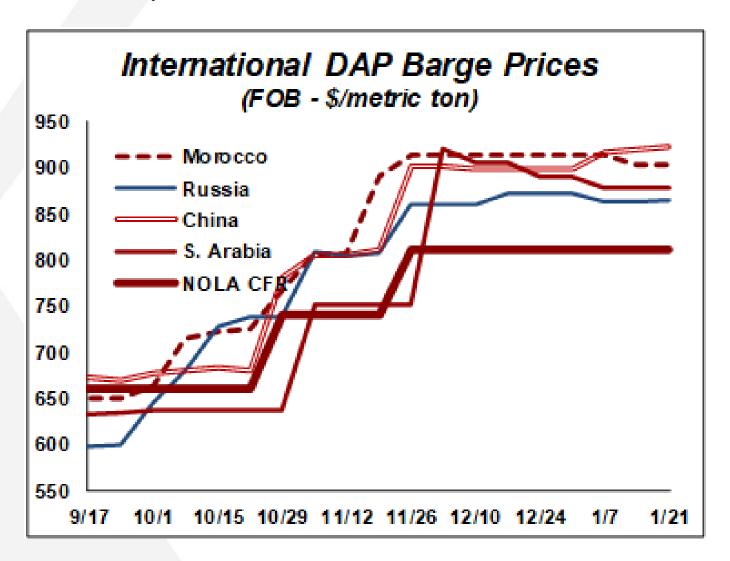


Difference between the world and N.A.

NOLA DAP continues to drop lower w/ last trade at \$665st USD India is paying \$920 - \$930mt USD delivered

North American phosphate some of the cheapest in the world

World DAP Prices FOB Port – Major Exporters (\$/Tonne of Product)

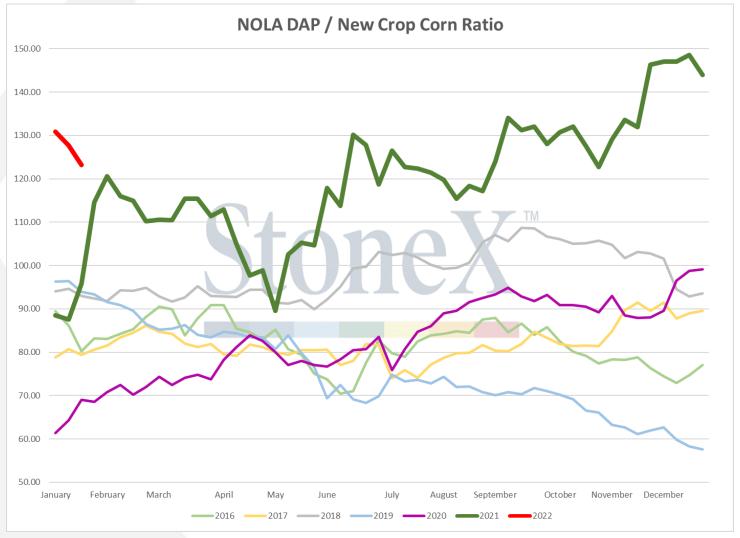


What a Russian invasion could mean

	CY18	CY19	CY20
Russian DAP/MAP exports	3,483	3,579	3,460
Total World Exports	29,846	31,485	32,380
Russia Percent World Exports	11.7%	11.4%	10.7%

NOLA DAP / Cash Corn Price Ratio

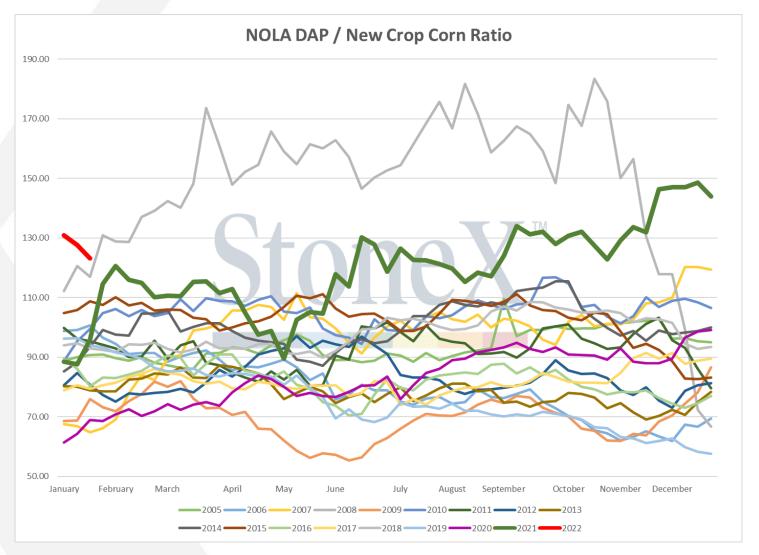
(Bushels of Corn per ton of DAP)



Source: Argus, Fertecon, NPKFAS, StoneX, Barchart

NOLA DAP / Cash Corn Price Ratio

(Bushels of Corn per ton of DAP)



Phosphate Price Outlook

Bullish Factors

- Continued loss of Chinese exports
 - If they stay out of the export game, global S&D remains snug
- Continued strong corn/wheat/etc. acres
 - If demand remains high, prices should not crater
- Escalation in the Russian region
 - The world cannot afford to lose Russian exports

Bearish Factors

- Sticker shock from the farm gate
 - 2008 taught us that we CAN see massive demand destruction
- China turns a 180 and starts exporting heavily
 - Never ever, ever underestimate China
- Price/acreage destruction in the corn market
 - With so many acres on the "fringe" of profitability, any grain price dip could hit demand hard and fast

Source: NPKFAS 70

What to watch for going forward

- Chinese exports, or the lack of
- Russia/Ukraine
- Grain price appreciation/depreciation

Source: NPKFAS 71

POTASH

What happened to the potash market?

From near historic lows to really high prices

NOLA Potash September 21, 2020 - \$190

NOLA Potash November 25, 2021 - \$690

\$500 or 263% increase in 14 months

What happened to the potash market?

Since the....you guessed it...crickets.

U.S. Potash Prices (\$/Product Ton)

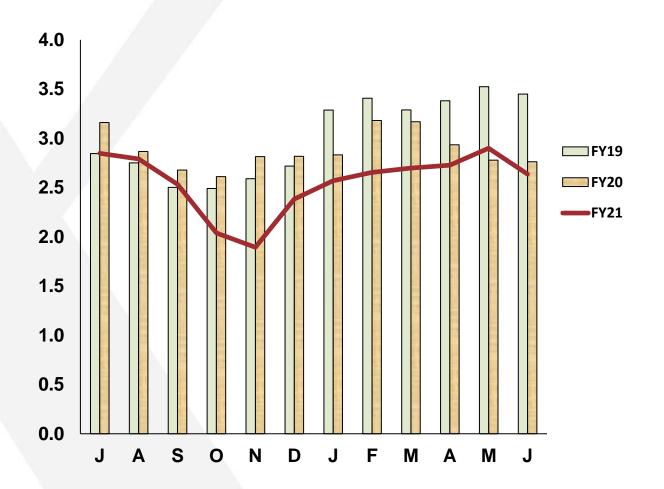


Potash Situation & Outlook

Factors Driving Current Markets:

- Derecho event and following corn price rally
- Government covid checks providing much needed cash influx to farmgate
- Solid fall/spring demand reducing inventory to lower than normal levels
- Earlier than anticipated loss of Esterhazy K1 & K2 mines
- Little to no response in terms of higher production rates
- Continued strong demand in terms of high corn acreage for 2022
- Continued escalated tension in the Belarus/Russia/Ukraine region

N.A. Potash Producer Inventory (000 Tons K2O)



NA Potash				
Ending Inventory				
(000 Tons K2O)				
FY14	1,584			
FY15	1,414			
FY16	2,393			
FY17	2,085			
FY18	3,069			

3,448

2,797

1,939

Source: TFI, NPKFAS

FY19

FY20

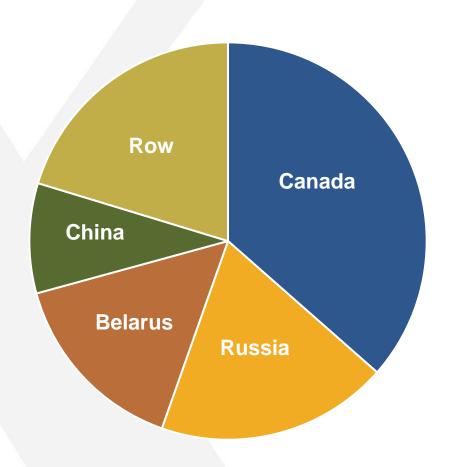
FY21

U.S. Potash Imports (000 Product Tons)

"High prices could push more Russian product to the U.S. market. Belarus still a question mark (sanctions)."

	<u>Canada</u>	<u>Russia</u>	<u>Belarus</u>	<u>Israel</u>	<u>Other</u>	<u>Total</u>
FY16	8,286	585	107	179 [']	199	9,356
FY17	10,043	817	534	305	258	11,957
FY18	11,690	741	749	194	160	13,535
FY19	12,228	768	731	208	119	14,054
FY20	10,856	822	624	111 '	108	12,521
FY21	11,497	1,477	714	385	201	14,274
Change	641	655	90	274	93	1,753
			% of 7	Γotal		
FY20	89%	6%	1%	2%	2%	100%
FY21	84%	7%	4%	3%	2%	100%

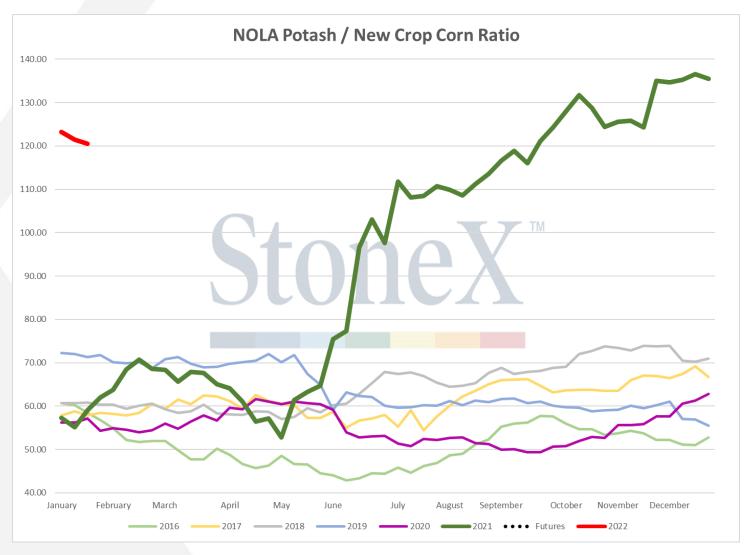
World Potash Capacity (MOP) (000 Tonnes of Product)



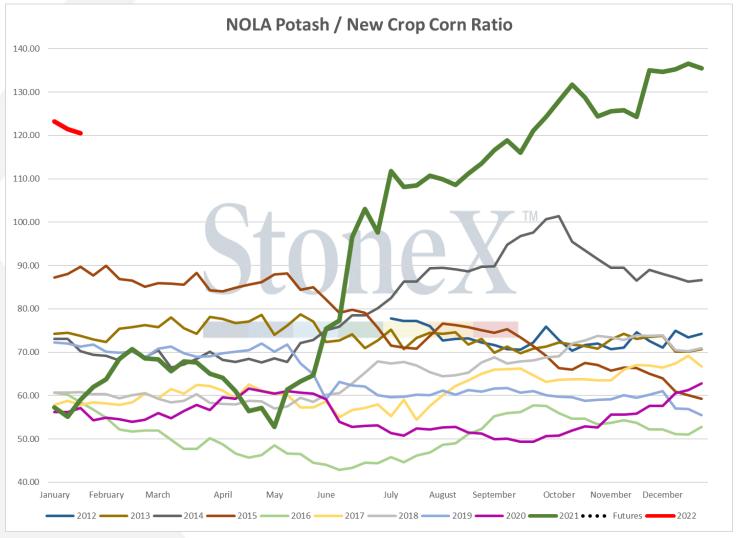
	000
anada	
Russia	
Belarus	
hina	
Row	
otal	•

000 Tonnes	% of Total
36,650	36%
19,000	19%
15,410	15%
8,995	9%
20,385	20%
100,440	100%

NOLA Potash/Cash Corn Price Ratio (Bushels of Corn per ton of Potash)



NOLA Potash/Cash Corn Price Ratio (Bushels of Corn per ton of Potash)



Potash Price Outlook

Bullish Factors

- Russia/Ukraine step closer to all out war
 - Still low likelihood but right now...wrong direction
- Belarus does not improve from a world perception
 - They are always in danger of seeing more sanctions
- No domestic/international demand destruction at these price levels
 - Potash app rates easy to cut, but what if we underestimate demand?

Bearish Factors

- Producers break ranks and start increasing production
 - Not seen it yet but never say never
- Demand destruction like 2008 (40% drop from "normal")
 - If it happened before, it could happen again
- Grain price destruction
 - There are a LOT of acres that are on the fringe of profitability

Source: NPKFAS 82

What to watch for going forward

- Russia invades Ukraine and sparks war
- Belarus takes it a step further
- Any production hiccups or increase in production
- Grain price destruction will likely affect potash first

Source: NPKFAS 83

Thank You Questions