Trades: 99

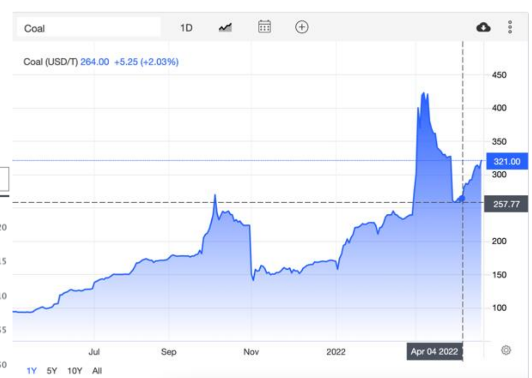
April 20, 2022

1. **Alliance Resource Partners, LP (NYSE: ARLP). *Date: 04-04.***
   a. **Reasoning:** ARLP is a diversified natural resource company that generates operating and royalty income from coal produced by its mining complexes and royalty income from mineral interests that it owns in strategic oil & gas producing regions in the United States, (the Permian, Anadarko and Williston basins). ARLP currently produces coal from seven mining complexes it operates in Illinois, Indiana, Kentucky, Maryland and West Virginia.

      ARLP is highly subject to commodity price risks due to their direct involvement with coal, oil, and natural gas, so when these commodities experience big moves, their revenue is directly impacted. They are also impacted by changes in the price of steel and electricity. Fortunately (for them), coal prices recently topped $100+ per ton (Bloomberg), the highest (not historical record high) we've seen since 2008. Some coal price charts will be higher/lower (ranging from ~$40-$300+), I believe it depends on the type/weight of coal/sulfur content, but they're all high. This is good for ARLP with respect to their coal royalties' segment, and revenue from their coal operations accounts for 90%+ of their total revenue (Company 10-K). Oil prices, too, have obviously been very high (though we haven't reached the historical 2008 high of $147), but oil currently represents an almost negligible portion of their revenue.

      I think that coal is one of the commodities that we haven't been hearing about as often, but it has been on the rise since last year. Despite the environmental cost, as natural gas prices have increased, demand for coal has substantially increased as people switch to coal to generate electricity. This problem has been occurring in the U.S., China, India, and Europe especially, and isn't helped by stronger than expected demand and tighter, more restricted supply. I didn't realize until finding this that it was a trade I could have made at the beginning of the semester, nor did I realize these trends were already occurring throughout 2021, but it's nice to see how the situation has evolved over the last year.

      I would not invest in ARLP long-term unless they had a more evident plan to adjust for growing demand for more environmentally friendly sources of energy. However, in the short-term, as power producers line up alternatives to Russian fuel and continue to look for more domestic energy sources, since ARLP is based entirely in the US, I believe it's a good short-term buy. The first figure below is ARLP's recent share price performance and the second figure charts the price of coal.
   b. **Order type:** MARKET BUY
   c. **P/L:** 5.64%



2. **Gibraltar Industries Inc. (NYSE: ROCK). *Date: 03-29.***
   a. **Reasoning:** Gibraltar manufactures and distributes building products for the renewable energy, residential, agtech, and infrastructure markets in North America and Asia. They serve solar developers, institutional and commercial growers of food and plants, home improvement retailers, wholesalers, distributers, and contractors.

I am confident that industry outlook for these segments is good. 1) Renewables were the cheapest source of energy in 2020, significantly undercutting fossil fuels, which significantly prompts the growth of solar energy, which in and of itself is becoming more and more efficient and installations increased 29% in 2021 from 2020. This is also a U.S. based renewable energy source that can support energy needs without having to rely on foreign suppliers. 2) As for infrastructure, the $1.2 trillion bipartisan infrastructure spending bill that was passed in 2021 demonstrated a commitment to a significant investment in infrastructure spending. 3) There has been unprecedented investor interest and annual volumes climbing to record highs in the Americas and Asia Pacific – investment activity surged by 54% in 2021 totally $1.3 trillion USD. 4) In 2020, the global agtech market was valued at $9.11 billion USD, but is expected to reach $32.50 billion by 2027, expanding at a CAGR of 19.9% in terms of revenue. ROCK also has a significant and growing cannabis production segment that would benefit from growing legalization/popularity.

Despite some more obvious risks of inflation, domestic and worldwide supply and demand shortages, rising interest rates, and the potential threat of solar rebate/tax credit elimination, I feel that they mitigate these very well (without writing a novel), so I thought this would be a good buy, especially as people rush to domestic energy producing companies and more renewable and environmentally friendly sources.

Their financial standing is good, too. They have a strong balance sheet, a total debt/EBITDA ratio of 0.3, and a EV/EBITDA ratio of 8.0x. I know a low debt/EBITDA ratio is favorable, but higher than average EV/EBITDA ratios can signal that a company is overvalued, and lower ones could signal that a company may be undervalued. So, because I feel that Gibraltar falls under the umbrella of several industries due to the nature of the company's diverse product offering, I looked at industry averages for everything I found fitting, and ROCK's EV/EBITDA ratio falls under all of them. The first figure below is just a chart of ROCK's share price performance over the last year, and the second contain industry average EV/EBITDA ratios that I considered relevant from January 2022 data from NYU Stern.

b. **Order type:** MARKET BUY

c. **P/L: (17.68%)**

Industry	Number of Firms	EV/EBITDA	Source
Construction Supplies	48	12.22	NYU Stern
Engineering/Construction	48	12.60	Data as of Jan. 2022
Farming/Agriculture	36	11.49	
Green & Renewable Energy	20	16.84	
Building materials	44	13.67	
Homebuilding	29	8.04	
Machinery	111	14.76	
Gibraltar (NYSE: ROCK)		***8.00***	

3. **Nutrien Ltd. (NYSE: NTR).** ***Date: 03-30.***

a. **Reasoning:** Nutrien is a Canadian fertilizer company. It is the largest producer of potash and the third largest producer of nitrogen fertilizer in the world. I looked into Nutrien initially because I simply read that fertilizer prices were moving a lot. Similar to what was happening in the ag sector with soybean/wheat futures, the war in Ukraine certainly moved them (as Russia is the world's largest exporter of fertilizers) but several additional elements have contributed to the record-high prices, such as: increased prices for raw nutrients like nitrogen, phosphorus and potassium, increased global fertilizer demand, increased energy costs, distribution and supply chain disruptions, and trade (import) duties.

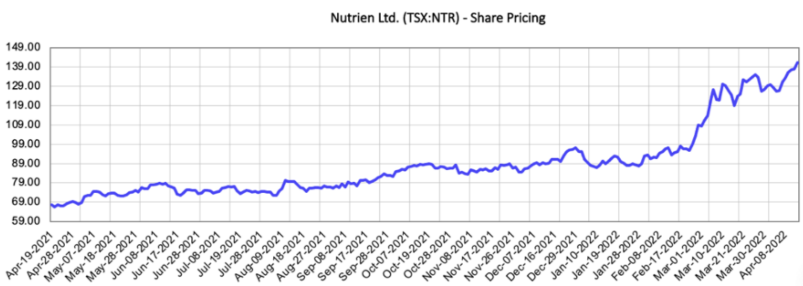
To no surprise, as the price of fertilizers increase, so does the cost of producing every crop that relies on fertilizers, and those price increases impact livestock producers as well. It was nice to see this affect is evident throughout the market in several places, as lean hog futures rallied to their highest price in more than two weeks as of 04-18, and while cattle futures have firmed since, they were climbing (as of 04-13, Reuters). Though this is old news, food prices have also continued to rise. Corn surpassed $8.00 per bushel as of 04-18, marking a 10-yr high, and soybean prices also followed, hitting their own 10-yr high (less than 1% below their all-time highs from 2012).

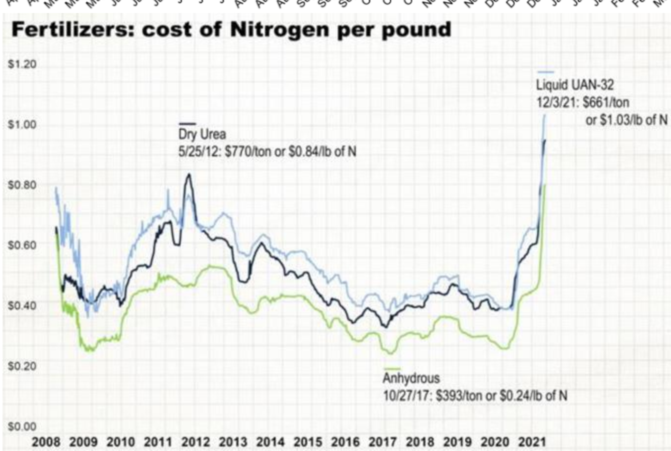
As for trade disputes, some are saying that U.S. fertilizer production capacity and countervailing duties on fertilizer imports from Russia, Morocco, Trinidad, and Tobago have significantly contributed to the price increase. Some companies even filed formal complaints against this these trade disputes, NTR not being one of them.

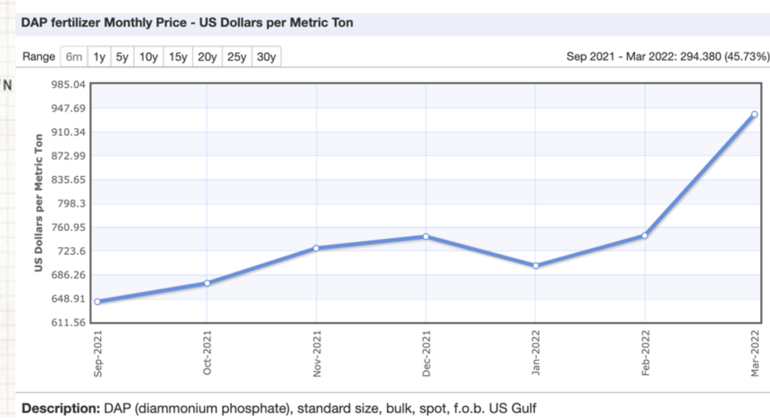
All this considered, I decided to buy Nutrien, expecting to see a positive return. The market appears to be confident that these prices are not going to decrease in the near term, so I think it, along with a couple other fertilizer stocks, would be worth holding in the short term. Below I provided a chart of NTR’s share price performance, a chart presenting the cost of fertilizer historically, and the monthly price of DAP (diammonium phosphate) fertilizer per metric ton, which is the world’s most widely used phosphorus fertilizer.

b. **Order type:** MARKET BUY

c. **P/L:** **10.17%**







4. **Global X Uranium ETF (NYSE: URA).** ***Date: 03-28.***

a. **Reasoning:** The United States imports around 90% of its uranium. In recent years, there has been increased demand for uranium due to its primarily uses, those being nuclear power, which is relevant and important as the market pushes for cleaner/more efficient sources of energy, and risks of war concerns (it’s an input for nuclear reactors that run naval ships, submarines, and nuclear weapons). Of the 90% that’s imported, about 20% comes from Russia and another 30% from Kazakhstan and Uzbekistan. This means that Russian, Kazakhstan, and/or Uzbekistan uranium powers many of the

United States’ 94 operating commercial nuclear reactors (56 plants), and if bans on importing uranium from any of these countries are implemented (which they have not yet, even though the Biden administration did ban imports of Russian oil, gas and coal last month), the US will have to pivot. The U.S. isn’t the only one making decisions though, apparently BofA noted in a Reuters report that Russia was considering banning U.S. uranium exports.

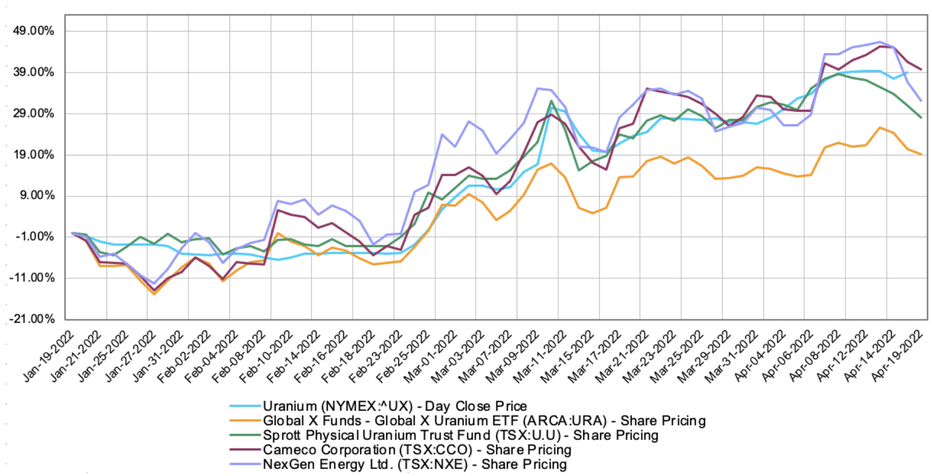
As demand increases, I expect that the price will increase because at this current point in time, supply doesn’t seem to be in our favor because we were already facing a supply deficit long before Russia invaded Ukraine. I chose this uranium-focused ETF because the top holdings do not operate out of Russia. If either the U.S. or Russia decide to stop allowing one or the other to have access to Russia’s uranium, the U.S. will have to either shift toward mining uranium domestically, which would seriously threaten Native American tribes that live near the mines now, or significantly increase imports and rely heavily on some of the companies within this ETF, for example, that operate in Canada and Australia.

As a zero-emission clean energy source, countries are starting to look for strategically, geopolitically stable uranium production (i.e not mines in Russia). This will favor Canadian mines especially, specifically those at Cameco Corporation. Cameco accounted for 9% of the worlds production in 2021, with mines operating at 75% below capacity due to depressed global uranium prices (even going back to the Fukushima nuclear disaster in 2011), and COVID-19 related shutdowns, but they have the capacity to produce more. I think this ETF will continue to do well as countries continue to move out of Russia and look for more friendly or domestic sources of energy, being Canada, and that these companies will benefit nicely from it if they don’t over-produce and create any critical supply-demand imbalances.

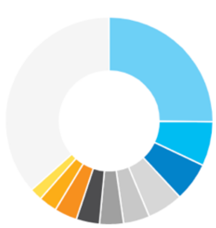
Below I provided a screenshot of the top 10 holdings within URA, and a side-by side comparison of share price returns (a chart generated in CapIQ) for some companies within the ETF in line with day close price changes of uranium.

b. **Order type:** MARKET BUY

c. **P/L:** **7.11%**



URA Top 10 Holdings [View All]



Cameco Corporati...	25.12%	Energy Fuels Inc.	3.74%
Sprott Physical Gol...	6.93%	Uranium Energy C...	3.63%
NexGen Energy Ltd.	6.04%	Denison Mines Corp.	3.53%
National Atomic C...	5.57%	Yellow Cake Plc	2.85%
Paladin Energy Ltd	4.09%	Sibanye Stillwater ...	1.95%
		Total Top 10 Weighting	63.45%

5. **Keysight Technologies, Inc. (NYSE: KEYS).** ***Date: 03-29.***

a. Reasoning: Keysight Technologies, Inc. provides electronic design and test solutions to commercial communications, networking, aerospace, defense and government, automotive, energy, semiconductor, electronic, and education industries in the Americas, Europe, and the Asia Pacific. I felt that KEYS was a potential attractive buy for several reasons. 1) They had a strong quarter with record order numbers, 2) The company is in a strong position financially to advantage of several supercycles, including 5G and IIoT (the industrial internet of things), 3) They are a market leader in a large, diverse and growing market with a diversified global business serving multiple industries.

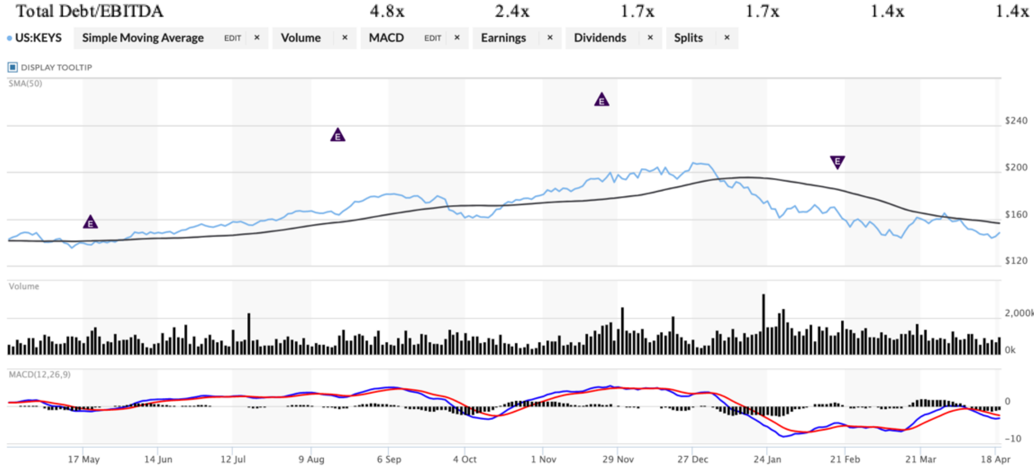
The first image contains KEYS' most common ratios and their total debt/EBITDA multiple. The second picture, however, charts recent share performance (blue) and a 50-day simple moving average line (black) for the last year. I have never used technical trading methods personally, but I remembered what Keith Raphael said about simple moving averages. I know he said 50, 100, and 200-day averages were just arbitrary numbers, but for myself and the sake of learning, I just used 50. Supposedly, when the price crosses below a moving average, it suggests that the bears are in control of the price action and that the asset will likely continue its move lower. Conversely, a cross above a moving average suggests that the bulls are in control and that the price may continue its move higher in the coming days or weeks. Based on this knowledge, I could tell that it tended to be correct in the past year. For instance, from June 14, where the price crossed above the moving average, the share price tended to continue higher until it crossed below the moving average mid-late September, and this occurred again from Oct. – Jan. Based on this pattern, it appears that KEYS may soon cross above the moving average, which could indicate that the price could continue upward in upcoming weeks/months, and that I just bought at a bad time originally.

In addition to this, they provide a vast selection of different cyber security solutions for various industries like finance and capital markets, healthcare, industrials and utilities, aerospace and defense, and even the government. Cyber security is an area of growth expected to grow at a CAGR of ~12.0%-14.1% from 2022 – 2027. They also offer comprehensive automotive design and test solutions, and as automakers make the quick shift to autonomous driving and EV vehicles especially, I believe they will continue to see additional demand for their services and products. Lastly, 500+ finance and capital markets use Keysight, along with 38 out of 50 top banks, 4 out of 5 top credit card companies, and 10 top global exchanges. All this considered, I think that KEYS is a great company and a good buy despite current performance.

b. Order type: MARKET BUY

c. P/L: **(9.46%)**

For the Fiscal Period Ending	12 months Oct-31-2017	12 months Oct-31-2018	12 months Oct-31-2019	12 months Oct-31-2020	12 months Oct-31-2021	LTM 12 months Jan-31-2022
Return on Assets %	2.5%	4.6%	7.6%	7.0%	9.1%	9.5%
Return on Capital %	3.6%	6.3%	10.4%	9.7%	12.3%	12.7%
Return on Equity %	5.3%	7.0%	22.8%	19.9%	25.3%	25.9%
Return on Common Equity %	5.3%	7.0%	22.8%	19.9%	25.3%	25.9%
Total Debt/EBITDA	4.8x	2.4x	1.7x	1.7x	1.4x	1.4x



6. **USD/JPY.** ***Date: 03-24.***

   a. **Reasoning:** The yen is the world's third-most traded currency and known as a safe haven asset. I know you're infinitely more familiar with the way the yen tends to operate and trade compared to myself, but I wanted to try it since I was a part of the more unusual, ruble craze in the first half of the semester. Little did I know before placing this trade, that the yen had already started weakening (depreciating) against the dollar in ways we haven't seen for a while.

      Bloomberg posted on 04-19 that this has been the yen's longest losing streak in at least half a century, extending its declines to the lowest since May of 2002 against the USD (seen in the picture on the left below), even falling to ¥129 against the USD, which was a 20-yr low, and some are saying this fall may even continue. The yen has been weakening against the dollar as U.S. monetary policy diverges from that of Japan's amid higher inflation, and that this weakness is likely here to stay because Japan is expected to face a chronic trade deficit (they have a trade-dependent economy), and they don't plan on raising their own rates yet. The differences in our countries monetary policies and growing import costs coming from the Russia-Ukraine war has accelerated this fall, and that running trade deficits make the yen structurally weaker (which can be attributed to soaring commodity prices).

      In the U.S., the Fed has signaled a hawkish policy stance including multiple interest rate hikes to clamp down on our, still, surging inflation. However, Japan is quite the opposite, and the Bank of Japan is set on maintaining their ultra-low interest rates, though a higher interest rate could work toward strengthening the yen by creating more demand and attracting more foreign investment for their currency.

      Fundamentally, I figure that as the U.S. continues to raise interest rates, and Japan doesn't, that the dollar could continue to strengthen (excluding all other factors) and the yen will weaken. In the right picture below, I used technical analysis (the Bollinger band squeeze strategy) using two indicators: Bollinger Bands (period of 20, multiplier of 2) and Keltner Channels. Supposedly, using these two indicators in tandem will notify you when a market is transitioning from a period of lower volatility to a period of higher volatility, and from here you can determine buy/sell entry points based on the behavior between these two indicators. In the chart on the right – the BB are in blue, and the KC are in red, and I circled two areas where a "squeeze" formed. According to this method, after the squeeze forms (where the BBs contract within the KCs), if the BBs move above and outside the KC, a move is going to take place, and then you wait for the price to break above the BB. Once this happens, this is supposed to be a buy trigger.

      I have only looked at this strategy using the USD/JPY currency pair, but I think it would have been interesting to use this strategy throughout the semester to see how effective it is. In this case, it seems like it would have been an effective trade in both instances where a squeeze occurred, indicating that I should have bought sooner than I did.

   b. **Order type:** MARKET BUY

   c. **P/L:** 4.20%

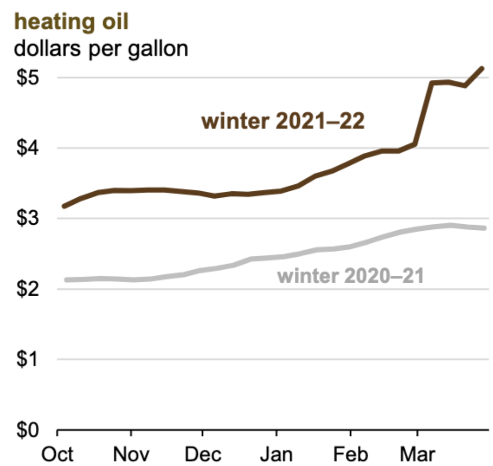
7. **HO/N2 Heating Oil Futures Contract.** ***Date: 04-04.***

a. Reasoning: Heating oil accounts for about 25% of the yield of a barrel of crude. Demand for heating oil is also seasonal, and prices tend to rise from fall through spring when demand is highest. Additionally, because the cost of crude oil is such a large component in the price of heating oil, anything moving crude oil directly impacts heating oil. I was always hesitant to buy any of the oil-related contracts due to the multiplier on them all, but one particular week, I noticed that the price of oil had been significantly falling again, so I felt like it could be a good time to buy because news made it sound like there was a possibility for it to go up again (as it seemed to do each time it fell recently), so I bought heating oil as opposed to the others because it seemed less common and less talked about in the news cycle, even though it was directly impacted by what has been going on recently.

Really, only a small portion of the US uses heating oil (~4.4% of homes) and it's primarily imported from Canada into the northeast region where it's most popular. However, though it's not very common here, you can see in the chart below (left) that it has been experiencing just as much volatility as other oil futures.

b. Order type: MARKET BUY. 1 contract.

c. P/L: **8.64%**



8. **ZK/M2 Soybean Futures Contract.** ***Date: 04-12.***

a. Reasoning: Recently, soybeans have edged higher as supply-demand concerns are still in focus even though planting intentions for 2022 are great, and farming conditions are looking okay despite a delay in planting due to colder weather. However, Argentina port workers are to go on strike in the middle of their soybean and corn harvest, which will only continue to raise soybean supply concerns in the country as they're heavily dependent on their ports. In 2020, Argentina exported $2.31 billion in soybeans, making it the 3rd largest soybean exporter in the world. I realize this doesn't say that much when you consider that Brazil and the U.S. together make up roughly ~87% of the world's soybean exports (in 2020), but Brazil is expected to slow soybean planting expansion for 2022-2023, and the cost of fertilizer and supply because of the war in Ukraine may lead to unforeseen complications for the top exporters.

Soybeans use 40% of Brazil's total supply of fertilizers, with 85% of fertilizers being imported, and of that portion, nearly a quarter is sourced directly from Russia (Russia is the world's largest exporter of fertilizers), and when you factor in fertilizer from Belarus — closely related to Russia — this raises the amount imported by Brazil to nearly 30%. The United States could see a similar supply issue, as we imported about 93% of our potash needs, and even though Canada provides 83% of the potash used in the US, Russia and Belarus provided 12%.

This goes back to the effects we may see with large fertilizer companies like Nutrien and fertilizer inputs. As Russia and Belarus, together, control 40% of the world's potash supply, and with recent sanctions coming in from the U.S., the EU, and other nations, this may impact everything from the cost of fertilizer, topline revenue of fertilizer companies, to the price of soybeans, wheat, corn, and all the way to livestock and our food prices.

All this considered, though I know news seems to be getting better surrounding many of the agriculture futures, I'm still not fully convinced they've recovered based on a more long-term look on the potential impacts of the war in Ukraine right now, so I bought one futures contract even though they're cheap, as I didn't want to exceed my market value limit in futures.

b. **Order type:** MARKET BUY. 1 Contract.
c. **P/L: 2.11%**