

Chart of the Week #34

Fertilizer: Where Natural Gas and Agriculture Meet

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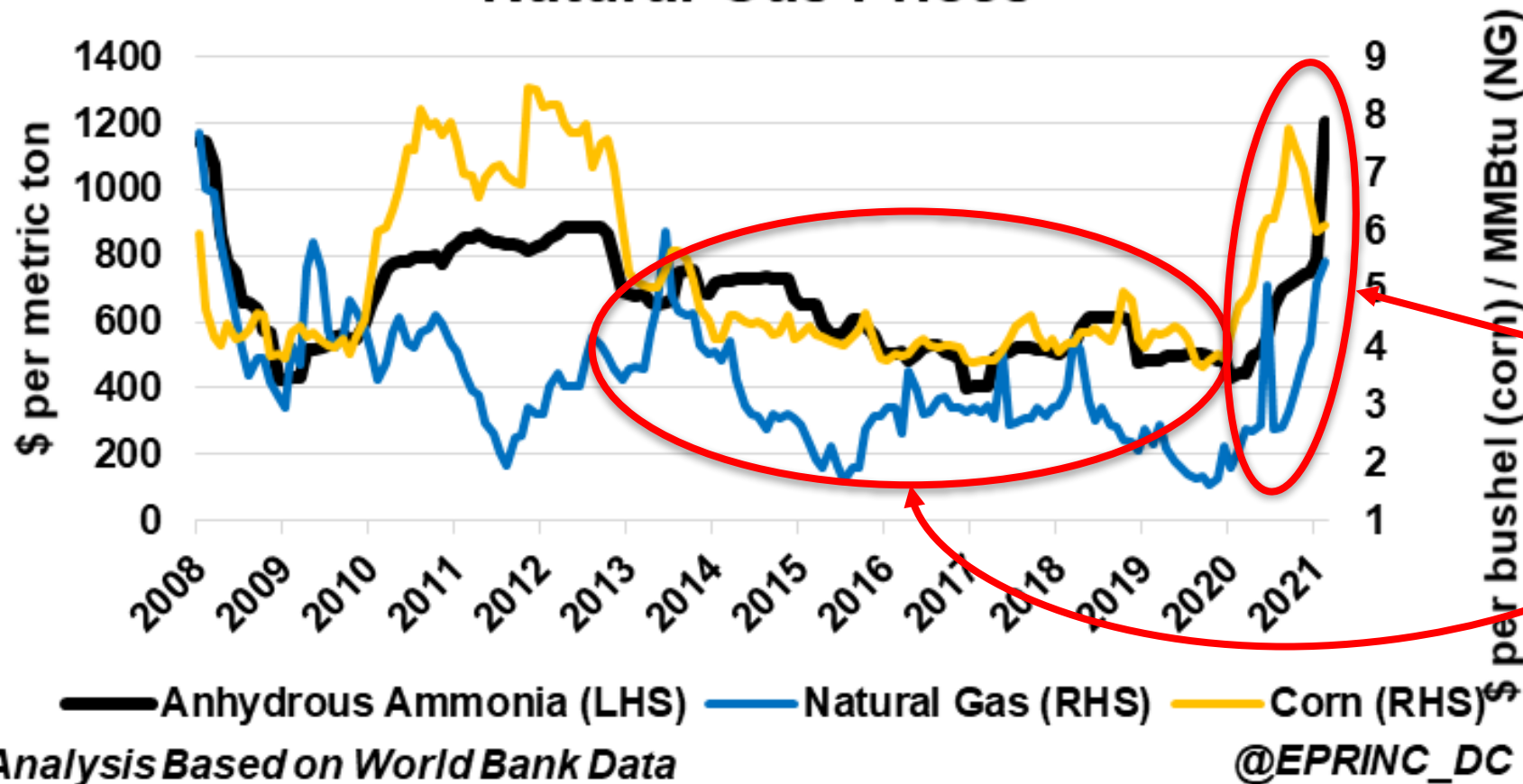
Max Pyziur

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Source: Bayne Stanley
Zuma Press

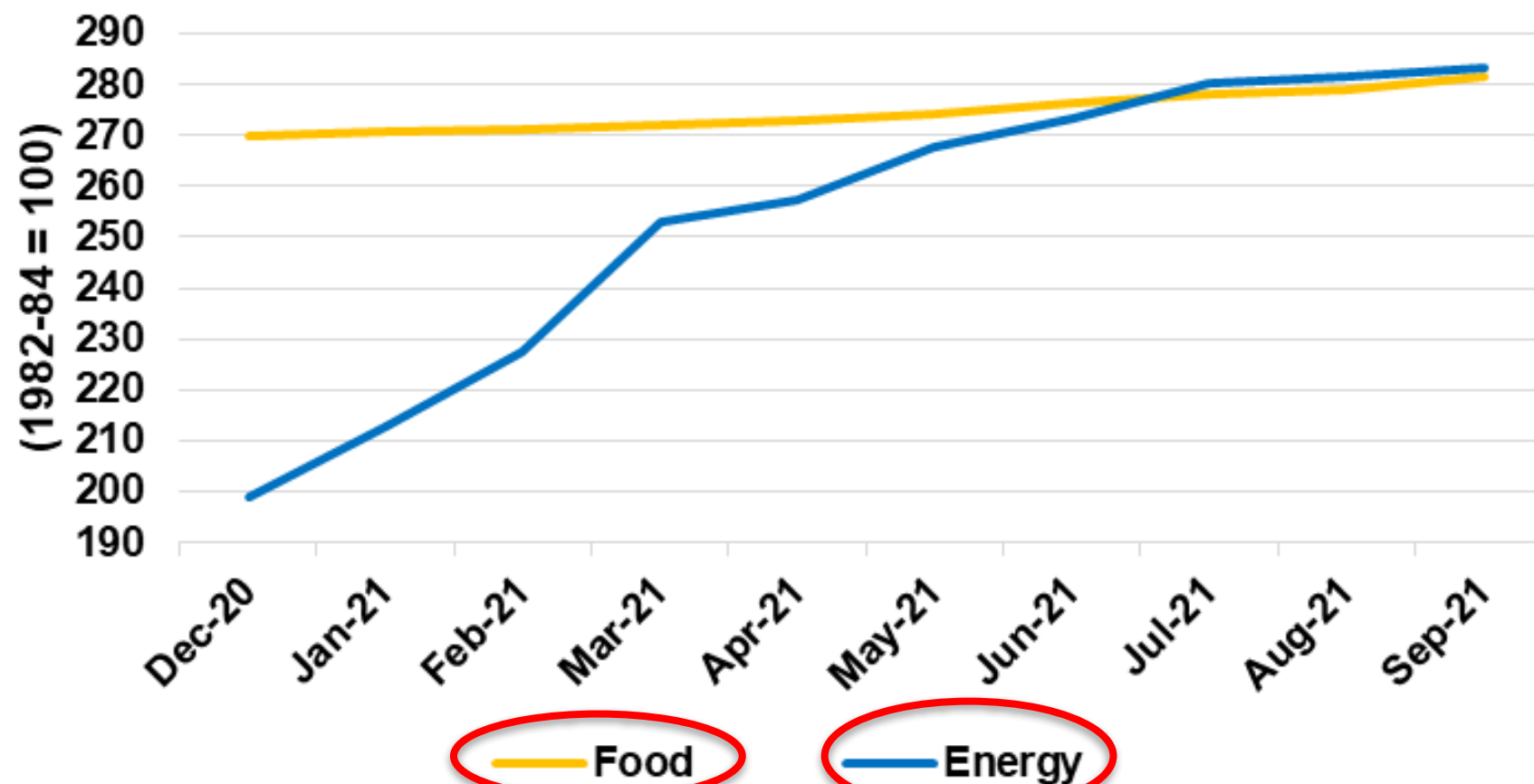
Monthly Anhydrous Ammonia, Corn, and Natural Gas Prices



Since 2013, natural gas, anhydrous ammonia, and corn prices have been tightly correlated.

Beginning in 2021 with the tightening of natural gas supplies, prices of all three commodities have risen considerably.

U.S. Consumer Price Index - Fuels & Food



Analysis Based on U.S. BLS Data

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Since the beginning of 2021 and using the U.S. Consumer Price Index, energy prices have increased 45%, while in the same period, food has risen almost 4%.

Fertilizer: Where Natural Gas and Agriculture Meet



- Natural gas is the main feedstock for anhydrous ammonia production, one of the primary fertilizers used in agriculture.
- In turn, fertilizers, as a critical agricultural input, represent between 15 and 20% of production costs. Any rise or decrease in the cost of fertilizer is passed through to agricultural commodities.
- Using monthly anhydrous and corn price changes from 2008 and deriving a simple statistical correlation, the correlation coefficient is .22, substantially positive (any move in one commodity price is reciprocated positively in the other by about 22 percent; this is further substantiated using linear regression where the coefficient for anhydrous prices is shown to strongly impact those of corn). Since the beginning of 2014 this correlation has tightened.
- With the COVID pandemic easing and demand recovering in 2021, price increases arising from tight energy markets have spilled over into agriculture with not only fertilizer becoming more expensive but also drying (through the use of propane) and transportation (diesel and gasoline) of agricultural commodities.
- The expanded version of this slide deck is available at: <https://eprinc.org/chart-of-the-week/>
- For more information on this chart, please contact Lucian Pugliaresi (loup@eprinc.org), Batt Odgerel (batto@eprinc.org), or Max Pyziur (maxp@eprinc.org).