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Agriculture By the Numbers

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Understanding the Impacts of the U.S. Dollar Index

Frayne Olson, NDSU Extension crop economist/marketing specialist

The U.S. Dollar Index (USDX) is often quoted during daily crop and livestock market updates. While this index can impact market psychology, it is actually a relatively poor indicator of the currency exchange rates that impact agricultural trade.

Currency exchange rates are important because they can impact the relative value of products or services traded in international markets. As the value of the currency for the exporting country increases relative to the importing country, the cost of the product or service increases for the importing country, even though the price for the exporting country has not changed. For example, if a U.S. corn exporter is negotiating with a Mexican corn importer, the price is usually quoted in U.S. dollars per metric ton. If the value of the U.S. dollar increases relative to the Mexican peso, the price in U.S. dollars does not change. However, the cost to the Mexican importer increases because it takes more pesos to equal the same U.S. dollar.

The USDX is an index of the value of the U.S. dollar relative to a bundle, or basket, of currencies of other countries. The currencies in the USDX are the euro (57.6%), Japanese yen (13.6%), British pound (11.9%), Canadian dollar (9.1%), Swedish krona (4.2%) and Swiss franc (3.6%). This index was created in 1973 when the base was set at 100.00. If the index moves to 102.00, the value of the U.S. dollar is 2% higher than the bundle of currencies. In contrast, if the index is 97.00, the value of the U.S. dollar is 3% lower than the bundle. The list of currencies and percentage weights have not changed since 1973.

The USDX is used by companies to reduce broad based currency risk, especially for business being done in Europe, because 77.3% of the currencies are countries located in Europe. However, the U.S. conducts a relatively small amount of agricultural trade with Europe, so the index is a weak measure of the impacts that changing exchange rates have on the general competitiveness of U.S. agricultural exports.

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Understanding the Impacts of the U.S. Dollar Index — continued from page 1

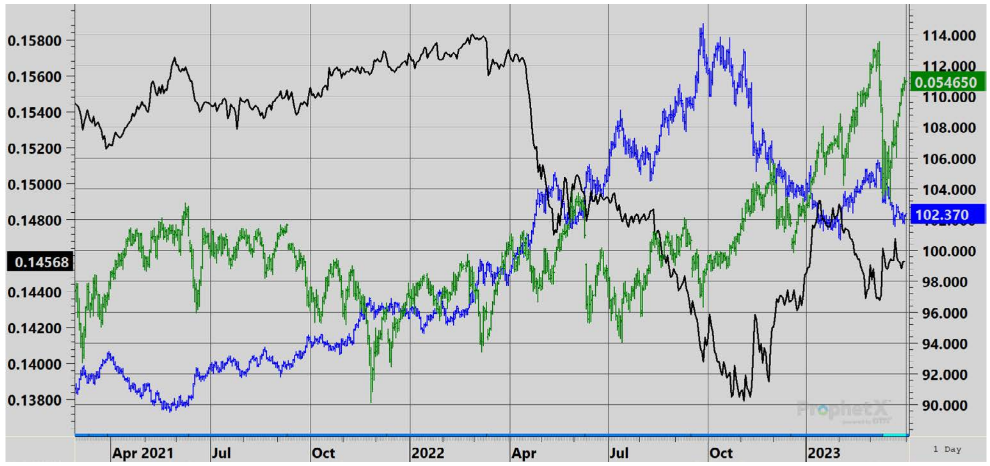
China, Mexico, Japan and Canada are the major buyers of U.S. crops, livestock and other agricultural products. Figure 1 compares the historical USDX value to the U.S. dollar/Chinese yuan and U.S. dollar/Mexican peso exchange rates. Figure 2 compares the historical USDX value to the U.S. dollar/Japanese yen and U.S. dollar/Canadian dollar exchange rates.

Figures 1 and 2 clearly show that the relationship between the USDX and the exchange rates for the major U.S. agricultural trading partners is very weak. Once again, the main reason is that the USDX is very heavily weighted towards the euro and other European currencies.

Even though the USDX does not represent agricultural trade well, it cannot be ignored. The USDX is traded on the New York Board of Trade and can be accessed very easily by futures market trades. There are a significant number of traders that use the USDX as a general proxy for the value of the U.S. dollar, which can influence their views about the future and trading strategies.

In summary, the USDX can influence the behavior of agricultural futures market traders, but may not be a good indicator for shifts in the competitiveness of U.S. agricultural products. Please use this information wisely when preparing your marketing plans.

Figure 1 – Historical U.S. Dollar Index, U.S. Dollar/Chinese Yuan and U.S. Dollar/Mexican Peso Exchange Rates



Blue Line = U.S. Dollar Index
Green Line = U.S. dollar/Mexican peso
Black Line = U.S. dollar/Chinese yuan

Data from DTN-Prophet X accessed on 04/02/23

Figure 2 – Historical U.S. Dollar Index, U.S. Dollar/Japanese Yen and U.S. Dollar/Canadian Dollar Exchange Rates

Blue Line = U.S. Dollar Index
Purple Line = U.S. Dollar/Japanese Yen
Red Line = U.S. Dollar/Canadian Dollar

Data from DTN-Prophet X accessed on 04/02/23

Transition Terms

Ron Haugen, NDSU Extension farm management specialist

Farm transition is something that will affect every person involved, eventually. Transitions can be complicated and may require many considerations, including communication among people involved, medical issues, property distributions, gifting, income taxes, estate planning, estate taxes and other legal issues. Before you visit an attorney, you should familiarize yourself with some legal terms. Below is a list of common terms. These terms may vary by state and jurisdiction.

Definitions and Key Terms

Documents While Living

Conservatorship and/or Guardianship — The appointment of a guardian or conservator by a judge to manage the financial affairs and/or daily life of another person due to old age or physical or mental limitations.

Living Will (advance healthcare directive) — A written, legal document that spells out medical treatments you would or would not want to be used to keep you alive, as well as your preferences for other medical decisions, such as pain management or organ donation, when you can no longer make decision for yourself.

Power of Attorney (POA) — A legally binding document that allows you to appoint someone to manage your property, medical or financial affairs.

End of Life Concepts, Roles, and Documents

Concepts

Assets — Real or personal property (including cash/liquidity) owned by a person or company, regarded as having value and the ability to meet debts, commitments or legacies.

Decedent — A person who has died.

Estate — A person's property or net worth. When the person is deceased, the estate goes through probate and is distributed according to the terms of their last will and testament. If there is no will, the estate is "administered" in accordance with the state's laws of intestate succession.

Estate Administration — A court-administered process in which the probate court administers the estate in accordance with the state's laws of intestate succession to the decedent's heirs-at-law.

Intestate — the decedent died without a valid last will and testament; When a person dies intestate, the estate is distributed in accordance with the state's laws of intestate succession after creditors are paid.

Probate — A court administered process in which the probate court confirms the validity of a last will and testament and allows other people the option to challenge the will. The estate is then administered in accordance with the last will and testament.

Testate — The decedent died with a valid last will and testament.

Roles

Administrator — A court-appointed person ordered to manage the estate of a deceased person who died intestate.

Beneficiary — A person entitled to receive funds or other property under a trust, last will and Testament, retirement account or insurance policy.

Executor — A court-appointed person or institution who is responsible for carrying out the terms of a last will and testament and overseeing the probate of the will and administration of the assets/estate.

Heir — A person legally entitled by law to the property of a decedent; a person inheriting and continuing the legacy of a predecessor.

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Transition Terms — continued from page 3

Notary — A person authorized to perform certain legal formalities and certify/witness signatures on estate planning documents, contracts, deeds, etc.

Personal Representative — A collective name for either executors or administrators.

Spouse — A life partner in a marriage, civil union or common-law marriage as recognized by state law.

Testator — A person who has written and executed a last will and testament before their death.

Trustee — A trustee is a person or business that administers a trust.

Documents

Codicil — An addition or supplement that explains, modifies or revokes a last will and testament or part of one.

Holographic Will — A handwritten and testator-signed document that is legally binding in some states but not produced by a lawyer.

Irrevocable Trust — Created when a person gives up rights to change the terms of a trust once created. The trustor/grantor cannot later change the terms of an irrevocable trust.

Last Will and Testament (Will) — A document which directs how property (including minor children) is to be distributed to beneficiaries and heirs upon a person's death.

Living Trust — A legal arrangement established by an individual [the grantor/trustor) during their lifetime to protect their assets and direct their distribution after the grantor's death. Avoids the probate process.

Mutual Will — A type of will usually executed by a married or committed couple, that is mutually binding.

Revocable Trust — Allows the trustor/grantor to amend and make changes to the trust after it has been formed.

Testamentary Trust — A trust that is specified in and created by a person's last will and testament.

Trust — A fiduciary arrangement that allows a third party or trustee to hold assets on behalf of a beneficiary or beneficiaries.

Ownership/Distribution of Property

Community Property — Property owned jointly by a married couple (in some states).

Heir's Property — Property owned jointly by numerous co-owners, most of whom are related. It usually passes from one generation to another when a landowner dies intestate or with no succession/estate planning for the land.

Joint Tenancy with Rights of Survivorship — The holding of an estate or property jointly by two or more parties, the share of each passing to the other or others upon death.

Life Estate — An interest in property only for the life of a person with the remaining interest (remainder) to vest in others upon the death of the person holding the life estate.

Per Capita — Latin term that means "by head" or "for each head." The inheritance is distributed among all of the heads of your beneficiaries within the same generation/class. Lower generations are effectively disinherited.

Per Stripes — A way of distributing the estate of a decedent where each branch of the family receives an equal share of an estate. Latin term that means "by roots" or "by branch."

Tenants-In-Common — Co-owners who jointly own property without rights of survivorship.

Transfer on Death/Payable on Death — Lets beneficiaries receive assets at the time of the person's death without going through probate.

Types of Entities

Corporation — A legal entity that is separate and distinct from its owners. For profit corporations act through a board of directors selected by its shareholders (owners).

Limited Liability Company — A legal entity that is separate and distinct from its owners. It acts through its manager(s) or its members (owners).

Credits: Alcorn State University and Southern Rural Development Center

Are Enough Beef Replacement Heifers Available for Herd Rebuilding?

Tim Petry, Extension Livestock Marketing Economist

Many North Dakota cattle producers typically background steer and heifer calves as a value-added enterprise.

Auction market receipts for calves increase in October and November as cattle move off pastures and ranges. In mid-October, U.S. Department of Agriculture's Agricultural Marketing Service (AMS) data for North Dakota livestock auction markets indicate that only 30% of feeder cattle receipts weigh over 600 pounds, and heifers account for less than 30% of receipts.

AMS records also show that the seasonal low in calf prices usually occurs in mid-October. That was the case in each of the last five years. In 2022, 550-to-600-pound steer average prices increased from a mid-October low of $196/cwt to $233/cwt in March 2023. Most calves sold in October are not weaned and just off pasture, which is part of the reason for the low price.

Interestingly, records further show that the largest North Dakota calf receipts of the marketing season usually occur in the second, third and fourth weeks of January. By that time many are weaned, 70% weigh over 600 pounds, and heifer receipts are about 40%.

By mid-April, 80% of receipts are over 600 pounds. Since many backgrounded steers have been sold, heifer receipts increase to 60%.

Widespread drought, especially in the Western U.S., along with volatile prices and relatively low returns due to several black swan events, caused beef cow herd liquidation for four straight years. On Jan. 1, 2023, the U.S. beef cow herd at 28.92 million head was lower than the 28.96 million head at the last cyclical low in 2014 when cattle prices were record high.

Cattle prices have increased back up to 2015 levels and are expected to continue to increase cyclically. So, there is interest in beef cow herd rebuilding, but drought is the wild card given that 50% of the U.S. beef cow herd is currently in drought. In late fall 2022, 75% of beef cows were in drought, so conditions have improved in some regions. Hopefully, moisture conditions continue to improve.

The availability of beef cow replacements is also an issue for herd rebuilding. U.S. heifers held as beef cow replacements follow the beef cow inventory cycle.

The U.S. beef replacement heifer inventory on January 1, 2023, at 5.16 million head declined 317,800 head (5.8%). That was the second lowest number in 50 years, just above the 5.14 million head in 2011. The number of bred beef heifers expected to calve in 2023 was 3.17 million, down 5% from last year.

Beef replacement heifers represented 17.9% of the beef cow herd which is the lowest proportion of beef heifers since 2012. Given the low number of replacements available, very little beef cow herd expansion will be possible this year, even if moisture conditions improve.

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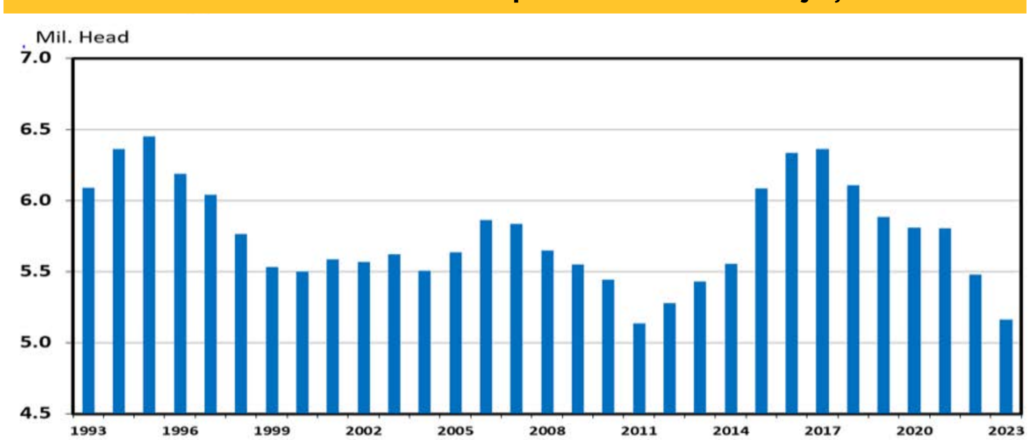
Heifers Held as Beef Cow Replacements — January 1, U.S.



Are Enough Beef Replacement Heifers Available for Herd Rebuilding — continued from page 5

North Dakota cattle producers typically background and develop many replacement heifers, as a value-added enterprise. The 2022 North Dakota calf crop was 850,000 head, and on Jan. 1, 2023, there were 162,000 beef replacement heifers and 215,000 other heifers on North Dakota ranches.

In the last few years, top 10 numbers of beef replacement heifers were recorded in North Dakota. The 200,000 head in Jan. 1, 2021, was the sixth largest number of replacement heifers on record, but drought in 2021 and 2022 took a toll. Some of the Jan. 1, 2021, heifers were not bred as planned and went to feedlots due to the severe drought.

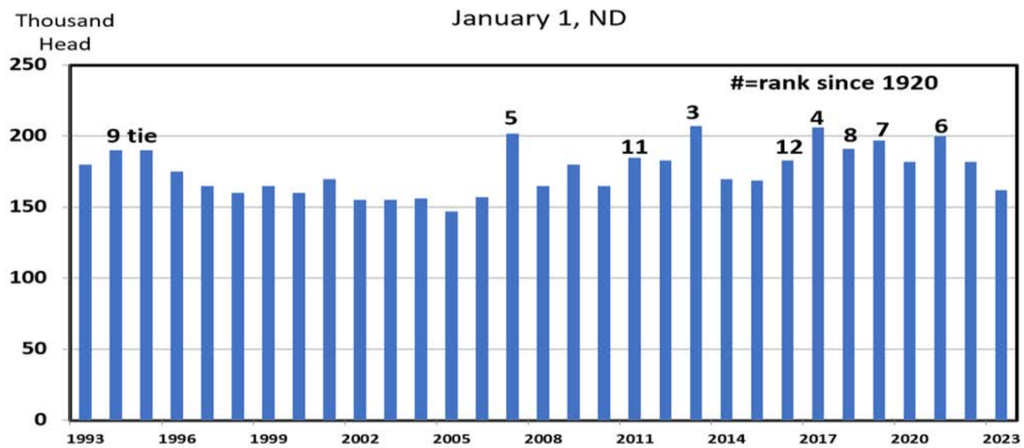
There are a number of reasons why many heifers are usually retained in North Dakota. Lightweight heifers receive $30/cwt or more price discounts to steers in the fall but continue to gain in price relative to steers as weights increase.

Retaining heifers provides marketing flexibility. They can be kept and bred in the summer or marketed in the spring as feeder cattle depending on weather and market conditions. North Dakota developed replacement heifers are in demand not only in North Dakota but in other states as well due to the high quality. Some of the highest quality genetics is available here in the state.

Currently, replacement quality, 700-to-800-pound, bangs vaccinated heifers are bringing $1,400 to $1,500 per head at North Dakota auction markets, even higher than their steer counterparts in some cases.

When U.S. moisture conditions return to normal, beef replacement heifers will be in high demand to rebuild the herd.

Heifers Held as Beef Cow Replacements – January 1, N.D.



USDA

North Dakota Weekly Cattle Auction Summary
AMS Livestock, Poultry and Grain Market News
North Dakota Department of Ag Mrkt News

Heifers — Medium and Large 1 (Per Cwt/Actual Wt) March 27, 2023

Head	Wt Range	Avg Wt	Price Range	Avg Price	
8	348	348	$225.00	$225.00	
53	372-394	380	$225.00-231.00	$227.56	
59	403-446	422	$205.00-230.00	$222.72	
319	452-496	474	$213.00-238.00	$227.08	
288	517-547	528	$212.00-231.00	$223.07	
494	551-598	578	$194.00-222.50	$211.15	
31	551	551	$218.00	$218.00	Fancy
168	601-648	622	$180.00-215.50	$201.14	
391	653-692	666	$181.50-205.00	$194.38	
48	675-688	680	$194.00-197.00	$195.80	Replacement
331	703-747	712	$180.00-193.00	$188.43	
74	706-741	710	$179.00-197.50	$195.15	Replacement
76	769-774	770	$162.00-177.00	$166.99	
124	756-794	787	$186.50-203.50	$199.02	Replacement
43	806-844	818	$162.00-165.00	$163.89	
247	801-839	821	$167.00-179.00	$175.32	Replacement
15	858	858	$165.50	$165.50	
15	857	857	$177.00	$177.00	Replacement

North Dakota Cropland Rents and Values

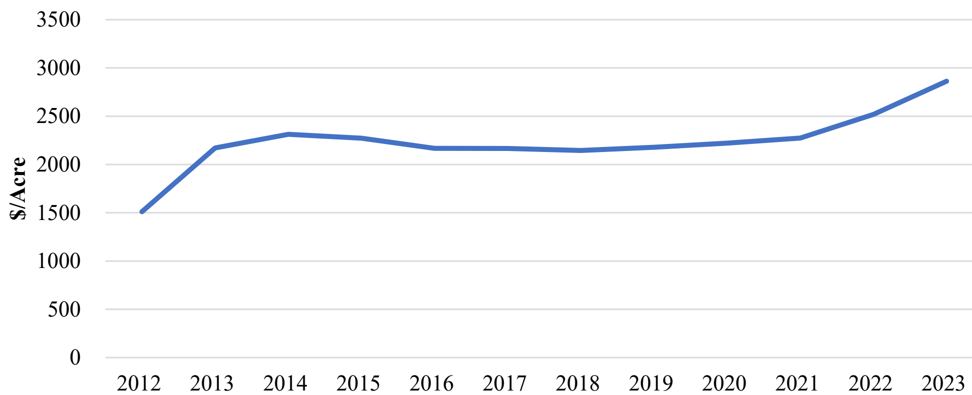
By Bryon Parman, Assistant Professor/Agricultural Finance Specialist

After six years of cropland price in North Dakota remaining flat, cropland prices have now experienced two consecutive years of double digit increases. From 2021 to 2022, cropland prices in North Dakota increased about 10.9%, and then from 2022 to 2023 they were up 13.5%. The price increases recently have been driven by high commodity prices, previously low interest rates, cash disaster payments from Market Facilitation Programs and COVID-19 assistance.

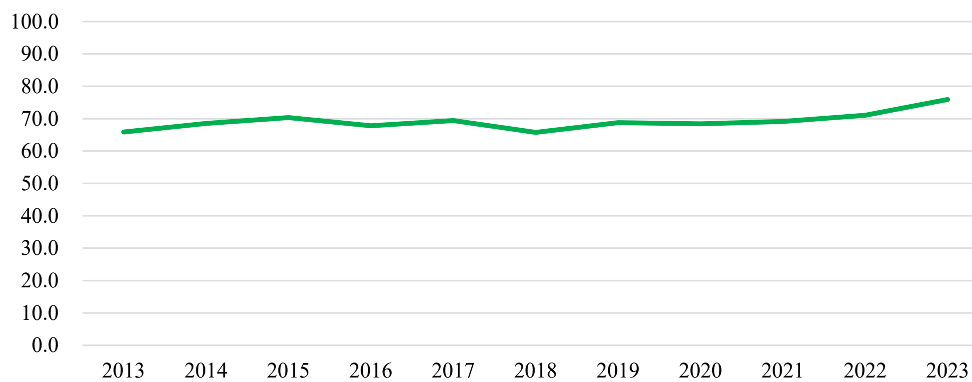
Despite historically high production costs for the 2022 season, the U. S. Department of Agriculture projects that 2022 will have historically high net farm incomes nationally. North Dakota's net farm income for 2022 also projects high based upon the early data coming in from around the state. Statements made by lenders as well as producers are that a large percentage of the purchase cost is being paid with cash rather than being financed.

While land values are up dramatically the last two years, rents have been much slower to react. From 2014 through 2022, cash rents on cropland across North Dakota have remained around $70 per acre on average. While there are obviously regions or counties with rents much higher than that, such as the southern Red River Valley or the southeast regions, where rents may be over $150 per acre, or the southwest and northwest, where rents may be below $40 per acre, the state average is useful for benchmarking how rents are trending. The 2022 to 2023 period is the first time in over 10 years that rents statewide showed a significant increase at 6.8%. The last time rents increased over 6% was 2012, and in 2008 and 2011, rents for North Dakota cropland increased over 10%.

North Dakota Land Values — State Average



North Dakota Cash Rents $/Acre Cropland



The disparity between cropland rents and values however continues to widen. With the 2023 data now available, the rent to value ratio, often called the capitalization rate or cap rate, continues to decline. The cap rate approximates income generation relative to the value of the asset. While the simple cap rate doesn't include a capital gain in the equation, it does show how much the owner or purchaser of cropland is counting on the value of the asset increasing rather than revenues generated every year paying them back over time.

In 1989, the cap rate on farmland in North Dakota was almost 9%. By 2013 the cap rate had fallen to around 3%. With the latest increase in land values relative to rents, the cap rate has fallen to a new low of 2.7%. This does not include a deduction for property

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North Dakota Cropland Rents and Values –

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taxes which would drop the cap rate lower. As of the writing of this article, AAA corporate bond yields were between 4.35% and 4.5%, or nearly double the rate of return on farmland.

While much of the farmland purchased recently has been paid for with cash, or at least buyers financed a smaller-than-usual percentage of the overall cost, historically a significant percentage of farmland purchases are financed, especially by newer farmers who have not had enough time to build up the required cash reserves for a land purchase. Historically, the cap rate on farmland is 100 basis points or 1% below the 30-year mortgage rate. In other words, in 1989 the mortgage rate was around 10% while the cap rate on farmland was approximately 9%. The additional rate of return on land needed to finance land at 10% while generating 9% of the value via income can be made up though expected asset appreciation or capital gain.

As interest rates fell through the 1990s, 2000s and 2010s, cap rates also fell and the relationship of cap rates being 1 point below the average mortgage rate remained to the point that interest rates were historically low around 3% or 4 % while the cap rate was 3%. However, recent actions by the Federal Reserve to combat inflation have driven the typical mortgage rate from 3.5% a year ago to around 6.5% or 7% now. With mortgage rates nearly doubling in a year, the cap rate on farmland at 2.7% is about half what the prevailing interest rate would suggest that it should be.

This relationship comes into play in situations where most of the purchase of land needs to be financed. Certainly, the last couple years with a large share of the purchase price being paid in cash makes any remaining amount being loaned out a low risk for any lender. But, should much of the cash reserves be used up with recent land purchases and borrowing become more necessary, and if the Fed decided to keep rates where they are now, or continue to raise them, borrowing money at 7% for a 2.7% rate of return might make some lenders or potential buyers a bit skeptical.

To bring the cap rate up to the point that it better reflects the relationship of being just below the prevailing mortgage rate, it would require land rents to double or land values to fall dramatically (-50%). However, with many of the purchases being made with cash, and farmers in good financial health, unlike the 1980s, a massive drop in farmland values is extremely unlikely. It is also unlikely that rents double quickly. The most likely scenario, if this relationship has the strength it appeared to have, is for land values to remain flat for a significant period of time much like 2014 to 2020, and for rents to continue to climb at a modest pace. For rents to move the cap rate from 2.7% to 5.4%, in 7 years, rents would need to increase at an annual rate of 10.4%. This of course assumes land values do not rise at all during that period.