Stalcup AgService

Today's LAND OWNER

Summer 2023 Volume XLV No 2

Today's Land Market

Dennis Reyman, AFM, ARA

Summer is the beginning of a new "season" in the land market. Normally the second quarter is quiet for land sales. Historically, only about 10% of the land auction activity would occur during the 2nd quarter. However, that paradigm appears to have shifted.

In 2022, nearly 25% of the sale volume occurred in the 2nd quarter and for good reason – land values were shooting higher. 2nd quarter 2023 volume approached the acreage total from last year. 1st quarter 2023 had the highest acres sold in any 1st quarter in at least a decade. In fact, our database shows the past 2½ years have seen more acres sold than the previous five years.

We look at the overall market a little differently than we would do an appraisal or market valuation of a specific property. A specific property appraisal or valuation is based upon direct comparison with 3-6 highly comparable properties. Appropriate adjustments are made for significant differences contributing to value.

Our overall market review is based on all sales in 23 counties which meet the criteria of 35 acres or more with at least 85% tillable cropland and no significant value added from buildings.

The overall farmland market peaked in the 2nd quarter 2022. 3rd quarter was slightly lower and 4th quarter softened as well. The trend has continued so far in 2023. We've seen softer values with fewer of the "bell ringer" sales; however, we also note that the bottom-side sales didn't climb as sharply and have remained steadier than the marquis sales. I believe that is due to the relatively short duration of the recent upswing (7 quarters) as compared to a decade ago.

So far in 2023, we've noted nine sales of $20,000 per acre or higher with the highest at $24,000. While we saw more sales topping that figure in 2022, that type of result only occurs in certain areas. Less land has been available in those high-dollar areas lately.

We've also noted that the overall weighted average CSR-2 of the land being sold is lower. A little deeper dive was needed. We divided the sales database down into 5-CSR increments.

For example, 95-100 CSR-2 farms averaged the highest $/CSR-2 multiple, as you would expect. They are the most desirable soils with fewer blemishes, as a rule. They should also have the least crop production risk. Now, we can point out certain soil types within this category which we feel are over-rated, but they appear in minor amounts. Know your soils, but we do appreciate that CSR-2 is a pretty reliable index.

As we reviewed each 5-point CSR-2 category of sales, the $/CSR multiple declined in each category until you reach the lower CSR's. Then other factors associated with mid to lower-quality farms begin to affect value as much or more than the CSR.

As always, land values are site-specific. Even farms rated 95 CSR-2 or higher can vary greatly in value ($/acre or $/CSR-2) depending on external factors. Most importantly, don't assume a $/CSR figure is one-size-fits-all. The variability is great and only a truly apples-to-apples comparison is worthwhile. To point, the standard deviation on $/CSR of 95+ sales just in 2023 is more than 10%.

This discussion leads to this conclusion – if you're talking to an appraiser, farm manager, or broker/salesman, make sure they have a firm understanding of market variabilities as they apply to your farm property.

continued on page 3

Is Tillage a Thing of the Past? Page 2

Crop Progress Report Page 3

What's Trending? Yields! Page 4

Renewable Diesel & Biodiesel - What is the Difference? Page 5

Grain Marketing Page 6

Stalcup Ag Service

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Stalcup Ag Service, located in Storm Lake, Iowa is an employee-owned partnership that has prospered by serving farm management, real estate, and appraisal needs of Northwest Iowa farm owners since 1942.

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Is Tillage a Thing of the Past?

Chad Husman, AFM

John Deere transformed farming with his first steel plow in 1837. Deere's moldboard plow design was a massive improvement over previous tools for cutting and turning the prairie soil. Plowing was necessary in those days to eliminate the weeds and native plants competing for space, water, sunlight, and nutrients. This set the stage for many modern farming advancements that followed. John Deere just recently ended production of the moldboard plow in February 2023 - marking the end of an era.

There are still many plows around in the country, but over the past 50 years they transitioned from wide scale use in to more of a specialty tool. Plows are too aggressive for modern farming practices today. They completely turn over the soil leaving it vulnerable to water or wind erosion without plant residue or roots to anchor the soil. The Dust Bowl of the 1930's was a lesson in what can happen from wide scale plowing during a major drought. Conservation and tillage practices have been evolving ever since.

One of the biggest shifts in farming over the past 20 years with tillage has been to eliminate it all together. Today, no-till farming is a preferred farming practice throughout the Corn Belt, and it continues to grow in popularity. The crop production and environmental advantages of no-till have been widely covered in many of our previous newsletters as well as numerous farm media outlets, extension outreach publications, and USDA Service Centers, so I won't go into those details here.

The momentum for more no-till farming is important progress, but it's also worth looking at how tillage equipment has improved over the years acknowledging the benefits it can provide. The decision of when or if you should use tillage on a farm is not as clear-cut as some make it out to be.

Here are some of the main goals of tillage:

- Warm up topsoil faster in the spring for earlier planting
- Incorporate fertilizer, manure, lime, herbicides, or layers of stratified fertility zones
- Chop up residue from previous crops
- Break up soil compaction layers
- Level a field
- Reduce crop diseases
- Weed control – especially on organic farms

Modern tillage equipment is much more efficient and reduces soil disturbance and erosion compared to the equipment from the past. These implements have countless options for shank, coulter, disk, and harrow configurations with adjustable depths and pitches.

The terminology for tillage tools can be confusing. Below is a list and description of the types of tillage we see used in this area:

- Disk – Uses two rows of concave angled disk blades, hence the name "tandem disk". Disks are an aggressive tillage option that incorporates a large amount of residue. They can compact the soil just below the disk blade depth. The greater the angle of the disk blades, the more compaction pressure.

continued on page 7

continued from page 1

Today's Land Market

Following are two tables of selected sales of "good" farmland in South Dakota and Iowa which have sold recently in the region. Stalcup-brokered sales are in bold and highlighted in green.

Selected Sales of Good Farmland- Iowa

Date	Acres	% Tillable	County	$/Acre	CSR2
June	**133.00**	**80%**	**Crawford**	**$10,400**	**82.7**
June	70.00	99%	Hancock	$15,600	80.0
June	73.06	93%	O'Brien	$21,700	97.7
June	80.00	95%	Clay	$21,200	91.3
June	74.00	98%	Kossuth	$13,600	78.0
June	78.80	97%	Sac	$15,900	90.5
June	39.80	97%	Buena Vista	$17,075	93.0
June	80.00	97%	Ida	$16,500	85.2
June	140.55	98%	Osceola	$18,100	95.3
June	80.01	98%	Dickinson	$10,000	72.4
June	157.23	95%	Plymouth	$19,000	85.7
May	80.00	98%	Greene	$17,550	87.9
May	74.15	99%	Harrison	$15,500	74.0
May	160.00	94%	Clay	$13,700	86.2
May	67.67	97%	Dickinson	$13,000	87.1
May	77.12	98%	Cherokee	$14,100	87.3
April	120.00	88%	Greene	$12,400	79.9
April	50.00	97%	Carroll	$20,000	87.5
April	70.15	100%	Dickinson	$14,400	81.6
April	70.38	96%	Lyon	$17,800	68.6
April	80.00	96%	Buena Vista	$14,300	82.0
April	79.00	98%	Woodbury	$8,300	72.1
April	123.97	98%	Plymouth	$18,150	76.0
March	78.69	95%	Greene	$14,500	86.9
March	142.21	86%	Sioux	$15,000	81.0
March	80.00	99%	Lyon	$20,400	68.5
March	137.67	97%	Humboldt	$14,500	79.7
March	40.00	99%	Sac	$18,100	95.2
March	130.05	99%	Crawford	$9,000	62.3
March	160.00	96%	Buena Vista	$14,800	80.8
March	**152.32**	**99%**	**Plymouth**	**$14,300**	**82.2**
March	**154.16**	**99%**	**Plymouth**	**$14,300**	**75.7**
March	45.52	100%	Webster	$16,100	87.5
March	79.90	94%	Dickinson	$14,200	85.1

Selected Sales of Good Farmland- South Dakota

Date	Acres	% Tillable	County	$/Acre	PI
May	64.33	96%	Lincoln	$15,000	82.3
May	36.19	71%	Minnehaha	$11,750	63.6
April	162.27	99%	Union	$11,200	63.1
April	160.00	95%	Union	$13,500	63.2
March	151.00	97%	Brookings	$10,350	82.5
March	154.55	90%	Brookings	$8,750	72.2

Crop Progress Report

Nathan Deters, AFM

As we reach the midpoint of the 2023 growing season, crop conditions in the area are generally good, with a few exceptions. Looking back, most corn planting was finished within the first 10 days of May, under good soil conditions. The corn emerged quickly, and stands were generally good. A fair amount of soybeans were planted during this time as well. A heavy rain event on May 12th and 13th over the eastern 2/3 of the area brought welcome moisture to recharge soil levels but also caused some ponding and soil compaction. This became an issue for emergence on soybeans planted within a couple of days of this event, and numerous fields throughout the area needed supplemental or full replanting. Soybean planting was largely finished by the 3rd week of May. The month of June has been warmer and drier than normal, although not excessively so. Most days have been in the upper 80's, but we have not reached 90 degrees for any length of time. Rains, while less than normal, have been very well timed. South Dakota has been more fortunate with rains, with good amounts at the end of June pushing them ahead of normal for the month.

Overall, as of July 1, crop conditions are good in most of our trade area. An exception is our southwest counties, which have largely missed out on any substantial rains. In these areas a few light rains are keeping things going, but crops are showing stress on hot days.

Corn has benefitted from the above average growing degree days, and is about at normal development. Pollination will begin the second week of July. The soybeans are more uneven, with a lot of shorter than normal fields. We have learned, however, not to put too much importance on the soybean crop's appearance at this time of year. Soybean plants are forgiving, and weather from mid-July through August will tell the story on the crop. While we don't think this crop is set up for record soybean yields, we could still have an average or better crop.

Going forward, July weather, as always, will be critical. We enter the month with less than normal subsoil reserves, and timely rains will continue to be important. Most influential to yield success will be temperatures. Above normal temperatures throughout the pollination and early grain fill stage of corn can cause yield losses, even with adequate moisture.

What's Trending? Yields!

Dennis Reyman AFM, ARA

"What's trending" is a common phrase these days. Of course, trends can be found in most everything. In agriculture, the trend of crop yields has a major influence on crop prices and ultimately in the value of farmland.

Since the advent and adoption of hybrid seed corn in the 1930's and '40's, corn yields have trended higher with an average gain of 2% per year. How does this really translate into local crop yields? Looking at Woodbury County, we found the average yield from 1926-1933 was 34 bushels per acre. Jumping ahead to 1963-1970, corn averaged 71 bushels per acre. The most recent 8 years averaged 205 bushels per acre. This can be measured several ways but around 2% per year is the accepted average.

How does this influence crop prices in the short-term? USDA hosts an annual Outlook Forum in late February. At that time, they release the early projections on crop yields which are based on the trend-line. For 2023, the national trend-line corn yield is 181.5 bushels per acre. Our record national yield was 177 in 2021 and has mostly held in the mid-170's since 2016.

181.5 becomes the accepted yield which is fed into the supply/demand equation to arrive at estimated production. Demand is also estimated to arrive at the projected ending supply. Ending supply for the year, with fears of either too much or too little supply, is the ultimate influencer of price during the spring and summer.

USDA's trend-line yield stays in place through spring. Then the arguments begin about "above" or "below" trend-line final yield. This plays out in daily trading on the Chicago Mercantile Exchange. USDA often adjusts estimated yields with their monthly crop production reports during the summer and fall. The "final" number is published in January.

As of late June, drought has sparked the market bulls to bid higher on the expectation of a reduced crop. Let's say this drought continues all summer. How might that impact yields? Looking across the years, we see that even the worst years come out better than previous bad years.

For example, the last major drought was 2012. The US averaged about 123 bushels per acre and Woodbury County yielded about 135. 1988 was also a major drought. Woodbury averaged 80 bushels per acre. In 1976, it was 61 bushels and 1956 averaged 25 bushels per acre. Defensive traits are bred into modern seed corn, providing a bottom-side uptrend of 2.5% while the top-side trend-line is more like 1.5%.

Soybeans have shown similar yield improvement over time. The national average soybean yield topped 30 bushels per acre for the first time in 1977. Locally, yields over 40 at that time were quite good. The 40 mark was topped nationally in 1994 but not again until 2004. 51.9 was achieved in 2016 and that remains the highest yield, although we have topped 49 each year except one since 2016. Locally, we now see 60-80 bushels per acre or more. From 13.3 bushels per acre 90 years ago to nearly 50 bushels per acre today, the national average yield has increased by about 1.5% annually.

Improving yield potential, better defensive characteristics, and products like crop revenue insurance provide a solid foundation for land values. A key factor in property values is the "anticipation" of future benefits. The anticipation of rising income over time is a major driver of land values. Farmland as an inflation hedge is supported long-term by inflation in crop yields.

Iowa & South Dakota Lease Termination Deadline is Prior to September 1

The Iowa & South Dakota lease laws require notification from either party, which could be the landowner or farm tenant, in writing prior to September 1 if changes are to be made to your current lease for the upcoming 2024 lease year which is March 1, 2024 to February 28, 2025. **You do not have to have a new lease in place prior to September 1, just notification by either party if they want to change lease terms.**

It does not matter if your lease is verbal or written. Proper notification must be in writing from either party prior to September 1. Written termination as provided by Iowa & South Dakota Code must be either served via certified mail or acknowledged by the tenant's signature prior to September 1.

If you need assistance terminating your lease, contact one of Stalcup's farm managers.

Renewable Diesel and Biodiesel, What is the Difference?

Grant Aschinger AFM

Sustainability is everywhere. Many large companies are touting their goals to be carbon neutral and use sustainable production practices. As much as Elon Musk may not like it, diesel engines are still going to be with us for some time. So what can we do to improve the sustainability and lower the carbon footprint of our trucks, buses, railroads, and farm/construction equipment? Soybeans and soybean oil may play a large role in that answer.

Renewable diesel is not the same as biodiesel, although they do share some of the same feedstocks. Biodiesel can only be blended with petroleum-based diesel up to a 20% rate according to the Energy Information Administration. Renewable diesel can be blended with petroleum-based diesel at any level, giving it more flexibility and potential upside when it comes to demand.

According to the US Department of Energy, renewable diesel reduces both carbon dioxide and nitrogen oxide emissions when compared with traditional petroleum diesel. California's Low Carbon Fuel Standard Certified Carbon Intensities study shows renewable diesel reduces carbon intensity by 65% when compared to petroleum diesel. Renewable diesel meets all current standards of traditional diesel, making it an easy direct replacement into current fuel infrastructure and existing diesel engines.

What is The Difference?

So what is the difference between biodiesel and renewable diesel? Even though the names are similar and overall goal of the fuels is the same, they do have distinct differences.

1. Biodiesel contains oxygen, thus creating approximately 7% less energy by volume. Renewable diesel produces 4% less energy by volume when compared to petroleum-based diesel. (University of Illinois Farmdoc Daily)

2. Biodiesel can only be stored for limited lengths of time due to oxidation, causing corrosion of storage facilities. Renewable diesel is chemically very similar to petroleum diesel and does not require specific storage facilities compared to petroleum based products.

3. Biodiesel has a relatively high freezing point of 34 degrees Fahrenheit, which can cause "gelling" in fuel tanks during cold weather. This is why biodiesel is blended with conventional diesel at 5-20%. Renewable diesel has the same freezing point as petroleum diesel of around 16 ° F.

4. Renewable diesel production can be completed in existing crude refineries with some retooling as it has a similar process to traditional petroleum diesel. Biodiesel facilities are dedicated to strictly biodiesel production.

The boom in renewable diesel creates many questions about the potential impacts on US agriculture. Both renewable and biodiesel use the same organic fats and oil feedstocks (such as soybean oil) to create the finished product, but the processes are very different. Biodiesel uses a relatively simple chemical reaction production process and must be blended with petroleum diesel for use in modern diesel engines. Renewable diesel is a fully refined product that is "cracked" in the same way as petroleum based products. This makes renewable diesel a direct substitute fuel that meets the same technical specifications as petroleum based diesel. This gives renewable diesel the ability to be a direct and complete replacement for traditional petroleum based diesel.

What Does This Mean For Soybeans?

About 15 months ago, this newsletter published an article about the potential for US agriculture to provide the soybean oil for these two Renewable Fuel Standard mandated products. In this article, we referenced the 2021 biodiesel and renewable diesel production of 2.438 billion gallons. By 2024, this volume is expected to increase to 7.3 billion gallons. Total distillate production (majority diesel fuel) is currently 60.7 billion gallons annually. The potential for biodiesel and renewable diesel are huge, assuming the economics of production are competitive with petroleum based products.

The other advantage is security. With the Ukraine war still burning hot, global transport of all products, including crude oil, is becoming less certain. The United States has the potential to replace some of the foreign oil imports with domestically grown soybean oil in its diesel fuel production.

Sustainable Aviation Fuel

Sustainable Aviation Fuel (SAF) is another renewable product, very similar to renewable diesel. The production process is similar and there are currently 2 production facilities with one being in Paramount, California, providing SAF to Los Angeles International Airport and Ontario International Airport. The other plant is owned by an

continued on page 6

Grain Marketing

Nathan Deters, AFM

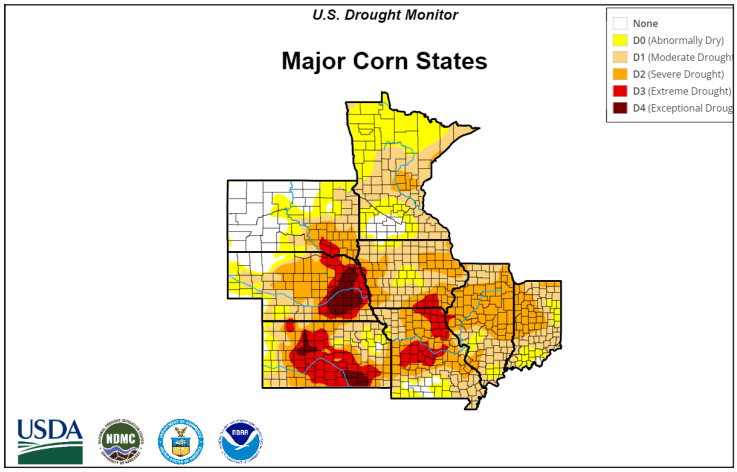
"May you live in interesting times"

To say the least the grain markets over the last two months have been interesting. They started to the downside in May when several factors combined to pressure the markets. These include a fast start to our crop planting, poor exports, the prospect of very good South American crops and concerns about a possible recession. New crop prices bottomed in mid-May with local price for new crop delivery in the $4.50/bu range for corn and $11/bu for soybeans. Then summer arrived, and with it, a rapid expansion of drought conditions throughout a large percentage of the Corn Belt. The accompanying map shows conditions as of June 27. Approximately 60% of the corn and soybean acres are under some form of drought in the U.S. The drought has led to declining crop condition ratings with the worst conditions centered in Illinois. Nationwide, only half of the corn and soybeans are rated good to excellent as of June 26, which leaves this as one of the worst years for ratings on this date since the severe drought year of 1988.

Grain prices shot higher in mid-June, peaking at the height of drought concerns at over $1/bu higher on corn and $2/bu higher on soybeans than lows established just one month earlier.

June 30th stocks/acreage report

This report is often a game changer as it comes right in the middle of the growing season on top of what is usually a volatile weather period. This year certainly stayed true to form. While stocks on hand were about as expected, acreage numbers were all over the board, with corn acres 2 million over expectations and soybean acres a whopping 4 million less than expected. Somewhat surprising given the very dry first half of the growing season, yield estimates were left unchanged with record yields of 181 bu/ac on corn and 52 bu/ac on soybeans still plugged in.



When the dust settled at the end of June, a combination of improved rain forecasts for the central Corn Belt and a bearish acreage number has left corn back close to May lows, while the very bullish soybean acreage has trumped improved weather outlooks and leaves new crop prices near the highest point of 2023.

While nearby weather forecasts look more favorable, it is still a long growing season. Moisture reserves in a large portion of the central U.S. are low, and continued regular rains will be needed. It looks like the supply side of the equation will occupy our attention for the next 2 months, but it will be important to remember that underlying demand problems are still here, and weather rallies will need to be rewarded with sales.

continued from page 5

Renewable Diesel

international company, Neste. They supply San Francisco International Airport and regional airports in Telluride and Aspen, Colorado.

The US Department of Energy says that 100% SAF has the potential to reduce greenhouse gas emissions by up to 94% when compared to conventional jet fuel. Similar to renewable diesel, SAF can be used in existing aircraft and infrastructure. Multiple US government agencies announced the Sustainable Aviation Fuel Grand Challenge in 2021, with the purpose of expanding domestic consumption to 3 billion gallons in 2030 and 35 billion gallons in 2050 while achieving at least a 50% reduction in life cycle greenhouse gas emissions.

All of these new uses for our locally produced agricultural products have the potential to create an entirely new domestic market for our soybean products, making us less dependent on exports to foreign countries to maintain demand. Is this the equivalent of the "ethanol boom" we saw in the late 2000's and early 2010's? It is still early, but the potential is definitely there.

continued from page 2

Tillage

- Field cultivator – Has rows of shanks or teeth and often has a spike drag or something similar on the back end to firm and level. They are designed to lift the soil, mix it, and eliminate weeds. They don't chop and size residue.
- Soil finisher – Kind of a mix between a field cultivator and a disk. They have disc blades in the front, shanks in the middle, and a finishing drag or rolling basket in the back.
- Rippers – Designed for deep tillage, including disk rippers, chisel plows, and in-line rippers. They are usually used in the fall. Disk rippers and chisel plows are aggressive as they bury a lot of crop residue, but some of the in-line rippers do minimal disruption at the surface.
- Vertical till - Uses straight waved blades set at shallow depth. Vertical tillage is supposed to fluff or open the soil by lifting the soil at high speeds with the waved blade moving it vertically and leaving it directly behind the blade. It also chops up the residue. They don't do a great job of leveling, but they leave most of the residue on the surface.
- High speed disk - These types of machines are made to run fast like vertical tillage machines, but also bury/mix in residue and level. The blades are set at a slight angle, so they are more aggressive than vertical till. They can leave more or less residue on the surface depending on the settings.
- Strip-till - Narrow strips are tilled with the area between the rows left undisturbed. Fertilizer can be applied into the strip as part of this tillage pass. Crops are planted directly into the strips.

Before doing any type of tillage on a farm, the soil type, slope, and current soil conditions should be considered. Tillage on wet or steep slope soil is never recommended. When used responsibly, modern tillage practices remain helpful to a lot of farming operations. I don't see tillage going completely away anytime soon, but it will continue to be reduced and refined to protect long-term soil health.

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