



2022 Ag Horizons Conference



SUSTAIN OUR FOOD FUTURE | GROW WHEAT

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Randy Englund, South Dakota Wheat Commission Executive Director (Retired in 2014).

Looking Back: A History of Wheat Production in SD

A look back over the last one hundred years of wheat production in South Dakota provides some interesting numbers.

It's been said that the beginning of the past century, the period of 1900 to 1920, was the "Golden Age of Agriculture." The average gross income of farms more than doubled during this period and the value of farms tripled. The increased use of bigger and more powerful machinery was largely the key to farmers' success. It was truly a time of "Freedom to Farm", as the farm bill wasn't developed until 1933.

There were nearly 80,000 farms in South Dakota at the beginning of the 20th century. Contrast that to the latest census figures of 31,284.

South Dakota's wheat production in 1900 was 26.3 million bushels, grown on 4.05 million acres. The average yield was 6.5 bushels to the acre and the average price was 58 cents/bushel. South Dakota was considered a wheat state then, with only 1.3 million acres of corn being grown. Corn averaged 27 bushels/acre and was worth 29 cents per bushel.

Spring wheat was the predominant class of wheat grown in South Dakota in the first half of the century. Of the 4 million acres harvested in 1900, almost all were spring wheat acres. Production of hard red winter wheat did not approach 10 million bushels until 1957, when state winter wheat production doubled.

The 1929 stock market crash took its toll on wheat prices, which went from \$1 in 1929, to 0.56 cents in 1930. Speaking of drought, the "dirty thirties" brought the state's record low yield of 4.3 bushels per acre in 1933. The lowest total production on record was 732 thousand bushels in 1934. That year 3,035,000 acres were planted, but only 158,000 were harvested.

We ended the 20th century with a new record yield of 39.9 bushels per acre in 1999. It's interesting to note that total harvested wheat acres in 1999 was 940,000 less than 1900, yet in 1999 total wheat production was 3.5 times greater.

Which brings us to the current century.

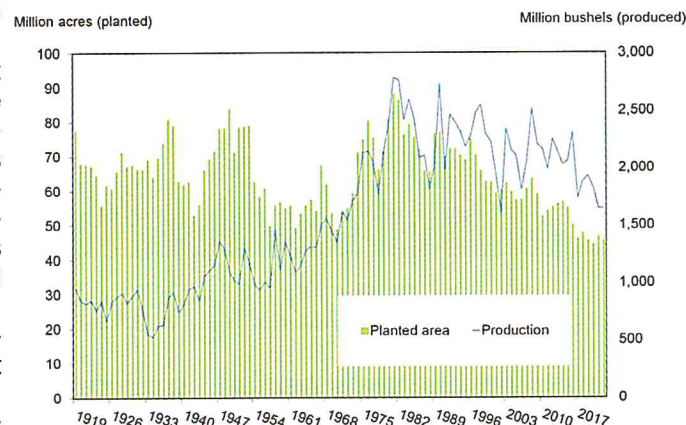
It is estimated that the world population will increase from a current 7 billion people to 9 billion in the 2050. To match population growth The United Nations' Food and Agriculture Organization (FAO) estimates that global food production will need to double between now and 2050 to feed the world.

Farm producers in the United States will need to dramatically increase yields over the next twenty years to meet the world's growing population. Producing more wheat with fewer inputs in a sustainable manner will be essential in meeting the needs of the planet's population.

It is estimated that by the year 2020, U.S. wheat trade will increase by 20 percent or 737 million bushels. This is equal to seven times South Dakota's current annual wheat production.

For decades pessimists have been telling us farm technology would run out and we would reach the limits to crop yields and farm productivity. Yet, we tripled wheat production in the United States between 1950 and 1990.

U.S. wheat planted area and production, 1919–2022

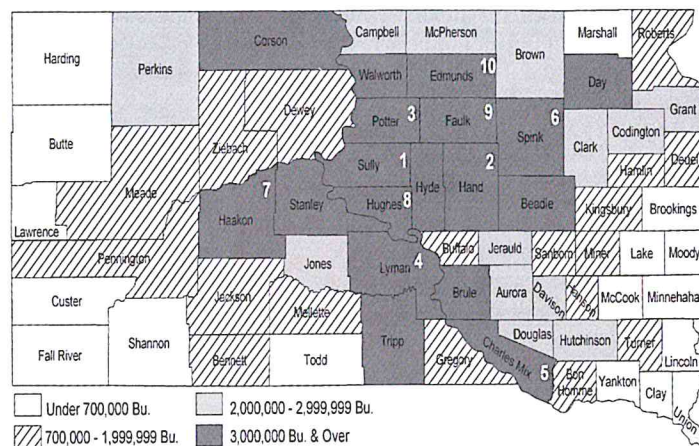


Source: USDA, National Agricultural Statistics Service.

In 1961, when the South Dakota Wheat Commission was established by farmers, wheat yields were 14.5 bushels per acre. SD produced 33.5 million bushels on 2.3 million harvested acres. In 2012, SD wheat farmers produced three times as much wheat on essentially the same acres (2.2 million harvested acres at 45.8 bushels per acre).

The future challenges are great and considerable investment in research will

ALL WHEAT PRODUCTION, SOUTH DAKOTA, 2007
(RANKING OF TOP TEN COUNTIES SHOWN)



be needed to meet growing demands. Developing new varieties and researching ways to increase yields with fewer inputs will be at the forefront of these challenges. Building positive working, diplomatic and trade relationships with global trading partners such as China will be equally as important. Your South Dakota Wheat Commission will continue to invest the wheat checkoff in both research and market development so that South Dakota will remain at the forefront in meeting these challenges.

PREPARING FOR THE **NEXT** GENERATION

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AG HORIZONS CONFERENCE

update

Inputs: Availability or Affordability — Kevin Doyle, CHS



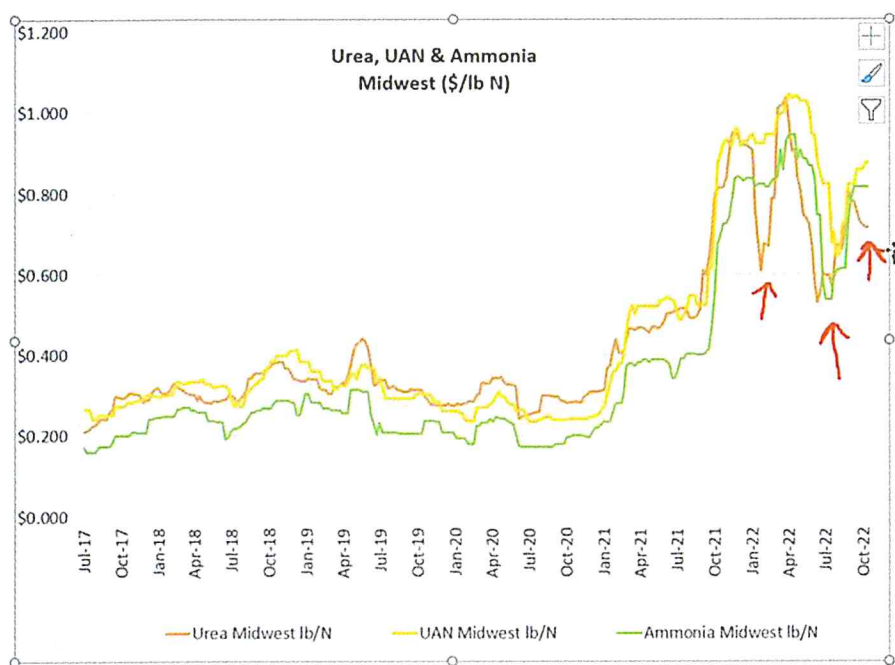
Kevin Doyle

As you make your fertilizer decisions for spring of 2023 there are always more questions than answers but there are signals that help us work through the buying decisions.

Urea is the driver among the Nitrogen products. The ability to move it around the world and apply easily make it the product of choice. Nitrogen values can vary by product, looking at price per pound of Nitrogen Urea is the "best buy" today. We are experiencing a dip in urea values with UAN values moving in the same downward direction as urea, this may be short lived as I believe the US market is short on total tons need to plant the 2023 crop. Ammonia holding firm, signaling that there is strength in the Nitrogen market through spring planting. This is a signal that it may be the right time to buy your spring Nitrogen as Urea or UAN.

Phosphate and potash markets are finding their pricing points as we head towards spring. Much like Nitrogen, I do believe the potash market has settled into a position to price now. Phosphate market looks to have a few more questions to answer before it is settled. Will good 2022 yields in the Midwest point to more tons as nutrients need to be replaced? We saw spring 2022 volumes down for previous years, what is spring demand for 2023 crop? And low water on the Mississippi creates a logistic concern, will barges move supply North?

As with any commodity there is price risk and supply risk. Find the right balance for your operation.



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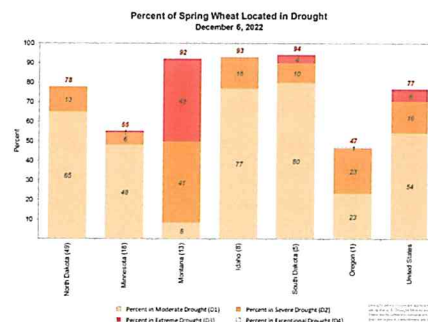
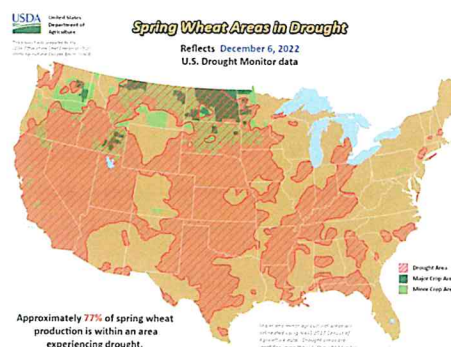
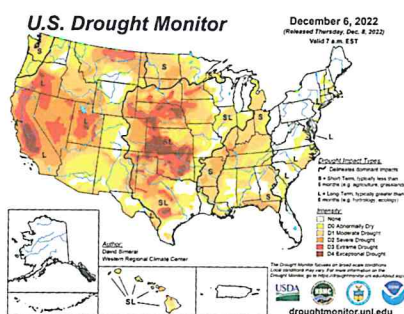
"If you desire peace, cultivate justice, but at the same time cultivate the fields to produce more bread; otherwise, there will be no peace."

—Norman Borlaug

2022-23 Climate Review and Outlook Laura Edwards, SDSU Climatologist



Laura Edwards



Three Month Outlook

Looking ahead to the final three months of 2022, the climate pattern across the United States starts to take on a strong La Niña flavor. The likelihood of warmer than average temperatures decreases as early winter approaches, with late winter favoring colder than average temperatures over the Dakotas. October through December also bring uncertainty in the precipitation outlook, with equal chances of wetter, drier or near average precipitation in the three-month period. This uncertainty continues through the winter, as La Niña does not have a strong connection to winter season precipitation in South Dakota.

While the dry and warm conditions in October could help to dry down corn and soybeans in the field to avoid propane and other post-harvest drying costs, it is also a challenge for winter wheat planting conditions and for cover crop growth. These

climate conditions may also bring increased risk for wildfire on the prairie and in the Black Hills, especially for those areas that have now experienced a couple of consecutive years of drought.

Crops, Soil Critters and Cows — Tanse Herrmann, NRCS



Tanse Herrmann

The Crops, Soil Critters, and Cows presentation is meant to introduce or reinforce the value of healthy soils to ag producers, regardless of operation scale. Soils managed through time with implementation of the 5 soil health principles (soil armor, low disturbance, enhanced diversity, living roots, and livestock integration) find balance in all of nature's cycles and function at a high level with minimized need for inputs. Soil with adequate plant residues doesn't suffer severe consequences from wind or water erosion. Low disturbance allows for strong soil aggregate stability and pore spaces for air/water exchange. Inclusion of all 4 plant types (cool-season grasses & broadleaves, warm-season grasses & broadleaves) on all landscapes ensures that all soil organisms have access to their preferred food sources...24/7/365 in healthy rangelands, and at least some of the time in cropping systems. This diversity also offers the operation resilience to extremes in weather and markets since "not all the eggs are in one basket." The importance of living roots cannot be overstated! Cropping systems

do not utilize enough days in the growing season to keep soil microbes fed throughout the year. Use of cover crops, incorporation of perennial plants in rotations, and use of winter annuals in the rotation all aid in capturing more sunlight for photosynthesis, resulting in the root exudates that feed the soil food web. Finally, livestock accelerate the rate at which fertility becomes available to subsequent crops through their "repackaging" of nutrients held in residues while also offering an additional revenue stream from croppped acres. Absence of livestock on croppped acres truly represents a missed opportunity.

EVERYTHING IS CYCLED IN NATURE!



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CREATURES MAKE IT HAPPEN

IN HEALTHY SOILS, BALANCE AND CYCLES WORK.

- 1) PLANTS PRODUCE ENERGY FROM PHOTOSYNTHESIS
- 2) PLANTS "LEAK" MICROBE FOOD FROM ROOTS
- 3) FUNGI, BACTERIA, PROTOZOA, NEMATODES, ARTHROPODS, AND OTHER MICROBES "EAT" FREE FOOD FROM PLANTS
- 4) SMALLER MICROBES EATEN BY LARGER MICROBES BECOME PLANT-AVAILABLE NUTRIENTS
- 5) MICROBES RETURN NUTRIENTS AND/OR WATER TO PLANT ROOTS

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Albany Farms Story

The story of Albany Farms began in 2014 as a small company with a big dream. So where did we go to see our dream come true? The center of the wheat country, Belle Fourche, SD.

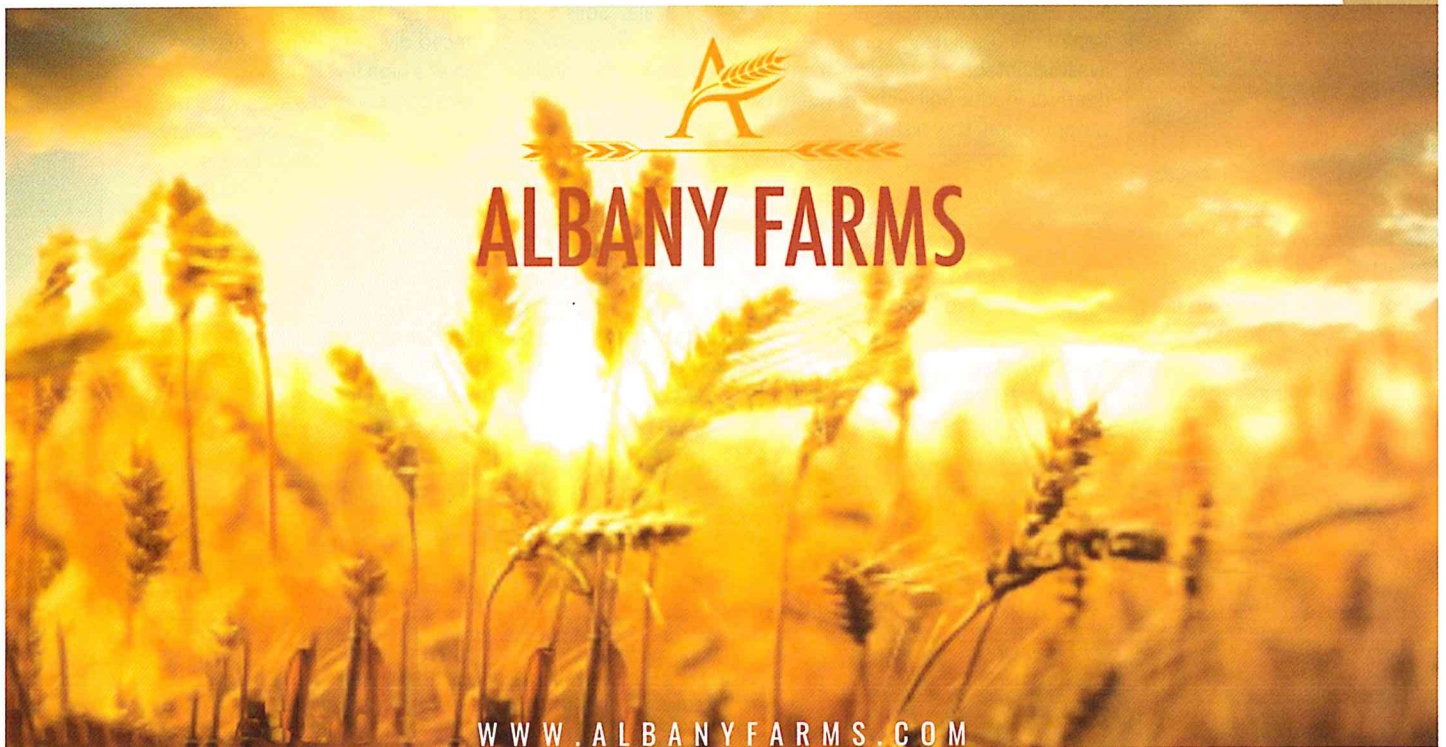
People may ask why ramen? But our question is *why not?* Ramen is versatile, convenient and affordable — appealing to ALL age groups, budgets and lifestyles!

During Ag Horizons Conference, I inquired why Albany Farms choose to be an exhibitor? The HR and Communications Manager, Angie Besler, replied “to share our story and to start the process of contracting with wheat producers in the area!” According to Bill Saller, CEO Albany Farms is obsessed with making the best wheat-based noodles in the world. My goal is to have our ramen noodles on every retailer’s shelf. Albany Farms is located in the heart of wheat country because they will soon become one of the largest Ramen noodle producers in the world. Our noodles are proudly made in the USA!”

Albany Farms has two global offices, has been in business for eight years and employees 115 multi-skilled people. All to bringing America’s favorite meal, ramen noodles, to your dinner table. We proudly label our ramen noodles as MADE IN THE USA!! This means the WHEAT grown by our very own hard-working farmers, is transformed into steamy bowls of delicious noodles to satisfy ramen lovers far and wide.

How do they make the best ramen noodles? They look for the best wheat for making noodles which is wheat with a protein content of 13 to 15% and the company anticipates utilizing 10,458 bushels per day. Currently they are in Canada supplying Walmart and 305 Target stores in 17 states.

What’s next in the Albany Farms journey? In addition to the BEST ramen noodles, we will be making our own flour. If you like our ramen noodles, just wait, our Albany Farm flour will come to you from local wheat farmers.



BILL SALLER
CEO



MANDY BREWER
COO



LYLE ROGALLA
LEAD ENGINEER

"Choice, not chance, determines your destiny." — Aristotle

SD Wheat Growers Association will provide members with a legislative update starting January 10 through March 15th. If you have questions or opinions please contact SD Wheat Growers Association at sdwga@midco.net.

**Take Action on Issues — Share Your Opinion with Legislators
Email a Legislator**

A legislator's email is: FirstName.LastName@sdlegislature.gov.

You may also go to sdlegislature.gov. Under the "2022 Legislators" tab, select Legislator Contacts and click on a legislator's email address.

Call and Leave a Message for a Legislator

Senators: (605) 773-3821

Representatives: (605) 773-3851

Write a Senator or Representative:

c/o LRC - 500 Capitol Ave - Pierre, SD 57501

Fax a Message to a Specific Legislator:

(605) 773-6806 (available only during Session)

Contact Governor Kristi Noem

Email: governor.sd.gov Click on "Contact", then select "send an email"

Write: 500 East Capitol Ave. - Pierre, SD 57501

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OVERVIEW

The **2022** U.S. hard red spring wheat (HRS) crop made a significant rebound in production from the devastating drought of 2021, with total production estimated at 436 million bushels (12.1 MMT), 50 percent larger than last year. Despite historically late planting, overall yields were above average. The crop is very sound with low kernel moisture and little damage, thanks to minimal disease pressure and a dry harvest period. Protein content is lower than typical, on account of very strong yields in parts of the region, and some variance in kernel size exists across the region due to areas of moisture stress during kernel fill. Functional evaluation of the crop is showing dough quality parameters similar to the 5-year average, with high baked bread scores and slightly larger loaf volumes compared to 2021.

The **CROP AVERAGES** a No. 1 Northern Spring, compared to a No. 1 Dark Northern Spring last year, due to lower vitreous kernel levels, primarily across the eastern half of the growing region. More than 90 percent of the survey samples graded a No. 1, which is exceptionally high and indicates very good kernel parameters. The crop average test weight is 62.1 lbs./bu. (81.7 kg/hl), higher than 2021 and the 5-year average, with 85percent of the crop above 60 lbs./bu. (78.9 kg/hl). Average damaged kernel levels are very low at 0.1 %, as disease pressures were minimal to non-existent. Shrunken and broken kernels at 0.8% on a crop average, are similar to the 5-yr average, but some western production areas did see higher levels. Overall vitreous kernel levels average 73%, down from 81% in 2021, but on par with the five-year average.

Crop average **PROTEIN** is 14.2% (12% moisture basis), down 1.4 percentage points from the drought impacted 2021 crop, and about a half point below the 5-year average. Distribution of protein is skewed lower than a year ago, but there is a better balance among protein segments, with roughly 60 percent of the crop falling between 13 and 15% protein. Moisture is very low, averaging just 11.9%.

THOUSAND KERNEL WEIGHTS (TKW) are similar to a year ago, but slightly lower than the 5-yr average, with the crop average at 30.9 grams. Distributions show sixty percent of the crop above 30 grams, compared to one-half last year. Lower TKW's are more prominent across western and southern production regions due to moisture stress. Crop average DON is 0.1 ppm, up slightly from last year, but below the 5-yr average. A dry, rapid harvest supported kernel soundness, with the crop average falling number of 390 seconds, and 96 percent of the samples exceeding 350 seconds.

MILLING analysis, based on a Buhler Lab Mill, averages 67.0% extraction, just slightly lower than 2021, but more notably below 5-year averages. The lab mill settings are not adjusted to account for kernel parameter shifts between crop years. Lighter TKW's and smaller kernel sizes in portions of the crop likely contributed to the lower than typical extraction. Average flour ash is 0.49%, similar to 2021, but lower than 5-yr averages. Protein recovery in the flour is lower than a year ago, with the crop average flour protein at 12.7%. Wet gluten values for the crop average 33.1%, about 2 percent below the 5-year average, paralleling the lower kernel protein levels. Flour viscosity is very high for a second straight year at 730 B.U. on the Amylograph.

PHYSICAL DOUGH tests, based on the Farinograph, indicate a weaker crop compared to 2021, but very comparable to the five-year average. The average Farinograph stability time of 12.5 minutes is four minutes lower than last year's strong crop, but similar to the average of 12.3 minutes. Farinograph absorption averages 63%, slightly higher than both last year and the five-year average. The 135-minute pull on the Extensograph shows the overall extensibility and resistance to extension is 14.4 cm and 804 B.U., compared to 12.4 and 1201 in 2021. The extensograph data confirms a weaker, slightly more extensible crop compared to last year. Alveograph W value of 412 is similar to last year.

2022 Regional Quality Report

PRODUCTION DATA			
	2022	2021	2017-21 AVERAGE
MILLION BUSHEL			
Minnesota	74	56	75
Montana	61	37	82
North Dakota	263	175	254
South Dakota	34	17	28
ID/OR/WA	14	12	25
U.S. Total	446	297	464
MILLION METRIC TON			
Minnesota	2.01	1.52	2.05
Montana	1.66	1.01	2.22
North Dakota	7.16	4.76	6.90
South Dakota	0.91	0.46	0.76
ID/OR/WA	0.38	0.33	0.68
U.S. Total	12.1	8.08	12.6
Source: USDA 2022 Small Grains Summary			

