

## [Data Training Webinar: Wheat Data - YouTube](#)

Good afternoon, everyone, and welcome to our *Wheat Data Training Webinar*. My name is Liz Hills, and I will be your host today. As a reminder, this webinar is being recorded and will be posted on the ERS website next week. If at any time during the webinar you have questions, please enter them into the chat feature at the bottom left-hand corner of the screen and our speaker will answer them at the end of today's presentation. Our presenters for this webinar are ERS Economists Andrew Sowell and Bryn Swearingen, both in the Market and Trade Economic Division. Andrew has been the coordinator of the Economic Research Service Wheat Outlet program since June of 2021 and is an author of The Wheat Outlook monthly report. Previously, he was the coordinator of the ERS Sugar and Sweeteners Market Outlook program since joining the agency in 2020. Prior to working with ERS, Andrew worked for the USDA Foreign Agricultural Service in which he analyzed international markets for several different commodities, including wheat. Andrew completed a master's degree in agricultural economics from Purdue University after completing his bachelor's degree at Virginia Tech.

Bryn Swearingen joined Andrew on the Wheat Outlet program in June 2021 after completing her bachelor's and master's degree in agricultural economics from Kansas State University. She contributes to the monthly ERS Wheat report and the wheat data product. Thank you both for joining us today. Andrew, the floor is yours.

Thank you, Liz. Well, as mentioned, my name is Andrew Sowell. I'm the wheat Outlook coordinator with USDA Economic Research Service and I'm glad to speak with you today about our Wheat Data Product. My goal will be to provide you some background on wheat as a commodity and explain the data provided by ERS and then Bryn Swearingen will walk us through a newly published tool to visualize these data. For now, I'll start the presentation by jumping straight into an interesting fact about U.S wheat exports.

So, quick question: did you know that U.S exports are forecast to reach the lowest level in 52 years in the marketing year 2023-24? Now that is a June through May marketing year. Would you like to learn more about what's causing that dynamic? Well, the good news is we have a publication that discusses it. This publication goes out two workdays after the WASDE, which is the World Agricultural Supply and Demand Estimates. Think of the Wheat Outlook as kind of a more detailed dive into the WASDE statistics and into the ERS wheat data. At a basic level, it provides a more in-depth view of the numbers in the WASDE and gives perspective on the analysis underpinning the data. Each month, there is a domestic and international section and sometimes an extra feature articles on topics of interest.

So, here's just a small sample of what was written about U.S exports in the May Wheat Outlook. Long story short, the spread between U.S prices and competitors, EU and Russia, is historically large which we see on the right side of the screen. Due, in part, to tight U.S. supplies. Export sales for new crop are down about 29 percent from this time last year. U.S. supplies are so limited this year mainly due to drought in hard red winter producing states in the middle of the country most notably Kansas, Oklahoma, and Texas.

I kind of jumped straight into that export discussion to give you a sample of an interesting topic in wheat right now, but I'd also like to circle back now and address some of the big picture questions that this presentation is going to look into related to ERS wheat data. First, where is U.S. wheat grown? Who uses the ERS wheat data and why? How do we access it? And, what's covered in the data and why is it important? And note that through the course of this presentation we'll discuss a few distinct data products. The first one, the main one, is simply called wheat data and then I'll briefly mention the Wheat Outlook tables. I'll discuss our by-class quarterly spreadsheets and then at the end of the of the presentation Bryn will walk us through the wheat data visualization.

So, to address that first question, about where U.S wheat has grown, I want to give a visual perspective on U.S, wheat. And as you can see here, wheat is grown across many states. U.S. wheat is not monolithic, there are several different classes that are predominantly grown in different regions of the country based on climate and marketing uses. And I'll briefly cover the five main classes here. Across the eastern half of the country we have soft red winter or SRW, seen in orange. This is the predominant wheat class in those areas of the country. It's spread out and often grown in areas that specialize in corn and soy. This is for cakes, cookies, and crackers. Hard red winter, in blue, is the largest wheat class in the country mainly grown in the Southern Plains with Kansas, Oklahoma, and Texas, being the major producers. This is the class that we most focused on and weather discussions right now as it has been hammered with drought in two consecutive seasons. This is your typical bread wheat. Hard red spring in gold and durum in purple, those are grown in the Northern Plains, and both of these are high gluten high protein wheat. HRS is used for pizza dough, bagels, and blending with other protein classes and durum is used for things like pasta and couscous. In the Pacific Northwest the main wheat class grown is white wheat, which we see in green on the map, and most of this is soft white. Largely used in cakes, cookies, confectionary products, and things of that sort. Now, I've described the classes broadly in regional terms and what types of products they're used to make, but I'll note there really is an overlap and blending between the classes also. I think it's important to have a perspective on these five classes as ERS wheat data product is an important source of the by-class wheat data.

So, to answer another question: who uses this data? Well, traders, analytics, firms, academics, there's a variety of users interested in ERS wheat data products. It provides a depth of by-class and historical data. As discussed in the last slide, the by class detail matters because there are several distinct classes of wheat each with their own supply and demand dynamics and also there are three different futures markets just in the U.S. So, this data source is really an easy reference to a wide variety of data which you'd have to otherwise dig through multiple websites to find. Some of the pieces of information here are uniquely available in this data source, such as the monthly by class trade data and monthly food use. These data give a perspective into the analytical methods used to calculate the WASDE figures. So, in order and the first data product I'm covering is simply called Wheat Data, you may hear references to historical yearbook tables for wheat, these are included in the same data product. Starting at [ers.usda.gov](https://ers.usda.gov), click on data products and you can scroll down to find the Wheat Data product.

I'm going to give a few notes about this data set. It's the primary ERS Wheat Data set most users will reference to obtain detailed by class and all-wheat data. Data for this resource is gathered from a wide variety of sources from USDA's National Agricultural Statistics Service, or NASS, from the WASDE, from PSD online which stands for Production Supply and Distribution, this is the database maintained by USDA's Foreign Agricultural Service which covers global supply and demand of key commodities. We have data from USDA's Agricultural Marketing Service and a lot of other sources as well. There are separate files for recent years only and full historical data. It is updated the first workday after the WASDE is published.

In the next several slides, I'm going to give a few key examples of various tables included within the Wheat Data report and also a few key highlights. I'll start with a view of Table 1, which provides all wheat and by class area planted, area harvested, production and yield figures, as well as weighted average farm prices. I've circled one finding of interest in this table. See that area planted for hard red winter rose by nearly 3 million acres this year. But harvested is up by less than one million acre. High prices in the fall produced a strong incentive to plant wheat even as drought conditions were going to make it difficult to get a good harvest. The drought continued resulting in expectations that abandonment, which is acres not harvested, will be historically large this year. Furthermore, the wheat that will soon be harvested is forecast to have very low yield, down from even last year, resulting in the smallest HRW production since 1957-58.

Tables 3 and 4, these present the world wheat supply and disappearance. One interesting point here is that even though global production is seen hitting a record, global stocks are still forecast at the tightest level in eight years. Tables 5 - 11 show the quarterly all-wheat and by class marketing year supply and utilization balances for wheat. As evident here in Table 6, beginning stocks fell substantially only partly offset by higher production. Another thing you'll notice here is that there's a full by class balance here for 22/23 but we don't have it published for 23/24 and I'll note that for the new year by class balance sheets are not initially provided but will be published when NASS public- provides its first complete survey-based by class production estimates in July. So, the all wheat was published this month, May, for the- for the new year for the

first time but it's we don't get the full by class until July.

Table 13 gives us insight into monthly, quarterly, and marketing year total wheat food use for all wheat. So, here I put together a simple chart, the marketing year statistics, for total wheat food use. Food use is forecast at a record 977 million bushels in 23/24. So, this is a newly released forecast through the June through May wheat marketing year which starts next month. Food use is estimated at 975 million bushels and 22/23 which if realized would be the highest we've seen so far. I'll note that the Table 13 I'm referencing it gives the historical data and while I've added the current and projected marketing year forecasts into that. Food use, overall, tends to rise with the growing population with per capita consumption in this country forecast is generally relatively steady.

ERS food use estimates are the sum of wheat milled for consumption, non-milled food use, which is an estimate, and net imports of wheat food products, which are calculations based on

data from the U.S Department of Commerce: Bureau of the Census. Here I've used monthly data calculated from Table 14 to show the components of U.S wheat food use to make pace comparisons. Interestingly, U.S, wheat used in milling, seen in the blue bars, and mark in the year 22/23. Now that's 10 months of data June through March. The pace is actually down slightly from last year, but the overall pace of food use is higher based on stronger net imports of wheat food products, seen in the green bars. I'll note that the chart here starts at 700 million bushels, the wheat milled is by far the largest category making it even more noteworthy that changes in trade, which is a much smaller category, are what's driving the recent trend. This is kind of an obscure example, but I make it just to show how the data presented in Wheat Data Table 14 contributes to a greater understanding of the analysis that underpins the WASDE figures you see. Tables 15 and 16 provide similar analysis for durham food use.

And just to summarize some of the other available data in this resource, here's a quick synopsis of the other tables. Tables 18 through 20, provide domestic and international price data. Tables 21 to 24, give monthly U.S. trade data by component, grain, flour, and products, and there's all wheat as well as durham, specifically. Table 25 analyzes U.S. exports by destination. 28 to 33 provide calculations for flour production, consumption, milling, profitability. And lastly, Tables 34 and 35 give monthly trade data for all five classes. Several of the components that I've mentioned here will be covered later on in the presentation when Bryn walks us through the available data on the visualization.

And you know, thinking about- you know, if we look at the week data product, if you want to know more about how these data are calculated then I would suggest taking a look at our documentation page for more details. You can look for this link along the left-hand bar of the screen when you're on the wheat data product. And look for further updates to this page this year.

Related to documentation, I want to also mention that a special article was published in the Wheat Outlook last October, which details the methods used to calculate by class wheat trade.

And you know, I'd also like to know- note that we've been making improvements to these data over time. Actually... to note another separate product, we have the by class quarterly. And this is something that gives the added detail of dividing into by class and quarterly so the quarterly figures match what's- what's in the WASDE statistics and the by class figures for the total marketing years also match WASDE. But this breaks out an added layer of detail. The timing of release for this product is driven by the publication of USDA NASS flour milling data which contributes to our food use calculation. This is a unique data product published by ERS quarterly all-wheat and marketing year by class data match the WASDE database but added layers, as I mentioned. And note that this product was previously named just historical data but the name was expanded to historical by class quarterly data to provide a better explanation of what the data is. One of the improvements we've made to this product over time has been disseminating the data more regularly throughout the year as the quarterly data is finalized or as revisions to the previous quarters occur. And the data is provided for quarters that are already completed with no additional forecasting beyond that.

And for years really the, you know, the- the this by class quarterly product looked more or less like this. This, you know, this is a sample of what the two quarters looks like, doesn't have any visuals built in, but it allows analysts to dig into the figures at a more detailed level. And so, this is more or less what it looked like for a long time but now, as I mentioned, as I'll mention in a little while we have CSVs now made.

These CSV files look a little bit more like this. So, with this data someone can easily make a pivot table. They can analyze a component of Interest such as food use.

So, here's just a sample pill- a simple pivot table made with our by class quarterly data, filtering out HRW food use by quarter. Before this was available, this type of analysis would have required a heavy lift to dig through the old file types. This information would have been scattered across a lot of separate tabs, but now it can be downloaded and analyzed with ease. This analysis shows that hard red winter food use has been slower in recent quarters. HRW food use for December through February, this year, seen in the red box is estimated substantially lower than the previous two quarters, the two columns to the left. And you can see it's also food use for that class is lower than- than any quarter in the- in the quarter three at least in the last 15 years. So, this is discussed in the latest Wheat Outlook publication as being related to tight supplies and high prices for that class of wheat.

Another interesting point that users could analyze through this data is that by class quarterly seed use. Seed use patterns vary notably throughout the year among the different classes. The text of the November 2022 Wheat Outlook noted that hard red spring seed usage was distributed among quarters differently than usual due to planning delays earlier that year. And so, this graphic here is from the Wheat Data visualization, but I'm going to isolate this key point a bit more in this next slide.

So, you can see here that a larger than normal portion of HRS seed use occurred in the first quarter of this marketing year, that's 22/23, compared to the last several years. On the other hand, a smaller than known proportion was estimated in the fourth quarter of last year the 21/22. Wet conditions delayed planting beyond its normal planning window but high prices also likely incentivize some producers to plant later in the year. We have some additional Outlook work relating to this particular topic which I'd like to share.

So, another special article we published in September 2022 discussing the factors that led farmers to plant spring wheat later than normal. To sum it up quickly, farmers in the Northern Plains dealt with planting delays in May and June of last year as conditions were excessively wet. However, with prices very high farmers were willing to plant later than normal. The chart on the right side is spring wheat planting progress for U.S. and key states and the sharp uptick you see in the red lines indicates that planting was behind the normal schedule but proceeded quickly at in the later period. And now here I've shown also some text and graphics from the latest, from the May Outlook. Similar dynamic had been playing out once again this year with planting similarly delayed by wet conditions, but I will note that data released since this is published does show spring wheat planting ahead of last year although still behind average.

So, a quick recap, a few closing thoughts for this presentation. I'll go over a few of the key takeaways. There are five classes of wheat and they're grown in different regions of the country used for different purposes. ERS has wheat data and by class quarterly data which provide in-depth perspectives on wheat supply and demand statistics these data are available on the ERS website. It's widely used in industry and academia. Wheat Outlook publications reference these data and provide perspective on USDA forecasts. And, you know, so those are a few thoughts and just thinking back to our improvements we've made some improvements to these data over time as well. I'll note we have a Table 19 which has a variety of price quotes, you know, we added in a new price quote for soft white maximum 10.5 percent protein into that table when we realized that AMS was no longer reporting the original one that we had which was ordinary protein. If reporting is re-established that's something that will continue to publish both quotes. Table 33 we did an update into the calculation of wheat milling profitability. We've done improvements in automating data gathering. As I mentioned, the CSV file now available for the by class quarterly data and we intend to make similar files available for other products as well. And we have a documentation page already. We'll be working on adding detail to make it more comprehensive. And this wheat data visualization was published on April 3rd this year and that is the topic of our- for our next presenter. I'm going to pass the presentation along to Bryn so that she can walk us through this newly released Wheat Data visualization.

Thank you, Andy. So, I just wanted to mention the Wheat Data visualization was published on April 3<sup>rd</sup>. It was developed by Andy and I along with the team here at ERS. And basically the goal is to give you guys a glimpse at a majority of the data that is included in our data product, in a graphical format, where you can go and catch some of those trends that we were discussing earlier in this presentation.

So, there's two different places that you can go to access our Wheat Data visualization. The first one will be on our ERS website on the same place that you're going to get your Wheat Data product. There are- there's a tab on the left-hand side that says we data visualization. If you click on that, it'll take you to that page, but you also can search for Economic Research Service on the Tableau public website where you can see all of the offerings that ERS has to offer such as their WASDE at a glance as well.

I'll just go ahead and give you a general format of what this dashboard looks like. So, this is the snippet of the top of our United States overview dashboard. You can see right under that is a navigation dashboard icon row. We have six different dashboards which I will dive into each one of them today. Along with various other download data options and things of that sort.

So, the first dashboard is your United States overview. That's where you're going to get those statistics from the WASDE and our by class quarterly files. So, that we've already discussed those pretty in-depth already. Then we have our price dashboard. Then our trade data by component. The next one is going to be our trade by class data. Along with our trade destination. So, this will give you a glimpse of where US Wheat exports go to. And finally, our international overview which is going to be very similar to your- our United States overview but will give you a glimpse of the international balance sheets that are managed by the Foreign Agriculture Services Production Supply and Distribution database. As I mentioned earlier, there is a

download data button on every single dashboard. That's going to allow you to download all of the underlying data for each of our dashboards. So, if you're wanting to build your own analysis, or create pivot tables, or use R, this is going to be a place that you can get a file that will be easily accessible for you and for machine readers and anything of that nature. And then finally, on every single dashboard there's going to be various different filters. So, whether it's a drop down arrow, or a slide bar, or things of that sort, there's plenty of different options that are available. I'll dive into a few of them today. But just to give you a general overview.

So, we've already discussed the United States balance sheet overview dashboard. So, to save some time, I wanted to jump right into our price dashboard. So, really the price dashboard will look very similar to what you see on the screen today. There is a domestic price line graph and then below that is a FOB graph that I will show in a later slide. But, at the top of the page you're going to have a filter that's going to allow you to select exactly what time period that you're wanting to analyze. Whether it's more historical or whether you want a more current data file. And then there is a drop down arrow where underneath domestic price series where you can select which price series you are wanting to look at. So, for example, we have a wide variety of data between market prices from the Agriculture Marketing Service or we also have our price received data that is published by next. So, you can toggle on any of those series and compare different prices whether you're looking at protein spreads, or spreads between regions. This would be a place that you can easily do that.

So, for example, here on this screen, we can see both of our U.S. dark northern spring quote in pink and a hard red winter quote in brown. And here in late 2021 early 2022, you see that that spread was very wide between those two prices. As the HRS growing regions were struggling from drought conditions. Whereas now, in recent months, here in 2022-23, those spread- those spreads have narrowed as a result of hard red winter now going through a tougher drought condition.

As I mentioned, that also on this dashboard is our Free on Board prices and a user is going to be able to use this to analyze how the U.S. prices might stack up to some of our competitors. So, for example, here your FOB price series that you can toggle on and off are for Australia, Canada, a few series for the U.S., and Argentina. And so, if you're looking into wanting to analyze those this is a good place to go to.

So, for example, this is just one of the ways that you can use this data. The blue line is the Australian soft white wheat quote, where the brown line is the U.S soft red winter. And here in the last three years, Australia has had bumper crops resulting in them continuing to be competitive on the export market and so you can see historically Australia might have been less competitive, or less competitive in the U.S., as that spread was wider. But now, you can see in the last three years that spread has continued to be very tight as we are neck and neck on the export competitiveness.

The third dashboard I wanted to discuss is the trade statistics for the wheat flour and products. So, here on the screen you're seeing four different line graphs that show the total wheat exports broken into grain, flour, and products. So, for this dashboard you're able to filter between our

exports and our imports, as well as all wheat and durum. Right now, you're seeing the annual view, but you can also select a data point, and that is going to bring up the monthly view. So, if you're wanting to know how the trade has changed each during a marketing year, you're able to hover over and be able to see exactly what trade is going out and every single month. And if you're wanting to know a little bit more about what the numbers are, just to get a quick number glance, if you select one of those data points it'll bring up an underlying data table. So, if you're looking for a quick number, for quick analysis, this is a good place to go to rather than having to go through a whole bunch of different data files to find that exact number for May exports.

As mentioned, durham data is also available for this series. So, this is showing durham imports this is really where you start to see the difference between what is classified as grain versus pasta and flour. It's a lot more distinguished as well as the all wheat is dominantly green. And so here you can really see that increase in pasta imports there during the 2019-20 and 2020-21 marketing year as a result of some of the pandemic issues that were going on as we had to continue to fill our grocery store shelves with pasta.

The fourth dashboard is our wheat by class. So, as Andy mentioned, this is one that is unique to this data series. So, this data is available as well in a monthly, quarterly, and a yearly format. So, in the top left hand corner of this dashboard you're going to be able to change whether you're looking at a monthly view, like you see on the left, or a marketing year view, as you see on the right. And you also can have two different views. So, you can either use look at it in an exact area perspective. And so, this is really going to show you kind of all wheat what is happening in that month. But if you really want to dive into the nitty-gritty what are the trends in the specific classes using that separated line graph might be able to showcase that a little easier. And you can really see in the line graph on the right how HRW exports has declined since 2010-2011. Very similar to the previous graphics, if you select on a data point it is going to bring up that underlying data, if you're looking for a quick reference or want to look at the individual numbers by class. So, that's going to change depending on what marketing you select.

The fifth dashboard is our US. wheat export destinations and this is going to allow you to look at how our U.S. Wheat exports have changed over time. Where are we sending them to how much are we sending. So, at the top of this dashboard, you will have a place that you can select which marketing year you want to look at, you can toggle between them if you want to see those circles grow or shrink depending on which direction they are going. You can also hit the play button and that'll just play through from 1989-90 to the current year and forecasts.

So, some of the key takeaways from this dashboard, and you can see that China was the largest buyer of us wheat in 1989-90, followed behind by Egypt and Japan. Whereas fast forward to 2021-22, Mexico remains the top destination, followed behind by the Philippines and Japan. One of the things that I want to showcase is if you're wanting to look at exactly how has Mexico imports from the U.S. changed over time. If you hover over one of the dots, that's going to bring up a tool tip and it's going to show you that line graph of the data from 1989-90 to current. The current data is not a whole marketing year, so just keep that in mind when you're looking at 2022-23 data. But this also will showcase how exports to China have been very variable depending on what their policies are at that point in time. Whereas you saw earlier, Egypt has

completely declined since 1989-90, especially since the black seed production has come online and become a more dominant player in the global wheat market.

So, the final dashboard that I want to discuss is our trade our international overview. And so, this one will showcase all the different attributes between beginning stocks, production, yield, any of those types of balance sheet items. And it'll showcase it either in a 2023-24, or you can look at a year-to-year change or the month to month, if that is of interest to you. So, right now you're looking at the annual view. So, your dark blue countries are going to be your- your larger trade exports. Whereas your dark red is going to be those that might not export as much. So, this shows that Russia is going to be the is projected to be the leading wheat exporter in 2023-24, followed behind by the European Union, Canada, Australia, and then the United States. As mentioned, we also have the year-to-year changes. So, up in the filters in the left-hand corner you can see that you can switch between the different attributes, as well as the view that you are looking at.

So now, the map will showcase the year-to-year change. So, how does the 2023-24 marketing year compare to 2022-23. So, this is showing that the larger darker states are going to have the largest changes whereas the dark red countries are going to have the larger negative changes. So, for example Russia is up one million metric tons from last year, whereas Australia is significantly down due to lower production. Another thing to note is there is tool tips on this graphic as well and so if you hover over one of the countries it is going to bring up the last five years of data for that attribute in a bar graph. So, if you're interested in how this year stacks up to a few years ago, you're able to see that in a pretty quick glimpse. But if you're wanting to know how this might impact the rest of the balance sheet so, for example, if Russian exports are up what happened to production or to their stocks.

You can select on a country and that'll bring up an underlying data table that will showcase the last 10 years of data. So, if you're wanting to see how last year Russia had record production that led to bumper stocks that is going to continue to allow them to export a decent amount in 2023/24, despite the lower production that they are forecasted to have.

And with that, that kind of concludes the walkthrough of the wheat data visualization but I did want to give a nod to the fact that we do have mobile dashboards. So, you- what you were seeing is what it would look like if you were on a desktop but if you work on the go and you want to give it a quick glimpse of what the number was that was published and this is what our mobile, like iPhone or Android, apps would look like. And so, it'll automatically change it but you can do almost all of the same functionality except anything that you have to hover over, so like to get those tool tips to pop up, you'll just have to select the screen and those will pop up and it might take up a little bit of your real estate. But if that's of interest, it is available. And with that, I'll go ahead and pass it back to Liz to help with our Q & A portion.

Thanks Bryn and thank you Andrew for your presentation. We'll go ahead and open up the floor for questions now. As a reminder, questions can be submitted through the chat feature located at the bottom left-hand corner of your screen.

For our first question: when will you release by class 2023-2024 projections?

Great question, thank you for passing that along. So, the new year, the marketing year 2023/24, all wheat as well as the international projections were all released this month. But the by class balance sheets for U.S. are not released until July and that lines up for when we get the first estimates from NASS with their first time that they do the full five classes of by class wheat production. Thank you.

Thanks, Andrew. For our next question: why do U.S, wheat prices tend to be higher than other origins?

Thank you, that's a great question. There's really a kind of a few factors that underlie that. You know there's quality. Now there's certain types of wheat produced in the U.S. that have either high protein like hard red spring and to some extent hard red winter, or you know specific desirable milling traits for certain end uses like soft white wheat grown out of the Pacific Northwest. You know, so those things- there are certain buyers that are willing to pay more for certain classes of wheat because- because they- they want certain kinds that are in limited supply. But in a bigger picture trend, it's also that U.S. wheat areas trended lower over time which combined with recent droughts has resulted in smaller harvests and you get kind of a price rationing effect. Where we just end up not being the most competitive, particularly in the last couple years. The United States, another factor is storage capacity, we overall have sufficient storage capacity so at times farmers don't have a need to sell immediately upon harvest they may be able to wait for better prices, there's various mechanisms they can- they can play with in terms of deciding you know when and how much to sell. And this may not be the case in some other exporting countries that they may need to move the wheat a lot quicker after harvest causing them to need to sell at a lower price.

Thanks, Andrew. Our next question is: can you explain why some values are negative for the seed slash residual use on the wheat by class table?

Yes, thank you for that question. So, feed is residual it represents some idea of feeding but it's also a residual category that mops up the differences between total supplies and, you know, known consumption categories. So, you know, we have data for food, we have our seed data, and then we also have- we have data for trade that comes from commerce, we have consumption data, as I was mentioning. We know that- we know production and ending stocks data from NASS and so, in a sense, feed residual is what's left and in certain classes and certain quarters it can end up being a fine back that's essentially a result of being a residual of the other statistics that we look at.

Great, for our next question: is export data weekly or is it monthly?

Well, that's a good question. So, there's a few ways that you can look at export data and it really depends on what the data source is. So, the export data is published and the official data that we use is monthly data through commerce. And it- it is data is, you know, that's kind of the most foundational data to our analysis but then, there's other pieces of data that are published on a weekly basis that we also refer to in various capacities. Thinking of export sales and inspections data. So, really the frequency of data and the type of the data depends on the source. But for our purposes what's, you know, the data that you see in our data source and the tables. I think it's

what 21 - 24 and then the Tables 34 and 35, that data is monthly, because the primary driver of that is the Department of Commerce data.

Thanks, Andrew. Our next question is: does the Wheat Data visualization contain all the data series discussed today?

That's a great question and I'm going to pass that one along to Brynn

Great question. So, the data visualization only covers part of our Wheat Data product. So, for example, the food use data that Andy had discussed earlier, that is not included. Along with some of the flour production and subsequent data series, those are also not. And then, when you look at prices, some of the price theories might have been discontinued and not published any of the recent data. So, those might not have the full data that is available in the table. But otherwise, the ones that are there they should match up exactly to what you see on the data tables versus what's in the visualization.

Thanks, Bryn. Our next question is: what share of global exports does the U.S. cover?

Yes, so U.S. exports, in recent years, we've been around 10 percent of global trade. But, if you go back 10-15 years there's times that we're over 20 percent. So, certainly our- our share of global trade has come down quite a bit.

Thanks, Andrew. Our next question is: for the by class balance sheets what is the difference between USDA published forecasts in 2023-2024 and the data NASS produces?

For the by class balance sheets for 23/24. So, well yeah. So, the USDA published, so we don't have the full by class balance sheets published yet. So, the data is based, you know, in a sense we're waiting for NASS to get the production data in there and the data that NASS produces, what they currently give is they have numbers for winter wheat where they break down hard red winter, soft red winter, and white winter and then there were there were production estimates for a couple of states for durham. And then, essentially, the way we take that and then we get final data. Because if you look in the WASDE, there is an all-wheat production estimate, but it doesn't break out all the classes well basically what we have to make up the difference. You know, we come up with our own estimates of other spring and durum and the texts of the WASDE will lay out what assumptions are made there. Which, as I recall, it's essentially you know trend yield, assuming normal weather, and you know, a pretty normal harvested to planted ratio. For the classes of wheat that are not covered in the NASS data. So, we don't have, you know, those numbers officially you know broken out but we have other spring and durum which we state in the Outlook what the assumptions are and, you know, what the total production is for those classes which help us to arrive at our full production levels. And then in July, we will get the full breakdown of NASS production data by class and then we'll have our full supply and utilization derived off of that.

Thanks, Andrew. We have a couple more questions today. The next one: is will record food or... excuse me, let me start over. With record food, use how does this impact per capita consumption?

Yeah, so generally, speaking per capita consumption is relatively flat to maybe slightly declining. But then, in the latest year of data, we have some tables I'm trying to remember the exact number... 32-33... where we have where we have the- the per capita wheat flour disappearance. And there was a slight bump up with us having some strong food use years recently. But even so, it's- it's still slightly below what was the recent 10-year average. So, there's a slight downward trend in per capita consumption. Over time it's been influenced by various factors, the Atkins Diet, the low gluten, you know, between the, you know, people who have allergies and then just the people doing it for dieting, and also the Great Recession. Various things over time have impacted, but overall we say, you know, you generally consider per capita consumption relatively steady.

Thanks Andrew. For our next question it is: who supplies Egypt wheat now that the United States... now that the United States has lost market share there?

Overall, it tends to be Russia, the European Union, Ukraine. There's been some interruptions with Ukraine's trade lately with everything in the war, but Russia and the EU particularly some of the Eastern States sometimes- sometimes France is in the mix, but other times Romania. Those have been a lot of the big players. There was a brief period going back in 2018-19 and the- the spring of 2019, when we actually were relatively competitive because Russia's supplies had gotten tight and we got into that market a little bit again. But, overall, we're almost entirely out of it and those players dominate it.

Thanks, Andrew. Our next question is: does USDA have any data on planted acreage of heirloom varieties of wheat?

I am not aware of that- of that level of detail in our data. Yeah, I don't- I don't know of anything of that sort. But that's very interesting question.

Sounds good. And for our next question: how are the forecasts created for by class and all wheat balance sheets?

Thank you for that question. So, well stocks data comes from NASS. NASS gives all wheat and durham and then we consider industry analysis consult our own in-house analysis and arrive at a by class stocks estimates for the other four classes. The split the non-durham classes out into soft red winter, hard red winter, hard red spring and white. And then similarly food use data is derived directly from NASS as well as the additional sources for trade and non-billed food use. And this provides all wheat and durum and similarly with our own analysis and, you know, looking at the markets and industry and we- we come up with estimates for the other four classes. Use is a combination of internal data in our own analysis production data comes straight from NASS with some in some added internal calculations filling the gaps in May and June, like I was saying earlier. Trade data is calculated from the Department of Commerce Bureau of the Census, but we do have export sales and food aid data which is used to parse out the exports for the non-durham classes because the HS codes, the Harmonized System, codes which are used to measure trade, don't really have and in some cases all the layers of detail that we would want to have to arrive at all the by class export figures.

Thanks, Andrew. That's all we have for today. Andrew and Brynn thank you both for giving a great presentation on the Wheat Data product and thank you to all of our listeners for taking time out of your day to join us. We hope that this has been helpful.

If you enjoyed this webinar or are interested in other ERS research and data products we have a couple more webinars coming up next month. The first webinar will be on our *Food and Nutrition Assistance Landscape* report and is scheduled for June 21<sup>st</sup>. The next webinar will be a data training webinar on our Dairy Data product and it will also be in June. To receive notifications about these webinars and future webinars, please visit the link on the slide and select all ERS updates in one email on the subscription webpage.

Before closing I'd like to share a few ways to stay up to date on ERS research. In addition to our website, we also have our chart of note mobile app which delivers digital snapshots of ERS research straight to your mobile device. ERS is also on social media and you can follow our account on LinkedIn and Twitter. Thank you all for joining us today and this concludes our webinar.