

## [International Food Security Assessment, 2022-32 - YouTube](#)

Good afternoon, everyone, and welcome to our webinar: *International Food Security Assessment 2022-2032*. My name is Liz Hills and I will be your host today. As a reminder, this webinar is being reported 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. Today, our presenters are ERS economists Yacob Zereyesus and Lila Cardell, both in our Market and Trade Economics Division. Yacob's research interests cover a range of topics related to food security including farm production and income, the dynamics of labor allocations and employment conditions in farm households, the consumption of nutritious and safe food, and more. Prior to joining ERS, Yacob served as a research associate professor at Kansas State University where he led and coordinated the collection of population-based household survey data for tracking the progress and for the achievement of food and nutrition security programs in northern Ghana. Lila joined ERS in early 2022 after completing her PhD in agricultural and applied economics from the University of Illinois. Her research interests include food security and nutrition measurement as well as the impact of price risk on small holder welfare. Thank you for joining us both today, the floor is yours.

Thank you, Liz. Hello, welcome everyone. So, let me start by taking you through the outline of today's webinar. First, I will provide an overview of the International Food Security Assessment report to cover background information, definitions, and model description, and highlighting domain results from the report. I'll then discuss the main factors driving food security trends in the report including the conflict in Ukraine and recent hike in input prices. Following this, I will present the food security results for 2022 to 2032 with particular emphasis on regional implications. My colleague, Lila Cardell, will then discuss additional estimations under intensified conflict scenarios. She'll then finally wrap up the first part of the webinar with conclusions and summarizing the key takeaways.

Starting with the overview of 2022 International Food Security Assessment. This annual report estimates and projects food availability and access for the current year and 10 years out which follows USDA's agricultural projections. This also helps USDA and its stakeholders assess food security in 77 low-and-middle-income countries across four regions that may have recent or ongoing food deficits. Not that- not all countries experiencing significant food deficits are included in the report due to, for example, lack of pay, down key metrics, such as average caloric consumption, prices, or macroeconomic figures.

This report includes 77 low-and-middle-income countries in four regions, as I mentioned, with a total population of 4 billion people. 39 countries in Sub-Saharan Africa, 23 countries in Asia, 11 countries in Latin America and the Caribbean, and the remaining four in North Africa.

So, the main findings from the report include the following. So, first off, high input and commodity prices, made worse by the Russian military invasion of Ukraine, are expected to persist in 2022, as well. Therefore the food insecure people in 2022 is estimated at 1.3 billion, and that is almost 33 percent of the population that we cover in the assessment. And this implies an increase of almost 119 million people from the 2020 estimate. Food security is projected to improve by 2032 and this is mainly due to expected recovery in per capita income, as I will discuss shortly. However, the reported estimates could be higher considering severe Ukraine-Russia conflicts scenarios.

Let's put some definitions first, before we begin discussing the details. So, for the sake of this report, food security refers to the ability of all people, at all times, to access sufficient, safe and nutritious food that meets their dietary needs and good preference for an active and healthy life.

In that regard, the four pillars that define food security are the following: First one is the availability pillar, which also implies having sufficient quantity of appropriate food available, including domestic production, import capacity, food stocks, and food aid. And the second pillar is the access pillar, which refers to physical and economic access to food and it's mainly determined by income and purchasing power of households, or individuals, and it's issued when such households, or individuals, have adequate resources to obtain appropriate food. The third one is the utilization pillar, which includes adequate dietary intake and the ability to use the nutrients in the body. And finally, the stability refers to the stability of food supply and access and is issued when there is consistent access to food, and it depends on the maintenance of the three pillars that I just described, over time.

So, why does USDA focus on food security in the first place? So, in general, the United States leads efforts to improve global food security which includes through the provision of the bulk of global food aid, and global humanitarian assistance. Elevating global food insecurity is among the greatest challenges and opportunities of our time. And- and for USDA it's important to assess where and how global food demand is changing in order to identify potential emerging markets for U.S. farmers, as well as, understanding what the potential drivers for such changes are. Besides it's important to assess the occurrence of chronic food insecurity, and potential hot spots, and specifically being able to evaluate how income and price affect access to food. And this report focus, on the availability and access dimensions of security that I just described.

So, International Food Security Assessment Model. So, the IFSA method is based on a demand-oriented model framework used to assess food security at a country level. So, the model responds to change in price and income to capture access to food. The model also captures the contribution of income inequality to food security.

So, moving to how food security is assessed in the IFSA report. Food security is defined by using a caloric threshold of 2,100 calories per capita per day. And based on this, this report used three indicators of food insecurity. The first one is the prevalence of food insecurity, which is the share of the population that consumes less than the caloric threshold. Second, is the population food insecure which refers to the absolute number of food insecure people. We measure this in millions. And the third one is the food gap which measures the food needed to raise consumption at every income level to the caloric threshold. Although, this is estimated and discussed in detail in the report, it's not covered in this presentation. The report estimates for 2022 and project to 2032 based on trends observed in the last three years.

Before we get into the details of the drivers of food security, I wanted to add the following key information. The common report uses macroeconomic and commodity price projections that were completed in August 2021. However, adjustments to GDP and commodity price estimates were done following the Russia's invasion of Ukraine. In order to do so, the global trade analysis project, or GTAP in short, which is a general equilibrium model was used to create global change. The impact on income and prices, which are the two key variables of interest in the IFSA model, was measured under three scenarios with varying levels of shock. The shocks that we introduced in the first scenario, on which the results of our main reports are based, were followed. So first, a 2.5 percent year reduction for low- and middle-income countries is resulting from assumption of

higher energy and for slighter prices. Second, the export loss for coarse grains, all seeds, vegetable oils, and wheat from Ukraine, which amounts to a reduction of 25 percent, and Russia which amounts to a reduction of 10 percent. Then a 10 reduction in the price Russia receives for energy exports representing the sanctions by many import countries. And finally, reductions in labor supply in Russia which amounts to 0.5 to 1 percent and Ukraine amounting to 5 to 10 percent. So, the results that I will present are based on these assumptions and later on my colleague, Lila, will present additional explanation results considering a more intensified conflict scenarios.

I'm now going to cover the main drivers of food security trends for 2022 and 2032, one by one. So, starting with prices, this figure plots price projections for major international agricultural commodities from 2019 to 2032, all measured in U.S. dollars per metric ton. USDA's international agricultural commodity price projections have generally followed an upward trend since 2020, 2021, supported by rising global demand for feed and food grains and tighter global supplies. But even before the conflict in Ukraine, this trend was expected to continue through 2022. And most countries covered in IFSA report were projected to have rising real domestic price of major grains in 2022. And access to food by vulnerable households gets constrained when good commodity prices are high and especially true when they are internationally traded. After 2023, as you can see from the figure, international agricultural commodity prices were projected to trend downward at a relatively stable rate for the rest of the decade.

As I have already noted, prior to the Russia's invasion of Ukraine commodity pricing input prices were already at or near the record highs. Furthermore, excuse me, such commodity prices around the world and particularly in these low-end income countries that are of interest in this report were expected to further increase due to Russia's invasion of Ukraine, as well as input price hikes. This table here shows the percent change in commodity prices from their pre-invasion level desegregated by region. And the most affected regions are those Africa and Asia. And, in particular, for example, in north Africa which is dependent on imports of wheat and corn, is estimated to see an increase in price in regional terms of seven percent for wheat and 14 percent for corn in 2022, from the pre-invasion levels. And in Asia, as well, it's estimated to see an increase in real price of seven percent for corn and five percent for wheat in 2022. Again, this is in relation to the level in the pre-invasion of Ukraine. And finally, estimated real price increase of vegetable oils, where moderate, this in relation to the other commodities, except in Asia, where real prices were estimated to increase four percent from their pre-invasion level. So, moving on to incomes, per capita gross domestic product is projected to rise in all regions by 2032 and in Asia particularly GDP per capita is projected to grow from \$2,336 in 2022 to \$3,616 in 2032, at an annual rate of 4.5 percent. Furthermore, the strong per capita growth in Asia in the next 10 years is driven by robust per capita GDP growth in both the central and southern sub-region as well as the southeast Asia sub-region.

So, I've been highlighting the main drivers of food security trends. It's now time to present food security results for 2022 and 2032. So, for 2022 the number of fully insecure people is estimated at 1.3 billion in the IFSA countries which is an increase of 119 million people, or 10 percent increase, from the 2021 estimate. And this estimate reflects almost 42 million additional people who can be considered food insecure, associated with the Russia's military invasion of Ukraine and the fertilizer energy price increase. And, at the same time, this implies that the prevalence of food insecurity increases by little over three percent from the pre-invasion estimates.

So, regionally, due to partly the population composition of the regions, most of the food insecure people in 2022 are found in Asia. And the pie chart on the left shows that Asia accounts for 63 percent of the population. While the pie chart on the right shows that Asia accounts 51 of the food insecure people in 2022.

In terms of the prevalence of food insecurity, Sub-Saharan Africa has the highest share of food insecure population in 2022 and the figure stands at 50.6 percent. And the yellow color in the bars indicate the change in the pre-balance of food security estimates from their pre-invasion levels. And regionally, food insecurity estimates in 2022 are six percent and five percent higher relative to the pre-invasion results for the north Africa and Asian regions, respectively.

And for 2032, the share of food insecure people is projected to decline in all regions. Overall, food security- security is projected to decline from 32.9 percent in 2022 to 12.4 percent in 2032. And this amounts to almost 63 percent reduction in the prevalence of food insecurity from 2022 to 2032. And, as I have indicated this earlier, the GDP per capita gains in regions such as Asian countries much of this progress. In fact, the share of food insecure people is projected to decrease the most in the Asia region.

Likewise, for 2032 the number of fully secure people in the IFSA countries is projected to decline from 1.3 billion in 2022 to 577 million in 2032 and, as I mentioned, the number of food insecure people is also projected to fall in all regions. In particular, Asia is projected to make the most progress and again, here per capita income improvement in Asia is responsible for much of this progress. So, in summary, food insecurity remains high in Sub-Saharan Africa and Asia regions. Russia's military invasion of Ukraine and high input prices increased the prevalence of food security by a little over three percent from their pre-invasion estimates, with the largest increase in Asia about five percent and in north Africa, about six percent. Food insecurity in Asia, in particular, is expected to significantly increase in the Commonwealth of Independent States subregion, which also includes Ukraine.

With that, I'm going to pass the presentation to my colleague, Lila. Lila, take it over.

Thank you, Yacob. So, there is a special article attached to the IFSA report that provides a range of potential food and security estimates, based on the possibility that the size of the shocks that Yacob mentioned could be larger. As there is uncertainty around how long and how intense the input price spikes and the war in Ukraine will last. The main report focused on the low scenario estimates, and in this article, we provide estimates for a medium and high scenario. We compare food security outcomes under these three scenarios against a baseline model that reflects price and income expectations, as of August 2021, and we do this for the 77 countries included in the IFSA report.

So, in this slide we list the shocks and scenarios that we include in the special article. High food prices leading up to the Russian military invasion of Ukraine were expected to result in worsening food insecurity and low in middle-income countries in 2022. The invasion and persistent input price spikes modified the short-term perspective in the IFSA assessment, as projected in August 2021, leading to higher global and local food prices and dampening prospects for economic growth. So, in order to generate the three scenarios to incorporate these changes that occurred after those baseline productions, we developed sets of shocks which affect both GDP and commodity prices. And then we use the IFSA model to transmit those shocks to estimate country level changes in food insecurity. The size of the shock increases from the low to

the medium and to the high scenarios. The low scenario is what Yacob presented as the main IFSA report. The shocks include those accounting for the persistently high input prices, such as those in fertilizer and fuel markets, and shocks directly related to the invasion of Ukraine. However, separating the affected of the invasion on food security is challenging as fertilizer and fuel prices were rising prior to the invasion and continue to rise after the invasion. This chart lists the shocks with increasing intensity from the low to high scenario, and I'll discuss each of these shocks.

So, first we expect reductions in crop yields due to higher input costs, specifically high fertilizer and energy prices. Prior to the invasion of Ukraine, input prices were trending upwards due to high energy and raw material costs, supply disruptions, strong demand, and Chinese export restrictions. This figure shows a price index for fertilizer and gas prices from March 2021 through June 2022. The baseline food insecurity estimates for 2022 were developed using the input price projections as of August 2021, when fertilizer prices were only 25 percent higher than March 2021 prices. However, by March 2022, fertilizer prices, which is the lighter orange line, were 125 percent higher than in March 2021, and prices remained elevated through June 2022. The invasion of Ukraine will likely contribute to fertilizer prices rising by nearly 70 percent overall in 2022, as Russia and Belarus provide a large portion of the world supply of fertilizer. Higher fertilizer prices are likely to reduce demand by farmers leading to lower nutrient applications and then, as a result, leading to reduced productivity and crop yields. And this will potentially reduce exports of certain cereal grains. High fuel prices, which is the darker red line, also affect commodity prices as many crops depend on energy for production and transport.

So, the next set of shocks are based on- based on trade restrictions and export losses for agricultural products, due to policy or transportation constraints in the black sea region. In the 2020-2021 marketing year, Russia and Ukraine accounted for approximately 25 percent of global wheat exports and Ukraine was the third largest global corn exporter. Ukraine is also the largest producer and exporter of sunflower seed oil. 27 countries covered by the IFSA report received more than 50 percent of their wheat imports from Russia and Ukraine. Also, a large share of grain from this region is used for animal feed that will also drive up the cost of animal products. Russian blockades in black sea ports and the destruction of existing Ukrainian grain supplies have already reduced 2022 exports from the region. The restrictions on exports likely contributed to a further surge in agricultural commodity prices, in particular, for wheat and corn. This then constrains food access of vulnerable households and leads to higher levels of food insecurity. The shocks also include a decrease in Russia's energy prices to mimic the discounts that Russia has had to implement to offer to China and India and other importers.

So, we've covered the first three sets of shocks. Note that the yield restriction for low-and-middle income countries is more than double that for high income, which is an assumption we make based upon high income country farmers will still likely be able to purchase these inputs or have sufficient stores. So, finally the last shock reflects changes in the labor supply in Russia and Ukraine due to fewer people being available to work in the field. The model differentiates between skilled and unskilled labor and we assume that unskilled labor is more effective since these are the people who are likely to be fighting. In a special article we provide a decomposition of the impacts on commodity prices, GDP, and food insecurity between the shocks that are unique to the invasion and the yield reductions due to input price spikes that occurred both before and after the invasion. In the following slides, we show the estimated impacts under these

three scenarios relative to the baseline model as originally projected in August 2021. All the estimates that we provide are for 2022 in this special article.

So, the first set of results is for changes in gross domestic product, or GDP. Changes in GDP drive food security estimates by affecting the population's ability to afford food as GDP per capita is a proxy for income. Between 2021 and 2022 global GDP was estimated to grow 4.4 percent. This figure shows the estimated changes to GDP under each scenario, relative to the 2022 baseline, disaggregated by region. Global GDP is estimated to decrease in 2022 by 0.2 -0.7 percent between the low to high scenarios, which would represent losses of over 20 billion and rising to over 60 billion in the high scenario. The steepest declines in GDP are estimated in the north Africa region and Asia region. If we look at the decomposition between the sets of shocks, the direct shocks due to the invasion are in the solid part of the bars and are estimated to reduce GDP more significantly in the Asia and north Africa regions, while the yield shock is estimated to comprise most of the decline in Sub-Saharan Africa, likely due to reduced fertilizer access.

For the food security results the impact of the shocks are that an additional 41 to 135 million people covered by this report are estimated to be food insecure in 2022, relative to baseline. The shocks are estimated to have the largest regional impacts, in terms of increase in the prevalence of food insecurity, which is the share of the population that's food insecure for the north Africa region with a six to 18 percent increase. The shocks directly tied to the invasion, in the solid part of the line, have the largest impact in north Africa. And this is due to the region's dependence on wheat and corn imports from the black sea region. In Asia, an additional 5 to 15 percent of the population is estimated to be food insecure. Between the low to high scenarios which would represent an additional 30 to 96 million people. This is due to GDP losses, increases in vegetable and sunflower oil prices, and the overall large population numbers in the region. So, in summary, global GDP growth in 2022, which was just recovering after pandemic related declines, will decrease between 0.2 to 0.7 percent relative to the baseline growth of 4.4 percent. However, prices are expected to rise more quickly than incomes with wheat prices rising between 5 to 19 percent globally and corn prices rising between 6 to 23 percent. The result is that the number of food insecure people is expected to significantly rise due to the conflict and these persistently high input prices. The largest increases in the prevalence of food insecurity will be in north Africa and Asia, due to high trade dependency north- sorry. The largest number of additional food insecure people will be in Asia and Sub-Saharan Africa due to a high population and prices dominating low baseline GDP growth. The good news is that food security is expected to improve. So, thank you for attending the webinar and now I'm going to hand it over to Liz.

Thank you, Yacob and Lila. We will go ahead and open the floor up 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: how do the estimates in the *International Food Security Assessment* report compare to other estimates of global food insecurity?

Thank you. This is Yacob. So, just to uh first begin this answer and share the results from our IFSA model are not directly comparable with other analysis that we may find some other parts of the, you know, estimations such as the state of food security and some others for a couple reasons. Depending on the country coverage that we have- we have 77 countries low in middle income countries, as well as the different data assumptions and technology. So, because of all

those differences they're not directly comparable. We discussed these differences in the reference in the report underneath it all was published in 2017 I'll let our audience to look at that.

Thank you. For our next question: how has the vulnerability of food insecure people in Sub-Saharan Africa region changed because of the Russian Ukraine conflict? Are there a few examples?

So, we discussed this in greater detail in the report and there are some indications and uh changes as a result of the recent price hikes, as well as the Russia's invasion of Ukraine. For some regional segregates I would refer this to my colleague Lila for her to elaborate on this. And maybe I'll- I'll add a little bit more on this one uh in terms of how we estimate our results, as I mentioned in the slides, we use the current and into the future based on trends in the last three years and hence we don't consider vulnerability but we do model trends observed in the last three years and use that to estimate and project food security for the immediate next year, as well as 10 years into the future. But for the second question, I think in terms of what you indicated. Although as I mentioned, food insecurity remained high in regions such as Sub-Saharan Africa and Asia because of the recent trends in price increases, mainly energy and fertilizer, and of course the Russia's invasion of Ukraine. Countries like Egypt and, in general the north Africa region, as well as the commonwealth of independent states sub-region have seen an increase in the prevalence of food insecurity. So, that has been the casing or result as well. Back to you, Liz.

Great, thank you. For our next question we have: why are only low- and middle-income countries considered in the assessment instead of countries like the United States or the European Union.

All right, so we include the low- and middle-income countries, as I mentioned, that have experienced recent or ongoing food deficits. And as it's true, in many developing countries a large part of the population lives in poverty and sometimes can be great enough to cause deaths by starvation. And insufficient incomes, or high food prices, can be a cause of food insecurity in this in these countries and hence, as we do in this IFSA report, we use available income and use price data and the demand modeling to assets should access across the entire income spectrum of each country, at a country level. However, in wealthier countries, such as the United States, where the total food supply in many cases are more than sufficient to feed the entire population, what I discussed it you know, starving or starvation, may not be a threat so in that case the forecast is going mainly in the lower income countries. Back to you, Liz. Thanks, Yacob.

For our next question: when you say 2.100 calories are you referring to calories produced? Or calories consumed?

So, that is mainly referring to the calorie consumed. In the reporting appendix we include details about how we do this aggregation, but to answer the question it's- it's the first, to the calorie consumed. We have four different food groups. The main grain and other grains as well as roots and tubers. And then we have every other food group. We aggregate everything together in grain equivalents and use that as the total calorie consumed by a representative principle.

Great. For our next question: You referenced that much of the data are for the marketing year 2020-2021. What is a marketing year?

So that one is whenever we refer marketing year, for example, that refers to between June 1st and May 31<sup>st</sup>. That's mainly reflected in the analysis for the special article. But, as I mentioned,

whenever we refer to the demand and consumption, we do consider domestic conditions for each country and that's how we do the data aggregation.

So, the marketing year in the special article refers to the time from production through harvesting and sales.

Awesome, thank you both. For our next question: How does this assessment on international food security differ from the USDA/ Economic Research Service research on food security in the United States?

So, in the- also with the IFSA report that we do, which is based on a national level and for each country studied, and we model income as well as food prices in general responds to these two key variables. And based on that, as we discussed it in the reports as well as in the slides, with a caloric threshold in order to estimate the pre-balance and number of fully secure people. But, as you mentioned, ERS also does food security in the United States which is based on household surveys that captures household subjective evaluation of their food security. So in that case, the two reports are- are different and that's how they are.

Thank you. For our next question: Which countries are driving the high number of food insecure in Asia?

So, for example, you could look at the *Appendix B* if you want to look at the details of the contribution of, you know, each country towards the- the overall numbers. But if you look at, for example the central and southern Asia countries, like India for example, or Bangladesh, also contribute to all or larger pro, you know, towards the larger proportion of the number because of the size of their populations. But, like I said, you could look at the appendix and see for each of the countries contribution to their respective original numbers.

Thank you, Yacob. Next question: What is the difference in the number of food insecure versus the prevalence of food insecurity?

So, the number of food insecure refers to the number of people who cannot meet the caloric threshold. In our case its 2,100 calories per capita per day. Whereas the prevalence of food insecurity refers to the share, or proportion, of the population who cannot meet the caloric threshold. So, the former is measured in- in to millions, for example, whereas the prevalence is measured in person.

Thank you, Yacob. For our next question: Can you elaborate on the drivers of high international commodity prices you discussed even before the Russia- Russian invasion of Ukraine?

All right, so, the macroeconomic environment of the IFSA countries and trade developments in place normally as of uh August 2021. And this trend provides the long-term- what we call the baseline food demand and supply projections that are reported in the IFSA assessment. And so, even before the outbreak of the Russia's invasion of Ukraine some drivers, for example, drought in much of South America, supply chain disruptions, and shipping bottlenecks in various countries. And let's not forget the higher energy prices were already driving inflation, they'll help define the- the GDP and agricultural commodity price trends that are used in its analysis. So, as I mentioned, even before the start of the grand invasion by Russia, all this were taking place. But of course, the invasion made everything worse. Back to you, Liz.



All right, thank you. For our next question: Did you also consider global effects due to export reduction by other countries due to the conflict. Like wheat exports by India has been reduced to calm their own markets.

So, the- the model that we use the GTAP, the Global Threat Analysis Project, which is a comprehensible general equilibrium model, provides an economy and sectoral effects while also considering the links and interactions between, you know, sectors and interactions among production and consumption trade activities, for that matter. And so, when we did the modeling in the GTAP framework it's- it's a static model and we did a one- one time shock and at the time that's how- how we model developments after that may not be captured into the- the results that we have provided here. But essentially, it captures the general trend that uh happened there. And then, of course, the four shocks that we modeled capture some of the dynamics in trade restrictions. So, that's captured in- in the analysis, but anything after that may not be captured, as I mentioned. My colleague, Lila, also may add to this as well. Otherwise, we- we could give it back to you guys.

All right. We have a couple more questions for you today. For our next question: Climate change is affecting tropical areas more than higher altitudes- latitudes. Those countries tend to be developing, agricultural, and lower income than higher latitude nations. How was climate change included in your analysis?

So, as I mentioned in the slides, our model captures any effect in terms of the macroeconomic variables through the per capita income, or prices. So, some of the drivers of cold includes some of these extreme weather events that are seen in so many parts of the world including much of South America and so that effect might be captured through what we see in terms of the per capita income and prices. But that's how we- we capture those effects into our model other than that we don't consider, you know, climate effect per se, in terms of how that may affect the production at the each country level.

All right, we have one final question today, which is: Why are north Africa and Asia estimated to have the highest real price increases in 2022 for food commodities from pre-Russian invasion of Ukraine levels?

Yeah so, we- we also discussed this in greater detail in our report and let me pass this question to my colleague, Lila.

Thank you, Yacob. So, the reason why these two- the Asia and north Africa regions have the largest real food price increases are because they're highly dependent on trade from the Black Sea Region. They're both grain in north Africa and vegetable oil and grain consumption in Asia. In addition, we see the food security impacts in the Asia region so significantly because that region includes Ukraine. And within the IFSA the report which is expected to have significant GDP declines.

All right. That's all we have for today. Thank you, Yacob and Lila, for a great presentation and thank you all to our listeners for taking time out of your day to join us. We hope this has been helpful.

We would- we would like to let you know that we have another webinar coming up that is the *Data Training Webinar: Farm Income And Wealth Statistics And Agricultural Resource Management Survey Data Dissemination Tool*. This webinar will take place this Tuesday,

September 27th at 1 p.m. Eastern Time. If you would like to register, or learn more, please visit the ERS website at [www.ers.usda.gov/conferences](http://www.ers.usda.gov/conferences). If you haven't already done so we'd like to invite you all to download the new ERS Charts of Note mobile app. With this app, available free of charge on Apple and Android devices, you can receive digital snapshots of ERS research delivered straight to your mobile device. In addition to our website and charts of note app you can find more ERS content on our social media sites, Twitter and LinkedIn. Again thank you for joining us today and this concludes our webinar.