



Wheat Outlook: December 2022

Andrew Sowell, coordinator
Bryn Swearingen, contributor
Christine Sauer, contributor
Claire Hutchins, contributor

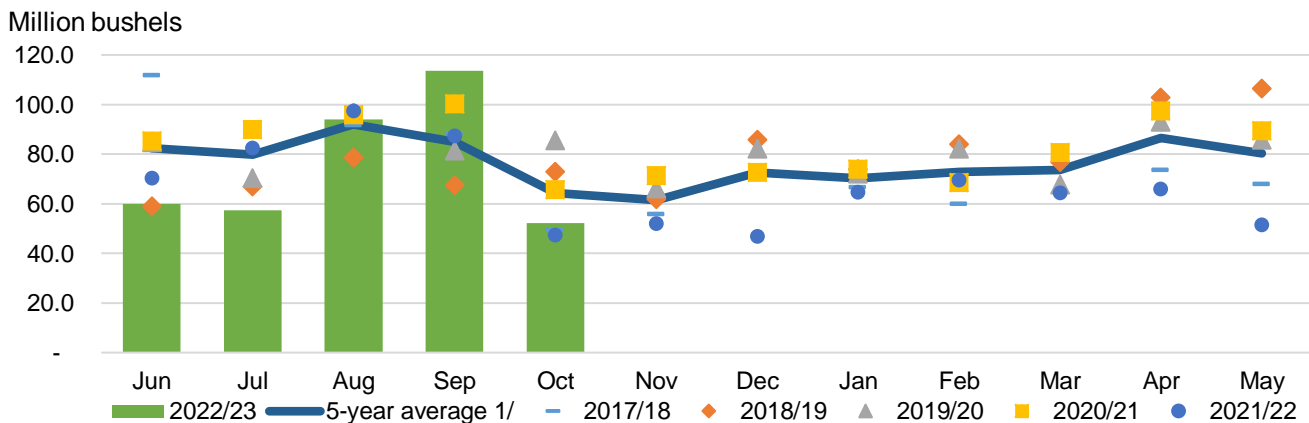
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U.S. Wheat Export Pace Drops off in October

U.S. wheat exports are projected at 775 million bushels, the lowest total in over 50 years. Nonetheless, exports during the month of September were the largest in 9 years highlighted by stronger than normal shipments to China, the Philippines, Indonesia, and Nigeria. However, even as shipments were strong, new sales were weak as reported by USDA’s Foreign Agricultural Service in its weekly *U.S. Export Sales* publication. Monthly exports dropped by more than half in October and were well below the recent average (figure 1). U.S. prices have been consistently higher than key competitors, but the spread has narrowed in recent weeks. Outstanding sales are 6 percent below last year at this point and well behind average, suggesting a continued weak pace of shipments in the coming months.

Figure 1
U.S. all-wheat monthly exports, 2017/18–2022/23



1/ 2017/18 through 2021/22.

Source: USDA, Economic Research Service calculations based on data from the U.S. Department of Commerce, Bureau of the Census.

Domestic Outlook

Domestic Changes at a Glance:

- The 2022/23 U.S. wheat production estimate is unchanged this month. Production data by class will be finalized for the year in the January 12 USDA, National Agricultural Statistics Service (NASS) *Crop Production Annual Summary* report.
- 2022/23 all-wheat exports are unchanged from the previous month at 775 million bushels, which would be the lowest since 1971/72. U.S. prices remain uncompetitive with other major global suppliers, while the pace of new sales has dwindled, as reported in the USDA, Foreign Agricultural Service (FAS) *U.S. Export Sales*. Considering export pace and competitiveness of each class, the by-class exports are now projected as follows:
 - White exports are raised 5 million bushels to 180 million based on a fast pace of export sales during the month of November.
 - Hard Red Spring (HRS) exports are boosted 5 million bushels to 230 million with an improved pace of sales, particularly to Iraq.
 - Soft Red Winter (SRW) exports are lowered 10 million bushels to 125 million based on a tepid pace of sales.
- U.S. wheat exports for June through October 2022 reached a total of 377 million bushels, down 2 percent from the same period last year. Official U.S. wheat trade statistics for June through October are calculated based on data from the U.S. Department of Commerce, Bureau of the Census. November exports appear to be down from the previous month based on export inspections data from the USDA, Federal Grain Inspections Service, as well as export sales data reported by USDA, FAS.
- U.S. wheat imports are unchanged at 120 million, up from 95 million in 2021/22. U.S. wheat imports for June through October 2022 totaled 49 million bushels, accounting for 41 percent of the full marketing year projection. Imports for these 5 months are up 14 percent from the same period last year.
- The 2022/23 season-average farm price is projected at a record \$9.10 per bushel, down \$0.10 from last month, reflecting recent declines in futures and cash prices. The October farm price reported in the USDA, NASS *Agricultural Prices* publication was \$9.21 up from \$8.85 in the previous month and higher than \$7.90 in October 2021.
- Table 1 presents details for the U.S. all-wheat supply and distribution.

Table 1
U.S. wheat supply and use at a glance 2022/23 (in million bushels)

Balance sheet item	2021/22 December	2022/23 November	2022/23 December	Month-to-month change	Comments
Supply					June-May marketing year
Beginning stocks	845	669	669	0	No change since September 30 <i>Grain Stocks</i> report
Production	1,646	1,650	1,650	0	Next production update in January <i>Crop Production Annual Summary</i> report
Imports	95	120	120	0	On pace to meet target
Supply, total	2,587	2,439	2,439	0	
Demand					
Food	972	977	977	0	
Seed	58	66	66	0	
Feed and residual	88	50	50	0	
Domestic, total	1,117	1,093	1,093	0	
Exports	800	775	775	0	Larger Hard Red Spring and White exports offsetting smaller Soft Red Winter
Use, total	1,917	1,868	1,868	0	
Ending stocks	669	571	571	0	Smallest ending stocks since 2007/08
Season-average farm price	\$7.63	\$9.20	\$9.10	-\$0.10	Recent declines in futures and cash prices
Source: USDA, World Agricultural Outlook Board, <i>World Agricultural Supply and Demand Estimates</i> .					

2023/24 Winter Wheat Update

USDA, NASS issued its final nationwide *Crop Progress* report of the year, which showed that 91 percent of the winter wheat crop had emerged as of November 27, 2022, on par with the 5-year average. Earlier in the season, planting and emergence lagged the average pace, with reports that crops were underdeveloped in some areas. Combined with persistent dry weather, this could pose a risk to the continued health of the winter wheat crop as it enters winter dormancy. As of December 6, approximately 73 percent of U.S. winter wheat areas are in drought (figure 2), well above 53 percent at the same time last year. This drought is focused on several key HRW-producing States including Kansas, Oklahoma, and Texas.

Figure 2

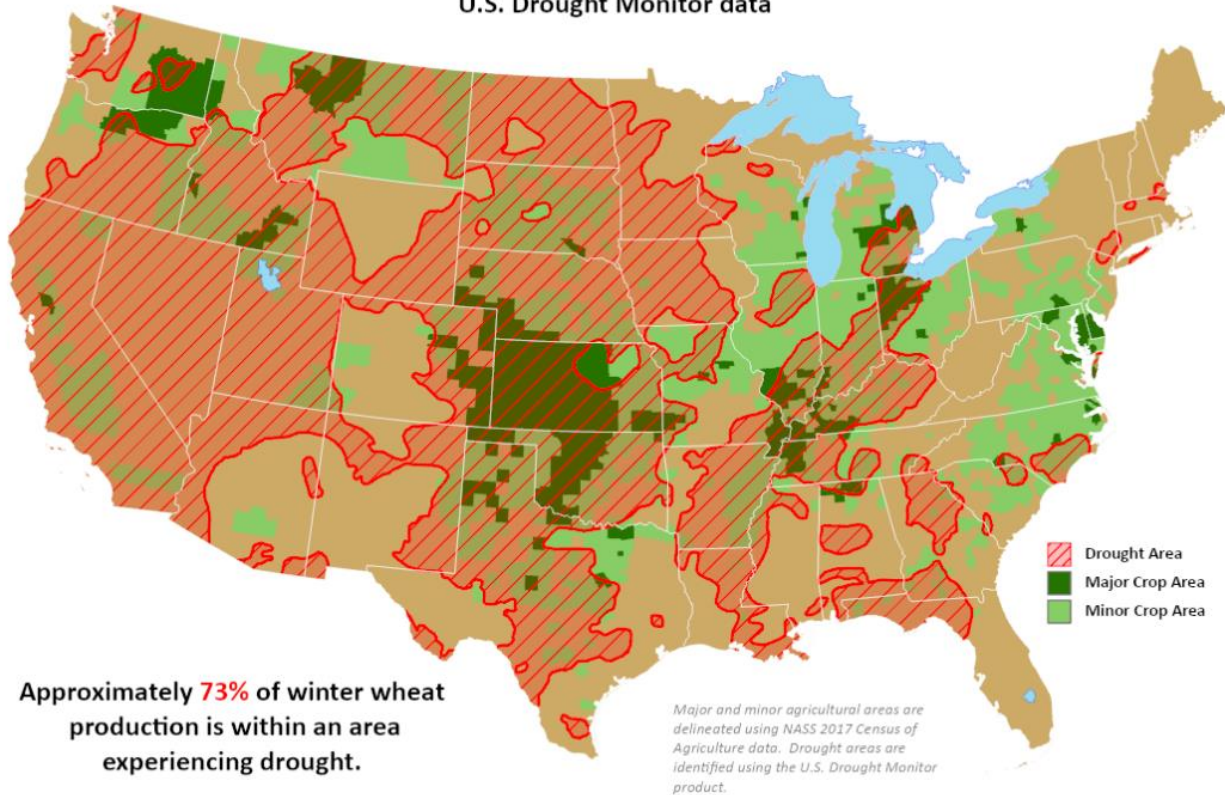
Large portions of winter wheat area in drought



This product was prepared by the
USDA Office of the Chief Economist (OCE)
World Agricultural Outlook Board (WAOB)

Winter Wheat Areas in Drought

Reflects December 6, 2022
U.S. Drought Monitor data



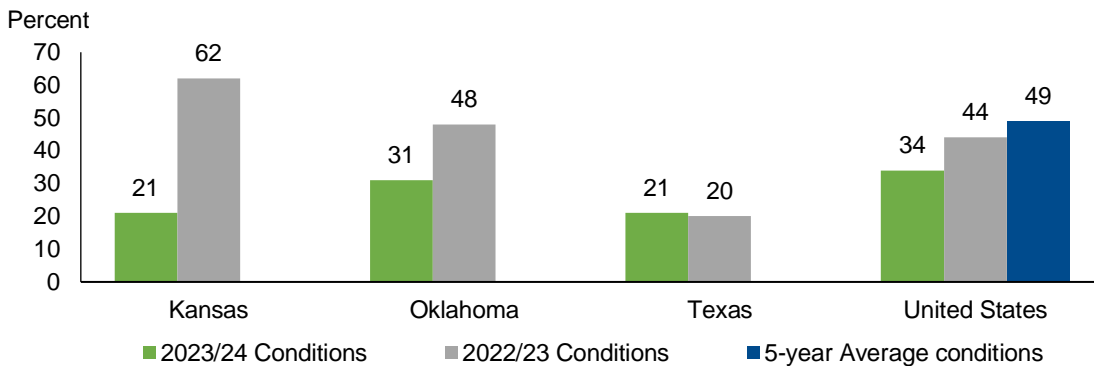
Notes: This product was prepared by the USDA, Office of the Chief Economist (OCE), World Agricultural Outlook Board (WAOB). Major and minor agricultural areas are delineated using National Agricultural Statistics Service (NASS) 2017 Census of Agriculture data. Drought areas are identified using the U.S. Drought Monitor product.

Source: USDA, World Agricultural Outlook Board, Agricultural Weather and Assessments Group.

In its last *Crop Progress* report of the year, USDA, NASS indicated that 34 percent of the U.S. winter wheat crop is in good/excellent condition, well behind 44 percent last year and the five-year average of 49 percent (figure 3). The percentage of winter wheat in good/excellent condition has increased slightly in recent weeks but remains the lowest on record for this point in the year. Conditions were substantially below last year for Kansas and Oklahoma, but marginally better for Texas. USDA, NASS will resume issuing the weekly *Crop Progress* report Monday, April 3. During December through March, USDA, NASS will publish *State Stories* that will provide monthly updates on selected key States.

Figure 3

Winter wheat good/excellent condition ratings as of November 27, 2022



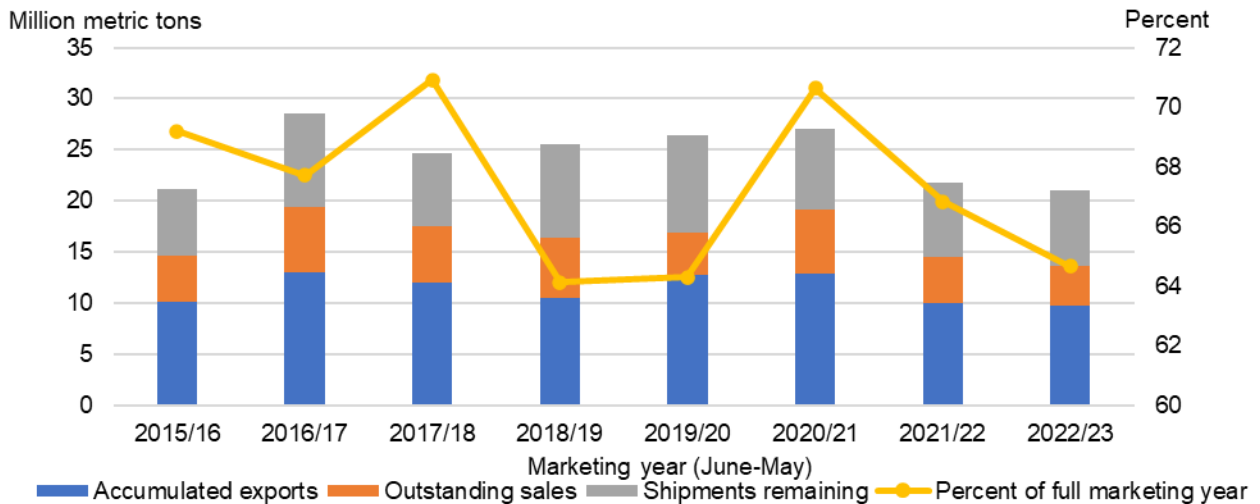
Note: 5-year average conditions were not released by state with the latest update.
 Source: USDA, Economic Research Service; USDA, National Agriculture Statistics Service, *Quickstats* database.

Update on U.S. Export Pace

According to USDA, FAS *U.S. Export Sales* data, U.S. wheat export sales total commitments (the sum of outstanding sales plus accumulated exports) as of December 1 are at 13.6 million metric tons, down 6 percent from the same time last year. This represents 65 percent of the full marketing year estimate of 775 million bushels. This is lower than the percentage of estimate met by total commitments at this point in 5 of the last 7 years, suggesting that U.S. wheat may need a slightly stronger pace of sales in the coming months to meet the current projection.

Figure 4

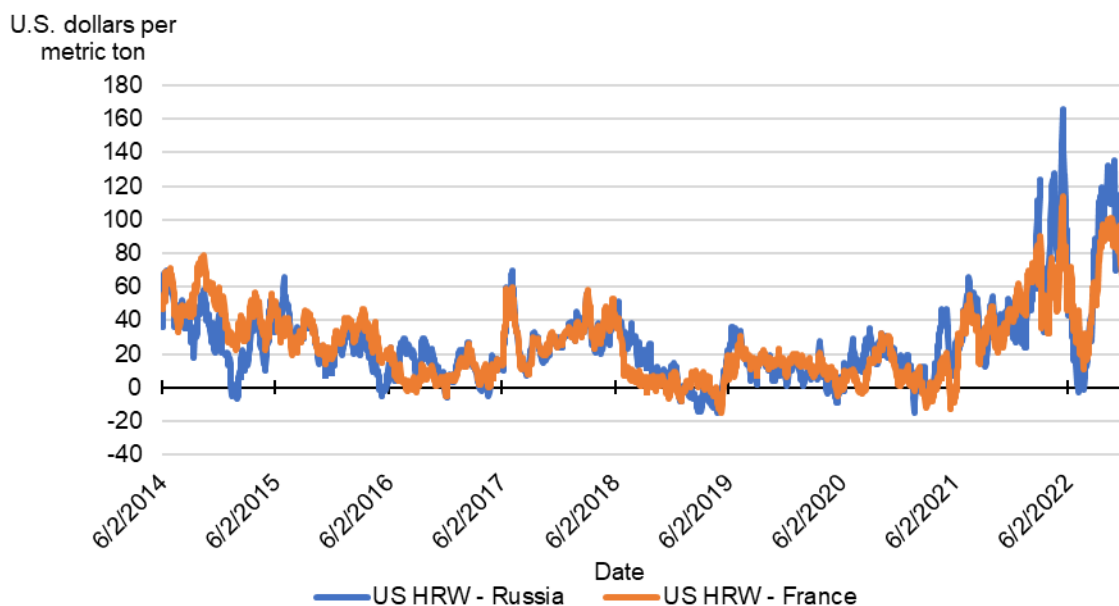
Cumulative exports sales through December 1 and full marketing year exports, 2015/16–2022/23



Notes: Accumulated exports and outstanding sales are as of week 27, exact dates vary by year. Shipments remaining is the difference between total commitments as of that date and the full marketing year exports.
 Source: USDA, Economic Research Service calculations; USDA, Foreign Agricultural Service, Export Sales Reporting.

While sales lag, U.S. HRW export prices are less competitive than they have been in previous years. Figure 5 shows the freight-on-board (FOB) price spread between U.S. HRW wheat and key competitors Russia and France. Note that these price spreads have narrowed in the last month with U.S. wheat prices (both FOB and futures) being pressured by weak export sales. U.S. SRW prices are lower than HRW and have become competitive with some other major exporters. However, export sales of SRW have been exceptionally slow in recent weeks, resulting in a reduction in the export forecast for that class this month. HRS and White, on the other hand, have seen strong export sales and projected exports of those classes are boosted this month.

Figure 5
Price spread between U.S. Hard Red Winter and key competitors, 2014–2022



HRW = Hard Red Winter.

Notes: This chart depicts the freight-on-board (FOB) price difference between U.S. HRW and Russian wheat. The quotes used are U.S. Hard Red Winter, 11.5 percent protein, Gulf of Mexico; Black Sea 11.5 percent protein; and France, Grade 1, Rouen. Quotes are daily.

Source: USDA, Economic Research Service calculations using data from the International Grains Council.

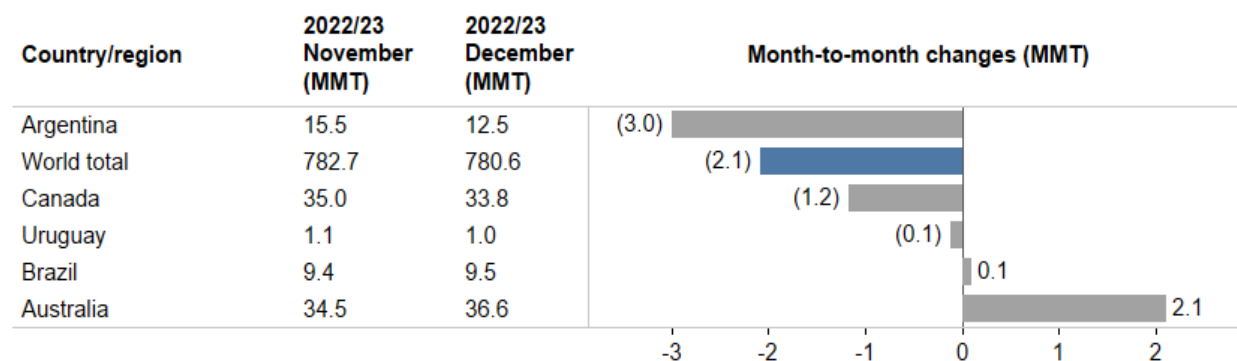
International Outlook

Global Production in 2022/23 is Lowered

Global wheat production in 2022/23 is lowered 2.1 million metric tons (MMT) to 780.6 MMT as **Argentina** production is reduced further by the ongoing drought conditions. Production for Argentina is cut 3.0 MMT to 12.5, the lowest since 2015/16 and yields are forecasted at 2.34 metric tons/hectares, the lowest since 2008/09. Area harvested is also lowered (-0.5 million hectares to 5.4 million hectares) based on expectations of higher abandonment. Statistics Canada released updated production results on December 2. They were lower than trade sources anticipated, especially for Durum wheat, resulting in a decline in **Canada's** production (-1.2 MMT to 33.8 MMT). Despite the decline this is still Canada's third-largest wheat crop on record. Partially offsetting these reductions is an increase for the **Australian** crop by 2.1 MMT to a record 36.6 MMT, based on the latest Australian Bureau of Agricultural and Resource Economics and Sciences forecast. If realized Australia will have back-to-back record crops. Figure 6 shows all the 2022/23 production changes.

Figure 6

Month-to-month changes in 2022/23 wheat production, December 2022



Note: Changes less than 100,000 metric tons are not included.

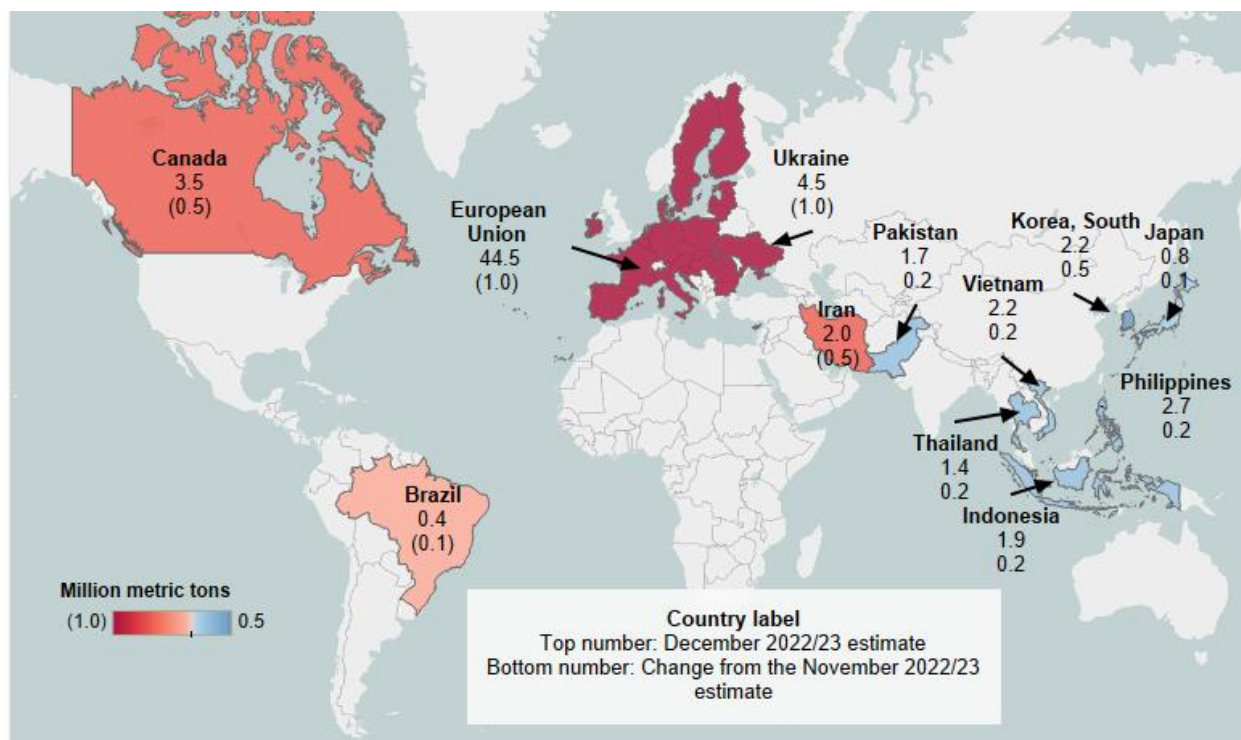
Source: USDA, Economic Research Service; USDA, Foreign Agricultural Service *Production, Supply and Distribution* database.

2022/23 Global Consumption Cut by 2.1 Million Metric Tons

2022/23 global consumption is lowered by 2.1 MMT to 783.0 MMT with a 1.5 MMT cut for feed and residual use (154.9 MMT) and a 0.6 MMT decline for food, seed, and industrial use (628.1 MMT). **Ukraine's** feed and residual use is lowered 1.0 MMT to 4.5 MMT. The **European Union** is lowered 1.0 MMT to 44.5 MMT as wheat is less competitive in the feed ration compared to barley or corn and inflationary pressures are deterring consumers from consuming meat and dairy products. Tighter domestic production for **Canada** lowers feed and residual use by 0.5

MMT to 3.5 MMT. Iran is also lowered 0.5 MMT to 2.0 MMT as high prices have deterred imports resulting in a lower feed and residual use. Imports for **South Korea, Philippines, Indonesia, Vietnam, and Thailand** are revised higher as feed-quality wheat for East Asian countries is currently price competitive due to tight global corn supplies and ample amount of feed-quality wheat from Australia (figure 7). See the December *Grain: World Markets and Trade* published by the USDA, Foreign Agriculture Service for more information on the allocation of Australia's record crop.

Figure 7
Month-to-month changes in 2022/23 feed and residual use, December 2022



Note: Changes less than 100,000 metric tons are not included.
 Source: USDA, Economic Research Service; USDA, Foreign Agricultural Service *Production, Supply and Distribution* database.

Food, seed, and industrial (FSI) use is lowered for **Algeria** (-0.2 MMT to 11.3), **Cuba** (-0.2 MMT to 0.6 MMT), and **Nigeria** (-0.2 MMT to 5.7 MMT) and is partially offset with an increase for **Saudi Arabia** (+0.3 MMT to 4.0 MMT).

To match the *World Agricultural Supply and Demand Estimates (WASDE)*, consumption is adjusted based on the local marketing year (MY) trade adjustments for 2022/23. Unaccounted trade is revised up 0.2 MMT to 6.3 MMT as MY exports are raised relatively more than MY imports. This results in an adjusted consumption of 789.5 MMT, down 1.6 MMT from the November estimate.

Black Sea Grain Initiative Extended, Boosts Global Exports

Exports for the 2022/23 trade year (July/June) are raised by 2.2 MMT to 208.8 MMT driven by increases for **Australia, Ukraine, Russia, and the European Union (EU)** and are only partially offset by a reduction for **Argentina** (-2.5 MMT to 7.5 MMT). A smaller domestic crop limits the exportable supplies by Argentina pushing them to the smallest exports in 7 years. With a record crop, Australia is projected to be the third largest exporter with record exports at 28.5 MMT, up 1.5 MMT from November. The EU's export pace has started off strong this trade year (TY), resulting in an increase of 1.0 MMT to 36.0 MMT.

The *Black Sea Grain Initiative* was extended on November 17 continuing to allow Ukraine to export out of 3 of their seaports for another 120 days. Since the *Initiative* deal began in August, they have been able to export about 6.0 MMT of wheat with more than 80 percent flowing through the ports. Based on this pace, Ukraine exports are raised 1.5 MMT to 12.5 MMT.

Russia's exports are raised 1.0 MMT to a record 43.0 MMT. While pace started off slow, Russia has been able to pick up the pace as its export tax began to decline increasing its competitiveness (figure 8). The export tax dropped and is denominated in rubles starting at the end of June 2022 and prices have come off their peaks as the Black Sea remains open. Like last year, Russia has placed an all-grain export quota of 25.5 MMT from February 15 to June 30, 2023. This is higher than the 17.5 MMT all-grain quota in 2020/21 and above the 8.0 MMT wheat-specific quota in 2021/22 that limited exports in the latter half of the TY. The quota is not likely to hamper exports this year due to its larger size and the potential for sizeable exports prior to the quota being implemented in February.

Figure 8

Russian exports with average export tax, July 2021–November 2022



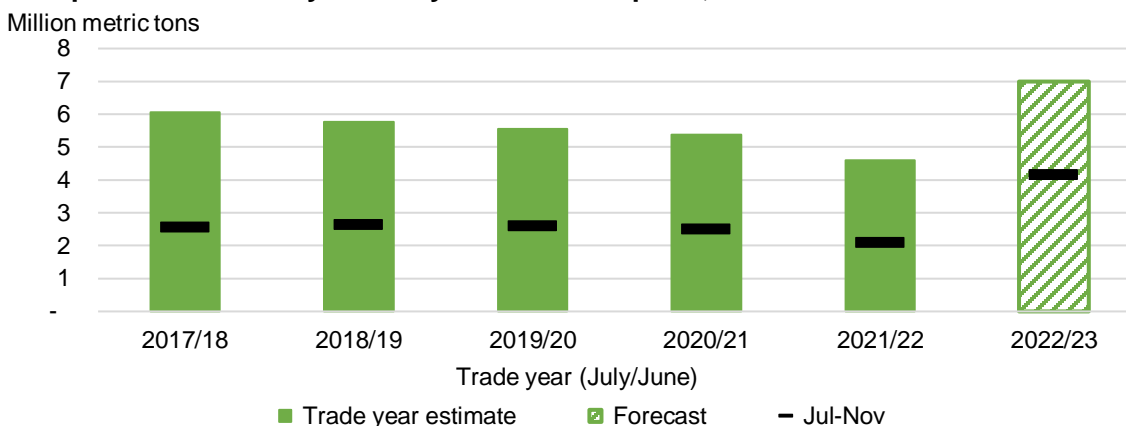
Notes: Weekly reported export tax is averaged to monthly; the tax switched to being report in rubles in June 2022; reported trade data are used if applicable and then exports are estimated with vessel loadings; shaded area shows the period the export quota was in place (February 15-June 30, 2022).

Source: USDA, Economic Research Service calculations using data Trade Data Monitor and Reuters Refinitiv Eikon data.

2022/23 TY imports are raised 1.7 MMT to 204.1 MMT. EU imports are raised 1.0 MMT to 7.0 MMT on the fast pace of imports. The EU has already received over 4.0 MMT of wheat through November, more than half from Ukraine, and is on pace to meet the new projection (figure 9). Prior to the grain deal, the EU was one of the only routes to get Ukraine grain out of the country. Romania especially saw an uptick in imports from Ukraine. Now with the ports opened Ukrainian grain has been entering the EU through Spain and Italy. Ukraine's wheat has been able to reach many other markets including Turkey, Bangladesh, Indonesia, Algeria, Egypt, Ethiopia, and Yemen.

Figure 9

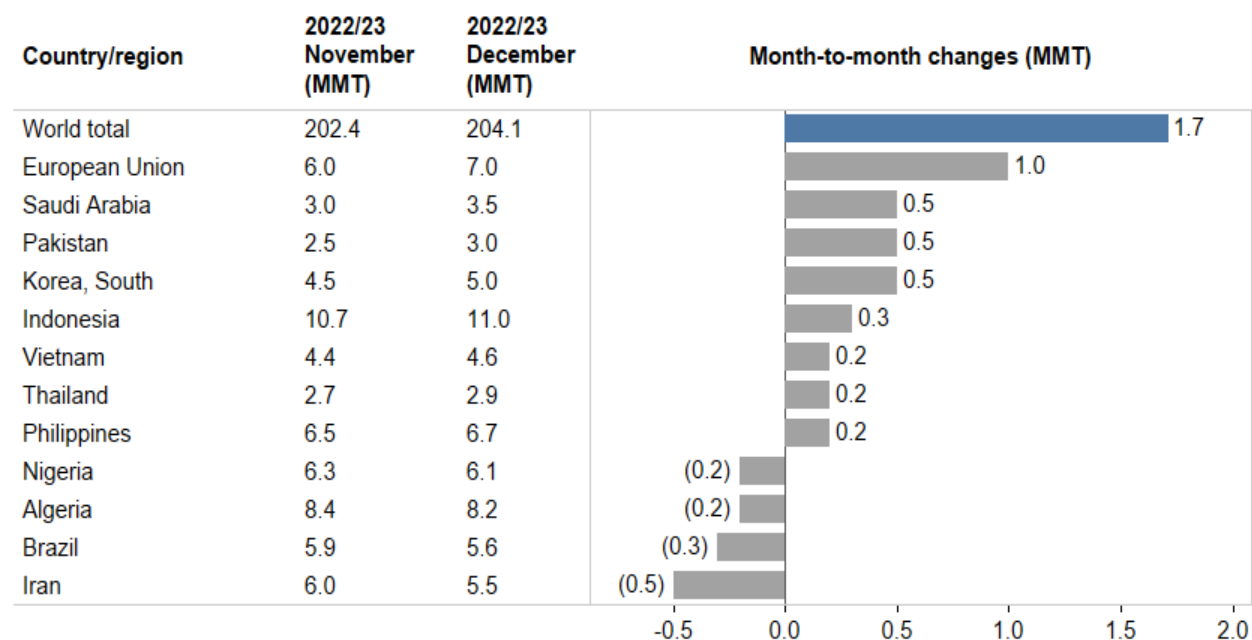
European Union trade year and year-to-date imports, 2017/18–2022/23



Note: Data for 2017/18 through 2021/22 is official trade data, 2022/23 depicts estimated pace with official data through September and surveillance data for October and November.
 Source: USDA, Economic Research Service calculations using data Trade Data Monitor and European Commission surveillance data.

Pakistan's imports are raised 0.5 MMT to 3.0 MMT as it has secured additional wheat shipments through government-to-government agreement with Russia. Pakistan is increasing its imports ahead of the next year after widespread flooding has affected the growing crop. **Saudi Arabia** has been actively tendering for large volumes and has secured shipments through June 2023. It also has started to receive shipments from Ukraine. **South Korea** is projected to increase its imports of feed-quality wheat from Australia as it remains more affordable than corn. Partially offsetting these revisions is a decline for **Iran** (-0.5 MMT to 5.5 MMT) as pace has started off slow with reduced purchases from Russia. Figure 10 displays the major import changes for the 2022/23 TY.

Figure 10

Month-to-month changes in 2022/23 trade year imports, December 2022

MMT=million metric tons.

Notes: Changes less than 200,000 metric tons are not included. Month-to-month change is the difference between the December 2022 and November 2022 estimates.

Source: USDA, Economic Research Service; USDA, Foreign Agricultural Service *Production, Supply and Distribution* database.

2022/23 Global Ending Stocks Tighten

2022/23 global ending stocks are projected down 0.5 MMT to 267.3 MMT with downward revisions for the major exporters (-1.1 MMT to 54.5 MMT) only partially offset by increases for **Pakistan** (+0.3 MMT to 4.4 MMT), **India** (+0.3 MMT to 12.3 MMT), and **Saudi Arabia** (+0.2 MMT to 3.2 MMT). **Russia** and **Ukraine** ending stocks are tightened because of more export opportunities for both countries. Russia is down 1.0 MMT to 14.4 MMT, but still the highest since 2009/10. Ukraine is revised down 0.5 MMT to 4.2 MMT. Production cuts result in tighter stocks for **Argentina** (-0.5 MMT to 0.9 MMT) and **Canada** (-0.6 MMT to 3.5 MMT). These are partially offset with increases for **Australia** (0.6 MMT to 4.3 MMT) and **European Union** (+0.9 MMT to 10.4 MMT), while **Kazakhstan** (1.2 MMT) and the **United States** (15.5 MMT) remain unchanged from November.

Feature Article: Rail Transportation Challenges Among Major Factors Weighing on U.S. Wheat Exports

Christine Sauer, Claire Hutchins, Andrew Sowell, and Bryn Swearingen

Background on U.S. Wheat Exports

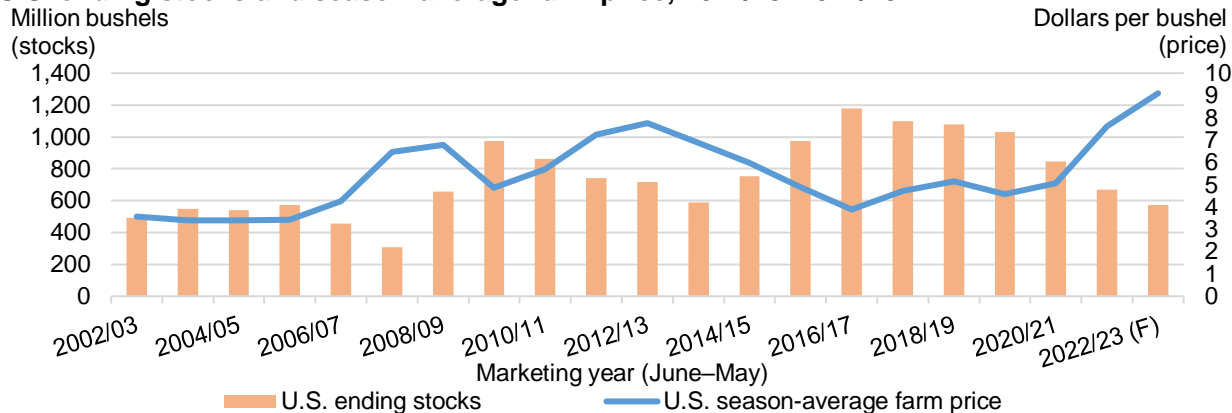
Historically, exports represent around half of U.S. wheat production. Over the past several years, U.S. exports gradually declined despite global trade growing substantially, with the U.S. market share shrinking from 24 percent (weighted average 2000/01–2009/10, July–June trade year) to a forecast level of 10 percent in 2022/23. Key competitors have become more active in the global marketplace with Russia in particular rising from being a net importer of wheat as recently as 2000/01 to its current position as the world’s leading exporter. U.S. exports to key markets, such as Japan and South Korea, remain robust based on quality preferences, relatively high incomes, and longstanding trade relationships. Quality preferences and geographical advantages contribute to U.S. exports remaining strong to many Latin American countries. Conversely, many relatively price-conscious buyers in North Africa and the Middle East have largely turned away from U.S. wheat in favor of supplies from the European Union and Russia. The trend of declining U.S. exports continues in 2022/23, with exports forecast at 775 million bushels, the lowest since 1971/72. Some of the key factors contributing to this weak export forecast are tight domestic supplies, high prices relative to key competitors, and transportation difficulties inside of the United States.

Tight U.S. Wheat Supplies

U.S. production reached a 20-year low in 2021/22 with drought severely affecting Hard Red Spring (HRS), White, and Durum production. Ending stocks fell to the lowest level since 2013/14, resulting in very tight supplies to start the 2022/23 marketing year (June/May). While the previously mentioned classes recovered their production levels in 2022/23, drought beset major Hard Red Winter (HRW) production areas in the Southern Plains, resulting in lower yields for the largest class of U.S. wheat. U.S. wheat production barely recovered from the previous year and stocks are projected to reach the tightest level in 15 years. The U.S. season-average farm price is projected to reach a record \$9.10 per bushel this year as tight stocks often are accompanied by elevated prices (figure 11).

Figure 11

U.S. ending stocks and season-average farm price, 2012/13–2022/23



(F) = forecast.

Source: USDA, National Agricultural Statistics Service; USDA, World Agricultural Outlook Board.

Moreover, this tight supply situation has implications for global trade as the United States typically carries the largest stocks among major exporting countries. In addition to exporting to its typical markets, the United States is often an important residual supplier to non-traditional markets if supplies are tight elsewhere. For instance, in 2013/14, U.S. exports surged with strong shipments to Brazil amid restrictions to Argentine exports. In that same year, the United States played a key role in filling robust demand by China. In 2016/17, U.S. wheat exports rose later in the marketing year with stronger-than-normal shipments to Brazil and Mexico. Similarly, U.S. wheat became competitive to several key destinations in the latter half of 2018/19 as Russia’s exports tailed off that year.

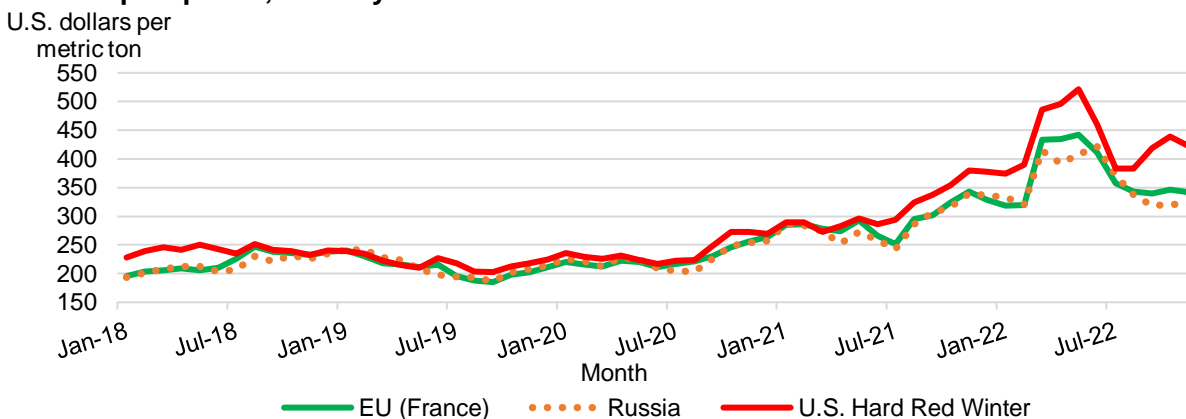
This year, declining global supplies are met with a different scenario amid tight U.S. supplies. European Union wheat stocks are also projected at a historically low level with production down from the previous year along with robust export demand. Argentina is also amid a historic drought and its exports will be much smaller this year. The world is experiencing a period of elevated prices and declining overall stock levels, but unlike some tight periods in the past, fewer U.S. supplies are available to fill the gap. Conversely, Russia’s stocks, boosted by a bumper crop, are projected up and only slightly below U.S. stocks.

U.S. Prices Well Above Key Competitors

During November, U.S. HRW export quotes averaged \$423 per MT, maintaining large premiums over key competitors such as the European Union (France specifically) and Russia (figure 12). In addition to tight 2022/23 supplies, dry planting conditions in the Southern Plains during the fall of 2022 has contributed to an uncertain outlook for the 2023/24 crop, which further underpins prices. Another factor in the rising gap between U.S. prices and other

exporters is the consistent strength of the U.S. dollar. Propelled by macroeconomic concerns in other countries and rising interest rates in the United States, the U.S. dollar hovered at around a 20-year high for much of September and October. While its strength faded in November, the U.S. dollar remains historically high and continues to weigh heavily on wheat exports due to the preponderance of competition in the global marketplace. Australia's exports are forecast at a record high while Canada is projected to ship its second highest level of wheat ever. Exports for Ukraine and Argentina are projected down substantially this year, but U.S. wheat is unlikely to benefit substantially due to intense competition with the European Union and Russia. Note that with tepid export sales, U.S. prices have declined slightly in the last month, coming closer to the level of some key competitors in November and early December.

Figure 12
Wheat export prices, January 2018–November 2022



Notes: Prices are monthly averages of daily freight-on-board (FOB) quotes. EU (France) pertains to Grade 1, Rouen. Russia is 12.5 percent, Black Sea. Hard Red Winter is 11.5 percent protein, U.S. Gulf. Note that protein standards may differ with regard to moisture content.

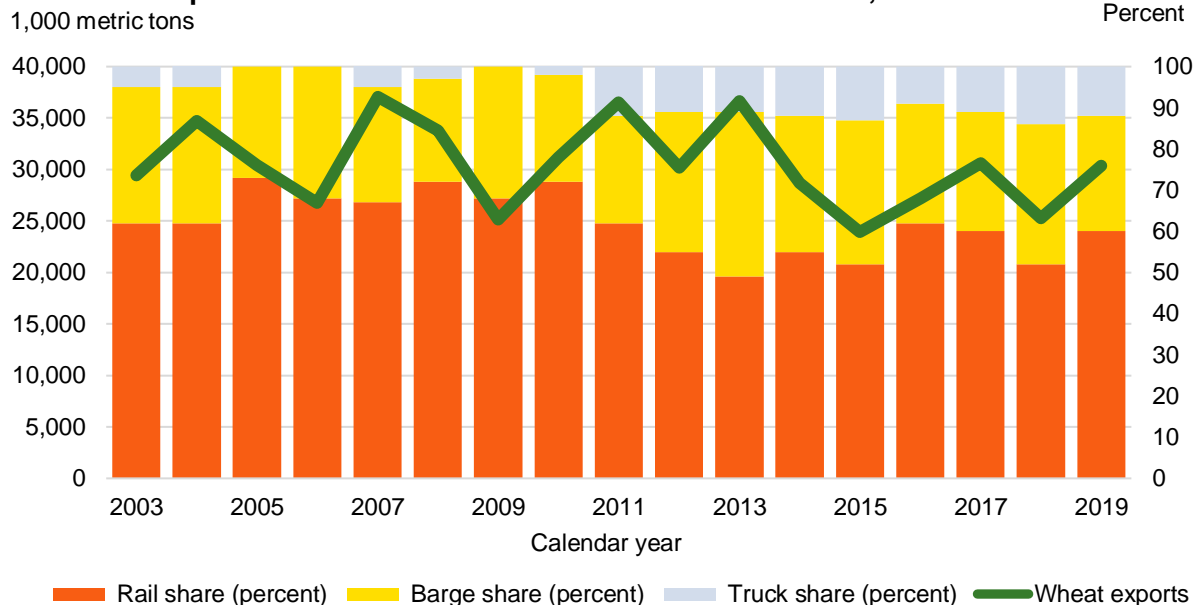
Source: USDA, Economic Research Service calculations using data from the International Grains Council.

Rail Issues Affecting U.S. Wheat Exports

Rail issues in the United States are also contributing to high prices for U.S. wheat, relative to key competitors. Figure 13 shows that between 2014 and 2019, approximately 50 to 60 percent of wheat to be exported was moved by rail. Transportation by rail is especially important for certain classes of wheat. For example, producers of HRS—primarily grown in the Northern Plains—are well-served by rail lines that run to Washington State and Oregon in the Pacific Northwest (PNW), providing easy access to ocean vessels that can then take the wheat to Asia (figure 14). Additionally, the long distances to port and the lack of navigable waterways east of the PNW renders rail the most efficient form of transportation to move wheat those long distances compared to truck or barge. Similarly, HRW production areas in the Central and Southern Plains are directly connected by rail to Mexico, HRW's top import market.

Figure 13

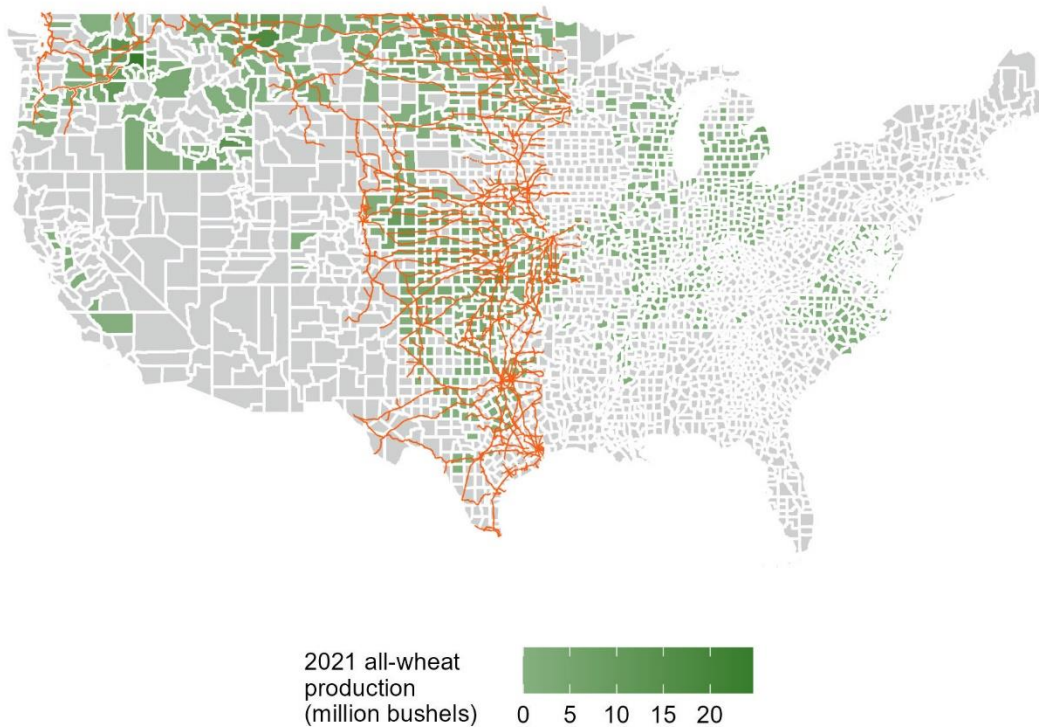
U.S. wheat exports to all destinations and modal share over time, 2003–19



Sources: USDA, Economic Research Service calculations using data from USDA, Agriculture Marketing Service, *Transportation of U.S. Grains: A Modal Share Analysis, 1978-2019 Update*.

Figure 14

Major U.S. rail networks across the Great Plains and PNW that connect wheat-producing areas to coastal and border export terminals

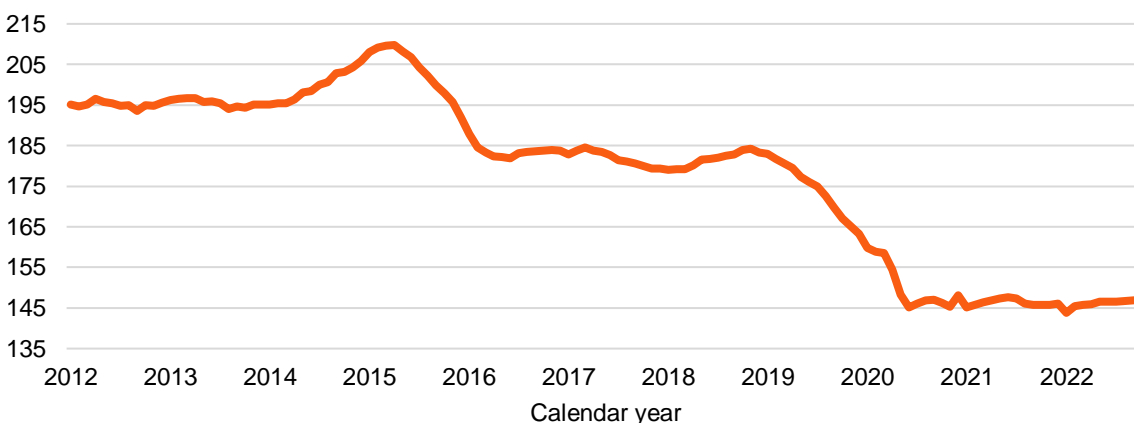


Note: PNW = Pacific Northwest.
 Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistical Service and U.S. Bureau of the Census.

The inland waterways of the Mississippi River and the Columbia-Snake River system (in the PNW) are vital for Soft Red Winter (SRW) and White wheat exporters, respectively. Historically low water levels on the Mississippi River this fall constrained barge transportation and pushed more grain onto the railways, exacerbating the logistical challenges in rail networks. Because of the dependence of many wheat classes on rail transportation, disruptions to the rail network appear to reverberate in the wheat export market.

In September 2022, disputes between major railroads and their employees came to a head as rail unions threatened to strike over strict attendance policies. Both parties struck a tentative agreement and workers agreed not to strike while union members voted on the deal in October and November. In early December Congress passed, and the President signed, legislation that imposes the terms of the agreement that was brokered in September. Although the potential for a strike was averted, some industry participants are concerned that rail performance may lag due to work slowdowns as a key union demand of paid sick leave remains unfulfilled. The uncertainty caused by rail issues this fall compounds a labor shortage that is years in the making. In the past 10 years, rail employment fell from a recent peak of 210,000 employees in spring 2015 to 147,000 as of October 2022 (figure 15). The reduced labor force and the possibility of a rail shutdown are partly responsible for elevated shipping costs and service issues which contribute to a higher export basis for U.S. wheat and delays in transporting grain for both domestic and export purposes.

Figure 15
Rail employment from January 2012 to October 2022
 1,000 employees



Source: USDA, Economic Research Service calculations using data from the Federal Reserve of St. Louis.

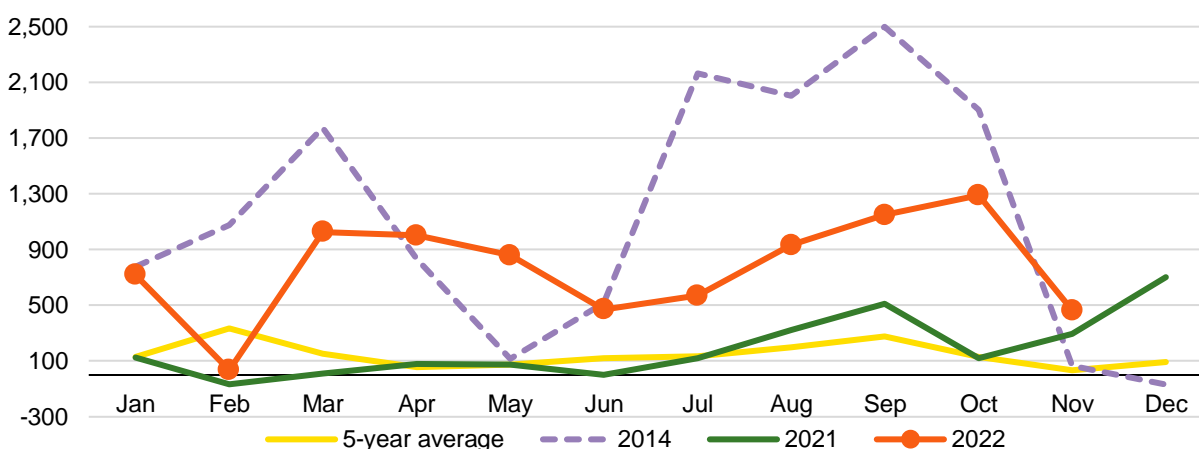
Shippers faced elevated rail costs throughout 2022, and these costs are often passed on to wheat buyers through higher basis values. According to data from USDA, Agricultural Marketing Service, bids for grain shuttle cars on the secondary auction market remain above the 5-year

average (figure 16) and approached an average of \$1,300 per car in October, the highest since 2014 when agricultural producers and exporters faced similar rail service issues. Industry sources indicate bids in October 2022 reached as high as \$2,500 per car. Though bids decreased in November due to seasonally low shipment volumes, they remain the second highest on record. Exporters pass along higher rail shipping costs by increasing export basis. A useful example is to compare U.S. and Canadian basis numbers. Spring wheat is grown at roughly the same longitude in both countries and shipped to Western ports by rail, but U.S. wheat is more expensive than Canadian wheat in 2022.

Figure 16

Bids for grain shuttle trains in the secondary auction market

U.S. dollars per car



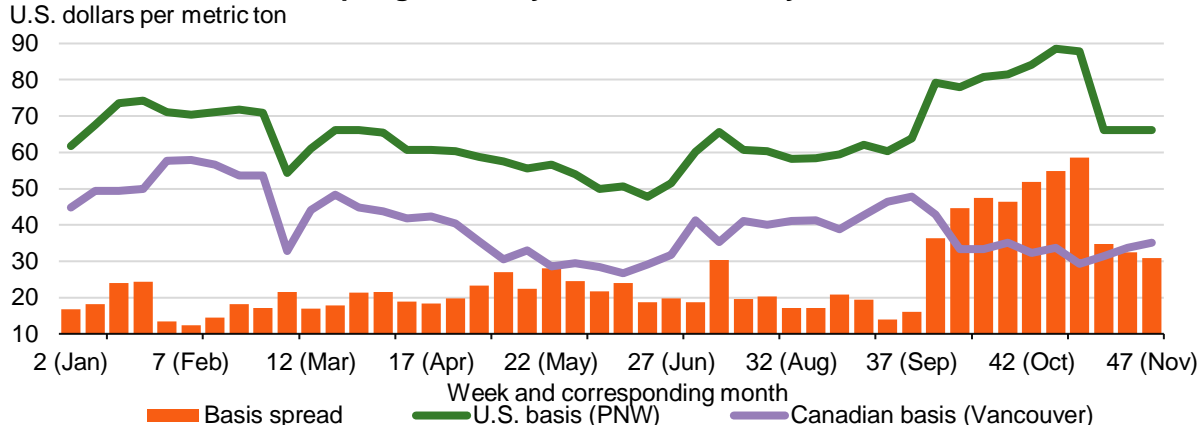
Shuttle trains = trains with 110 cars or more.

Note: 5-year average = the monthly average of bids per car in U.S. dollars between 2017 and 2021.

Source: USDA, Economic Research Service calculations, using data from USDA, Agricultural Marketing Service Agricultural Transportation Open Data Platform.

Figure 17 shows weekly average export basis numbers for U.S. HRS exported from the PNW and Canadian Western Red Spring (CWS) exported from Vancouver. U.S. export basis has been consistently higher than its Canadian equivalent, though the spread noticeably jumped in week 38 (the week of September 12, 2022), due in part to uncertainty in rail markets on the prospect of a national rail shutdown that week. In recent weeks, the spread declined from a high of almost \$60 per metric ton, but U.S. basis remains higher by roughly \$30. Canadian rail rates at times follow a different pattern than U.S. rates, partly driven by Canada’s rail transportation policies as well as differences in commodities being exported, shipment volumes, and elevation capacity. However, it should be noted that Canada’s railroads also had labor disputes like those of their U.S. counterparts, which have contributed to uncertainty in Canada’s rail transportation. For more information on Canada’s rail transportation, see the November 4 *Grain and Feed Update* published by USDA’s Foreign Agricultural Service (FAS).

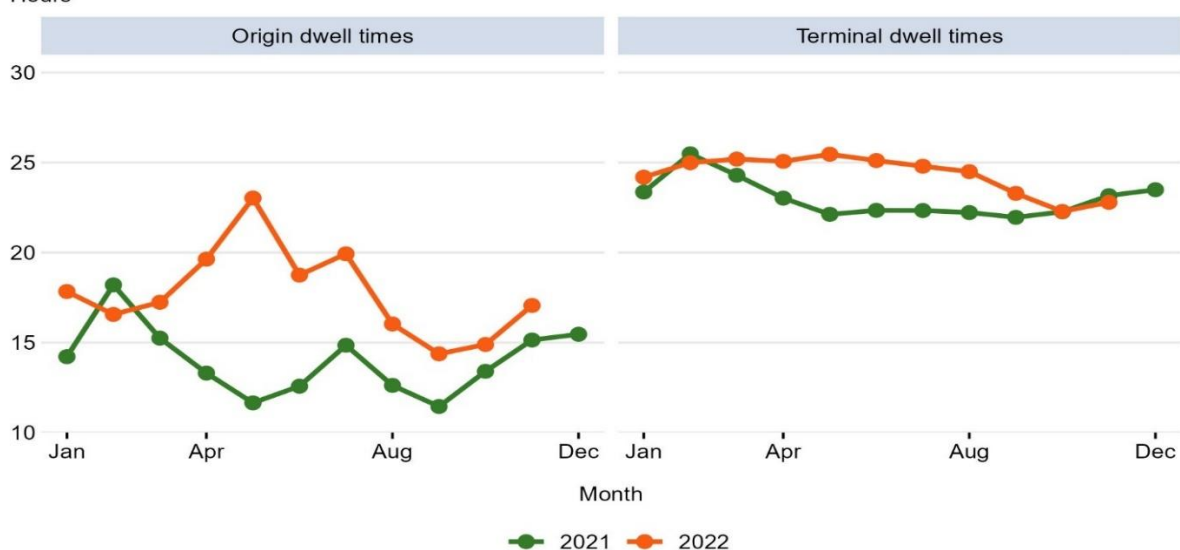
Figure 17
Average export basis for U.S. Hard Red Spring wheat and Canadian Western Red Spring wheat, by week in calendar year 2022
 U.S. dollars per metric ton



Basis spread = U.S. basis - Canadian basis. PNW = Pacific Northwest.
 Notes: Export basis is derived using weekly average freight-on-board (FOB) quotes and weekly average Hard Red Spring wheat futures prices. The protein percent for both U.S. and Canadian wheats are 13.5 on a 12-percent moisture basis.
 Source: USDA, Economic Research Service calculations using data from the International Grains Council and from the Minneapolis Grain Exchange.

In addition to the higher costs to ship by rail, exporters are contending with longer origin and terminal dwell times. Monthly average terminal dwell times in 2022 were higher on average than the same months in 2021, though the spread began to narrow in September 2022 (figure 18). Terminal dwell times were slightly lower in November 2022 compared to 2021. Origin dwell times remain above 2021 levels and the November 2022 number (of 17.0 hours) is 12 percent greater than the November 2021 origin dwell time (of 15.1 hours). Therefore, rail customers are paying more through elevated export basis for a decreased level of rail service performance.

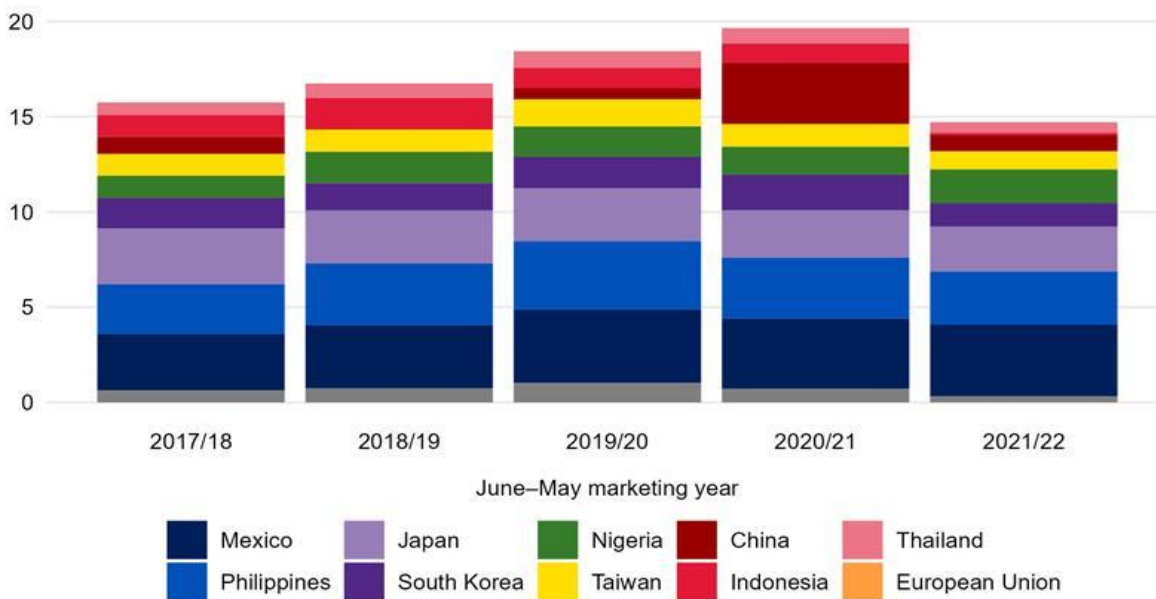
Figure 18
Monthly average origin and terminal dwell times for U.S. railcars, 2021–2022
 Hours



Source: USDA, Economic Research Service calculations using data from USDA, Agricultural Marketing Service, Agricultural Transportation Open Data Platform.

Figure 19 provides a view of the top 10 U.S. markets during 2017/18 through 2021/22. Export sales to several of these key markets are down in 2022/23 based on high U.S. wheat prices, driven in part by logistical challenges. U.S. export sales to China are down the most dramatically from last year's elevated level, but still higher than 2019/20. Figure 20 presents cumulative U.S. wheat export sales by marketing year (June/May) for key trading partners. In the Philippines, sales of all wheat are down roughly 24 percent from 2021/22, with decreases in HRS, White wheat, and HRW sales. Similarly, cumulative 2022/23 all-wheat sales to Japan are slightly lagging the previous 4 marketing years, driven mainly by a decline in HRS sales. All wheat sales to Mexico, the largest U.S. market, trail this time last year by 10 percent but hold strong compared to the 5-year average. All wheat sales to Mexico trail this time last year by 10 percent but hold strong compared to the 5-year average (2017/18-2021/22). Industry contacts say that buyers in more traditional import markets like the Philippines, Japan, and Mexico are rationing demand to make their stores of U.S. wheat last longer as they wait out this period of high and volatile U.S. wheat prices. Several sources even suggest that typically, by December, customers might book U.S. wheat sales for delivery through February or March of the following year, but that many have elected to secure future supplies only through January 2023 due to the price risk associated with future deliveries. Port loading data shows Mexican buyers even turned to Russian wheat supplies in September and October as softer bulk ocean freight prices made the landed price (freight-on-board plus the cost of ocean freight) from Russian ports to Veracruz, Mexico more competitive than HRW.

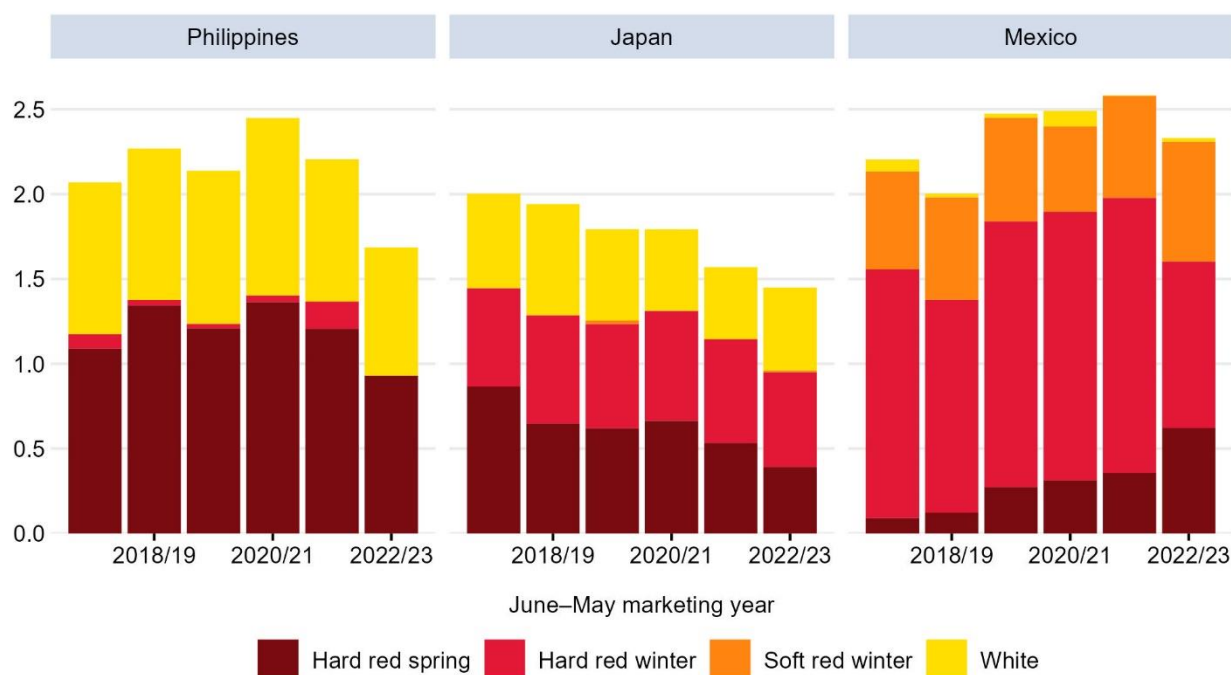
Figure 19
Top 10 markets for U.S. wheat exports, June–May, 2017–2021
 Million metric tons



Note: Selected countries represent the top 10 markets for U.S. wheat, on average, between 2017/18 and 2021/22.
 Source: USDA, Economic Research Service calculations using data from USDA, Foreign Agricultural Service.

Figure 20

Accumulated U.S. wheat export sales by destination and class, June 1–December 1, 2017–2022
 Million metric tons

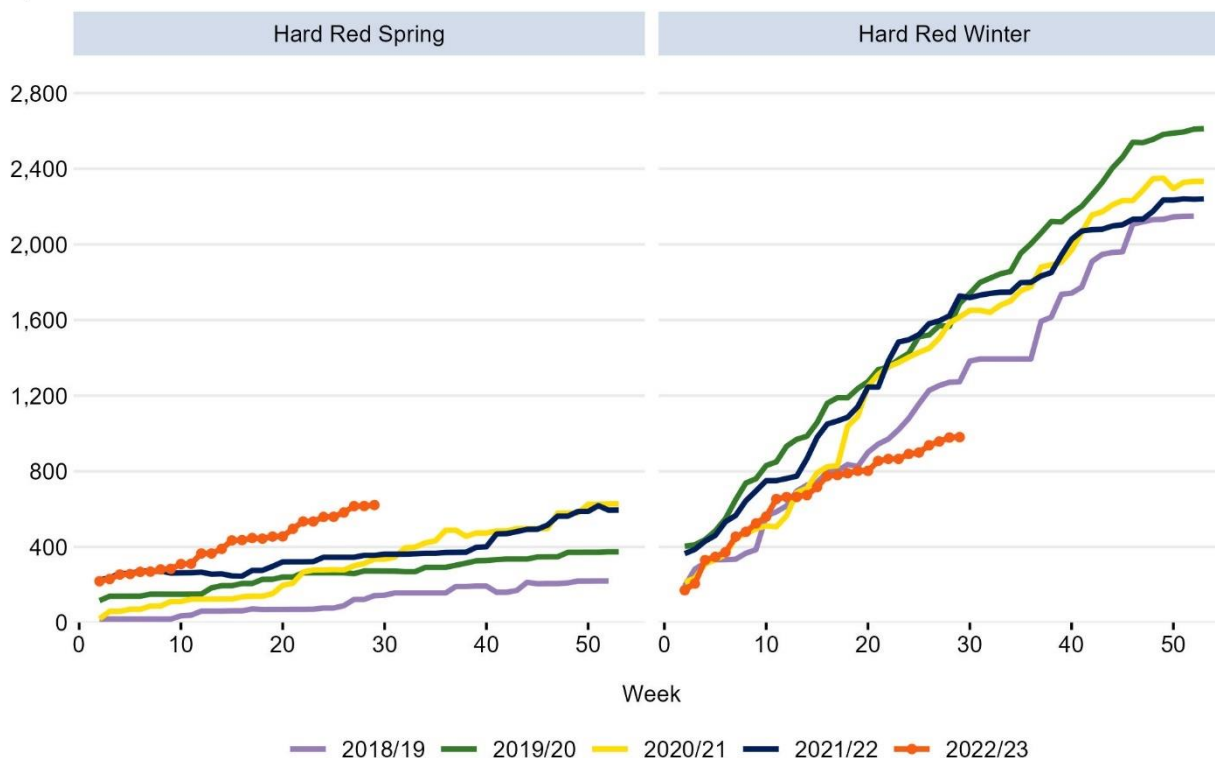


Source: USDA, Economic Research Service calculations using data from USDA, Foreign Agricultural Service, *U.S. Export Sales* report.

For Mexico, cumulative 2022/23 all-wheat export sales are below 2021/22. Again, the all-wheat numbers hide heterogeneity among the different classes of wheat. Export sales of HRW to Mexico are lower this year compared to last year (due to reduced exportable supplies and rail transportation issues), but sales of HRS and SRW are strong compared to previous marketing years. High HRW prices could be encouraging some customers to blend HRS and SRW to approximate the mid-protein level found in HRW. While HRS is also transported directly from the United States to Mexico by rail, FAS weekly export data show Mexican customers locked in 42 percent of current total accumulated HRS sales for delivery in 2022/23 before June 1, 2022 (the start of MY 2022/23). On the other hand, Mexican buyers secured only 20 percent of HRW sales for 2022/23 delivery by the start of the marketing year (figure 21). This could indicate that despite ongoing logistical concerns, buyers took advantage of early HRS price opportunities, while waiting to book sales of more geographically well-positioned HRW until later in the marketing year.

Figure 21

Accumulated U.S. wheat export sales to Mexico by marketing year (June–May), 2018–2022
1,000 metric tons

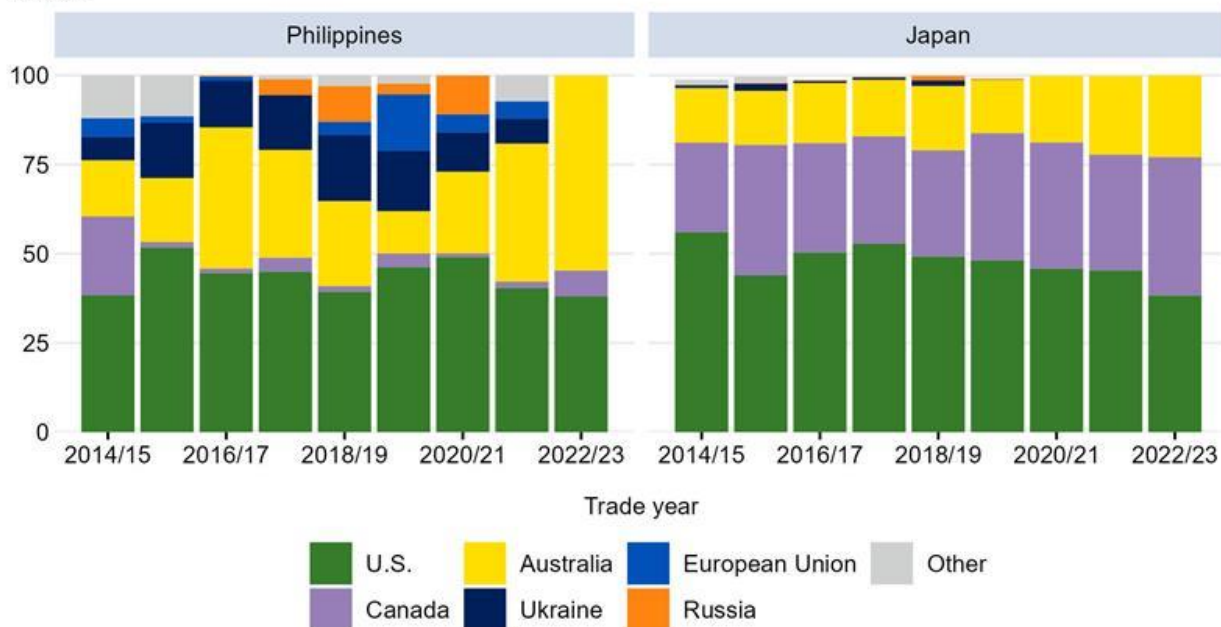


Source: USDA, Economic Research Service calculations using data from USDA, Foreign Agricultural Service, *U.S. Export Sales* report.

Other data suggest that some, but not all, countries have been turning elsewhere to meet their wheat import needs in the current high price environment for U.S. wheat. Figures 22 and 23 show the shares of imported wheat from the United States and its competitors for selected U.S. wheat partners, using trade year data from Trade Data Monitor. The Philippines, an important buyer of U.S. wheat, has seen its share of wheat imported from the United States steadily decline in the last 30 years. Recent logistical issues and elevated U.S. export prices have only exacerbated the trend. As of October 2022, the United States held only 38 percent of total wheat exports to the Philippines (on a trade year basis), the second-lowest market share since at least 1989. Over time, Canada, Australia, and (in recent years) Black Sea exporters stepped in to claim a larger share of the market. Since 2014/15, the United States' share of wheat exports to Japan has slowly but steadily fallen, from more than 55 percent to 44 percent in 2021/22. The pattern holds thus far in 2022/23; the United States only retains only 38 percent of total market share in Japan (figure 22). As with the Philippines, the shares of Canadian and Australian wheat imported by Japan rose in turn. This is likely due in part to a rebound in Australian wheat production in addition to logistical issues elevating U.S. wheat export basis compared with Canadian prices.

Figure 22

Share of total global wheat exports to the Philippines and Japan, by major wheat-producing country, July through October, 2014–2022
Percent

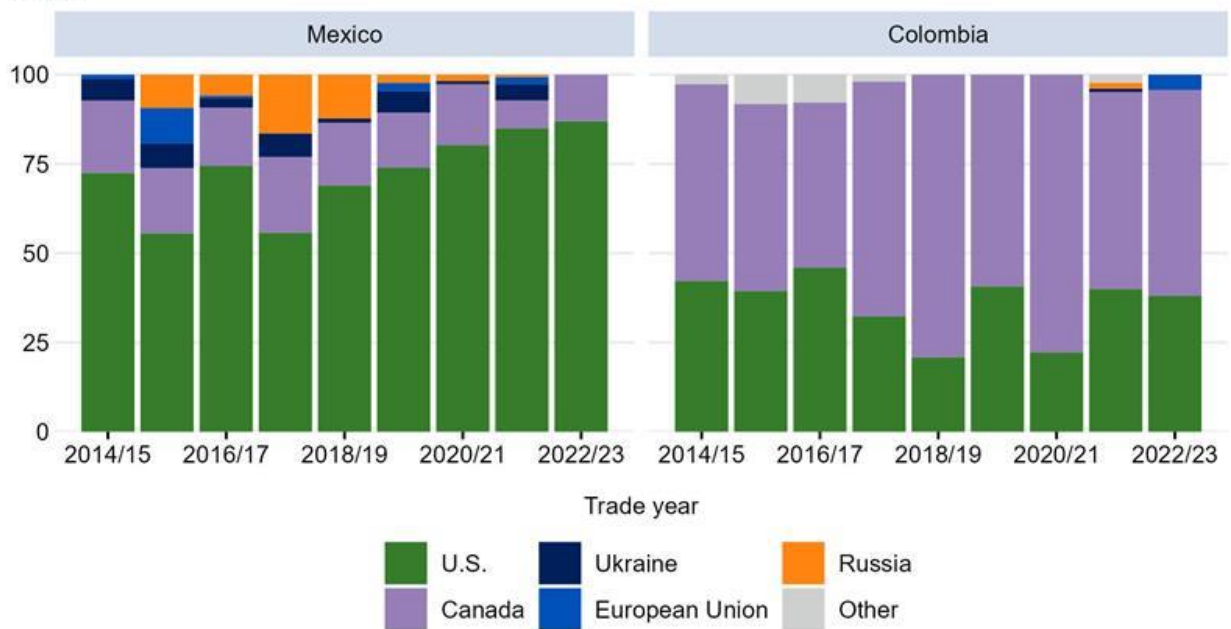


Note: This figure uses exporter-reported data to the markets indicated. 2022/23 data availability is limited as the European Union and Ukraine have not reported October 2022 data. Russia has not reported any trade data in 2022/23. Source: USDA, Economic Research Service calculations using data from Trade Data Monitor.

In contrast, other countries have been importing a greater share of U.S. wheat over time (figure 23). Mexico, the top buyer of U.S. wheat, increased its U.S. share from just over 50 percent in 2018/19 to roughly 87 percent between July and October 2022. Industry sources indicated that this is partly due to more Mexican mills adding rail shuttle facilities that further enable direct shipments of wheat from the United States. Similarly, demand from Colombia rose to its highest share in recent years. In the current trade year through October, the U.S. share of wheat exported to Colombia is 38 percent, in line with last year (when Canada suffered a significant drought) possibly due to shifting consumer demand for classes of wheat unique to the United States. Industry sources indicate that Colombian buyers are importing more SRW this year to meet expanding cookie and biscuit production, and that Colombia would likely purchase more U.S. wheat overall if export prices were more in line with Canada's.

Figure 23

Share of total global wheat exports to Mexico and Colombia, by major wheat-producing country, July through October, 2014–2022
Percent



Note: This figure uses exporter-reported data to the markets indicated. 2022/23 data availability is limited as the European Union and Ukraine have not reported October 2022 data. Russia has not reported any trade data in 2022/23. Source: USDA, Economic Research Service calculations using data from Trade Data Monitor.

Conclusion

Tight domestic supplies, competition from other exporters, a strong U.S. dollar, and rail issues have led to U.S. exports being forecast at the lowest level in 51 years. The tight supplies are a result of a long-term trend toward lower wheat planted area as well as drought conditions affecting key regions of U.S. wheat production in two consecutive years. The United States will be dependent on rail to move grain to export terminals, which adds lingering uncertainty to the market as rail service performance continues to lag this marketing year. With its prices uncompetitive with major exporters such as the European Union and Russia, U.S. wheat exports to non-traditional markets are likely to be minimal this year. While high prices compared to other suppliers are also challenging the U.S. wheat export share in traditional markets such as Japan and the Philippines, the United States' share of total wheat exported to both Mexico and Colombia is up significantly from the same point in 2021/22.

Suggested Citation

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