



Food & Agricultural
Policy Research Institute
University of Missouri

The crop outlook: What we know and (mostly) what we don't

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2022 Womack Missouri Agriculture Outlook Conference

Poehlmann Educational Center, Bradford Research Farm

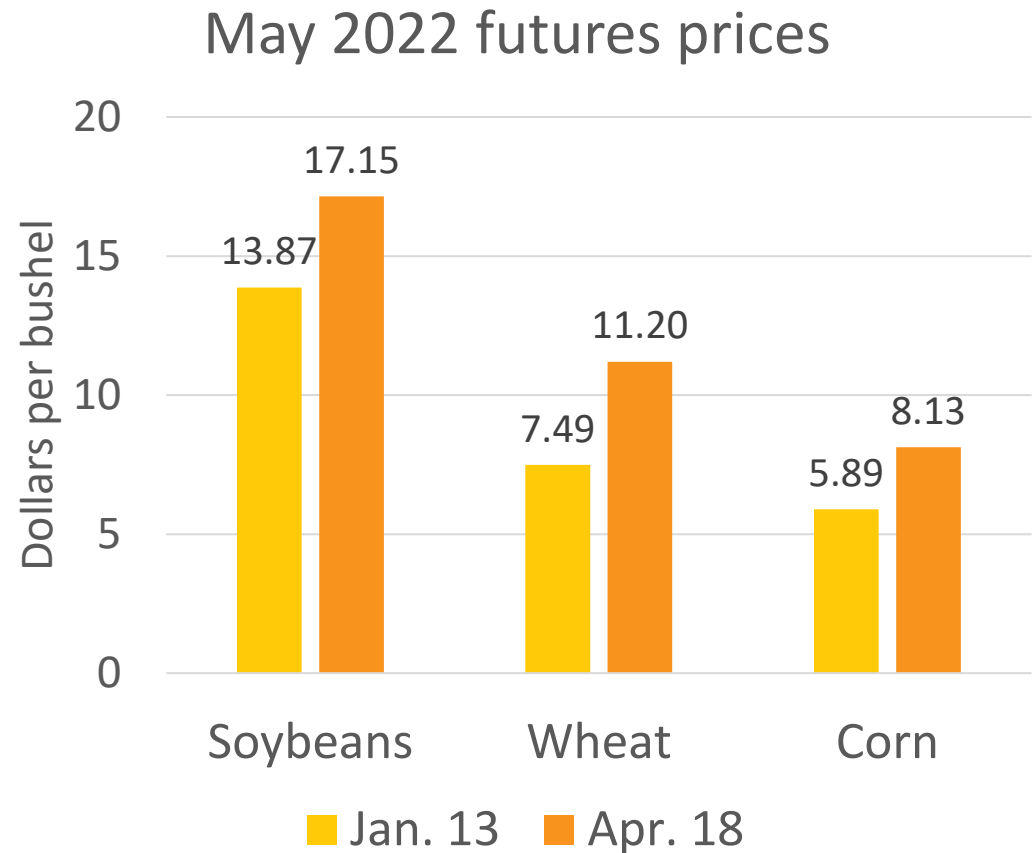
April 20, 2022

Agenda

- Recent FAPRI work on the crop sector outlook
- Some of the many uncertainties and their implications

Source: Barchart.com, CME May contracts.

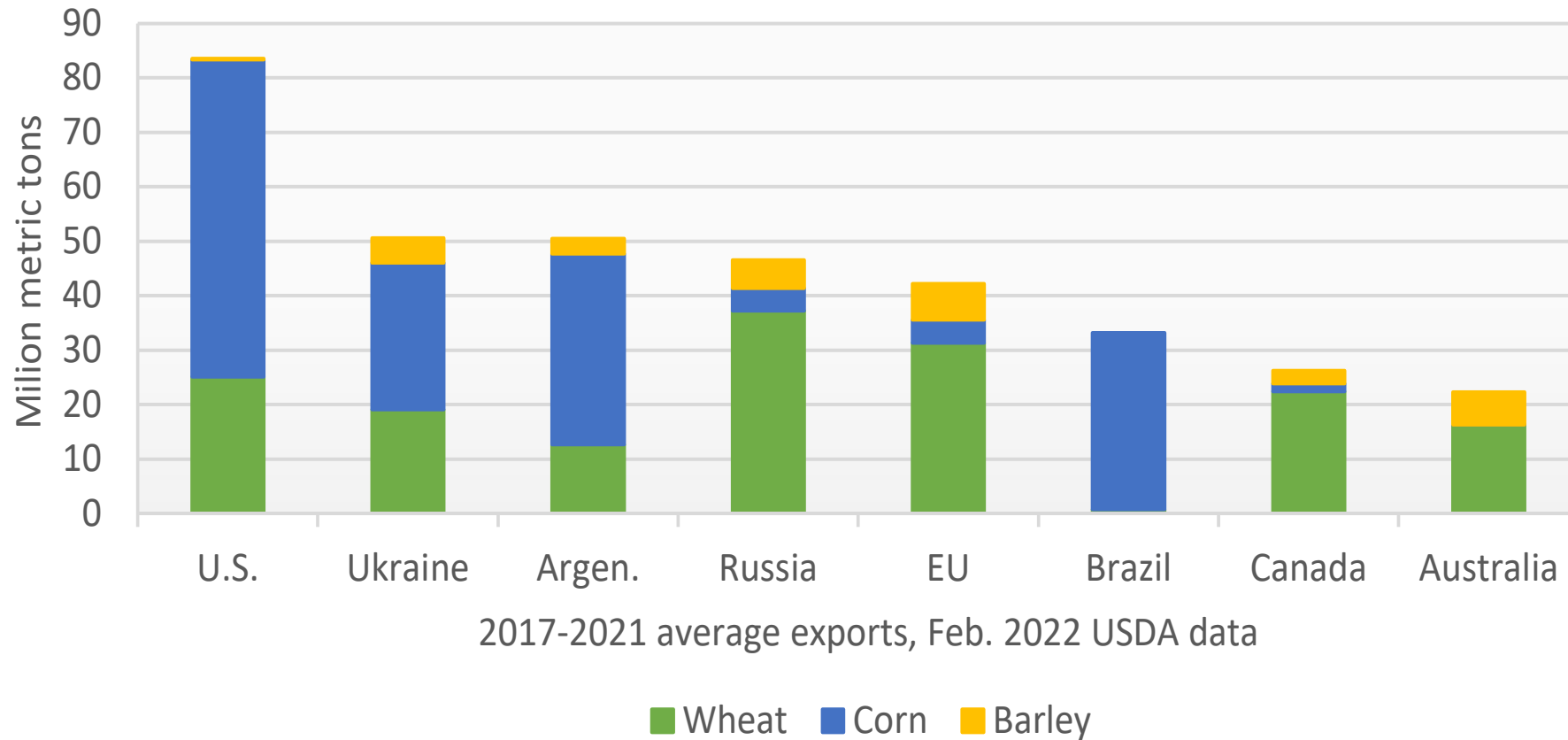
Soybean contract prices increased 24%, wheat 50% and corn 38% between January 13 and April 18.



About the FAPRI baseline outlook

- The baseline outlook was based on what was known about policies and markets in January 2022
 - It did include USDA's final estimates for 2021 crop production, etc.
 - But it did not reflect more recent reports or the war in Ukraine
 - We are updating our analysis and I will discuss some lessons from that work today—but the situation remains very fluid

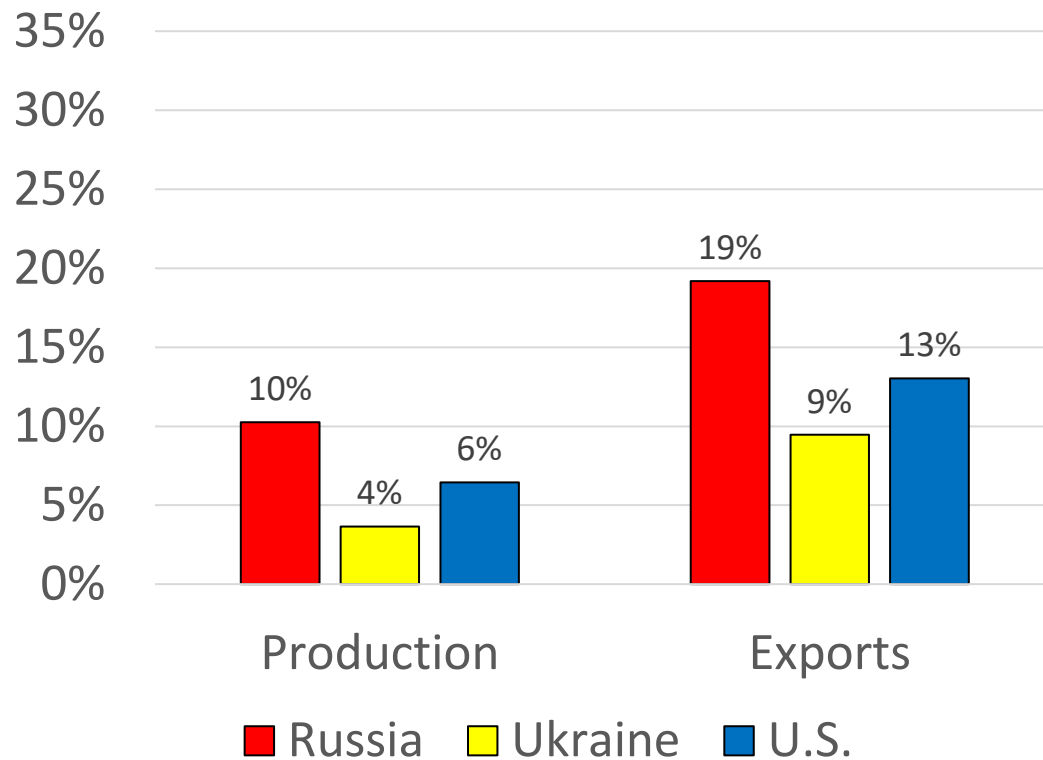
Ukraine and Russia have been major grain exporters



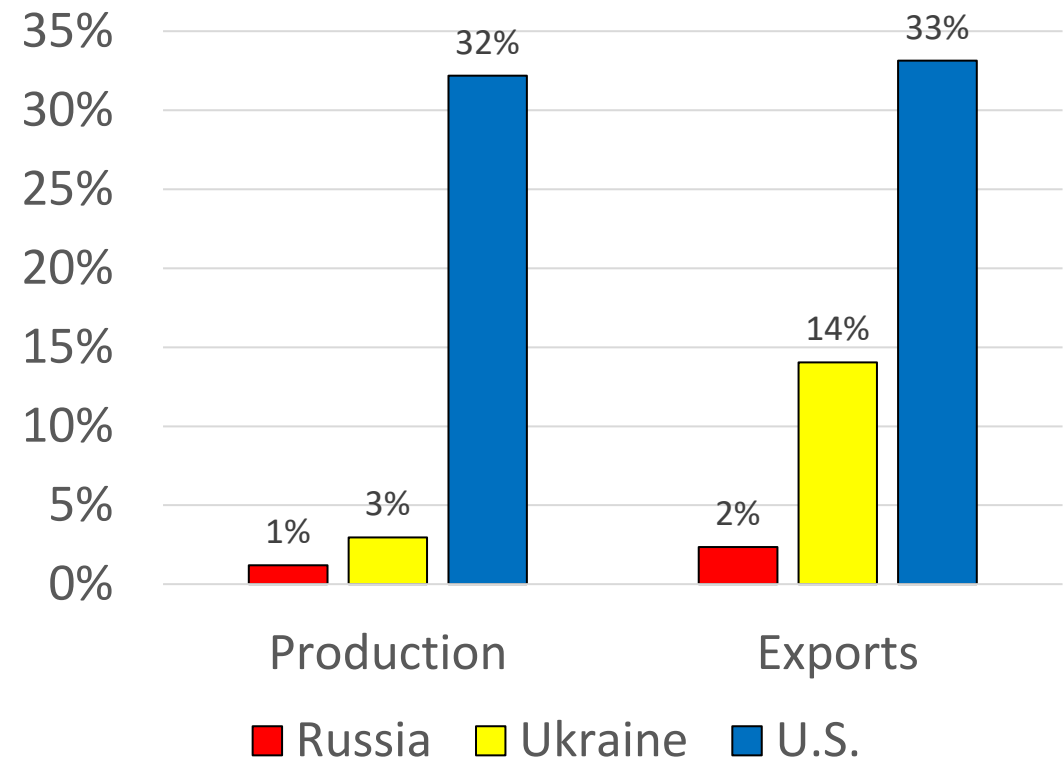
Russia and Ukraine in global grain markets

2017/18 – 2020/21 average

Wheat: Share of world total



Corn: Share of world total



Grain production in Ukraine

Ukraine: Corn Production



USDA Foreign Agricultural Service
U.S. DEPARTMENT OF AGRICULTURE

Source: State Statistics Service of Ukraine (Rosstat for Crimea Oblast)
Average Corn Production 2016-2020

Ukraine: Wheat Production



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U.S. DEPARTMENT OF AGRICULTURE

Source: State Statistics Service of Ukraine (Rosstat for Crimea Oblast)
Average Wheat Production 2016-2020

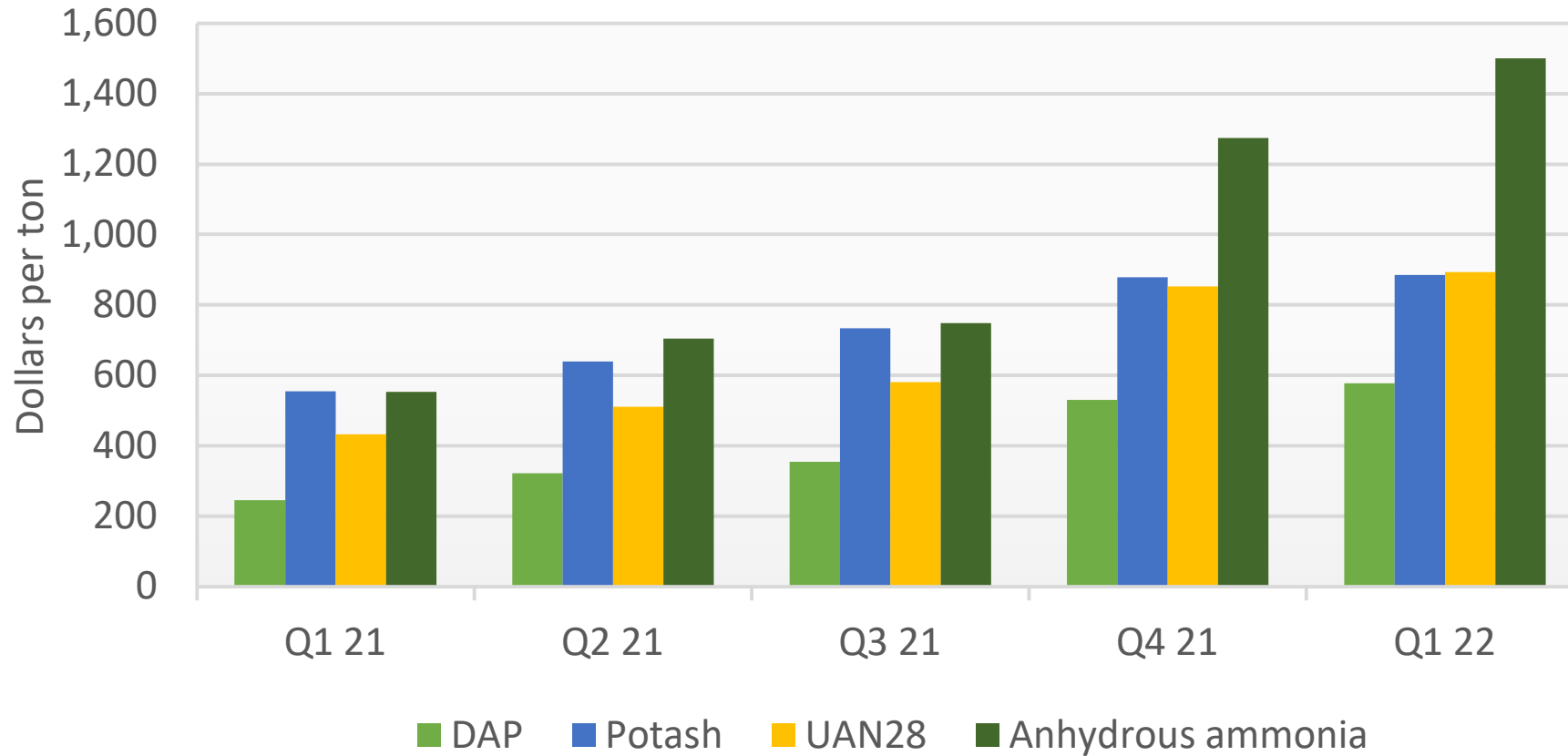
World oilseed market developments

(million bushels)

	2020/21	2021/22	Change
Production in Brazil, Argentina and Paraguay	7,187	6,346	-841
U.S. production	4,216	4,435	+219
China imports	3,666	3,344	-322
Other country imports	2,411	2,275	-136
U.S. exports	2,261	2,115	-146

Source: Author calculations based on USDA PSD Online, April 2022. Note that area harvested in S. America increased between 2020/21 and 2021/22, so the decline in production is entirely due to lower yields.

Fertilizer prices increase in 2021 and early 2022



U.S. variable production expenses

(dollars per acre, does not include land, machinery or other fixed costs)

	2020	2021	2022	2022 vs. 2020
Corn	333	358	455	+122
Soybeans	187	196	231	+44
Wheat	130	133	163	+33

Sources: For 2020, operating costs and hired labor costs as reported by USDA's Economic Research Service. For 2021 and 2022, preliminary FAPRI estimates, April 2022. These FAPRI estimates for 2022/23 are higher than those reported in our baseline outlook, given further increases in input costs since the baseline was prepared.

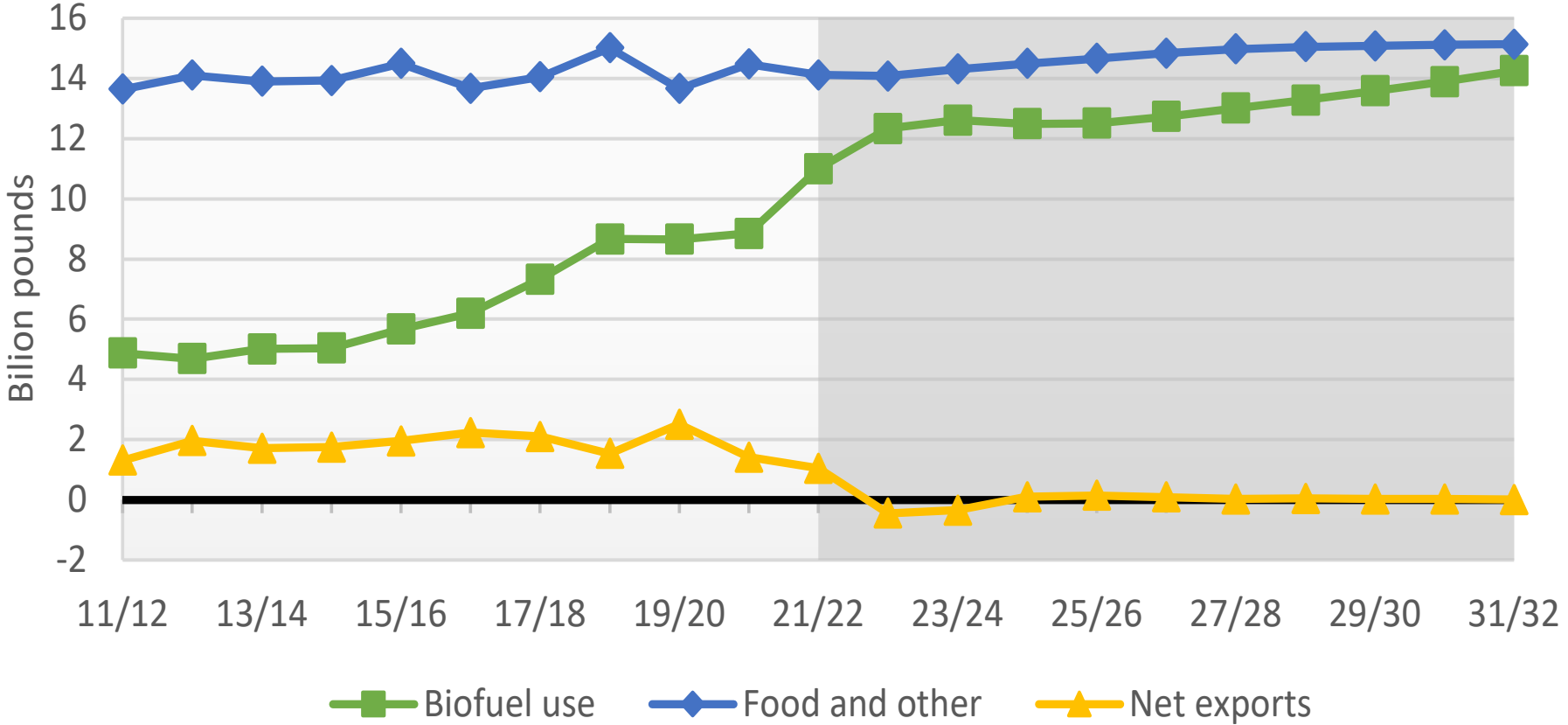
U.S. net returns over variable expenses

(dollars per acre)

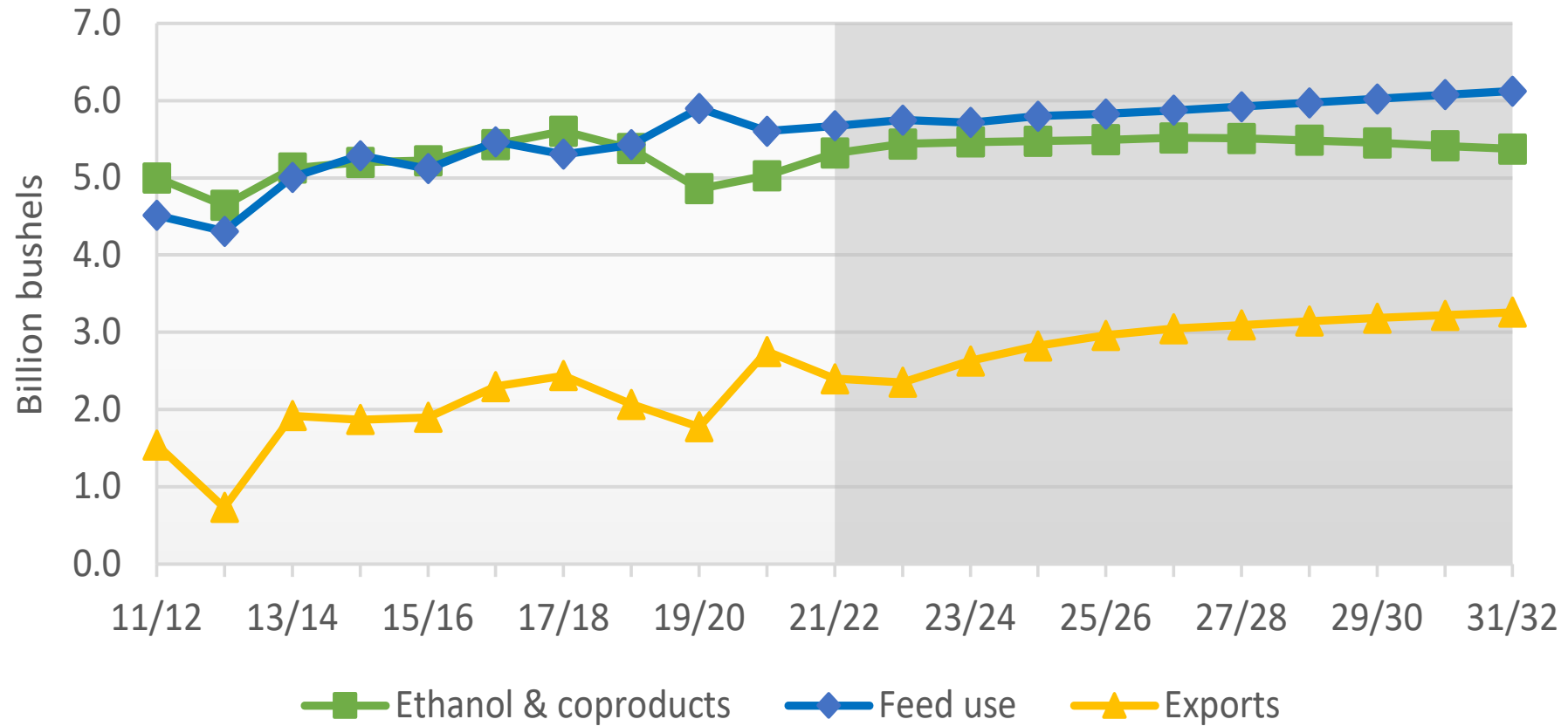
	Corn	Soybeans
2021/22 prices/bu. (WASDE values)	\$5.80	\$13.25
2021/22 net returns given FAPRI variable cost estimates	\$669	\$485
“Lower” prices/bu. for 2022/23	\$5.50	\$13.00
2022/23 net returns given FAPRI costs and yields	\$535	\$432
“Higher” prices/bu. for 2022/23	\$7.00	\$15.00
2022/23 net returns given FAPRI costs and yields	\$805	\$534

Sources: USDA World Agricultural Supply and Demand Estimates, April 2022 for 2021/22 prices. Net returns based on FAPRI preliminary estimates of variable expenses and yields, given the price assumptions. Note the “higher” price scenario for 2022/23 is roughly in line with harvest futures in mid-April.

Biofuel use supports soybean oil prices



Corn exports grow while ethanol use plateaus



China Feed Imports At or Near Record Highs

China net trade, mmt

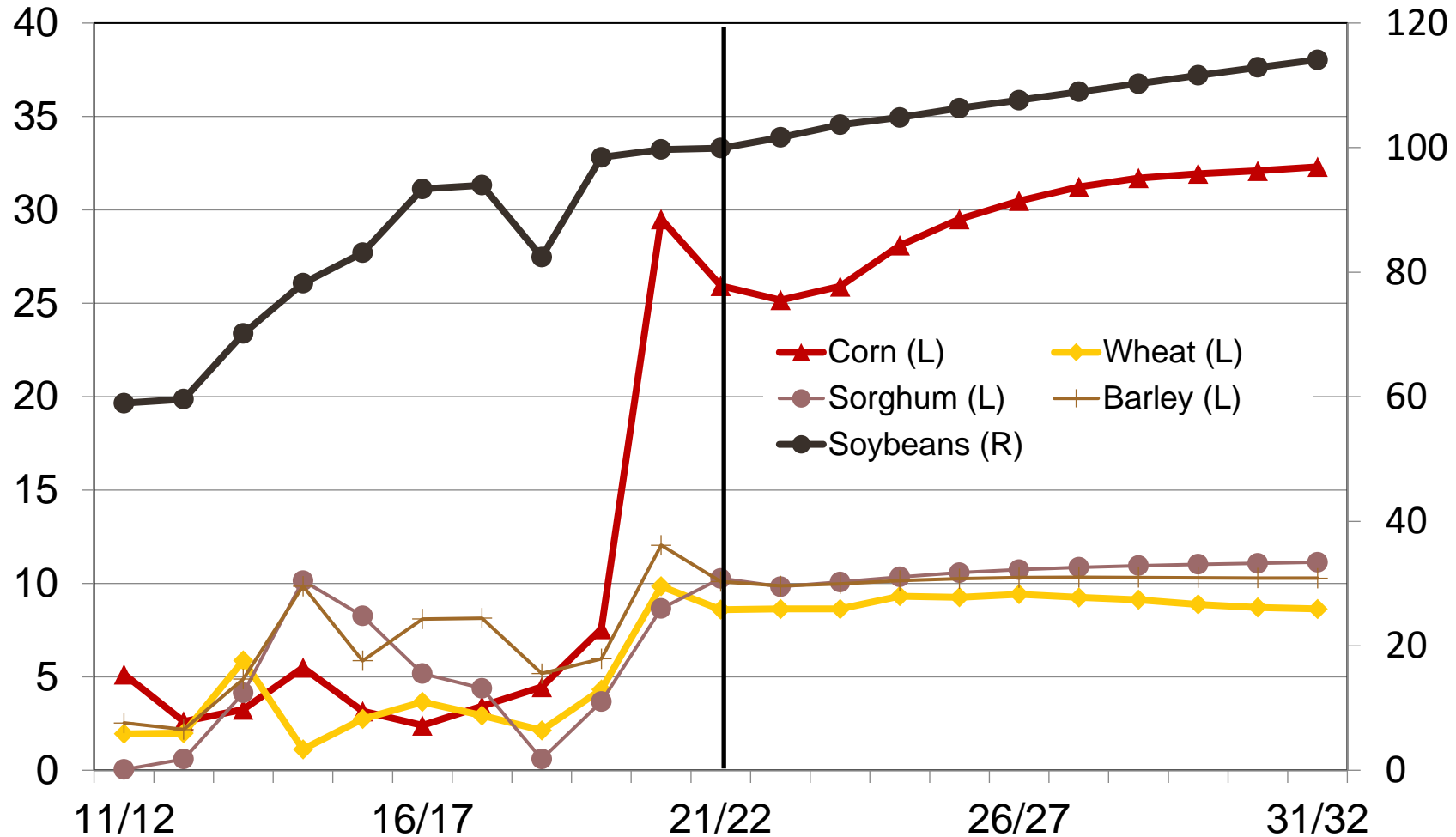
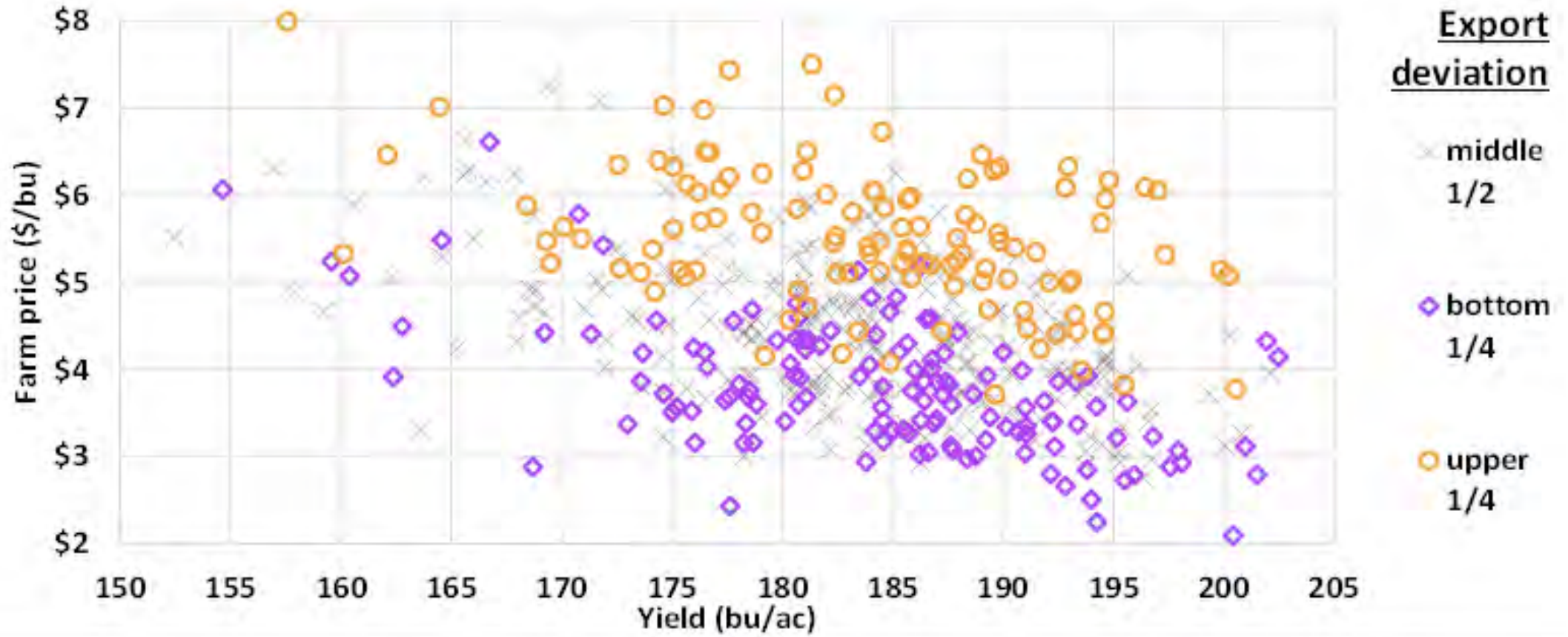


Chart courtesy of Malieka Bordigioni at Univ. of Nevada, Reno, from the FAPRI baseline based on January 2022 information. China's 2021/22 soybean imports are now expected to be smaller than shown here.

Stochastic corn yields and prices, 2024



Two of many scenarios for 2022/23 soybeans

	2021/22 (April WASDE)	2022/23 Jan. baseline	2022/23 April snapshot
Area planted (mil. a.)	87.2	87.7	91.0
Production (mil. bu.)	4,435	4,408	4,574
Crush	2,215	2,230	2,277
Exports	2,115	2,085	2,161
Ending stocks	260	337	291
Marketing year average price (\$/bu.)	\$13.25	\$12.71	\$14.20
Variable expenses (\$/a.)	\$196	\$219	\$231
Net returns (\$/a.)	\$485	\$429	\$494

Sources: USDA World Agricultural Supply and Demand Estimates, April 2022; FAPRI 2022 baseline outlook prepared based on January information; author preliminary estimates based on April 2022 information.

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Two of many scenarios for 2022/23 corn

	2021/22 (April WASDE)	2022/23 Jan. baseline	2022/23 April snapshot
Area planted (mil. a.)	93.4	93.9	89.5
Production (mil. bu.)	15,115	15,406	14,665
Ethanol and coproducts	5,375	5,434	5,300
Feed and residual use	5,625	5,770	5,483
Exports	2,500	2,344	2,528
Ending stocks	1,440	1,952	1,423
Marketing year average price (\$/bu.)	\$5.80	\$4.73	\$6.03
Variable expenses (\$/a.)	\$358	\$423	\$455
Net returns (\$/a.)	\$669	\$428	\$631

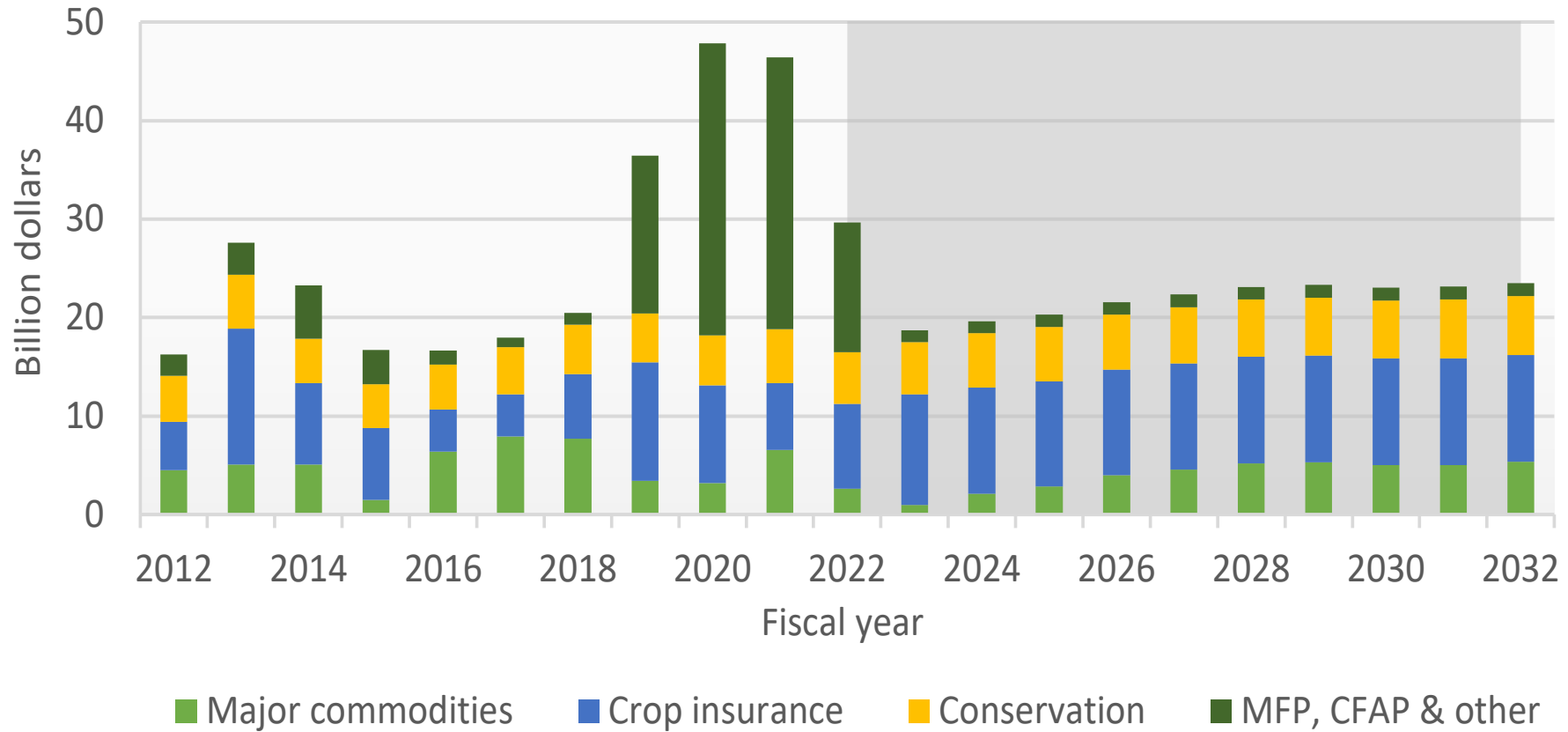
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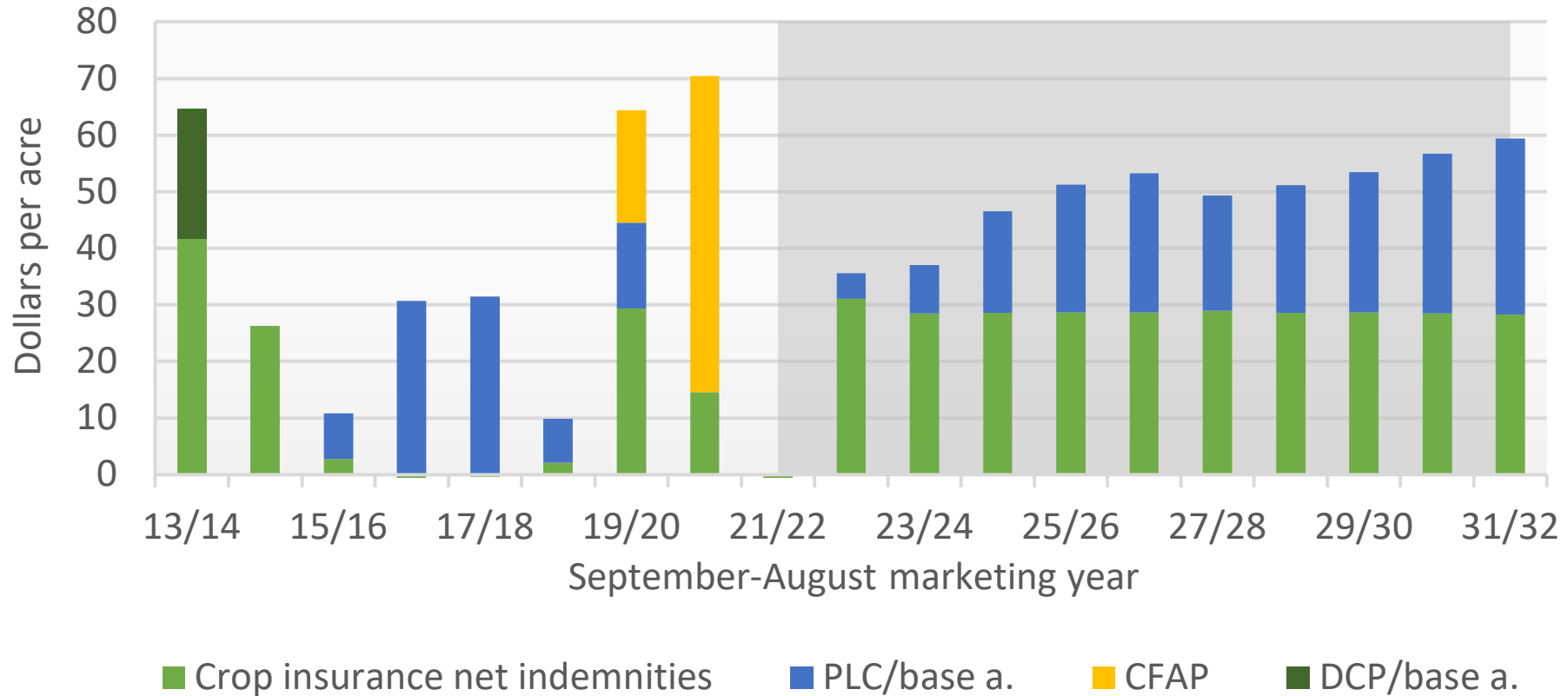
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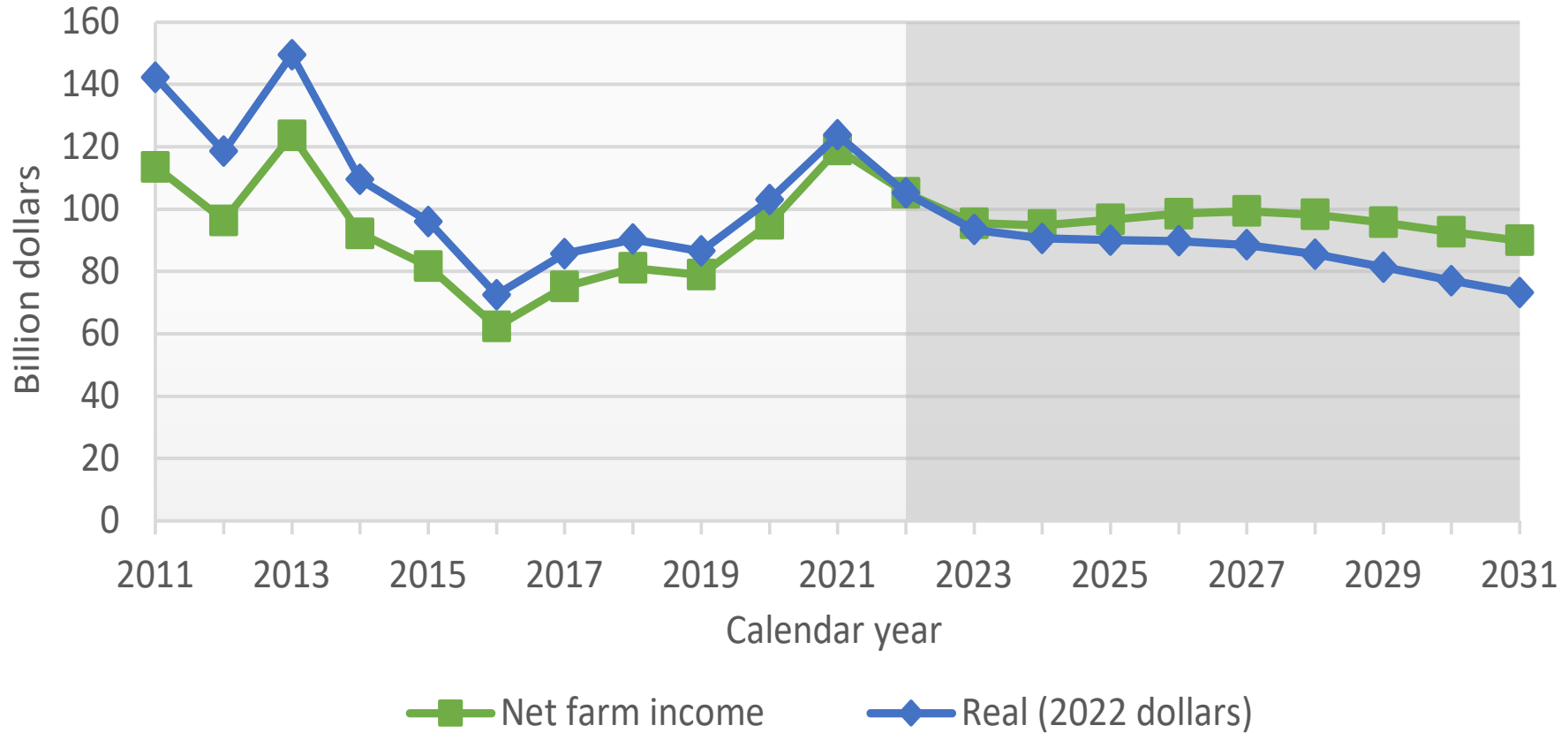
Outlays drop back to pre-MFP, pre-CFAP levels



Mix of corn program benefits changes over time



Higher costs put downward pressure on net income



Final comments

- Market uncertainty is unusually great right now
- Developments in South America and Europe have been bullish for crop prices, but production expenses have increased as well
- As always, summer weather and other factors can result in very different market outcomes for 2022 crops
- Market situation may affect the next farm bill debate

Thanks!

- FAPRI-MU website: www.fapri.missouri.edu
- Follow us on Twitter: @FAPRI_MU
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This material is based upon work supported by the U.S. Department of Agriculture, Office of the Chief Economist, under Agreement #58-0111-21-012, and the USDA National Institute of Food and Agriculture, Hatch project number MO-C1537173. Any opinion, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not necessarily reflect the view of the U.S. Department of Agriculture nor the University of Missouri.



Current FAPRI-MU team:

- Julian Binfield
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- Bob Maltsbarger
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- Wyatt Thompson
- Pat Westhoff
- Jarrett Whistance
- Peter Zimmer

Thanks!

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