

Assessing the impact of ethanol demand on cereals balance sheets

21st session of the AMIS
Global Food Market Information Group

21 June 2022



Global supply and demand balances for ethanol: Project background

Previous approach: Assessing the amount of grains being used for ethanol, rather than volumes of ethanol produced

New approach: Global supply and demand balances for ethanol

- Part of IGC Medium-term priorities and multi-year projects
- Seeks to:
 - improve understanding of production and use trends in the ethanol industry
 - aid IGC analysis and forecasting of industrial grains usage
 - provide a broader view via including other types of ethanol feedstocks
 - enable the provision of additional ethanol-related data to IGC members

TYPES OF FEEDSTOCKS COVERED

Wheat	Maize	Other coarse grains	Rice
Sugar cane	Sugar beet	Molasses	Energy crops
Roots and tubers	Agricultural residuals	Municipal solid waste	Other waste and residuals



Global supply and demand balances for ethanol: Approach and sources of information

Production

- Historical estimates, with a by-feedstock breakdown - *OECD*
- Latest annual estimates and forecasts - *USDA/USDA GAIN reports, ISO*
- Weekly/monthly data (US, Brazil) – *US Energy Information Administration, US Renewable Fuel Association, Conab*

Trade

- Official exports data (customs, INDEC, Japstat, SIAVI, Eurostat, etc.)
- Comtrade (incl. reverse imports data)
- IGC estimates

Stocks

- Historical data (OECD)
- Latest national estimates and forecasts - USDA/USDA GAIN reports (OECD where not available)

Consumption

- Adjusted as a balancing component



Global supply and demand balances for ethanol: Annual balances

Country_Region	Openings Stocks	Production	Imports	Exports	Supply	Consumption	Ending Stocks	Balance
European Union	710	4,924	1,025	59	6,600	5,898.1	702.0	0.00
Norway	0	41	20	13	48	47.7	0.0	0.00
Switzerland	0	0	87	1	86	86.2	0.0	0.00
United Kingdom	163	660	300	40	1,083	898.5	184.9	0.00
Europe others	0	0	5	4	1	1	0	0.00
Europe	873	5,625	1,438	117	7,818	6,931	887	0.00
Kazakhstan	0	0	0	0	0	0.0	0.0	0.00
Russia	95	612	0	24	684	577.6	106.5	0.00
Ukraine	0	385	7	27	364	364.3	0.0	0.00
CIS others	0	37	28	11	54	54	0	0.00
CIS	95	1,034	35	62	1,102	996	106	0.00
Canada	172	1,420	455	94	1,953	1,383.9	569.0	0.00
Mexico	0	92	137	6	222	222.4	0.0	0.00
United States	2,584	51,538	477	1,500	53,099	50,103.0	2,995.9	0.00
North & Central America others	0	147	290	264	174	174	0	0.00
North & Central America	2,756	53,197	1,360	1,865	55,448	51,883	3,565	0.00
Argentina	37	291	10	17	321	260.4	60.3	0.00
Brazil	6,011	27,965	82	1,933	32,126	25,336.4	6,789.4	0.00
Chile	0	12	34	0	46	45.9	0.0	0.00
Colombia	0	306	66	0	372	371.8	0.0	0.00
Paraguay	0	130	0	0	130	130.1	0.0	0.00
Peru	0	120	13	65	68	68.0	0.0	0.00
South America others	0	1,732	28	163	1,598	1,598	0	0.00
South America	6,048	30,556	234	2,178	34,660	27,810	6,850	0.00
Iran	0	0	3	0	3	2.5	0.0	0.00
Israel	0	0	18	0	18	17.7	0.0	0.00
Saudi Arabia	0	0	10	1	9	8.8	0.0	0.00
Turkey	0	74	67	40	102	102.0	0.0	0.00
Near East others	0	0	164	1	163	163	0	0.00
Near East	0	74	261	42	294	294	0	0.00
India	0	1,547	172	53	1,665	1,665.4	0.0	0.00
Pakistan	0	274	0	224	50	49.7	0.0	0.00
South Asia others	0	0	26	0	26	26	0	0.00
South Asia	0	1,820	198	277	1,741	1,741	0	0.00
China	407	8,260	8	160	8,515	8,100.3	414.9	0.00
Indonesia	0	208	4	49	164	163.5	0.0	0.00
Japan	55	105	316	5	472	374.2	97.6	0.00
South Korea	26	172	614	3	809	782.9	26.2	0.00
Philippines	0	109	206	0	314	314.2	0.0	0.00
Thailand	0	692	21	53	660	660.0	0.0	0.00
Vietnam	0	130	0	41	89	89.2	0.0	0.00
Pacific Asia others	0	405	145	74	477	477	0	0.00
Pacific Asia	489	10,081	1,315	386	11,500	10,961	539	0.00
Egypt	0	89	1	86	3	3	0.0	0.00
North Africa others	0	178	8	0	187	187	0	0.00
North Africa	0	267	9	86	190	190	0	0.00
Ethiopia	0	19	0	0	19	19.5	0.0	0.00
Nigeria	0	0	127	0	127	127.1	0.0	0.00
South Africa	0	259	36	169	126	126.3	0.0	0.00
Sub-Saharan Africa others	0	290	187	52	425	425	0	0.00
Sub-Saharan Africa	0	569	350	221	698	698	0	0.00
Australia	20	475	67	8	554	507.7	46.7	0.00
New Zealand	0	0	5	2	3	3.4	0.0	0.00
Oceania others	0	4	6	0	10	10	0	0.00
Oceania	20	480	78	10	568	521	47	0.00
World total	10,280	103,479	5,280	5,280	113,760	101,766	11,993	0.00

- Annual balances available for 2010-2021
- Structure replicates the Secretariat's approach to grains/oilseeds S&D (opening stocks, production, imports, exports, supply, use and closing stocks)
- Includes individual balances for **35 producers and consumers** (>95% of world production), with regional sub-totals
- Based on calendar years (Jan/Dec), all data converted into uniform units (million litres)
- Individual country balances for 2021 and 2022 to be updated using new Biofuels Annual GAIN reports (major releases expected Jun-Aug 2022)



Global supply and demand balances for ethanol: Production data by feedstock

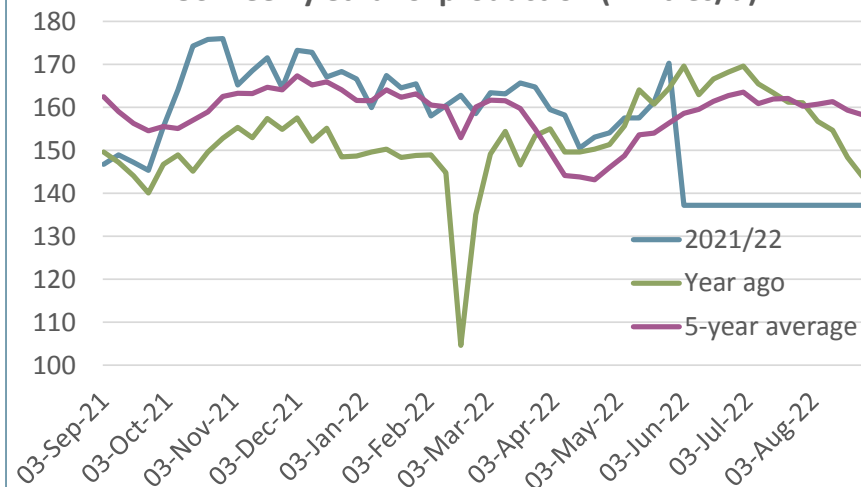
- By-feedstock production data now available for each individual producer for 2010-2020
- Data may be filtered to compile global balances for each feedstock
- By-feedstock breakdown for 2021 and updates to 2021/2022 balances to be completed following the release of the OECD-FAO Ag. Outlook 2022-2031 (expected Jul 2022)

Country_Region	Feedstock	2010	2011	2012	2013	2014	2015	2016
European Union	Total	4,924.4	5,831.6	5,358.3	5,614.7	6,229.6	5,957.8	5,750.6
European Union	Maize	1,343.5	1,471.6	1,372.3	1,666.5	2,119.1	1,882.8	2,069.9
European Union	Wheat	1,493.4	1,922.9	1,754.7	1,745.2	1,627.6	1,402.5	1,477.5
European Union	Other coarse grains	435.1	459.1	471.7	450.4	385.3	394.6	401.8
European Union	Rice	0	0	0	0	0	0	0
European Union	Sugar cane	0	0	0	0	0	0	0
European Union	Sugar beet	1,143.8	1,474.1	1,292.3	1,308.5	1,530.6	1,695.4	1,229.1
European Union	Molasses	469.5	428.5	364.9	354.0	441.0	421.9	352.9
European Union	Energy crops	0	0	0	0	0	0	0
European Union	Other waste and residuals	-	-	-	-	-	-	-
European Union	Roots and tubers	0	0	0	0	0	0	0
European Union	Agricultural residuals	27.3	52.8	71.6	63.0	88.3	112.4	153.6
European Union	Municipal solid waste	11.7	22.6	30.7	27.0	37.8	48.2	65.8
Norway	Total	40.7	41.0	41.2	41.4	41.7	41.9	42.1
Norway	Maize	0	0	0	0	0	0	0
Norway	Wheat	40.7	41.0	41.2	41.4	41.7	41.9	42.1
Norway	Other coarse grains	0	0	0	0	0	0	0
Norway	Rice	0	0	0	0	0	0	0
Norway	Sugar cane	0	0	0	0	0	0	0
Norway	Sugar beet	0	0	0	0	0	0	0
Norway	Molasses	0	0	0	0	0	0	0
Norway	Energy crops	0	0	0	0	0	0	0
Norway	Other waste and residuals	0	0	0	0	0	0	0
Norway	Roots and tubers	0	0	0	0	0	0	0
Norway	Agricultural residuals	0	0	0	0	0	0	0
Norway	Municipal solid waste	0	0	0	0	0	0	0

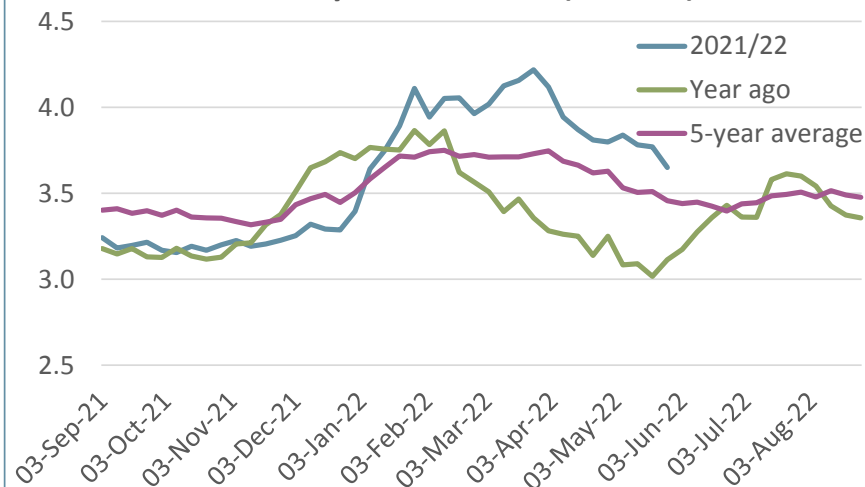


Global supply and demand balances for ethanol: Data extrapolation

US weekly ethanol production (m litres/d)



US weekly ethanol stocks (bn litres)



US FUEL ETHANOL OUTPUT

05/06/2022

ACTUAL DATA

	Units	
MY	2021/22	
MY start	01/09/2021	
Actual data to	27/05/2022	
Actual data period	39	weeks
Remaining MY period	13	weeks
Ethanol output to date	44,296	m litres
Grain usage to date	106.1	m t
IGC MY forecast	136.1	m t

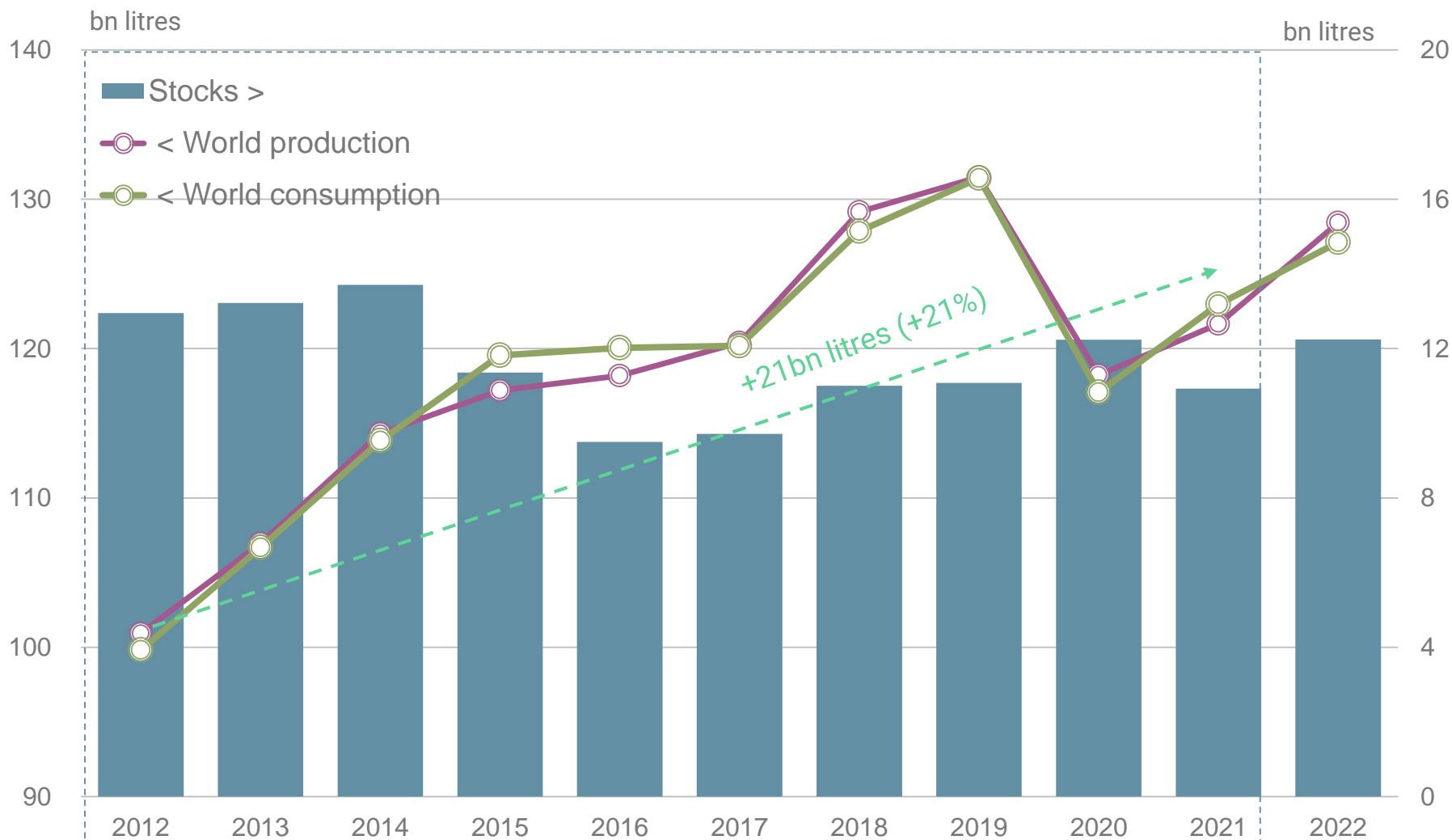
ANALYSIS/FORECAST

Cumulative usage as % of f'cast	78%	
% of period	75%	
Remaining usage	29.9	m t
Required usage	2.30	m t/week
Required ethanol output	960.39	m litres/week
Past 4-week ave. output	1,131.55	m litres/week
Diff. required vs. aver.	- 171.16	m litres/week
Potential revision	upwards	
Annualised difference	2,225.11	m litres
Annualised usage difference	5.3	m t



Global supply and demand balances for ethanol: Headline data

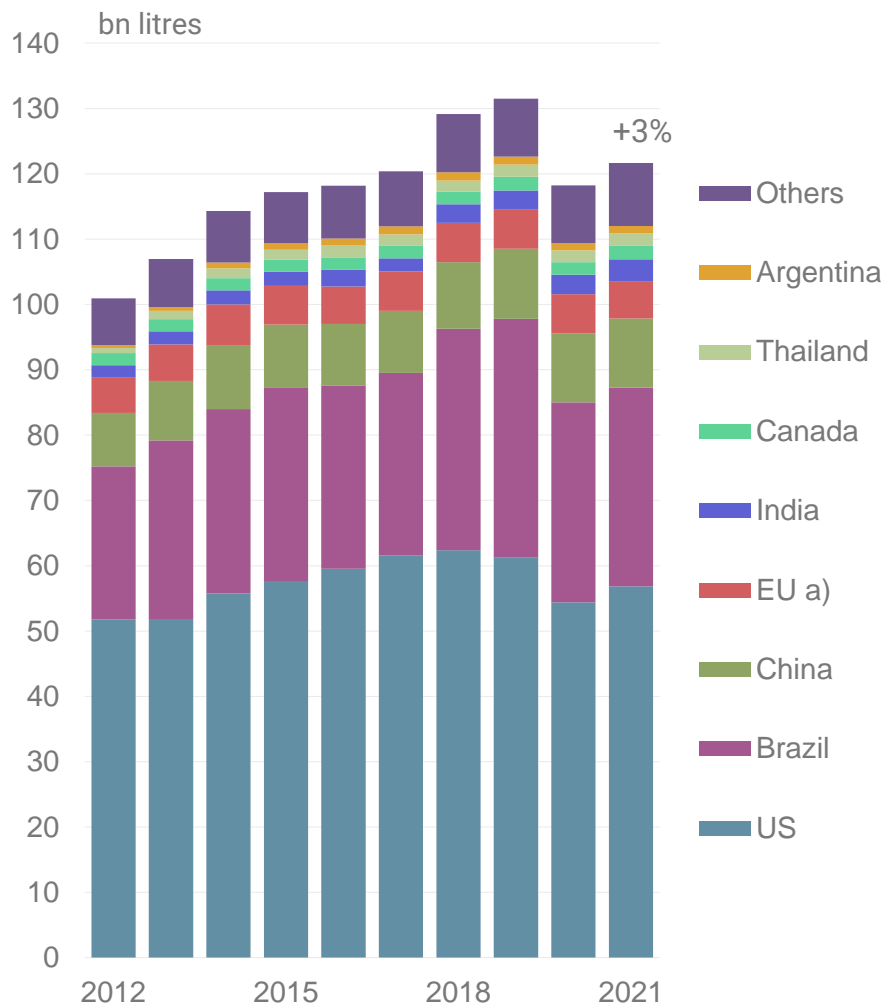
Global supply and demand for ethanol (all types of feedstocks)



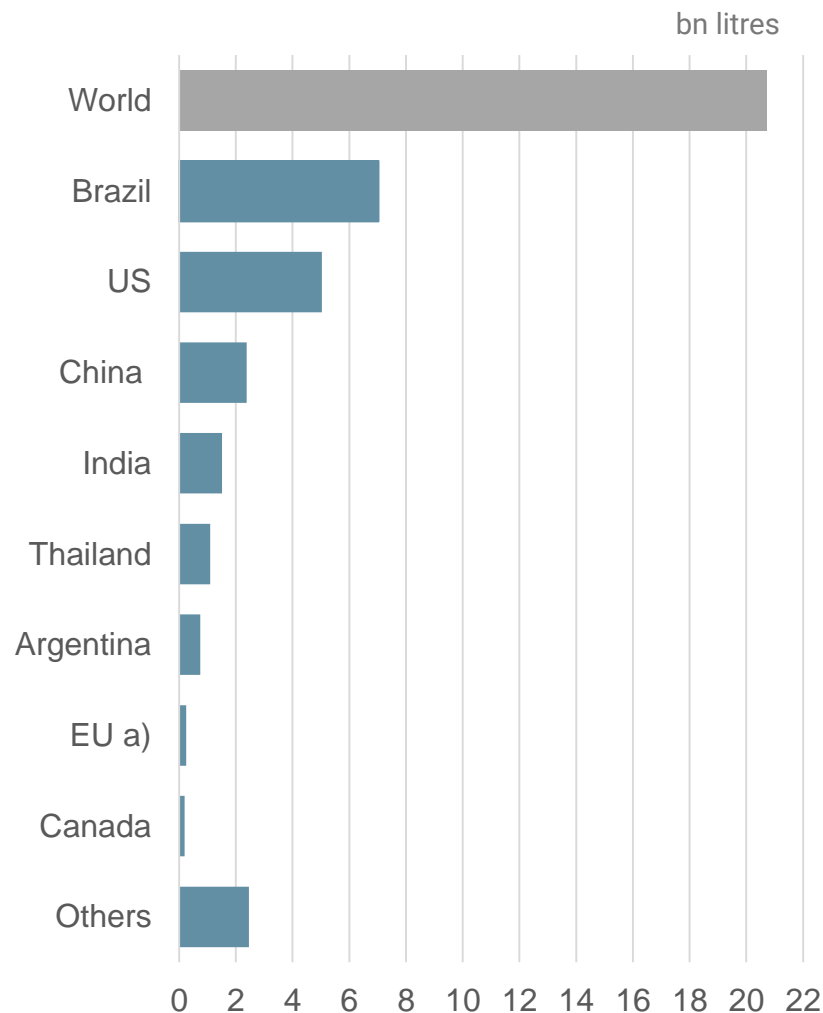


World output rebounded strongly after a COVID-19-related slump, led by the US. Brazil - the largest contributor over the past decade.

World ethanol production



Changes in ethanol production, 2012-2021



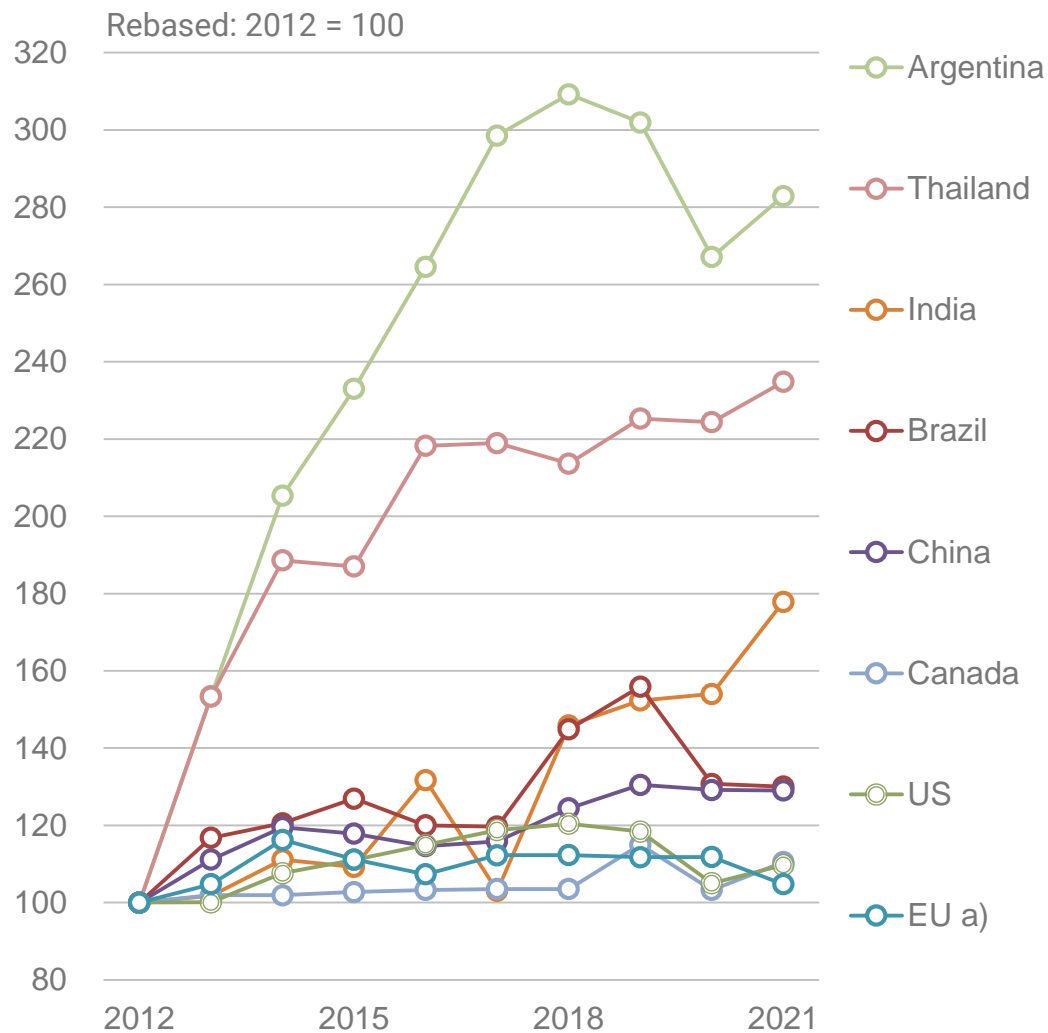
a) Refers to all current European Union member States (excludes the UK)

Source: FAO-OECD Agricultural Outlook

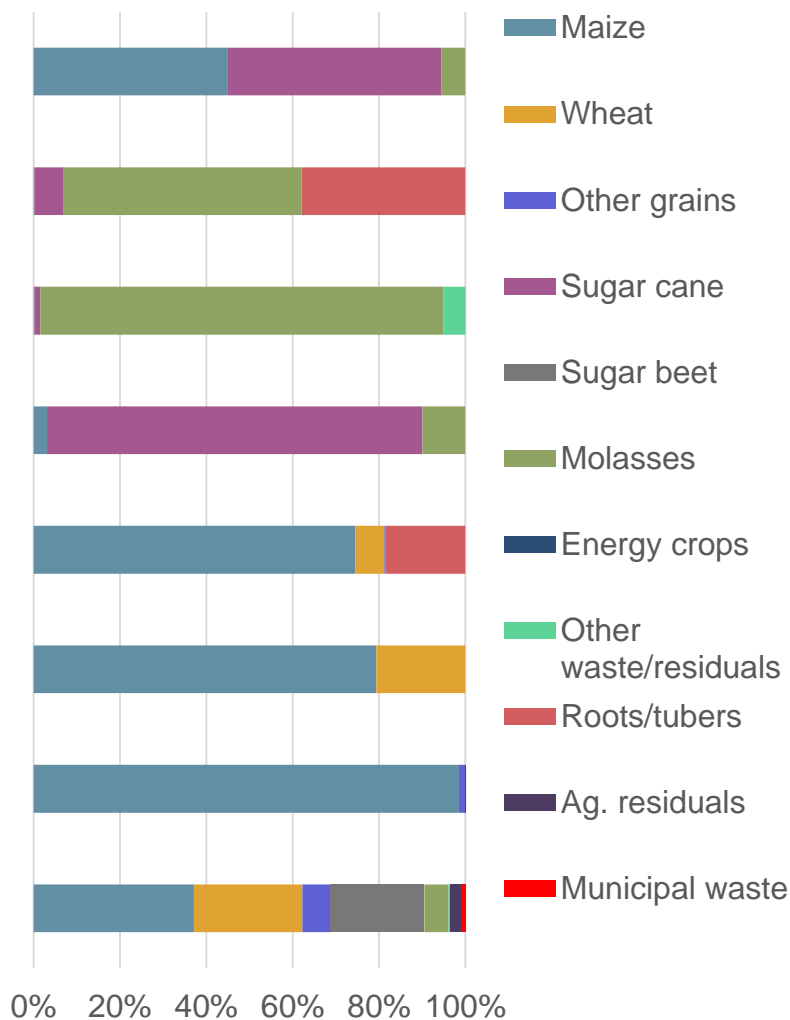


Non-grains based ethanol producers have demonstrated the fastest pace of growth over the past decade

World ethanol production



Ethanol feedstock base (10-year ave.)



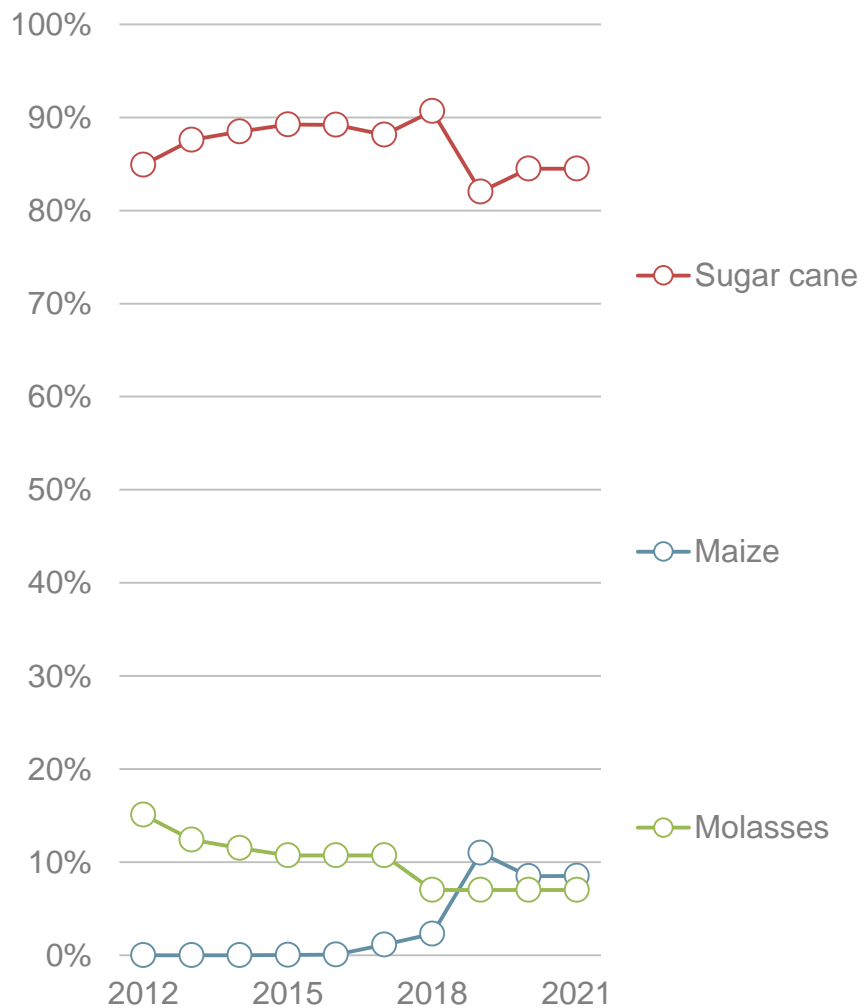
a) Refers to all current European Union member States (excludes the UK)

Sources: FAO-OECD, USDA, RFA, IGC calculations

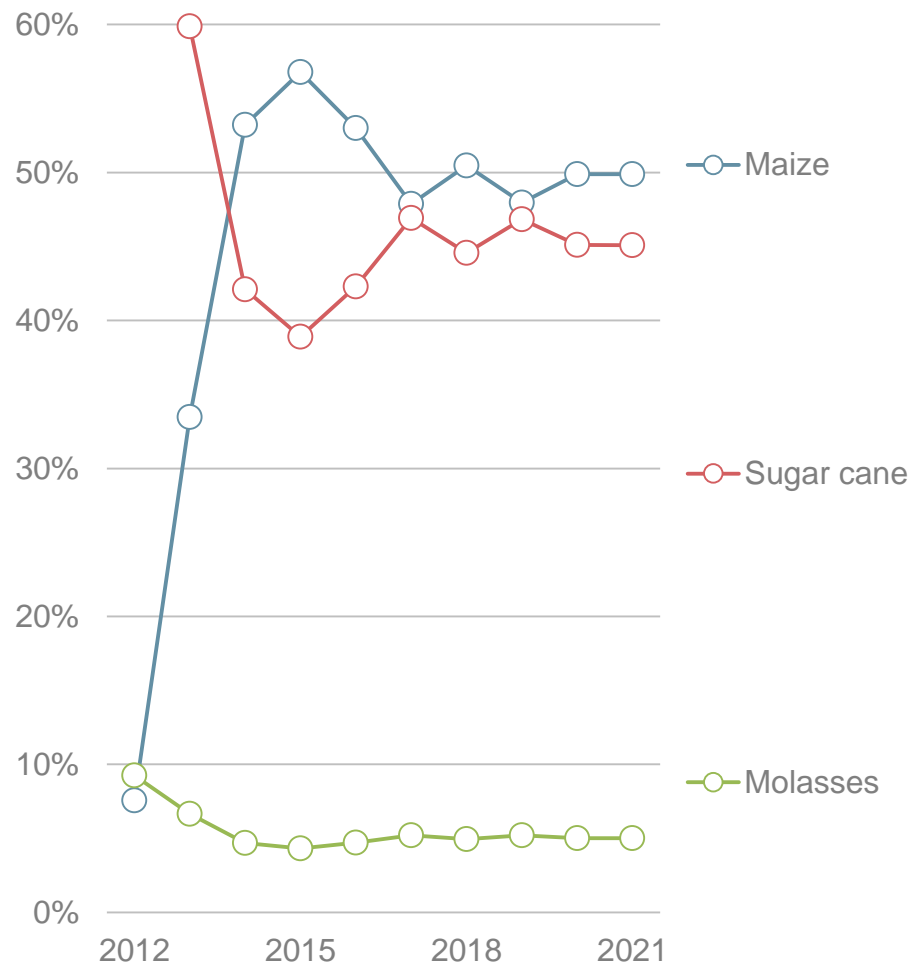


Highlighting trends in feedstock usage

Brazil



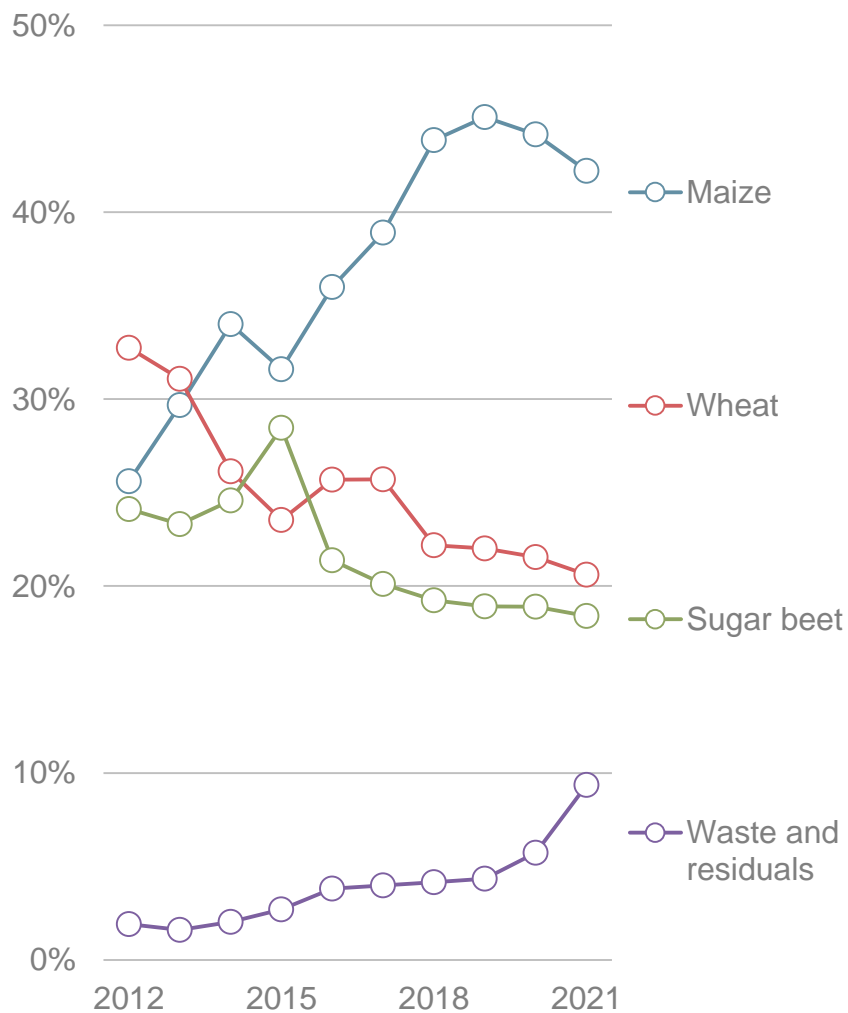
Argentina



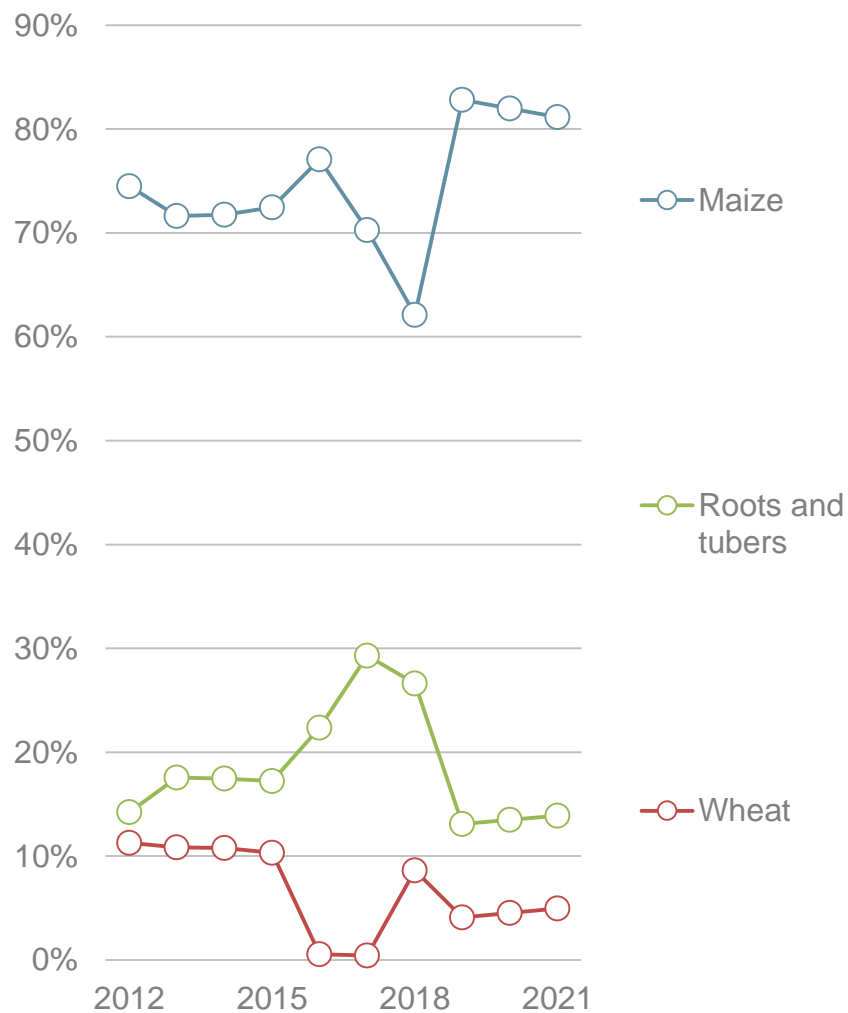


Highlighting trends in feedstock usage (cont.)

EU



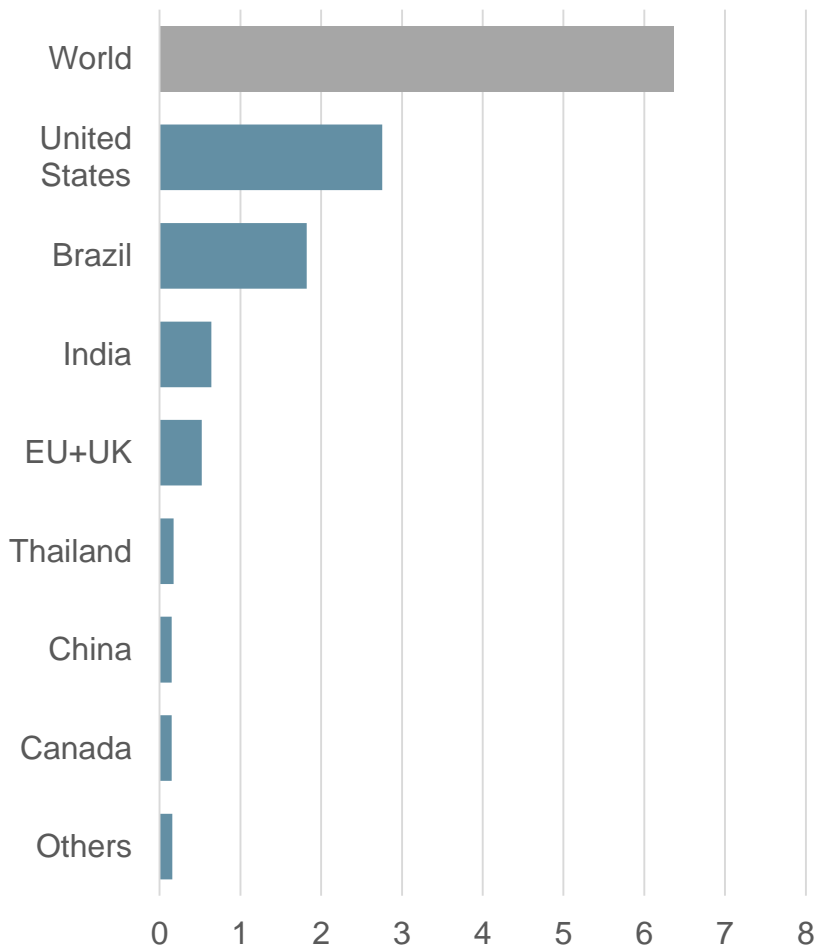
China





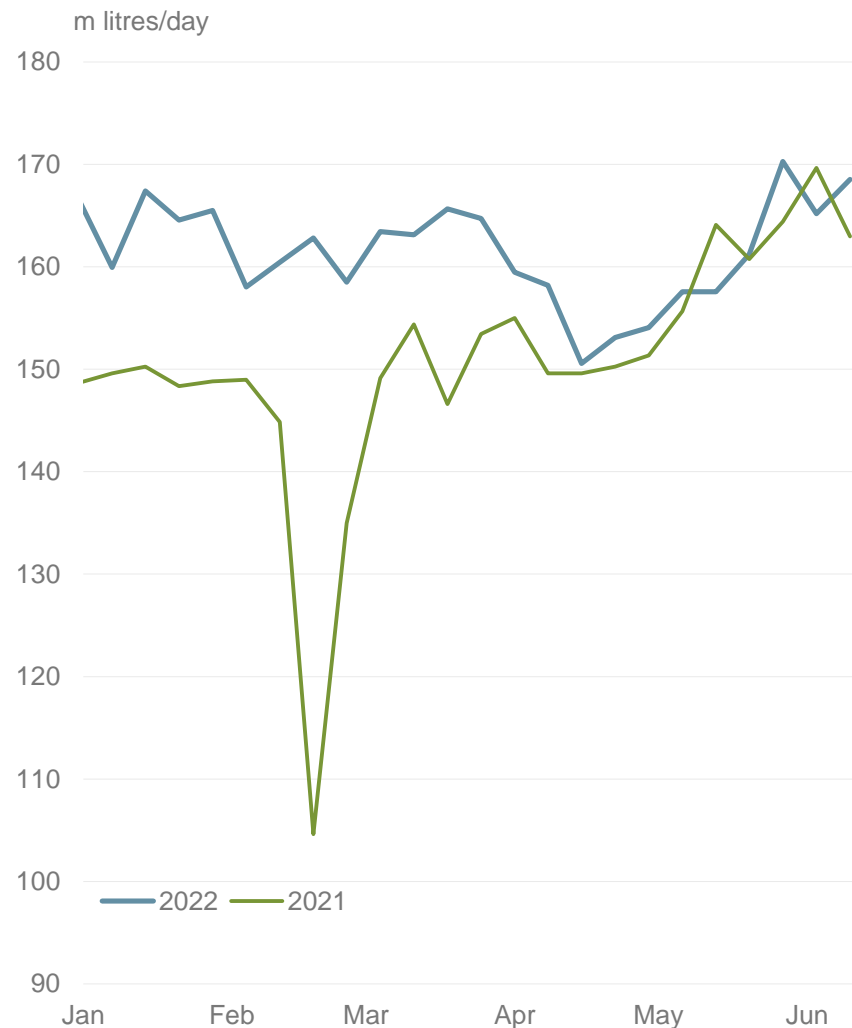
Fuel ethanol output to expand by 6% y/y (6bn litres), led by the US, suggesting strong local demand for maize (impact on exports?)

Projected changes in fuel ethanol production in 2022 (Jan/Dec)



Source: ISO

US ethanol production

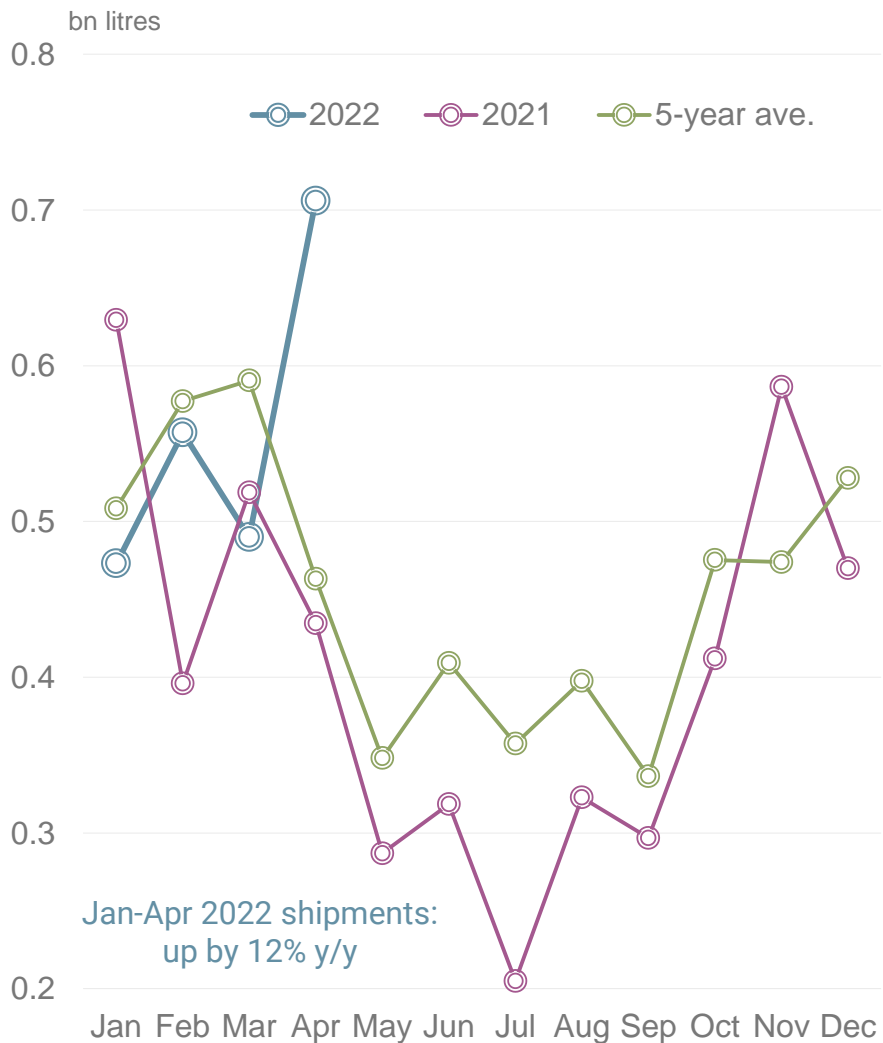


Source: US Energy Information Administration

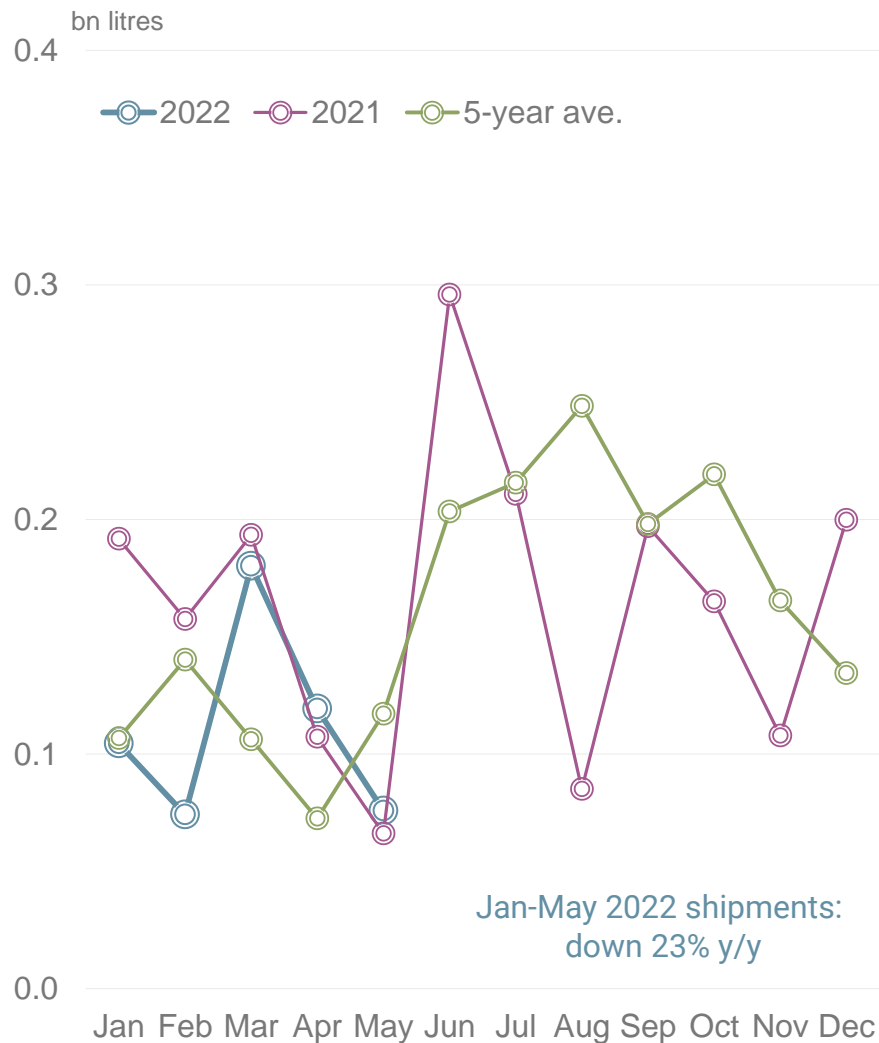


US ethanol production draws additional support from brisk overseas demand. Shipments by Brazil trail last season.

US ethanol exports



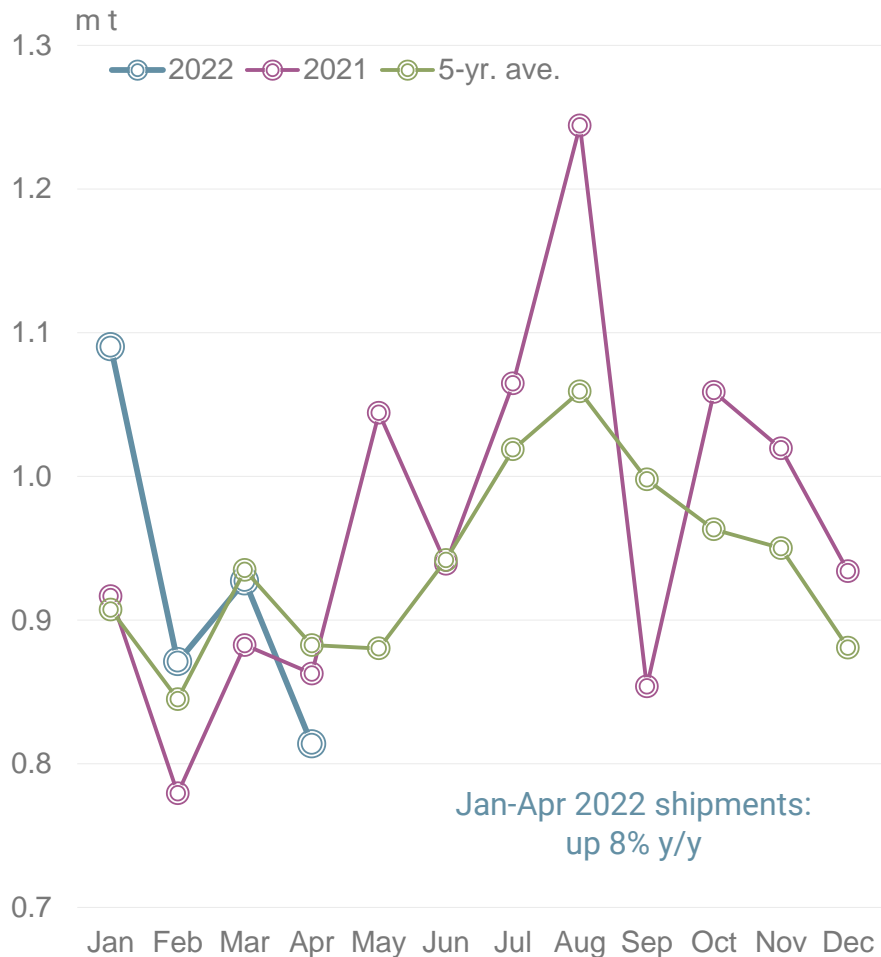
Brazil ethanol exports



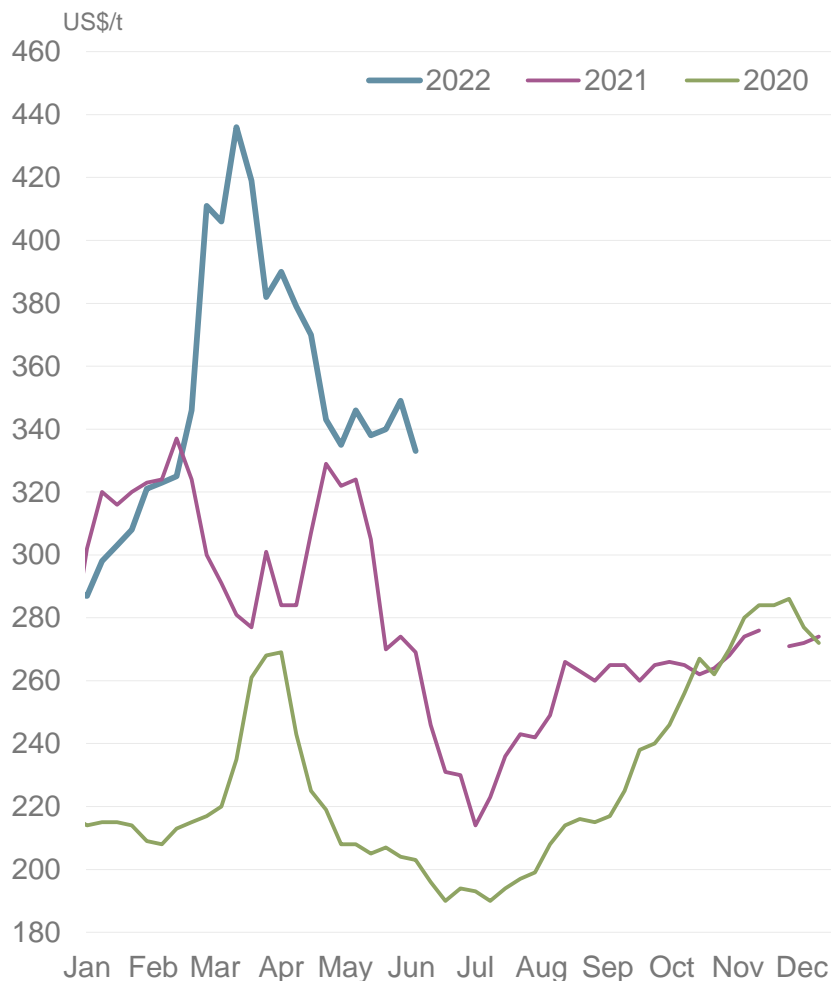


Strong prices and robust exports of DDG support US ethanol production margins

US DDG exports



US DDG prices*



* Spot Fob prices, Gulf
Sources: US Grains Council, USDA



Global supply and demand balances for ethanol:

Next steps

Project outputs are planned to be communicated to IGC members via:

- Quarterly updates on industrial use of grains (regular IGC estimates of **ethanol** use by grains, part of the monthly Grain Market Report).
- **Market Focus / Special Features:** Analysis is included in the monthly GMR report
- Major ethanol-related news items to be added to the coverage for daily reports

Other coverage of biofuels/related information:

- **Ad-hoc updates:** overview of production and feedstock usage trends for **biodiesel**. *Data are typically from other (private) analysts and international bodies.*
- **National policy developments:** Regular monitoring of policy announcements in daily reports and the monthly GMR. These are uploaded to a database, spanning many years.
- **Futures and physical prices:** Aside from collection and publication of daily prices across the grains, rice, oilseeds spectrum - **vegetable oils prices** (daily) for and **DDGS** (weekly).
- **Trade flows:** Monitoring, collecting and analysing trade flows in grains, rice, oilseeds and products markets - now extended to the construction of **global matrices for biodiesel and ethanol**.



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