

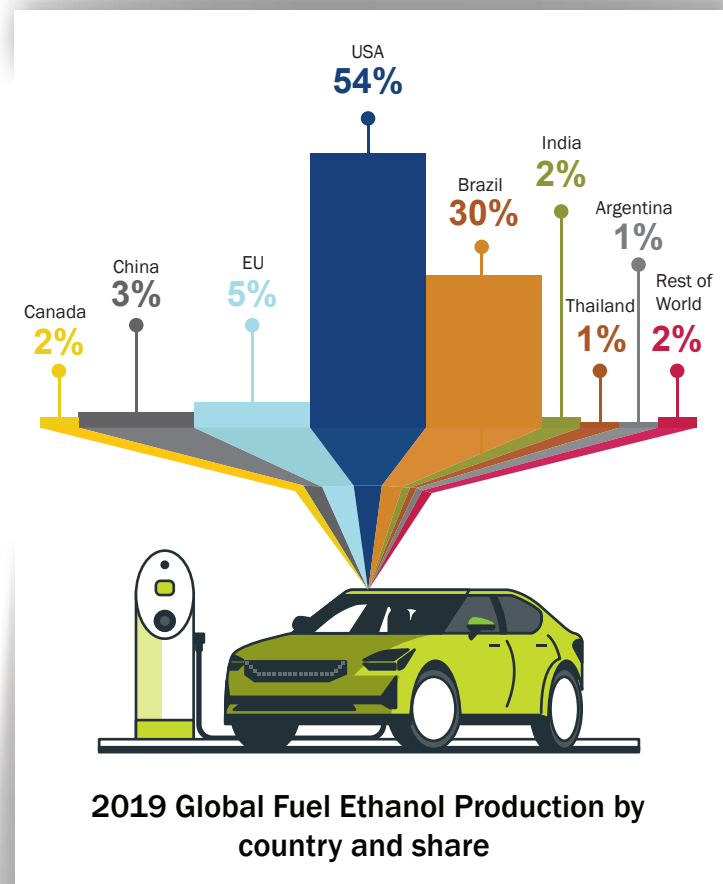
Global Ethanol Supply & Demand 2019

	 United States	 Brazil	 European Union	 China	 India	 Canada	 Philippines
Production	15.77 bn gallons	8.54 bn gallons	1.439 bn gallons	1.140 bn gallons	793 mn gallons	500 mn gallons	84.65 mn gallons
Consumption	14.55 bn gallons	8.41 bn gallons	1.574 bn gallons	1.16 bn gallons	1 bn gallons	846 mn gallons	175.92 mn gallons
Imports	341 mn gallons	386 mn gallons	322 mn gallons	27.5 mn gallons	152.9 mn gallons	338 mn gallons	90.21 mn gallons
Exports	1.46 bn gallons	513 mn gallons	64 mn gallons	5.60 mn gallons	13.25 mn gallons	21.85 mn gallons	exports negligible
Source of Production	Primarily corn	Primarily sugarcane; new plants using corn	Primarily sugar beet, wheat and corn	Primarily corn	Primarily molasses	Corn and wheat	Primarily molasses
Blend	Average blend 10.2%; E15, E30 and E85 offered in some states.	Gasoline with a mandated 27% ethanol blend or 100% pure hydrous ethanol for consumers to choose from; effective national blend rate of 53.7%.	Each EU member state has a different ethanol blending policy in place. Average blend 5.9% in 2019.	Required blend levels vary by province, with now-on-hold E10 goal by 2020; the national blend rate in 2019 was 2.5%.	5%	Required blend levels vary by province; the national blend rate is estimated at 6.6%.	10%
Vehicles Fleet (Flex or Normal)	Primarily standard; flex for E30 or E85 only.	Mainly flex. Motorbikes and other two-strokes engines use E27.	Flex and standard	Primarily standard	Flex or standard; standard	Primarily standard	Standard

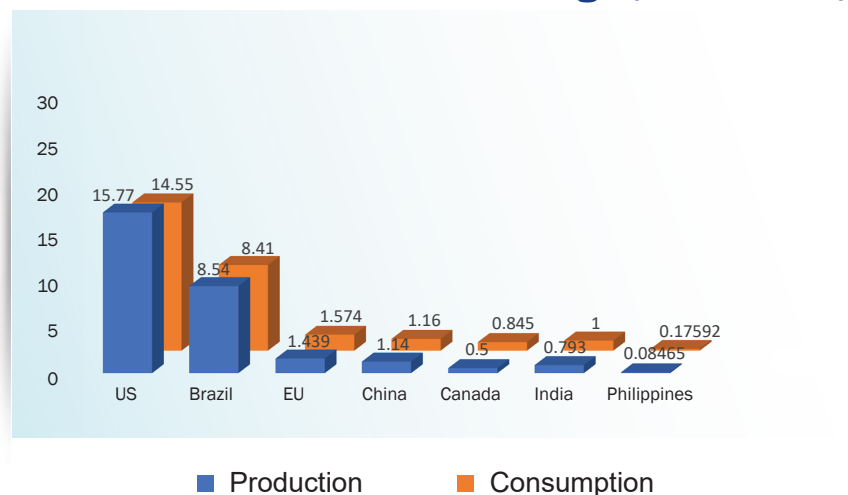
World Fuel Ethanol Production in Million Gallons

Region	2015	2016	2017	2018	2019
 USA	14,807	15,413	15,936	16,091	15,776
 Brazil	7,200	6,760	6,680	8,010	8,570
 EU	1,387	1,377	1,400	1,430	1,440
 China	813	845	860	1,050	1,140
 Canada	436	436	470	480	500
 India	195	275	210	400	530
 Thailand	334	322	370	390	420
 Argentina	211	264	290	290	290
 Rest of World	391	490	414	549	600
Total	25,774	26,182	26,630	28,690	29,266

Source: Renewable Fuels Association



2019 Global Ethanol Usage (Billion Gallons)



2019 Global Ethanol Trade (Million Gallons)

