

GREEN PLAINS 2020 ENVIRONMENTAL FACT SHEET

COMMITMENT TO SUSTAINABILITY

Being responsible stewards of the environment has always been in our DNA, and we are constantly studying our processes to make them even more efficient. This cannot happen without a thorough understanding of the data at each of our biorefineries, much of which we report to the EPA. Below is a snapshot of our primary metrics over the last three years, which are all verified through internal quality assurance reviews.

Green Plains Performance Data	Unit of Measurement	2020	2019	2018
Total GHG Emissions				
Direct GHG Emissions (Scope 1)*	Thousand Metric Tonnes CO _{2e}	3,475	3,759	4,786
CO ₂ from Fermentation	Thousand Metric Tonnes	2,269	2,444	3,100
CO ₂ from Combustion	Thousand Metric Tonnes	1,206	1,315	1,686
CH ₄	Thousand Metric Tonnes	0.023	0.025	0.032
N ₂ O	Thousand Metric Tonnes	0.002	0.002	0.003
Indirect GHG Emissions (Scope 2)	Thousand Metric Tonnes CO _{2e}	457	524	652
CO ₂	Thousand Metric Tonnes	457	524	652
CH ₄	Thousand Metric Tonnes	0.008	0.009	0.011
N ₂ O	Thousand Metric Tonnes	0.008	0.009	0.011
Total Operating Emissions (Scope 1 and 2)	Thousand Metric Tonnes CO _{2e}	3,933	4,283	5,438
Total Operating Emissions Intensity	Metric Tonnes CO _{2e} / Raw Material MT	0.564	0.565	0.568
Enterprise-wide Air Emissions (Excludes GHGs)				
Sulfur Dioxide (SO ₂)	Thousand Metric Tonnes	0.098	0.099	0.122
Nitrogen Oxides (NO _x)	Thousand Metric Tonnes	0.551	0.634	0.826
VOC Emissions	Thousand Metric Tonnes	0.563	0.583	0.746
Carbon Monoxide Emissions	Thousand Metric Tonnes	0.354	0.377	0.489
Particulate Emissions	Thousand Metric Tonnes	0.350	0.397	0.452
Energy Use				
Electricity Use	Thousand Megawatt Hours	645	735	924
Energy Intensity	Kilowatt Hours / Raw Material MT	92,453	97,038	96,585
Fuel Used				
Natural Gas	MMBtu	22,383,253	24,778,741	30,874,334
Natural Gas Intensity	MMBtu / Raw Material MT	3.211	3.271	3.226
Water Usage**				
Groundwater Withdrawal	Thousand Cubic Meters	8,861	9,328	9,366
Municipal Water Withdrawal	Thousand Cubic Meters	1,239	1,458	1,897
Reclaimed Water Withdrawal	Thousand Cubic Meters	313	317	290
Salt Water Withdrawal	Thousand Cubic Meters	0	0	0
Surface Water Withdrawal	Thousand Cubic Meters	0	0	0
Total Water Withdrawal	Thousand Cubic Meters	10,413	11,103	11,553
Total Water Discharged	Thousand Cubic Meters	3,966	4,151	5,102
Total Water Use	Thousand Cubic Meters	6,447	6,952	6,451
Total Water Intensity	Cubic Meters Water / Raw Material MT	0.925	0.918	0.674
Environmental Compliance				
Number of Sites	Count	14	14	17
Number of Reportable Spills	Count	1	1	0
Volume of Reportable Spills	Thousand Metric Tonnes	0.010	0.023	0
Number of Environmental Fines	Count	1	1	2
Amount of Environmental Fines	USD	\$25,000	\$2,720	\$11,570

*Our annual renewable feedstock – primarily corn – that we convert into biofuels and other ingredients via fermentation pull CO₂ from the atmosphere during the growing season, which is then released back into the atmosphere via fermentation, to be absorbed again the following year by the crop. This almost pure CO₂ stream is separate from that which is released during the combustion of natural gas for energy, and is not typically included in Scope 1 reporting.

** None of the process water or drinking water at any of our facilities is utilized for hydraulic fracturing.