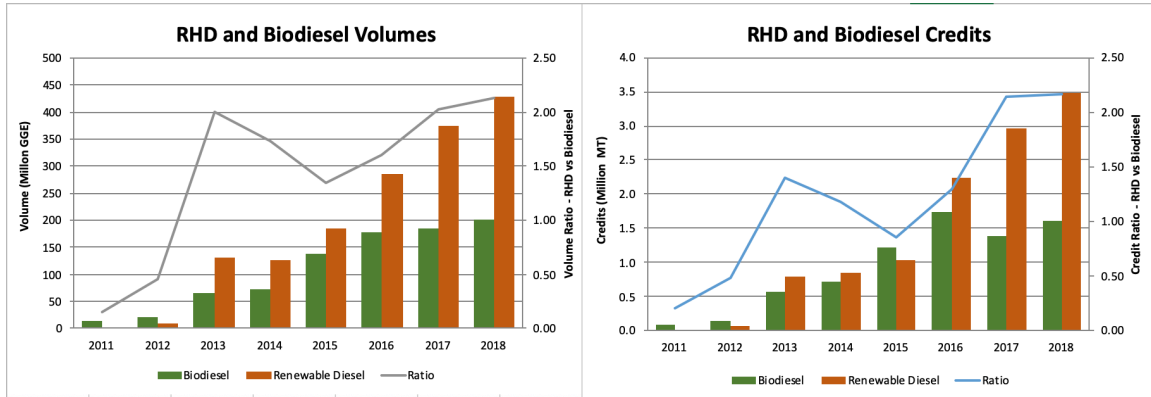
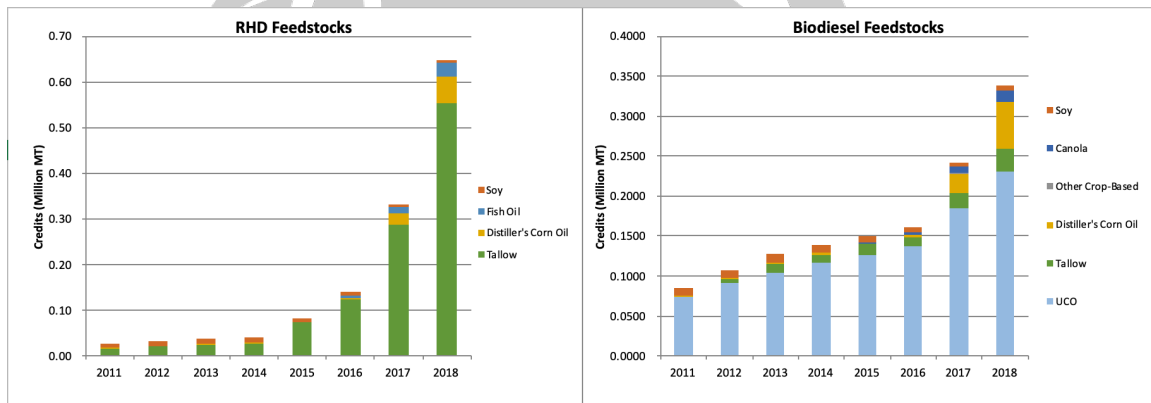


Biodiesel & RHD – A Look Under the Hood

According to CARB's 2019 Q1 LRT Report, RHD generated 1.195 million quarterly credits in Q1 2019, up 45% versus Q1 2018. Biodiesel has now slipped to 4th place as a credit generator, 347k for Q1 2019, up only 7.8 % versus Q1 2018, behind ethanol and electricity. Whilst biodiesel volumes reached an all-time high in 2018, biodiesel credits generated in 2018 surpassed those in 2017, however, not those in 2016 due to biodiesel's average annual carbon intensity (CI) ratings. In 2018, volumetrically and credit-wise, RHD ran at about a 2:1 ratio versus biodiesel. Versus 2017 & 2018 annual averages, biodiesel's Q1 2019 CI rating has decreased (~14%) whereas RHD's has increased (~16%).



From a credit generation perspective over the last 4 years, tallow has been RHD's main feedstock, averaging 85-90% of feed, whereas UCO is biodiesel's main feedstock, declining from 85% to 70% over the last few years with DCO filling the biodiesel feedstock supply void.



CARB's did not meet its 2018 CI reduction goal of 4.8%, actual was 4.34%, which is ~1.2 million credits short. In order to catch up on this miss and meet CARB's 2019 reduction goal (6.25%), 2019 CI reduction must come in at 6.71%. In 2018, deficits grew 23% versus 2017. If that trend continues, 2019 deficits will increase by ~3 million MT. In order to "neutralize" those deficits, make up for 2018's shortfall, and hit the 2019 target, credits must grow >5 million MT above 2018 levels. With ethanol credits flat to down over the last 3 years, the remaining renewables will have to make up for this shortfall or the bank will take a significant hit as we progress through 2019. This situation is so significant that biodiesel **AND** RHD credit generation would have to double to account for this projected shortfall. The continued challenge is filling the renewable void.

The next CARB update will come in November 2019 which is when we should get a H1 picture of 2019. Until then, make sure you ask for the most tested and trusted NOx Mitigant, VESTA® for your biodiesel blends above the seasonal allowances. Trust, but verify your NOx Mitigant selection.