Genetic improvement has a significant role to play in the reduction of greenhouse gas (GHG) emissions associated with agriculture. Traditionally genetic gain has been gauged in terms of economic improvement of each successive generation of selection over its predecessor. This has been achieved through leveraging all components of “the Breeders equation”. The same approach can be leveraged where carbon costs on the same traits have been successfully modelled. Hence updated national indexes will be focused on both economic and climate sustainable goals. ICBF and Teagasc have worked collaboratively to include carbon emissions in the national dairy, beef on dairy and beef indexes in recent years. The carbon modelling undertaken by Teagasc evaluates the impact of dairy and beef production on the 3 main GHG gases namely methane, nitrous oxide and carbon dioxide. In addition significant investment has been made in direct methane phenotyping with the ultimate aim of developing and including direct methane ebvs in the indexes.