**Binary** Stability -Complex design -Speed-Failure rate -BiasDAs\_NoneConfounding.high -BiasDAs Confounding.high-DepthConfounding\_medianTPR.high-CompositionalTop5\_medianTPR.high-Compositional\_medianTPR.high TaxaNumber\_medianTPR.high-Depth\_medianTPR.high-SampleSize\_medianTPR.high -EffectSize medianTPR.high-DepthConfounding maxMedianFDR.high-CompositionalTop5 maxMedianFDR.high-Compositional maxMedianFDR.high-TaxaNumber\_maxMedianFDR.high-Depth\_maxMedianFDR.high -SampleSize maxMedianFDR.high-EffectSize maxMedianFDR.high-DepthConfounding\_medianFDR.high-CompositionalTop5\_medianFDR.high-Compositional\_medianFDR.high-TaxaNumber medianFDR.high-Depth\_medianFDR.high -SampleSize\_medianFDR.high-EffectSize medianFDR.high-BiasDAs NoneConfounding.low-BiasDAs Confounding.low-DepthConfounding\_medianTPR.low-CompositionalTop5\_medianTPR.low-Compositional medianTPR.low-TaxaNumber medianTPR.low-Depth medianTPR.low-SampleSize\_medianTPR.low-EffectSize medianTPR.low-DepthConfounding maxMedianFDR.low-CompositionalTop5 maxMedianFDR.low-Compositional maxMedianFDR.low-TaxaNumber\_maxMedianFDR.low-Depth\_maxMedianFDR.low-SampleSize maxMedianFDR.low-EffectSize maxMedianFDR.low-DepthConfounding\_medianFDR.low-CompositionalTop5\_medianFDR.low-Compositional\_medianFDR.low-TaxaNumber medianFDR.low-Depth medianFDR.low-SampleSize\_medianFDR.low-EffectSize medianFDR.low--MQJ GLM(quasipoisson) -RAIDA-TSS+t-test-Aldex2(t-test) -DACOMP-Rarefy+WilcoxoneBay(t-test) --SS+Wilcoxon Rarefy+t-testmetagenomeSeq-Wrench+DESeq2 Wrench+edgeR mbzinb ANCOM-BC-Beta-binomial

Good

Poor

Intermediate