The main purpose of this chapter was to establish the effect of innovative agricultural practices on reduction of inequality and rural poverty among sorghum farmers in Homabay County, Kenya. A multistage stratified sampling technique was used to randomly select 120 smallholder sorghum farmers. The study found that use of innovative agricultural practices has an impact on agricultural produce and, therefore, on reduction of inequality and rural poverty among farmers in Homabay County. The study thus concluded that sorghum farming has drastically reduced inequality and rural poverty in the county. The study recommends that the government should provide more support in the application of innovative agricultural practices to assist farmers have diversified portfolio of crops that generate more income to address the issue of inequality and rural poverty in Homabay County. Lastly, the research recommends further research in other innovative agricultural practices such as livestock rearing and maize growing to combat inequality and rural poverty in Homabay County.