In this talk we consider different adaptive strategies for the selection of discrete time steps in simple solvers of ODE problems (e.g. discontinuous Galerkin method DG(0)). The main aim is to compare the well-known adaptivity algorithms based on the Runge rule or embedded pairs of ODE solvers with the optimal integration algorithms based on dual problem error estimation techniques. Complexity analysis results are investigated for some model problems and results of computational experiments are presented.