Nitrogen is the most limiting nutrient in smallholder garden pea farms in Kenya and can be corrected by application of inorganic fertilizers and *Rhizobium*inoculation. A study was conducted to compare the effects of *Rhizobium* inoculation and nitrogen fertilizer application on nodulation and yield of two garden pea varieties grown for local (variety Plum) and export (variety Ambassador) markets. Field experiments were conducted at University of Nairobi's Field station in 2007 short and long rains. Varieties Plum and Ambassador were either inoculated with a commercial strain of *Rhizobium leguminosarum* bv. *viciae*, supplied with 30 or 60 kg N ha^{-1} or without any treatment. Inoculation and N-fertilizer enhanced shoot dry matter, but had no effect on grain yield. Plots receiving 60 kg N ha^{-1} intercepted more photosynthetically active radiation than non-treated control plots. *Rhizobium* inoculation increased number of active nodules and nodule dry matter. Plum variety accumulated more nodule and shoot biomass than Ambassador. Variety Ambassador had longer and more seeds per pod than Plum while the converse was the case in number of pods plant^{-1}. Nodulation observed in control plots indicated that native pea rhizobia in Kabete soils are compatible with Plum and Ambassador garden pea varieties. Rhizobia inoculation of garden pea can yield similar shoot biomass as nitrogen application. Nitrogen fertilizer increased shoot dry matter, leaf area index and PAR interception by garden pea. Increases in above ground biomass and nodulation due to rhizobia inoculation and nitrogen fertilizer application were not translated into increased pod and grain yield. Growth and nodulation responses to inoculation and nitrogen fertilization were dependent on the garden pea genotype, hence the need to investigate the differential response of Plum and Ambassador. It is suggested that a study be conducted to determine the effect of *Rhizobium* inoculation and nitrogen fertilization on a broad range of locally grown garden pea genotypes.