Valencia peanuts are generally grown as an irrigated crop in eastern New Mexico and west Texas. Water is getting scarce due to an increase in the number of dairies in the region. Most of the peanut growing area is under Ogallalla aquifer. The objective of our research study is to identify and screen for drought tolerant lines among Valencia mini core collection. For any breeding program to be successful we need to identify germplasm lines that are tolerant to drought and at the same time yield high. Recently a Valencia core was developed from the USDA collection using 26 morphological descriptors. In this study we grew 80 PI's from the Valencia core collection developed by NMSU at Brownfield, Texas under full irrigation and limited irrigation. This paper will discuss the results in more detail.