A long-term seed storage environment is important in maintaining good seed viability for commercial seed production operations. This study was conducted to determine what type of storage condition best plays a role in certain cultivars having better seed viability than others. During 2008, we harvested about 90 early, medium, and late maturing cultivars from two yield tests and placed them in two different locations for a year. The first location was in a cold storage unit of a temperature range of 45-50 degrees Fahrenheit all the time, while the second location was in a warehouse bin with temperatures fluctuating with the outside weather through the year. During 2009, we tested the cultivars three different times with a rag-doll germination test, a water conductivity test, and a soil germination test, only once at the end. The tests were performed three months apart from each other, first in March, second in July, and finally in December. Seed germination with the rag-doll tests showed little to no correlation between test one and two in the cold unit and warehouse storage. However, there seemed to be a significant difference on the second and third rag-doll test between the two storage environments. Water conductivity tests showed very little correlation between test one and two in the cold unit and warehouse storage. But, there were bigger differences between the second and third test between the two storage environments, showing some of the peanut cultivar seeds deteriorating by the third test, with a higher leachate reading than they had on the second test.