Currently, the majority of peanuts grown in New Mexico and West Texas are planted in single rows on beds 36 to 40 inches apart. In 2006-2008, several field studies were conducted with Valencia peanuts comparing single row, twin row, and diamond planting patterns in various populations. The basic conclusion of this research was that twin row and diamond planting patterns were at times superior to single row planting. It was also observed that increasing the seeding rate of Valencia peanuts could improve yield at an economically sustainable level. In 2009, we decided to start new experiments that include all four peanut market types in single row, twin row, and diamond planting patterns at the recommended six seed per foot of row. Because of the range of maturity in these market types, an early and a late harvest was made in an attempt to show the interaction of market type and planting pattern yield potential over time. In 2009, the diamond planting pattern had overall poor emergence which drastically affected the yield. The single row and twin row plots emerged with good uniformity. Yield for ‘Valencia C’ ranged between 2,500 and 3,830 lb/A when harvested early and 4,270 and 4,590 lb/A at the late harvest. Grade for ‘Valencia C’ improved between 4 and 6 points between harvest timings. When harvested early in twin rows, ‘Tamnut OL06’ had 27% better yield than single rows or diamond planting. Early harvest grade also improved for Spanish when planted in twin rows by 2 points. The late harvest yield for ‘Tamnut OL06’ ranged between 4,560 and 5,030 lb/A with grades of 72 and 73. Although not significant, the Virginia variety ‘Gregory’ showed potential for a yield advantage when harvested late in twin rows over single rows and diamond planting with 18% higher yield. This was the highest yield in the experiment. The yield range for early harvested ‘Gregory’ was 3,220 and 4,170 lb/A and 5,020 to 6,010 lb/A for late harvest. Virginia grade improved 4 to 6 points between early and late harvest. The runner market type ‘Flavor Runner 458’ had better yield in single rows compared to diamond planting when harvested early. Twin row runners harvested early produced 4,200 lb/A which was similar to single row and diamond planting patterns. The late harvested runners ranged between 5,200 and 5,790 lb/A for all planting patterns with grades 4 to 7 points better than early harvested runners. This experiment will be repeated in 2010.