The negative effects of alternate bearing on yield and fruit quality are well-known. The objective of this study was to determine the sensitivity of 17 apple scions grafted onto MM106 rootstocks to alternate bearing. Quantitative evaluation of alternation was used modified alternate bearing index (MABI) which take into the flower production of the cultivars to define the alternate bearing. The lowest MABI was 0.20 in ‘Braeburn’, while ‘Golden Reinders’ and ‘Kaşel41’ had highest values of MABI as 0.78. Based on MABI values of 3 consecutive year of this research, cultivars were classified into four relative susceptibility groups: not susceptible: ‘Braeburn’ and ‘Jerseymac’; medium alternance: ‘Topaz’, ‘Granny Smith’, ‘Mondial Gala’, ‘Jonagold’, ‘Starkrimson Delicious’ and ‘Clear Red’; susceptible to alternance: ‘Starkspur Golden Delicious’, ‘Fuji’, ‘Arlet’, ‘Redchief Delicious’, ‘Rajka’ and ‘Golden Delicious’; and high alternance: ‘Kaşel 37’, ‘Golden Reinders’ and ‘Kaşel 41’. The fact that cultivar had the greatest impact on alternate bearing. Differences among cultivars in irregular cropping cycles can be used by growers and researchers to mitigate this phenomenon or improve new practices based on cultivar susceptibility.

Key Words: Irregular flowering, on year, off year, cropping cycle, fruit load