The strawberries are a fruit with a high content of phenolic compounds considered an important protective factor against oxidative stress. The aim of this research was to investigate the effects of different harvest times and cultivation systems on bioactive compounds and some physical and chemical characteristics of ‘Osogrande’ strawberries. Strawberries (Fragaria x ananassa Duch.) were harvested in four different months rising both cultivation systems in conventional and organic. They were then evaluated for color, pH, total soluble solids, titratable acidity, vitamin C content, total phenolic compounds, total ellagic acid and total anthocyanins. There were significant differences for mass in relation to the harvest period. The greatest mass was observed in strawberries harvested in July (organic: 17.33 ± 1.38 g and conventional: 16.30 ± 0.89 g). There were no significant differences in color, texture and titratable acidity. Total content of anthocyanins and ellagic acid were not different when evaluated by cultivation system and harvest time, although total phenolic content was higher in strawberries grown in the organic system (2756.25 ± 107.81 mg/kg of fresh weight). The highest vitamin C content was observed for the organic cultivation system (553.71 ± 98.12 mg/kg of fresh weight) even though there was no significant difference compared to the conventional system (488.73 ± 125.06 mg/kg fresh weight). Harvest time, and not the cultivation system, interferes in the content of bioactive compounds and physical and chemical characteristics in ‘Osogrande’ strawberry.