Colorado potato beetles, *Leptinotarsa decemlineata* (Say) (Coleoptera: Chrysomelidae) is the one of the most important pests on potatoes in Turkey. By reason of resistance development of this pest against insecticides, using alternative methods have become important. The new strain of *Bacillus thuringiensis* and *Serratia marcescens* were applied to evaluate their pathogenicity against 1st, 2nd, 3rd, and 4th instar larvae and adult of *Leptinotarsa decemlineata* under laboratory conditions at a concentration of 108 spore/ml. The mortality of the larvae and adults recorded every day after treatment. All treated insects were incubated at 25±1°C, %60 ± 5 proportional humidity and a 16 L:8 D photoperiod in climate chamber. In this study, a new strain of *Bacillus thuringiensis* and *Serratia marcescens* were toxic to 1st, 2nd, and 3rd, instar larvae and not to 4th instar larvae and adults. We present laboratory toxicity data against Colorado potato beetle, and discuss possible management of this insect with these bacteria.