Livestock manure can be used as substitute resources of fertilizer if treated properly, because they are essential nutrients of crops. Especially, livestock manure granular compost (LGC) has many advantages, that it is easier to store, transport and applicate, compared to powdered compost. For this reason, demand for LGC is expected to increase, and it is necessary to develop its application technology for reduction of chemical fertilizer. This test was conducted to examine the effect of LGC as substitute for chemical fertilizer (CF) on vegetables cultivation. For this purpose, we compared the effects on fertilizer efficiency and yield by the different ratio of LGC and CF in two soil types of chinese cabbage cultivation. In case of clay loam soil, the average yield of chinese cabbage in LGC 25% + CF 75% plot was 94% level during 4 cropping season compared to CF 100% plot. Also, in case of loam soil, the average yield in LGC 33% + CF 67% plot was 89% level during 2 cropping season. The higher applied LGC ratio, the higher content of organic matter, available P$_2$O$_5$ and exchangeable K in the soil after experiment. The nutrient uptake and efficiency per unit area at harvest period was the highest in CF 100% plot, and tended to decrease as the LGC ratio increased in both soil types. The application ratio of LGC to obtain more than 90% of chinese cabbage yield was judged to be appropriate to use less than 35.3% in clay loam soil and less than 27.7% in loam soil based on the nitrogen content of the soil test through the calibration curve between the application ratio of LGC and the yield of chinese cabbage.