Global food security is one of the main concerns of this century. Moreover, the increasing negative impacts of climate change on different sectors including agriculture are further expected to exacerbate these challenges. The main aim of this thesis is to assess the future impacts of climate change on wheat yields in Spain by 2050 and to evaluate the efficiency of early sowing as an adaptation strategy. The results show that wheat will be influenced by climate change in Spain. Indeed up to 2030, yields will benefit from increases in CO₂, however, the very high temperatures that would be observed after that will lead to a decline in yields. This thesis has also resulted in determining that earlier sowing dates generally results in increases in yields depending on the location and that planting 30 days earlier could yield to about 40% yield increase in some regions. Finally, this study insists on the need for exploring more adaptation measures as changing sowing dates only would not be a viable option for the second half of the century.

Keywords: Ecosystem Analysis, Physical Geography, Food Security, Climate Change, Adaptation, Early Sowing, Spain, Wheat