Clonal plants may be able to cope with spatial and temporal heterogeneity due to the physiological integration of ramets. To begin with, I discuss basic characteristics of clonal plants and then I provide a review of theoretical and empirical work dealing with the advantages and disadvantages of clonal growth in heterogenous conditions. Three main traits – translocation of resources, division of labour and foraging – are examined in terms of their contribution to the success of clonal plants. Despite a large amount of attention which this topic has received in the past few decades, a number of issues still remain unclear.