Mid-season restricted supply of adequate water is the most important factor limiting crop production in arid Tunisia where water available for irrigation is frequently very saline.

Following requests received from potato growers regarding best management of irrigation waters, field trials were conducted with the objective to evaluate the applicability of representative irrigation scheduling methods for drip system. Basically, the investigation had to compare yield, water use efficiency and soil salinity for different irrigation scheduling methods in both seasons.

The producer method resulted in higher FTY, TN & TW. SWB & Daily scheduling have resulted in consistent increases in yield, over the two seasons; they gave 27-21% and 36-32% more FTY than the fixed amount approach. The fixed amount approach gave the lowest FTY, TN & TW.

The daily scheduling method was the most efficient in terms of WUE, which is calculated as the ratio between yield and total water supply. The producer method may be attributed to the fact that the farmer applies water to the crop according to the needs of the plant, in contrast to the fixed amount approach, which applies water in a fixed quantity but at irregular intervals.

Water supply based on the SWB irrigation scheduling method helps reduce water stress, even water and produces higher fresh tuber yields for potatoes cultivated in arid regions. Daily scheduling seems to be a little less efficient than the SWB irrigation scheduling method, apparently because of a higher direct evaporation rate.

In the considered climatic condition, the SWB method can be used favorably to farmers in order to schedule irrigation of potatoes in arid regions of Tunisia.