

The Potential of Inulin Crops in South Italy

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Introduction

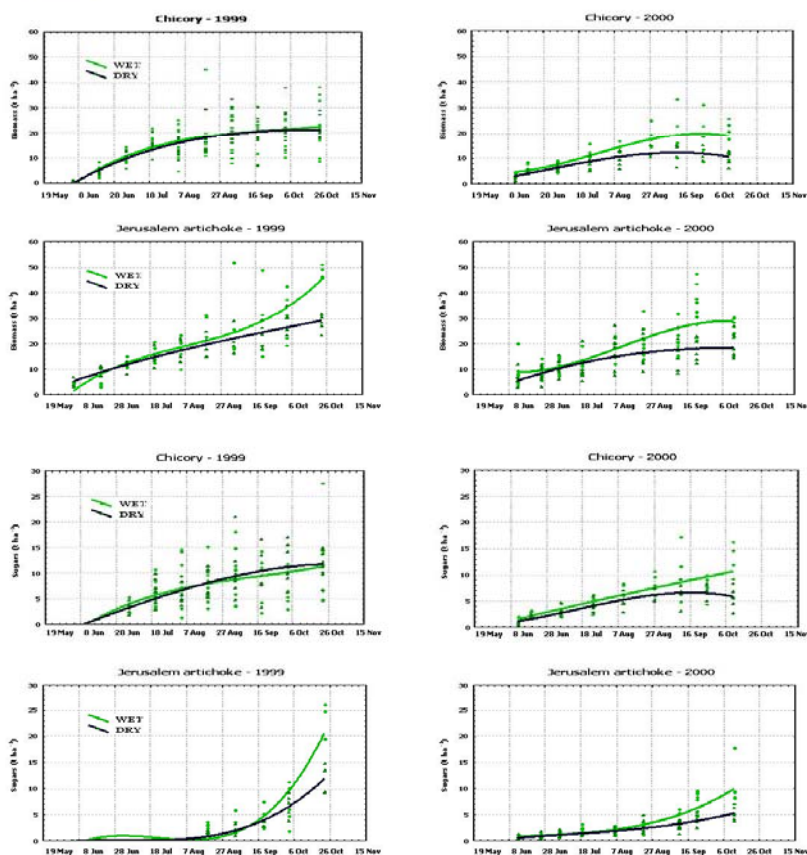
Chicory and Jerusalem artichoke are among the best crops for inulin production (Meijer and Mathijssen, 1993); for this reason they are the crops toward which the research interest are mainly oriented.

Objectives

The aims of the study was to determine the biomass and carbohydrates dynamics of the plants and define the growing techniques suitable for the highest inulin production.



Results



Materials and methods

1999-2000 two-year period of research; experimental farm "E. Pantanelli" of the Agricultural Faculty of Bari (Policoro – Mt);

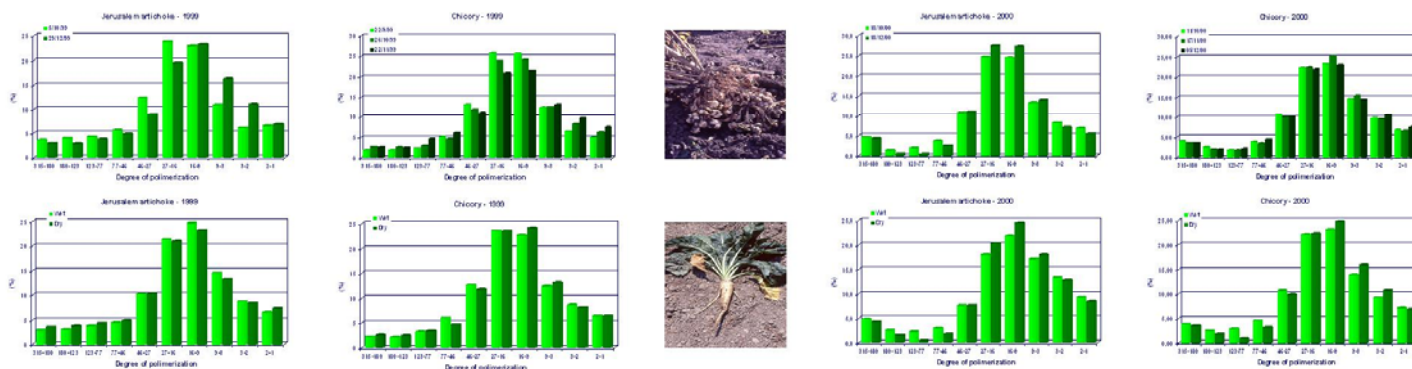
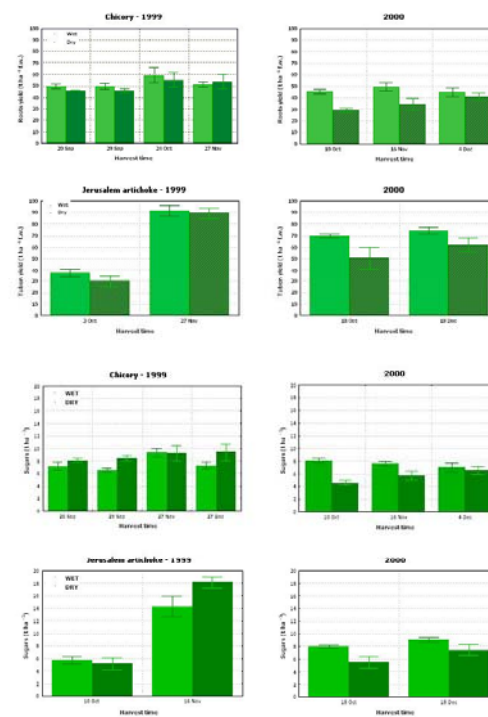
variety Bergues for chicory and the Violetto di Rennes for Jerusalem artichoke;

four dates of harvest were applied in the first year, and three in the second for chicory, two times per year were applied for Jerusalem artichoke, respectively for the harvest of stalks and tubers and for tubers only;

split-plot design, replicated four times; irrigation levels (full, 100%, and partial, 25%, re-establishment of ET_M) were in the main plot and the harvest times (dates) in the subplot (40 m²); sowings on 12th April 1999 and 30th March 2000, plant population of 15 and 5.7 plants per m² respectively for chicory and Jerusalem artichoke;

analysis of growth (fresh weight and the dry matter percentage of roots, tubers and stalks and the sugar content (Carl Zeiss refract meter);

tuber, root, and stalk yield, dry matter and sugar contents were determined.



Conclusions

Under the typical hot and dry conditions of the Mediterranean region, Jerusalem artichoke and chicory show a high yield potential due to the favourable thermal and photosynthetic conditions, which allow higher growth rates.

However, both species seem to be sensitive to the water conditions, so that irrigation appears, in Southern environments, a pre-condition to obtain notable yields.

It should be specified, however, that an increased water supply caused a depressing effect on sugar yield, due to the lower accumulation capacity in storage organs.

The optimal time for harvesting occurs for chicory between late October and early November, whereas for Jerusalem artichoke a delay (late November – early December) would enable the total translocation of sugars to the tubers, unless you consider the crop for stalks+tubers, thus advancing harvest to mid-October.

In general the yield potential, both in terms of biomass and sugars, was always higher in Jerusalem artichoke. Further adjustments in the cropping techniques and in the definition of the quality features of the carbohydrates produced might lead to an overall evaluation of the potential of these two crops, in Mediterranean environments, in relation to the new possible uses of inulin.