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Evaluation Of An Hemp Genotype (Futura 75) For A Dual Purpose Production In A Semi-Arid Mediterranean Environment

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Introduction

In recent years it was observed a renewed interest for hemp (Cannabis sativa L.) cultivation, both as industrial and food crop. The interest as food crop lays in the nutritional values of hemp seeds mainly related to their high-quality oil and proteins contents. As reported by Amaducci et al. (2015), hemp fibre can also be used as reinforcement in composite materials, to produce insulation mats, car interior panels, and requested in bio-building sector to form concrete too. The possibility to cultivate hemp for a dual purpose use could improve the farmer revenue.

The information regarding the dual purpose hemp cultivations are poor and even more in Mediterranean environments. In this respect the present study evaluated the adaptability of Futura 75 hemp genotype under the Mediterranean conditions of Southern Italy (Sicily).

Materials and Methods

The field trials were carried out between spring and summer 2017 in seven private farms located in Gangi (Palermo province), Gela (Caltanissetta province), Caltagirone (Catania province), Petralia (Palermo province) and Vallelunga Pratameno (Caltanissetta province).

In order to evaluate the adaptability in different Sicilian areas, in the seven private farms that cultivated hemp in large fields, three plots (10 x 10 m each) were delimited in order to evaluate morphobiometrics parameters and biomass yield.

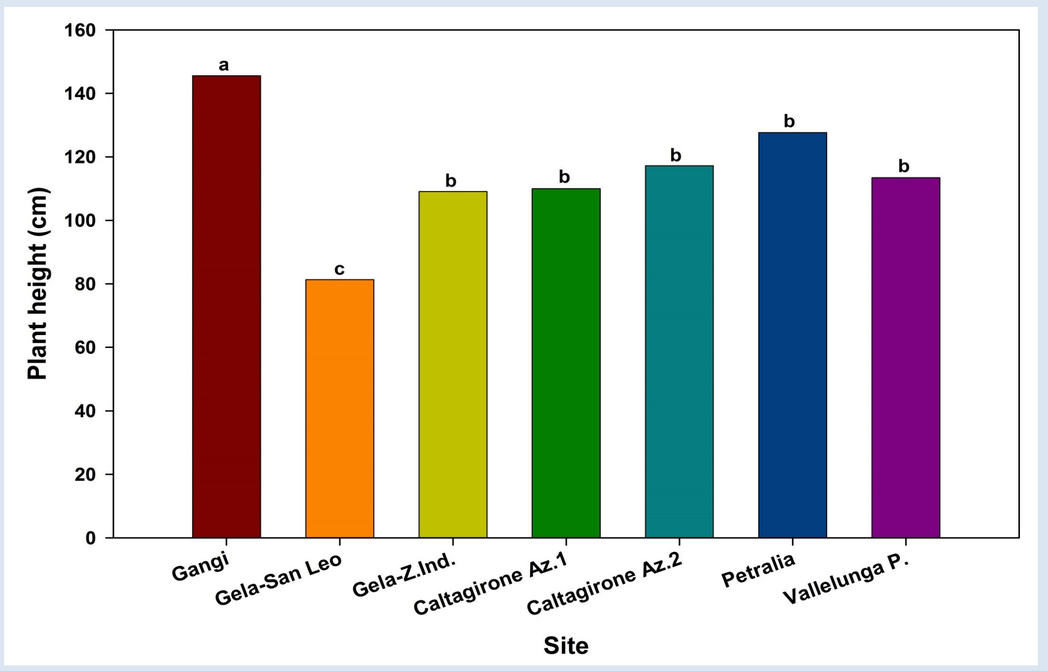
The locations, sowing and harvest time are reported in table 1.

In all sites the cultivations were carried out under rainfed conditions.

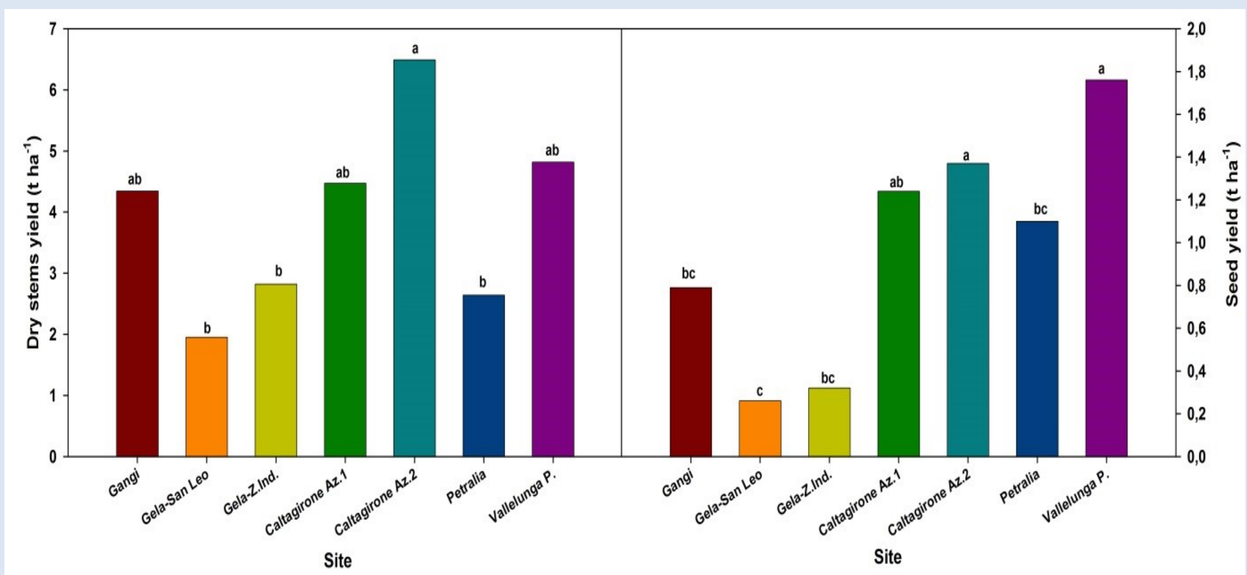
In the different sites, harvest was performed at seed maturity. At harvest, edge plants were removed in each plot in order to weight the biomass within 16 m2 (4 x 4 m). Dry biomass yield was calculated by weighing sub-samples of fresh biomass and after oven drying it at 65 °C until constant weight. The seed samples were air dried, cleaned and weighed for seed yield determination.

Site (Province)	Altitude (m asl)	Seeding rate (t ha-1)	Sowing time (2017)	Harvest (2017)
Gangi (PA)	650	50	24/03	18/07
Gela San Leo (CL)	50	30	22/03	19/07
Gela zona Ind. (CL)	50	30	22/03	19/07
Caltagirone Az.1 (CT)	500	35	08/04	27/07
Caltagirone Az.2 (CT)	450	35	04/04	27/07
Petralia (PA)	600	45	01/04	10/08
Vall. Pratamento (CL)	400	45	28/03	10/08

Results



Plant height (cm) in relation to the different sites and varieties



Stem dry biomass (t ha^{-1}) (left) and seed yield (t ha^{-1}) (right) in relation to the different sites and varieties

Conclusions

Futura 75 hemp genotype highlights a good adaptability to several Sicilian sites. Both dry stem biomass yield and seed yield varied in relation to the sites of cultivation. The differences were mainly related to the different water availability (data not shown). The obtained results suggest the possibility that hemp, in this environment, could be cultivated both for seed and fiber productions but attention to the water availability must be drawn. Moreover the difference in seeds and stems yields observed suggest to carry out further studies in order to evaluate the best sowing density to increase seeds yield.

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