



Reintroducing hemp cultivation in Mediterranean areas

Problem

There has recently been a renewed interest in hemp from the food sector for its contribution to cropping system sustainability and farm economy in semi-arid Mediterranean environments, particularly in organic farming. However, its re-introduction into the Mediterranean environment requires the identification and improvement of cropping practices, particularly in crucial stages such as sowing, harvest and post-harvest.

Solution

Timely sowings (second half of March and first ten days of April) of suitable varieties on well prepared seedbeds in early spring with rows 18-20 cm apart (a stale seedbed technique is advised), to make use of late winter rains and ensure effective crop germination as well as a rapid soil coverage within 4-5 weeks from sowing.

Outcome

Low-input cultivation of available hemp cultivars has shown the robustness of the crop in harsh Mediterranean agro-climatic conditions. In rainfed conditions the crop is well adapted as a succession to wheat or pulses. The crop shows limited fertilisation requirements (in succession to pulses it requires no fertilization; especially when production is targeting flowers and grains), good water stress resilience (except for when in the germination phase), the ability to improve soil structure and a significant weed suppression capacity persisting up to the subsequent crop in the rotation.

More suitable varieties (Picture 2 shows a variety trial in a DiverIMPACTS farm), hemp-related know-how (especially relating to the harvesting and management of the crop) and harvesting machinery still need to be further developed in order to improve the quality and competitiveness of the hemp food chains.

Practical recommendation

- Use monoecious and medium-early varieties for the production of food-related inflorescences and grain
- Prepare the seedbed well to ensure drainage in case of water stagnation; in organic, a stale seedbed is advisable to contain weed competition during the early crop growth phase
- Sow in early spring with temperatures of at least 10°C and a good rain forecast to ensure adequate moisture for root growth. Seed rate: 35-40 kg ha⁻¹ in non-irrigated conditions



Picture 1 Hemp field in Sicily in the ripening phase. Credits: Luca Colombo-FIRAB



Picture 2 On-farm hemp variety trial in Sicily. Credits: Luca Colombo-FIRAB

- Be ready for emergency irrigation (if possible) in periods of drought, particularly if occurring during the early stages of the crop (emergence and first phenological phases), in order to enhance good germination and emergence
- To limit asynchronous seed ripening and their spontaneous drop, threshing should occur at 18-20% moisture or when $\frac{3}{4}$ of the grain has reached maturity, as deferral may induce grain loss and summer rains may delay grain ripening (Picture 1 shows a hemp field in pre-harvesting)
- Dry the grains within a few hours after harvest in layers of a few cm to guarantee its organoleptic and sanitary quality (e.g. fat quality and mycotoxin limits)
- In Mediterranean agroclimatic contexts, hemp cultivation is advised under some basic conditions:
 - A clear and stable regulatory framework, with particular reference to the THC content thresholds in plants and foods
 - THC content analysis on products to ensure regulatory thresholds are met
 - Since the lack of adapted varieties hinders the development of hemp cultivation and the availability of seeds can be limited, the timely acquisition and sowing of seeds best suited to Mediterranean latitudes is advised (hemp is a photoperiod-sensitive plant)
 - In areas prone to drought, fibre and biomass production is limited so it is advised to focus on grain and inflorescences
 - Investing in a grain dryer should be considered in case of significant hemp acreage
 - Retaining value at the farm level by producing hemp products and by-products on-site enables greater economic sustainability and produce quality. Contracts and coordination among hemp farmers in a given area may ease collective investments (e.g. on machineries) or common marketing initiatives.

Further information

Further readings

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