Sowing and planting of Medicago arborea in Mediterranean maquis. Preliminary observations.

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Sowing and planting of Medicago arborea in mediterranean maquis. Preliminary observations.

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In the mediterranean lowlands, cropping systems including cereal crops, such as barley or durum wheat, and pastures are rather frequent. The simplification of these systems can be obtained with the rotation, on the same plot, of cereals with annual-type pastures that are grazed during the winter and mowed for hay in the spring.

In several farms of Northern Lathium, where extendead areas of maquis are present, the farmer uses mediterranean shrubs as forage supply in the periods when other sources of food for animals are lacking, such as in mid summer or in winter.

Inside the mediterranean maquis, cleared areas, covered only by herbaceous vegetation, area often present. These area were cultivated in the past, for the integration of food supply of the farmers' families. These areas could be subject to degradation, such as erosion or weed colonization, especially when bordered by coppice forest, and after the cuttings.

The conversion of mixed cropping systems into fodder systems based on grazing is encouraged by the EC, for the reduction of cereal surpluses. In these situation, farmers are forced to update the structure of their farms, including also a reduction of the machines, that must be addressed mainly to the harvest of forage supplies, with the maximum reduction of losses. The silage of a part of the forage production and the abandoning of the cultivation in the more difficult and small areas in the maquis are also ways to improve the global efficency of the system.

The trasformation of the clearings of the maquis, called "larghe" in Northern Lathium, could be done by means of the sowing of annual plants, preferably self-sowing species, and of the planting of shrubs, that have the function of preventing erosion and of integrating the food supply for animals during the unfavourable periods. In general, the clearings in the woods, as previously explained, were cropped with cereals in the past and, by consequence, the access of cattle and big wild animals to the areas was prevented by means of enclosures. In general, the fences are still in place and allow the farmer to plan the utilization of these areas, letting the animals inside only in the period of limited supply of other sources of forage.

The resting period after coppicing, during which the grazing of animals is not allowed, could be useful for the establishment of the shrubs. The sowing of annual fodder species will be preferably done just before the reintroduction of animals.

To supply the farmers with informations for the planting and the management of shrubs, a trial on Medicago arborea was started, with the aim of investigating the techniques and the costs of the establishment of a shrub cover in the clearings of the maquis.

The following experimental treatments for the planting of the shrubs have been compared three planting systems:

a - direct pocket drilling;

b - transplanting of four month old seedlings;

c - transplanting of five month old rooted cuttings.

Two planting dates:

1 - spring;

2 - autumn.

The material employed was produced in the area of the experiment.

Granulometric analysis of the soil is reported in table 1.

Table 1. Granulometric analysis of the soil.

GRAVEL	(> 2 mm)	[%]	31.9
Coarse sand	(0.5 - 2 mm)	[% of fine soil]	17.1
Fine sand	(0.02-0.5 mm)	"	42,7
Loam	(0.002 - 0.02 mm)	"	25,7
Clay	(< 0.002 mm)	"	14,5

Thesis a was sown on the 09.03.92, placing five seeds per pocket; the distance between pockets was 4 m x 4 m; seedlings and rooted cuttings, (thesis b and c) were transplanted on the 24.04.92.

Aditional water was not supplied either at sowing or at planting. The size of the trial field ins about 1.5 hectars.

Hand sowing required about 20 hours ha^{-1}, whereas the planting of cutting, also manual, required about 50 hours ha^{-1}.

The frist obsevations on some results of the plants are hereafter reported.

Table 2. Survival of plants in the different planting thesis (% of sown pockets or of planted plants)

date	direct drilling	transplant	
		seedlings	rooted cuttings
30.03.92	100	-	-
15.04.92	48	-	-
27.04.92	23	96	100
05.05.92	9	34	97
07.07.92	1	15	97
05.08.92	1	15	95
15.09.92	0	7	95
05.10.92	0	4	95

From table two, the progressive decline of the number of direct drilled plants could be observed. This was not determined by lack of water but by the damage caused by hares (Lepus europaeus).

These small mammals neglected other species, such as alfalfa, and seemed to prefer gnawing the seedlings of M. arborea to the root collar, this way causing the death of plants.

The transplanted seedlings survived for a longer period but were also subject to hare attacks. The basal portion of the stems that were left were not able to recover to produce a complete plant.

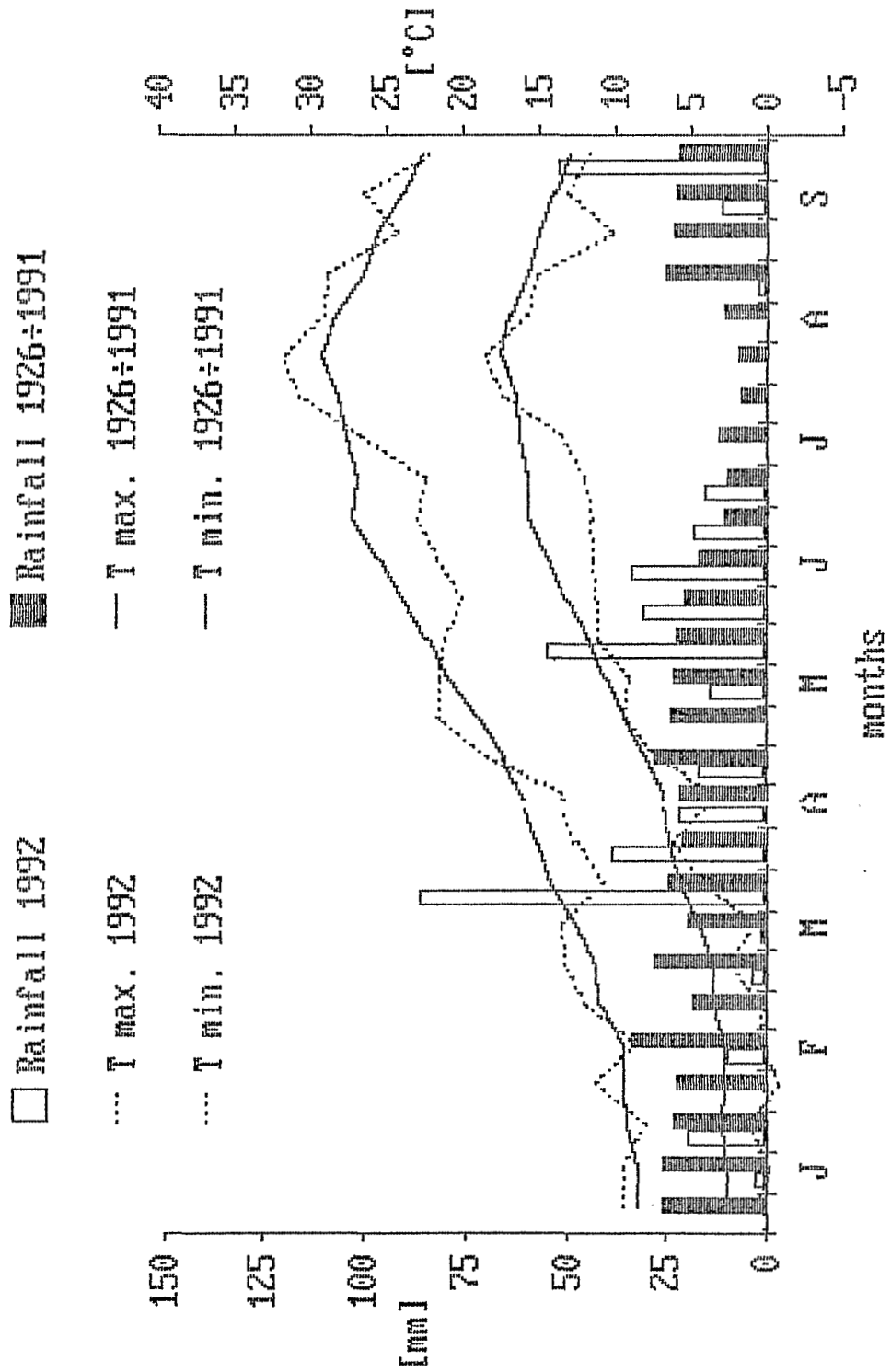
Plants from cuttings were more resistant to the attacks of animals, problably for their higher amount of stem reserves or because of the higher rate of lignification of culms that, till now, are not seriously damaged.

Big old female hares were mainly present in the area.

From this preliminary research it appears that the planting of rooted cuttings is the best way of establishing the shub cover, at least during the spring, when wild small animals are rapidly reproducing. Cuttings of M. arborea can be obtained even by simple methods (controlled environment, single pots and rooting chemicals are not required). With other planting systems, the protection of the young plants for at least one year, until the stem are lignified, is necessary. The advantages of the low costs of direct drilling are completely cancelled by this fact.

Differences among plants, with respect to the attractiveness for hares, was not observed.

The small size of the planting area, the pocked drilling and the high attractiveness of plants during the first developmental stages are the main determinants of the high rate of damage by hares. A higher planting rate and the use of less attractive species could be a way of escaping damages from animals. Autumn planting will be tried too.


Rainfall 1992
Rainfall 1926÷1991
T max. 1992
T min. 1992
T max. 1926÷1991
T min. 1926÷1991
[mm]
[°C]
months
J F M A M J J A S
150
125
100
75
50
25
0
40
35
30
25
20
15
10
5
0
-5