



Triticale in Iberian dehesas

Searching for shade-adapted forage crops

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Why triticale?

Productivity of natural pastures in Iberian dehesas is usually low and very variable (on average 1440 kg dry matter (DM) ha/yr). They also provide low nutritive value forage, containing 4-20% legume fraction, 9-12% crude protein, 44-59% neutral detergent fibre and 28-37% acid detergent fibre.

In order to improve the productivity and quality of herbage biomass, and to supplement the natural pasture during shortage periods, farmers have traditionally implemented two practices: the sowing of well-adapted productive pasture species, and/or the sowing of forage crops. In dehesa ecosystems, those fodder crops often play a fundamental role in livestock feeding as a complement to natural pastures, both in productivity and in quality. Triticale, a hybrid of wheat and rye, is now becoming a popular fodder crop on Mediterranean livestock farms.



Livestock (cattle, goats and Iberian pigs) grazing in triticale crop in winter.



Dehesa Los Llanos in Siruela (Extremadura, Spain) cultivated with triticale to feed livestock.
Ref: G.Moreno



Sowing and management

It is recommended that triticale sowing is carried out in late autumn, after the first autumn rainfall, following light tillage and using a seeding rate of around 200 kg/ha. Depending on the initial mineral soil levels, a N-P-K fertilization might be applied either before or during sowing (70 N kg/ha, 40 P₂O₅ kg/ha and 70 K₂O kg/ha).

The recommended crop management is direct grazing by mid winter, to meet the livestock food requirements during this period. The spring forage should be harvested and preserved as hay to be consumed in summer. Optimizing the grazing intensity and period in winter is critical to obtain strong re-growth and, consequently, a good total forage yield. Grazing should be performed before plants reach the growth stage 30 of the Zadocks scale and should not be very intense. The late-spring cut should be made before the growth stage 73 of the Zadocks scale to obtain a good nutritive value forage.

Due to the poor and shallow soil usually found in dehesa ecosystems, a yearly rotation in the crop area is highly recommended.



Harvesting cereal fodder crop in the dehesa
Ref: HOY Agro - www.hoy.es/fotos/agro

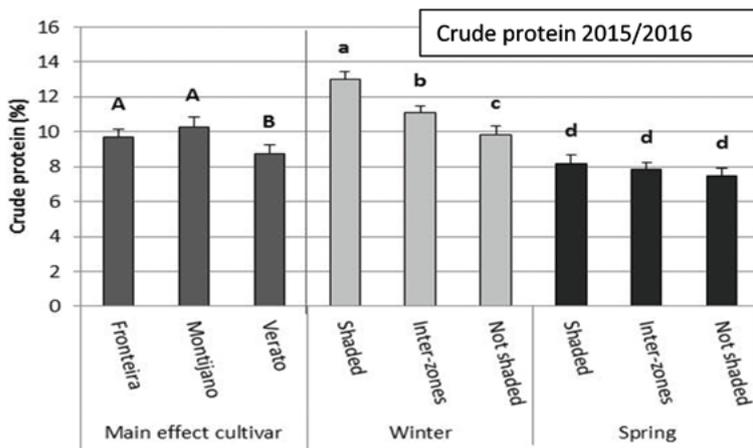
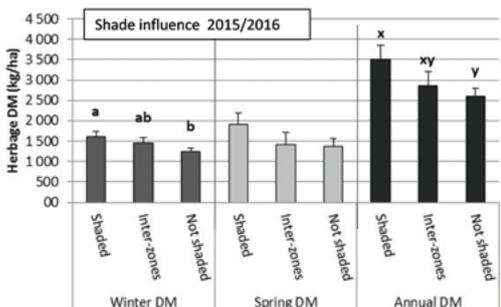
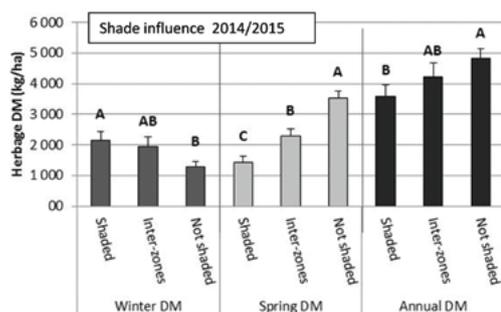
Advantages

Among forage crops, the cultivation of triticale, a high-productive cereal under Mediterranean conditions, is increasingly recognised by farmers as a potential alternative. This is due to its great capacity to be grazed in winter, and then cut in late spring for hay production.

Under this dual-purpose use, the triticale crop can produce 3000-5000 kg/ha of high-quality forage, providing additional fodder for livestock rearing. This is especially valuable during critical shortage periods, such as winter and summer, when the natural pasture production is very scarce in these areas.

Under trial conditions, with scattered oak trees in the field (5-30 trees/ha; 3-25% cover), rainfed, moderate fertilization and no spraying with herbicides, triticale produced 3000-5000 kg/ha of a high-quality forage, providing an additional fodder for livestock rearing. Triticale was first grazed in winter (January - February) and then grazed again, either in June or, in more productive fields, by the end of May.

The results showed that tree cover has a high and clear influence on the biomass yield and quality parameters of the triticale forage. Whilst the winter herbage production was enhanced by tree cover, spring and annual productivity decreased by around 30% under shade conditions. The nutritive value of the forage was generally enhanced by tree cover, particularly in terms of crude protein and fibre in the spring harvest. None of the cultivars examined showed a special aptitude to grow under shade conditions. Yield differences among cultivars, which were not very high, depended on the specific climatological conditions of the growing season.



Left: Influence of the shade conditions on the biomass dry matter (DM) production under the trees (*Quercus ilex*), in the edge and in the open areas.

Above: Influence of the cultivar, shade condition, and season on the protein content of the triticale cropped in the dehesa Los Varales (Badajoz, Spain)

Further information

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