MISCELLANEOUS REPORTS 90 ISSN 0253-6749

ALGERIAN: A NEW OAT VARIETY FOR FORAGE PRODUCTION

D.N. Droushiotis

AGRICULTURAL RESEARCH INSTITUTE
MINISTRY OF AGRICULTURE, NATURAL RESOURCES
AND THE ENVIRONMENT

NICOSIA CYPRUS

MAY 2004

ALGERIAN: A NEW OAT VARIETY FOR FORAGE PRODUCTION

D.N. Droushiotis

SUMMARY

Hay production from cereals becomes increasingly important in Cyprus. A number of new oat varieties (*Avena sativa*) introduced from various countries was evaluated under rainfed conditions from 1982 to 1988 at various locations. The new, late maturity variety Algerian which produced 19% more dry matter yield than the local variety is recommended for commercial use.

ΠΕΡΙΛΗΨΗ

Η παραγωγή σανού από σιτηρά, και ειδικότερα από σιφωνάρι, για κάλυψη των αναγκών των αγροτικών ζώων είναι μεγάλης σημασίας για την Κύπρο. Τα τελευταία χρόνια εισήχθησαν από το εξωτερικό πολλές ποικιλίες σιφωναριού κατάλληλες για σανοποίηση και δοκιμάστηκαν μεταξύ 1982 και 1988 κάτω από ξηρικές συνθήκες σε διάφορες περιοχές. Η ποικιλία Αλγερινό, που εισήχθη από την Αυστραλία το 1971, έδωσε 19% περισσότερη παραγωγή από την ντόπια ποικιλία. Ως εκ τούτου συστήνεται για καλλιέργεια στην Κύπρο.

INTRODUCTION

Under Mediterranean climatic conditions and production systems, small grain cereals are important contributors to animal feeding. They are in general more drought and cold resistant than forage legumes. As there is an increasing interest in livestock in this area, fodder production from cereals becomes more and more important.

The first studies with oats in Cyprus were initiated in 1970 with variety trials under rainfed conditions and lasted for five years. Montezuma, a variety introduced from California (USA), gave 12% higher dry matter yield (6.35 t/ha) than the locally grown variety Palestine (Hadjichristodoulou, 1977). In November 1976, a number of new forage oat varieties were introduced from various countries and their performance was evaluated for six years. The dry matter yield of Mulga (9.05 t/ha), a variety introduced from Israel, was 10% higher than that of Motnezuma.

The purpose of the present study to evaluate the adaptability of a number of new oat varieties, introduced from various countries, under local conditions.

METHODS

The oats were tested under rainfed conditions at two locations, Laxia and Dromolaxia, for six successive cropping years (1982–88). The soils of the experimental fields (loams and clay loams) were representative of the cereal growing region. Soil pH was about 8.0. Results are from replicated, randomized field experiments with crops established from seed by drilling in rows 20 cm apart. Seed rates were 185 kg/ha and fertilizer rates were 332 kg P_20_5 and 21 kg N/ha at sowing and 23 kg N/ha top dressed in February. Plot size was 12.8 m^2. All plots were harvested at the milk stage of grain.

RESULTS AND DISCUSSION

Most of the varieties tested did not adapt to the local environment. Some of them were either too early and therefore, low yielding, while others were susceptible to disease and could not be promoted for further testing.

The dry matter yield and other agronomic traits of the best three varieties and those of the two checks, Mulga and Local, are presented in Table 1. The lowest dry matter yield was recorded for the Local variety, while all

Table 1. Herbage characteristics of oat varieties tested in two different environments

Variety	Dry matter (kg/ha)	Digestibile OM in DM (%)	Digestibile OM yield (kg/ha)	CP (%)	CP (kg/ha)	Plant height (cm)	Date of milk stage	Grain (kg/ha)
Mulga	8708	50.9	4746	7.1	649	94	14	3036
West	8489	53.6	4670	8.4	667	79	16	3328
Iwan	8860	55.7	5304	8.3	708	86	19	3478
Algerian	8920	54.7	4971	8.2	693	88	26	2940
Local	7510	58.1	4326	9.0	632	74	25	2137
SE	325	1.0	216	0.3	42	8	-	527

the other varieties produced similar yields. However, the varieties Local and Zwan had the highest D-value and Mulga the lowest. As a result the digestible organic matter yield of Zwan appeared to be the highest, while those of Mulga and Algerian were similar and slightly higher than that of Local. Local had the highest and Mulga the lowest crude protein content. There were no significant differences among varieties in crude protein content. Plant height was highest in Mulga and lowest in the Local variety Algerian and Local, which are considered late varieties, reached the milk stage of grain nine days later than the varieties Mulga, West and Zwan, which are considered as medium maturing varieties.

Summarizing the results of the present experiments it should be emphasized that the recommendations made are mostly based on the date of harvesting (milk stage) of the various varieties (since in hay making it is preferable to have both early and late varieties for better utilization (management) of the crop). Therefore the comparisons made are on the one hand between Mulga, Zwan and West as medium maturing varieties and on the other between Local and Algerian as late maturing ones (Table 1).

Although the new oat variety Zwan has a higher digestibility than Mulga, the dry matter, digestible and crude protein yields of both varieties were statistically similar, and, therefore, Zwan cannot yet be recommended as a replacement for Mulga. However, Zwan is recommended when seed of Mulga is not available.

Algerian, a variety introduced from Australia in 1979, is recommended to replace Local since it produced 19% and 38% more dry matter and grain yields, respectively than the variety Local. Algerian is 14 cm taller than Local and appears to produce more digestible organic matter, although its D-value is by 3.4 percentage units lower than that of Local. Algerian has fine stems and leaves, which are often considered quality factors in oat hay, although according to Schoner *et al*. (1982), their direct relation to hay quality is not yet known. In addition, it combines well with the commercial varieties of common vetch and fodder peas and it is not so aggressive as Mulga, permitting more legume growth in mixtures, particularly at the early growth stages (December to early March) when cereals grow faster than legumes (Hadjichristodoulou, 1973). The new variety can also be used for hay making in pure stands as a complementary variety to Mulga. By using two varieties for hay making, a medium and a late maturing one, hay production can be spread over a longer period for easy curing. The high forage potentialities of Algerian have also been stressed by Sethi and Singh (1976) working in India under irrigation. Hadjichristodoulou (1977), under rainfed, conditions found that late oat varieties give higher dry matter yield than the early ones, and the response of high yielding varieties to favorable environmental conditions, and particularly to high rainfall, is higher than the low yielding ones. He concluded that these two findings can be used as selection criteria for high yielding forage oat varieties under semi–arid conditions.

REFERENCES

Hadjichristodoulou, A. 1973. Production of forage from cereals, legumes and their mixtures under rainfed conditions in Cyprus. *Technical Bulletin* 14. Agricultural Research Institute, Ministry of Agriculture and Natural Resources, Nicosia, Cyprus.

Hadjichristodoulou, A. 1977. Effects of genotype and rainfall in forage oats in a semi-arid region. *Experimental Agriculture* 13:217-223.

Schoner, C.A., Kearney, T.E. and George, M.R. 1982. *California Agriculture* January-February 1982, 20-21.

Sethi, G.S. and Singh, H.B. 1976. Forage productivity of different cereals in the hills. *Indian Journal of Agricultural Science* 46:462-465.

P.I.O. 81/2004-400
Issued by the Press and Information Office, Nicosia
Printed by Konos Ltd, tel. 22491419, Nicosia