LOTUS SPP. GERMPLASM EVALUATION IN DENSE STAND AND IN SPACED PLANT CONDITIONS

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Although the unreliability of spaced plant data in predicting sward performance has been illustrated by several workers, some preliminary observations taken on a large forage legume collection suggested a good agreement between evaluation for agronomic characters in spaced plant and in dense stand conditions.
In order to obtain more accurate information on this topic two parallel trials (one space planted and the other broadcast seeded) were established in 1984.
Twelve Lotus spp. accessions (9 Lotus corniculatus L. and 3 Lotus tenuis Wald. and Kit.) from Central Italy were used.
Winter growth, spring regrowth, first bloom date and dry matter yield were recorded in 1985.
A high and positive correlation was found between data obtained in the two trials for all the characters, but first bloom date (Table 1).
Advantage in screening Lotus spp. germplasm for agronomic characters such as winter growth, spring regrowth and DMY in spaced plant conditions appeared evident.
This does not seem to be the case for flowering date due to a strong G X E interaction.

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Table 1 - Winter growth, spring regrowth, first bloom date and total DMY averages relative to examined birdsfoot and narrow leaf birdsfoot trefoil natural populations in spaced (40x60 cm) and dense stand (3000 seeds/m^2) conditions.

Populations	Winter growth February 1985		Spring regrowth April 1985		First bloom date		Total DMY in 1985	
	(score 1=min, 9=max)		(score 1=min, 9=max)		(days from May 1st)		g/plant	g/plot
	spaced	dense	spaced	dense	spaced	dense	spaced	dense
Lotus corniculatus L.								
Polcanto	4.7	5.5	9.0	9.0	20.9	31.2	124.7	1520.2
S. Marino	1.3	2.0	2.0	5.5	16.5	18.6	30.3	941.2
Colle di Bettona	1.0	1.0	4.0	4.5	12.7	18.3	36.0	914.9
S. Arcangelo	1.3	1.5	4.0	5.0	10.3	18.0	32.0	1090.7
Migliaiolo	1.7	1.2	4.7	6.0	13.7	16.9	41.0	1132.8
Abbadia	1.0	1.0	5.7	4.7	12.3	16.6	50.6	1103.8
Macerata	3.7	3.0	6.3	4.7	6.1	19.5	67.2	1182.6
Canetra	1.3	1.7	5.0	4.0	8.1	16.5	48.4	1035.7
L'Aquila	1.0	1.2	1.7	2.0	20.8	21.2	30.1	903.1
$\bar{X}$	1.9	2.0	4.7	5.0	13.5	19.6	51.1	991.3
Lotus tenuis L.								
Agello	6.3	7.7	9.0	9.0	23.4	27.1	127.5	1874.1
Ancona	8.0	8.5	7.7	9.0	33.1	34.7	165.4	1758.5
Roseto	6.0	6.7	7.7	9.0	23.1	27.1	122.3	1943.5
$\bar{X}$	6.8	7.6	8.1	9.0	26.5	29.6	138.4	1858.7
$DMS_{0.01}$ between species	0.80	0.47	1.07	0.56	2.17	1.07	16.20	191.59
$DMS_{0.01}$ " L. tenuis	1.46	1.14	n.s.	n.s.	6.83	2.61	39.68	n.s.
$DMS_{0.01}$ "L. corniculatus	1.98	1.14	2.64	1.19	6.83	2.61	39.68	349.99
$r_{(1)}$	0.940**		0.730*		0.640 n.s.		0.860**	

(1) Coefficients of correlation were calculated utilizing only L. corniculatus data.