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ABSTRACT
This work presents some properties on produced inbred lines of the 5 best populations of 4 species of *Agrostis* for breeding purposes. The cultivars of forage grasses should meet a given aim for selection, which is the increasing dry matter and quality. The populations used in this research were the best ones for morphological and productive properties from a previous study. By the process of selfing there have been produced S_1 offsprings which appeared to be quite superior in relation to open pollinated offspring from the mother plants. The obtained results were processed by multiple range regression analyses. According to the regression coefficient the inheritance of phenotype value of parental plants and the obtained offsprings after the selfing, and the properties like height of plant, tillering, number of vegetative and generative shoots, and dry matter yield for each plant has been determined. The selfed seed setting was quite satisfactory and it did not exppressed a very significant depression. Since the results relating to the inbred plants do not show inbreeding depression, process of selection and creating new cultivars should be continued for these species.

KEYWORDS
Populations, colonial bentgrass, velvet bentgrass, creeping bentrass, redtop, inbred line, cultivar

INTRODUCTION
The diverse Serbian flora is an important natural resource for collecting initial selection material and for genetic investigations of grasses which can be used as forage crops or as varieties for sowing grasslands and pasture. Species of the genus *Agrostis* are widely spread and cover different ecological and geographical regions. The species from the genus *Agrostis,* although not very numerous (there are only 6 in Serbian Flora, SANU groups of authors 1070), are widely spread,and they come from many plant communities in quite different ecological and geographic regions. The taxonomic and cytogenetic characteristics for the 1990 collection of more than 120 populations of 5 species of the genus *Agrostis*, from 82 localities spread over 120-1950m a.s.l. of Serbian flora have been determined (Tomic, 1994).The rich collection of autochthonous populations present good prebreeding material for creating the grass cultivars. Some populations of forage grasses developed for pasture system utilization were described by Tomic (1995). Hughes (1952) pointed out the advantages and potential gain of creating self-breeding lines to produce relatively uniform offspring with desired agronomic and other characteristics. In this research, present criteria for the cultivars of amenity grasses. The species within this genus can show a high degree of self-polination, which allows the creation of inbred lines to be used as breeding method.

MATERIAL AND METHODS
Collecting plants from wild flora was done by the forage grass Descriptor method (Tyler et al., 1985). Seeds of mother plants were sown in 50 repetitions. During the following years phenologic observations were carried out and the most important morphological properties were measured. S_1's were made in an experiment with the perspective populations planted in a dense row. The parameters of resistance to cutting, plant spread and row density, were determined as parameters of turf formation (Tomic, 1995). On the chosen plants from the perspective populations the inbreeding was done by pergamine paper isolation bags. One panicle was put in each bag and 5 bags were put on each plant. The obtained selfed seed was sown in the autumn of the same year in pots. When the plants in the glasshouse reached the height of 15cm they were planted in the field as individual plants. Every line was represented by 9 plants, and compared to offspring from the open pollinated mother plants. During the following period the same phenological observations and morphological properties were measured as before.

For the selecting program for forage grasses the 5 best populationswere chosen from each of 4 species: colonial bentgrass, *Agrostis capillaris* L.: 1.01; 1.18; 1.20;1.26;1.29, velvet bentgrass *Agrostis canina* L.: 2.02; 2.07 2.10; 2.14; 2.17, creeping bentrass *Agrostis stolonifera* L.: 3.02; 3.09; 3.14; 3.24; 3.28, and redtop *Agrostis gigantea* Roth.: 4.08; 4.14; 4.16; 4.18; 4.20.

The shown results refer to the second year of growth and reflect only the following phenotypic properties: shoot growth, height (cm), and tillering; the number of vegetative and generative shoots and dry matter yield (g plant^{-1}) for each plant. Seed was harvested for all plants and expressed as an average value (g plant^{-1}).

The results have been statistically processed and shown for open pollinated mother plants (F) and inbred lines (S_1). The regression of parents on average values S_1 of offsprings were examined by calculating the regression coefficient b and the constant applying the formulas used for calculating the equation of a straight line regression:

$$y = a + bx \qquad a = \frac{\acute{Y}\, y - b\, \acute{Y}\, x}{N} \qquad b = \frac{\acute{Y}\, y(x-Mx)}{\acute{Y}(x-Mx)^2}$$

The regression coefficient shows the strength and the form of dependence as well as the possible mode of inheritance which can be predicted with the offspring.

RESULTS AND DISCUSSION
The results regarding the height of generative shoots (cm), total number of shoots and dry matter yield (g plant^{-1}),were expressed by the average value for offsprings of mother plants (F) and selfed offspring (S_1), as well as the regression equation for all the 20 populations from the genus *Agrostis* (Table 1).

The regression equations for the populations of the colonial bentgrass showed that the average phenotypic value of shoot height with inbred offspring shoots, in relation to mother plants, of the coefficient b was positive and statistically significant. The significant decrease in number of shoots and dry matter yield with the same populations, was because the value of the b coefficient is negative. Average value of all populations for plant dry matter was 176.74 g plant^{-1} for F and for S_1 was 129.11 g plant^{-1}. The average value of production of seed was 10.77 g plant^{-1} for F and 6.06 g plant^{-1} for S_1 lines.

With the populations of species velvet bentgrass and redtop all the three examined properities have positive and statistically significant values of b coefficient in favor of offspring inbred plants. In velvet bentgrass the seed production for mother plants was 5.30 g plant^{-1} and for S_1 lines 2.99 g plant^{-1}.

The only property that was not significant was the height of shoots of the populations of creeping bentgrass, and the negative b coefficient for the number of shoots. The average value of all populations for plant drymatter was 83.04 g plant^{-1} for F and 117.97. g plant^{-1} for S_1. Average seed production was 5.63 g plant^{-1} for F and 2.73 g plant^{-1} for S_1.

The highest average mean value of all populations for plants dry matter was in the redtop populations within mother plants at 116.48 g plant^{-1} and for S_1 166.84 g plant^{-1}. Also, the average seed production was the highest at 13.51 g plant^{-1} for F and 9.86 g plant^{-1} for S_1.

A positive effect of inbreeding on yield and quality of *Dactylis glomerata* (Santen E. Van, 1987) was obtained for 2 out of 6 families, which proves that a greater effect of inbreeding can be achieved with the species used in this research.

These are the first results obtained by using the inbreeding method with a great number of populations that showed a high degree of genetic variability, out of which it is possible to choose perspective material, not only for the selection of productive forage grasses, but also for turf and amenity grasses cultivars. The good fertility of offspring gives the hope that the inbreeding method can be used as one possible way of creating the new cultivars in these species in genus *Agrostis* for different purposes.

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Table l

Average values of motters plants (F) and inbred lines (S_1) of heights of plants (cm), total number of shoots and dry matter yields (g plant^{-1}) in the:

Agrostis capillaris L. populations

No.populations	Heights of F	shoots (cm) S_1	Total no. F	of shoots S_1	Dry matter F	Yield S_1
1.01	68.00	62.30	407.00	195.30	102.30	119.02
1.18	61.00	78.90	250.00	31.30	39.50	20.39
1.20	50.00	87.80	465.00	416.20	276.60	293.88
1.26	37.00	78.80	144.00	191.30	104.30	161.52
1.29	43.00	85.70	117.00	42.40	361.00	50.72
M	51.80	78.70	276.60	175.30	176.74	129.11
	Y= 106.193+0.530X**		Y= 51.784-0.787X**		Y= 92.832-0.206X**	

Agrostis canina L.populations

No.populations	Heights of F	shoots S_1	Total no. F	of shoots S_1	Dry matter F	Yield S_1
2.02	61.00	82.10	49.00	91.10	26.30	61.09
2.07	70.00	83.50	56.00	175.70	17.00	146.82
2.10	61.00	74.00	42.00	54.10	12.30	22.90
2.14	74.00	81.50	238.00	474.30	196.50	284.60
2.17	52.00	58.90	48.00	66.70	14.60	25.49
M	63.60	76.00	86.60	172.98	53.34	108.18
	Y= 65.471+0.214X**		Y= 171.727+2.606X**		Y= 115.383+2.810X**	

Agrostis stolonifera L. populations

No.populations	Heights of F	shoots S_1	Total no. F	of shoots S_1	Dry matter F	Yield S_1
3.02	52.00	78.30	158.00	58.50	54.60	33.67
3.09	57.00	79.40	256.00	560.30	123.30	307.58
3.14	42.00	67.10	128.00	160.80	64.60	72.16
3.24	92.00	81.80	85.00	71.40	58.20	59.45
3.28	59.00	85.20	180.00	205.93	114.50	116.98
M	60.40	78.36	161.40	105.69	83.04	117.97
	Y=106.886+0.737X		Y= 2.378-2.017X**		Y= 39.235+1.454X**	

Agrostis gigantea Roth. populations

No.populations	Heights of F	shoots S_1	Total no. F	of shoots S_1	Dry matter F	Yield S_1
4.08	94.00	102.60	132.00	264.20	105.30	181.38
4.14	97.00	99.70	86.00	179.90	64.80	117.18
4.16	98.00	107.20	74.00	210.00	52.10	62.89
4.18	101.00	99.30	132.00	221.70	158.50	226.26
4.20	105.00	106.40	293.00	417.90	201.70	346.50
M	99.00	103.04	143.40	258.74	116.48	166.84
	Y= 99.312+0.046x**		Y= 62.548+1.244X**		Y= 9.399+1.685X**	