Effect of Combined Fertilization on Seed Production of Xinnong-1 Bermudagrass

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Key words : Xinnong-1bermudagrass ,Nitrogen ,Phosphor ,Potassium ,seed yield

Introduction A field experiment was conducted to study nitrogen , phosphorus and potassium fertilizers on the seed yields and seed yield factors of *Cynodon dactylon (L .) pers* cv *.Xinnong No .1* , in order to find out a reasonable rate of fertilization and guide the seed production of bermudagrass .

Materials and methods The experiment was carried out in Xinnong-1 bermudagrass seed-production field of San-ping experiment field of Xinjiang Agricultural University . Nitrogen , phosphor , potassium fertilizers were used . This experiment included 16 treatments , each treatment was repeated three times , the size of each plot was 15 m^2 , 5 meters as buffer , using a randomized block design . The fertilizer rates were shown in Table 1 .

Results and discussion The result indicated that applying nitrogen , phosphorus and potassium fertilizers together increased yield components and seed production significantly (Table 1) . Nitrogen fertiliser alone improved yield by 12% ;With combined fertilizers , reproduction tillers increased by 31 .20% ～51 .78% and 54 .54% ～98 .21% compared with CK . With the N100-$P_2O_5$80-K_2O160 kg/ha , the quantity of tress and reproduction tillers was the highest , up to 1161 .16 entries/m^2 and 813 .83 entries/m^2 . The yield of xingnong-1 bermuda grass was the highest (517 .7 kg/ha) , about 138% higher than CK treatments when applied 100 kg/ha N , 80 kg/ha P_2O_5 and 160 kg/ha K_2O .

Table 1 *Effect of fertilizer application on seed yield of Xinnong-1 bermudagrass .*

Treatments	spike length (cm)	spikelets/fertile tiller	seed/ fertile tiller	seed setting(%)	1000-grain weight (g)	Production ofseed (g)
$N_{183}P_{145}K_{145}$	6.01^{cdBCD}	55.58^{bcdABC}	43.81^{bcdBCD}	78.66^{cdCD}	0.4401^{abA}	355.50^{d}
$N_{183}P_{145}K_{14}$	6.02^{bcBC}	50.26^{hijEFG}	38.71^{fF}	77.47^{cdefCDEF}	0.4396^{abA}	320.10^{de}
$N_{183}P_{14}K_{145}$	6.23^{abAB}	57.11^{abAB}	45.91^{bcBC}	80.73^{bcABC}	0.4400^{abA}	372.10^{cd}
$N_{183}P_{14}K_{14}$	5.92^{cdCD}	54.40^{cdefBCD}	38.59^{fF}	70.70^{gbF}	0.4371^{abA}	282.00^{e}
$N_{17}P_{145}K_{145}$	5.55^{efgEF}	52.66^{fghCDEF}	43.46^{cdBCDE}	80.80^{bcABC}	0.4233^{abcA}	272.40^{ef}
$N_{17}P_{145}K_{14}$	5.74^{deDE}	56.14^{abcABC}	43.26^{cdBCDE}	77.63^{cdeCDE}	0.4222^{bcA}	276.60^{e}
$N_{17}P_{14}K_{145}$	5.70^{defDE}	53.18^{defgCDE}	42.10^{deCDEF}	79.28^{cdCD}	0.4237^{abcA}	327.90^{de}
$N_{17}P_{14}K_{14}$	5.47^{fgEFG}	52.96^{fghCDE}	39.28^{efEF}	73.88^{efgDEF}	0.4200^{bcA}	280.10^{e}
$N_{200}P_{80}K_{80}$	6.31^{aA}	53.11^{efgCDE}	40.20^{efDEF}	75.11^{defgCDEF}	0.4413^{abA}	371.60^{d}
$N_0P_{80}K_{80}$	5.33^{ghFG}	48.58^{iG}	39.23^{efF}	79.88^{cdBC}	0.4250^{abcA}	251.70^{ef}
$N_{100}P_{160}K_{80}$	5.84^{cdCD}	58.63^{aA}	50.07^{aA}	85.17^{abAB}	0.4567^{aA}	444.40^{bc}
$N_{100}P_0K_{80}$	5.72^{deDE}	51.92^{ghDEF}	40.27^{efDEF}	77.80^{cdeCDE}	0.4433^{abcA}	364.40^{d}
$N_{100}P_{80}K_{160}$	6.04^{bcABC}	55.50^{bcdeABC}	46.04^{bcBC}	81.41^{abcABC}	0.4548^{abA}	517.70^{a}
$N_{100}P_{80}K_0$	5.50^{fgEF}	52.65^{fghCDEF}	38.36^{fF}	71.68^{fghEF}	0.4331^{abcA}	366.00^{d}
$N_{100}P_{80}K_{80}$	5.86^{cdCD}	54.48^{cdefBCD}	46.61^{bB}	85.87^{aA}	0.4533^{abA}	481.40^{ab}
CK	5.36^{ghFG}	49.21^{gFG}	39.40^{efDEF}	80.06^{bcA}	0.4190^{cA}	217.10^{f}

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