Growth Characteristic, Productivity and Nutritive Value of Forages by Reseeding Methods in Forest Fire Burnt Pasture

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Introduction Periodic burning is a management tool used to rejuvenate old stands of grasses . Burning maintains the vegetation in a more youthful and productive state for grazing . How a plant responds to fire depends on the height above ground of its growing points , a function of plant maturity and plant-growth characteristics . Limited imformation is known about the use of fire on cool-season grasses . However , these may include many of the same objectives associated with burning , such as woody plant control or thatch removal . Also , grazing distribution and uniformity may be improved by burning cool-season bunch grasses , which accumulates dead stems that block access to new growth . From April 4-6 , 2005 , there was a huge fire in Yangyang-gun , Kangwon-do , Korea , which burned over 250 ha of forests and 246 buildings including 160 houses . Therefore , effects of reseeding rate and timing on growth characteristic , productivity and nutritive value of forages in the forest fire burnt pasture were investigated in this study .

Materials and methods This study was conducted from April 2005 to December 2006 in a private farm in Kangwon-do , Korea . Six treatments were considered namely : existing vegetation , damaged vegetation (Forest fire burnt pasture in the region) without any modification and damaged vegetation with modifications such as 30% and 50% reseeding 10 days and 20 days after the forest fire . The existing vegetation was seeded with 15 kg of orchardgrass , 10 kg of tall fescue , 3 kg of Kentucky blue grass and 2 kg of white clover . During the establishment period , fertilizer was applied at a rate of 80 kg N , 200 kg P and 70 kg K/ha and 210 kg N , 150 kg P and 180 kg K/ha for management distributed equally across the experimental area in the spring and time after every cutting . The forages were harvested by cuttings 3 times in 2005 and 4 times in 2006 . Estimates of yield were determined by harvesting forage in a 1 m^2 area in each plot . Fresh forages were oven dried for 72h at 75℃ , weighed and converted to DM yield . Forage nutritive value was evaluated in terms of ADF and NDF (Goering & Van Soest , 1970) , and *in vitro* dry matter digestibility (IVDMD ; Moore , 1970) .

Results The DM yield for existing vegetation was the highest in the 1st year(2005) of the study(Table 1) . In the 2nd year study , DM yield obtained from damaged vegetation with no treatment was the highest . The highest yield was not significantly different , however , from the DM yield of other treatments in this study .

Table 1 *Dry matter (DM) yield of forages in 2005 and 2006 .*

Treatments	DM yield (kg/ha)		
	2005	2006	Mean
Existing vegetation	8 ,587	7 ,803	8 ,195
Forest fire burnt pasture	6 ,296	9 ,482	7 ,889
30% Reseeding , 10days after burning	7 ,045	7 ,772	7 ,408
50% Reseeding , 10days after burning	7 ,910	8 ,288	8 ,099
30% Reseeding , 20days after burning	7 ,332	8 ,049	7 ,690
50% Reseeding , 20days after burning	7 ,100	8 ,879	7 ,989
LSD (0 .05)	NS	NS	NS

Conclusions Although there were no significant yield differences obtained in this study , the mean DM yield for existing vegetation was the highest . A benefit of reseeding burnt pastures was not found . We concluded that forest fire resulted in reduction of the pasture yield for a short period but it did not have any significant effect in the long term .

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