SOIL CHEMISTRY AS AFFECTED BY FIRST-TIME PRESCRIBED BURNING OF A GRASSLAND RESTORATION ON A COASTAL PLAIN ULTISOL

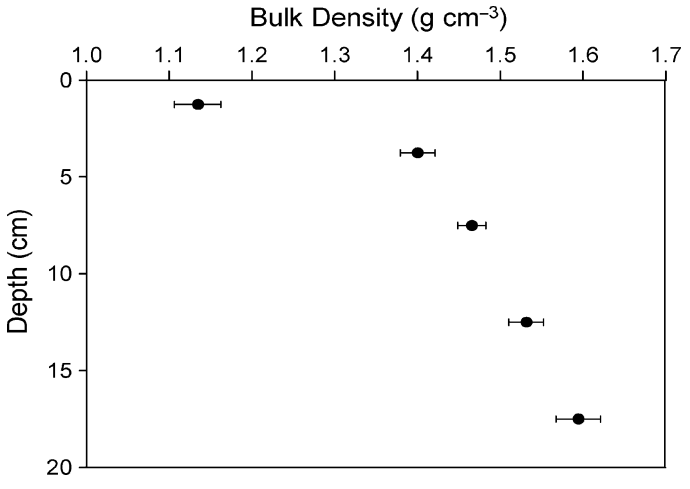
[illegible][1]

[illegible]

i t . t . t t at t tat f t
M dAtla t c C a tal Pla , a . ll a . t at f
c a tal N E la d, c i . t d i - a i l f
a la d „ i la d a a a, a d at la d
d i a i . i d i l i c i t ,
i cl d -c l i al t - .(K l ff, 1996;
T dall, 1992). T i . tat i . t d i t
c t i t . i cal t - . i - a i l d t at al
a d . . t b Nat A- i ca (A d . ,
1982; P , 1983; V c h a d D i dd ,
1997). Ra i d a i c lt al d l - t a d -
ba t i t i t t c t , ,
l d t i . i ca t l . . a d a l - i at f
all a la d ab tat i t M dAtla t c C a tal
Pla (A t „1997).

. fac at t t- f t 11-da tb ;]
ar] . A . t t- ; d a .c . t
c ll ct t 11-da tb ar] t - ; ; - ;
c a ; t ;] d t fact . t t a

a d ac d d t H<2 : t : t: c ac d f a a l : . .
(C l c : t a l., 1998).
T M $^{2+}$ c c t at : t .] ta t
.] t .f - t c -] : . c a
- a . d b at - : c ab . t . ct t - -
t (P h E- A a l t. 100, W ll l. , MA).
La t a - (La^{2+}

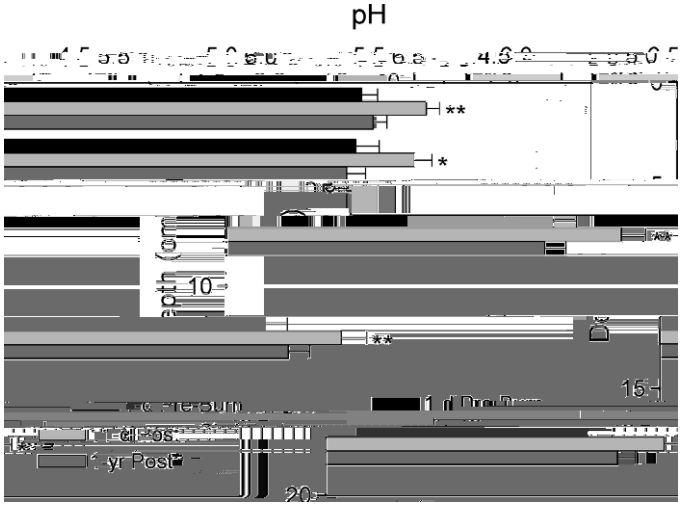


F . 1. M a (± a a) b (= 5) 0.4- a a a a a.

ic i .c - a abl t al .d t - i d f t Atla tc C a tal Pla i l . (L t al., 2004). A . a . ct d, - . t (< 0.01) c lat . i t d b t - a f t - a . d il c - i cal t .b f b i (Tabl 1). B t -b il OM a d CEC t l it l c lat d it t actabl Ca, M , a d K c t t a . ll a . it ac t (= 0.75). E t actabl Ca a . t l it l c lat d it M a d K (= 0.92 a d 0.73, . ct l). C lat . f H it OM, CEC a d t cat . a , b t tll i . i ca t.

- *B*

D it a lat l la d f ai- abl t i il H ar i d i d al ar l b t b f a d af b i , t a a il H i c a .d i . i ca tl (< 0.05) at all il d t . i t i t t d a a b 11 da .af t c i b d b (F . 2). B f b i , t a a il H a 5.72 (SE = 0.06); t 0 t 2.5 c d t i t al a d a 5.39 (SE = 0.09) i t 15 t 20 c i t al. Af b i , t a a il H a 5.94 (SE = 0.05); t 0 t



F . 2. M a (± a a) H (= 25) 1 a b f (. ., 1- a -b), 11 a a 1 a af c b b (. ., 11- a a 1- a , c). A ca ff c f 1- a -b a *P* < 0.05 (*) a *P* < 0.01 (**).

TABLE 1

S - a f - a d t-b c lat .( ) a- :l a:c- att (OM), cat c a ca ac t (CEC), t actabl Ca, M , a d K, a d :l H f all a- l d t .c - b d

S:l Va: abl	CEC	Ca	M	K	H
		P -b c lat .( )			
OM	0.865§	0.882§	0.768§	0.708§	0.249‡
CEC		0.946§	0.873§	0.772§	0.406§
Ca			0.924§	0.725§	0.525§
M				0.576§	0.627§
K					0.239‡
		P t-b c lat .( )			
OM	0.906§	0.923§	0.824§	0.752§	0.135
CEC		0.942§	0.991§	0.827§	0.276†
Ca			0.919§	0.775§	0.383§
M				0.736§	0.496§
K					0.164

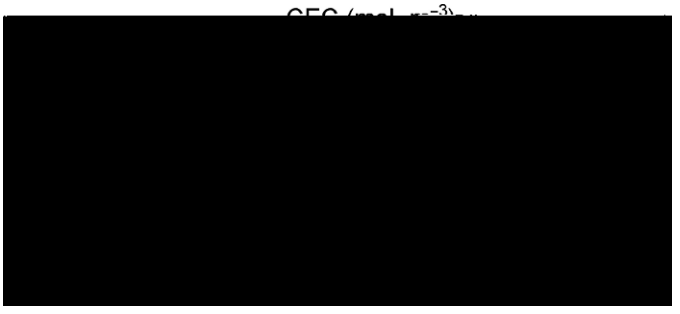
S - b l d t :. : ca t c lat at P < 0.05† P < 0.01‡ a d P < 0.001§

2.5 c d t :: t al a d 5.65 (SE = 0.08) :: t 15 t 20 c :: t al. B :: d d t aff ct t - a . d a:: ab l t a ..c at d :: t :l H. T :: c a .:: H:: ac d t :: t al a . :: :: la a d a a d 0.23 (SE = 0.01) H :: t .. Aft 1 a , :l H a . l :. :: ca l d ff t t a t -b :l H (F . 2).

T lat l l b ff :: ca ac t f t :: l at d Ult .l:: t:: .t. d - a} :: t . :: t bai c :: t .. B :: f a la d tat c t :: :: al c - t . f t :: a .. .: t .l bl alt .(Da b - :: , 1968) a d, c tact :: t at , t alt . d d l :. , :: c :: . a al} a l :: t - d c act . T . al da . f a t at cc d :: t 11 da .aft t c:: b d b ld a all d t ba .-cat -:: c , al} a l a . f - t b t t at t a - . fac :: l at t CRFRC :: t . A t tal f 4.63 c f a cc d d :: t 11 da .. :: - a:: l da 3 t 8 aft t b (NCDC, 2003). Ba .d a a - a . d :: l b l} d :: t b d t (F . 1), a .- :: t l - t:: c :: l at c t t a . lat l :: (. ., ~ 33%) f - t a , a d a .- :: l tl ff cc d, c :: d :: t ll-d a d :: l . :: t 2 t 5% l. a d a l a fall:: t :: t (NCDC, 2003), t 4.63 c f a b t b :: a d 11-da tb :: l a- l c l- l ct ld a t at d t a d t f a l 15 c :: f t :: l la . ab at at d. H ,:: t:: . l} l t at :: t a d -l a- :: l t t , t :: l la . d d t at at a d t a at t at d t a at d t t a 15 c . S - a . a d a .-d ..l t d ct . babl t at d t a :: :: la d t :: t t :: l a t a at . At ac d t a- l d t 20 c , t :: c a .:: H a .:: :: la (F . 2), . t t calc lat t at t at ad:: fact:: lt at d t at l a t. 20 c .

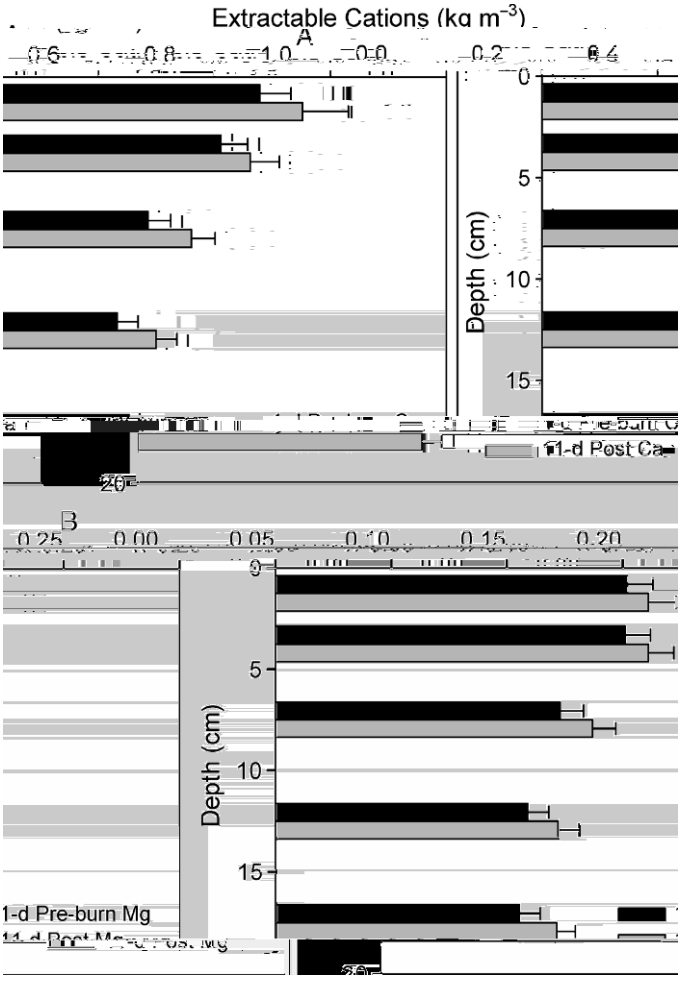
I c a . :: :l H aft t-t - b . f a la d . a l b t d:: t t t. d ..I a :l t-l a- :: l f t Ha d P a :: I a, E :: c a d A} - a (1963) t da 0.9 H :: t:: c a .:: t . fac 2 c

F . 3. M a (± a a) a c a (OM) (= 25) 1 a b f (. ., 1- a -b), 11 a a 1 a af c b b (. ., 11- a a 1- a , c).



F . 4. M a (± a a) ca c a ca ac (CEC) (= 25) 1 a b f (. ., 1- a -b) a 11 a af c b b (. ., 11 a).

. a l - t . af t t- t - b ; ; t H c a b . d ; t ; . t d , P c t . ; f t a . A . a . t ca . at t t a l. (2003) t d a ; l H ; c a . f 0.38 CRFRC ; t , t f d t at t H ; c a . ; t ; t . fac 5 c , 1 da af t ; t d ; .. at d b 1 a af t b . S - ; l a t b ; a a l a d c - . d f a - - a .



F . 5. M a (± a a) ac ab Ca (A) a M (B) (= 25) 1 a b f (. ., 1- a -b) a 11 a af c b b (. ., 11 a).

f t K a P a i f Ka a .(O i - a, 1987)
a d a a l a d a ac d a d l a i
C c t c t (N i a d D , 1989)
. d c a i i l H.
D i t d ff c i i l a d c l - at , i l
H i c a . . t d at i i . . b c t d t b t
t - t - at d b i c - a ab l
l. t l at t a t i c a . . f d at
t CRFRC i i . A t i - act f i i - . c c
c d t . f b i t i i a d f l l ad, a .

t c; b d b t t t 20 c , b t, ; c t a t. t ; l H, t ; c a . „ a - . - d t b a . l t f t c; b d b , t tat t. call ; . ; ca t (F .. 3 t 5). S - ; la t ; l H, b ; d d t aff ct t - a . d a; abl t f t . t .at ac d t . T c; b d b d d t ; . ; ca tl aff ct t actabl K, Na, F , M , Z , C , S, a d P (data t .). B 1 a aft b ; , ; : ; la t ; l H, OM d d t d ff f - b al .(F . 3).

Stat t. call ; . ; ca t c a ; t la- t ; .b t OM, CEC, a d ; l - t .d d cc f ll ; 11 d aft b ; , ; c . t t - ; cal ; c a . „ a d ; c - a b a ; . f f t c a ; t t t b ; . F c - ; cal t . at l a l c lat d ; t H b f a d 11-d aft b ; , ar l CEC a d t act- abl Ca a d M (Tabl 1), t lat ; d d t c a ; . ; ca tl aft t b , a ; d- cat d b tat t. call ; al t l. .a d ; t - c t . f t ; .. at .b f a d aft t b . T ; c a . ; l H d t ct d - t. a b - atc d b ; c a . ; c a abl Ca a d M a d CEC, a . . t. d ; t d t l „ ; d t - a ta t . ar - lat ; .. A ; c a . ; OM ; . . t d b t tat t. call ; al t lat ; b t OM a d Ca b f a d 11 d aft b ; (F . 6A). E t c a cc d ; t OM a d Ca d t b ; , , - l } l , c ; d ; t ; c a . ; Ca . t. d b t lat ; ; t H a d t - ; cal ; c a . ; OM a d Ca ; t d t l „ b t ; c a .d ; a - a t - a ta t ar lat ; .

A t l f ; d c ; d cat t at b ; ; c a .d OM, CEC, a d t actabl cat ; . t ; l ; 11-da tb c a ; t l. f t ; .. at .c a ac- t ; ; t lat ; .b t CEC a d OM (F . 7), M a d OM (F . 6B), a d M a d Ca (F . 8). T l. (= 0.046) c a act ; ; t l a lat ; b t CEC a d OM d c a .d 11 da .aft b ; (F . 7). I add t , t l a lat ; b t t actabl M ; t OM c a d (F . 6B), ; c t a t. t t at b t Ca a d OM (F . 6A); t l. d c a .d (= 0.024) a d t ; t c t; c a .d (= 0.046) aft b ; . M , t l a lat ; b t t actabl M ; t Ca t l. d c a .d (= 0.006) a d t ; t c t ; c a .d (= 0.009) (F . 8) 11 da .aft b ; . I t . ca . „ t c a ; lat - ; .c ld a .lt d f - a ; c a .

. d a b . I t . t t d

; l cat c t t .t a t; . t. d (J. Bla ,
. al c - - ; cat , 2004). O t t
a d, C ; t.a . (1976) d t ct d; c a . ;
; l cat .t - t .aft t-t- b ;
f a .. „ .d .a d b ; ac d c ; l . f
B M ad .S a d a Nat al Pa ł. I a
lab at t. d , Ll d (1971) add d a . f - d
f - b ; bac . tat t calca -
.a d b - a t ; l . f E la d a d
b . d a ; c a .; c a abl K, b t t
Ca. H , Ll d (1972) d d t b . a
c a ; c a abl K Ca d t a .
add t t ld l t .. D ff c .f d b -
t ; t. c ld t l b d t bact d
cat c t t „ b t t d f l ac ; f
t .l bl cat ..

T . t-t - ff ct . f b ; ; l
c - ; cal t . f a a la d t. at
a ; l at d Ult .l ; t M dAtla t c
C a tal Pla . t. t at b ; ; ll babl
. a .a ; - ta t - a .t c cl a ; c
- att a d - a cat .a d t ; c a . ; l H
a d CEC a l ; t ; .a . . T
; : ; la ; t ; t - a ; t d f t c a .
b t t . .lt a d t . f t t. d „
; a t c la f ; l H, ; d cat .t c - b d
; - act f b ; c d t „ at aft
b ; , ; l t „ a d cl - at ; d t -
- ; ; t ; - act f b ; ; l c - ; -
t . T d t.. at f . t-t - c a .aft
1 a . t. .t at l -t - c a ; t
; l c - ; t. f a a la d t. at a
; l at d Ult .l ; t M dAtla t c
C a tal Pla ; ll babl l cc ; t
at d b ; a d ; t at t t f
a . a d a .-d ..l t d ct .. T bala c
b t . t-t - c a .a d t l -t -
b ff ; ca ac t f a t ; cal, ; l at d
Ult .l ; t M dAtla t c C a tal Pla . t. .
t at a la d t. at ca b .cc f. l a d
t at . ta abl l -t - c l ; cal d ct ; t
babl ca b ac ; d.

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.- - a ; t l . f , cl - at a d a ;
a ; - al ; t ; ; a d - a t a c f a ..
la d :. A d a . : G a .. .a d G a la d :.
S t - at c .a d Ec l . J. R. E t. „ R. J. T l,
a d J. N. B t (d .). U ; ; t f O la - a

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