Hkkjrh; df"k vuqla/kku if=dk] **35**(1 o 2): 79-82 DOI: 10.18805/BKAP205

ikuk ftyk] egkjk"V dh tUnkj rglhy esa p;fur —f"k feêh ds ueuksa dk Hkkfrd&jklk;fud fo'y"ks"k.k

'kSys'k ekfr vkpk;*

df"k 0;olk; ic/ku egkfo|ky;] ukjk;.kxko] ikuk-410 504] egkjk"V] Hkkjr A

izkIr % eb 2020 Lohdr % vxLr 2020

lkjk'k

Qjojh 2018 ls eb 2019 ds nkjku ikuk fty ds tUnkj rglhy ds nl vyx&vyx LFkyksa ij df"k 0;olk; ic/ku egkfo|ky;] ukjk;.kxko egkjk"V esa ;kstuk vkj VekVj feêh ds jklk;fud xq.kksa dh tkp ds fy, ,d çk;ksfxd x;k FkkA dkcfud dkcu] ukbVªkstu] ikVf'k;e vkj QkLQksjl lkexzh dk fo'y"ks"k.k fd;k x;kA ;g ik;k x;k fd fofHkUu fdlkuksa d {ks= esa fofHkUu ueuksa fcnvksa d ik"kd rRoksa vkj ekinaMksa e mYy[kuh; fHkUurk FkhA v/;;u d ifj.kke nkuksa lkbVksa e ukbVªkstu] Q,LQksjl vkj ikVf'k;e d fuEu Lrj dk n'kkr gA lkFk gh v/;;u {ks= d nkjku dkcfud inkFkksa de gA

'kCn dqtha % feêh] Hkkfrd&jklk;fud] mPpA

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Physico-chemical analysis of selected agricultural soil samples in Junnar tehsil of Pune district, Maharashtra

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ABSTRACT

An experiment was undertaken at College of Agriculture Business Management, Narayangaon Maharashtra to investigate the physico- chemical properties of Onion and Tomato soil at ten different sites of Junnar tehsil of Pune District during February 2018 to May 2019. The soil parameters like soil pH, EC, Organic Carbon, Nitrogen, Potassium and Phosphorous content were analyzed. It was found that there was a marked variation in nutrients and parameters of various sample point in different farmers field. The results of the study show the low levels of Nitrogen, Phosphorous and Potassium in both sites. Also the organic matter is low during the study area.

Key words: Soil, Physico-Chemical, Higher.

izLrkouk

feêh dk iFoh dh iiMh dh ,d iryh ijr d :i esa ifjHkkf"kr fd;k tk ldrk g tk ik/kk dh of) d fy, ,d çk—frd ek/;e d :i esa dk; djrh gA ;g xj&lefdr [kfut inkFkksa ftl vkuqokf'kd vkj i;kstu.kh; dkjdksa l çHkkfor vkj çHkkfor fd;k x;k g & ey lkexzh] tyok;q] tho vkj le; dh vof/k e lHkh thouhA feêh] :ikRed] Hkkfrd] jklk;fud vkj tfod x.kksa e ey lkexzh l fHkUu gksrh gA bld vyokoksa] feêh vkuof'kd ;k i;kstu.kh; dkjdksa d vrj d vk/kkj ij dN ;k lHkh x.kksa e vkil e fHkUu gksrh gA bl çdkj dN feêh yksy g] dN dkyh gA dN xgj g vkj dN mFkyk gA dN ekV&cukoV oksy g vkj dN Bhd&Bhd cukoV oksy gA o Qlyksa d fy, ik"kd rRoksa vkj ikuh d HkMkj d :i esa vyx&vyx fMxzh e lok djr g] ;kf=d yxj vkj vudy fryd çnku djr gA feêh d ?kVd [kfut inkFkksa] dkcfud inkFkksa] ikuh vkj gok g] ftue l vuqikr fHkUu gksr g vkj tks ,d lkFk ik/k d fodkl d fy, ,d ç.kkyh cukr g] blfy, ifjç{; e feêh dk v/;;u djus dh vko';drk gA enk ueuksa fdlh Hkh feêh d fo'y"ks"k.k d fy, 'kks;n lcl egRoi.k dne gA pfd fo'y"ks"k.k d fy, fo'kksy feêh d æ0;eku dk cgr de v'k mi;ksx fd;k tkrk g] blfy,

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{k= dk lgh ek;u e çfrfuf/k feêh ueuk çkIr djuk cgn egRoi.k gk tkrk gA

enk ijh{k.k vk/kkfjr ik"kd rRo çc/ku ik"kd rRok d b"Vre mi;kx d ckn l—f"k mRikndrk vkj mRiknu c<ku d ç;kIk e ,d çe[k eík d :i e mHkjk g] feêh fo'y"k.k d vk/kkj ij Qly mRikndrk e l/kkj vkj bu ik"kd rRok d vi0;; dk de dj ldr g] bl çdkj b"Vre d ek/;e l iokxg d fy, vx.kh i;koj.k ij çHkko dk de djuA mRiknuA l;kt ,d 'kkr ekle dh Qly gA l;kt dk vdj.k 6° l 7°C rd /khek gkrk g] vf/kdre vdj.k rkieku lhek 10° l 35°C gkrh g] vkj vf/kdre rkieku 40°C gkrk gA l;kt dh Qly mxu oky ekle d vudy gkrh g] ftle 13° l 24°C rd VekVj gkrk gA ,d xe ekle dh Qly gA Qly 21°C l 23°C d vkIr ekfld rkieku d rgr vPNh rjg l djrh gA rkieku vkj çdk'k dh rhork Qy d lV] jtdrk vkj Qy d ik"kd eY; dk çHkkfor djrh gA yc le; rd l[kk vkj Hkkjh o"kk nkuk fodkl vkj Qyu ij gkfudkjd çHkko fn[kkrh gA

l?ku [krh oky {k=k e nkuk Qlyk d fy, çkFkfed] ek/;fed vkj l{e ik"kd rRok dh deh n[kh xb gA oreku v/;;u dk mí'; i.kfty d tUukj rglhy ¼,e,l½ e—f"k feêh ¼l;kt vkj VekVj½ e Hkkfrd jklk;fud d fo'y"k.k dh tkp djuk FkkA ih,p] fo|r pkydrk ¼blh½ dkcfud dkcu ¼%½ yo.krk] feêh cukoV] ukbVk tu vkj QkLQkjl] ikVf'k;e d jx vkj jklk;fud ekinMk tl Hkkfrd ekinMk dk fo'y"k.k fd;k x;kA

lkexh ,oa ijh{k.k fof/k

v/;;u {k=% feêh d ueu i.kfty ¼,e,l½ d tUukj rglhy d {k= l ,d= fd, x, FkA tUukj rglhy Hkkjr d egkjk"V jkT; e i.kfty d mÙkjh Hkkx e fLFkr gA ;g 19°12^ mÙkjh v{kk'k l 73° 58^ io e fLFkr gA ;gk dh tyok; m".kdfVc/kh; gA lfn;k e xfe;k dh ryuk e cgr de o"kk gkrh gA Junnr dk vkIr okf"kd rkieku 24-4 gA 913 feeh vkIr okf"kd o"kk gA

feêh dk ueuk% feêh d ueuk dk Øe'k% 0 l 20 leh dh xgjkb ij] Øe'k% çR;d ly,V l nl ly,V] nl ueuk d lkFk ,d= fd;k x;kA vPNh rjg l i,yhFkhu ikmp e ck>A l;kt vkj VekVj dh feêh d ueu gok e l[k x, FkA fQj o ekVkj vkj ely dk mi;kx djd tehu ij vk x, vkj 2 feeh Nyuh l xtjA lLVUM ueu ckn d Hkkfrd] jklk;fud fo'y"k.k d fy, fefJr vkj lxghr fd, x, FkA

,d= fd, x, ueuk dk fo'y"k.k çe[k Hkkfrd vkj jklk;fud feêh dh x.koÙkk ijkehVj tl ih,p] byfDVdy dMfDVfoVh ¼blh½ vkj v,xfud dkcu ¼vkIh½ ukbVk tu ¼,u½ ikVf'k;e ¼d½ vkj QkLQkjl ¼ih½ ekud fof/k ¼Mhvkbvkjh i.k 2009½ d fo'y"k.k d fy, fd;k x;k FkkA

ifj.kke ,oa foopuk

l;kt vkj VekVj {k= d ueuk dh nl feêh d Hkkfrd jklk;fud voykdu rkfydk &1 e çLrr fd, x, FkA v/;;u {k= e feêh dh ç—fr lHkh ueuk l jr Dy yke FkhA oreku v/;;u e] ih,p 6-4 l 7-2 rd gA feêh dk ih,p lHkh feêh e rVLFk gku d fy, FkkMk vEyh; ik;k x;k FkkA dy ck;kekl 6-5 d lek/kku ih,p e mxk, x, l;kt d ik/kk d fy, lcl cMk FkkA ¼du ,V vy] 2006½A feêh dk ih,p lcl egRoi.k ijkehVj e l ,d gA feêh blh ,d egRoi.k fo'k"krk g ftldk mi;kx ik"kd rRok dh miyC/krk vkj feêh e ektn ?kyu'khy ued d fy, fd;k tk ldrk gA enk fo|r

fdlkuk d [krk l feêh dk ueuk ,d= fd;k x;k

ueuk l[;k	QhYM ueuk	fdlku dk uke	xkao	tgk l ueuk ,d= fd, x, Fk
1	O-1	''kdj dkMkth ckpj	Sawargaon	Onion
2	O-2	n'kjFk rdkjke ckpj	Umbraj	Onion
3.	O-3	çrhd rkukth /ky	Ale	Onion
4	O-4	x.k'k fdlku ye[kM	Otur	Onion
5	O-5	foFkk lj'k njkQ	Narayangaon	Onion
6	T-1	/ke c) nX/kon	Ambe gavhan	Tomato
7	T-2	ex'k rdkjke lgku	Padali	Tomato
8	T-3	v,fV 'kdj fdlku	Khodad	Tomato
9	T-4	uyon ekgu l[kkjke	Dholwad	Tomato
10	T-5	f[kykjh ckyklkgc nkn	Rajuri	Tomato

rkfydk 1% enk ueuk d Hkkfrd jklk;fud ijkehVjA

Parameters	O1	O2	O3	O4	O5	T1	T2	T3	T4	T5
enk ç—fr	SCL	SCL	SCL	SCL	SCL	SCL	SCL	SCL	SCL	SCL
ih,p	7.2	6.6	6.5	6.4	7.1	6.4	6.4	6.7	6.8	6.9
E.C	0.4	0.2	0.3	0.4	0.2	0.11	0.14	0.13	0.20	0.16
[kkjkiu	0.10	0.14	0.15	0.13	0.14	0.11	0.12	0.13	0.12	0.11
tfod dkcu ¼%½	0.31	0.35	0.33	0.31	0.29	0.39	0.40	0.36	0.37	0.39
miyC/k ukbVk tu ¼fdyk@?kVk½	210	225	217	209	222	169	182	177	198	186
QkLQkjl ¼fdyk@?kVk½	44	37	61	45	69	55	61	59	67	71
ikVf'k;e ¼fdyk@?kVk½	121	110	127	117	133	201	135	141	133	149

pkydrk ¼bl h½ ,d eki g tk feêh d x.kk l lcf/kr g tk Qly mRikndrk dk çHkkfor djr gA pkydrk eku 0-11 l 0-4 µS/cm leh rd gkrk gA QhYM ueu O1 vkj O4 dh fo|r pkydrk ckdh ueuk dh ryuk e vf/kd ikb xbA ek/ko ljek ½2015½ u v/;;u fd;k fd Qly yo.k d çfr lonu'khyrk d Lrj e fHkUu gkrh g] yfdu vf/kdk'k Qly inkokj ij dkb çHkko ugh d lkFk 1-1 ;k mll de d Lrj dk lgu djrh gA vfrfjä yo.krk l ik/k d Hkhrj ueh dk ruko gk ldrk gA gkykfd] 'k) Hkh gkfudkjd gk ldrk gA cgr de yo.kk d lkFk ikuh feêh d Qyko vkj feêh dh iiMh dk tUe n ldrk gA yo.krk feêh e ?kyu'khy yo.kk dh dy ek=k dk ,d eki gA tl gh ?kyu'khy ued dk Lrj c<rk g] ik/kk d fy, feêh l ikuh fudkyuk vf/kd dfBu gk tkrk gA yo.krk eku 0-10 l 0-15 Mh,l@leh rd gkrk gA QhYM liy VekVj dh ryuk e QhYM liy l;kt d fy, yo.krk dk eku vf/kd ik;k x;kA 2 Mh,l@eh l Åij yo.krk eku ued lonu'khy ik/kk d lkFk leL;k, ink djuk 'k: djr g] vkj 4 Mh,l@eh l Åij d eY; db cxhp vkj yMLdi ik/kk ¼ouku iju 2010½ d fy, leL;k, gA

tfod dkcu 0-29 l 0-40% rd gkrk gA enk tfod dkcu v/;;u {k= e mYy[kuh; :i l de gA ;g xjhc feêh dkcfud dkcu ¼,lvkl h½ dh Åtk lkrk dh deh d dkj.k ekbØkfc;y ck;kekl] xfrfof/k vkj ik"kd rRok d [kfutdj.k dk de djrk gA enk tfod dkcu d dkj.k feêh d ck;kVk e de fofo/krk gkrh g] ftld dkj.k [kk| J[kyk lryu [kjkc gk tkrk g] ftll enk i;koj.k e xMcMh gk ldrh g ¼tl] ik/k dh dhV vkj jkx e of)] fo'kkä inkFkk dk lp;½ ¼odV jeu 2015½ miyC/k ukbVk tuA ,u½ 169 l 225 fdykxke@gDV;j d chp gkrk gA miyC/k QkLQkjl ¼ih½ 37 l 71 fdykxke@gDV;j d chp gkrk gA miyC/k ikVf'k;e 110 l 201 fdykxke@gDV;j d chp gkrk gA

fu"d"k

ik/kk dh cgrj of) d fy, enk Hkkfrd jlk;u —f"k e ,d egRoi.k Hkfedk fuHkkrk gA fd, x, dk;k d ifj.kkek l] ;g fu"d"k fudkyk tk ldrk g fd feêh d ueuk dk ih,p lHkh feêh vkj dMfDVfoVh e rVLFk gku d fy, FkkMk vEyh; Fkk] dkcfud dkcu dk de ik;k x;k FkkA ;g Hkh n[kk x;k g fd l;kt {k= l çkIr ueuk e miyC/k ukbVk tu ¼fdyk@gDV;j½ vf/kd ik;k x;k] tcfd miyC/k QkLQkjl ¼fdyk@gDV;j½ vkj miyC/k ikVf'k;e ¼fdyk @gDV;j½ VekVj l ,d= fd, x, {k= d ueuk e vf/kd ik;k x;kA

lanHk

C.D Kane *et al,* (2006) Nutrient Solution and Solution pH Inûuences on Onion Growth and Mineral Content" Journal of Plant Nutrition **29:**375-390,2006

Chandra Sharma, Physico-Chemical Properties of Soils with Special Reference to Organic Carbon Stock under Different Land Use Systems in Dimoria Tribal Belt of Assam IOSR Journal of Agriculture and Veterinary Science (IOSR-JAVS) Volume 8, Issue 3 Ver. III (Mar. 2015), PP 32-36

Cline, M. G. (1944). Principles of soil sampling. Soil Science **58**:275-288.

Crepin, J., and R. L. Johnson. (1993). Soil sampling for environmental assessment Pages 5- 24 in M. R. Carter, editor, Soil Sampling and Methods of Analysis. Lewis Publishers, Boca Raton, Horida, USA

Directorate of Irrigation Research & Development, Pune; (2009). Laboratory Testing Procedure for *Soil and Water Sample Analysis*, ISO 9001:2000 Certified.

G.B. De Deyn, C.E. Raaijmakers, W.H. Van Der Putten. (2004). Plant community development is affected by nutrients and soil biota. - Journal of Ecology, **92:** 824-834.

Goodall, D.W. and P.G. Gregory. (1947). Chemical Composition of Plants as an Index of their Nutritional Status. Imperial Bureau Horticultural Plantation Crops. Technical Communication No. 17. Ministry of Agriculture, London, England.

James, D., and K.L. Wells. (1990). Soil sample collection and han-dling: technique based on source and degree of field variability. In: R. L. Westerman (ed), *Soil testing and plant analysis*. 3rd ed. Soil Sci. Soc. Am., Inc. Madison, WI. p. 25–44.

Jones, J.B. Jr., and V.W. Case. (1990). Sampling, handling, and ana-lyzing plant tissue samples. In: R.L. Westerman (ed), Soil test-ing and plant analysis. 3rd ed. Soil Sci. Soc. Am., Inc. Madison, WI. p. 389–447.

Jones, Jr., J.B. (1994c). Tissue Testing (VHS video). St. Lucie Press, Delray Beach, FL.

Jones, Jr., J.B. and V.W. Case. (1990). Sampling, handling, and analyzing plant tissue samples, pp. 389427. In: R.L. Westerman (Ed.), Soil Testing and Plant Analysis. SSSA Book Series 3. Soil Science Society of America, Madison, WI.

Kalra, Y.P., and D. G. Maynard. (1991). Methods Manual for Forest Soil and Plant Analysis. Information Report NOR-X-319. Forestry Canada, Northwest Region, Northern Forestry Centre, Edmonton, Alberta, Canada.

Madhava Sarma, D., Venkata Rao, B., Vasantha Lakshmi, M., B., Chakravarthi, Sravanthi, P.S.S. and Padmavathi, T.V.S. (2015). Soil Analysis and Fertilizer Recommendations for Paddy Cultivars of Pentapadu Tehsil with Special Reference to Zinc. Int. J. Adv. Res. Sci. Technol. Volume 4, Issue 6, pp.409-413.

N.C. Brady, R.R. Weil. (1990). The nature and properties of soils. Tenth edition. Pearson Education, Inc., Singapore

N.C. Brady, R.R. Weil. (2000). The nature and properties of soils. Fourteenth edition. Pearson Education, Inc., Singapore.

Sabbe, W.E., and D.B. Marx. (1987). Soil sampling: spatial and tem-poral variability. In: J.R. Brown (ed), Soil testing: sampling, correlation, calibration, and interpretation. Soil Sci. Soc. Am. Special Publ. no. 21. Madison, WI. p. 1–14.

Sharma, P.K. (2004). Emerging technologies of remote sensing and GIS for the development of spatial infrastructure. J. Indian Soc. Soil Sci., 52: 384-406.

Soil test based fertilizer application. Indian Council of Agricultural Research, New Delhi. Acharya N.G. Ranga Agricultural University, Hyderabad and Dept. of Agriculture, A.P., Hyderabad

Venkata Ramana, C.H. Bhaskar, C.H. Prasada Rao, P.V.V. and Byragi Reddy, T. (2015). Soil quality in four different areas of Visakhapatnam city, Andhra Pradesh, *IndiaInt. J. Curr. Microbiol. App. Sci* **4**(1): 528-532

Vernon Parent, Washington County Extension Agent Rich Koenig, Extension Soil Specialist; Solutions to Soil Problems I. High Salinity (soluble salts) Utah State University; (2010)

https://extension.usu.edu.