Hkkjrh; df"k vuqla/kku if=dk] 36(3): 192-195 DOI: 10.18805/BKAP340

thukfed lyD'ku% oreku fLFkfr] volj ,o pukSfr;k

uhjt c<yk dkVh] f}t'k pæ feJ] vfuy jk;]
d-d- pronh] vu 'kek] l/kh JhokLro] jktho jtu dekj

Hkk—vu-i-& Hkkjrh; —f"k lkf[;dh vuqla/kku lLFkku] ilk&110 012] ub fnYyh] HkkjrA

ikIr% tykbZ 2021 Lohdr% vxLr 2021

lkjk'k

vkt dy] thukfed lyD'ku ¼th-,l-½ ftlesa dh 0;f"V;k dk mud thukfed efjV d vk/kkj ij puk tkrk g] i'k vkj ik/kk d çtuu vuqla/kku e mi;ä mEehnokj d p;u d fy, ,d cgrj fodYi cu x;k gA gky e] thukfed lyD'ku l lcf/kr fofHkUu v/;;u fd, x, g] ftlesa ikjifjd çtuu fof/k;k ij thukfed lyD'ku d lHkkfor ykHk vkj Qk;n fn[kk, x, gA thukfed lyD'ku dk fofHkUu i'k vkj ik/kk d çtuu dk;Øek e lQyrkiod dk;kfUor fd;k x;k gA ;g çkjfHkd voLFkk e gh tkuojk dk p;u djd dy ykxr dk de djrk g] blfy, ih<h vrjky dk Hkh NkVk djrk gA thukfed lyD'ku i'k/ku vkj ik/kk d çtuu dk Hkfo"; g] D;kfd ;g vkuof'kd vrjky dk de djd vkuof'kd ykHk e l/kkj djrk g rFkk fo'oluh;rk dk Hkh c<krk gA gkykfd thukfed bLVheVM chfMx oY; dh lVhdrk e l/kkj dju rFkk nh?kdkfyd vkuof'kd ykHk dk çc/ku dju d fy, vkj foLrr rgdhdkr dh vko';drk gA ;g y[k ,d lf{kIr leh{kk çnku djrk g] fd geu thukfed lyD'ku d ek/;e l vc rd D;k gkfly fd;k g rFkk thukfed lyD'ku l lEcf/kr vuqla/kku e Hkfo"; dh xtkb'k rFkk ifjç{; D;k gA

'kCn dtht% thukfed bLVheVM chfMx oY; ¼th-b-ch-oh-½] thukfed lyD'ku ¼th-,l-½] fydt fMlbD;yhoh;e ¼,y-Mh-½] flxy U;fdfyvkVkbM i,fye,jfQTe ¼,l-,u-ih-½] ekdj vflLVM lyD'ku] DokuVfVo VV yklkb ½D;-Vh-,y-½A

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Genomic Selection: Current Status, Opportunities and Challenges

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ABSTRACT

Now a days, Genomic Selection (GS) became a preferable choice for selection of appropriate candidate for animal and plant breeding research. Various studies related to GS has been done recently where it has shown potential benefits and advantages over traditional and conventional plant breeding methods. GS has been successfully implemented in various animal and plant breeding programs. It reduces the total costs by selecting the animals at early stage hence shorten the generation interval. Genomic selection is the future of livestock and plant breeding as it improves the genetic gain by decreasing genetic interval and improving reliability. Although there is a need of further investigation to improve the accuracy of genomic estimated breeding value and manage long-term genetic gain.

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This article provides a brief review what we have achieved through GS till yet and what is future scope and perspective in the GS research.

Key words: Genomic estimated breeding values, Genomic selection, Linkage disequilibrium, Marker assisted selection, Quantitative trait loci, Single nucleotide polymorphisms.

çLrkouk

thukfed lyD'ku ¼th-,l-½ çtuu dh ,d mUur rduhd g] ftle fdlh 0;f'V dh vkuof'kd ;kX;rk dk vueku yxku d fy, thuke&okbM MUl ekdjk dh tkudkjh dk mi;kx fd;k tkrk g ¼femfolhu bR;kfn] 2001½A vkt d ifj–'; e] th-,l- 0;f'V;k d vkuokf'kd ykHk e l/kkj dju d fy, ,d vk'kk tud lk/ku gA thukfed lyD'ku ekdj vflLVM lyD'ku dk ,d :ig] ftle ij thuke dk doj dju oky vkuof'kd ekdjk dk mi;kx DokuVfVo VV yklkb ½D;-Vh-,y-½ dh igpku dju d fy, fd;k tkrk g] tk fd de l de ,d ekdj d lkFk fydt fMlbD;yhoh;e ¼,y-Mh-½ e gkr gA thukfed lyD'ku fQukVkbi vkj mPp ?kuRo ekdj dk fo'y"k.k djd ifä;k dh çtuu eY;k dh Hkfo";ok.kh djrk gA thukfed lyD'ku dh çfØ;k thukVkbfid vkj fQukVkbfid MVk ¼;kuh çf'k{k.k lV½ oky 0;f'V;k l ,d lkf[;dh; e,My cuku d lkFk 'k: gkrh g rFkk bl e,My dk mi;kx doy thukfed tkudkjh oky 0;f'V;k dh thukfed bLVheVM chfMx oY; ¼th-b-ch-oh-½ d vkdyu d fy, fd;k tkrk gA 0;f"V;k dk fQj th-b-ch-oh- d vk/kkj ij jd fd;k tkrk g] vkj ckn e cgrj 0;f'V;k dk p;u fd;k tkrk gA

oreku fLFkfr

flxy U;fdfyvkVkbM i,fye,jfQTe ¼,l-,u-ih-½ vk/kkfjr fpi d rth l fodkl d dkj.k rFkk fofHkUu Qlyk tl pkoy] xg] eDdk ,o fofHkUu tkuojk tl eo'kh] exh ¼ikYVh½ ?kkMk] HkM] dÙk] fcYyh vkj [kjxk'k d leLr thuke vuØe.k dh miYC/krk d dkj.k] thukfed lyD'ku u fofHkUu i'k/ku vkj ik/kk d v/;;u e vkuof'kd ykHk lfgr dN mRlkgtud ifj.kke fn[kk, g ¼bfC;r'kke bR;kfn] 2017½A db v/;;uk l irk pyrk g fd thukfed lyD'ku dk i'k] exh] ?kkM] HkM] dÙk] fcYyh vkj [kjxk'k lfgr i'k çtuu e egRoi.k çHkko gA dN lQyrk d mnkgj.k tl fd th-,l-rduhd d vuç;kx l gku oky vkuokf'kd ykHk exh e ck;yj 20% ¼Mdl bR;kfn] 2009½ vkj y;l e 60% ¼lhVtuLVkd bR;kfn] 2013½] M;jh ¼eof'k;k e 60&120% ¼ç;lh ,o MVo;j] 2012½] HkM e 51-7% vkj cdjh e 26-2% ¼'kEclk bR;kfn] 2013½] lvj e 23&91% ¼fyfygej bR;kfn] 2011½] 15&44% xkekl eo'kh e ¼fieVy ,o dkfux] 2012½ rFkk HkM ¼ekl d fy;½ e 18% ik;k x;k g¼'kEclk bR;kfn] 2013½A gky d v/;;uk l xg ¼Øklk bR;kfn] 2010] :Vdkldh bR;kfn] 2012½] eDdk ¼vYcjDV bR;kfn] 2011] tk bR;kfn] 2012½] lk;kchu ¼l bR;kfn] 2012] td;u bR;kfn] 2014½] pkoy ¼Lih.My bR;kfn] 2015½] pdnj ¼gk¶gt bR;kfn] 2012½] tk¼llykV bR;kfn] 2012½] jkb ¼ox bR;kfn] 2014½] Tokj ¼QukMhl bR;kfn] 2018½ rFkk jilhM ¼ouj bR;kfn] 2018½ tlh çe[kQlyk e vk.kfod tkudkjh dk mi;kx djd thukfed vuekfur çtuu eY; dk lVhd vueku yxk;kx;k gA th-,l- vk/kfud Qly çtuu dk;Øek e ,d egRoi.k gfFk;kj fl) gk jgk gA fofHkUu fley'ku vkj ,Eifjdy v/;;uk u çtuu eY; dk vf/kd lVhd vueku yxkdj vkuof'kd ykHk dh nj dk c<ku e viuh {kerk fn[kkb g ¼okl&QYl bR;kfn] 2019½A

volj ,o pukfr;k

;|fi i'k vkj ik/kk d çtuu d fy, vkuof'kd ykHk e of) of'od ifj–'; dk n'kkrh g] fo'k"k :i l fodflr n'kk dhA gkykfd Hkkjrh; ifjç{; e vkuokf'kd ykHk dh nj vHkh Hkh cgr de vkj /kheh g] blfy, ge vHkh Hkh ,d yck jkLrk r; djuk gA ;|fi Hkkjr tl fodkl'khy n'kk e bl rjg d dk;Øek dk ykx djuk pukrhi.k g] D;kfd o vDlj thukVkbi ij QhukVkbi dk fjd,M dju d fy, mi;ä lk/kuk d lkFk çfrcf/kr gkr g rFkk telykTe d vkuof'kd eY; d fy, eY;kdu dk;Øek dk vHkko gkuk Hkh bldk ,d e[; dkj.k gA gkykfd çtuu dk;Øek e ,d lQy th-,l- d fy, db egRoi.k dkjdk ij /;ku nu dh vko';drk gkrh g] tl vrfufgr y{k.kk dh vkuokf'kdrk vkj vkuof'kd ljpuk] Qly dh efVx fMtkbu] lkf[;dh; e,My rFkk çtuu dk;Øek dk de l de foÙkh; ctV bR;kfnA çR;d ih<h e u, ekdjk dk 'kkfey djd th,l e,My dk yxkrkj mUu;u fd;k tkuk pkfg,A çf'k{k.k MVk c<ku dh lfo/kkvk dk Bhd l /;ku j[kk tkuk pkfg,] D;kfd ;g thukfed

lyD'ku d çn'ku dk xHkhj :i l çHkkfor djrk gA çf'k{k.k MVk dk vkdkj çtuu eY; d lVhd vueku e Hkh egRoi.k Hkfedk fuHkkrk g] blfy, çf'k{k.k vkcknh d mfpr vkdkj ij Hkh fopkj fd;k tkuk pkfg,A thukfed lyD'ku e,My e i;koj.kh; çHkkok }kjk thukVkbi dk 'kkfey dju l e,My dh lVhd vueku yxku dh {kerk e l/kkj gk ldrk g] blfy, fofHkUu LFkkuk d MVk ij Hkh vPNh rjg l fopkj fd;k tkuk pkfg,A e,My e doy ,l-,u-ih dk mi;kx dju d ctk;] giykVkbi dh tkudkjh dk Hkh tkMk tk ldrk gA thu vfHk0;fä] thu ikftlu tlh vfrfjä tkudkjh th-,l- e,My dh {kerk dk vkj c<k ldrh gA de vkuokf'kdrk d ekey e ,dkf/kd fo'k"krk ¼eYVh VV½ vk/kkfjr tkudkjh dk Hkh mi;kx fd;k tk ldrk gA

Hkkjrh; —f"k vul/kku ifj"kn Lrj ij igy

gkykfd] vkuof'kd ykHk ;k thukfed lyD'ku l ge tk dN Hkh ykHk gvk g] og of'od Lrj ij gA Hkkjrh; ifj–'; e] ge vHkh Hkh egRoi.k i'k/ku vkj ik/kk dh çtkfr;k e vkuokf'kd ykHk e l/kkj dju d fy, ,d cM çkRlkgu dh vko';drk gA ;g lc/;ku ej[kr g, Hkkjrh; —f"k vul/kku ifj"kn ¼Hkkk—vu-i-½ u bl fn'kk e lkpuk 'k: dj fn;k g] ;g Hkkjr e —f"k vul/kku d leUo; d fy, ftEenkj 'kh"k fudk; g] tk —f"k vul/kku vkj f'k{kk foHkkx] —f"k e=ky; dk fjikV djrk gA Hkkjrh; ifj–'; d fy, eof'k;k vkj Hklk e thukfed lyD'ku ij jkMei d fodkl d fy, Hkkk—vu-i- Lrj ij db ifj;ktuk, 'k: dh xb g] tgk ,d fuf'pr le;kof/k d lkFk lHkh fgr/kkjdk dk yf{kr dju d fy, i;klr jkMei ij tkj fn;k x;k gA bld ckn thukfed lyD'ku ij fofHkUu cu LVkfex l=k dk vk;ktu fd;k x;k g] ftle Hkkk—vu-i- u n'k e eof'k;k vkj Hklk dh mRikndrk c<ku d fy, thukfeDl e çxfr dk mi;kx dju ij tkj fn;k gA ;g ppk dh xb g fd thukfed lyDlu d {k= e ,d ljfpr dk;Øe dh vko';drk g] ftle ekuo llk/ku fodkl] mUur MVk fjd,fMx d rjhd vkj x.kdkjh QukVkbfix 'kkfey g] rkfd Qynk;d ifj.kke lkeu vk ldA ble ;g Hkh cy fn;k x;k g fd thukfed lyD'ku dk dk; dju d fy, fgr/kkjdk] Hkkk—vu-i- d lLFkkuk] MhchVh] Mh,,pMh,Q rFkk ,uMhMhch d chp lk>nkjh fodflr dju dh vko';drk g] ftll dh MVk d HkMkj.k] iuikflr vkj puykbt'ku lfuf'pr dju vkj thukfed lyD'ku v/;;u d ifj.kkek d fy, ,d r= r;kj gk ldA

lnHk

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