RESEARCH ARTICLE Bhartiya Krishi Anusandhan Patrika, Volume 37 Issue 3: 202-209 (September 2022)

fdlkuk d Kku d Lrj d vkdyu d vk/kkj ij if'peh jktLFkku e [kMhu l/kkj d e,My

Mh- dekj] ,e- ikVhnkj] ,- ikVhnkj] ,l-lh- ehuk] vkj- lju;k

10.18805/BKAP404

lkjk'k

i"BHkfe [kMhu ey :i l tlyej e dN lk lky igy ikyhoky ckã.kk }kjk fodflr fd;k x;k FkkA ;g ç.kkyh e/; io vkj uxo jfxLrku e mi;kx dh tku okyh dN flpkb fof/k;k d leku gA [kkfnu ç.kkyh —f"k Hkfe ij o"kk ty lp;u vkj Qly mRiknu d fy, bl ty&lrlr Hkfe d ckn d mi;kx d fl)kr ij vk/kkfjr gA [kkfnu mRiknu ç.kkfy;k d fy, MVk lxg d fy, rhu xkok ;kuh tlyej d :ilh] Hkkfu;kuk d eMkok vkj Qrgx< rglhy d mÙkky dk puk x;k gA

fof/k;k bu xkok e l çR;d xko l 20 fdlkuk dk p;u fd;k x;k g] ftue [kkfnu çfl) 0;oLFkk gA bl çdkj [kknhu —f"k ç.kkyh d dy 60 —"kdk dk p;u dj lk{kkRdkj d ek/;e l tkudkjh ,df=r dj vulfp;k dk Hkjk x;k gA p;fur fdlkuk dk lkekftd&vkfFkd MVk lk{kkRdkj vulph d ek/;e l lHkh rhu p;fur xkok e ,d= fd;k x;k gA

ifj.kke 'kk/kdrkvk u ikp e,My l>k, gA lHkh ikp ç.kkfy;k e fdlkuk dk Qly] lCth] Qy vkj i'k/ku d ckj e e/;e Lrj dk Kku gkrk gA bu e,Myk dk viuku l bu lfn;k ijkuh [kMhu d mRiknu vkj mRikndrk e dkQh of) gk ldrh g] lky Hkj [kMhu e l vk; bu ij vf/kd lHko gA

e[; 'kCn [kMhu] Kku dk Lrj] l/kkj d e,MyA

Models of Khadin Improvement in the Western Rajasthan based on Assessment of the Knowledge Levels of the Farmers

D. Kumar, M. Patidar, A. Patidar, S.C. Meena, R. Saranaya

ABSTRACT

Background: The khadin was originally developed a few hundred years ago by the Paliwal Brahmins in Jaisalmer. This system is similar to some irrigation methods used in the Middle East and in Negev desert. The khadin system is based on the principle of harvesting rainwater on farmland and subsequent use of this water-saturated land for crop production.

Methods: Three villages *i.e. Rupsi* of Jaisalmer, *Mandawa* of Bhaniyana and *Utal* of Fathehgarh tehsils have been selected for data collection for khadin production systems. Among these villages 20 farmers has been selected from each village having khadin faming system. Thus total 60 farmers of khadin farming system has been selected and collected information through interview and filled the schedules. Scio-economic data of the selected farmers have been collected through the interview schedule in all three selected villages.

Result: Five models have been suggested by the researchers. In all five systems farmers have medium level of the knowledge about the crop, vegetable, fruits and livestock by adopting these models production and productivity of these age old khadins can be increased significantly.

Key words: Khadin, Knowledge level, Models of khadin improvement.

ifjp;

tlyej fty e dy ou{k= – 588-17 ox fdyksehVj g] jktLFkku d lcl if'pe e dVjk xko le rglhy] tlyej ftyk gA tlyej dk vkdkj llrcgHktkdkj gA tlyej dh lhek vUrjk"Vh; lhek] ikfdLrku d lkFk yxrh gA ;g jktLFkku d ftyk e lcl yEch 464 fdyksehVj gA ;g jktLFkku dk lcl cMk ftyk – 38]401 ox fdeh- {k= e Qyk gvk gA ykBh lhjht {k= tlyej d ikdj.k l ekgux< dk {k= dgykrk gA bl {k= e

ICAR-Central Arid Zone Research Institute, Jaisalmer-345 001, Rajasthan, India.

Corresponding Author: D. Kumar, ICAR-Central Arid Zone Research Institute, Jaisalmer-345 001, Rajasthan, India.
Email: dkdkdangi@gmail.com

How to cite this article: Kumar, D., Patidar, M., Patidar, A., Meena, S.C. and Saranaya, R. (2022). Models of Khadin Improvement in the Western Rajasthan based on Assessment of the Knowledge Levels of the Farmers. Bhartiya Krishi Anusandhan Patrika. 37(3): 202-209. DOI: 10.18805/BKAP404.

Submitted: 07-12-2021 **Accepted:** 17-06-2022 **Online:** 01-08-2022

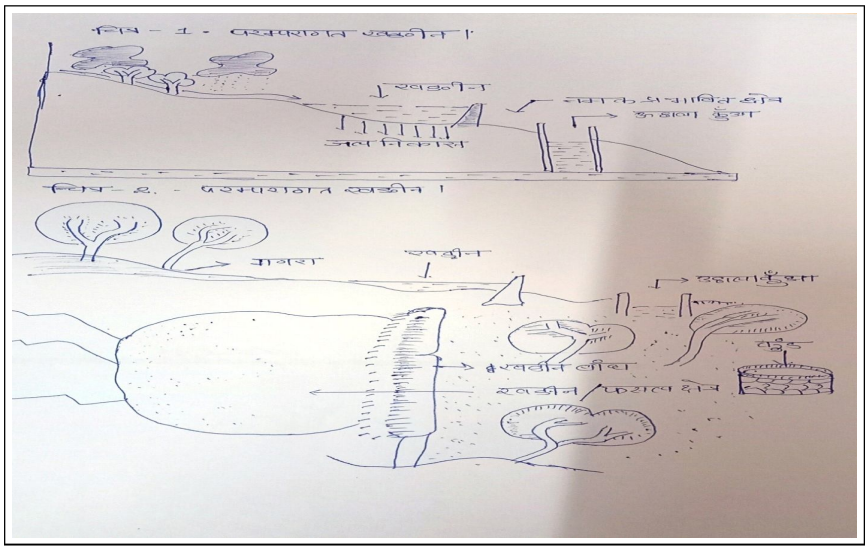
lo.k ?kkl ik;h tkrh g] ftl LFkkuh; Hkk"kk e yhy.k dgr g] bldk okuLifrd uke *yfl;fjl flMhdl* gA tgk pêkuh tyxg.k vkj ?kkVh d enku fudVrk e gkr gA tyxg.k {k= l fudyu okyk viokg feêh d ^cM^ l f?kjh fupyh ?kkVh d ry e tek gk tkrk gA dkb Hkh vf/k'k"k fLiy&o l xtjrk gA bdëk fd;k x;k ikuh ij ekulu dky e [kMhu e [kMk jgrk gA ;g uocj d igy llrkg rd feêh d uhp xk;c gk ldrk g] ftll lrg ue jg tkrh gA ;fn [kMk ikuh vf/kd le; rd cuk jgrk g] rk bl cokb l igy Lybl d ek/;e l NkM fn;k tkrk gA ¼vkLdkykjdj- ,u- flg½ fQj xg ;k pu dh cokb dh tkrh gA ; Qly fcuk flpkb d id tkrh gA [kMhu dh feêh yxkrkj eghu ryNV d teko d dkj.k vR;r mitkÅ gkrh g] tcfd tk ikuh fjlrk g og yo.k dk gVk nrk gA [kMhu] blfy,] ,d Hkfe d mi;kx e ç.kkyh g ey :i l dN lk lky igy tlyej e ikyhoky ckã.kk }kjk fodflr fd;k x;k FkkA ;g ç.kkyh e/; io vkj uxo jfxLrku e mi;kx dh tku okyh dN flpkb fof/k;k d leku gA [kMhu ç.kkyh —f"k Hkfe ij o"kk ty lp;u vkj Qly mRiknu d fy, bl ty&lrlr Hkfe d ckn d mi;kx d fl)kr ij vk/kkfjr gA bldh e[; fo'k"krk ,d cgr yck ¼100&300 ehVj½ feêh dk rVc/k g tk fupy igkMh <ykuk ij cuk gvk g tk ctjh l Åij dh vkj fLFkr gA [kMhu dk vkdkj LFkkuh; o"kk iVu] tyxg.k fo'k"krkvk vkj feêh d çdkj d vk/kkj ij r;kj fd;k x;k gA tyxg.k {k= vkj Hkfe tkr dh l[;k d vk/kkj ij vklru] çR;d [kMhu d rgr [krh dk {k= 10&14 gDV;j g] ftldk vklr vkdkj 1-2&1-7 ehVj Åpk] 1-0&1-5 ehVj pkMk vkj 100&300 ehVj yckb d chp gA e#LFkyh; fuokfl;k dh lkekftd&vkfFkd fLFkfr e l/kkj d vykok] [kMhu u {k= dh ikfjfLFkfrdh ij Hkh ldkjkRed çHkko Mkyk g] feêh d dVko dk çHkkoh <x l fu;f=r fd;k g vkj ouLifr vkoj.k dk c<k;k gA d'ky —f"k d fy,] tyxg.k {k= l Qly {k= dk U;ure 15%1 vuikr vko';d g ¼,- ,l- dkyjdj] d- ,u- d- efr ,u- flg½ ,d lQy LFkkuh; Qly mxku d fy, i;klr feêh dh ueh d lkFk [kMhu feêh dk pkt dju d fy, 75&100 feeh dh o"kk i;klr gA [kMhu {k= e] ,df=r viokg le; d lkFk tehu e fjl tkrk g vkj mi&enk dk fjpkt djrk gA ,d= fd, x, dy viokg e l doy 50&60% ikuh dk mi;kx fd;k tkrk gA ,dy [kMhu d fy, fuek.k ykxr dk rhu l ikp lky d Hkhrj okil fd;k tk ldrk gA e#LFkyh; fuokfl;k dh lkekftd&vkfFkd fLFkfr e l/kkj d vykok] [kkfnuk u {k= dh ikfjfLFkfrdh ij Hkh ldkjkRed çHkko Mkyk g] feêh d dVko dk çHkkoh <x l fu;f=r fd;k g vkj ouLifr vkoj.k dk c<k;k gA tlyej fty e 500 l vf/kd cM vkj NkV [kMhu g] tk 40 feeh o"kk d lkFk Hkh mRiknd gA [kMhu ioh jktLFkku d jfxLrku d fy, ,d tyxg.k {k= gA o"kk/ekulu d nkjku ;g ikuh l Hkj tkrk g ¼rkfydk 1½A

lkexh d rjhd

lcl igy fdlkuk dh jk; ydj 'kMîy cuk;k x;k g] mld ckn 'kMîy dk l/kkj d fy, fo'k"kKk d ikl Hktk x;k gA vulph dk vfre :i nu d fy, l>kok dk 'kkfey fd;k x;k gA [kMhu [kMhu mRiknu ç.kkyh d fy, MkVk lxg d fy, tlyej d :ilh] Hkfu;kuk d eMkok] vkj Qrgx< d mÙkky xkok dk puk x;k gA bu xkok e 20 fdlkuk çR;d xko l p;u fd;k x;k g bl çdkj [kMhu —f"k ç.kkyh d dy 60 fdlkuk dk p;u dj lk{kRdkj d ek/;e l tkudkjh ,df=r dj vulfp;k dk Hkjk x;k gA [kMhu ioh jktLFkku d jfxLrku d fy, ,d tyxg.k {k= gA o"kk/ekulu d nkjku ;g ckn e ikuh l Hkj tkrk g tc {k= e ckb xb Qlyk dk ikuh de gk tkrk g] tyxg.k {k= e ikuh tek dju d fy, ,uhdV cuk;k tkrk g ¼lyV 1½A [kr e ;g 'k"k ueh Qly dh of) d fy, i;klr gA Je xgu] Hkkjh çkjfHkd fuo'k] [kMhu ç.kkyh d ykHkk d chp ;g fdlkuk dk de l de ,d Qly dk vk'oklu nrk g [kMhu d jfxLrkuh fuokfl;k dh lkekftd&vkfFkd fLFkfr e l/kkj d vykok ikfjfLFkfrdh {k= ij ldkjkRed çHkko] feêh dh ljpuk e l/kkj vkj Hkty e of) lkf[;dh; midj.kk e ek/;] ekf/;dk vkj ijkl dk ç;kx lkf[;dh; fo'y"k.k d fy, fd;k x;k g ¼fp= 1]2]3½A

ifj.kke vkj ppk

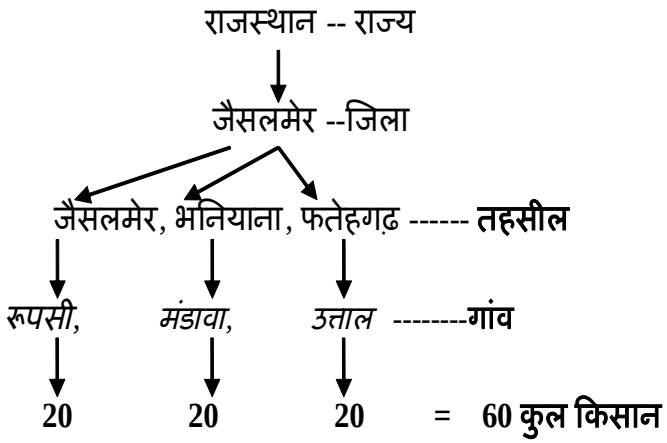
lkekftd&vkfFkd MVk lxg vkj fo'y"k.k vf/kd'k fdlku e/;e vk; ox d g tlk fd rkfydk 2 e crk;k x;k g] vf/kd'k fdlku lk{kj g] vkj de i<&fy[k vf/kd'k fdlkuk d ikl cM vkdkj dh Hkfe g] vf/kd'k fdlkuk dk l;ä ifjokj g ekl ehfM;k ,Dlik tj e l vf/kd'k



lyV 1% ikjifjd [kMhu dk vkj[kA

fp= 1% tlyej dh rglhy dk uD'kk ¼Map of Jaisalmer½A

fp= 2% ikjifjd [kMhu dh rLohj ¼Pictures of Traditional Khadins½A



fp= 3% Samplig plan of farmers.

fdlku jfM;k] Vhoh vkj lekpkj i= lur g] vf/kdk'k fdlku l;ä ifjokj g] vf/kdk'k fdlku mPp ifjokj d lnL; gA vf/kdk'k fdlkuk d ikl m|ferk d :i e—f'k g tcfd 50 fdlkuk dh vk; 5 yk[k l vf/kd gA vf/kdk'k fdlkuk dh e/;e lkekftd Hkkxhnkjh gA vf/kdk'k fdlkuk d ikl LFkkuh; xk; vkj cdjh gA vf/kdk'k fdlkuk u nÝ/k mRiknu lgdkjh lfefr dh lnL;rk yh g] blh çdkj vf/kdk'k fdlkuk d ikl e/;e i'k/ku g lkFk gh vf/kdk'k fdlkuk d ikl 5 yhVj l vf/kd n/k mRiknu gA

[kMhu Qlyk dk Kku Lrj ijh{k.k ¼Knowledge level of the khadin crops½

[kjhQ d nkjku fupyk {k= e dkb Qly ugh mxkb tkrh Fkh yfdu dN Qly tl ex] ekBchu vkj DyLVj chu Åijh {k= ij mxkb tkrh gA tl gh ikuh de gkrk g jch d ekle e puk] thjk vkj blcxky tlh Qly mxkb tkrh gA xfrfof/k;k d idt e vf/kdk'k fdlku cht mipkj d ckj e ugh tkur g tcfd lHkh fdlkuk dk cokb dk lgh le; irk gA [kMhu e vf/kdk'k fdlku [kMhu dh cokb dk lgh le; vkj mxkb tku okyh fdLe d ckj e tkur gA [kMhu fdlku dk [krh ç.kkyh dh cht nj d ckj e Hkh irk gkrk g tcfd [kMhu fdlkuk dk [kMhu ç.kkyh e cht mipkj d ckj e vPNk Kku ugh gkrk gA lHkh fdlku cokb dh fof/k d ckj e tkur gA tlyej d lHkh [kMhu fMQ,YV :i l tfod gA cLlh] vkj onkre ¼2013½A fdlku ik/k lj{k.k d lk/ku d :i e jlk;u dk mi;kx ugh dj jg gA vf/kdk'k fdlkuk dk vrj&lkL—frd lpkyu dk vPNk Kku gkrk g] blh rjg vf/kdk'k [kMhu fdlkuk dk Qly HkMkj.k d ckj e vPNh tkudkjh gkrh g ¼rkfydk 3½A Hkêkpk;] ,l] ¼2015½A fdlkuk dk Qlyk dh vf/kd mit nu okyh fdLek d ckj e Kku dk e/;e Lrj g] blh rjg cokb d lgh le; d ckj e Kku Lrj dk e/;e Lrj d lkFk&lkFk fdlkuk d chp cokb dh fof/k d ckj e Kku dk e/;e Lrj] fdlkuk d chp Kku dk e/;e Lrj ektn g flpkb dh fof/k d ckj e] fdlkuk e [kjirokj fu;=.k d ckj e mPp Lrj dk Kku ektn g] fdlkuk e ,d ntu l vf/kd [kjirokjuk'kh d ckj e Kku dk fuEu Lrj ektn g] tcfd fdlkuk d chp dhVuk'kd ¼Hkkyx vkj Hkkolkj 2007½ d ckj e e/;e Lrj dk Kku ik;k tkrk gA

lCth vkj Qyk d Kku dk Lrj

[kMhu [krh ç.kkyh d vf/kdk'k fdlku lCth vkj Qy ugh mxk jg g] gkykfd o ikuh dh lhfer miyC/krk d lkFk viu [kr e lCth vkj dN Qyk dh [krh djr g] blfy, mUg Qyk vkj lfCt;k dh [krh d ckj e dN tkudkjh g ¼rkfydk 4½A vf/kdk'k fdlkuk d ikl lfCt;k vkj Qyk dh vf/kd mit nu okyh fdLe d uke d ckj e e/;e Lrj dk Kku g] cht mipkj d ckj e fdlkuk d chp Kku dk fuEu Lrj ektn gA vf/kdk'k fdlku çfux d lgh le; d ckj e tkur g Hkkyx vkj Hkkolkj] ¼2007½A

i'k/ku d Kku dk Lrj

i'k/ku d Kku Lrj e e/;e Lrj dk Kku Lrj i'k/ku dh egRoi.k uLyk d ckj e ektn g] e/;e Lrj d fdlku xeh e i'k/ku d y{k.kk d ckj e tkur g] 50 çfr'kr fdlkuk d ikl Kku dk e/;e Lrj g ¼rkfydk 4½ cLlh] vkj onkre] ¼2013½ d ckj eA

rkfydk 1% ijEijkxr] ovkn'k@uohu@oreku [kMhu e vrjA

ijEijkxr [kMhu	oreku [kMhu
;gk mRiknu de gkxk	mRiknu T;knk gkxkA
LCth Qy dk mRiknu ugh gkxkA	LCth Qy dk mRiknu gkxkA
i"k/ku T;knk ugh gkrk gA	i"k/ku T;knk gkrk gA
o'k Hkj vk; ugh gkrh gA	o'k Hkj vk; gkrh gA
vk; T;knk ugh gkrhA	vk; nxuh gkrh gA
Je de gkrk gA	Je T;knk gkrk gA
Lkyj ii@Q0okjk i.kkyh dk mi;kx ugh gkrk gA	Lkyj iEi Q0okjk i.kkyh dk mi;kx gkrk gA
e"khfudj.k T;knk ugh gkrkA	e"khuhdj.k T;knk gkrk gA
vkxfud gkrk gA	vkf"kd :Ik l jlk;uk dk mi;kx gkrk gA
Ikkuh n:Ik;kx gkrk gA	Ikkuh dk n:i;kx ugh gkrk gA
oehdEikLV@dEikLV ugh gkrkA	oeh dEikLV@dEikLV gkrk gA

rkfydk 2% p;fur fdlkuk dh lkekftd&vkfFkd fo'k"krk,A

ik=	Jf.k;k	fdlkuk dh l[;k
me	;ok ¼38 o"k l de½	10
	e/; ¼38&60 o"k½	37
	ijkuk@¼old 60 o"k l vf/kd½	13
f'k{kk	çkFkfed rd	7
	ek/;fed rd	40
	mPp Lrj ij	13
ifjokj dk çdkj	Nuclear	15
	l;ä	45
ifjokj d lnL;k dh l[;k	de	0
	e/;e	14
	mPp	46
Hkfe tkr	NkVk&1&2 gDV;j	4
	e/;e 4&10 gDV;j	6
	10 gDV;j l vf/kd cMk	50
m|ferk	—f"k vkj M;jh	12
	—f"k	38
	—f"k vkj ukdjh	10
vklr vk; ¼okf"kd½	< 1 yk[k	3
	1&5 yk[k	7
	> 5 yk[k	50
lkekftd Hkkxhnkjh	de	8
	e/;e	45
	mPp	7
i'k/ku dh l[;k	de l de 20	9
	e/;e 20&30	1 1
	mPp 30 l vf/kd	40
n/k mRiknu Ø,l cM	de l de 5 yhVj	6
	e/;e 5&8	10
	5 yhVj l vf/kd	44

rkfydk 3% Qlyk dk Kku Lrj ijh{k.k ¼,u¾60½A

en		J.kh	fdlkuk dh l[;k
Qlyk dh vf/kd mit nu okyh fdLe dk uke	de	0-14	22
	e/;e	0-14&1-12	38
	mPp	1-12	0
cht mipkj djuk pkfg,	de	0-41	0
	e/;e	0-41&1-2	49
	mPp	1-2	1 1
Qly dh cokb dk lgh le;	de	0-2	19
	e/;e	0-2&1-1	41
	mPp	1-1	0
cokb dh fof/k	de	5-6	1 1
	e/;e	5-6&6-8	49
	mPp	6-8	0
flpkb dh fof/k	de	0-2	0
	e/;e	0-2&0-4	53
	mPp	0-4	7
[kjirokj fu;=.k	de	&0-94	0
	e/;e	&0-94&1-6	19
	mPp	1-6	41
[kjirokjuk'kh dh ek=k	de	&0-2	52
	e/;e	0-2&0-46	8
	mPp	0-46	0
dhVuk'kd dk ç;kx	de	&0-2	0
	e/;e	&0-2&0-46	58
	mPp	≥0-46	2

rkfydk 4% lCth vkj Qyk dk Kku Lrj ¼,u¾60½A

vo;o		J.kh	fdlkuk dh l[;k
lfCt;k vkj Qyk dh vf/kd	de	≤ &0-18	0
mit nu okyh fdLek d uke	e/;e	&0-18&0-54	49
	mPp	≥ 0-54	1 1
cht mipkj djuk pkfg,	de	0-52	50
	e/;e	0-52&0-24	10
	mPp	0-24	0
jki.k dk lgh le;	de	&0-26	3
	e/;e	&0-26&1-25	57
	mPp	1-25	0
NVkb dk lgh rjhdk	de	0-7	14
	e/;e	0-7&1-1	46
	mPp	1-1	0

[kMhu l/kkj d fofHkUu e,My ¼Various models of khadin improvement½

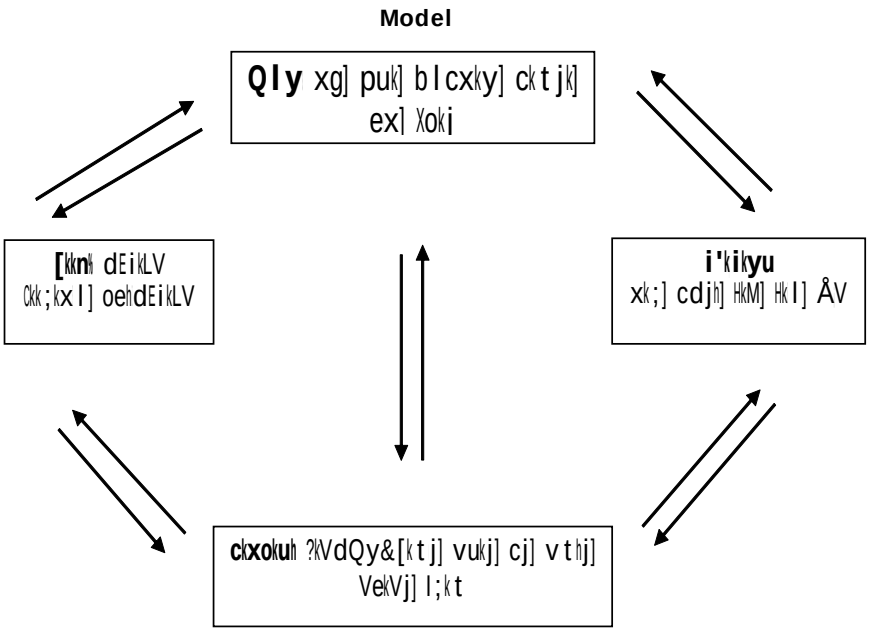
1- ,dh—r [krh ç.kkyh vkj[k ¼Integrated farming system model½

,dhdr [krh i.kkyh ik:lk

ble [krh d lkFk&lkFk i"kikyu Hkh fd;k tkrk g ,o ckxokuh Hkh dh tkrh gA

2- [kMhu l/kkj d fy, {kfrt LFkku dk mi;ksx çc/ku e,My ¼Horizontal space utilization model of khadin improvement½

1- pêkuh Åijh LFkku ¼exjk d :i e Hkh tkuk tkrk g½ bl {k= e Qly dh [krh d fy, vPNh feêh ugh g] blfy, bl LFkku dk mi;ksx i'kikyu/lkyj lyV LFkkiuk d fy, fd;k tk ldrk gA



rkfydk 5% i'k/ku dk Kku Lrj ¼,u¾60½A

vo;o	J.kh		fdlkuk dh l[;k
i'k/ku dh egRoi.k LFkkuh; uLy D;k g\	de	0-4	12
	e/;e	0-4&1-2	48
	mPp	1-2	0
xeh e i'kvk d y{k.k D;k g\	de	0-5	7
	e/;e	0-5&1-2	53
	mPp	1-2	0
tc i'kvk dk xHkk/kku xeh e djuk pkfg,A	de	&5-393	16
	e/;e	5-39&5-407	44
	mPp	≥ 5-407	0
tr fdru fnuk e viuk Å"ek pØ nkgjkr gA	de	<41-9	0
	e/;e	&41-19&1-24	49
	mPp	1-24	1 1
D;k vki ,- vkb- d ckj e tkur g\	de	0-416	10
	e/;e	0-416&1-249	50
	mPp	1-249	0

2- uhe/cj/[ktjh vkfn tl ouk dh [krh d{k= vkJ; iVh ¼shelter belt½ dh lhek cukb tk ldrh g] ;g y½xe gokvk½ l [kr dh lj{kk çnku djxh vkj ikuh dh deh l cpk,xhA

3- [kMhu ¼lower reach½ de rd igpu d fy, bl dk mi;kx fd;k tk,xk Qlyk —f"k vkj lfct;k dh [krh d fy,A

4- tyHkjko oky bl {k= dk mi;kx eRL; ikyu vkj ekrh ikyu d fy, fd;k tk ldrk gA

3- dk;{k= vrfj{k çc/ku e,My ¼Vertical space utilization Model½

1- bl e,My e flYoh&dYpj Qy/[ktj/vukyk/cj lcl Åijh ifä gA

2- nljh ifä e vertical space e cktjk/xg/thjk dh QlyA

3- rhlj LFkku e lfct;k mxkb tk ldrh gA

4- lhekr pêkuh feêh ¼Marginal roky soil½ e tkuojk dk Qyk d iMk d uhp [ktj/cj j[kk tk ldrk gA

4- [kMhu e,My dk odfYid ty mi;kx e,My ¼Alternate water use model of the khadin½

1- viokg ikuh ¼dringe½ ikuh dh Vdh i'kvk d fy, ihu lxfgr fd;k tk ldrk gA

2- vfrfjä ty/viokg ty&Hkty iuHkj.k] rkykc fuek.k d fy, ihu lxfgr fd;k tk ldrk gA

3- rkykc & fishfarming vkj ekrh dh [krh ¼Perl culture½ fd;k tk ldrk g] lkyj lyV LFkkiuk d fy,A

4- vfrfjä ikuh dk mi;kx ckx dh fMi flpkb d fy, fd;k tk ldrk gA

5- [kMhu l/kkj d fy, Qly fofo/kh dj.k ¼Crop diversifcation½ e,MyA

fupyk {k= vkj e/;e {k= e Qly iVu e fofo/krk yku vkj [kMhu dh upper reach e ,dh—r —f"k&ckxokuh ç.kkyh }kjk [kMhu dh mRikndrk dk vkj c<k;k tk ldrk gA xk¶VM cj ¼*Ziziphu mauritiana*½ vkj xkMk ¼*Cordia dichotoma*½ mi;ä Qy çtkfr;k g [kMhu d upper reach d fy, l[k d o"kk d nkjku] ex vkj Xokj e/;e igp e vkj ckt jk de igp e lQyrkiod mxk;k tk ldrk gA bld vykok] ckt jk dh de vof/k dh fdLe dk lcl de igp e mxk;k tk ldrk g] Hky gh o"kk 30&40 feeh gk] vkj feêh dh çkQkby feêh e yxHkx 200 feeh/eh ikuh d lkFk pkt gkA v/;;u l vkx irk pyrk g fd ckt jk dh HHB&67 fdLe nj cokb d fy, mi;ä ¼Goyal *et al.,* 2018½A

fu"d"k

if'peh jkt LFkku e Qlyk] ckxokuh ik/kk vkj lkekftd vkfFkd y{k.kk vkj [kMhu ç.kkyh e fdlkuk dh leL;kvk d ckj e fdlkuk d Kku Lrj d vkdyu d ckn] if'peh jkt LFkku e [kMhu l/kkj d fy, fofHkUu rjhd/e,My gA 'kk/kdrkvk u ikp e,My l>k, gA lHkh ikp ç.kkfy;k e fdlkuk dk Qly] lfct] Qy vkj i'k/ku d ckj e e/;e Lrj dk Kku gA bu e,Myk dk viuku l bu lfn;k ijkuh [kkfnuk d mRiknu vkj mRikndrk e dkQh of) gk ldrh g] lky Hkj e [kkfnuk l vf/kd vk; lHko g e,My [kMhu dh tfod ç—fr dk lfuf'pr djr g D;kfd i'k ?kVd tfod [kkn çnku djr gA

REFERENCES

Goyal, R.K., Singh, J.P. and Gaur, M.K. (2018). Khadin system of run off farming for crop production central arid zone research institute, Jodhpur, Rajasthan. Indian Farming. 68(09): 26-28.

Askolarkar, Singh, N. (1983). Khadin - A method of harvesting water for agriculture in the Thar desert. Journal of Arid Environments. 6(1): 59-66. https://doi.org/10.1016/S0140-1963(18) 31433-2.

Bassi, N. and Vedantam, N. (2013). Traditional and modern systems for alleviating water scarcity: Effects of khadin and sub-surface dams in the arid climate of Western Rajasthan. Growth and Change Review. 18(2): 131-148.

Bhalge, P. and Bhavsar, C. (2007). Water Management in Arid and Semi-arid Zones: Conventional Knowledge. International History Symposium on Irrigation and Drainage, Tehran-Iran, pp. 423-428.

Bhattacharya, S. (2015). Traditional water harvesting structures and sustainable water Management in India: A socio-hydrological review. International Letters of Naturalization Science. pp. 37.

CGWB (2011). Selected case studies of rain harvesting and artificial recharge. Central Ground Water Board, Ministry of Water Resources, New Delhi.

Directorate of Agriculture, (2016). Rajasthan Agricultural Statistics at a Glance 2014-15. DOA, Rajasthan, Jaipur, Government of Rajasthan, India.

Dhiman, S.C. and Gupta, S. (2011). Rainwater harvesting and artificial recharge. Central Ground Water Board, Ministry of Water Resources, New Delhi.

Japan International Co Operation Agency (JICA) and Nippon KOEI Co Ltd., (2017). Preliminary Survey on Rajasthan Water Sector Livelihood improvement Project. Final Report Advance Edition, Volume I. Water Resources Department, Government of Rajasthan.

Kumar, M.D. (2016). Water Saving and Social Benefits from Micro Irrigation: A Study from the IGNP Command Area in Rajasthan. Viswanathan *et al.* (Eds), Micro Irrigation Systems in India: Origin, Status and Impact. Springer, Singapore.

Ministry of Rural Development, (2004). Water Harvesting and Artificial Recharge. Rajiv Gandhi National Drinking Water Commission, Government of India, New Delhi.