

# c\lbo #

## 3f/ a9fpg]lalw (Colony Multiplication)

### uf]hf laefhg

6kaf/ jf rfs; ePsf 3f/df df]L kfNbf 3f/df df]Lsf]; Vof x]L  
uf]hfnf0{@ jf # efudf laefhg u/] uf]hf a9fpg ; lsG5 . uf]hf  
a9fpg]sfo{df]Lsf]k]s[ts ǁkdf xh 56ǁ]; do eGb f!) -!% lbg  
klxnf g}ug{/fd]xG5 . 3f/ a9fpg]sfo{cgsh df}d / ; dodf  
ul/G5 / o; sf nflu &-\* k]d 5fp/f rfsf ePsf]dhat uf]hf xg'  
cfjZos dflgG5 . uf]hf laefhg ubf{; fdfGotof Pp6f alnof]  
uf]hfaf6 b06f uf]hf agfpg]ul/G5 . t/ kǁ:t dfqdf r/g  
pknAw ePsf]/ ; lawfhgs -pkoQm tkqnd ePsf]7fpdf eg]  
Pp6f dhat uf]hfaf6 # uf]hf klg agfpg ; lsG5 .

uf]hf laefhg ug{pkoQm xg]; do, xfjfkfgl, 3f/sf]cj:yf / uf]hf  
laefhg ug]lalw af/]la:t[ lj j/Of ; Gbe{; rL @,# / ^ df pNny  
ul/Psf k':tsx?df kfgp ; lsG5 . t; y{o; kl:tsfdf ; f]; DaGwl  
5fǁs/l hfgsf/l dfq lb0Psf]5 .

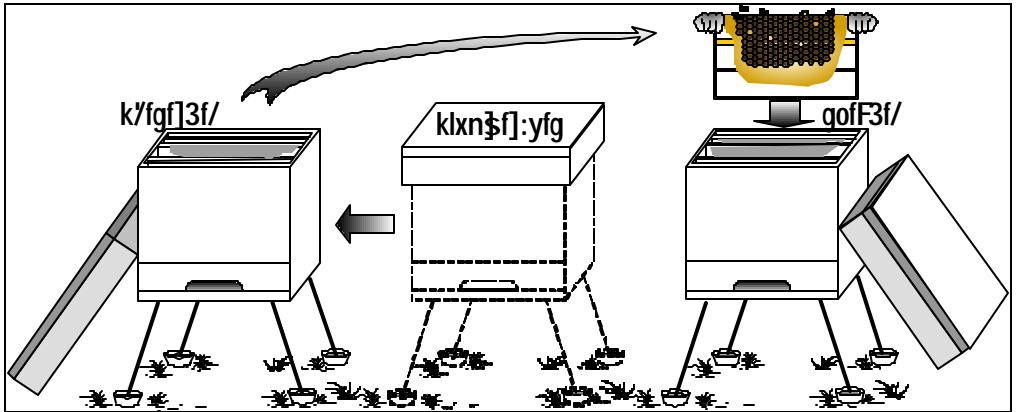
# ufjhf laefhg ug{lalw

dfxl ufjhf nfn0{lgDg cg'; f/ b0{efudf laefhg ug{; lsg5M ; fdfGo  
lalw / GolSno; 3f/sf]kpfly u/yl ufjhf laefhg ug{lalw . klxnf]  
lalw cg'; f/ kfs[ts cj :yfdf alg/xsf /fgsfijx?sf]kpfly u/yl  
ufjhf laefhg ug{]f ufjhf laefhg u/L; skl5 dfxlnf0{/fgsfijf  
agfpg kl/t ug{ / tl /fgsfijx?nf0{/fg' laxlg ufjhfd lbg]ul/G5  
eg]bf] f]lalw cg'; f/ 5gf6 ul/Psf ufjhaf6 nfef{lenSg]/ tl  
nfefhf0{s]qd tl/sfaf6 agf0Psf /fgsf]ldf ; f/L dfxlnf0{  
/fgsfijf agfpg nufpg]/ To; /L agsf /fgsfijx?nf0{s]x rfsf  
dfxl ; lxt GolSno; 3f/df /fvl ufjhf laefhg ug{ul/G5 .

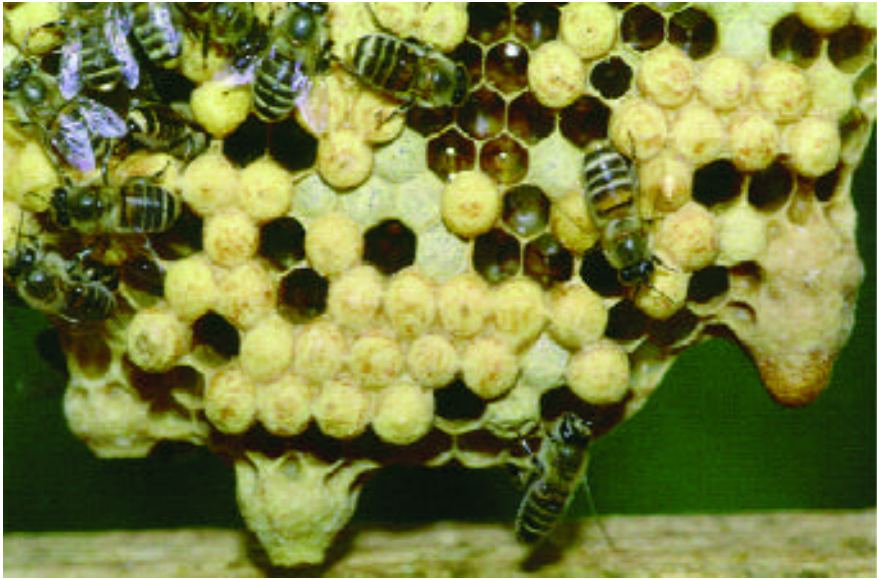
## 3f/ laefhg ug{56dfpg] ; fdfGo lalw

- gofFdfxl gePsf]vfnl 3f/nf0{dfxl]sf]ufjhf 56dfpg]3f/af6  
!-!=% lkn6 bfofF/fVg].
- dfxl ePsf]3f/nf0{cfCgf]7fpaf6 !-!=% lkn6 afofF/fVg].  
-lrg g=##\_
- dfxl ePsf]3f/af6 dfxl gePsf]3f/df #÷\$ j 6f 5fp/f k]d,  
Pp6f dx Pj +s6 ePsf]k]d / /fglnf0{/fvl lbg].
- /fgsf]; fydf g6fn\$ 5fp/f ePsf]k]dnf0{/fVbf /fd]xG5 .
- kfs[ts ?kdf dfxln]/fgsfijx? agf0{/fv\$]5 eg]/fgsfijf  
ePsf]Pp6f rfsf lenSg]. To; df ePsf /fgsfijx? dWb]Pp6f  
c; n sf]fnf0{5f\$] afBlnf0{efFL lbg]/ To]rfsfnf0{/fg'  
gePsf]3f/df /fvl lbg]. -lrg g=#\$\_
- olb kfs[ts ?kdf /fgsfijx? alg/xsf 5gg\eg]/fg' gePsf]  
3f/df g6fn\$, sd pd]sf nfef{Pj +c08f ePsf]rfsf lbg]  
h; af6 dfxln]cfkm]/fgsfijf agfp5g\.

- afix/ sfdaf6 kms\$ f df)lx; k/fgf]7fpdf cfp5gV ToxF cfÇgf]3f/ gb)k15 sflx afdfilt/sf]3f/df / sf)l bdfilt/sf] 3f/leq k:5g\.



lrg g=#M df)l ePsf]3f/nf0{klxn\$ f]7fpdf6 ! lkr6 afdf / df)l gePsf] 3f/nf0{! lkr6 bfofF/fv} uf)hf laefhg ug{; lsg5 .

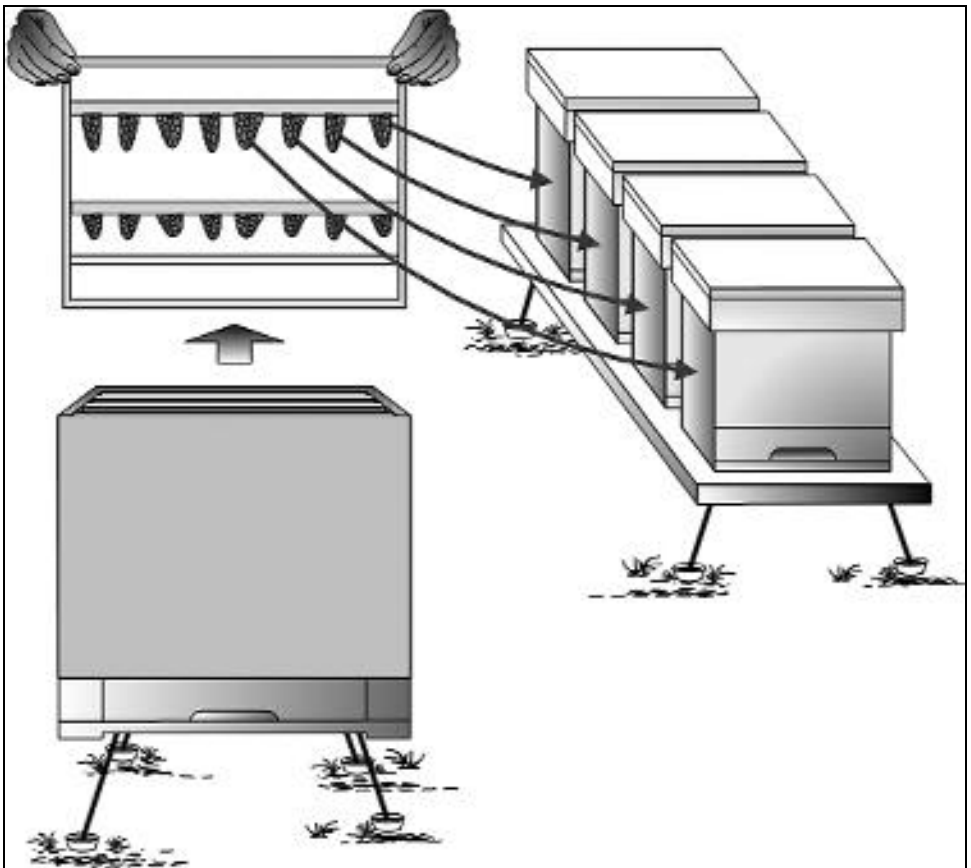


lrg g=#\$M ufjhf laefhg u/\$f]\*-!) lbgdf /fg'gePsf]3f/df /fgsfj] tof/ xG5g\ . tl sfjfx? dWo]Pp6f /fdf]sfj]nf0{/fv}] afFL c?nf0{efFL lbg' k5{.

***GolSno; 3f/sf]kpfj] u/l ufjhf 5bdfpg]lalw***

rf/ j 6f 5fp/f rfsf c6fpg]; fg]3f/nf0{GolSno; 3f/ elgG5 . cfkth, E ePsf alnof ufj]nf0{laefhg u/l 3f/ a[4 ug{k/df GolSno; 3f/sf]kpfj] ul/G5 . alnof]3f/af6 sldtdf b06f 5fp/f k]d / Pp6f dx Pj d\s6 ePsf]k]dnf0{lensl GolSno; 3f/df /fv]ul/G5 -lrg g=#%\_ . tl GolSno; 3f/nf0{ls t ! ls=d= eGbf 6f9fsf]cfkthnf0{kfos kg]7fpdf /fv' k5{ls tn lrg g=#^ df b]fP h:t}u/l ; f]l 7fpdf /fv' kb5 . GolSno; 3f/df ePsf alrsf]5fp/f rfsfdf /ftf]6k]kf ePsf]kl/kSj /fgsfj]nf0{ 6fFL lbg' k5{ . olb lgl:s; s]f]/fg' lbg rfxdf \*-!) j 6f sdl{ df]lsf ; fy lkh8fdf /fv]f]/fghf0{lbg' kb5 . lkh8fsf]kpfj] u/l /fg' lbg]tl/sf lgDgfg'; f/ 5 .

- lhp ; nSs k/§f]/fghf0{\* -!) j 6f sdl{df}lsf ; fydf lkh8fdf /fv§f]/ lkh8fsf]dV dxdf lehfpSf]skf; n]aGb u/L lbg].
- /fghf0{lkh8fdf /fv§f]@\$ 306f kl5 /fg' df}lsf]uGw /fg' laxlg uf]hdf ; lhn}u ldl; G5 .
- uGw ldl; P kl5 3f/df ePsf c? df}l lkh8fsf]j|/kl/ 7ls lsl; dn]3Dg yfN5g\hj sl uGw ldl; g' eGb cufI8 pglx? cfqfids b]vG5g\.
- lkh8fsf]dVdf /fv§f]skf; x6fP/ /fghf0{afIx/ lgsfnl lbg]



lRq g=#%M df}l w}]ePsf]alnof]3f/af6 @-# j 6f 5fp/f rfsfx? / df}lx? lenSb} x/§ GolSno; 3f/df a/fa/ u/L lbg]/ k[o§ 3f/df Pp6f Pp6f /fg' sf]f /fvL lbg].



Irq g#^M Gollso; 3f/sf]køf] u/ Pp6f dhat uf]hfnf0{laefhg u/l @-# 3f/ klg agfpg ;lsG5 .

## Kofs]h uf]hfsf]pTkfbg

sf]faf6 lg:s}f] \$-% lbg kl5 /fgdf]l j} flxs p8fgdf hfG5]/  
 To; sf]!-@ lbg kl5 ktn kfg{yfn5]. /fgh]ktn kfg{yfnl; s}kl5  
 df]lsf]kofs]h uf]hfx? agfP/ laqm ug]j f cfkng]df]l vsdf nu]  
 uf]hf a9fpg]sfd ug{; lsG5 . Kofs]h uf]hfsf]pTkfbg ugM

- Pp6f ; fgf]-#) ; }dl= nfd] @@ ; }dl= rf8f / !% ; }dl= cUnf]  
 sf7 j f df}f]u0fsf]afs; agfpg]. ; f]afs; agfpg]tl/sf  
 ; Gbe{; Yl # df pNny ul/Psf]k'tsdf lb0Psf]5 .
- alnof]uf]hfaf6 5fp/f rfsf lensl To; df ePsf df]lnf0{em6sf  
 lbP/ afs; df vGofpg]
- df]ldfly xNsf lrgl-rf:gl 5s} em6sf lbbf /fdf]xG5,
- lkh8fdf ePsf]/fghf0{sg}tf/df c8sfP/ afs; df /fVg]

- afs; df lrgl-rf:gl ePsf]ef8f /fVg]/ afs; nf0{cWof/f] sf]fdf /fVg]j f cfj Zos k/}\$f]7fp8f n]hfg].

## uf]hf ljefhg u/l; s]k]5 ug{k]g]sfo{

3f/ ljefhg u/}\$f]\$-% lbg kl5 uf]hf ; kmn eP jf gePsf]yxf kfpq 3f/sf]/fd/l lg/lif0f ug{k]b5 . olb /fg\$]k] n]Drf]5, rfsdf l56f]l56f]lxl8/x}\$f]5 / sf]fdf x]f{ !-! j6f kmn kf/}\$f] 5 eg]/fg'j}flxs p8fgdf uP/ efn] 6 nful; s}\$f]/ uf]hf ; kmn e}s}\$f]5 eGg]s/f yxf xG5, t/ olb 3f/df /fg'5 t/ To; n] kmn kf/}\$l 5g] eg]/fg'j}flxs p8fgdf u0{s}\$l 5g] eGg]; \$] kf0G5 . To:tf uf]hfnf0{k]z:t lrgl-rf:gl v]fpg'k5{h; n]ubf{ /fghf0{p8fgdf hfg pQ]hg] ldNb5 . olb 3f/df /fg'el6Pg jf Pp6}sf]fdf klq #- \$ j6f kmn 5gV s]x sdl{df}lsf]k] n]Drf] x]uPsf]h:tf]5 eg]/fg' s]x sf/0fn]d/}\$f]/ sdl]k] kmn kfg{ yfnl; s}\$f]; \$] kf0G5 . sdl]k] kmn kfg{z? u/}\$f uf]hfx; la:tf/}gfl; P/ hfG5g\t; y{To:tf uf]hfsf df}lnf0{of t \$)-%) dl= 6f9f nu] 6s&Sof0{gofF3f/df k; fpg'k5{/ /fg\$]f] jf /fg'lbg'k5{of To:tf uf]hfnf0{/fg'ePsf]csf]; fg]uf]hf; 6 ld; f0{lbg'k5{.