

રાષ્ટ્રીય કૃષિ વિકાસ યોજના  
“સર્વે એન્ડ સર્વેલન્સ બેઈઝ્ડ પેસ્ટ એન્ડ  
ડીસીઝ ફોરવોર્નિંગ સીસ્ટમ ફોર સાઉથ ગુજરાત”  
અંતર્ગત

## મોજણી અને નિગાહ આધારિત શાકભાજીની જીવાત પૂર્વાનુમાન પદ્ધતિ

તાલીમ મેન્યુઅલ  
૨૦૦૯



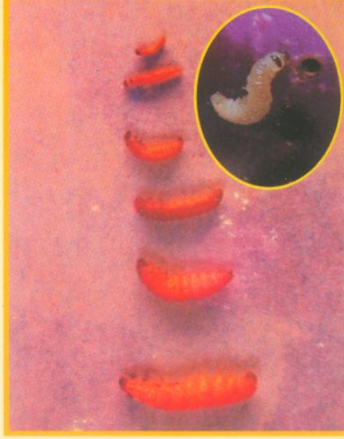
NAVSARI AGRICULTURAL UNIVERSITY

કીટકશાસ્ત્ર વિભાગ  
ન.મ. કૃષિ મહાવિદ્યાલય  
નવસારી કૃષિ યુનિવર્સિટી  
નવસારી-૩૯૬ ૪૫૦





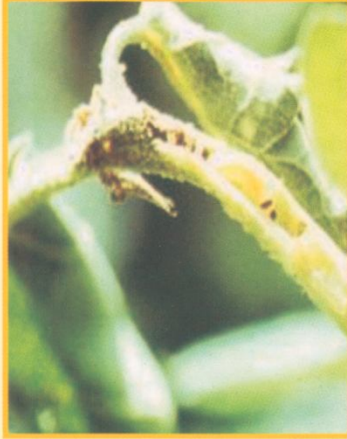
૧.૧ રીંગણાની ડૂંખ અને ફળ કોરી ખાનાર ઇથળના પુખ્ત કીટકો



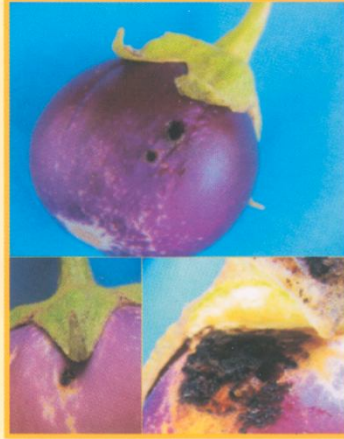
૧.૨ રીંગણાની ડૂંખ અને ફળ કોરી ખાનાર ઇથળની જુદી જુદી અવસ્થાઓ



૧.૩ રીંગણાની ડૂંખ અને ફળ કોરી ખાનાર ઇથળનો કોશેટો



૧.૪ રીંગણાની ડૂંખ અને ફળ કોરી ખાનાર ઇથળનું નુકશાન (ડૂંખમાં)



૧.૫ રીંગણાની ડૂંખ અને ફળ કોરી ખાનાર ઇથળનું નુકશાન (ફળમાં)



૨.૧ રીંગણાના તડતડીયા ના પુખ્ત કીટકો



૨.૨ રીંગણાના તડતડીયાનું બચ્ચું



૨.૩ રીંગણાના તડતડીયાનું નુકશાન



૩.૧ રીંગણાની સફેદમાખીના પુખ્ત કીટકો

ZFQ8LI S'IQF IJSF; I MHGF

cc; J[Vg0 ; J, g; A[h0 5[: 8 Vg0 0L; Lh OMZJMGLU ; L: 8D OMZ ; FpY  
U]HZFTcc

VITU

DMH6L VG[ IGUFC VFWFIZT XFSEFHLGL HLJFT 5}JF'G]DFG 5wWIT

sZLU64 EL'OF4 8FD[8F4 DZRL4 SMALH4 SM, LO, FJZ4 3L, MOL4 5ZJ/4 N}ML4 5ZJ/4 SFZ[, F4 U, SF4  
TJZLI F4 O}U/L VG[, ; 6f

TF, LD DgI }V,

Z\_\_)

OMPHLPHLP ZFNIOI F  
zL V; P VG UHHZ

OMPV[RPJLP 50I F

OMPV[DPALP 58[,  
OMPV[DPV; P 5ZMICT



SL8SXF: + IJEFU

GPDP S'IQF DCFIJnf, I

GJ; FZL S'IQF I}IGJI; '8L

GJ; FZLv#) & \$5\_

SJZ 5[. H OMBMUFO 0

D}N}6 0 DFRvZ\_\_)

GS, 0 Z\_\_

5\$FXS 0

5FwI F5S VG|J0F

SL8SXF: + IJEFU

GPDP S'IOF DCFIJnF, I

GJ; FZL S'IOF I|JGJI; '8L

GJ; FZLv#) & \$5\_

UJHZFT

OMG GAZ0 s\_Z&#\*f Z(Z\*\*! v\*\*5 sV\$; #\_\*f

Dä\$

V|5, UFOLS; 4

HG ; M; FI 8L4 OJFZF 5F; ¶

GJ; FZLv#) & \$\$5

OMG GP s\_Z&#\*f Z5&&\$5

<p>H{ JS IGI 46 5 I MUXF/F4 SL8SXF: + IJEFU4 GPDP  S'IOF DCFIJnF, I 4 GJ; FZL BFT  B[TL 5FSMDF\ G SXFG SZTF SL8SMGF  H{ JS IGI 46 DF8  <u>8FI SMUFEDE</u> <u>RL, LGL; GF</u> 8FI SMSFO" T DH  <u>SFI ; M5, F" SFIG"LEGF SFI ; M5, F" SFO" T FZ SZJFDF\ VFJ  KP ; NZ</u>  SFO'G  JIRF6 i FHAL EFJI SZJFDF' VFJT  CMJFYL VF VUI OMGYL</p>
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# અનુક્રમણિકા

અનુ.નં.	વિગત	પાન નંબર
૧.	રીંગણની શ્રવાતો	
	૧.૧ ડૂંખ અને ફળ કોરી ખાનાર ઈયળ	૧
	૧.૨ તડતડીયા	૧
	૧.૩ સફેદમાખી	૩
	૧.૪ પાનકથીરી	૪
	૧.૫ એપીલેકના બીટલ	૪
	૧.૬ ઘડનો વેધક	૫
	૧.૭ પાન વાળનારી ઈયળ	૬
	૧.૮ થ્રીપ્સ	૭
	૧.૯ મોલો	૮
૨.	ભીંડા	૯
	૨.૧ ડૂંખ અને શીંગ કોરી ખાનાર ઈયળ	૯
	૨.૨ તડતડીયા	૧૧
	૨.૩ સફેદમાખી	૧૧
	૨.૪ પાનકથીરી	૧૨
૩.	ટામેટાની શ્રવાતો	૧૩
	૩.૧ પાનકોરીયું	૧૩
	૩.૨ લીલી ઈયળ	૧૪
	૩.૩ સફેદમાખી	૧૬
	૩.૪ સ્પોડોપ્ટેરા	૧૬
૪.	મરચી	૧૮
	૪.૧ થ્રીપ્સ	૧૮
	૪.૨ પાનકથીરી	૧૯
૫.	કોબીજ અને કોબી ફલાવર	૨૧
	૫.૧ હીરા ફુદું	૨૧
	૫.૨ સ્પોડોપ્ટેરા	૨૩
	૫.૩ લીલી ઈયળ	૨૩
	૫.૪ મોલો	૨૩
	૫.૫ કોબીજનું પતંગિયું	૨૪
	૫.૬ પાન વાળનારી ઈયળ	૨૫
	૫.૭ ઘડનો વેધક	૨૬
	૫.૮ રંગીન ચૂસીયાં	૨૭
	૫.૯ ચાંચડી	૨૭
	૫.૧૦ મોલો	૨૮
૬.	વેલાવાળા શાકભાજી	૨૮
	૬.૧ ફળમાખી	૩૦
	૬.૨ પરવળની વેલા કોરનારી ઈયળ	૩૧
	૬.૩ લાલ અને કાળા મરીયાં	૩૧
	૬.૪ ઘીલોડાની ફૂદી	૩૨
	૬.૫ મીલીબગ્સ (ચીકટો)	૩૩
	૬.૬ પરવળની ભીંગડાવાળી શ્રવાત	૩૩
	૬.૭ ગાંઠીયા માખી	૩૪
૭.	ડુંગળી અને લસણ	૩૪
	૭.૧ થ્રીપ્સ	૩૪
૮.	વાલ/પાપડી	૩૫
	૮.૧ લીલી ઈયળ (હેલીથોથીસ)	૩૫
	૮.૨ મોલો	૩૫
	૮.૩ સફેદમાખી	૩૭
	૮.૪ પાનકથીરી	૩૭
૯.	પાક શ્રવાત કોડ નંબર	૩૮
૧૦.	Observation Sheet	૪૭



VFDJB

OFF VFZP5LPV; P VC, FJT  
S, 5IT  
GJ; FZL S'IOF IJGJI; 8L  
GJ; FZL

XFSEFHLGF 5FSMDA JWFZ[ 50TF HITJGFXS NJFVMGF J5ZFXG[ SFZ6[ BTL BRDA JWFZM YFI K[ TJDH XFSEFHLDH HITJGFXS  
NJFVMGF VJXQFM HMF D/[ K[ HIGFYL XFSEFHL BFGZ JU'G[ G'SXFG YFI KP પાક જીવાતના સંકલીત નિયંત્રણ માટે જે તે પાકમાં  
જીવાતનો ઉપદ્રવ ક્ષમ્યમાત્રા કરતાં વધુ જોવા મળે ત્યારે જ પાક સંરક્ષણની જુદી જુદી પદ્ધતિઓ પૈકી યોગ્ય પદ્ધતિની પસંદગી  
કરી જીવાત નિયંત્રણ માટે પગલાં હાથ ધરવા સતત મોજણી અને નિગાહ કરતી રહેવી ખૂબ જ આવશ્યક છે. ZF08LI S'IOF IJSF;  
I MHGF VTUT SL8SXF: T[ IJEFU BFT[ cc; J[ Vg0 ; J[ g; A|h0 5f; 8 Vg0 0L; Lh OMZJMGLU ; L: 8D OMZ ; FpY UJHZFTcc VTUT NI1F6  
UJHZFTGF D]b[ 5FSMDA VFJTL HLJFTMGL J: TLDA YTF OZOFZGL ; TT DMH6L SZJL TYF T[GF VFWEZ[ જે તે પાકમાં કોઈ પણ જીવાતનો  
ઉપદ્રવ ક્ષમ્યમાત્રા કરતાં વધુ જોવા મળે તો તાત્કાલીક ખેડૂતોને આ જીવાતોના નિયંત્રણ માટે હાથ ધરવાના પગલાં ઓની માહિતી  
દૂરદશ્ન આકાશવાણી, ; DFRFZ5+M કે યુનિવર્સિટીના જુદા જુદા ! ) કેન્દ્રો પરથી આપવાની ગોઠવણ કરવામાં આવેલ છે. VF I MHGF  
VTUT HLJFTMGL p5N]JGL DFICTL VUDR[TL ~5[ BQJTMG[ D/TF સમયસર GF 5FS ; Z1FGF 5U, A, . XSX[ HIGFYL બિનજરૂરી જં તુનાશક  
દવાના વપરાશમાં ઘટાડો YTF 5I FJZ6G[ 5N]DF6 V8SXP આશા રાખુ છું કે SL8SXF: T[ IJEFU WJZF T[ FZ SZJFDA VFJ[ XFSEFHLGL  
HLJFTMGL TF, LD Dg[ ]V, સંશોધન કર્તાઓ, વિસ્તરણ કાર્યકરો આ કાર્યક્રમ સાથે સંકળાયેલ તમામ કર્મચારીઓqVIWSFZLVIII TYF  
BQJTF Idf+MG[ ને TF, LD NZdl FG TJDH I MHGF GF VD, NZdl FG 5FS HLJFTvZMU 5]JFGDFG 5wWITGF VJ, MSGM , ]F DF8[ DFUNXS પુરવાર  
થશે. આ TF, LD Dg[ ]V, માં આપવામાં આવેલી અમુલ્ય માહિતીનો ઉપયોગ કરી ખેડૂતોને સમયસર પાક જીવાત નિયંત્રણ માટે  
સાવધ કરવામાં આવશે જે કૃષિ ઉત્પાદન વધારવામાં ઉપયોગી થશે. આ TF, LD Dg[ ]V, તૈયાર કરવા માટે ડૉ.જી.જી. રાદડિયા, ZL  
V[ P VGP UHHZ4 ડૉ.એચ.વી. પંડ્યા ડૉ.એમ.બી. પટેલ અને ડૉ.એમ.એસ. પુરોહીતને અભિનંદન પાઠવું છું.

TFZLB0 #\_q#qZ\_\_)

:Y/0 GJ; FZL

sVFZP5LPV; P VC, FJTf

S, 5IT



X]E[rKF ; W[X

QFP ; LPV[, P 58[,  
VFRFI "  
GPDP S'IQF DCFIJnF, I  
GJ; FZL S'IQF  
I]IGJI; '8L  
GJ; FZL

NI1F6 U]HZFTDA\XFSEFHLGF 5FSMG\JFJ[TZ SZJFDA VFJ[ KP VF 5FSMDA\HLJFTYL  
36]H VFIY'S G]SXFG B]J]TMV[ J]9J\ 50[ KP VFYL ; NZ 5FSMDA\VFJTL HLJFTMG\ ; TT  
DMGL8ZLU SZL T]DH ; FY[ ; FY[ CJFDFGGL HLJFTM 5Z YTL V; ZMGM jI JI:YT VeIF;  
SZL B]J]TMG[ VUFpYLH HLJFTGF IGI\+6 DF8[ ; FJWFG SZL I MuI DFUNX'G VF5L  
HLJFTYL YTF G]SXFGYL AREJL XSFI KP VF C[T] DF8[ V+[GF SL8SXF:T] IJEFU TZOYL  
XFSEFHLGF 5FSMGL HLJFT VUJGL TF, LD DgI]V, T{FZ SZJFDA VFJ[, KP T]DA NZ]S  
HLJFT IJQFGL ; 5}6" DFICTL S, Z OM8MUJFO ; FY[ VF5[, KP BZ[BZ VF TF, LD DgI]V,  
NZ]SG[ B]AH p5I MUL Y. 50XP VF SFI 'S]D ; 0/ YFI VG[ T]GF VFWFZ[ S\ S p5I MUL  
TFZ6M IGS/L VFJ[ T]JL V5]FF ; FY[ X]E[rKF 5F9J] KP

TFZLBo #\_q#qZ\_\_)

:Y/o GJ; FZL

s; LPV[, P 58[, f

VFRFI "

# 5: TFJGF

ZF08|I S'0F IJ5F; I MHGF VTFUT V+|GF IJEFU BFT[cc; J| Vg0 ; J|, g; A|h0 5:8 Vg0 0L; Lh 0MZJMGLU ; L:8D 0MZ ; FpY UJHZFTcc VTFUT NI1F6 UJHZFTGF D|b| 5FSMDF VEFJTL HLJFTMGL J:TLDA YTF 0ZOFZGL ; TT DMH6L SZJL TYF T|GF VFWFZ| જે તે પાકમાં કોઈ પણ જીવાતનો ઉપદ્રવ ક્ષમ્યમાત્રા કરતાં વધુ જોવા મળે તો તાત્કાલીક ખેડૂતોને આ જીવાતોના નિયંત્રણ માટે હાથ ધરવાના પગલાંઓની માહિતી દૂરદર્શનઆકાશવાણી, ; DFRFZ5+M કે યુનિવર્સિટીના જુદા જુદા ! ) કેન્દ્રો પરથી આપવાની ગોઠવણ કરવામાં આવેલ છે.

VF તાલીમ મેન્યુઅલમાં XFSEFHLGF 5FSM HJF S| ZLU64 ELDF4 8FD|8F4 DZRL4 SMALH4 SM, LO, FJZ4 3L, MOL4 5ZJ/4 N|WL4 5ZJ/4 SFZ|, F4 U, SF4 T|ZL F4 0|U/L VG| , ; 6 HJF 5FSMDF VEFJTL D|b| HLJTMG| VEFJZL , LW|, K| VF HLJFTMGL VM/B4 G|S|XFG4 VJ, MSG 5wwFIT VG| IGI|+6 j| J:YF5G VUJGL DFICTL સરળ ભાષામાં આપવામાં આવેલ છે. અવલોકન લેનાર કર્મચારી પોતાનો અહેવાલ ખૂબ જ ટુંકા સમયમાં તૈયાર કરી શકે તે માટે કેન્દ્ર, તાલુકા જલ્લા, પાક, જાત અને જીવાતના કોડ આપવામાં આવેલ છે. જેનાથી ખૂબ જ ઓછા સમયમાં અહેવાલ તૈયાર કરી શકાશે. આશા છે કે તાલીમ મેન્યુઅલનો વ્યવસ્થિત અભ્યાસ કરવાથી અવલોકનની સાતત્યતા જળવાશે

VF તાલીમ મેન્યુઅલમાં SM. 1FIT ZCL HJF 5FD|, CMI VDF~ w|FG NMZJF GD| IJGTL H|YL I MHGFDA T|GM VD, SZL XSFI P

TFZLB0 #\_q#qZ\_\_\_)

ડૉ.જી.જી. રાદડિયા,

zL V|: P V|GP UHHZ4

ડૉ.એચ.વી. પંડ્યા,

ડૉ.એમ.બી. પટેલ અને

ડૉ.એમ.એસ. પુરોહીત

:Y/0 GJ; FZL



s! f ZLU6 s! #f

! f 0)B VG[0/ SMZL BFGFZL . I / sZ\$ f 0

*Leucinodes orbonalis* <I]; LGMO; VMZAMGF, L;

(Pyralidae : Lepidoptera)

VM/B 0

. 0F 0 DFNF 0)NL K)BF KJFI F ; 0)N ZUUGF GFGF4 UM/FSFZ . 0F D)bi tJ[S]D/F 5FGGL GLR[GL ; 5F8L 5Z D)S[ KP

. I / 0 . 0FDFYL GLS/[ , L . I / GFGL G[VW"5FZNX"S CMI KP HI FZ[5]6" IJS; LT . I / VFKE U], FAL ZUGL4 ANFDL S[ hF)BF SyYF. ZUGF DFYFJF/L VG[! ( YL Z\_ DLDL , FAL CMI KP

5)6T 0 5)6T 0)N] Dwi D SNG) VG[ ; 0)N ZUGL 5FBMJF/] CMI K[0)NFG L VU] 5FBM 5Z I+SM6 VFSEZGA ANFDL S[ SyYF. ZUGF 85SF)HMJF D/[ KP

G)SXFFGSFZS VJ: YF 0 . I / VJ: YF

SMX)BF VJ: YF 0 KMOGF EFUM S[ HDLGDA CF] KP SMX)BF U] ZUGF CF] KP

G)SXFG 0

5FSGL X~VFTGL VJ: YFDF . I / Dwi 0)BDA)NFB, Y. 56" NO SMZL BFI KP H)YL p5)IJT 0)B RLD/F. G[ ; ]SFI HFI KP 0], VJ: YFV[ . I / S/L T)DH 0/G[ SMZL G)SXFG SZ[ KP T)GF SFZ6[ S/LVM BZL 50[ KP . I / 0/DA JH] s0LRFFG)GLR)GF EFU)YL NFB, Y. 0/G[ VNZY L SFZLG[ G)SXFG SZ[ KP 5)6" IJSI; T . I / 0/DA SF6) 5F0L ACFZ VFJL GLR[ BZL 50], 5FGDA S[ HDLGDA SFX)BF AGFJ[ KP p5)IJT 0/MGL U)6J 2 FDA 38FOM YJFY L T) BFJF , FI S S[ AHFZDA J)R)JF , FI S ZC)TF GYLP VJ, MSG 5wWIT 0

❖ IGI T SZ[, %, M8DFYL VU]HL c0A<1]c VFSEZ[ RF, LG[ VFBF %, M8DFYL V: T)J I : T 5wWITYL Z\_ KMO 5; N SZJF

❖ 5; N SZ[, KMOG) AFZLSF. YL IGZL1F6 SZL NZ)S KMO 5Z HMJF D/TL 0)BM VG[ 0/MGL ; b)I F T)DH G)SXFG 5FD[, 0)BM VG[ SF6FJF/F 0/MGL ; b)I FGL U6+L SZJLP

VJ, MSG G)M)0

KMO G)AZ	0)BM VG[ 0/MGL ; b)I F	G)SXFGJF/L 0)BM VG[ SF6FJF/F 0/MGL ; b)I F	G)SXFGGF 8SF
!			
Z_			
S),			

➤ 1fdI DF+F 0 5 8SF GJSXFG 0]B VG[ 0/DF

IGI \+6 jI J: YF5G 0

! P 5FSG L 0ZAN, L SZJLP

ZP W~JF101 ] ; FZL IGTFZJF/L T[D H pRF6JF/L HuI FV[ AGFJJP

#P 5]ITSFZS HFTM HJUL S[ OM, Lv54 RS, F; L OM, L VG[ VF6N CF. A]LO ZLU6v! GL JFJ[TZ DF8[ 5; NUL SZJLP

\$P 5FSG L 0ZZM56L RMDf; FDF; %8]dAZ DF; GL X~VFTDF HI FZ[ pGF/FDF HfgI ]VFZL DF; GF ALHF 5BJF10I FDF SZJFYL p5\$J VMKM HMUF D/[ KP

5P 5FSG L X~VFTGL VJ: YDF JBTM JBT GJSXFG 5FD[, 0]BM . I /F[ ; ICT TMOL HDLGDF p0] NF8L T]GM GFX SZJMP

&P B[TZDF 0]B VG[ 0/ SMZLBFGFZ . I /GF 0ZMDMG 8]5 C]S8Z[ \$ \_ DJHA , UFOJFYL VF SL8SGM p5\$J 38FOL XSFI KP

\*P VF SL8SGF p5\$JGL X~VFT YI[, CMI tI FZ[ ! \_ , L8Z 5F6LDF , LD0FGF DLH 5\_\_ UFD E/]JL T]I FZ SZ[, \$FJ6GM K8SFJ SZJFYL IGI \+6 Y. XS] KP

(P ZF; FI I6S IGI \+6 DF8[ V]gOM; <0FG #5 @ . ; L Z! DLP , LP VYJF SJLGF, OM; Z5 @ . ; L Z\_ DLP , LP VYJF OFI S, MZMJM; \* & @ 5 DL, L VYJF 0]8FDY]LG ! @ + 8]I hMOM; #5@ s#& @ . ; Lf ! \_ DL, L NJF ! \_ , L8Z 5F6LDF IDz SZL KMO ; FZL ZLT[ ELHFI T] ZLT[ K8SFJ SZJMP H~Z H6FI [! 5 INJ; AFN OZLYL ALHF[ K8SFJ SZJMP

ZP TOTOLI F s! \$f 0

*Amrasca biguttula biguttula* V[DZ: SF ALU]8], F ALU]8], F

**Cicadellidae : Homoptera**

VM/B 0 5]bT SL8S , L, F ZUJGF4 OFRZ VFSFZGF V]8, [ S] 5FK/GF EFU] 5FT/F CMI KP5FBMGA 5FK/GF EFU] A[ UM/FSFZ SF/F 85SF HMUF D/[ KP ArRF 5FG 5Z +F; F RF, [ KP T] V]GL , F1F16STF KP

GJSXFGSFZS VJ: YF 0 ArRF VG[ 5]bT

GJSXFG 0

ArRA VG[5]bT 5FGGL GLR[GL ; 5F8LV[ZCL 5FGDFYL Z; R}; [ KP H[YL 5FG WFZ[YL 5L/F 50L  
HF1 KP JW] p5\$JDA 5FG SMOLF HJF Y. p5ZGL TZO SMSOFI KP VF HLJFT 5FGGF 38LI F  
(Brinjal little leaf) ZMUGL JFCS KP

VJ, MSG 5wWIT VG[GMW 0

- ZLU6GL 0]B VG[0/ SMZL BFGFZ . I /DA\NXF"]I F DJHA Z\_ KMO 5; W SZJFP
- 5; W SZ[, NZ[S KMOGF +6 5FG s8MR4 DwI VG[ GLR[f V[D S], &\_ 5FG 5Z HMUF D/[ ,  
ArRFGl S], ; \b1 FG[ &\_ JO[ EFUTF H[ ; \b1 F VFJ[ T[G[ 5]6FS ; \b1 FDA 0[ZJLG[ VJ, MSG  
SF0'DA\NXF"]JLP
- 1fdI DF+f 0 5 ArRAq 5FG

IGI \+6 jI J:YF5G 0

! P ZLU6LGL 0[ZM56L ; %8tdAZ DF; GF 5C[, F V9JFOLI [ SZJFYL VF HLJFTGM p5\$J 38[ K[ H[YL  
38LI F 5FGGM ZMU 56 VMKM HMUF D/[ KP

ZP VF HLJFTGF p5\$JGL X~VFT YFI tI FZ[! \_ , L8Z 5F6LDA, LD0FGL DLVH 5\_\_\_ UFD 5]DF6[  
E[/JL T[! FZ SZ[, \$FJ6 GF[ K'8SFJ SZJFYL 5FSG[Z1F6 D/[ KP

#P 0[ZM56LGF ! 5 INJ; AFN KMOGF D]/ 5F; [ SFAMOI ]ZFG #@ NF6FNFZ NJF ! \_ ISP UFP 5]IT  
C[S8Z DJHA VF5JFYL #\_ YL #5 INJ; ; ]ML 5FSG[HLJFT ; FD[Z1F6 D/[ KP

\$P ZF; FI I6S IGI \+6DA\OFI DLYMV[8 #\_@ . ; L ! \_ DLP , LP VYJF IDYF. , vVMVOLD]8MG Z5@  
. ; L ! \_ DLP , LP VYJF D[, FYLVMG 5\_@ . ; L ! \_ DL, L VYJF V[gOM; <0FG #5 . ; L Z!  
DL, L VYJF 8#I hMOM; \$\_@ . ; L ! \_ DL, L NJF ! \_ , L8Z 5F6LDA\IDz SZL K'8SFJ SZJFP

#P ; 0]NDFBL s! 5f 0

*Bemisia tabaci*, A/DL; LIF 8AFSL

**Aleurodidae :Homoptera**

VM/B 0

ArRAR58F# V'0FSFZ VG[ ELUOF HJF CMI KP

5]bT 0 SL8S SNDA\GFG\4 ! YL Z DLDL , FA\CF[ KP H[G]\XZLZ 5L/F ZUG]CF[ KP 5F#M ; 0]N ZUGF  
DL6GF 5FJOZYL -\SFI[, CF[ KP

G\$XFGSFZS VJ: YF 0 ArRA VG[5]bT

G\$XFG 0

VF SL8SGL AqG[ VJ: YF ArRf\ VG[ 5]bT 5FGDFYL Z; R}; [ KP H[G SFZ6[ 5FG 0LSSf\ 50[ K[ JW] p5\$JDf\ 5FG KJ8[; ]SfI HfI KP ArRf\ RLS6M DW HJf 5JfCLGM : +FJ SZ[ KP H[ 5FGGL ; 5F8L VG[0], M 5Z 5]; Z[ KP T[YL[ 5]SfX; \ , QF6GL IS| FDF\ J1f5 SZ[ KP KMOGL J'lwW p5Z V; Z YfI KP

VJ, MSG 5wWIT VG[ GMM 0

- ZLJ6GL 0]B VG[0/ SMZL BFGFZ . I /DF\NXf\*] I F D]HA Z\_ KMO 5; N SZJFP
- 5; N SZ[, NZ]S KMOGF +6 5FG s8MR4 DwI VG[ GLR[f V[D S], &\_ 5FG 5Z HMJF D/[ , 5]bT IS8SGL S], ; bI FG[ &\_ J0[ EFUTF H[; bI F VFJ[ T[G[ 5]6fS ; bI FDF\ 0ZJLG[ VJ, MSG SF0DF\ NXf\*JJLP
- 1fdI DF+f 0 5 5]bT SL8S q 5FG

IGI \+6 jI J: YF5G0 TOTOLI F\ D]HA

\$P 5FGSYLZL s\$\_f0

*Tetranychus urticae*, 8]8fGLS; V8'SL

**Tetranychidae :Acarina**

VM/B 0

. 0f 0 B]A H GFGF VG[GZL VFfB[G HM. XSfI T]Jf UM/ CF| KP

ArRf\ 5L/F S[ GFZUL ZUGF VG[ +6 HMO 5U WZFJ[ KP

5]bT 0 , F, ZUGF4 RFZ HMO 5U WZFJ[ KP

G\$XFGSFZS VJ: YF 0 ArRf\ VG[ 5]bTP

G\$XFG 0

VF ALGSL8SLI HLJFTGL +6 VJ: YFVM 5FGGL GLR[GL ; 5F8LV[ ZCL 5FGDFYL Z; R}; [ KP

5FG 5Z 5L/FX 50TF WFAf\ N|BfI KP JW] p5\$JDf\ 5FG 5L/F 50L KJ8[; ]SfI G[ BZL 50[ KP

VJ, MSG 5wWIT VG[ GMM 0

- IGI T SZ[, %, M8DFYL VUJ|HL c0A<I ]: VFfSZ[ RF, LG[ VFfBf %, M8DFYL V: TjI : T 5wWITYL Z\_ KMO 5; N SZJFP

- 5; N SZ[, NZ[S KMOG\ Dwl G] V[S 5FG V[D S], Z\_ 5FG TMOLG[ 5M, LYL, LG A[UDF\ V[S9F SZL 5|I MUXF/FDF\ DF. S|M: SM5DF\ AFZLSF. YL IGZL1F6 SZJP
- 5|I MUXF/FDF\ DF. S|M: SM5DF\ AFZLSF. YL IGZL1F6 SZTF 5; N SZ[, NZ[S KMOGF Dwl GF S], Z\_ 5FG 5Z HMUF D/[ , ArRF VG[ 5|bT SYLZLGL S], ; \bI FG[ Z\_ J0[ EFUTF H[ ; \bI F VFJ[ T[G] 5|6FS ; \bI FDF\ 0ZJLG[ VJ, MSG SF0DF\ NXFJJP
- 1fdI DF+F o 5 SYLZLq5FG

IGI \+6 jI J: YF5G o

! P JW] p5\$JJF/F KMOG[ p5FOL N\ SZMP

ZP OFI SMOM, ! (P5 @ . ; L Z\_ DL, L VYJF 0[GfhFSJLG ! \_ @ . ; L ! \_ DL, L VYJF OFI 0gYI |ZMG 5\_ @ . ; L ! \_ DL, L VYJF 5M5ZUF. 8 5\* @ . ; L Z\_ DL, L VYJF J|A, ; <OZ 5\_ @ JP 5FP Z5 UFD ! \_ , L8Z 5F6LDF\ E/[ JL K'8SFJ SZJFP

#P VF SYLZL 5Z GETL 5ZE1FL SYLZLGL J: TL HMUF D/[ TM ; , FDT HTT]GFXS NJF H|L S[ VgOM; <OFG #5 @ . ; L Z! DL, L NJF 5|IT ! \_ , L8Z 5F6LDF\ IDz SZL K'8SFJ SZJMP

5f V[5L, [SGF AL8, o

*Epilachna vigintioctopunctata* V[5L, [SGF JLuGL8LVMS8M5S8F8F sZ( 85SFf

*Epilachna dodecastigma* V[5L, [SGF 0M0]SF: 8LuDF s! Z 85SFf

### Coccinellidae: Coleoptera

VM/B o

. 'OF o DFNF -FI, I } 5L/F S[ GFZUL ZUGF , FAF ; LUZ|B VFSFZGF . 'OF ! \_ YL Z\_ GA ; D]CDF\ 5FGGL p5ZGL AFH]V[ pEF ZC[T[ZLT[D]S[ KP

. I / o 5|6"JJSI; T . I / 5L/F ZUGL4 & YL ) DLPDLP H|8, L , FAL CMI K[ VG[ T]GF VFBF XZLZ[ SF8F CMI KP

5|bT o -FI, I F 5L/F S[ GFZUL ZUGF VG[ VW"UM/FSFZ CMI KP T]GL VU]5FBM 5Z ! Z S[ Z( SF/F ZUGF\ 85SF\ HMUF D/[ KP

G]SXFGSFZS VJ: YF o . I / VG[ 5|bT

SMX|BF VJ: YF o 5FG p5Z

G]SXFG o

. I / VG[ 5|bT AG[ VJ: YF 5FGGL p5ZGL AFH]V[ ZCL 5FGGL G; G[ G]S; FG SIF" JUZ T]GM CIZT }jI JF/M EFU SMZL BFI KP H|YL p5\$IJT 5FG p5Z IJIX08 RMSS; 5]SFZGL SMTZ6L SZL CMI

TU] N|BFI KP p5\$IJT 5FG ANFDL ZUG}Y. KU8[ ; }SFI HFI KP VF HLJFTGM p5\$J V|5|, YL D|  
DF; NZdI FG JW|HMJF D/[ KP

IGI \+6 jI J:YF5G 0

! P p5\$JGL X~VFTDF\ HLJFTGL H|NL H|NL VJ: YFVM H|UL S[ . '0F4 . I / VG[ SMX|8FGM JL6LG[ GFX  
SZJM

ZP ZF; FI I6S IGI \+6 DF8|SFAF"ZL, 5\_ 8SF JP 5FP \$ \_ UFD VYJF D|, FYLVMG 5\_ 8SF . ; L Z\_  
DL, L NJF ! \_ , L8Z 5F6LDF\ E|/JL K'8SFJ SZJM VYJF D|, FYLVMG 5 8SF E|SLGM Z\_ YL Z5  
ISP U|PqC|S8Z DJHA K'8SFJ SZJFYL V; ZSFZS 5IZ6FD D/[ KP

&P YOGF[ J|WS s: 8|D AMZZF 0

*Euzophera perticella* 4 | |hMO|ZF 5F8L"; |, F

**Pyralidae: Lepidoptera**

VM/B 0

. '0F 0 DFNF K|8F KJFI F ( YL ! Z\_ H|8, F VFKE 5L/F ZUGF . '0F 5FGGL GLR|GL AFH| , L, F YO 5Z4  
0), vS/L 5Z S[ 0/GF 0L8F 5Z D|S| KP

. I / 0 5|6" IJS; LT . I / VFKE 5L/F ZUGL Z\_ YL ZZ DLDL , FAL VG[ XZLZ 5Z VFKE JF/ WZFJ| KP  
5|bT 0 0|N| Dwl D SNG| Z& YL #Z DLDL , FA| VU|5F8B VFKE WpU6L" HI FZ[ 5` J5F8B ; 0|N ZUGL CMI KP  
G|SXFGSFZS VJ: YF 0 . I /

SMX|8F VJ: YF 0 Z|XDL SMX|8FDF\ G|SXFG 5FD|, YO S| HDLGDFP

G|SXFG 0 X~VFTDF\ . I / Y0GL 5|XFBVF| GLS/|, L CF| tI F VFU/YL NFB, Y. D|/GL INXFDF\  
SMZF6 SZL G|SXFG SZ| KP p5\$IJT KMOGM IJSF; ~WFI K| VG[ KU8| KMO ; }SFI HFI KP

IGI \+6 jI J:YF5G 0

! P X~VFTDF\ VMKM p5\$J CMI tI FZ| G|S; FG 5FD|, KMOGM . I /; ICT p5F0L GFX SZJFYL p5\$J  
JWTM V8SFJL XSI KP

ZP ZF; FI I6S IGI \+6 0 0|B VG|0/ SMZL BFGFZ . I / DJHAP

\*P 5FG JF/GFZ . I / 0

*Eublemma olivacea* I]a, [DF VM, LJ]; LI F

Noctuidae : Lepidoptera

VM/B 0

. 0F 0 DFNF GJF 5FG p5Z ; D]CDF ( YL ! Z H]B, F . 0F D]S[ KP

. I / 0 5]6" IJS; LT . I / Z\_ DIDL , FAL HFA]OLI FvSyYF. ZUGL T[DH XZLZ 5Z 5L/F ZUGF  
85SFYL ; ]XMI ET VG[GFGF JF/ WZFJ[ KP

5]bT 0 DwI D SNG] VFKE , L, F ZUG] T[DH VU]5FB 5Z ACfZGL ISGFZL 5F; [ I+SM6SFZ 3ZF[ , L, F  
ZU WZFJ[ K[ HI FZ[ 5` J5FB ACfZGL ISGFZLV[ SFUZZL WZFJ[ KP

G]SXFGSFZS VJ: YF 0 . I /

SMX]BM VJ: YF 0 JF/[ , F 5FGDF

G]SXFG 0 . 0FDFYL GLS/[ , . I /M 5FGGL ISGFZL 8MRYL JF/L T[DFZCL 8MRYL GLR[GL TZO CIZT]I GI  
SMZL BFI KP p5]IJT JF/[ , F 5FG WLD[ vWLD[ ; ]SFI K[ JW] p5]J CF[ tI FZ[ . I /M , L, L  
OF/LVMDAYL VFTZLS 5]XLVM BFI G[G]S; FG SZ[ KP 5IZ6FD[ KMO ; 5]6" ; ]SF. HFI KP

IGI }+6 jI J: YF5G 0

! P p5]IJT 5FG G[CFY JO[ TMOL . I / VG[SMX]BF ; ICT GFX SZJMP

ZP ZF; FI I6S IGI }+6 0 0]B VG[0/ SMZL BFGFZ . I / D]HAP

(P Y]L%; 0

*Thrips tabaci*, Y]L%; 8AFSL

Thripidae: Thysanoptera

VM/B 0

ArRF 0 5L/F S[ ; 0]N ZUGF VG[SNDFB]A H GFGF CMI KP

5]bT 0 GZL VFB[ G HM. XSFI T]JF4 5L/F ZUGF 5LKF H]JL A[ 5F]BMJF/F VG[ 5L9GF EFU[ ANFDL  
ZUGL A[ 58LVM JF/F CMI KP

G]SXFGSFZS VJ: YF 0 ArRF VG[5]bT

G]SXFG 0

ArRF VG[ 5]bT 5FGGL GLR[GL ; 5F8L 5Z DwI G; GL VF; 5F; 3; ZSF SZL Z; R}; [ KP  
5ZL6FD : J~5 5FG 5Z ANFDL ZUGF ; ]SF WFAF HMJF D/[ K[ VG[ HM p5]J JW] CMI TM VFB] 5FG  
; ]SFI HFI KP

IGI \+6 j I J: YF5G 0 TOTOLI F DJHA

) P DM, M 0

*Aphis gossypii*, V[0L; UM; L5L

**Aphididae : Homoptera**

VM/B 0

ArRF\ 5L/F ZUGF4 GFGF VG[ XZLZ[ 5MRF\ CMI KP

5]bT 0 XZLZ[ 5L/FX 50TF\ E]BZF ZUGF4 5MRF VG[ ! YL ! P5 DLDL , AF. GF CMI KP T[GF pNZGF  
5FK/GF EFU[ V[S HMO E]U/L VFJ[, L CMI KP DF[, F[GF 5]bT SL8SF[ 5FVBFUF/F S[ 5FVBF[  
JUZGF CF[ KP

G[SXFGSFZS VJ: YF 0 ArRF\ VG[ 5]bT

G[SXFG 0

ArRF\ VG[ 5]bT 5MTFGF D]BFUM 5FGDF\ NFB, SZL Z; R}; [ KP T[VM 5MTFGF XZLZDFYL DW  
H]UF 5]FCLGM : +FJ SZ[ KP H[ 5FG 5Z 50JFYL T[GF 5Z SF/L O]U IJSF; 5FD[ KP H[GFYL 5]SFX  
; \ , [F6GL IS[ F VJZMWF[ K[ VG[ KMOGM IJSF; V8S[ KP

IGI \+6 j I J: YF5G 0 TOTOLI F DJHA

ZP ELOF s! \$f

! f O]B VG[ XLU SMZL BFGFZ . I / 0 sSFAZL S[85SFUF/L . I /f s! \_f

*Earias vitella* V[ZLVF; JL8[, F

*Earias insulana* V[ZLVF; . g: I], FGF

**Noctuidae : Lepidoptera**

VM/B 0



. 0F 0 VFKE E]ZFA ZUGF UM/FSFZ CMI KP DFNF K}BF KJFI F . 0F 0}, S/L T]DH S]D/F 0/ 5Z D]S[ KP  
 . I / 0 . I / ZFBMOL ZUUGL4 SF/F DFYF JF/L VG[ XZLZ[ SF/F VG[ ANFDL ZUGF 85SF WZFJ[ K[ VFYL  
 T]G[ SFAZL S[ 85SFUF/L . I / SZ[ KP

5]bT 0 0]N] SNDAFGG] VFKE , L, F ZUG] CMI KP

V]ZLVF; JL8], FGL VU]5FAB VFKE , L, F ZUGL VG[ Dwl DFL 8Zs f VFSFZGF UF-F  
 , L, F ZUGF 58FJF/L CMI KP HI FZ[ V]ZLVF; . g: I], FGF GL VU]5FAB ; 5]6 , L, F ZUGL CMI  
 KP

G]SXFGSFZS VJ: YF 0 . I /

G]SXFG 0

5FSGL X-VFTGL VJ: YFDF p5]J H]UF D/[ TM . I / KMOGL 0]BG[ SMZL BFI G[ G]SXFG SZ[ KP  
 p5]IJT 0]B RLD/F. G[ ; ]SFI HFI KP HI FZ[ 5FSGL pt5FNS VJ: YFV[ . I / M 0}, 4 S/L VG[  
 0/G[ SMZ[ KP H]YL p5]IJT 0}, VG[ S/L BZL 50[ KP HI FZ[ 0/GL J'lwV V8S[ KP VG[ 0/  
 VIGI IDT VFSFZGF VMKL U]6J; FJF/F Y. HFI KP VFD pt5FNGDF 38FOM H]UF D/[ KP

VJ, MSG 5wWIT 0

- ❖ IGI T SZ[, %, M8DFYL VU]HL c0A<I}; VFSFZ[ RF, LG[ VFBF %, M8DFYL V: T]I : T 5wWITYL Z\_  
 KMO 5; N SZJFP
- ❖ 5; N SZ[, KMOG] AFZLSF. YL IGZL1F6 SZL NZ]S KMO 5Z H]UF D/TL 0]BM VG[ 0/MGL ; b] F  
 T]DH G]SXFG 5FD[, 0]BM VG[ p5N+JT XLUMGL ; b] FGL U6+L SZJLP

VJ, MSG G]MW

KMO GAZ	0]BM VG[ XLUMGL ; b] F	G]SXFG 5FD[, 0]BM VG[ XLUMGL ; b] F	G]SXFGGF 8SF
!			
Z_			
S],			

➤ 1fdl DF+F 0 5 8SF G]SXFG 0]B VG[ XLUDFA

IGI \+6 j] J: YF5G 0

! P pGF/FDF p]DL B]D SZJFYL SIMX}BF VJ: YF GFX 5FD[ KP

ZP p5]IJT 0]B TYF 0/MG[ JL6LG[ GFX SZJMP

#P 5]ITSFZS HFTM UP ALP ! 4 ; L, ]SXGvZ4 5HFA 5NDLGL4 EL]F ; L, ]SXGvZ G] JFJ]TZ SZJMP

\$P B[TZDFA:JrKTF HF/JJL4 X[-F5F/F IGWFD6D]ST ZFBJF  
5P B[TZDFA 0]ZMDFG 8|5 5|IT C|S8Z[ 5 5|DF6[ D]S]FYL p5\$JGL X~VFT HF6L ; DI ; Z IGI +6  
Y. XS[ KP  
&P JFJ6L JBT[ HDLGDA SFAMOI ]ZFG # 8SF NF6NFZ CJF C|S8Z[ ! 5 IS, M DJHA VF5JFYL O]BG[  
YT] G]SXFG V8S[ KP  
\*P , LDOF VFWFZLT NJFVMGF p5I MUYL DFNF O/DA. 'OF D]STL V8S[ KP  
(P X~VFTGL VJ: YFDF V]gOM; <OFG #5 @ . ; L Z\_ DL, L q! \_ , L8Z 5F6LDA IDz SZL K8SFJ  
SZJFYL ; F~ 5IZ6FD D/[ KP

ZP TOTOLI F s! \$f0

VM/B4 G]SXFGGM 5]SFZ VG[ IGI +6 jI J: YF5G ZLU6 DJHA

VJ, MSG 5wWIT VG[ GMM 0

- ELDFGL O]B VG[ XLU SMZL BFGFZ . I /DA'NXF"] I F DJHA Z\_ KMO 5; N SZJFP
- 5; N SZ[, NZ]S KMOGF +6 5FG s8MR4 DwI VG[ GLR]f V[D S], &\_ 5FG 5Z HMUF D/[ ,  
ArRFG] S], ; 'bI FG[ &\_ JO[ EFUTF H[ ; 'bI F VFJ[ T[G] 5]6F'S ; 'bI FDF 0]ZJLG[ VJ, MSG  
SF0'DA'NXF"JJLP
- 1fdI DF+F 0 5 ArR]q 5FG

#P ; 0]NDFBL s! 5f 0

VM/B4 G]SXFGGM 5]SFZ VG[ IGI +6 jI J: YF5G ZLU6 DJHA

VJ, MSG 5wWIT VG[ GMM 0

- ELDFGL O]B VG[ XLU SMZL BFGFZ . I /DA'NXF"] I F DJHA Z\_ KMO 5; N SZJFP
- 5; N SZ[, NZ]S KMOGF +6 5FG s8MR4 DwI VG[ GLR]f V[D S], &\_ 5FG 5Z HMUF D/[ , 5]bT  
IS8SGL S], ; 'bI FG[ &\_ JO[ EFUTF H[ ; 'bI F VFJ[ T[G] 5]6F'S ; 'bI FDF 0]ZJLG[ VJ, MSG SF0'DA'  
NXF"JJLP

1fdI DF+F 0 5 5]bT SL8S q 5FG

\$P 5FGSYLZL s\$! f 0

*Tetranychus macfarlenei* 8]B]FGLS; D]S0]Z, ]GL

**Tetranychidae: Acarina**

VM/B4 G\$XFGGM 5\$SFZ VG[ IGI \+6 jI J: YF5G ZLU6 DJHA

VJ, MSG 5wWIT VG[ GMM 0

- IGI T SZ[, %, M8DFYL VUJ|HL c0A<I j: VFSFZ[ RF, LG[ VFBF %, M8DFYL V: TjI : T 5wWITYL Z\_ KMO 5; N SZJFP
- 5; N SZ[, NZ\$ KMOG] Dwi G] V\$ 5FG V[D S], Z\_ 5FG TMOLG[ 5M, LYL, LG A|UDF\ V\$9F SZL 5|I MUXF/FDF\DF. SM: SM5DF\AFZLSF. YL IGZL1F6 SZJFP
- 5|I MUXF/FDF\DF. SM: SM5DF\AFZLSF. YL IGZL1F6 SZTF 5; N SZ[, NZ\$ KMOGF Dwi GF S], Z\_ 5FG 5Z HMUF D/[ , ArRF VG[ 5]bT SYLZLGL S], ; bI FG[ Z\_ JO[ EFUTF H[ ; bI F VFJ[ T[G[ 5]6FS ; bI FDF\O[ZJLG[ VJ, MSG SF0'DF\NXF"JJP
- 1fdI DF+F 0 5 SYLZLq5FG

#P 8FD|8F s! ) f

! f 5FGSMZLI }s#\*f 0

*Liriomyza trifolii*, , LZLVMDFI hf 8#I OM, L

**Agromyzidae: Diptera**

VM/B 0

. 0F 0 DFNF , \AUM/4 5L/F ZUUGF. 0F 5FGGL G; GL Dwi DFD\$[ KP

. I / 0 GJL . I / VFKF 5L/F S[ GFZUL ZUUGL 5FZNX'S CMI KP . I / 5U JUZGL VG[ VFU/GL TZOYL 5FT/L CMI KP

5]bT 0 GFGL DFBL H|} VG[R/STF 5L/F ZUGF XZLZJF/\} CMI KP

G\$XFGSFZS VJ: YF 0 . I /

G\$XFG 0

GJL GLS/[ , L . I / 5FGGL ; 5F8L S[ OLVDFD\ ; 5F\$SFZ AMUN] AGFJTL CMJFYL T[G[ cc; 5]g8F. Gcc 5FG SMZLI FYL VM/BJFDF\ VFJ[ KP JW] p5\$J CF| TF| KMODF\ 5\$SF\ ; \ , [F6GL ISI F VJZMWF I KP H|YL 5FG 5L/F 50L K|J8[ ; }SFI G[ BZL 50[ KP

VJ, MSG 5wWIT VG[ GMM 0

- IGI T SZ[, %, M8DFYL VUJ|HL c0A<I j: VFSFZ[ RF, LG[ VFBF %, M8DFYL V: TjI : T 5wWITYL Z\_ KMO 5; N SZJFP

- VFJF 5; N SZ[, F NZ]S KMOG\AFZLSF. YL IGZL1F6 SZL S], Z\_ KMO 5Z HMUF D/[ , S], 5FGGL ; b] F T]DH G]SXFGJF/F S], 5FGGL ; b] F GMMJL TYF G]SXFGJF/F 5FGGF 8SF SF-L VJ, MSG SF0'DF\NXF"JJFP
- 1fdI DF+F 0 # 8SF G]SXFGJF/F 5FG

IGI \+6 jI J: YF5G 0

! P HLJFT U]FCI ; \SZ HFTMGM p5I MU SZJM GICP

ZP p5]JJF/F IJ: TFZDF\GF. 8#HGI ]ST ZF; FI 6LS BFTZMGM ; 5]DF6 p5I MU SZJMP

#P JW] p5]JJF/F G]SXFGU]: T 5FGG[ TMOL GFX SZJMP

\$P VUDR[TLGF\5U, F ~5[, LAM/LGF\$ \_\_ U]FD DLHG[! \_\_ , L8Z 5F6LDF\E/]JL T{F Z SZ[, IDz6 D]HA K'8SFJ SZJMP

5P 0], A]; JFGL X~VFT YFI T[ 5C[, F . DLOFS, M5]LO ! \*P(@ V]; P V[, P # DL, L NJF ! \_\_ , L8Z 5F6LDF\IDz SZL K'8SFJ SZJMP

&P 0], A]; L UI F AFN JW] p5]J H6FI TM OFI S, MZMJMX \*&@ . ; L 5 DL, L NJF ! \_\_ , L8Z 5F6LDF\E/]JL K'8SFJ SZJFYL ; F~ 5IZ6FD D/[ KP

ZP , L, L . I / s! ! f 0

***Helicoverpa armigera*, C] LSMU5F" VFDL'H]ZF**

Noctuidae: Lepidoptera

VM/B 0

. 'DF 0 . 'DF VFKE 5L/F ZUJGF4 OMD VFSFZGF VG[ SFUJZLJF/F UM/ CMI KP

. I / 0

. I / ; FDFgI ZLT[, L, FX 50TF E]ZF ZUJGL CMI K[ 5ZT]. I / 5FSGA H[ EFUDF G]SXFG SZTL CMI T[ EFUGF ZUJG[ D/TM VFJTM ZU WFZ6 SZTL CMJFYL . I /GM ZU V, U V, U CMI KP . I /GF XZLZGL AgG[ TZ0 5L/FX 50TF , L, F ZUJGL A]; DFTZ 58L VFJ[, L CMI KP VF p5ZFT XZLZG[ K]8F KJFI F 8]SF JF/ CMI KP . I /G[ 5FK/GF EFU[ VOSTF T[ SZ0JF DF8[ 5FK/GL TZ0 J/[ KP . I /GM VF pU] : JEFJ T]GL VM/BGL VUtI GL , F1F16STF KP

5]bT 0

5]bT Dwi D SNG]4 VFKE ANFDL ZUG] CMI KP T]GL VU] 5FB 5Z UF-F ANFDL S] SyYF. ZUGF VIGI IDT VFSFZGF 85SF CMI KP HI FZ[ 5`J5FB ; Q]M VW"5FZX'S VG[ ACfZGL TZ0 W]DFOLI F ZUGF OF3F CF]I T]JL HFJF D/[ KP

GJSXFGSFZS VJ: YF 0 . I /

GJSXFG 0

. 'DFDFYL GLS/[ , L . I /M X~VFTDA KMOGF SJD/F EFUM S[ 5FG BFI GS; FG SZ[ KP HI FZ[ 5]6"  
IJSI; T . I /M O/DA UM/ SF6] 5FOL DJBGM EFU VNZ GFBL UE'G[ SMZL BFI KP O/ GFG] CMI TM  
AWMH UE" BFI HFI K[ VG[ O/ SNDA DM8] CMI TM T[GM YMOM UE" BF. GJF O/DA GJSXFG SZ[ KP  
GJSXFGU]: T O/DA K[8] HLJF6] VG[ O]UGM IJSF; YJFYL O/ ; OL HFI KP VFD DM8L . I / V[S  
INJ; DA VFXZ[ Z YL ( H[8, F O/MG[GJS; FG SZ[ KP

VJ, MSG 5wWIT VG[ GMW 0

- IGI T SZ[ , % , M8DFYL VUJ[HL c0A<I]; VFSFZ[ RF, LG[ VFBF % , M8DFYL V: Tj I : T 5wWITYL Z\_\_  
KMO 5; N SZJFP
- VFJF 5; N SZ[ , F NZ[S KMOG] AFZLSF. YL IGZL1F6 SZL S], Z\_\_ KMO 5Z HMJF D/[ , . I /MGL  
S], ; bI F VJ, MSG SF0'DF\N XF"J JLP
- 1fdI DF+F 0 Z\_\_ . I / q Z\_\_ KMO s0], VJ: YFV[f  
! \_\_ . I / q Z\_\_ KMO s0/ A[; TL JBTF

IGI \+6 jI J: YF5G 0

! P pGF/FDA p0L Bp SZJLP

ZP DF8L . I /F[G]; JFZ VYJF ; FVHG; DI [CFYYL JL6LG[SZF]; LGJF/F 5F6LDA[0]AFOL GFX SZJFP

#P 8FD[8FGF 5FSG 5 YL & CFZ AFN 5L/F U, UM8FGL JFJ6L 15HZ 5FS TZLS[D]bI CFZGL JrR[ SZJLP  
, L, L . I /GL DFNF U, UM8FGF 5L/F O), M 5Z . 'DF D[SJFG] JW] 5; N SZ[ KP VFJF O), MG[ . 'DF ; ICT  
TMOL , [JFYL VF . I /GM p5SJ 38FOL XSFI KP VF p5ZFT , L, L . I /GF . 'DFGL 5ZHLJL  
8FI SMUJDFGL EDZL 5L/F U, UM8FGF O), 5ZGA , L, L . I /GF . 'DFDA 5ZHLJLSZ6 JW] DF+FDA  
SZTL CMI KP SM. 56 ; HMUMDA 5LHZ 5FS 5Z HIT]GFXS NJFGM K'8SFJ SZJM GCLP

\$P 5FSDA , LDOF VFWFZLT NJF sV[hFOLZ[S8LG ! 5\_\_ 5L5LV[Df \$\_\_ DL, L NJF VYJF 5\_\_ UFD  
, LAM/LGA DLHG[ ! \_\_ , L8Z 5F6LDA E/[JL T(I FZ SZ[ , SFJ6GM K'8SFJ SZJFYL DFNF O]NL . 'DF  
D]STL V8S[K] VG[; FY[; FY[ , L, L . I /GA S]NZTL NxDGMGL J: TLG[SM. GS; FG YT] GYLP

5P , L, L . I /GA . 'DF B[TZDA HMJF D/[ S[ TZT \* YL ( 8FI SMSFO" 5]IT C[S8Z DJHA V9JFI0I FGF  
VITZ[ Z YL # JBT KMOJFYL IGI \+6 YFI KP

&P B[TZMDF\5]IT C[S8Z \$ \_ YL 5\_ H]B, F "T" VFSFZGF , FSOLGA 8]SF D]SJFYL B[TZDA 5ZE1FL  
51FLVM A]; [KP H[, L, L . I /G]BF. T]GF p5\$JG[SFA]DA ZFB[ KP  
\*P , L, L . I / DF8]GF 0[ZMDMG 8]5 5 5]IT C[S8Z D]HA D]SJF H]YL p5\$JGL X~VFT HF6L  
; DI ; Z IGI \+6GA 5U, F[, ]FG]; ]UD ZC[ KP  
(P , L, L . I /G] V[GP 5LP JLP \$5\_ . I / VFSs **Larval equivalent**) 5]IT C[S8Z D]HA ; F]HGF  
; DI [KF8JFYL 56 IGI \+6 D/] KP  
)P ALP 8LP 5FJOZ \*5\_ U]FD YL ! ISP U]FD qC[S8Z 5]DF6[ K]8SFJ SZJFYL p5\$J SFA]DA ZFBL XSFI KP  
! \_P K]J8GA 5U, F TZLS[ ZF; FI I6S HT]GFXS NJF H]JL S[ V]gOM; <OFG #5 @ . ; L Z! DL, L VYJF  
O]GJ[, Z]8 Z\_ . ; L 5 DL, L VYJF 0]k8FD]Y]LG ZP( . ; L 5DL, L VYJF ; FI 5ZD]Y]LG ! \_@  
. ; L #YL\$ DL, L VYJF SFAFZL, 5\_@ JP5FP \$ \_ U]FD NJFG[ ! \_ , L8Z 5F6LDA IDz SZL  
VFBM KMO EL]HF I T[ ZLT[ K]8SFJ SZJFYL ; F~ IGI \+6 D/] KP  
GLR[ NXF]J[, GJL HT]GFXS NJFV]FD]FYL SF. 56 V]S NJF KF8JFYL 56 ; FZF[ OFI NF] YFI KP  
: 5LGM; FO \$5@ V]; P V[, P \_P55 DL, L VYJF : 5LGM; FO ZP5@ V]; P V[, P ! \_ DL, L  
. gOMS; FSFA" ! 5@ V]; P ; LP 5 DL, L VYJF GMUF<I Z]FG ! \_@ . ; L \*P5 DL, L NJF ! \_ , L8Z  
5F6LDA E/] JL K]8SFJ SZJFP

#f ; 0]NDFBL s! 5f0

VM/B4 G]SXFGGM 5]SFZ VG[ IGI \+6 jI J: YF5G ZLU6 D]HA

VJ, MSG 5wWIT VG[ GMM 0

- ZLU6GL 0]B VG[ 0/ SMZL BFGFZ . I /DF]NXF]J I F D]HA Z\_ KMO 5; N SZJFP
- 5; N SZ[, NZ]S KMOGF +6 5FG s8MR4 DwI VG[ GLR]f V]D S], &\_ 5FG 5Z HMJF D/] , 5]bT IS8SGL  
S], ; \bI FG[ &\_ JO[ EFUTF H]; \bI F VFJ[ T]G[ 5]6FS ; \bI FDF]OZJLG[ VJ, MSG SF0]DF]NXF]JLP
- 1fdI DF+F 0 5 5]bT SL8S q 5FG

\$f : 5MOM%8]ZF 0

*Spodoptera litura*, : 5MOM%8]ZF , L8]ZF

Noctuidae: Lepidoptera

VM/B 0

. \OF 0; D]CDF] VG[ VFKF ANFDL Z]UGF JF/YL -SF I[, F CMI KP

. I / o GFGL . I / VFKE , L, FX 50TF E)BZF ZUGL CMI KP 5)6" IJS; LT . I / M 5L/FX 50TF  
SyYF. ZUGL VG[ , L, L S[ HFA]OL ZUGL hFI JF/L CMI KP T[GF XZLZ 5Z 5L/F 85SFGA DFY[  
SF/F 85SFG L CFZ VFJ[, L CMI KP XZLZ p5Z K)8F KJFI F JF/ VFJ[, F CMI KP . I /GF DFYF  
5Z 'V' VFSZG] IGXFG CMI KP

5)6T o O)N] VFKE ZFBMOL ZUG] VG[ SyYF. OF3FJF/] CMI KP VU] 5FB ZFBMOL SyYF. ZUGL 4 ; O)N  
ZUGL JFSLR]SL IGXFG JF/L HI FZ[ 5`J5FB ; O)N4 VW"5FZNX"S VG[ SyYF. ZUGL  
ISGFZLJF/L CMI KP

G)SXFGSFZS VJ: YF o . I /

G)SXFG o

GFGL . I / M 5FGGL GLR]GL ; 5F8LV[ ; D)CDF ZCL 5FGGM CZLT ajI SMZL BFI G)SXFG SZ[ K[  
5ZL6FD : J~5 5FG 5Z ; O)N ZUGL HF/L HMUF D/[ K[ H[ ; DI HTF ; ]SFI G[ E)BZF ZUDF OZJFI  
HFI KP HI FZ[ IJS; LT . I / M K)8L KJF. VG[ ; VFI [, L ZCL 5FG BFI G)SXFG SZ[ KP B)A H p5)J  
CMI TM 5FGGL OST G; M H AFSL ZC[ KP HI FZ[ O/D)F VIGI IDT VFSZG] SF6] C3FZ JO[ -SFI [, ]N]BFI  
KP G)SXFGU]; T O/ ; OL HJFYL BFJF, FI S S[ AHFZDFJ]R]JF, FI S ZC[T] GYLP

IGI +6 jI J: YF5Go

! P pGF/FDF) pOL B) SZJLP

ZP . O)GF ; D)C TYF 5)YD VJ: YFGL . I / F]G[ CFY JO] JL6L GFX SZJMP

#P B[TZDF K)8] 5F6L 5FJFYL HDLGGL TLZFOF]DF K)5FI [, . I / MGM GFX YFI KP

\$P I5HZ 5FS TZLS[ ccINJ[, FGLcc JFJ6L SZJLP , xSZL . I / DF8]GF OZMD]G8)5 C)S8Z NL9 5 DJHA  
D)S)FYL T[GF p5)JGL X-VFT VU] VUFpYL HF6SFZL D/L ZC[TL CF]FYL V; ZSFZS  
IGI +6GF)5U, F , . XSFI KP

5P B[TZDF "T" VFSZGF 51FLVM A]; JF DF8]GF 8]SF \$ \_ YL 5\_ 5]IT C)S8Z DJHA , UF0JFYL  
p5)J SFA]DF ZC[ KP

&P p5)J YTM V8SFJJF DF8[ , LDOF VFWFIZT NJF sV]hFOLZ]S8LG ! 5\_\_ 5L5LV]Df \$ \_ DL, L  
NJF VYJF 5\_\_ UFD , L)AM/LGF DLHG[ ! \_ , L8Z 5F6LDF E/] JL T[IFZ SZ[, S)FJ6GM  
K)8SFJ SZJMP

\*P , xSZL . I / G] V]GP 5LP JLP Z5\_\_ . I / VFSs Larval equivalent) DJHA 5]IT C)S8Z ; FHGF  
; DI [K)8JFYL 56 ; F~ 5IZ6FD D/[ KP

(P HLJFT 1FdI DF+F J8FJ[ tI FZ[ ZF; FI I6S HIT]GFXS NJFVMGF[ s, L, L . I /GF IGI +6DF)NXF"] I F  
DJHAF p5I MU SZJMP

\$P DZRL sZ! f

! f Y|%; s# (f o

*Scirtothrips dorsalis* , : SLZ8MY|%; OMZ; F, L;

**Thripidae :Thysanoptera**

VM/B o

ArRf\o 5L/FX 50TF S|S|; ZL ZUGF ; }1D CMI K| T|G| 5FvBM CMTL GYLP

5|bT o 5L/FX 50TF S|; ZL ZUGF VG| 5LKL| F 5FvBMJF/F CMI K|P H|G|GZL VvFB| ; C|, F. YL HM.

XSFTF GYLP

G|SXFGSFZS vJ: Yf o ArRf\ VG| 5|bT

G|SXFG o

ArRf\ VG| 5|bT 5FGGL GLR|GL ; 5F8LV| ZCL 5FGDF\3; ZSA 5F0LG| Z; R|; [ K|P VvFYL G|S; FG 5FD|, 5FGGL ; 5F8L hFvBL 50L ; }SFI K|P H| N|ZYL HMTE R/STF ~5|ZL ZUGL N|BFI K|P JW| p5\$J CF|I TF| 5FG SF|SOF. HF| K|P H|GF , LW| KMOGM IJSF; ~WF| K| 5|Z6FD| DZRF A|; TF GYL VYJF SNDF\GFGF VG| VIGI IDT VFSFZGF DZRF A|; [ K|P

vJ, MSG 5wWIT VG| GMM o

- IGI T SZ|, %, M8DFYL vU|HL c0A<I|; VFSFZ| RF, LG| VvBF % , M8DFYL v: TjI : T 5wWITYL Z\_\_ KMO 5; N SZJFP
- 5; N SZ|, NZ|S KMOGF +6 5FG s8MR4 DwI VG| GLR|f v|D S|, &\_ 5FG 5Z HMJF D/|, Y|%; GF ArRf\ VG| 5|bT SL8SGL S|, ; |b| FG| &\_ J0| EFUTE H| ; |b| F vFJ| T|G| GHLSGF 5|6FSDf\0ZJLG| vJ, MSG SF0DF\NXFJJLP
- 1fdI DF+f o v|S 5FG 5Z ; Z|ZFX # ArRf\ VG| 5|bT

IGI \+6 j| J: YF5G o

! P DZRLGL 5|ITSFZS HFTMG| JFJ|TZ SZJp

ZP . DLOFS, M5|\_0 \* \_@ 0A<I|v|; ZP5 U|f|q|SPU|f D|HA ALHG| 58 VvF5JFYL Z5v#\_ INJ; ; |ML Z1F6 D/| K|P

#P W~JFI0I FG|%, F: 8LSGL XL8 J0| -SFI |, ZFBJFYL ZMUqHLJFT p5\$J D|ST W~ D/|JL XSFI K|P \$P ZM56L AFN ! 5 INJ; [ KMOGL OZT| HDLGDF\ SFAM0I |ZFG # @ NF6FNFZ ! \* ISP U|f 5|IT C|S8Z VYJF OMZ|B ! \_@ NF6FNFZ NJF \* ISP U|fPqC|S8Z D|HA VvF5JLP

5P ZF; FI I6S IGI \+6DF\8fI hMOM; \$ \_ @ . ; L ! \_ DL, L VYJF YFI D|YMSHFD Z5@ 0A<I|v|; Z U|FD VYJF v|; L0|8 \* 5@ ; |k|I|A, 5FJ0Z ! \_ U|FD NJF! \_ , L8Z 5F6LDF\ E/|JL K|8SFJ SZJMP



Zf 5FGSYLZL s#) f 0

*Polyphagotarsonemus latus* , 5M, LQUM8FZ; MGLD; , 18;

Tarsonemidae: Acarina

VM/B 0

VF SYLZL ZLW6L VG[ ELDFGL SYLZL SZTF HJNL CMI KP

. 0F 0 5F6L HJUF ZWUGF UM/FSFZ ; 11D SNGF CMI KP

51bT 0 5F6L HJUF 5L/F ZWUGF V0FSFZ VF9 5UJF/F VG[ SNDF B)AH GFGF CMI KP

GJSXFGSFZS VJ: YF 0 ArRF VG[ 51bT

GJSXFG 0

ArRF VG[ 51bT 5FGGL GLR[GL ; 5F8LV[ ZCL Z; R); LG[ GJS; FG SZ[ KP VF SYLZL HF/F AGFJTL GYLP B)AH p5SJDFA **पान नीचे-नी तरफ़ (बि**WL CMOL HJUFF SMSOF I [ , F HMUF D/[ KP H[ SMSOJFGM ZMU CMI T1JM E1D pt5gG SZ[ KP 0/ VJ:YFV[ p5SJ CMI TM 0/M VIGI IDT VFSFZGF VG[ ; 01N ZWUGF WFAF)HFJF D/[ KP T1GF SFZ6[pt5FNG VG[ AHFZ ISDTDF)W8FOM HMUF D/[ KP VJ, MSG 5wWIT VG[ GMM 0

- IGI T SZ[, %, M8DFYL VUJHL c0A<1): VFSFZ[ RF, LG[ VFBF %, M8DFYL V: TjI : T 5wWITYL Z\_ KMO 5; N SZJFP
- 5; N SZ[, NZJS KMOGF +6 5FG s8MR4 Dwl VG[ GLR[F V[D S], Z\_ KMO p5ZGF &\_ 5FG TMOLG[ 5M, LYL, LG A1JDF)VS9F SZL 511 MUXF/FDF)DF. SM: SM5DF)AFZLSF. YL IGZL1F6 SZJJP
- 511 MUXF/FDF)DF. SM: SM5DF)AFZLSF. YL IGZL1F6 SZTF 5; N SZ[, NZJS KMOGF Dwl GF S], &\_ 5FG 5Z HMUF D/[ , ArRF VG[ 51bT SYLZLGL S], ; 1b1 FG[ &\_ J0[ EFUTF H[ ; 1b1 F VFJ[ T1G[ 5)6FS ; 1b1 FDF)0ZJLG[ VJ, MSG SF0'DF)NXF"JJLP
- 1fdI DF+F 0 p5N1JGL X~VFT

IGI 1+6 jI J: YF5G 0

! P B1TZDF)5ZE1FL SYLZL VdA, L; LI ; HFITGL J: TL HMUF D/[ TM ; , FDT HT1GFXS NJF H1JL S[ , LAM/LGF)DLVHGM VS" 5@ s5\_\_ UFD DLVH ! \_\_ , L8Z 5F6LDF)F VYJF V1gOM; <0FG #5@ . ; L Z\_ DL, L NJF! \_\_ , L8Z 5F6LDF)E1JL K'8SFJ SZJMP

ZP JW] p5\$J H6FI TM ZF; FI I6S SYLZLGF XSM OFI SMOM, ! (P5 @ . ; L Z\_ DL, L VYJF  
O[GFHFSJLG ! \_ DL, L VYJF J8[A, ; <OZ 5\_ @ Z5 UFD VYJF 5M5ZUF. 8 5\* @ . ; L Z\_  
DL, L NJF ! \_ , L8Z 5F6L 5DF6[ 5UFCL IDz6 AGFJL K8SFJ SZJMP

#f , L, L . I / o 8FD[8LGL , L, L . I / D]HAP

\$f , xSZL . I / o 8FD[8LGL , xSZL . I / D]HAP

5P SMALJU'GF sS]; LOZ; 4 SM, SM5f 5FSMGL HLJFT

Vf SMALH sZZf VG[ SM, LO, FJZ sZ#fo

! f CLZFON] s\$Zfo

*Plutella xylostella* %, 8[ F hFI , M: 8[ F

**Pluteliidae : Lepidoptera**

VM/B o

. VF o DFNF GFGF 5L/FX 50TF ZUGF . VF K]8FvKJFI F S[ GFGF HyYFDA 5FGGL GLR[GL TZO D]S[ KP

. I / o 5]6"JS; LT . I / 5L/FX 50TF , L, F ZUGL CMI KP XZLZ 5Z SF/F ZUGF JF/ CMI KP

5]bT o ON] SNDA GFG] VFKF ANFDL ZFBMOL ZUG] 5FBGL DwI ISGFZLV[ ; ON] ZUGF +6

I+SM6SFZ WZFJT] CMI KP HI FZ[ ON] VFZFDDA CMI ti FZ[ 5FBM E[UL YJFTL VF I+SM6SFZ

cc+6 CLZF H]Mcc N[BFI KP VFYL T[ CLZF ON] TZLS[ VM/BFI KP

G]SxFGSFZS VJ: YF o . I / VJ: YF

G]SXFG o

GJL GLS/[ , L . I / 5FGGL 5XLGM , L, M EFU SMZL BFI KP ALHL VJ: YFGL . I / \$FZF YI [ , ]

SMZF6 : 50856[ N[BFI K[ HI FZ[ +LHL VJ: YFGL . I / M 5XLDFYL ACfZ GLS/L 5FG BFI G[

G]S; FG SZ[ KP VFYL 5FG 5Z GFGFvGFGA SF6A N[BFI KP p5\$JIT 5FS BFJF , FI S ZC[TM

GYLP

VJ, MSG 5wWIT VG[ GMM o

➤ IGI T SZ[, %, M8DFYL VUJ]HL c0A<I]: VFSFZ[ RF, LG[ VFBF %, M8DFYL V: TjI : T 5wWITYL Z\_  
KMO 5; N SZJFP

➤ VFJF 5; N SZ[, F NZ[S KMOG] AFZLSF. YL IGZL1F6 SZL S], Z\_ KMO 5Z HMJF D/[ , . I / MGL  
S], ; bI F VJ, MSG SFO'DFvNXF"JJLP

1fdI DF+F o \$\_ . I / q Z\_ KMO

IGI 4+6 j I J: YF5G 0

! P pGF/FDF\p0L B0 SZJLP

ZP p5§IJT 5FSGA KMO TYF VJXQFMGM SF56L AFN TZT H GFX SZJMP

#P 5FSGL ZM56L ; DI ; Z SZJFYL p5§J 38F0L XSFI KP

\$P VFTZ5FS TZLS[8FD]BF S[UFHZGL ZM56L SZJFYL p5§J IGI 4+T SZL XSFI KP

5P I5VHZ 5FS TZLS[ ZF. GL JFJ6L SZJL H[DF\SF\ALH GL ! & CFZ 5KL ZF. GL A[ CFZGL JFJ6L SZJLP sZF. GL 5YD CFZGL JFJ6L SF\ALHGL JFJ6LGF ! 5 INJ; 5C[, F HI FZ[ ALHL CFZGL JFJ6L SF\ALHGL JFJ6LGF ! 5 INJ; AFN SZJLFP

&P I5VHZ 5FS p5Z OFI S, MZMUM; \* & @ ! \_ DL, L NJF ! \_ , L8Z 5F6LDF\ IDz SZLG[ K8SFJ SZJFYL ; F~ IGI 4+6 D/[ KP

\*P ; , FDT HTJGFXS NJF HJL S[ , LAF/LGF DLVHGM VS" 5 8SF4 ALP 8LP 5FJ0Z ! ISP UF qC[ GFVA[ K8SFJ SZJFYL 56 ; F~ 5IZ6FD D/[ KP T[DH S]NZTL IGI 4+SMGL J: TLG[ DF9L V; Z YTL GYLP

(P ZF; FI I6S HTJGFXSMDF\ D[, FYLVMG 5\_ @ . ; L Z\_ DL, L VYJF O[GL8MYLVMG 5\_ @ . ; L ! \_ DL, L ! \_ , L8Z 5F6LDF\ E[/JL K8SFJ SZJMP

Zf : 5MOM%8ZF s! Zfo

VM/B4 G]SXFGGM 5]SFZ VG[ IGI 4+6 j I J: YF5G 8FD]8L DJHA

VJ, MSG 5wWIT VG[ GMW 0

- IGI T SZ[, %, M8DFYL VUJ]HL cc0A<I]c VFSFZ[ RF, LG[ VFBF%, M8DFYL V: Tj I : T 5wWITYL Z\_ KMO 5; N SZJF TYF T[GF 5Z HMJF D/[ , . 0FGF ; D]C T[DH 5C[, L VJ: YFGL . I /MGF S], ; D]CGL ; b I F VJ, MSG SF0'DF\NXFJJLP
- 1fdI DF+F 0 5 . 0FGF ; D]C VG[ 5YD VJ: YFGL . I /MGM ; D]CqZ\_ KMO

#f , L, L . I / s! ! fo

VM/B4 G]SXFGGM 5]SFZ VG[ IGI 4+6 j I J: YF5G 8FD]8L DJHA

VJ, MSG 5wWIT VG[ GMW 0

- IGI T SZ[, %, M8DFYL VUJ]HL c0A<I]c VFSFZ[ RF, LG[ VFBF %, M8DFYL V: Tj I : T 5wWITYL Z\_ KMO 5; N SZJFP

- VFJF 5; N SZ[, F NZ[S KMOG\ AFZLSF. YL IGZL1F6 SZL S], Z\_ KMO 5Z HMJF D/[ , . I /MGL S], ; \bI F VJ, MSG SF0'DF\NXF"JJLP

1fdI DF+F o ! \_ . I / q Z\_ KMO

\$P DM, M s\$#f0

*Myzus persicae* DF. h; 5Z; LSL4

*Brevicoryne brassicae* A\JLSMGL"AF; LSL

**Aphididae : Homoptera**

VM/B 0

ArRF0 GZD XZLZJF/F4 5L/FX 50TF , L, F ZUGF VG[ ; }D SNGF\ CMI KP

5]bT 0 DM, M Z YL # DLP DLP , FAL VG[ , L, F ZUGL CMI KP XZLZ[ ZFBMOL DL6 HJ[F 5FJOZYL VFJZLT CMI KP TGF pNZGF 5FK/GF EFU[ A[ SF/L G/L HJ[F EFU VFJ], F[ CMI KP T[ T[GL VFUJL VM/B KP 5]bT DM, M ; FDFgI ZLT[ 5FB JUZGL CMI KP 5ZT[ 5FSGL 5IZ5SJTFGL VJ:YFV[ V[S HMO ; 0N 5FZNXS 5FBJF/L DM, M HMJF D/[ KP

GJSXFGSFZS VJ:YF 0 ArRF\ VG[ 5]bT

GJSXFG 0 sZLU6 DJHA f

VJ, MSG 5wWIT VG[ GMW 0

- IGI T SZ[, %, M8DFYL VUJ\HL c0A<I } VFSFZ[ RF, LG[ VFBF %, M8DFYL V:TjI :T 5wWITYL Z\_ KMO 5; N SZJFP
- 5; N SZ[, NZ[S KMOGF +6 5FG s8MR4 DwI VG[ GLR[f V[D S], &\_ 5FG 5Z HMJF D/[ , ArRF\ VG[ 5]bTGL S], ; \bI FG[ &\_ JO[ EFUTF H[ ; \bI F VFJ[ T[G[ 5]6FS ; \bI FDF\OZJLG[ VJ, MSG SF0'DF\NXF"JJLP
- 1fdI DF+F o ! \_ ArRF\ VG[ 5]bTq 5FG

IGI \+6 sZLU6 DJHA f

5P SMALHG] 5TVULI ]o

*Pieris brassicae* ,5LZL; AF; LSL

Pieridae : Lepidoptera

VM/B o

. 0F o DFNF 5TVULI ] X[S] VFSFZGF 5L/FX 50TF ; 0N . 0F ; DJCDF! \_\_ YL ! 5\_ H8, L ; bI FDA 5FG  
p5Z S[ 5FGGL GLR[GL AFH]M[ D]S[ KP

. I / o GJL HgD[, L . I / VFKE 5L/F ZUGL CMI K[ H[ 5FK/YL 5L/FX 50TF , L, F ZUGL AG[ K[  
. I / SF/F DFYFJF/L VG[ T[GF XZLZLGF 5'09 EFU[ SF/F 85SF VEFJ[, F CMI KP

5bT o 5TVULI ] VFKE 5L/F ZUG] VG[ VU]5FBGL ISGFZL 5F; [ SF/F ZUFGF WFAFJF/] CMI KP  
5`J5FBGL VFU/GF EFU[ A[ S/F 85SF CMI KP VF 85SF DFNF 5TVULI FDA VU]5FBGL 5'09  
AFH]M[ HI FZ[ GZ 5TVULI FDA VU]5FBGL GLR[GL AFH]M[ VEFJ[, F CMI KP

G\$XGSFZS VJ: YF o . I / VJ: YF

G\$XFG o

. I / 5FG BFI G[ G\$XFG SZ[ KP GJL HgD[, L . I /M ; DJCDF ZCL 5FGGL ; 5F8L SFZL[ BFI KP  
DM8L . I / 5FGG[ WFZ TZOYL D]bI G; TZO BFI KP JW] p5\$JDF KMOGF AWF H 5FGG[ BFI HFI K[  
VG[ OST 5FGGL G; M H AFSL ZC[ KP



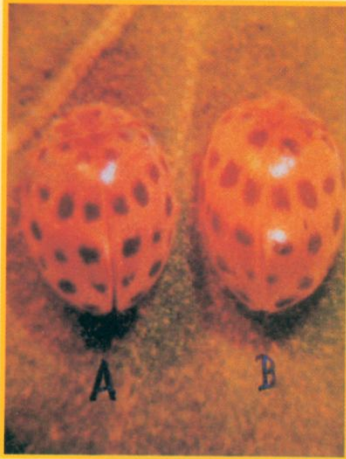
૩.૨ રીંગણાની સફેદમાખીનું  
નુકશાન



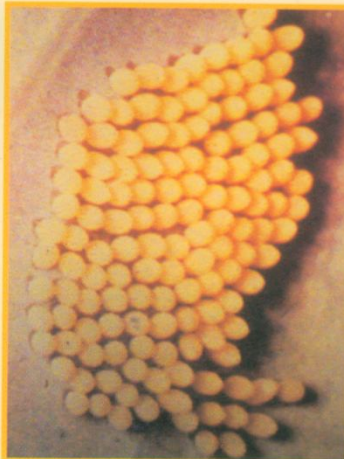
૪.૧ રીંગણાની પાનકથીરી



૪.૨ રીંગણાની પાનકથીરીનું  
નુકશાન



૫.૧ રીંગણાના એપીલેકના  
બીટલના પુખ્ત કીટકો



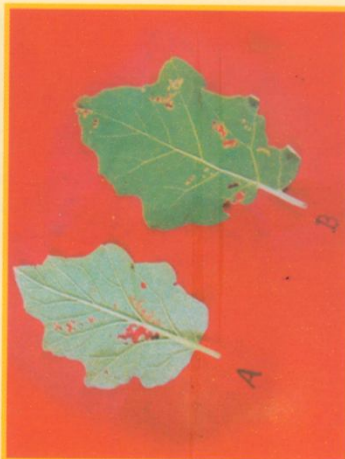
૫.૨ રીંગણાના એપીલેકના  
બીટલના ઈંડા



૫.૩ રીંગણાના એપીલેકના  
બીટલની ઈંચળો



૫.૪ રીંગણાના એપીલેકના  
બીટલના કોશેટા



૫.૫ રીંગણાના એપીલેકના  
બીટલનું નુકશાન



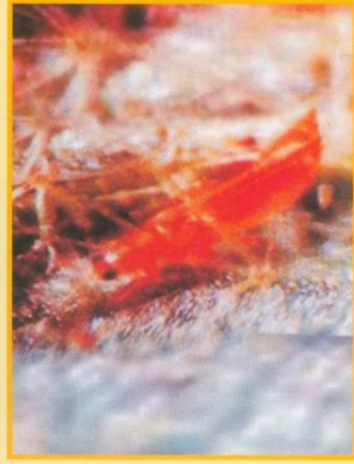
૫.૬ રીંગણાના એપીલેકના  
બીટલનું નુકશાન



૬ રીંગણના થડ વેદકનું  
નુકશાન



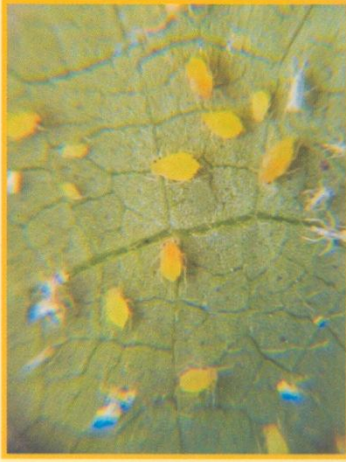
૭ રીંગણની પાન વાળનાર  
ઈયળનું નુકશાન



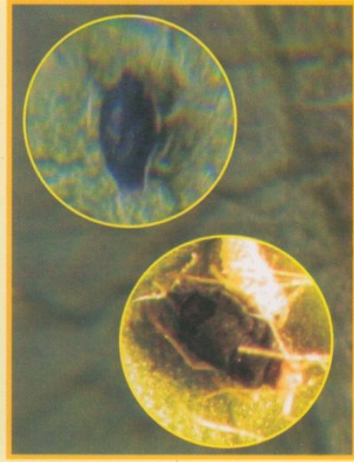
૮.૧ રીંગણની શ્રીપ્સનું  
પુખ્ત કીટક



૮.૨ રીંગણની શ્રીપ્સનું ફળમાં નુકશાન



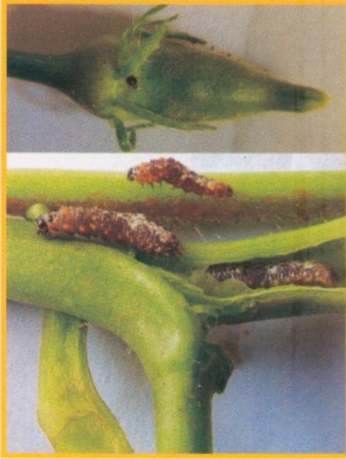
૯.૧ રીંગણની મોલો



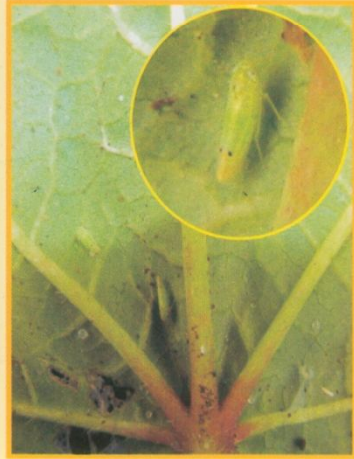
૯.૨ પરજીવીકરણ પામેલ રીંગણની મોલો



૧.૧ ભીંડાની ડૂંખ અને શીંગ કોરી ખાનાર  
ઈયળનું પુખ્ત કીટક



૧.૨ ભીંડાની ડૂંખ અને ફળ કોરી ખાનાર  
ઈયળનું નુકશાન



૨.૧ ભીંડાના તડતડીયાના  
પુખ્ત કીટકો



૪.૧ ભીંડાની પાન કથીરીની જુદી જુદી અવસ્થાઓ



૪.૨ ભીંડાની પાનકથીરીનું નુકશાન



૧.૧ ટામેટાના પાનકોરીયાનું નુકશાન



૨.૧ ટામેટાની લીલી ઈયળના પુખ્ત કીટકો



૨.૨ ટામેટાની લીલી ઈયળો



૩.૧ ટામેટાની સ્પોડોપ્ટેરાનું પુખ્ત કીટક



૩.૨ ટામેટાની સ્પોડોપ્ટેરાનું પુખ્ત કીટક



૩.૩ ટામેટાની સ્પોડોપ્ટેરાની ઈયળ

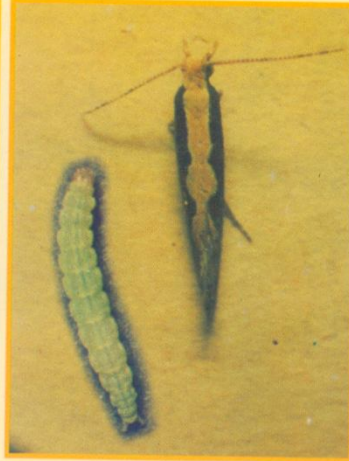


૧.૧ મરચીની શ્રીષ્ટનું પુખ્ત કીટક





૨.૧ મરચીની કથીરીનું  
પુખ્ત



૧.૧ કોબીજના હીરાફૂંદાનું  
પુખ્ત કીટક અને ઇયળ



૧.૨ કોબીજના હીરાફૂંદાના  
કોશોટાઓ



૧.૩ કોબીજના હીરાફૂંદાનું  
નુકશાન



૪.૧ કોબીજની મોલોનું  
પુખ્ત કીટક



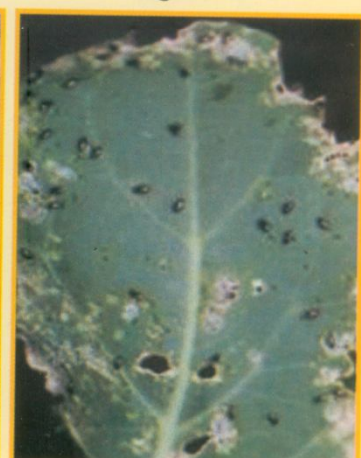
૪.૨ કોબીજની મોલોનું  
નુકશાન



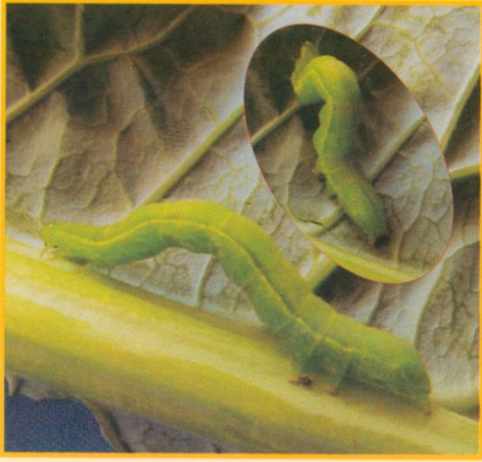
૪.૩ કોબીજની મોલોનું  
નુકશાન



૬.૧ કોબીજની પાન વાળનાર  
ઇયળનું નુકશાન



૯.૧ કોબીજની ચાંચડીનું  
નુકશાન



૯.૨ કોબીજની ઘોડીયા ઇયળ



૧.૧ વેલાવાળા શાકભાજીની નર ફળ માખી



૧.૨ વેલાવાળા શાકભાજીની માદા ફળ માખી



૧.૩ વેલાવાળા શાકભાજીની ફળ માખીના ઇંડા



૧.૪ વેલાવાળા શાકભાજીની ફળ માખીની ઇયળો



૧.૫ વેલાવાળા શાકભાજીની ફળ માખીના કોશેટાઓ



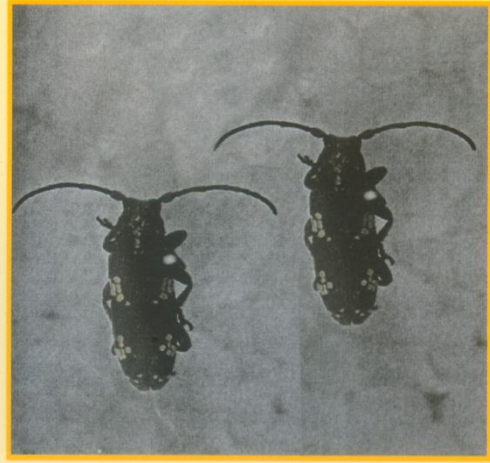
૧.૬ ઘીલોડામાં ફળ માખીનું નુકશાન



૧.૭ કારેલામાં ફળ માખીનું નુકશાન



૧.૮ શાકભાજીની ફળ માખીના નર કીટકને આકર્ષવા માટેનું પિંજર



૨.૧ પરવળના વેલા કોરી ખાનાર ઈયળના પુખ્ત કીટકો



૨.૨ પરવળની વેલા કોરી ખાનાર ઈયળ



૨.૩ ઘીલોડાની વેલા કોરી ખાનાર ઈયળનું નુકશાન



૩.૧ લાલ મરીયાનું પુખ્ત કીટક



૪.૧ ઘીલોડાની ફૂદી



૪.૨ ઘીલોડાની ફૂદીની ઈયળ  
અને કોશેટો



૫.૧ પરવળના મીલીબગ્સની  
જુદી જુદી અવસ્થાઓ



૫.૨ પરવળના મીલીબગ્સનું નુકશાન



૬.૧ પરવળની ભીંગડાવાળી જીવાતનું  
પાન પર નુકશાન



૬.૨ પરવળની ભીંગડાવાળી  
જીવાતનું પાન પર નુકશાન



૬.૩ પરવળની ભીંગડાવાળી  
જીવાતનું પાન પર નુકશાન



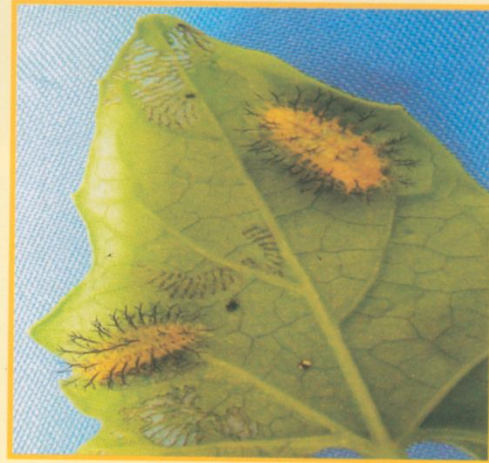
૮.૧ કારેલાના એપીલેકના બીટલના  
પુખ્ત કીટકો



૮.૨ કારેલાના એપીલેકના બીટલની  
ઈયળ



૮.૩ કારેલાના એપીલેકના બીટલના કોશેટાઓ



૮.૪ કારેલાના એપીલેકના બીટલનું  
નુકશાન

IGI \+6 jI J:YF5G 0

! P p5\$JGL X~VFTDF. I /GF ; D)CG[CFYYL JL6LG[GFX SZMP

ZP ALP 8LP 5FJOZ ! ISP UFPqC[S8Z DJHA KFBJFYL ; F~ IGI \+6 D/[ KP

#P HIT]GFXS NJFVM HJL S[ D[, FYLVNG 5\_@ . ; L Z\_ DL, L VYJF VlgOM; <0FG #5 . ; L @ Z\_ DL, L NJF ! \_ , L8Z 5F6LDF E/JL K'BSFJ SZJM HIFZ[ SFAF'ZL, ! \_ @ E]SL VYJF D[, FYLVNG 5@ E]SL Z5 YL #\_ ISUFPqC[S8Z DJHA KFBJFYL 56 ; F~ 5IZ6FD D/[ KP

&f SMALHGF 5FG JF/GFZL . I / s, LOJ[AZf 0

*Crocidolomia pavonana* , SM; LOM, MDLI F 5FJMGFGF

**Pyralidae : Lepidoptera**

VM/B 0

. '0F 0 DFNF 0JN] 5FGGL GLR[GL AFHMV[ \$ \_v! \_\_\_ H]8, F . '0F ; D)CDF\ D]S[ KP

. I / 0 . I /M , L, F ZUGL VG[ , F, ZUGF DFYFJF/L CMI KP T[GF XZLZ[ , F, ZUGL 58LVM VFJ[, L CMI KP

5]bT 0 0JN] GFGF SNG] VFKE SyYF. ZUG] CMI KP T[GL VU]5FIBM 5Z SF/F ZUGL , L8LVM VG[ ; 0JN 85SFAHMF D/[ KP HIFZ[ 5` J5FIBM ; 0JN ZUGL CMI KP

G]SXFGSFZS VJ:YF 0 . I /

G]SXFG 0

G]FGL . I /M ; D)CDF\ ZCL 5FGGL p5ZGM , L, M EFU BFI KP HIFZ[ DM8L . I /M ; DU] KMO 5Z O[, F. G[ KMOGF\ 8MRGF\ 5FG E[UF SZL HF/] AGFJLG[ T]DF\ ZCL G]SXFG SZ[ KP JW] p5\$JDF\ DM8F EFUGF 5FG VG[O], MG[ E[UF SZL HF/] AGFJ[ K[ VF HF/DF\ V]S YL JW] . I /M ; \TF. ZCL G]SXFG SZ[ KP K]J8[OST 5FGGL G; M H AFSL ZC[ KP

IGI \+6 jI J:YF5G 0

! P VMKF p5\$JDF. I /MGM HF/F ; ICT JL6L , . GFX SZMP

ZP CLZFOJNFGF IGI \+6 DF8[ NXF"JI F DJHA DJHA ZF. GF[VFTZ5FS , JMP

#P , \AM/LGF DLVHGM VS" \$ @ 5]DF6[ GM K'BSFJ SZJFYL IGI \+6 D/[ KP

\$P ALP 8LP 5FJOZ ! ISPUFPqC[S8Z DJHA 5FSGL X~VFTGL VJ:YFV[ KFBJFYL p5\$J SFAJDF\ ZC[ KP

5P ZF; FII 6S HTJGFXSMDFA VlgOM; <OFG #5@ . ; L Z! DL, L VYJF SFAF'ZL, 5\_@ OFA<I J5L Z\_  
UFD VYJF D[, FYLVMG 5\_@ . ; L Z\_ DL, L NJF ! \_ , l8Z 5F6LDF IDz SZL K'8SFJ SZJFYL  
IGI \+6 D/[ KP

\*P SMALHGF NOFGF[ J]WS sC]O AMZZf 0

*Hellula undalis* , C[ ], F VgOF, L;

**Pyralidae : Lepidoptera**

. 'OF 0 DFNF O]N] VFKF U], FAL ZUGF4 UM/FSFZ . 'OF 5FGGL GLR[ GL TZO K'8F KJFI F S[ ; D]CDFD]S[ KP  
. I / 0 5]6" IJSI; T . I / 5L/FX 50TF ANFDL ZUGL U], FAL hFI JF/L VG[ SF/F DFYFJF/L CMI KP  
T]GF XZLZGF p5ZGF EFU[ V]S VG[ XZLZGL AgG[ AFH]M[ A]vA[ V]D S], 5FR HFA]OLI F SyY.  
ZUGL 58LVM CMI KP

5]bT 0 O]N] VFKF 5L/FX 50TF SyY. ZUG] CMI KP T]GL VU]5FB 5Z VFKF ZUGL TZU H]JL Z]BFVM  
CMI K[HI FZ] 5xJ5FBM VFKF VF; DFGL ZUGL CMI KP

G]SXFGSFZS VJ: YF 0 . I /

G]SXFG 0

GJL HgD[, L . I /M 5FGGL G; MGL AFH]DFYL , L, M EFU SMZLG[ BFI KP H[ ; O]N OF3F ~5[ N]BFI  
KP DM8L . I /M SMALH S[ SMAL 0, FJZGF NOF# 56'NO VG[ YOG[ SMZL BFI G]S; FG SZ[ KP B]A H  
p5]JDF VFB]vVFBM KMO GA/M 50[ K[ VG[ NOF 56 IJST YI [, F HMUF D/[ KP

IGI \+6 jI J: YF5G 0

! P B]TZDF DMH6L SZL 5FSGL X~VFTGL VJ: YFDF. I /M CFYYL JL6L GFX SZJMP

ZP ZF; FII 6S IGI \+6DF D[, FYLVMG 5\_@ . ; L Z\_ DL, LP VYJF SFAF'ZL, 5\_@ JP 5FP Z\_  
UFD NJF ! \_ , l8Z 5F6LDF IDz SZLG[ K'8SFJ SZJFYL V; ZSFZS IGI \+6 D/[ KP

(P ZULG R]); I F 0 s5[. g8] AUf

*Bagrada cruciferarum* AUZF0F S]; lOZFZD

**Pentatomidae : Hemiptera**

VM/B 0

. 0F 0 DFNF K8FvKJFI F G/FSFZ . 0F KMOGF EFUM HUF S[ 5FG4 YO S[ 0], M 5Z D5[ KP SM. SJFZ  
KFOGL GHLSGL HDLG 5Z . 0F D5[ KP

ArRf0 5 DL, LDL8Z , FAF VG[ 5]bT HUF N[BFI KP

5]bT 0 R]; I F 5 YL \* DLP DLP , FAF4 -F, LI F VFSFZGF CMI KP T[GL 5'09 AFH] 5Z SF/F4 ; 0N VG[  
GFZUL ZUGF 85SF HMUF D/[ KP VFYL T[ ZULG R]; LI F TZLS[ VM/BFI KP

G5XFGSFZS VJ: YF 0 ArRf VG[ 5]bT R]; I F

G5XFG 0

ArRf VG[ 5]bT R]; I F KMOGF 5FG4 YO VG[ XLUMDFYL Z; R]; [ KP VFYL KMO 5L/M 5OL  
GA/M Y. HFI K[ 5IZ6FD[ KMOGM IJSF; ~WFI K[ VG[ 0/v0], VMKF A; [ KP JW] p55JDF VFBM  
KMO ; }SFI HFI KP

IGI 4+6 jI J: YF5G 0

! P B[TZGF X[-Fv5F/F RMBBF ZFBJFYL T[G] 5]HGG VJZF WFI K[ HYL p55J IGI 4+6 Df ZC[ KP  
ZP ZF; FI I6S IGI 4+6 Df OFI IDYMV8 #\_@ . ; L ! \_ DL, L VYJF VgOM; <0FG #5@ . ; L Z!  
DL, L VYJF SJLGF, OM; Z5@ . ; L Z\_ DL, L VYJF D[, MYLVMG 5\_ @ . ; L ! \_ DL, L NJF  
! \_ , L8Z 5F6LDF IDz SZL K8SFJ SZJFYL ; F~ 5IZ6FD D/[ KP

#P HI FZ[ E]SL ~5 NJDF SFAFZL, ! \_@ E]SL VYJF D[, FYLVMG 5 8SF E]SLGM C58Z[ Z\_ YL Z5  
ISP UFP DJHA KF8JFYL p55JG[ IGI 4+LT SZL XSFI KP

) f SMALHGL RFROL 0

*Phyllotreta crucifera* OL, MBF S]; LOZF

**Chrysomelidae : Coleoptera**

VM/B 0

. 0F 0 DFNF RFROL KMOGL GHLS HDLGDF 5\_ YL ( \_ H8, F ANFDL ZUGF . 0F D5[ KP

. I / 0 . I /M D[, F ; 0N ZUGL VG[ 5L/FX 50TF ; 0N DFYJF/L CMI KP VG[ 5 DLDL , FAL CMI KP  
5]bT 0 5]bT RFROL R/STF E]ZF ZUGL4 ; }DSNGL VG[ B]AH R5/ CMI KP RFROL V5S KMOYL ALHF  
KMO 5Z SJSF DFZ[ KP

G5XFGSFZS VJ: YF 0 . I / VG[ 5]bT

G5XFG 0

. I /M HDLGDF ZCL KMOGF S]D/F D]/G[ BFI KP HI FZ[ 5]bT RFROL KMOGF S]D/F 5FG VG[ YODF  
SF6F 5FOLG[ G5XFG SZ[ KP VF HLJFTGM p55J DM8[ EFU[ 5FSGL S]D/L VJ: YFV[ JW] HMUF D/[ KP  
IGI 4+6 jI J: YF5G 0

! P pGF/FDF pOL B] SZJFYL HDLGDF ZC[, L HLJFT ACFZ VJX[ VG[ ; }I'GF TF5YL T[DH  
5ZE1FL 51FLVM SFZF E1F6 YJFYL J: TLDF 38F0F[ YFI KP



ZP H[ IJ: TFZDF\ VF HLJFTGM p5\$J YTM CMI tI F\ SMALH VG[ SMALv0, FJZG] SDM; DL JFJ[ TZ SZJ] HM. V[ GCLP

#P ZF; FI I6S IGI \6DF\ VgOM; <0FG \$ @ E]SL S[ D], FYLVMG 5 @ E]SL ! \_ YL ! 5 ISPUfqcS8Z DJHA 5FSG L X~ VFTGL VJ: YFV[ KF8JFY L V; ZSFZS IGI \6 D/[ KP

\$P K8SFJ DF8[ OFI S, MZMUM; \* & @ 5 DL, L VYJF VgOM; <0FG #5 @ . ; L Z! DL, L NJF ! \_ , l8Z 5F6L DJHA p5I MU Df\, jFY L ; F~ 5IZ6FD D/[ KP

&P J[, FJF/F XFSEFHL

I3, M0LsZ\$ f4 5ZJ /sZ5f4 NjWlsZ&f4 SFZ[, F sZ\* f4 U, SF\ sZ (f4 TjZLI fsZ) f

! P J[, FJF/F XFSEFH LGL 0/DFBL s\$ \$fo

*Bactocera cucurbitae*, A]S8M; [ZF S]SZAL8L

*Bactocera ciliates*, A]S8M; [ZF ; L, LI ]8;

**Tephritidae : Diptera**

VM/B 0

. 0F 0 DFNF DFBL 0/GL KF, GL GLR[ ; 0]N4 G/FSFZ . 0F HyYFDf\ D]S[ KP

SLOM q. I / 0 . I / 5L/FX 50TF ; 0]N ZUJL4 D]BGF EFU[ 5FT/L VG[ 5'098EFU TZO HFOL CMI KP VG[ T( ) YL ! \_ DLDL , FAL CMI KP

5]bT 0 DFBL ZTFX 50TF ZUJL CMI KP T]GF J1FGF EFU[ 5L/F ZUJL , l8L CMI KP 5FbM 5FZNX'S VG[ ANFDL ZUGf\ WFAF JF/L CMI KP HI FZ[ 5FSG L p5ZGL ISGFZLV[ ZFBMOL ZUGf\ 85SF CMI KP DFNF DFBLGF\ pNZGF EFU[ V6LNFZ V'0IG1F]5S VFJ[, ] CMI KP

G]SXFGSFZS VJ: YF 0 . I / qSLOM VG[ 5]bT

G]SXFG 0

DFNF DFBL 0/GL KF, GL GLR[ V6LNFZ V'0IG1F]5S \$ZF SF6] 50JFY L T]DFY L Z; hZJFG] X~ YFI K[ VF Z; HFDL HTf\ R/STF 5L/F ZUGf\ U]NZ H]J] N]BFI KP H[G[ cc 8]Jfcc SC[ KP VFJF 8]JF 50[, F 0/MGL U]6J;f 38[ KP VFYL AHFZEFJ VMKM D/[ KP . 0FDFY L GLS/[ , M SLOM 0/GM DFJM SMZL BFI KP JW] p5\$J Df\ 0/DF\ ; }D HLJF6] VMGM IJSF; YFI KP K]J8[ 0/ SMCJF. HFI K[ VG[ BZL 50[ KP VFJ] 0/ BFJF, FI S S[ AHFZDF\ J]RFJF , FI S ZC[T] GYLP VFD pt5FNGDF\ VOWM VOW 38FOM HMJF D/[ KP

VJ, MSG 5wWIT VG[ GMM 0

- IGI T SZ[, %, M8DFYL VUJ|HL c0A<I|; VFSFZ[ RF, LG[ VFBF %, M8DFYL V:TjI :T 5wWITYL Z\_ KMO 5; N SZJFP
- 5; N SZ[, KMODFYL HMLF D/[ , S], 0/GL ; 'bI F VG[G]SXFG JF/F 0/GL ; 'bI F GMMJLP
- VJ, MSG SF0'DF\p5N|JT 0/GL 8SFJFZL NXF"JJLP
- IGI T SZ[, JFOLDFA GZ 0/DFBLG[ VFSQF"JF DF8[ ccSI | <I|ZccGF 8f5 UM9JJFP C[S8Z NL8 +6 8f5GL H~ZLI FT ZC|XP A[8f5 JrR[! \_\_\_ DL8Z SZTF\VMK] VITZ ZFBJ] GCLP
- 8f5DF\VFSQFF" | , S], 0/DFBLVMGL ; 'bI F NZ ; MDJFZ[ ; JFZ[ ( YL ) JFuI FGF UF/FDF\GMMJLP 1fdI DF+f0 p5\$JGL X~VFT

IGI \+6 jI J:YF5G 0

- ! pGF/FDF\p0L B|0 SZJFYL 0/DFBLGFA SMX|8MV\MGM GFX YFI KP
- ZP B|TZqJFOLDFA: JrKTF ZFBJL4 BZL 50[, F 0/M T|DH p5\$JIT 0/MG[ JL6L GFX SZJMP
- #P 0/M 5FSJFGL VJ:YF 5C[, F pTFZL , JFP
- \$P B|TZqJFOLDFA SI|kI|Z 0ZMDMG 8f5 ; FD|CS WMZ6[ ! 5vZ\_ qC[S8Z D]SJFYL GZ 0/DFBLG J: TLG[SFA]DF\ZFBL XSFI KP
- 5P h|ZL 5[, MIESFGF[ p5I F|U SZJFYL 56 p5\$J SFAJDF\ , . XSFI KP VF DF8[ ! \_ @ UM/GF \$FJ6DF\ SFAFZL, 5\_ @ JP5FP Z UFDq, L8Z VYJF D[, FYLVMG 5\_ 8SF . ; L Z DL, Lq, L8Z DJHA IDz SZL[ T|J] \$FJ6 B|TZDF\ Z5\_ J[, F S[ hf0 5Z DM8F OMZF 50[ T[ ZLT[ KF8JFYL ; F~ 5IZ6FD D/[ KP
- &P ZF; FI I6S IGI \+6DF\ D[, FYLVMG 5\_ 8SF . ; L Z\_ DL, L4 SFAFZL, 5\_ @ JP5FP Z\_ UFD ! \_ , L8Z 5F6LDF\ E/[ JL 0], VJ:YFV[ ! 5 INJ; GF VITZ[ # YL \$ K'BSFJ SZJFYL ; F~ IGI \+6 D/[ KP
- ZP 5ZJ/GL J[, F SMZGFZL . I / sJF. G ANZZf s\$5f 0

*Apomecyna neglecta* (Pase) V[5MD]: FI GF IGu, [S8F

**Cerambycidae : Coleoptera**

VM/B 0

- . 'DF 0 DFNF J[, FGL VFTZUF9DF\ . 'DF D]S[ KP
- SLOMq. I / 0 SLOM 5L/FX 50TF ; 0|N ZUGM VG[ ANFDL ZUGFA DFYFJF/M CMI KP
- 5|bT 0 DFNF GZ SZTF SNDF\ DM8L VG[ ANFDL ZUGL CMI K[ HI FZ[ GZ SL8S SF/F ZUG] CMI KP
- G]SXFGSFZS VJ:YF 0 SLOMq. I /
- G]SXFG 0

DFNF SL8S J[, FGL VFTZUF9DA . VF D]S[ K[ T]DFYL ; Q]N ZUG] 5]JFCL hZ[ KP H[ ; ]SFTF# U]NZ  
H]J] S96 VG[ R/STF 5L/F ZUG] AG[ KP SLOM J[, FGL V]NZ ZCL J[, M SMZL BFI G]S; FG SZ[ KP H]YL  
J[, FDAUF9 AG[ KP J[, FGM IJSF; ~WFJFYL VFBZ[J[, M ; ]SFI HFI KP  
VJ, MSG 5wWIT VG[ GMM o

- IGI T SZ[, %, M8DFYL VU]HL c0A<1 ]: VFSFZ[ RF, LG[ VFBF %, M8DFYL V:TjI :T 5wWITYL Z\_  
J[, F 5; N SZJFP
- VFJF 5; N SZ[, F NZ]S J[, FG] AFZLSF. YL IGZL1F6 SZL S], Z\_ J[, F 5Z HMJF D/[ , . I /MGL  
S], ; bI F VJ, MSG SF0'DF\NXF"JJLP  
1FdI DF+f o p5N]JGL X~VFT

IGI \+6 jI J:YF5G0

! P TW]Z: T J[, FGM ZM56L DF8[p5I MU SZJMP

ZP VMKF[p5]J CMI TM p5]J]T J[, FGF EFUG[SF5L , . GFX SZJMP

#P ZM56L JBT[ VG[0], VJ:YF 5C[, F J[, FGF D]/ 5F; [HDLGDF\SFAMOI ]ZFG #@ NF6FNFZ NJF  
J[, F NL9 # YL 5 U]FD 5]DF6[VF5JLP

\$P J[, F 5Z U]NZ H]J] N]BFI T]G[ CFY JO[ N]Z SZL SFAF'ZL, 5\_@ JP 5FP 5\_\_ U]FDG[ ! , L8Z  
5F6LDF\IDz SZL 5]:8 H]J] AGFJL RM50JFYL ; F~ 5IZ6FD D/[ KP

#P , F, VG[SF/F DZLI F o sZ]0 5d5SLG AL8, VG[ a, ]S 5d5SLG AL8, f

*Aulacophora foveicollis* VM, ]SNOMZF OMJLSM, L; s, F, f

*Rafidopalpa foveicollis* Z]OLOM5F<5F OMJLSM, L; sSF/ff

**Chrysomelidae : Coleoptera**

VM/B o

. VF o DFNF 5FSGL GHLS HDLGDF\Z5\_ v#\_\_\_ H]8, F# 5L/F ZUGF VG[ V]FSFZ . VF K]BfvKJFI F S]  
( YL ! \_ GF; D]CDF\D]S[ KP

. I /qSLOM o GJM HgD[, M SLOM ; Q]N Z]UGM CMI KP HI FZ[ 5]6" IJS; LT SLOM 5L/FX 50TF ; Q]N Z]UGM  
CMI KP

5]bT o -F, LI ] & YL ) DLDL , FA] CMI K[ T]GL VU]5]BM R/STF , F, FX 50TF GFZUL Z]UGL S[ 3]ZF  
JFN/L Z]UGL CMI KP

G]SXFGSFZS VJ:YF o SLOM q . I / VG[ -F, LI ]s5]bTf

G]SXFG o

. 0FDFYL GLS/L SLOM HDLGDA ZCL J[, FGA D]/ TYF YOG[ SMZLG[ G]S; FG SZ[ KP HDLGG[ VOLG[  
, FU[, F O/MG[ 56 T[ SMZL BFI KP 5]bT -F, LI \ S]D/F J[, FGA 5FGDA VIGI IDT VFSFZGF GFGF SF6A  
5FOL SMZLG[ BFI KP JW] p5\$J CMI TM ALH 5+ TYF O], G[ 56 G]SXFZG SZ[ KP 5IZ6FD[ J[, FGL J'lwW  
GA/L 50L HFI K[ VG[ VFBZ[ J[, M ; ]SFI HFI KP p5\$]JT J[, FGF 5FG 5Z UM/ ; O]N ZUUGL ZLUM  
HMJF D/[ KP HM J[, FGL S]D/L VJ: YFV[ p5\$J YFI TM J[, FGM GFX YFI KP

IGI \+6 j I J: YF5G 0

! P 5FS 5]ZM YI F AFN pOL B]D SZJL H[YL . I /qSLOM VG[ SMX]BM VJ: YFV]MG]M GFX YFI P

ZP J[, FGL ZM56L AFN #\_ INJ; [ D]/GL OZT[ SFAMOI ]ZFG #@ NF6FNFZ NJF J[, F NL9 Z YL 5 UFD  
D]HA VF5L I5I T VF5J]P

#P J[, FGL X~VFTGL VJ: YFDF] D[, FYLV]MG 5@ E]SL4 V]gOM; <OFG \$@ E]SL4 IDYF. , 5]ZFYL]MG Z@  
E]SL VYJF SFAF'ZL, ! \_ @ E]SL C]S8Z[Z\_ YL Z5 ISP U]FP D]HA J[, F VG[ HDLG 5Z KF8JLP

\$P 5]JFCL HIT]GFXSMD]A V]gOM; <OFG #5@ . ; L Z\_ DL, L4OFI S, MZMUMX \* & @ . ; L 5 DL, L ! \_  
, L8Z 5F6LDA IDz SZL O/ pTFZL , LWF AFN J[, M 5]Z]5]ZF[ EL]HFI T[ ZLT[ K]8SFJ SZJ]P

\$P I3, MOLGL O]NL 0

*Diaphania indica, OFI OFGLI F . gOLSF*

**Pyralidae : Lepidoptera**

VM/B 0

. 0F 0 DFNF O]NL V]S, vNMS, S[ ; D]CDA#5\_ H]8, F . 0F 5FGGL GLR]GL AFH]V[ D]S[ KP

. I / 0 . I /M 3]ZF , L, F ZUUGL VG[ , FAL CMI KP T]GL 5L9 5Z XZLZGL , YAF. H]8, L , FAL A[ ; O]N  
58LVM VFJ[, L CMI KP

5]bT 0 O]N] Dw]FD SNG]H VU]5F]BM ; O]N ZUUGL4 5FZNX'S VG[ ISGFZLV[ 3]ZF SyYF. ZUUGM 58M VFJ[, M  
CMI K[ HI FZ[ DFNF O]NFGF pNZGF K]J8GF EFU[ GFZVL ZUUGF JF/GM U]rKM CMI KP

G]SXFZGSFZS VJ: YF 0 . I /

G]SXFZG 0

X~VFTDA. I /M 5FG E]UF SZL HF/] AGFJL T]DA ZC[ KP ti FZAFN 5FG BFI G[ G]SXFZG SZ[ KP  
5FSGL pt5FNS VJ: YFV[ . I / 0], TYF S]D/F O/MG[ BFI G[ G]SXFZG SZ[ KP p5\$]JT J[, M V]S  
AFH]V]YL S5FI HFI KP HI FZ[ J[, FGL 8MR 5L/L 50L ; ]SFI KP O/DA 50[, ]SF6] : 508 HM. XSFI KP  
VFJF O/M BFJF, FI S ZC[TF GYLP

IGI \+6 j I J: YF5G 0

! P p5§JYL X~VFTDA. I /MGM HF/F ; ICT JL6LG[GFX SZJMP  
ZP H[JS IGI \+SMDA ALP8LP 5FJOZ ! IS, MUFD 5|IT C[S8Z DJHA ! \_ INJ; GA VFTZ[ KF8JFYL  
; F~ 5IZ6FD D/[ KP  
#P V[gOM; <0FG #5@ . ; L Z! DL, L4 SJLGF, OM; Z5@ . ; L Z\_ DL, L4 SFAFZL, 5\_@ JP 5FP  
\$\_ UFD 5\$SL SM. 56 V\$ NJF ! \_ , L8Z 5F6LDAE/[JL K'8SFJ SZJMP

5P DL, LAu; sRLS8Mf 0

*Phenococcus solani* , O[GFSMS; ; M, FGL

### Pesudococcidae : Hemiptera

VM/B 0

. '0F 0 HFT DJHA V, U V, U ZUGF VG[ ; D]CDA SMY/LDA HMUF D/[ KP S8, LS DFNF ; LWF ArRFG[  
HgD VF5[ KP

ArRf0 V'0FSFZ4 ; O[N4 XZLZ[ DL6LI F 5FJOZYL VFrKFINT CMI KP

5]bT 0 GZ V\$ HMOL 5FB WZFJ[ KP HI FZ[ DFNFG[ 5FBI CMTL GYLP ; O[N ZUGL4 DL6LI F VFJZ6YL VFrKFINT CMI KP  
G\$XFGSFZS VJ: YF 0 ArRf VG[ 5]bT

G\$XFG 0

ArRf VG[ DFNF J[, FGA S]D/F EFUM H]F S[ 5FG4 S/L 0], VG[ 0/M 5Z ZCLG[ T]DFYL Z; R}; [  
KP 5IZ6FD[J[, M S[ p5\$|JT EFU 5L/F 50L ; ]SFI HFI K[ VG[ 0], 4 S/L S[ 0/M BZL 50[ KP

IGI \+6 jI J: YF5G 0

! P J[, FGL ; DI ; Z KF86L SZJFYL p5§JG[ SFA]DA ZFBL XSFI KP

ZP p5\$|JT J[, FGM C[ZOZ G SZTFA X[-F 5Z AF/LG[ S[ NF8LG[ GFX SZJMP

#P HT]GFXS NJFVMDA S, MZ5FI ZLOM; Z\_ 8SF . ; L Z5 DLP, LP VYJF 5M]GMM; 5\_ 8SF . ; L  
! Z DLP, LP VYJF V[; L0]8 \*5 8SF ; M|JA, 5FJOZ ! 5 UFD NJF NJF ! \_ , L8Z 5F6LDA V\$  
RDRL S50F WMJFGM 5FJOZ GfBL VFBM J[, M ELHFI T]D K'8SFJ SZJFYL ; F~ 5IZ6FD D/[ KP

&f 5ZJ/GL ELUOFJF/L HLJFT 0

*Saissetia hemisphaerica*, ; F. ; ]Bliff C]DL: OMZLSF

### Coccidae : Homoptera

VM/B 0

. '0F 0 DFNF ; D]CDA VFXZ[ 5\_\_\_ H]8, M . '0F . '0FNGLDA D]S[ KP

ArRf0 , F, ZUGF4 VW" UM/FSFZ CMI KP

5]bT 0 E]BZF ZUGF4 VW" UM/FSFZ VG| R/STL ; 5F8L JF/F CMI KP  
G]SXFGSFZS VJ: YF 0 ArRF\ VG| 5]bT  
G]SXFG 0 IGI \+6 sDL, LAu; D]HAF

\*f UF9LI F DFBL sUM, 0, FI f 0

*Lasioptera cephalandrae*, , [; LI M%8ZF ; [OF, [gO#

### Cecidomyidae: Diptera

VM/B 0

5]bT 0 DFBL ; }D4 DrKZ H]8, F SNGL VG| W]ZF ANFDL ZUGL CMI KP  
G]SXFGSFZS VJ: YF 0 . I /q5]bT  
G]SXFG 0

p5]IJT J[, FDF\ , FAL VG| HFOL UF9 pt5gG YFI KP VF UF9M , L, F S[ 5L/FX 50TF , L, F  
ZUGL CMI KP VF UF9MG[ RLZTF T]DFA SLOM HMJF D/[ KP p5]IJT J[, FGM IJSE; GA/M YFI KP  
IGI \+6 jI J: YF5G 0

! P p5]JJF/F J[, FG[ SF5L AF/LG[ GFX SZJMP

ZP 0gYLVMG ! \_\_ @ . ; L ! \_ DL, L ! \_ , L8Z 5F6LDF\ E/[ JL ! 5 INJ; DFA VITZ[ Z YL # K]SEJ SZJFP

\*P 0]U/L s#\_fq, ; 6 s#! f

! f 0]U/LGL YL%; s#! fo

*Thrips tabaci* Lind. YL%; 8AFSL

### Thripidae : Thysanoptera

VM/B 0

- 5]bT SL8S ; }D4 , FA] VG| VFKF 5L/FX 50TF ZUG] CMI KP
- T]DGL 5F8M 5LKF H]JF JF/ WZFJTL CMI KP
- ArRF; }D VG| 5FB JUZGF CMI KP

G]SxFG 0

ArRF VG| 5]bT 5FGGL ; 5F8L 5Z D]BFUIMYL 3; ZSF 5FOL Z; R; [ KP G]S; FG 5FD[, EFU  
; ]SFTF T]DFA ; 0]N WFAF HMJF D/[ KP p5]IJT KMO SMSOF. H. JF]SM R]SM AG[ KP B]A H p5]JDA  
VFBF[ KMO ; ]SFI HFI K[ VG| KMODFA/S/LVMqSN A; TF GYLP

VJ, MSG 5wWIT VG[ GMM 0

- IGI T SZ[, %, M8DFYL VUJ|HL c0A<I|; VFSFZ[ RF, LG[ VFBF %, M8DFYL V:TjI :T 5wWITYL Z\_ KMO 5; N SZJFP
- 5; N SZ[, KMODA S], Z\_ 5FG 5Z HMUF D/[, ArRA VG[ 5]bT SL8SGL S], ; bI FG[ Z\_ JO[ EFUTF H]; bI F VFJ[T[G]GHLSGL 5]6F'S ; bI FDF\O[ZJLG[VJ, MSG SF0'DANXFJJLP
- 1fdI DF+F 0 V]S 5FG 5Z ; Z[ZFX ! 5 ArRA VG[ 5]bT

IGI \+6 jI J:YF5G0

! P B[TZDA: JrKTF ZFBJL4 B[TZ IGN6D]ST ZFBJP

ZP IGI IDT I5I T VF5J\ I5I T VF5JFYL S\X]BF VJ: YFGM GFX YFI KP

#P X[-Fv5F/F 5Z DLYF, . 5[ZFYLV\MG Z@ E]SL Z\_ YL Z5 ISP UF 5]T C]S8Z D]HA K'8SFJ SZJMP

\$P ZM56L JBT[RF; DAFSFA\MOI ]ZFG #@ . ; L NJF C]S8Z[ 5\_ ISP UF D]HA VF5JFYL p5SJDF\W8FOM YFI KP

5P ZF; FI I6S IGI \+6 DF8[ X\MOFS 5]SFZGL H\T]GFXS NJFVM OFI DLYM\B #\_@ . ; L ! \_ DL, L S[ V]gOM; <OFG #5@ . ; L Z\_ DL, L S[ SJLGF, OM; Z5@ . ; L Z\_ DL, L ! \_ , L8Z 5F6LDA E/]JL K'8SFJ SZJFYL ; F~ 5I26FD D/] KP

Zf 5FGSYLZL 0

***Aceria tulipae*** V[: [ZLI F 8I ], L5L

**Eriophyidae: Acarina**

VM/B 0 5]bT ; ]ID SNG] VG[ 5L/FX 50TF Z\UG] CMI KP T[ +FSFSFZ VG[ \_PZ\_ YL \_PZ5 DLDL , YAF. G]CMI KP HI FZ[ T[G] XZLZ VFU/GF EFU[ HF0] VG[ 5FK/GF EFU[ 5FT/] CMI KP

G]SXFGSFZS VJ: YF 0 ArRFq5]bT

G]SXFG 0 ArRA X~VFTDA ; D]CDA ZCL 5FGDFYL Z; R]; L G]S; FG SZ[ KP G]S; FGJF/F 5FGDA 5L/F WFAF N]BFI K[ T]DH 5FG ALOFI |, ]ZC[ KP p5S]JT 5FGGL D]bI G; 5L/L 50[ KP VG[ 5FG p5ZGL TZO JFSL R]SL ZLT[ J/] KP KMOGL J'lwV 8S[ K[ VG[ pt5FNGG[ DF9L V; Z YFI KP

IGI \+6 jI J:YF5G 0

! P B[TZDA: JrKTF ZFBJL p5S]JT EFUMGM AF/LG[ GFX SZJMP

ZP TN]Z: T IAI FZ6GL JFJ6L DF8]5; NUL SZJLP

#P I; gY]BLS 5FI Z]YM. 0 H]YGF SL8GFXS\GM p5I MU 8F/JMP

\$P ZF; FI I6S IGI \+6 sZLU6 GL SYLZL D]HAF

(P JF, q5F50L s#Zf

! P , L, L . I / sC], LI MYL; f s! ! f 0

***Helicoverpa armigera* Hub. C], LOMU5F" VFID"H]ZF**

**Noctuidae: Lepidoptera**

VM/B4 VG[ IGI \+6 jI J: YF5G 8FD]8FDF\N XF"]I F D]HA

VJ, MSG 5wWIT VG[GMW 0

- IGI T SZ[, %, M8DFYL VU[HL c0A<I ]: VFSFZ[ RF, LG[ VFBF %, M8DFYL V:TjI :T 5wWITYL Z\_ KMO 5; N SZJFP
- VFJF 5; N SZ[, F NZ[S KMOG\ AFZLSF. YL IGZL1F6 SZL S], Z\_ KMO 5Z HMJF D/[ , . I /MGL S], ; bI F VJ, MSG SF0'DF\NXF"JJLP
- 1fdI DF+F 0 Z\_ . I / q Z\_ KMO s0], VJ: YFV[f  
! \_ . I / q Z\_ KMO s5F50L A[ TL JBT[f

ZP DM, M s! \*f

*Aphis craccivora* Koch.

V[OL; S]S; LJMZF

Aphididae : Hemiptera

VJ, MSG 5wWIT VG[GMW 0

- 5F50LGF 5FSDFA DM, MDXLGF p5§JGL DF+F HF6JF DF8[ V[OLO . g0[1FGL U6+L SZJFGL CMI KP VFD SZJF DF8[ B[TZDA cc0A<I ]c 5wWITYL Z\_ KMOGL 5; NUL SZL VJ, MSG , . GLR[ 5]DF6[GMW SZJLP

U]0	V[OLO . g0[1F
_	KMO 5Z DM, FDXLGL V[S 56 J: TL HMJF G D/[ TMP
!	VJ, MSG SZ[, KMO 5Z DM, MDXLGL V[S, NMS, J:TL HMJF D/[ 5ZT] SM, MGL AWF I [, G CMI TMP
Z	KMO 5Z DM, MDXLGL GFGL SM, MGL HMJF D/[ 5ZT] N[BLTL ZLT[ G]SXFG G HMJF D/[ TMP
#	KMO 5Z DM, MDXLGL DM8L SM, MGL AWF I [, CMI 4 VF SM, MGLDA DM, MDXLGL ; bI F U6L XSFI T[D CMI VG[ T[GfYL DU0/LGF KMO 5Z p5§JGL V; Z H6FI TMP
\$	KMO 5Z DM, MDXLGL DM8L SM, MGL AWF I [, CMI VF SM, MGLDA DM, MDXLGL ; bI F U6L XSFI T[D G CMI VG[ KMO p5§JG[SFZ6[ SZDF. UI [, CMI TFP

- VF ZLT[ Z\_ KMO 5Z DM, MGM U]0 HMJF D/[ , CMI T[GM ; ZJF/M SZL Z\_ JO[ EFUTF H[ ; bI F VFJ[ T[G[ V[S NXFX ; ]MLDA 0[ZJLG[ T[ ; bI FG[ VJ, MSG SF0'GF +6 BFGFDA GLR[ DJHA NXF"JJLP  
NFP TP Z\_ KMO 5Z DM, FGF . g0[1FGM ; ZJF/M ## CMI TM T[G[ Z\_ JO[ EFUTF ! P&5 GL ; bI F VFJXP H[G[ V[S NXFXGL ; bI FDA\0[ZJTA! P\*GL ; bI F VFJ[ T[G[ SF0'DF\VF ZLT[ , BL XSFI P

!	P	*
---	---	---

- 1fdI DF+F 0 ; Z[ZFX ! P5 V[OLO . g0[1FP

#f ; 0]NDFBL s! 5fo

VM/B4 G]SXFGGM 5]SFZ VG[ IGI \+6 jI J: YF5G ZLU6 DJHA

VJ, MSG 5wWIT VG[GMW 0



- IGI T SZ[, %, M8DFYL VUJ|HL c0A<I}; VFSFZ[ RF, LG[ VFBF %, M8DFYL V:TjI :T 5wWITYL Z\_ KMO 5; N SZJFP
- 5; N SZ[, NZ[S KMOGF +6 5FG s8MR4 Dwi VG[ GLRf[ V[D S], &\_ 5FG 5Z HMJF D/[ , 5]bT IS8SGL S], ; \bI FG[&\_ JO[ EFUTF H[ ; \bI F VFJ[ T[G[ 5]6FS ; \bI FDF\O[ZJLG[ VJ, MSG SF0'DF\NXF"JJLP
- 1fdI DF+F o 5 5]bT SL8S q 5FG

#P 5FGSYLZL s\$! f 0

*Tetranychus* sp. 8|8|FGLS; :5LP

**Tetranychidae: Acarina**

VM/B4 G]SXFGGM 5]SFZ VG[ IGI \+6 jI J: YF5G ZLU6 D]HA

VJ, MSG 5wWIT VG[ GMW o

- IGI T SZ[, %, M8DFYL VUJ|HL c0A<I}; VFSFZ[ RF, LG[ VFBF %, M8DFYL V:TjI :T 5wWITYL Z\_ KMO 5; N SZJFP
- 5; N SZ[, NZ[S KMOG] Dwi G] V]S 5FG V[D S], Z\_ 5FG TMOLG[ 5M, LYL, LG A]UDF\ V]S9F SZL 5]I MUXF/FDF\ DF. S]M: SM5DF\ AFZLSF. YL IGZL1F6 SZJ]P
- 5]I MUXF/FDF\ DF. S]M: SM5DF\ AFZLSF. YL IGZL1F6 SZTF 5; N SZ[, NZ[S KMOGF Dwi GF S], Z\_ 5FG 5Z HMJF D/[ , ArRF VG[ 5]bT SYLZLGL S], ; \bI FG[ Z\_ JO[ EFUTF H[ ; \bI F VFJ[ T[G[ 5]6FS ; \bI FDF\O[ZJLG[ VJ, MSG SF0'DF\NXF"JJLP
- 1fdI DF+F o 5 SYLZLq5FG

DMH6L VG[IGUFC VFWFZLT 5FS HLJFT ZMU 5}JFG]DFG 5wWIT C9/ p5I MUDA, [JFI [,  
SMO GAZGL IJUT0

! P SgN  SMO GAZ			
; XIMVG SgN#	SMO GAZ	; XIMVG SgN#	SMO GAZ
T6KF	_!	GJ; FZL sNARPF	!!
E~RsS5F; f	_Z	GJ; FZL sS9M/f	!Z
E~Rs <b>NARP</b> f	_#	GJ; FZL sX[ZOLF	!#
VKF, LI F	_\$	U6N JL	!\$
CF; M8	_5	5ZLI F	!5
;  ZT sS5F; f	_&	J3.	!&
;  ZT sHJFZF	_*	J6FZ; L	!*
AFZOM, L	_ (	GJ; FZL sWMf	! (
jI FZF	_)	V: 5L ; XIMVG OFD" GJ; FZL	! )
NFTL	! _		
S'IQF IJ 7FG SgN=	SMO GAZ	S'IQF IJ 7FG SgN=	SMO GAZ
J3.	Z_	GJ; FZL	ZZ
jI FZF	Z!	O OLI F5FOF	Z#
S'IQF 10%, MDF q 5M, L8 SGLS	SMO GAZ	S'IQF 10%, MDF q 5M, L8 SGLS	SMO GAZ
GJ; FZL	Z\$	E~R	Z&
jI FZF	Z5	J3.	Z*
ZP TF,  SF SMO			
E~R HL<, M s! f			
TF,  SF SMO	SMO GAZ	TF,  SF SMO	SMO GAZ
VFDMN	_!	E~R	_5
V S,  JZ	_Z	JFUZF	_&
HVA; Z	_#	JF, LI F	_*
h30LI F	_\$	CF; M8	_ (
GD'NF HL<, M sZf			
TF,  SF SMO	SMO GAZ	TF,  SF SMO	SMO GAZ
GFMN	_!	O OLI F5FOF	_#
; FUAZF	_Z	IT, SJFOF	_\$
;  ZT HL<, M s#f			
TF,  SF SMO	SMO GAZ	TF,  SF SMO	SMO GAZ
VM, 5F0	_!	DCJF	_&
SFDZ H	_Z	DFUZM/	_*
RMI F; L	_#	DF0JL	_ (
5, ; F6F	_\$	;  ZT s; L8Lf	_)
AFZOM, L	_5	pDZ5FOF	! _
TF5L HL<, M s\$F			
TF,  SF SMO	SMO GAZ	TF,  SF SMO	SMO GAZ
IGhZ	_!	jI FZF	_#
JF, MO	_Z	; MGU-	_\$

prK,	_5		
J, ; FO HL<, M s5f			
TF, JSF SMO	SMO GVAZ	TF, JSF SMO	SMO GVAZ
pDZUFD	_!	S5ZF0F	_\$
WZD5jZ	_Z	J, ; FO	_5
5FZOL	_#		
GJ; FZL HL<, M s&f			
TF, JSF SMO	SMO GVAZ	TF, JSF SMO	SMO GVAZ
JF\ NF	_!	GJ; FZL	_\$
RLB, L	_Z	H, F, 5MZ	_5
U6NjL	_#		
OFU HL<, M s*f			
TF, JSF SMO	SMO GVAZ		
VFCJF	_!		
#P HL<, F SMO GVAZ			
HL<, M	SMO GVAZ	HL<, M	SMO GVAZ
E~R	!	J, ; FO	5
GDNF	Z	GJ; FZL	&
; jZT	#	OFU	*
TF5L	\$		
\$P 5FS SMO GVAZ			
5FS	SMO GVAZ	5FS	SMO GVAZ
ZLU6	! #	NjML	Z&
EL0F	! \$	SFZ[, F	Z*
8FDj8F	! )	U, SF	Z(
DZRL	Z!	TjZLIF	Z)
SMALH	ZZ	0jU/L	#_
SM, LO, FJZ	Z#	, ; 6	#!
I3, MOL	Z\$	JF, q5F50L	#Z
5ZJ/	Z5		

5P J ZFI 8L q HFT SMO GAZ			
! P ZLU6 s! #f			
HFT	SFD GAZ	HFT	SFD GAZ
OM, L	_!	UJHZFT ; 'SZ ZLU6vZ	_ (
DMZAL v\$ vZ	_Z	UJHZFT , 'AUM/ ZLU6v!	_)
HLALv&	_#	ZLU6 HJGFU- , FAF	! _
UJHZFT ; 'SZ ZLU6v!	_\$	5j; F 55" , MU	!!
;  ZTL ZJ  F	_5	SPV ; PZZ\$	! Z
5L V , VFZ v!	_&	HJGFU- ZJ  F	! #
UJHZFT , FAF ZLU6v!	_*	Vgl	! \$
ZP EL'OF s! \$f			
HFT	SFD GAZ	HFT	SFD GAZ
5LPALP 5*	_!	UJHZFT EL'OFvZ	_ \$
5j; F ; FJ6L	_Z	UJHZFT ; 'SZ EL'OF v!	_5
5ZE 6L S ATL	_#	Vgl	_&
#P 8FD8F s! ) f			
HFT	SFD GAZ	HFT	SFD GAZ
HJGFU- ~AL	_!	ALV ; V ; vZ_	! _
UJHZFT 8FD8Fv!	_Z	V GV ; vZ5#5	!!
UJHZFT 8FD8FvZ	_#	V VFZ8LV Rv\$	! Z
VIJGFXvZ	_\$	V G8LV Rv&	! #
5j; F CF. A 0vZ	_5	J XF, L	! \$
V VFZ8LV ; v#	_&	~5F, L	! 5
V GV v5_!	_*	DCFA/  JZvZ	! &
V RvF. v#_#	_ (	Vgl	! *
V GV v&_!	_)		
\$P DZRLsZ! f			
HFT	SFD GAZ	HFT	SFD GAZ
V ; \$)	_!	HLv\$	_5
HLJL; L ! _!	_Z	N XL DZRL s, J VLI FF	_&
HLJL; L ! ! !	_#	;  ' Z BF	_*
HLJL; L ! Z!	_\$	Vgl	_ (
5P SMALH sZZf			
HFT	SFD GAZ	HFT	SFD GAZ
UF OG V SZ	_!	JL: SMG; LG	_&
V, L 0D CP	_Z	VM, U LG	_*
SM5G C UG DFS 8	_#	5j; L 0D CP	_ (
5F. 0 VMO . Ig01 F	_\$	8 GL; AM, CP	_)
VM, CP V, L"	_5	Vgl	! _
&P SM, LO, FJZsZ#f			
5j; F V, L"	_!	5j; F ; LO,  ;	_*
5j; F S TSL	_Z	5j; F : GMAM, v!	_ (
5j; F IN5F, L	_#	5j; F : GMAM, vZ	_)

5]; F I; gY 8LS	_ \$	. d5 U0 HF5FGLh	! _
5]; F ;  AF	_ 5	Vgl	!!
HFI g8 : GM AM,	_ &		

*P I3, M0LSZ\$f			
HFT	SF0 GAZ	HFT	SF0 GAZ
;  ZTL S, L	_!	Vgl	_#
HFOF 8 SF VG  3 ZF , L, F ZUJL : YFIGS HFT	_Z		
(P 5ZJ/sZ5f			
HFT	SF0 GAZ	HFT	SF0 GAZ
GFGF4 , VAUM/ , L, F ZUJL : YFIGS HFT s 5FNZF 8 SF f	_!	, FAF4 HFOF VG  K 0  V6LNfZ 3 ZF , L, F ZUGF	_#
; 0 N 588FJF/L -M, S 8f. 5 : YFIGS HFT	_Z	Vgl	_ \$
) P NMLsZ&f			
HFT	SF0 GAZ	HFT	SF0 GAZ
5]; F ; DZ 5M, LIOS , MU s5LV ; 5LV , f	_!	5HFA SMD,	_#
5]; F GJLG	_Z	Vgl	_ \$
! _P SFZ , F sZ*f			
HFT	SF0 GAZ	HFT	SF0 GAZ
I5 I F	_!	SM. Dat Z , FAF	_#
5]; F NM DM; DL	_Z	Vgl	_ \$
! ! P U, SFsZ(f			
HFT	SF0 GAZ	HFT	SF0 GAZ
5]; F IRSGL	_!	Vgl	_Z
! ZP T ZLI fsZ) f			
HFT	SF0 GAZ	HFT	SF0 GAZ
5]; F G; NFZ	_!	HI 5 Z , FAF	_#
SM. Datf Zv!	_Z	Vgl	_ \$
! #P 0 U/Ls#_f			
HFT	SF0 GAZ	HFT	SF0 GAZ
U HZFT ; 0 N 0 U/Lv!	_!	5]; F jCf. 8	_ 5
H GFU- : YFIGS s5L/L 5tTLf	_Z	0,  8	_ &
T/FHF : YFIGS s, F, f	_#	5]; F jCf. 8 0,  8	_ *
V U  Ofpg0 , F. 8 Z 0	_ \$	Vgl	_ (
! \$P , ; 6 s#! f			
HFT	SF0 GAZ	HFT	SF0 GAZ
U HZFT , ; 6v!	_!	U HZFT , ; 6v#	_ \$
U HZFT , ; 6vZ	_Z	HlvZ (Z	_ 5
U HZFT , ; 6v! _	_#	Vgl	_ &

! 5P JF, q5F50L s#ZF			
. 0Z 5F50L	_!	STFZUFD 5F50L	_\$
UJHZFT 5F50Lv!	_Z	SOJF JF,	_5
; ZTL 5F50L	_#	Vgl	_&

& HLJFT SMO GAZ VG1fdI DF+F 0

! P ZLU6 s! #f		
HLJFTG\GFD	SMO GAZ	1fdI DF+F
ZLU6GL 0jB VG[0/ SMZL BFGFZ . I /	Z\$	5 @ G\$XFG 0jB VG[0/DF
TOTOLI F	! \$	5 ArRFq 5FG
; 0jNDFBL	! 5	5 5jT SL8S q5FG
5FGSYLZL	\$_	5 SYLZLq5FG

ZP EL0F s! \$f		
HLJFTG\GFD	SMO GAZ	1fdI DF+F
EL0FGL 0jB VG[ XLU SMZL BFGFZ . I /	! _	0jB VG[ XLUDF 5 @ G\$XFG
TOTOLI F	! \$	5 ArRFq 5FG
; 0jNDFBL	! 5	5 5jT SL8S q5FG
5FGSYLZL	\$!	5 SYLZLq5FG

#P 8FD8F s! ) f		
HLJFTG\GFD	SMO GAZ	1fdI DF+F
5FG SMZLI \	#*	# @ p5NjJT 5FG
, L, L . I /	!!	Z_ . I / q Z_ KMO 0}, A}; TF 5C, F ! _ . I / q Z_ KMO 0}, VFj I F AFN
; 0jNDFBL	! 5	5 5jT SL8S q5FG

\$P DZRFsZ! f		
HLJFTG\GFD	SMO GAZ	1fdI DF+F
YL%;	# (	VjS 5FG 5Z ; ZjZFX # ArRF\VG[5jT
5FGSYLZL	#)	p5NjJGL X~VFT

5P SMALH sZZf VG[ SM, LO, FJZ sZ#f		
HLJFTG\GFD	SMO GAZ	1fdI DF+F
CLZF0jNj	\$Z	\$_ . I / q Z_ KMO
, L, L . I /	!!	! _ . I / q Z_ KMO
: 5MOM%8ZF	! Z	5 . 0FGF ; DjC VG[5jYD VJ: YFGL . I /MGM ; DjCqZ_ KMO
SMALHqSM, LO, FJZ GL DM, M	\$#	! _ ArRF\VG[5jTq 5FG

&P J[, FJF/F XFSEFHL0 I3, M0LsZ\$f4 5ZJ/sZ5f4 NjMlsZ&f4 SFZ[, F sZ*f4 U, SF\sZ (f VG[ TJZLI fsZ) f		
HLJFTG\GFD	SMO GAZ	1fdI DF+F
J[, FJF/F XFSEFHLGL 0/DFBL	\$ \$	p5NjJGL X~VFT

5ZJ/GL J[, F SMZGFZL . I /	\$5	p5N JGL X~VFT
*P 0jU/Ls#_f4 , ; 6 s#! f		
HLJFTG\GFD	SNO GIAZ	1FdI DF+F
Y %;	#!	V S 5FG 5Z ; Z ZFX ! 5 ArRf\VG[ 5]bT
(P JF, q5F50L s#Zf		
, L, L . I /	!!	Z_ . I / q Z_ KMO s0), VJ:YFV f ! _ . I / q Z_ KMO s5F50L A ; TL JBT f
DM, M	! *	! P5 V LO . g0 1F
; 0\NDFBL	! 5	5 5]bT SL8S q 5FG
5FGSYLZL	\$!	5 SYLZLq5FG

### Brinjal (13) (Entomology)

Observation time: Throughout the year

Variety code:

Date

Centre		Taluka		Dist.	Std. week		Temp		Humidity %	Rain	
							Max.	Min.		mm	Days

No. of plant	Shoot and fruit borer (24)				Jassids (14) No. of nymph			Whitefly (15) No. of adult			Mite No. of mite (40)
	No. of shoots	No. of damaged shoots	No. of fruits	No. of damaged fruits	T	M	B	T	M	B	M
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
	Total		Total		Total			Total			Total
	% damage		% damage		Average			Average			Av.

**ETL**

Brinjal shoot and fruit borer: 5 % damage in shoots/fruits

Jassid: 5 nymphs/leaf

Whitefly: 5 adults/leaf

Mite: 5 Mites/leaf



## Okra (14) (Entomology)

Observation time: Throughout the year

Variety code:

Date

Centre		Taluka		Dist.	Std. week		Temp		Humidity %	Rain	
							Max.	Min.		mm	Days

No. of plant	Shoot and fruit borer ( 10)				Jassids (14) No. of nymph			Whitefly (15) No. of adult			Mite No. of mite	
	No. of shoots	No. of damaged shoots	No. of fruits	No. of damaged fruits	T	M	B	T	M	B	M	
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
Total			Total		Total				Total			Total
% damage			% damage		Average				Average			Av.

**ETL**

Okra shoot and fruit borer: 5 % damage in shoots/fruits

Jassid: 5 nymphs/leaf

Whitefly: 5 adults/leaf

Mite: 5 Mites/leaf

### Tomato (19) (Entomology)

Observation time: Throughout the year

Variety code:

Date

Centre		Taluka		Dist.	Std. week		Temp		Humidity %	Rain	
							Max.	Min.		mm	Days

No. of plant	<i>Helicoverpa armigera</i> (11)	Tomato leaf miner (37)		Whitefly (15) No. of adult		
	No. of larvae	No. of leaves	No. of damaged leaves	T	M	B
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
Total		Total		Total		
	XXXXXXXX	% damage		Average		

ETL: *Helicoverpa armigera* 20 larvae per 20 plants (At flowering) ; 10 larvae/20 plants (At fruit setting)

Leaf miner : 5 per cent damaged leaves

Whitefly: 5 adults/leaf

### Chilli (21) (Entomology)

Observation time: Throughout the year

Variety code:

Date

Centre		Taluka		Dist.	Std. week		Temp		Humidity %	Rain	
							Max.	Min.		mm	Days

No. of plant	Thrips (38) No. of nymphs and adults			Mite(39) No. of mite		
	T	M	B	T	M	B
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
	Total			Total		
	Average			Average		

ETLThrips: 5 nymphs and adults/leaf

Mite: Initiation of incidence

## Cabbage (22) and Cauliflower (23) (Entomology)

Observation time: Throughout the year

Variety code:

Date

Centre		Taluka		Dist.	Std. week		Temp		Humidity %	Rain	
						Ma x.	Min.	mm		Days	
No. of plant	Diamond back moth (42)	<i>Spodoptera</i> (12)		<i>Helicoverpa</i> (11)		<u>Aphid</u> (43)					
	No. of larvae/plant	No. of egg mass and 1st or 2nd instar larval colony/plant		No. of larvae/plant		(No. of Nymph and Adult)					
1									T	M	B
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
Total									Total		
									Average		

ETL: Diamond back moth: 40 larvae/20 plants

***Spodoptera* : Five egg mass and 1st or 2nd instar larval colony/plant**

***Helicoverpa* : 20 larvae/20 plants**

**Aphid : 10 nymphs and adults/leaf**

guard (24), Pointed guard(25), Bottle guard (26),

Bitter guard (27), Smooth guard (28), Ridge guard (29)(Entomology)

Observation time: Throughout the year

Variety code:

Date

Centre		Taluka		Dist.	Std. week		Temp		Humidity %	Rain	
							Max.	Min.		mm	Days

No. of vine	Fruit fly (44)		Parvar vine borer (45) No. of larvae	Trap No.	Fruit fly (27) No. of fruit fly observed in trap during the week
	No. of fruits	No. of damaged fruits			
1				1.	
2				2.	
3				3.	
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
Total					
% damage			-----		

**ETL: Fruit fly:** Initiation of incidence

**Parvar vine borer:** Initiation of incidence

### Onion (30) and Garlic (31) (Entomology)

Observation time: Throughout the year

Variety code:

Date

Centre		Taluka		Dist.	Std. week		Temp		Humidity %	Rain	
							Max.	Min.		mm	Days

No. of plant	Onion Thrips (38) No. of nymphs and adults			Garlic Thrips (38) No. of nymphs and adults		
	T	M	B	T	M	B
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
	Total			Total		
	Average			Average		

**ETL**

Thrips: 15 nymphs and adults/leaf

## Indian Bean (32) (Entomology)

Observation time: Throughout the year

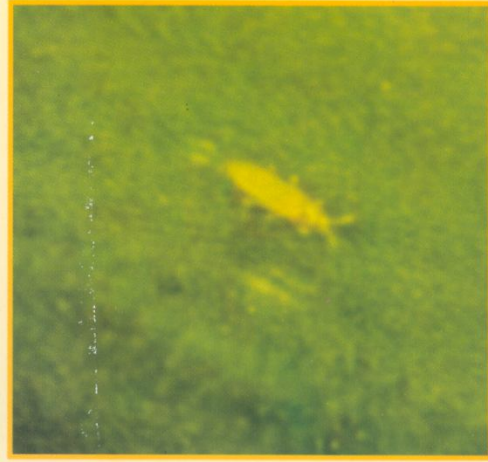
Variety code:

Date

Centre		Taluka		Dist.	Std. week		Temp		Humidity %	Rain		
							Max.	Min.		mm	Days	
<b>No. of plant</b>	<b><i>Helicoverpa armigera (11)</i></b>	<b>Aphid (17)</b>	<b><u>Whitefly (15)</u> (No. of adult)</b>			<b><u>Red Mite (41)</u> (No. of Nymph and Adult)</b>			<b>ETL</b>			
	<b>No. of larvae</b>	<b>Aphid index</b>	<b>T</b>	<b>M</b>	<b>B</b>	<b>T</b>	<b>M</b>	<b>B</b>				
1											<b><i>Helicoverpa</i></b> 20 larvae/20 plants (Flowering) 10 larvae/20 plants (Pod formation)	
2												
3												
4												
5												
6											<b>Aphid:</b> 1.5 Aphid index	
7												
8											<b>Whitefly:</b> 5 Adults/leaf	
9												
10											<b>Red mite:</b> 5 mites/leaf	
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
Total			Total			Total						
Avg.	XXXXX		Av.			Av.						



૧.૧ ડુંગળીની શીપ્સના પુખ્ત કીટકો



૧.૨ ડુંગળીની શીપ્સનું બચ્ચુ



૧.૩ ડુંગળીની શીપ્સના પુખ્ત કીટકો



૧.૪ ડુંગળીની શીપ્સનું નુકશાન



૧.૫ ડુંગળીની શીપ્સનું નુકશાન

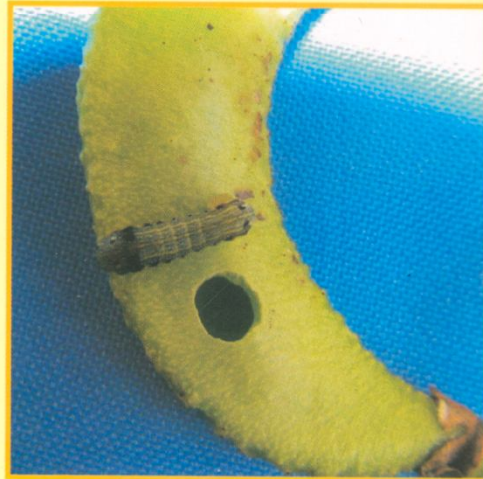


૧.૬ ડુંગળીની શીપ્સનું નુકશાન





પાપડીમાં લીલી ઈયળનું નુકશાન



પાપડીમાં સ્પોડોપ્ટેરાનું નુકશાન