

Studying causes of honey bee mass death in western Amhara Region, Ethiopia

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ABSTRACT

A A A A A A c j w A fA fb A A A fA Ac An A
An A w Ac A A A [A A A An A fA A A A
A Ac A A A A A A A fA A A r A A A A
fb A A A w A A A n Ar A A A A A A A
An AGw A :A A ;A A ;A A j n ;A A j n ;A
A A A A w Ac A A w A A A A fA ;A A A A A
fb n A A j n A A A A) A AWoreda[A A w Akebeles
) n w A A A [A ;A c A w A A A fb A
fbn A fA A AG n A A A A A A Ay A fb A
A A A A A w ;A An j A A fA Ac An A A A
n ;A n A&A y An ;A A n A&AMichA) A A
ffb [A A A w A A fA 32 7 ;A 35 17 ;A A 31 37 AC A A
c A A fb n A A A A AW An A A y n A Ac A A
n A A Ac ;A A Afb n A n A A A A A
n c A A An A A A A Ac A fb ;A A n n A A
A An n A A Ac A An n A A fb A A
c A A A n A fA n A A Ac A
w AC ;A A Ac A fb c A A w A w A w A A A
fb A A fb A A A AG n ;Aw A fA MichA A A A fA
A A ;fb A w A Ac A A A n A A A A A A
c

Key words: *Agrochemicals, diseases, pests*

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w ;A A A n A A A w Afb A Ac A A A w Afb Ac A n A
A A c A

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c A n c A fA w A A n A Afb A A A				
A	Kebele	n c A fA	n c A fA	n A
		c A	A	A
		w A	A	A C A
c A A		7A	21A	7A 7A
	A			
	n n A	7A	3A	3A 3A
C A	c A	5A	A	A A
	A	4A	5A	2A 2A
		4A	2A	2A 2A
	n A			
	A	3A	2A	2A 2A
	n A	A 4A	7A	4A 3A
A A A	A	37A	35A	24A 23A
.AAA	A Aw c A			

n A A A A A Afb n A c n Ac ;Ann A Ac ;A A A
c A A A fA 11 271Ann A A Ac Afb A An Ay n ;B11 411A
w A Ac Afb Aw An ;A n ;A An c A c A An n n A fA 21A Ac A A
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Afb A A n n A fA Ac A AG Ac ;Aw ;A Afb A A
fb ;A A A n n A A Afb A A) c A A A A
fb n Afb A fb n [AG A A) n A A AN n c An fb [A A
A An A) A [;An Ay n A An A A A
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A fb A A A ;Ac ;A An fb A A A Afb A ffb Aw An A
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Statistical Analyses

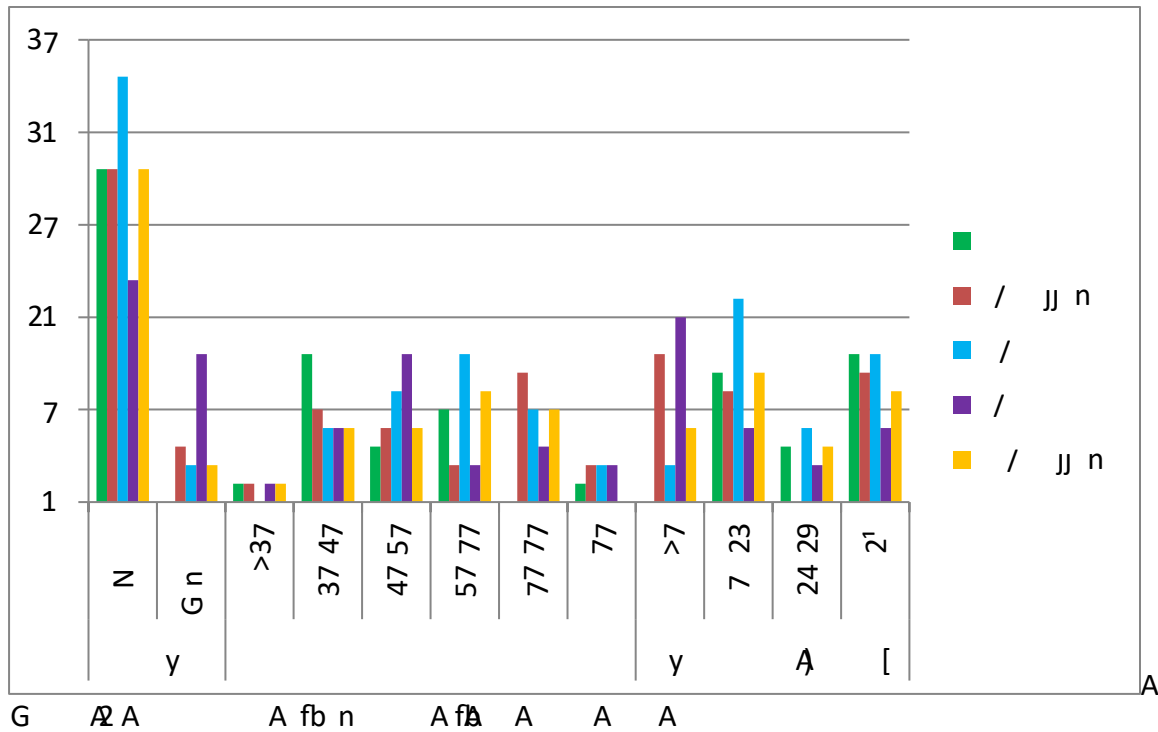
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w A A A Ay A fb A

A

RESULTS AND DISCUSSION

Demographic Characteristics

N A fA A n A A)97 7 [A An A Afbn A A
 Ac A5 5 A A c A A A A A fA A A fA A A
 fb n A3A A1A A ;A A An A Ac A5 3¹ A A AG nAA A15A A
 34 2 ;A4 g ;A22 7 ;A A42 g A fA A A A Ac Afb A>7;A 23;A24 29A A
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 fb n A yA A wA AG A2 [A A A An A A y Ac A A
 A Ac A w A



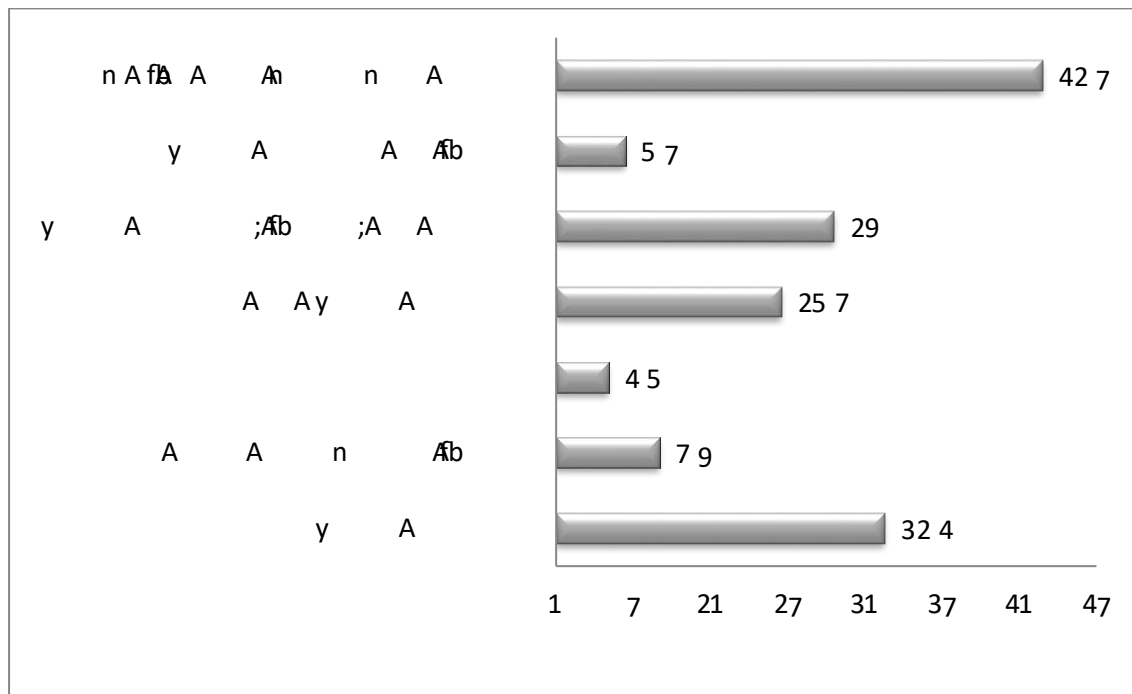
Beekeepers' Perception on the Cause of Honey bee Mass Death and its Mitigation Techniques

A A fA¹ 9 A fA A A A An A A fA Ac A A A3 3 A
 A A A w Ac wA An A A fA Ac A A A w ;A
 n A A A An A Ac A ;A¹ 3 A A A Ay A A
 A A n A A)5 9 [A n Ac w A A Ac "An A Ac A
 A Ay A A A
 A A A ;A yn ;AMich;A A n A A Ac n Afb A An A
 A fA Ac AG A3 [A An A A A A w AA A A nc A fA
 c A A A A Ac Afb nA A wA A Ay wA A fA n A
)C A AV A125 [A A A Afbn A An A Ac A A Ac A A
 A A A A [;A A Ac A Ac AA nc A fA ;A ;A
 A A)G A3124 [A w A Afb Ay n A A A A A A A A A
 A fA A Ac A A n A A A125 [A A A fA Ac An A A A A

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MichA A A A fA A Aw A A A A A fA A A A
 A A A fA A A A fb ;Ac Afb A A A w A A A
 A A A A A c A A Afb A A A A A A A
 n A fA Ac A A A A A fA y n ;Ac A Ac w A A
 fbn A fA Ac w A A n Aw ;An ;A A A fb A A yAn A

 A A ;A9 7 A fA A A A An n A A An A A
 A fA Ac A An n A A A A A n Ab ;A
 ;Ay A Afb A A fAc ;A w A fA Ac Ac A A A A
 w A A y n A fA Ac A A w A [;A A A A) A fA
 ;A w c A fAc A A) A A [;A A fAc A Ac An [A
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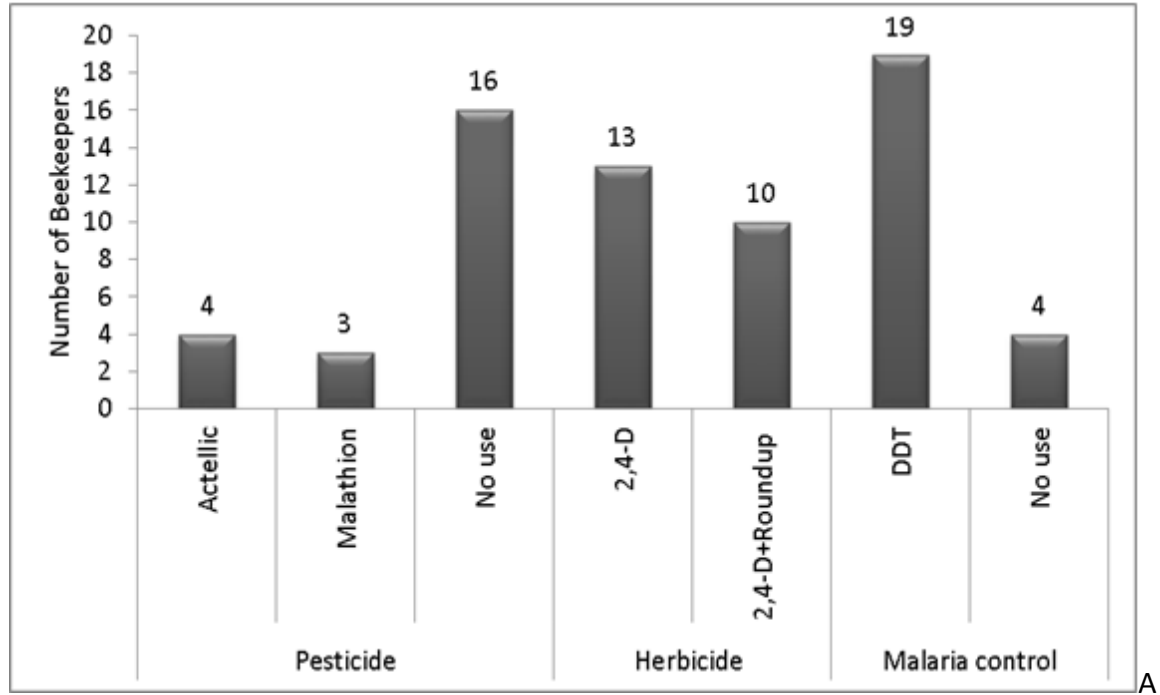
G A.N n A Ab Ac Ac A A A A A fA Ac A

Application of Agrochemicals

C A A A Ac A A A A A A Ac w A A
 c An A Ab A A A n ;A A A A A Ac An A A
 A w A A Ab A A An A fA n A Ac 9 7 7 A fA n A
 A A fA Ac A A A A n An Ac A A A A
 c A w ;A A 24 5 A A fA n A A A Ac A A A A A
 A fA A n c A fA ;A c ;A A A A A A A A A
 A w A A A ;A n A An A A fA Ac A)C A A A
 3132[A A A A A A A Ac An A) ffb A 122:A fBA A A 124[A
 A A A A w A A A A A fAc A

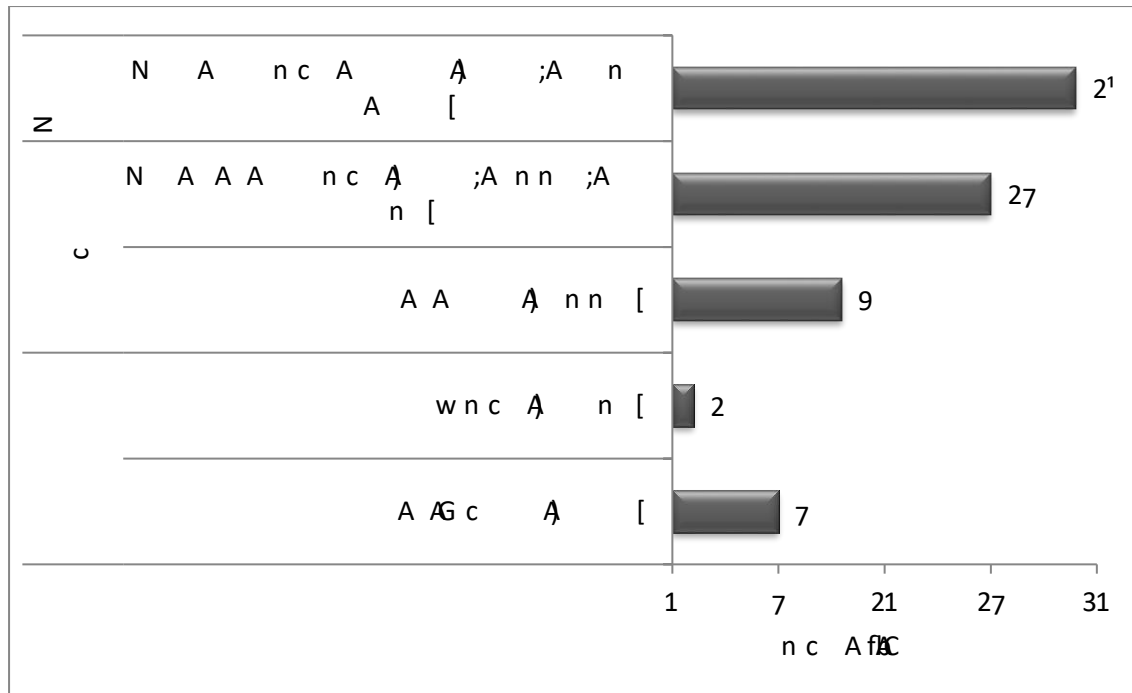
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n w A A A A fA n AC Ac A A A A A
 w A A A b n A w ;Ac A n w A A A A c A129[A
 A A AG A;A A A fA n A Ac Ac A A ;An ;A;A
 ;A;A ;A A A) [AC ;A A w A fA Ac A
 n An A A A A n Aw A A An A fA A A A A fA A
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 A Ac A c Aw A AC A A A115:AV A AC A11' [A

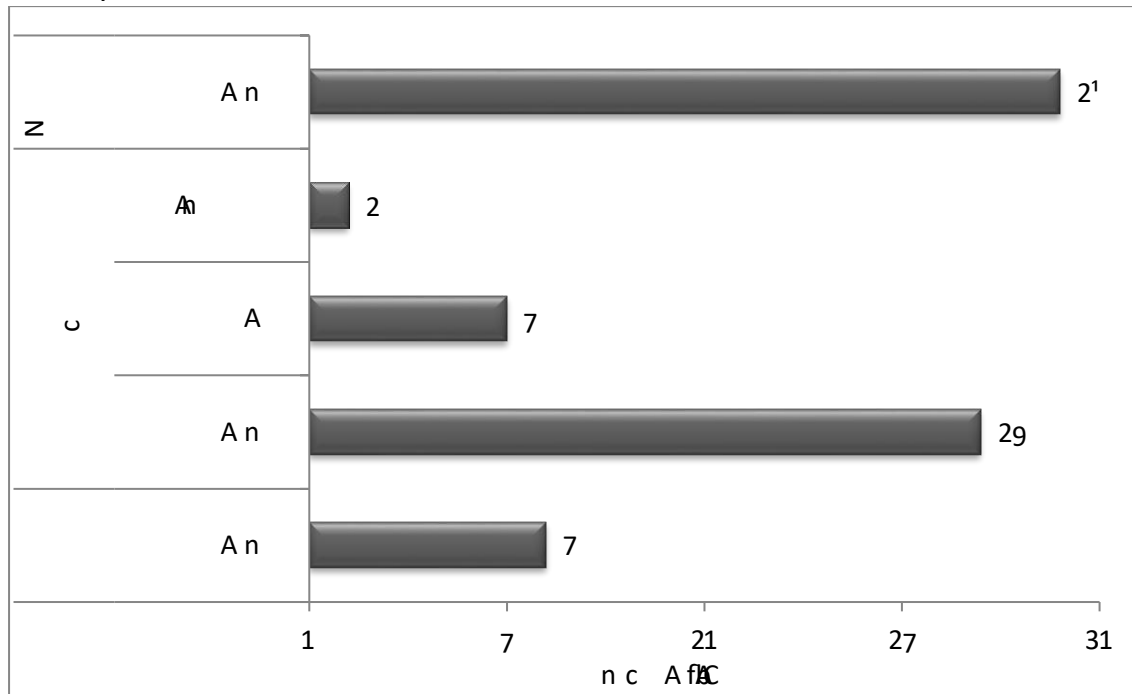


G A A fA n A Ac A A A

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G A A A fA n A A



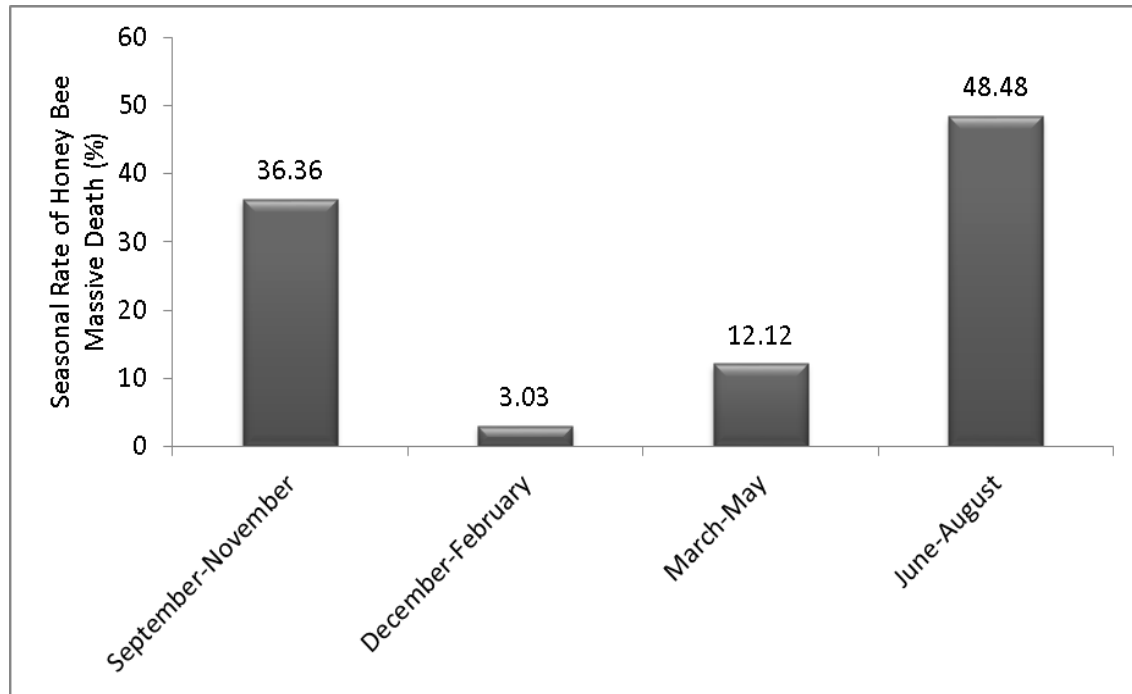
G A n A fA A A n A A

Season of Honey bee Mass Death Occurrences

A fA r A fA Ac An A A A fA n A A A ;fA Ac A
 nc A A wnc A An Ac A c A A A A fA n A An A
 ;A ;A A A A An yn A A w A A A A

A

A AC ;A A A n ;An A A Ac n A Ac Afb A A n A
 A An n nA A A A A n c A AG c AG A



G A A fA Ac An A A A

Status of Honey bee Mass Death in Different Colony Strength

A A A A A fAn A Ac A A) ;An n ;A A
 [A A ffb Ac A Ac An A ;Ac An A A A An n A
 A) c A4[A A A A A A A A A A c Afb An A
 n ;A A A Ac A A A A A A w Afb r Ac A
 A AA A A fA A A Ac AC A A B127[A

c	A	A	A fA	Ac	An	A	A	A	A	A
n	A	W	c	A		G	r	A		A
			A			9	A	39	4	A
	N		n	A		2	A	2	7	A
A			A	An	n	5	A	73	2	A
A			;A	n	n ;A	1	A	7	1	A
			A			7	A	2	1	A
			A			7	A	2	1	A

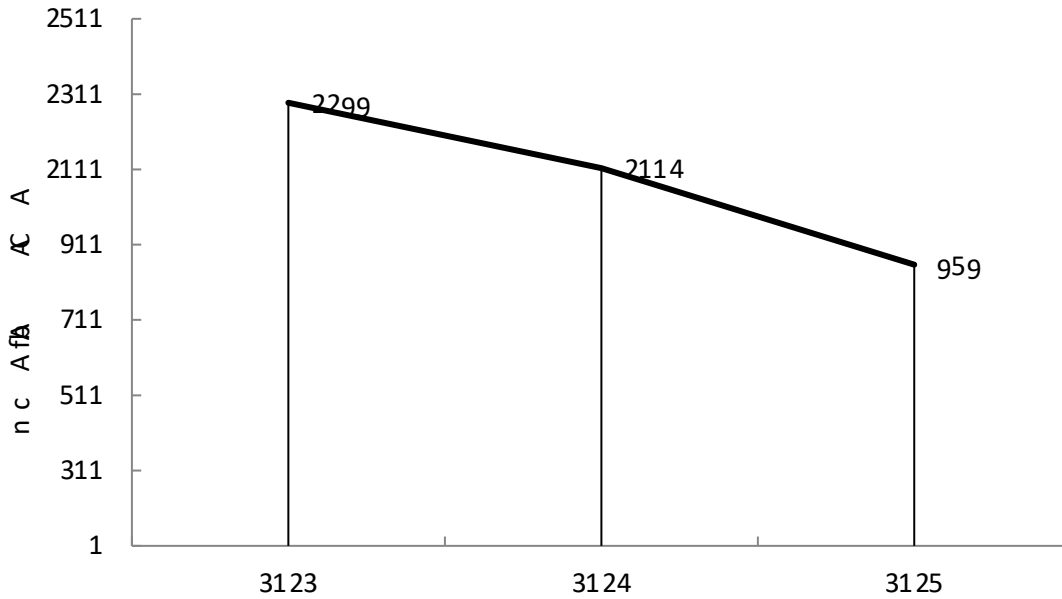
Trends of Honey bee Colonies Number

A A fA 79 A fA A A y A A An A Ac A A A
 A n A A A An A A A y ;A Ac A A A
 An A A45 ;A A A A An A A43 g [A A A A A A
 n A A44 4 [AG n B123A B125;A A n c A fAn A Ac A A A

C A A A fA A AC [A A A134A

A

fb n A2;299A Ag59[A)G A9[AC ;A A A A Afb A fA A A) A
A A3122;A3123[A A A A n c A fAn A Ac A
A A A A A fb n A 22;1 97A A 77;3' 4A A122A A123 A



G A A An A Ac A A A A A w A A

Laboratory Result on Causes of Honey bee Mass Death

Prevalence of honey bee disease and pests

A A c ;A A fA Ac A A A w A A A w A A
A A A A fbn A AW An A A yAn A Ac A A n A
A Ac A A fb AN w ;A fb nA n A A A A A
A A n c A fA Ac A A A A w A ;A A A fA A Ac A
;A A Ac A An A A A An Afb n A w A A A
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n A A A A n A A) c A A A3119[A A A A Ac A
n A A A A A w A A A n A A A A A A fA
A A A A Ac An A) A A A122:A r A A A132[AC A
w n A A Ac An Ac A n Afb Ac A A) n A A A312' [A A
Ac Aw n A A n A AA c A Ac An A c A) wA
A A131[A A ;A A A w A A A A c A A

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3122 4¹ 5 429A

wA;A n wA;A wAA A wCA3131[Aw A AG A A A
 AC A A .A
 c A;Aj A;A nAA A c A3119[AC A A An A 79A
 n A;A n AN;A A;A AA A AN 3125[Ay n A fA A A
 c A A A A A A w A AA A A A A A A .A A
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 .// /21 49¹ 7/ C 2 74 7 23A
 A;A c A;A w AN;AC A CA A AN 3129[A AC A A AW c A
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)312¹ [A w ;Ac A An n A fA A yAn ;A An A A A
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 n A 2¹ 79[A A A A 3 A .A .A A A .//
 n n / n / /C1111 Y A A2¹ A
 w 3133 A

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