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APPENDIX 1

Ticks collected on various anatomical locations of control and treated group during the trial 1.

		NEEM TREATED GROUP									CONTROL GROUP										
BREED		SIMMENTAL			BRAHMAN			TSWANA				SIMMENTAL			BRAHMAN			TSWANA			
	SEX	S1	S2	S3	B1	B2	B3	T1	T2	T3	Total	S4	S5	S6	B4	B5	B6	T4	T5	T6	Total
		FEMALE	FEMALE	MALE	FEMALE	MALE	MALE	FEMALE	MALE	MALE		FEMALE	MALE	MALE	FEMALE	FEMALE	MALE	FEMALE	FEMALE	MALE	
Amblyomma	Perineal	5	1	3	1	4	1	3	0	1	19	6	6	4	3	6	3	4	2	1	35
	Belly	3	3	2	2	3	4	0	2	0	19	9	9	2	5	5	5	3	1	2	41
	Sternum	1	1	1	1	3	1	0	0	0	8	3	3	7	3	2	3	2	3	0	26
	Udder	2	0	0	1	0	0	0	0	0	3	2	1	0	5	1	0	0	4	0	13
	Ear	2	1	1	0	1	3	0	0	0	8	3	5	1	3	1	2	0	1	1	17
	Scrotum	0	2	1	0	2	2	0	0	0	7	0	1	3	0	0	1	0	1	1	7
Hyalomma	Perineal	2	0	4	4	2	1	3	2	1	19	4	2	5	5	4	4	2	2	0	28
	Belly	3	7	2	3	5	2	2	1	0	25	7	8	7	4	6	2	4	4	2	44
	Sternum	2	4	2	1	2	3	0	2	0	16	7	9	5	4	3	5	3	2	0	38
	Udder	3	1	0	1	1	0	0	1	0	7	7	1	0	3	1	0	2	1	0	15
	Ear	1	2	1	1	1	1	0	0	1	8	1	3	4	2	2	0	0	0	0	12
	Scrotum	0	2	0	0	1	1	0	0	1	5	0	2	1	0	0	2	0	0	1	6
R. evertsi	Perineal	3	1	1	2	0	1	0	2	0	10	1	2	3	1	1	2	0	1	0	11
	Belly	1	0	2	1	2	2	1	0	1	10	4	2	2	1	3	1	2	1	2	18
	Sternum	2	2	1	3	1	3	1	0	0	13	3	2	2	2	3	2	2	1	1	18
	Udder	2	0	0	0	0	0	1	0	0	3	3	1	0	1	0	0	2	0	0	7
	Ear	0	0	0	0	1	0	1	0	0	2	5	1	0	1	0	0	2	1	0	10
	Scrotum	0	1	1	0	1	0	0	0	0	3	0	1	2	0	1	0	0	0	0	4
Boophilus	Perineal	4	2	2	2	3	0	0	0	1	14	7	3	4	5	1	3	1	1	1	26
	Belly	1	2	2	3	1	0	1	0	0	10	5	2	5	2	1	3	0	1	2	21
	Sternum	1	1	3	2	2	2	0	0	1	12	3	2	4	4	3	4	2	1	1	24
	Udder	1	1	0	0	0	0	0	0	0	2	2	1	0	1	2	0	1	1	0	8
	Ear	1	3	0	0	2	2	0	0	0	8	2	1	4	1	2	0	0	1	0	11
	Scrotum	0	0	2	0	1	3	0	0	0	6	0	0	6	0	1	1	0	1	1	10
TOTAL		40	37	31	28	39	32	13	10	7	237	84	68	71	56	49	43	32	31	16	450

APPENDIX 2

Ticks collected on various anatomical sites of control and treated animals during the trial 2.

NEEM TREATED

Ear tag				Season of the year			Tick counts on anatomical locations						
No.	Treatment	Breed	Sex	Spring	Summer	Winter	Belly	Ear	Perineal	Scotum	Sternum	Udder	Total
S7	NT	SIM	F	12	20	8	16	3	11	0	7	3	40
S8	NT	SIM	F	9	13	7	10	6	5	0	5	3	29
S9	NT	SIM	F	10	18	8	11	7	8	0	4	6	36
S10	NT	SIM	F	7	10	13	8	5	12	0	4	1	30
S11	NT	SIM	F	11	17	6	17	3	9	0	3	2	34
S12	NT	SIM	M	10	10	7	11	9	3	3	1	0	27
S13	NT	SIM	M	7	22	11	17	3	13	2	5	0	40
S14	NT	SIM	M	6	9	14	8	4	10	3	4	0	29
S15	NT	SIM	M	11	14	7	13	1	11	4	3	0	32
S16	NT	SIM	M	12	7	7	8	5	6	4	3	0	26

B7	NT	BRA	F	11	13	9	11	4	8	0	4	6	33
B8	NT	BRA	F	10	15	3	7	7	12	0	1	1	28
B9	NT	BRA	F	7	10	7	4	2	10	0	4	4	24
B10	NT	BRA	F	8	14	9	7	9	5	0	4	6	31
B11	NT	BRA	F	5	9	4	9	1	3	0	4	1	18
B12	NT	BRA	M	10	17	11	14	5	15	1	3	0	38
B13	NT	BRA	M	10	11	4	9	0	12	0	4	0	25
B14	NT	BRA	M	5	9	9	8	4	7	2	2	0	23
B15	NT	BRA	M	11	4	3	6	1	5	3	3	0	18
B16	NT	BRA	M	13	15	8	9	2	16	1	8	0	36

T7	NT	TSW	F	2	6	6	3	2	6	0	2	1	14
T8	NT	TSW	F	3	8	3	5	1	3	0	2	3	14
T9	NT	TSW	F	4	7	6	6	4	3	0	3	1	17
T10	NT	TSW	F	3	10	2	3	1	4	0	3	4	15
T11	NT	TSW	F	5	8	3	6	0	6	0	3	1	16
T12	NT	TSW	M	3	6	0	3	0	4	1	1	0	9
T13	NT	TSW	M	0	8	6	4	3	2	3	2	0	14
T14	NT	TSW	M	4	3	5	5	0	4	2	1	0	12
T15	NT	TSW	M	4	10	7	6	1	5	2	7	0	21
T16	NT	TSW	M	4	9	5	7	1	4	2	4	0	18

KEY:

C=Treated animals *NT=Neem treated animals*

SIM = Simmental cattle
BRA = Brahman cattle
TSW = Tswana cattle

... Appendix 2 continue.....

CONTROL

Animal	Treatment	Breed	Sex	Season of the year			Tick count of anatomical locations							
				Spring	Summer	Winter	Belly	Ear	Perineal	Scotum	Sternum	Udder		
S17	c	SIM	F	14	30	20	30	8	12	0	9	5	64	
S18	c	SIM	F	20	36	20	28	8	14	0	20	6	76	
S19	c	SIM	F	12	28	8	17	4	17	0	8	2	48	
S20	c	SIM	F	23	37	20	20	6	24	0	20	10	80	
S21	c	SIM	F	21	30	21	29	3	18	0	19	3	72	
S22	c	SIM	M	27	34	11	23	10	12	7	20	0	72	
S23	c	SIM	M	20	38	10	18	4	20	6	20	0	68	
S24	c	SIM	M	18	30	10	23	2	22	0	11	0	58	
S25	c	SIM	M	15	23	30	20	8	19	1	20	0	68	
S26	c	SIM	M	20	38	22	40	4	14	3	19	0	80	

B17	c	BRA	F	20	24	16	20	4	20	0	10	6	60
B18	c	BRA	F	23	26	22	33	6	22	0	6	4	71
B19	c	BRA	F	8	28	12	18	5	16	0	9	0	48
B20	c	BRA	F	24	40	21	29	11	15	0	20	10	85
B21	c	BRA	F	10	35	6	17	4	14	0	9	7	51
B22	c	BRA	M	16	24	5	20	3	18	0	4	0	45
B23	c	BRA	M	20	22	13	33	0	12	4	6	0	55
B24	c	BRA	M	14	33	13	23	9	17	9	2	0	60
B25	c	BRA	M	19	27	13	29	0	22	1	7	0	59
B26	c	BRA	M	9	30	11	18	1	20	6	5	0	50

T17	c	TSW	F	6	14	9	4	1	11	0	4	9	29
T18	c	TSW	F	3	23	4	18	0	8	0	2	2	30
T19	c	TSW	F	11	22	2	7	6	12	0	5	5	35
T20	c	TSW	F	7	11	11	14	2	6	0	4	3	29
T21	c	TSW	F	7	27	3	17	3	10	0	7	0	37
T22	c	TSW	M	10	21	9	8	5	18	3	6	0	40
T23	c	TSW	M	7	12	9	7	3	11	1	6	0	28
T24	c	TSW	M	5	5	10	3	2	5	0	10	0	20
T25	c	TSW	M	7	17	13	15	6	8	1	7	0	37
T26	c	TSW	M	3	16	3	9	4	5	0	4	0	22



APPENDIX 3

Ticks collected on various anatomical sites and seasons of control and treated animals during the trial 3.

CONTROL GROUP

Ear tag				Season of the year			Tick counts on anatomical locations							Tick specie	
No.	Trt	Breed	Sex	Spring	Summer	Winter	Belly	Ear	Perineal	Scotum	Sternum	Udder	Amb	Boop	
S27	NT	SIM	F	4	10	8	9	2	5	0	4	2	13	9	
S28	NT	SIM	F	2	7	6	7	0	4	0	3	1	4	11	
S29	NT	SIM	F	6	11	2	7	2	6	0	2	2	10	9	
S30	NT	SIM	M	4	9	3	6	1	5	1	3	0	9	7	
S31	NT	SIM	M	7	7	8	5	1	8	4	4	0	15	7	
S32	NT	SIM	M	7	9	8	4	1	10	1	8	0	11	13	

B27	NT	BRA	F	5	11	1	4	0	5	0	6	2	11	6
B28	NT	BRA	F	3	8	5	8	2	4	0	2	0	10	11
B29	NT	BRA	F	7	13	7	8	0	11	0	7	1	15	12
B30	NT	BRA	M	3	7	2	5	1	4	1	1	0	7	5
B31	NT	BRA	M	1	4	2	3	1	2	0	1	0	2	5
B32	NT	BRA	M	4	12	11	6	2	7	3	9	0	14	13

T27	NT	TSW	F	3	5	1	3	1	3	0	1	1	3	6
T28	NT	TSW	F	0	4	2	2	0	1	0	1	2	3	3
T29	NT	TSW	F	1	3	2	2	1	0	0	3	0	1	5
T30	NT	TSW	M	1	6	1	5	0	1	1	1	0	2	6
T31	NT	TSW	M	2	5	1	2	1	1	0	3	1	4	4
T32	NT	TSW	M	2	5	2	4	1	0	2	2	0	6	3

CONTROL GROUP

Ear tag				Season of the year			Tick counts on anatomical locations							Tick specie	
No.	Trt	Breed	Sex	Spring	Summer	Winter	Belly	Ear	Perineal	Scotum	Sternum	Udder	Amb	Boop	
S33	C	SIM	F	10	22	9	7	3	12	0	13	6	27	14	
S34	C	SIM	F	5	20	6	15	1	10	0	4	1	17	14	
S35	C	SIM	F	10	22	18	23	4	7	0	13	3	28	22	
S36	C	SIM	M	9	21	10	8	2	10	3	7	0	11	19	
S37	C	SIM	M	8	20	3	7	1	13	0	10	0	16	15	
S38	C	SIM	M	13	27	20	29	3	18	2	8	0	40	20	

B33	C	BRA	F	6	14	0	5	1	6	0	6	2	15	5
B34	C	BRA	F	7	9	8	9	5	6	0	2	2	10	11
B35	C	BRA	F	9	20	11	17	2	15	0	4	2	15	12
B36	C	BRA	M	5	14	1	8	0	3	0	9	0	14	6
B37	C	BRA	M	4	7	3	5	0	4	4	1	0	7	7
B38	C	BRA	M	2	18	20	20	6	6	1	7	0	23	17

T33	C	TSW	F	6	7	2	6	2	2	0	3	2	9	6
T34	C	TSW	F	3	7	4	7	3	1	0	4	0	7	7
T35	C	TSW	F	2	4	5	5	2	1	0	1	2	7	4
T36	C	TSW	M	2	8	1	7	1	1	0	2	0	5	6
T37	C	TSW	M	5	6	6	5	4	3	3	2	0	10	7
T38	C	TSW	M	4	6	1	4	2	2	1	2	0	7	4