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This report is required by law (7 U.S.C. 2143). Failure to report according to the regulations can result in an order to cease and desist and to be subject to penalties as provided for in Section 2150.		Interagency Report Control No. 0180-DOA-AN
<b>UNITED STATES DEPARTMENT OF AGRICULTURE</b> <b>ANIMAL AND PLANT HEALTH INSPECTION SERVICE</b>  <b>ANNUAL REPORT OF RESEARCH FACILITY</b> (TYPE OR PRINT)		<b>1. REGISTRATION NUMBER</b> 74-G-0002  <b>2. HEADQUARTERS RESEARCH FACILITY</b> (Name, address, and telephone number as registered with USDA, include ZIP Code)  KNIPLING BUSHLAND US LIVESTOCK INSECTS RESEARCH P.O. Box 290941  KERRVILLE, TX 78028
<b>3. REPORTING FACILITY</b> (List all locations where animals were housed or used in actual research, testing, teaching, or experimentation, or held for these purposes. Attach additional sheets, if necessary.)		

**FACILITY LOCATIONS (Sites)**

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**REPORT OF ANIMALS USED BY OR UNDER CONTROL OF RESEARCH FACILITY** (Attach additional sheets, if necessary, or use APHIS FORM 7023A.)

A.  Animals Covered By The Animal Welfare Regulations	B.  Number of animals being bred, conditioned, or held for use in teaching, testing, experiments, research, or surgery but not yet used for such purposes.	C.  Number of animals upon which teaching, research, experiments, or tests were conducted involving no pain, distress, or use of pain-relieving drugs.	D. Number of animals upon which experiments, teaching, research, surgery, or tests were conducted involving accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic, or tranquilizing drugs were used.	E. Number of animals upon which teaching, experiments, research, surgery, or tests were conducted involving accompanying pain or distress to the animals and for which the use of appropriate anesthetic, analgesic, or tranquilizing drugs would have adversely affected the procedures, results, or interpretation of the teaching, research, experiments, surgery, or tests. (An explanation of the procedures producing pain or distress on these animals and the reasons such drugs were not used must be attached to this report.)	F.  TOTAL NUMBER OF ANIMALS  (Cols. C + D + E)
4. Dogs	0	0	0	0	0
5. Cats	0	0	0	0	0
6. Guinea Pigs	0	0	0	0	0
7. Hamsters	0	0	0	0	0
8. Rabbits	0	0	0	0	0
9. Non-human Primates	0	0	0	0	0
10. Sheep	0	0	0	0	0
11. Pigs	0	0	0	0	0
12. Other Farm Animals	0	0	0	163	163
13. Other Animals	18	0	0	0	0

**ASSURANCE STATEMENTS**

- 1.) Professionally acceptable standards governing the care, treatment, and use of animals, including appropriate use of anesthetic, analgesic, and tranquilizing drugs, prior to, during, and following actual research, teaching, testing, surgery, or experimentation were followed by this research facility.
- 2.) Each principal investigator has considered alternatives to painful procedures.
- 3.) This facility is adhering to the standards and regulations under the Act, and it has required that exceptions to the standards and regulations be specified and explained by the principal investigator and approved by the Institutional Animal Care and Use Committee (IACUC). **A summary of all such exceptions is attached to this annual report.** In addition to identifying the IACUC approved exceptions, this summary includes a brief explanation of the exceptions, as well as the species and number of animals affected.
- 4.) The attending veterinarian for this research facility has appropriate authority to ensure the provisions of adequate veterinary care and to oversee the adequacy of other aspects of animal care and use.

**CERTIFICATION BY HEADQUARTERS RESEARCH FACILITY OFFICIAL**  
**(Chief Executive Officer (C.E.O.) or Legally Responsible Institutional Official (I.O.))**

I certify that the above is true, correct, and complete (7 U.S.C. Section 2143).

	<b>DATE SIGNED</b> 13-FEB-2018
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OMB APPROVED  
0579-0036

Interagency Report Control  
No. 0180-DOA-AN

UNITED STATES DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

1. REGISTRATION NUMBER  
74-G-0002

KNIPLING BUSHLAND US LIVESTOCK INSECTS RESEARCH  
P.O. Box 290941

REPORT OF ANIMALS USED BY OR UNDER CONTROL OF RESEARCH FACILITY (Attach additional sheets if necessary or use this form.)

## ASSURANCE STATEMENTS

- 1.) Professionally acceptable standards governing the care, treatment, and use of animals, including appropriate use of anesthetic, analgesic, and tranquilizing drugs, prior to, during, and following actual research, teaching, testing, surgery, or experimentation were followed by this research facility.
- 2.) Each principal investigator has considered alternatives to painful procedures.
- 3.) This facility is adhering to the standards and regulations under the Act, and it has required that exceptions to the standards and regulations be specified and explained by the principal investigator and approved by the Institutional Animal Care and Use Committee (IACUC). **A summary of all such exceptions is attached to this annual report.** In addition to identifying the IACUC approved exceptions, this summary includes a brief explanation of the exceptions, as well as the species and number of animals affected.
- 4.) The attending veterinarian for this research facility has appropriate authority to ensure the provisions of adequate veterinary care and to oversee the adequacy of other aspects of animal care and use.

I certify that the above is true, correct, and complete (7 U.S.C. Section 2143).

13-FEB-2018

## Column E Explanation

This form is intended as an aid to complete the Column E explanation. It is not an official form and its use is voluntary. Annual Reports and explanations should NOT include PII information such as names (principle investigators and research staff), addresses, protocols, meeting notes (either in part or in full), the animals room numbers, grant information, veterinary care programs, and the like. A Column E explanation must be written so as to be understood by lay person as well as scientists.

1. Registration Number: 74-G-0002
2. Number 163 of animals used in this study.
3. Species (common name) cattle of animals used in this study.
4. Explain the procedure producing pain and/or distress. Explanations should include a brief description of the procedure, but also explain what the animal's experience, examples of which may include, but are not limited to: Neurological signs, seizures, tremors, paralysis, lethargy, inappetance, respiratory signs, GI distress, vomiting, and diarrhea.

Young healthy cattle are used to feed ticks and/or to produce waste that is needed to propagate flies and other insects needed for our research activities. To minimize grooming behaviors that could disrupt feeding ticks and/or to facilitate collection of animal waste that is free of contamination, the cattle are stanchioned in covered barns for extended intervals that can last up to several weeks. The stanchion limits backward movement of the animal's head, but does not interfere with the animal's ability to rise, lie down, or otherwise move freely within the stanchion sides. Every animal undergoes an acclimation process prior to being held in the stanchion for an extended period of time. Stanchioned animals also have full visual and auditory contact with other cattle at all times and receive positive forms of enrichment (e.g., handbrushing, food treats, soothing music, hydrotherapy, etc.) to minimize added stress that can occur during confinement.

5. Attach or include with the reason(s) for why anesthetics, analgesics and tranquilizers could not be used. (For federally mandated testing, see Item 6 below).

In our experience, most cattle do not need supplemental analgesics or anesthetics while stanchioned, and these agents may complicate or confound efforts to raise insects and/or the efficacy of test articles that are being evaluated for insect control. Most cattle adapt quickly to stanchioning and rarely develop stress as a result of the daily enrichment protocols that are routinely followed. These measures include companion stanchioning (animals are never housed in isolation), soothing music in the barns, daily hand-brushing, hand feeding of special treats, and joint hydrotherapy.

6. What, if any, federal regulation require this procedure? Cite the agency, the code of Federal Regulations (CFR) title number and the specific section number (e.g. APHIS, 9 CFR 113.102):

Agency NA CFR NA

04 DEC 2017