Cow/Calf Session I

"Trichomoniasis - Facts and Fallacies"

Moderator: **Dan Barrett**

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Idaho makes Trichomoniasis a reportable/regulatory disease: Clinical features of *Trichomonas fetus* infection in the cow

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Idaho has added trichomoniasis to its reportable and regulatory diseases. Since the early eighties trichomoniasis has been diagnosed with increasing frequency in Idaho, particularly in areas that practice common grazing. The producers that have suffered economic loss due to trichomoniasis and have started control programs, have often failed due to reinfection from infected, but undiagnosed herds in the area. The Idaho Cattle Association mandated that trichomoniasis be reported and regulated. The following regulation became effective on October 6, 1989.

Regulation 187 - Trichomoniasis
by Provision of Title 25, Chapter 2

A. Testing Requirements

1. All bulls within the state of Idaho shall be tested annually for Trichomoniasis unless exempted as provided in paragraphs 5 and 6.
2. Such test shall be performed by an approved laboratory and a registered veterinarian and shall be conducted yearly between breeding seasons.
3. Bulls so tested shall be permanently identified by tattoo or metal eartag on a Certificate of Negative Test.
4. Bulls running with cows year round shall be tested between Jan. 1 and April 15 yearly, and shall meet the testing requirements in paragraphs A2 and A3.
5. Bulls presented for sale at Idaho salesyards, shows or special sales shall be accompanied by a certificate of negative test, or be returned to home premise for official testing, or sold directly to slaughter without test.
6. Bulls that are not accompanied by a certificate of negative test and are diverted from non-breeding to breeding channels shall move on an official Hold Order issued by the salesyard veterinarian and shall have three consecutive negative Trich tests to be eligible to receive a Certificate of Negative Test.

Exemptions to Testing

a. All yearling and two year old bulls who have not serviced a cow shall be exempt from testing requirements. Such bulls shall be sold with a certificate signed by the owner attesting that such bull is a virgin bull and identifying the bull by tattoo or metal eartag.
b. All dairy bulls in total confinement operations shall be exempt from testing requirements.

B. *Infected Herds*

1. A herd in which one or more bulls or cows are found infected with Trichomoniasis shall be considered infected and shall be issued a Hold Order by the veterinarians conducting the test who shall report to the State within 48 hours that the test was positive.
2. Infected herds shall have at least one negative test on all bulls in the herd on the same test date to be eligible for release of hold order. It is recommended owners have two negative tests on all bulls to be sure of freedom from the disease.
3. In infected herds where individual separated bulls have passed three negative tests such bulls shall be considered negative to Trichomoniasis and can be so certified.
4. Re-tests of bulls in infected herds shall be at least seven days apart.
5. It is recommended in infected herds that the cow herd be pregnancy tested or have a reproductive tract examination to help clear the disease from the herd as quickly as possible.
6. Individual infected bulls being removed from ranches of origin for sale shall move to markets or packing plants on a VS 1-27 form issued by the veterinarian conducting the test or other regulatory official.

7. Infected bulls which are being held on ranches of origin for treatment shall be issued an individual quarantine by the veterinarian conducting the test, identifying the bull by metal eartag or official tattoo. If the bull passes three consecutive negative tests, the quarantine shall be released and the bull shall be eligible for a certificate of negative test.

C. *Official Tests*

1. Official tests: An official test is one in which the sample is received in the testing laboratory, in good condition, within 48 hours of collection and such sample is tested according to authorized testing protocol. Samples for culture shall be protected from freezing or excessive heat. Samples in transit for more than 48 hours are *not* an official test and shall be discarded. Samples which have been frozen or exposed to high temperatures shall also be discarded,
2. Veterinarians wishing to officially test for Trichomoniasis within the state of Idaho shall be registered with the Division of Animal Industries.
3. Such veterinarian shall only utilize approved laboratories for culture of specimens and shall attend a continuing education seminar on Trichomoniasis and proper collection techniques.

D. *Official Laboratories*

Laboratories wishing to be recognized by the Division of Animal Industries as approved labs shall apply for approval. In order to qualify, said laboratories shall adopt methods titled "Official Idaho Protocol for Culture of Trichomoniasis"; shall have adequate equipment and personel; and shall pass a yearly check test administered by the Idaho Bureau of Animal Health Laboratories.

E. All regulations adopted to control Trichomoniasis within the state of Idaho shall be reviewed annually during the month of September by the Trichomoniasis Task Force and either reapproved or modified to fit the Trich situation existing at that time.

F. Imported bulls shall be required to meet the requirements of Section A. The certificate on which the bulls are imported shall contain a statement that "Trichomoniasis has not been diagnosed in the herd of origin".

G. Out of state grazing cattle entering Idaho shall be required to meet the requirements of section A.

October 12, 1989

TO: Idaho Practitioners
FROM: Bureau of Animal Health
SUBJECT: TRICHOMONIASIS POLICY

Many questions have arisen concerning implementation of the new Trich regulations. The following policy should answer most of the questions.

Testing:

1. All bulls except dry lot dairy and virgin beef bulls are to be tested annually.
2. Time of test shall be:
   a. For herds with defined breeding seasons, bulls shall be tested after separation at the end of season and before turnout for next breeding season.
   b. For herds in which bulls run with cows year round, the bulls shall be tested between January 1 and April 15 of each year.
3. Method of testing is by culture of samples from bulls or cows.

Sample Collection:

Samples must be collected by veterinarians who have attended continuing education courses on sample collection and have been approved by the Bureau to collect samples.

Culturing:

In order for Trich tests to be official the culture must be performed by an official lab. The sample must have been received at the official lab within 48 hours of collection to be a valid sample.

A list of approved Trich Labs will be maintained by the Bureau.

Handling infected herds:

1. Veterinarians and laboratories are required to report positive animals to the Bureau within 48 hours of discovery of infection.
2. The veterinarian who finds the infected herd shall place a Hold Order on all bulls in the herd.
3. Infected bulls shall be isolated until treated or sold to slaughter.
4. The remaining bulls must be retested not sooner than 7 days following the previous test. The retesting in infected bull herds shall be repeated until all remaining bulls have one negative test.

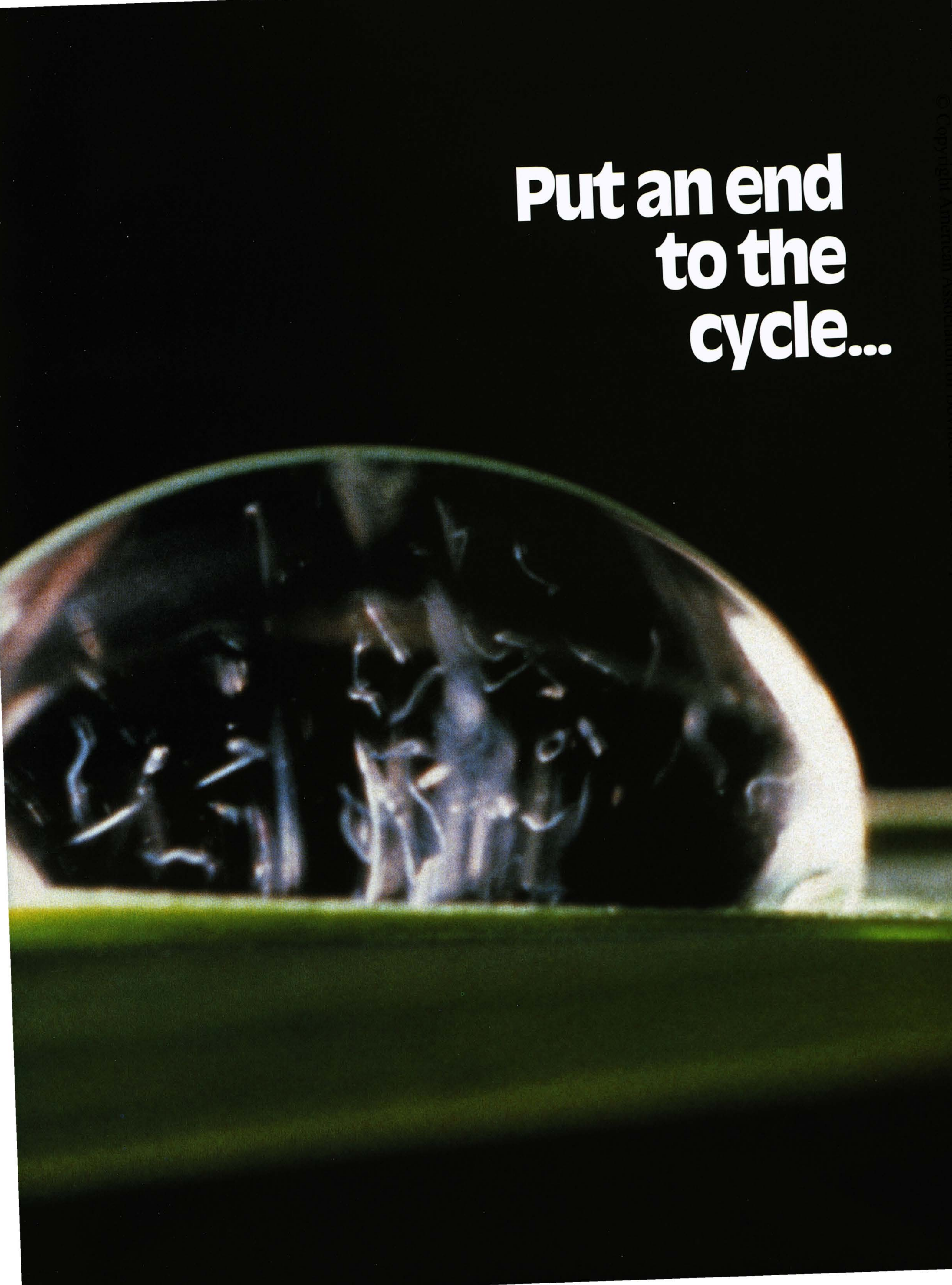
   NOTE: Individual bulls that have had 3 consecutive negative tests may be considered free of Trich.

Movement of Infected Bulls (or cows):

1. Infected animals shall remain isolated and under Hold Order until moved to slaughter (or moved to a saleyard for sale to slaughter).
2. Infected animals shall be moved from the owners premises to saleyard or to slaughter on a VS 1-27 movement permit. The permit must show the animal's identification number, breed, age and sex. The permit must also show that the animal(s) are infected with Trich.
3. The VS 1-27 movement permit shall be presented to saleyard personnel or the saleyard veterinarian at the time of arrival at the saleyard. The check in shall be marked "For sale to slaughter only". (If the animals are sold directly to slaughter establishments the VS 1-27 shall be presented to meat inspection personnel)
4. Saleyards shall sell Trich infected animals to slaughter destinations only. The animals shall move from the saleyard to slaughter on a VS 1-27.

Treatment of Infected Bulls:

1. Bulls that are to be treated shall be isolated from other cattle and placed under quarantine by the attending veterinarian.
2. A copy of the quarantine notice shall be submitted promptly to the Bureau.
3. Infected bulls(s) shall undergo three consecutive tests at least 7 days apart after treatment. If these



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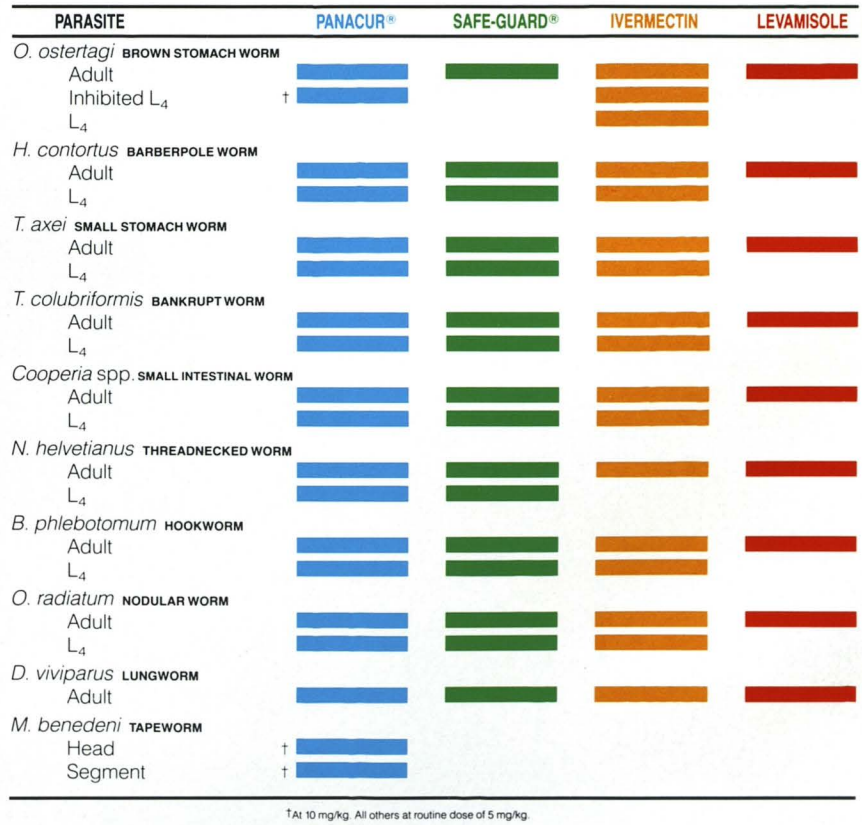
**Data on request

Cattle Anthelmintic Comparison Chart
Significant Cattle Parasites



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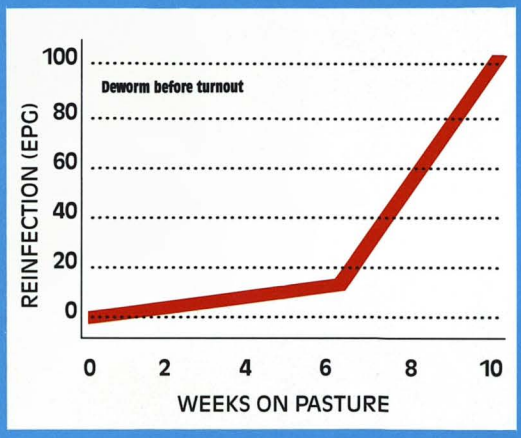

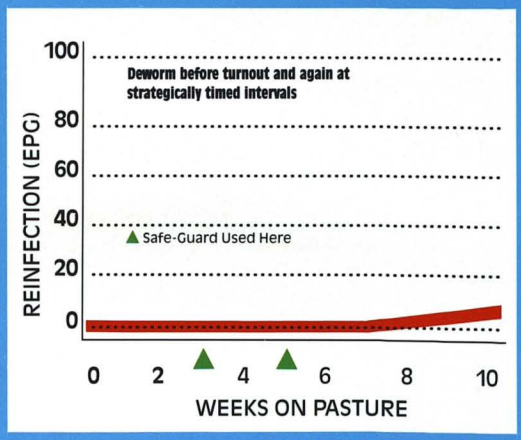

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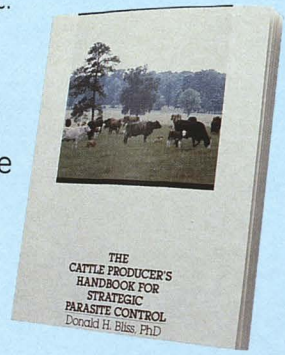

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CAUTION: FEDERAL LAW RESTRICTS THIS DRUG TO USE BY OR ON THE ORDER OF A LICENSED VETERINARIAN.

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Determine the proper dose according to estimated body weight. Administer orally. The recommended dose of 5 mg/kg is achieved when 2.3 mL of the drug are given for each 100 lbs. of body weight. The recommended dosage of 10 mg/kg for treatment of Ostertagiasis Type II (inhibited 4th stage larvae) or tapeworm is achieved when 4.6 mL of the drug are given for each 100 lbs. of body weight.

EXAMPLES:

Dose (5 mg/kg)	Dose (10 mg/kg)	Cattle Weight
2.5 mL	5.0 mL	109 lbs.
5.0 mL	10.0 mL	217 lbs.
10.0 mL	20.0 mL	435 lbs.
15.0 mL	30.0 mL	652 lbs.
23.0 mL	46.0 mL	1,000 lbs.

Under conditions of continued exposure to parasites, retreatment may be needed after 4-6 weeks. There are no known contraindications to the use of the drug in cattle.

WARNINGS: Cattle must not be slaughtered within 8 days following last treatment. Because a withdrawal time in milk has not been established, do not use in dairy cattle of breeding age.

CAUTION: Keep this and all medication out of the reach of children.

DOSAGE:
Cattle – 5 mg/kg (2.3 mg/lb) for the removal and control of:
Lungworm: *(Dictyocaulus viviparus)*
Stomach worm (adults): *Ostertagia ostertagi* (Brown stomach worm)
Stomach worm (adults & 4th stage larvae): *Haemonchus contortus/placei* (barberpole worm)
Trichostrongylus axei (small stomach worm)
Intestinal worm (adults & 4th stage larvae): *Bunostomum phlebotomum* (hookworm)
Nematodirus helvetianus (thread-necked intestinal worm)
Cooperia punctata and *C. oncophora* (small intestinal worm)
Trichostrongylus colubriformis (bankrupt worm)
Oesophagostomum radiatum (nodular worm)
Cattle – 10 mg/kg (4.6 mg/lb) for the removal and control of:
Stomach worm (4th stage inhibited larvae): *Ostertagia ostertagi* (type II ostertagiasis)
Tapeworm: *Moniezia benedeni*

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tests are all negative, the bulls(s) may be certified as negative.

Handling herds from which infected animals have been diagonsed:

The regulations do not address cows from infected herds other than to recommend a reproductive tract exam.

We strongly recommend this examination and the removal of open and pyometra cows from the herd. These animals could serve as a source of reinfection to new bulls or other herds.

Sale of Bulls:

1. Bulls that are to be sold as breeding bulls shall have a certificate of negative test or an owner certification that the bull is 2 years old or younger and is a virgin bull.
2. The negative test on sale bulls can be up to 90 days old so long as the tested bulls have not had any contact with cows.
3. Bulls that are presented for sale without a certificate of negative test or certificate of virginity may be returned to owners' premises for test, sold to slaughter or quarantined feedlot or quarantined to buyers' premises until tested negative 3 times at 7 day intervals.

Surveillance:

1. Record of tested bulls will be maintained in the Bureau office.
2. Staff members will investigate reports of non-compliance with the test requirements.
3. Bull found to be in violation of the test requirements will be placed under Hold Order until tested negative.

Public Land Grazing:

BLM and Forest Service will be asked to hold grazing permits until owner presents proof of negative test.

If questions arise that are not covered in these guidelines, please call the Bureau of Animal Health; 334-3256.

Clinical features of T. fetus in the cow

Recent studies have demonstrated the effects of *Trichomonas fetus* infection in the cow, which include: normal fertility?, infertility, abortion, prolonged intercalving intervals, pyometra, sterility, and carrier cows.[1,3,5-7]

Normal fertility is not commonly considered to be a clinical feature of cows infected with *T. fetus*, however, not all cows serviced by an infected bull become infected. In an Australian trial only 43.2% of the cows became infected during their first exposure to an infected bull. In another similar cow group 41.7% of the cows became infected during their first exposure to an infected bull. All the noninfected cows in these two groups had calved within 1 year of initial infected bull exposure, however only 38.7% of the infected cows had calved.[1] An Australian trial used the mean intercalving interval ±2 standard deviations (MII) as a measure of fertility, and weekly vaginal mucus cultures to monitor infection.[3] They found that 32.3% of cows infected for the first time with *T. fetus* by natural service from an infected bull had a MII 5 days shorter than noninfected cows. In a second group of first infection cows, they found 7.3% had a MII 21 days less than noninfected cows. This data is in agreement with earlier studies[2] and clearly demonstrates that all cows serviced by an infected bull will become infected, and that some of the cows that do become infected do not experience any ill effects from the disease. Inate resistance of the cow, virulence of the *T. fetus* strain, and, or the number of organisms in the infective dose, (and other yet to be discovered variables) are the most probable explanations.

Infertility is well accepted as the most prominent clinical feature of cows infected with *T. fetus.* Defining infertility as cows that had longer than normal MII, but no evidence of abortion, and using MII to measure infertility, it was shown that only 25.8% of cows in one group of first infection cows had an increased MII (117 days longer than noninfected cows). The second group of first infection cows 57.1% had an increased MII (76 days longer than noninfected cows.).[3] In the two groups combined, 41.4% of the cows had infertility as defined above. This disagrees with the accepted view that infertility is the most prominent clinical feature of trichomoniasis infection in the cow. Although less than half of the total cows had infertility, one group had over twice the infertility of the other groups which clearly demonstrates the wide variation of clinical features seen in cows experiencing their first infection with *T. fetus.* This documented variability helps explain the larger differences in clinical features seen in field infections. The second infection in these two groups caused infertility (measured by MII) in only 25% of cows in the first group, adding 71 days to their MII, and 28.6% of cows in the second group, adding 105 days to their MII. A third infection caused infertility in only 8.3% of cows adding 77 days to the MII.[3] Overall in the two groups, infertility was under 50% in first time infected cows, and progressively reduced in successive infections when continually exposed to an infected bull.

Abortion is usually not considered a prominent clinical feature of *T. fetus* infection in the cow. However, lack of close observation, and the small size of the fetus during the first half of gestation may cause abortion to be misdiagnosed as infertility. Using recognized loss of a fetus, detected by successive rectal examinations at six week intervals as a measure of abortion, 41.9% of first infection cows aborted adding 167 days to their MII when compared to noninfected cows.[3] The time of abortion has been reported to be 1 to 16 weeks of gestation and rare after 5 months.[4] However, another report[6] on 13 naturally occurring abortions caused by *T. fetus* showed that 4 of 13 abor-

tions occurred in the third trimester. This is further evidence of the wide variation of clinical features of *T. fetus* infection in the cow.

Pyometra has been reported to occur in 0 to 10% of *T. fetus* infected cows.[4] Another investigator[7] reported a 2.6% herd prevalence with 21.33% (or about 1 in 5) prevalence in the open cows in this herd. The Australian study[1] that had 73 cows exposed to infected bulls continously for three years did not find any pyometras. Cows with pyometra caused by *T. fetus* can resolve the infection at any time, but may retain it for more than 790 days.[2] These *T. fetus* pyometra cows have the potential to infect bulls and may serve as carriers of *T. fetus* infection into subsequent breeding seasons.

Carrier cows that retain the infection through a gestation have an apparently normal calf, and remain a potential source of infection for bulls have been reported.[2,5,8] A review of early literature summarized in 1944[8] and 1947[2] indicates that several investigators reported finding carrier cows, but as stated in the two summaries, some of these reports are questionable, and both authors felt that the incidence of carrier cows was very rare. In 1987 two carrier cows were reported, but in both cases the cows were identified in midgestation or later, and had been exposed to infected bulls during gestation. It is possible that these two cows were infected during a false estrus while already pregnant. This type of infection was reported in 1944,[8] and has been reproduced experimentally. Three of 6 cows experimentally infected with *T. fetus* after midgestation were still infected 5-6 weeks after delivery of an apparently normal calf.[9] The carrier cow issue is still not clearly understood, it appears to occur very rarely, and may be caused at least partially by infection of pregnant cows during pseudoestrus. Removal of bulls after a limited breeding season would be preventive, and agrees with the well accepted view that herds that are suboptimally managed including prolonged breeding seasons have more losses from trichomoniasis.

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For Your Library

Color Atlas of Diseases & Disorders of the Pig

W. J. Smith, D. J. Taylor, and R. H. C. Penny

The nature of the skin of most pigs means that it lends itself easily to photographic illustration because any change from the norm is immediately obvious. The way the pig responds to its environment, to management and disease, can also be captured on film.

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This book, with its illustrations, when used in conjunction with a standard textbook on pig diseases, will help to establish a diagnosis. An accurate diagnosis benefits both the pig and the farmer. This Atlas will be of help not only to the veterinarian and veterinary students, but also to the pig farmer, head stockman, meat inspector and others worldwide who are concerned with the health and management of pigs.

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