

“Making the Most of the Big Dollar Cattle Treatments: Antibiotics and Dewormers”



**Wm. Dee Whittier, DVM, MS
Production Management Medicine**

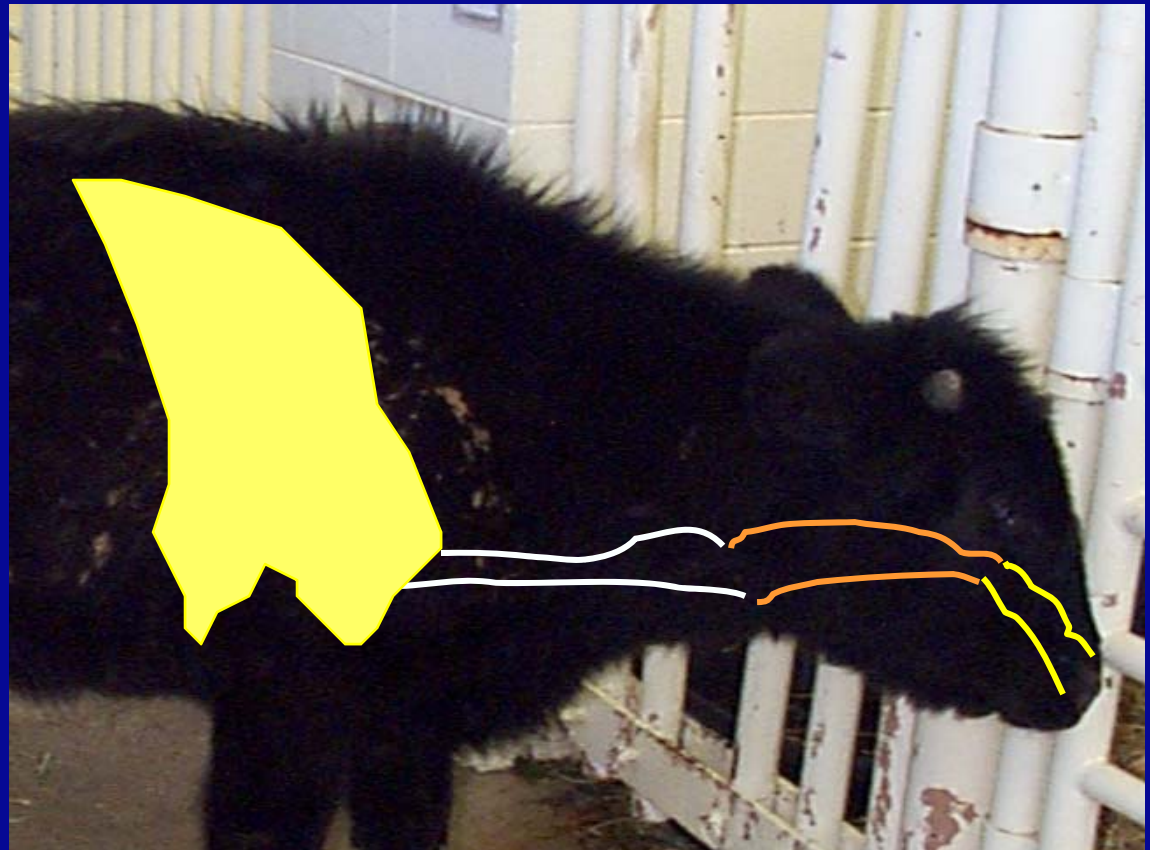
**Virginia-Maryland Regional College of
Veterinary Medicine**

DIFFERENT NAMES SAME DISEASE

- PNEUMONIA
- SHIPPING FEVER
- BRDC (BOVINE RESPIRATORY DISEASE COMPLEX)
- SICK

Bovine Respiratory Disease Complex

- Nose
- Throat
- Windpipe
- Lung



Bovine Respiratory Disease Complex

- Viruses: IBR, PI₃, BRSV, BVD
- Viruses: dozens of other viruses (like the human cold)
- Viruses are most important in the upper tract
- Don't respond to antibiotics, seldom kill cattle alone

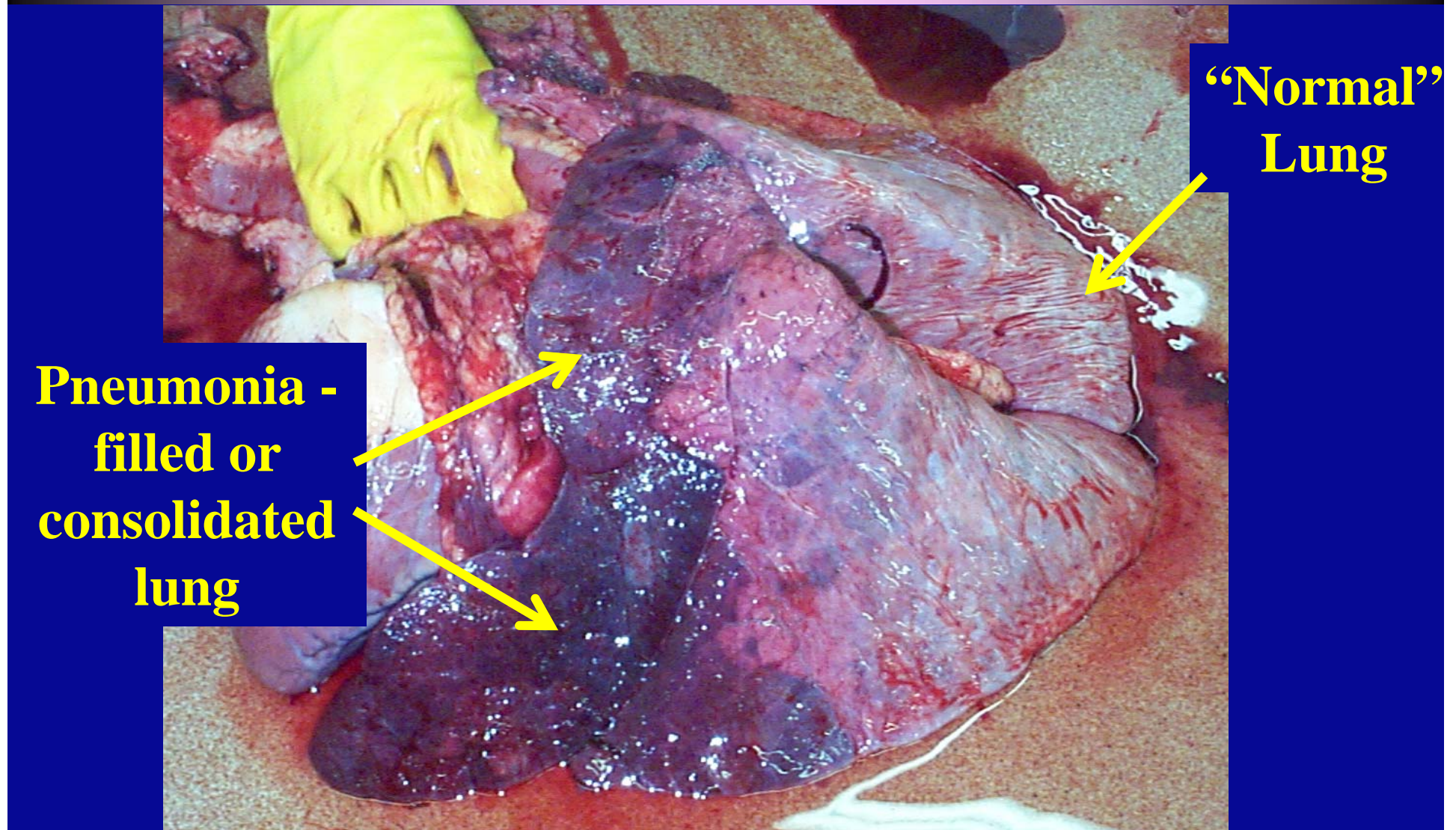
Bovine Respiratory Disease Complex

- Bacteria - *Mannheimia hemolytica*,
P. multocida, *Haemophilus*, *Mycoplasma bovis*
- Live in upper tract in normal cattle
- Multiply in upper tract in stressed cattle
- Important when invade lung →
Death!!!

Bovine Respiratory Disease Complex



Bovine Respiratory Disease Complex



Signs of Respiratory Disease

- Depression
- Fever
- Decreased appetite
- Coughing
- Nasal discharge



Signs of Respiratory Disease

- Depression - Other causes: exhaustion, digestive disorders, variations in normal behavior
- Fever
- Decreased appetite
- Coughing
- Nasal discharge

DEPRESSED

- EARS DOWN
- HEAD EXTENDED
- AWAY FROM OTHER CATTLE
- CALVES DON'T STRETCH
WHEN THEY GET UP







Signs of Respiratory Disease

- Depression
- Fever- Cattle are poor regulators of body temperature: environmental effects
- Decreased appetite
- Coughing
- Nasal discharge

Signs of Respiratory Disease

- **Fever**

- **Normal temperature of cattle 101°-102°F**
- **Critical temperature 102.5 °F to 103.5 °F**

- **Temperature Considerations**

- Time of day: temperatures increase up to 1.5 °F through the day and are less reliable
- Ease of handling before temperature taking

Signs of Respiratory Disease

- Fever
- **Temperature Considerations**
 - Environmental temperature
 - Wet?
 - Prior intramuscular treatment
 - Treatment with Banamine, Aspirin?

Signs of Respiratory Disease

- Fever
- **Taking Temperatures**
 - Digital thermometers - Durable
 - Rapid electronic thermometers
 - Routine temping off truck?, during processing?

Signs of Respiratory Disease

- Depression
- Fever
- Decreased appetite - Judging appetite on a new ration and in a new environment may be difficult:
Body fill
- Coughing
- Nasal discharge

Signs of Respiratory Disease

- Depression
- Fever
- Decreased appetite
- Coughing - Cattle cough normally after getting up in the morning, after exercise
- Nasal discharge

Signs of Respiratory Disease

- Depression
- Fever
- Decreased appetite
- **Coughing - Cattle with just colds (viral infections of the nose, throat and windpipe) will cough**
- Nasal discharge



Signs of Respiratory Disease

- Depression
- Fever
- Decreased appetite
- Coughing
- Nasal discharge - Cattle with just colds (viral infections of the nose, throat and windpipe) will have nasal discharges

Signs of Respiratory Disease

- Too late!
 - Rapid breathing
 - Hard breathing
 - Dehydration
 - Death

Summary: Identifying Respiratory Disease

- How good are your “sick-finding” skills, systems?
- Thermometer is a tool to check your detection skills, monitor treatments

DRUGS APPROVED FOR TREATING BRDC

BEFORE 1993

- **PENICILLIN**
- **OXYTET-100**
- **TYLAN**
- **LA-200 (Generics)**
- **ERYTHROMYCIN**
- **AMPICILLIN**
- **AMOXICILLIN**
- **NAXCEL**
- **SULFA PILLS**

SINCE 1993

- **MICOTIL**
- **NUFLOR, Gold, Resflor**
- **EXCENEL/ EXCEDE**
- **BAYTRIL**
- **ADVOCIN**
- **Draxxin**
- **Zactran**
- **Zuprevo**

SINCE 1993

- VETERINARY LABEL
- Caution: Federal Law restricts this drug to use by or on the order of a licensed veterinarian.

MICOTIL

- **ONE DOSE PROVIDES 72 HOURS OF THERAPY**
- **1/97 APPROVED FOR TREATMENT OF CATTLE AT HIGH RISK OF DEVELOPING BRDC - Metaphylaxis**



MICOTIL Flex Dose

As a result of improved health, Micotil metaphylaxis at 3 mL/cwt also delivered higher net returns per head at closeout:

- \$126 advantage compared to nontreated controls
- \$39 advantage compared to Micotil at 1.5 mL/cwt

Table 1. Animal Health Data, Texas Trial*

	Control	Micotil 1.5 mL	Micotil 3.0 mL	P-value**
BRD morbidity, % (n)	34.0 (68) ^a	24.3 (97) ^b	16.8 (67) ^c	<0.01
BRD mortality, % (n)	13.5 (27) ^a	7.5 (30) ^b	6.0 (24) ^b	0.02
BRD removals, % (n)	3.5 (7)	2.5 (10)	1.5 (6)	0.33
Total BRD loss***, % (n)	17.0 (34) ^a	10.0 (40) ^b	7.5 (30) ^b	0.01
Net return/hd	-41.41 ^a	45.19 ^b	84.61 ^b	0.02

*Data presented as an arithmetic means and analyzed on a pen means basis.

**P-values are from the assessment of the overall treatment effect.

***Total loss = mortality + removals.

^{a,b,c} Different superscripts in same row differ P<0.05.

NUFLOR

- APPROVED
JUNE 1996
- DOSE
 - 3CC / 100 LBS
 - REPEAT IN 48 HOURS
- WITHDRAWAL
 - 28 DAYS



NUFLOR

- LATER APPROVAL
- “ONE DOSE SUBQ”
- DOSE
 - 6 CC / 100 LBS
- WITHDRAWAL
 - 38 DAYS



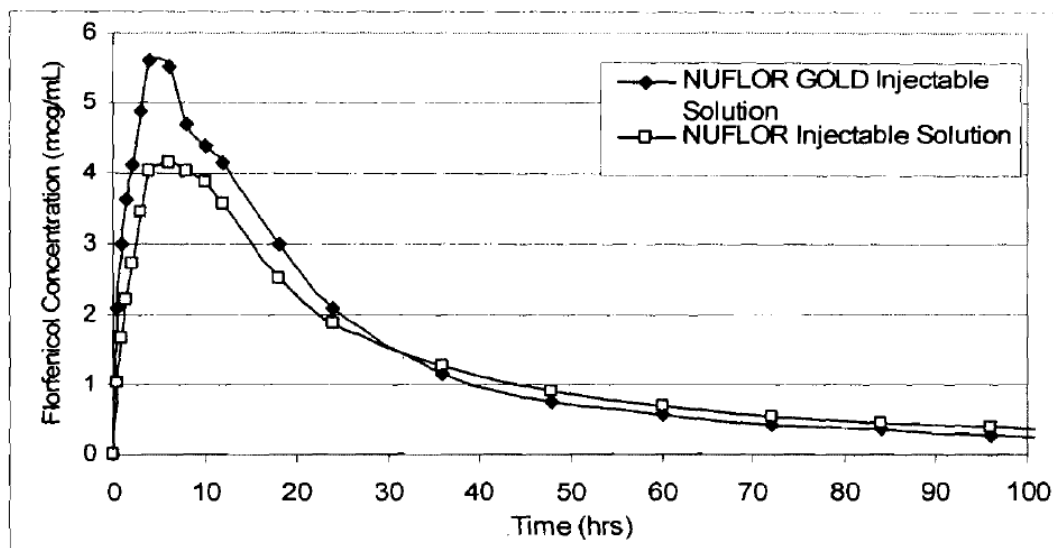
NUFLOR

- Metaphylaxis
APPROVAL
 - TREATMENT OF
CATTLE AT
HIGH RISK OF
DEVELOPING
BRDC
 - TREATMENT OF
FOOTROT



NUFLOR Gold

Figure 1. Mean Florfenicol Plasma Concentration versus Time Following SC Injection of NUFLOR GOLD Injectable Solution or NUFLOR Injectable Solution in Cattle



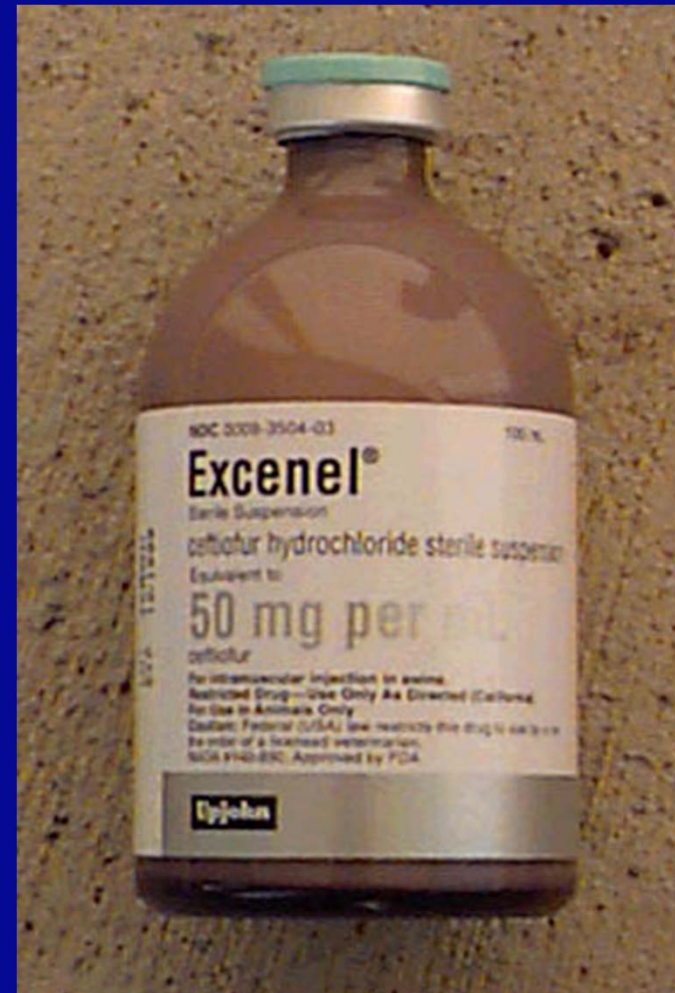
Resflor Gold

- Combination Drug:
Nuflor and
Banamine
 - Syringability Issue
 - Mycoplasma label



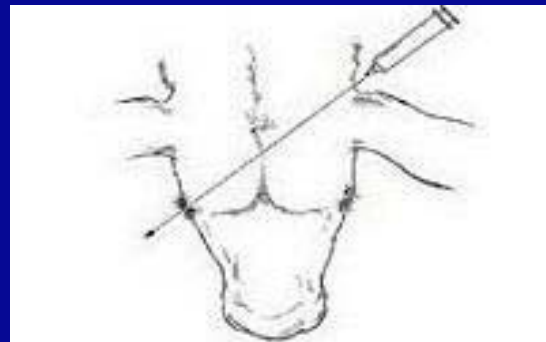
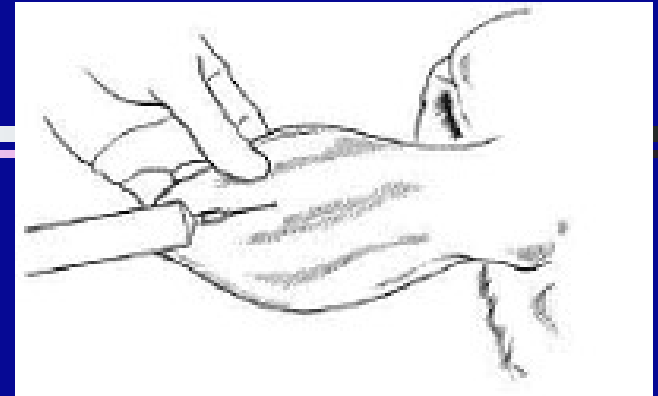
EXCENEL

- **SAME ACTIVE INGREDIENT AS NAXCEL**
- **SESAME SEED OIL SUSPENSION**
- **DOSE**
 - **1-2 CC / 100 LBS**
 - ONCE A DAY**
- **WITHDRAWAL**
 - **2 DAYS**



EXCEDE

- **SAME ACTIVE INGREDIENT AS NAXCEL, EXCENEL**
- **Slower release form**
- **DOSE**
 - **1-.5 ML / 100 LBS**
Single Dose
- **WITHDRAWAL**
 - **13 DAYS**



BAYTRIL

- APPROVED FOR TREATMENT OF BRDC IN BEEF CATTLE OR HOLSTEIN STEERS ONLY
- MAY NOT BE USED FOR ANYTHING ELSE UNDER ANY CIRCUMSTANCES

BAYTRIL

- SINGLE DOSE
 - 3.4-5.7 CC / 100 LBSONE TIME
- MULTIPLE DAY DOSE
 - 1.1-2.3 CC / 100 LBSONCE A DAY X 3
- WITHDRAWAL
 - 28 DAYS
- Mycoplasma label



ADVOCIN

- SINGLE DOSE

- 1.5 ml / 100 LBS , repeat
in 48 hours
- 2 ml/ 100 LBS Single dose

- WITHDRAWAL

- 4 DAYS

Draxxin

- Single Dose Treatment
 - 1.1 ml/100 lb. BW
- WITHDRAWAL
 - 18 Days
- Mycoplasma label
- Foot rot and Pinkeye



Zactran

- SINGLE DOSE
 - 2 ml/ 110 lb
- WITHDRAWAL
 - 35 days
- Mycoplasma label



Zuprevo

SINGLE DOSE

- 1 ml/ 100 lb

- WITHDRAWAL

- 21 days

- Long term tissue levels claim



Time in Lung Tissues for Mannheimia

Product	Dose	Hours
Oxytetracycline (LA200, etc)	4.5 ml/ 100 lb	48 hours
Nuflor	6 ml/ 100 lb	80 hours
Micotil	1.5 ml / 100 lb	65 hours
Micotil	3 ml / 100 lb	5 days
Excede	1.5 ml/ 100 lb	7 to 10 days
Draxxin	1.1 ml / 100 lb	10 to 14 days
Baytril	5 ml / 100 lb	10 to 14 days
Zactran	2 ml / 110 lb	12 to 16 days
Zuprevo	1 ml/100 lb	28 days

Antibiotic Costs

- Older antibiotics can be very economical (generic oxytetracycline as low as \$1) but effective???
- Newer antibiotics significantly more expensive
- Newest antibiotics compared to Draxxin
 - Zactran 15% less
 - Zuprevo 15% more

BANAMINE (Flunixin)

- **NON-STEROIDAL ANTI-INFLAMMATORY DRUG (NSAID)**
- **SIMILAR TO ASPIRIN**
- **LABELED TO REDUCE FEVER AND INFLAMMATION ASSOCIATED WITH BRDC**



BANAMINE

- DOSE
 - 1-2 CC / 100 LBS ONCE A DAY
FOR 1-3 DAYS IV
- WITHDRAWAL
 - 4 DAYS

Antibiotics plus Flunixin



Mycoplasma

Mycoplasma: The organism

- Mycoplasma: a group of the smallest free-living organisms, unlike the bacteria and virus.
- Bacteria have a solid cell-wall structure (many antibiotics work here).

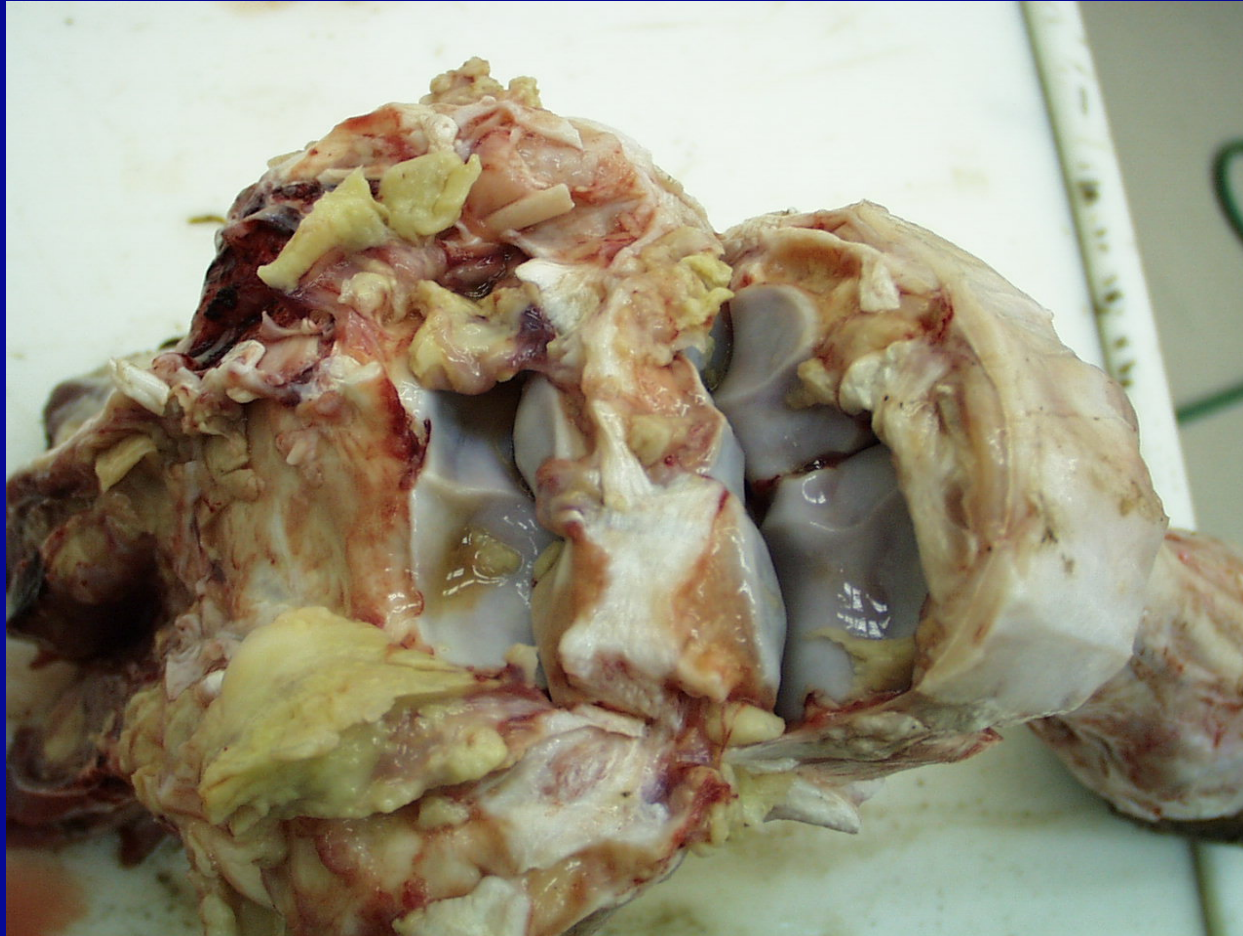
■ **Mycoplasmas: like a jelly-fish with a very pliable and sticky membrane.**



Mycoplasma Problems

- Pneumonia
 - Just as deadly as other bacteria: often have the two together
- Joint Problems
 - Severe lameness
- Ear Infection: drooped ear, may break and drain





Mycolplasma Treatment

Products Specifically approved for
Mycoplasma bovis :

- Draxxin ®
- Resflor Gold ®
- Baytril 100 ®
- Zactran®

Prolonged treatment often necessary

DEVELOPING A TREATMENT PROTOCOL

- **RECOGNITION OF BRDC**
- **WHY DO CALVES DIE?**
- **WHEN DO I TREAT**
- **WHAT ANTIBIOTIC SHOULD I USE?**
- **WHAT OTHER SUPPORTIVE DRUGS SHOULD I USE?**
- **WHAT ELSE CAN INCREASE THE CALF'S CHANCE OF SURVIVAL?**

Treatment Success

- A joint result of calves' defenses and drug treatment
- No antibiotic good enough without help from the calf

WHY CALVES DIE

- BAD LUCK (LAS VEGAS DISEASE)
- BOUGHT SICK
- TREATED TOO LATE
- USED THE WRONG DRUG

WHEN DO I TREAT?

- **IF CALVES ARE TREATED EARLY IN THE COURSE OF THE DISEASE ALMOST ANY DRUG WILL WORK**
- **IF CALVES ARE TREATED LATE IN THE COURSE OF THE DISEASE IT DOESN'T MATTER WHICH ANTIBIOTIC YOU USE**

WHAT ANTIBIOTIC SHOULD I USE?

- **Tetracycline, sulfas, ampicillin, and amoxicillin are less powerful drugs and will often not be effective but may be useful in some cases. Economical.**
- **Penicillin, tylosin and erythromycin will generally not be effective.**

WHAT OTHER DRUGS MAY HELP?

- Flunixin
 - REDUCE FEVER AND LUNG DAMAGE
 - HELP GET CALVES BACK ON FEED
- ORAL FLUIDS
 - STIMULATE APPETITE
 - CORRECT DEHYDRATION
- VIT B AND PROBIOTICS ??
 - STIMULATE APPETITE

WHAT ELSE WILL HELP THIS CALF?

- EXCELLENT QUALITY FEED
 - GRAIN (carefully)
 - HAY
- GRASS OR RYE
- SUNLIGHT
- TLC

WHAT ELSE WILL HELP THIS CALF ?

- Feeding antibiotics?
 - Even at high levels don't get “treatment” levels in cattle tissues
 - Depress build up of *Pasteurella* in upper respiratory tract? Depress mycoplasma, histophilus?
 - Many testimonials of value

SWITCHING ANTIBIOTICS ?

CALF BASIS

- SWITCH ANTIBIOTICS IF CALF DOES NOT IMPROVE IN 24-48 HOURS
- MONITOR
 - TEMPERATURE
 - CALF'S APPETITE
 - CALF'S ATTITUDE

SWITCHING ANTIBIOTICS ? HERD

- GOOD RECORDS
- GOOD RECORDS
- NECROPSIES
- IMPORTANT FOR ALLOWING
YOU AND YOUR
VETERINARIAN TO MAKE
GOOD DECISIONS

SWITCHING ANTIBIOTICS ?

HERD

- **MORBIDITY (# CALVES SICK) ?**
- **MORTALITY (# CALVES THAT DIE) ?**
 - **< 48 HOURS**
 - **> 48 HOURS**
- **CASE FATALITY RATE ?**
 - **NUMBER OF TREATED CALVES THAT DIE**

when to quit - Clay Center, Dr. Griffin

- Consider two things ...
 - 1) How long ago did the “stress” start ???
 - Auction market ... days received + 3 days
 - 2) How long have you been treating animal?
- If 1 is over 21_{days} & 2 is over 7_{days} ... QUIT
- If 2 is greater than 10 ... QUIT

TREAT ALL CALVES?

- MASS MEDICATE
- METAPHYLAXIS- treatment of all calves on arrival
- TREAT CATTLE AT HIGH RISK OF DEVELOPING BRDC

Metaphalaxis



What is Metaphalaxis

- Mass Medication
- Treatment of all animals at high risk of developing BRDC

Antibiotic Metaphylaxis for BRD in High-Risk Calves

- *Does it work?*
- *Does it reduce BRD pull rate (morbidity rate)?*
- *Does it reduce BRD death losses (mortality rate)?*
- *Does it pay to use it?*

Effects of Micotil Metaphylactic Medication - 15 Trials

	Morbidity (%)		Mortality (%)		ADG (lb)		Trial Length (d)
	Control	Micotil	Control	Micotil	Control	Micotil	
Mechor	85.0 ^a	17.5 ^b	10.0 ^a	1.3 ^b	1.84	1.88	140
Kreikemeier	79.2	59.4	1.2	0.0	2.30	2.46	56
Brazle 1	75.6 ^c	59.7 ^d	8.1 ^c	1.2 ^d	1.12	1.18	28
Duff	71.9 ^c	46.9 ^d	0.0	0.0	2.60	2.79	35
Brazle 2	65.1 ^c	39.8 ^d	6.3 ^c	0.9 ^d	1.06 ^c	1.23 ^d	56
Vogel	58.7 ^c	34.5 ^d	4.5 ^c	1.7 ^d	3.18 ^c	3.21 ^d	211
Galyean 1	46.4 ^c	0.0 ^d	0.0	0.0	2.55	2.82	28
Gaylean 2	43.6 ^c	11.9 ^d	0.0	0.0	3.14 ^e	3.47 ^f	56
Morck	42.0 ^c	19.0 ^d	2.8 ^c	0.5 ^d	3.15	3.38	90
McCoy 1	33.7 ^a	11.8 ^b	0.2	0.5	2.39	2.35	28
Gaylean 3	32.8 ^a	12.1 ^b	0.0	0.0	2.72	2.78	28
Schuman 1	23.0 ^a	5.0 ^b	0.0	0.0	2.16 ^a	2.62 ^b	34
Klemesrud	22.3 ^e	12.9 ^f	1.2	0.4	1.62 ^e	1.80 ^f	24
Schuman 2	20.0 ^c	2.0 ^d	0.0	0.0	2.24 ^c	2.64 ^d	60
McCoy 2	16.1 ^a	5.9 ^b	0.8	0.4	1.74 ^c	2.05 ^d	30
Average	47.7	22.6	2.3	0.5	2.26	2.45	60

^{a,b} Row means with different superscripts differ (P< 0.01)

^{c,d} Row means with different superscripts differ (P< 0.05)

^{e,f} Row means with different superscripts differ (P< 0.10)

Guthrie CA et al:
Comp on C.E.,
March, 2000

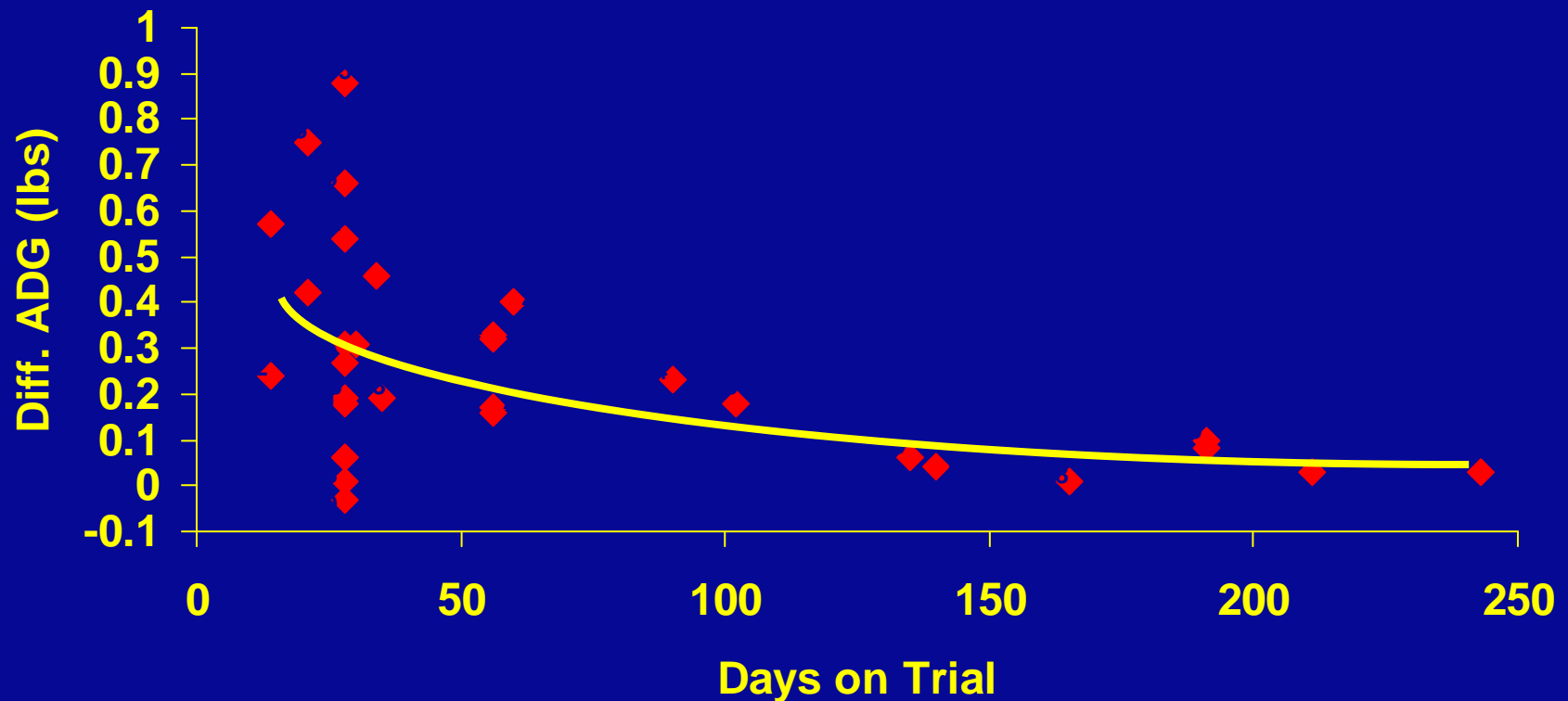
Micotil Metaphylaxis - 15 Trial Summary

(n = 6284)

ITEM	CONTROL	MICOTIL	% OVER CONTROL
MORBIDITY	47.7	22.6	52.6%
MORTALITY	2.3	0.5	78.3%
DAILY GAIN, LB	2.26	2.45	8.4%

Guthrie CA et al: Comp on C.E., March, 2000

Difference in ADG in Micotil Metaphylaxis vs. No Metaphylaxis for Varying Trial Length



When is the best time to give an antibiotic for metaphylaxis?

- *Pre shipment*
 - *For retained ownership cattle*
- *On-Arrival*
- *A few days post arrival*

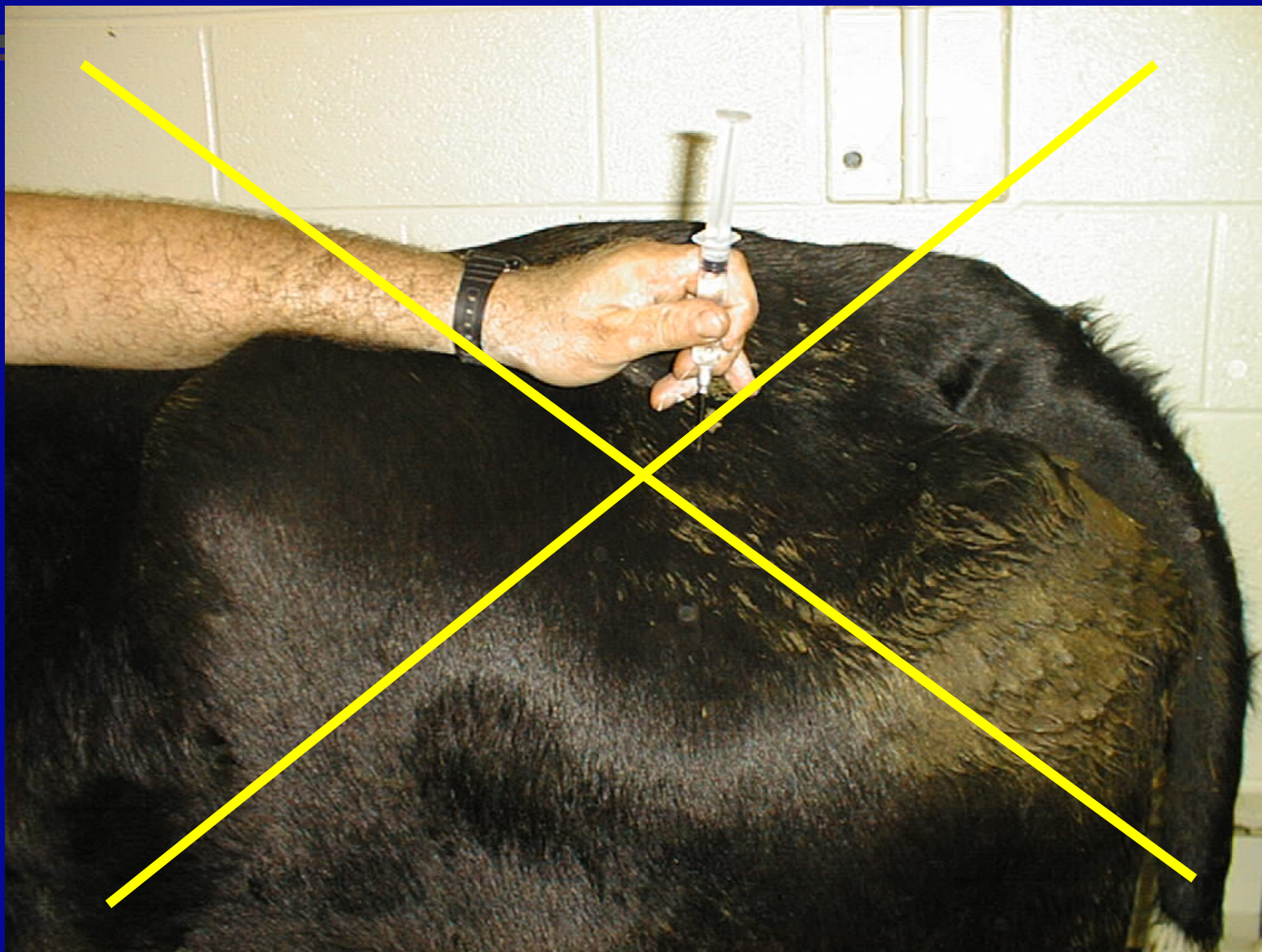
ALL CALVES ARE NOT THE SAME

- **CATEGORY 1**
 - **PRECONDITIONED, BACKGROUNDED CALVES**
- **CATEGORY 2**
 - **CALVES TRANSFERRED FROM FARM A TO FARM B**
- **CATEGORY 3**
 - **FRESH MARKET CALVES**
- **CATEGORY 4**
 - **STALE CALVES**

GOALS

<u>PARAMETER</u>	<u>CATEGORY</u>	<u>CATEGORY</u>	<u>CATEGORY</u>	<u>CATEGORY</u>
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
SICK CALVES	$\leq 5\%$	5-10%	$< 15\%$	$< 25-50\%$
DEAD	< 1	$< 2\%$	$< 3\%$	$< 5\%$
CALVES				
REPULLS	$< 10\%$	$< 10\%$	$< 10\%$	$< 15\%$

Cattle Injections



Cattle Injections



Cattle Injections



QUESTIONS ???

Cattle Deworming



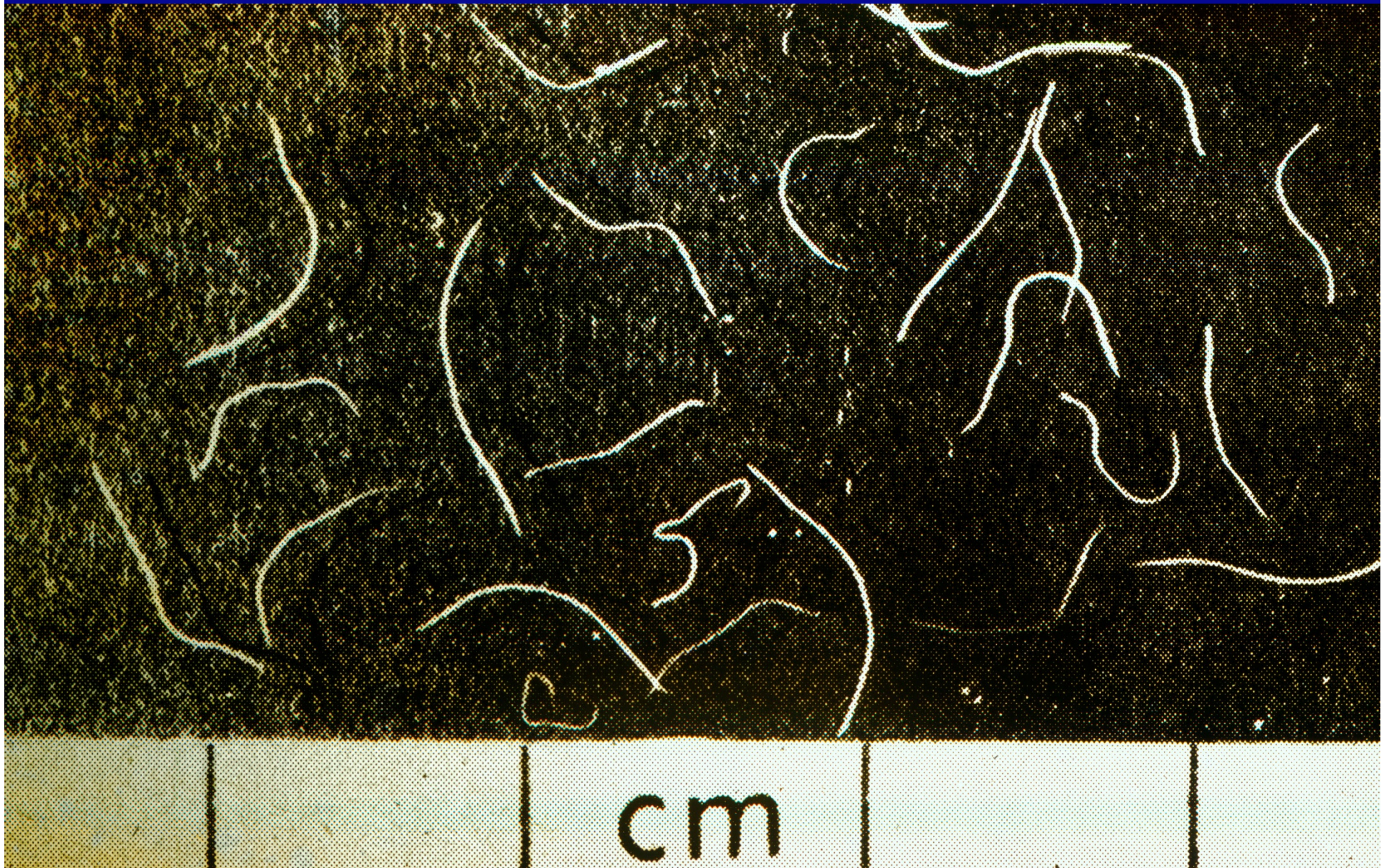
Wm. Dee Whittier, DVM, MS
Production Management Medicine
Virginia-Maryland Regional College of Veterinary Medicine

- Bottom line deworming recommendations:
 - Spring calving cow/calf : Calves Mid-summer and at weaning; 1st calvers at spring
 - Fall calving cow/calf: Calves Spring and 5,6,7 weeks later or weaning
 - Weaned calves, yearlings: Sequential spring deworming; fall: at purchase & after frost if grazing
 - Mature Cows: Don't need it, but...

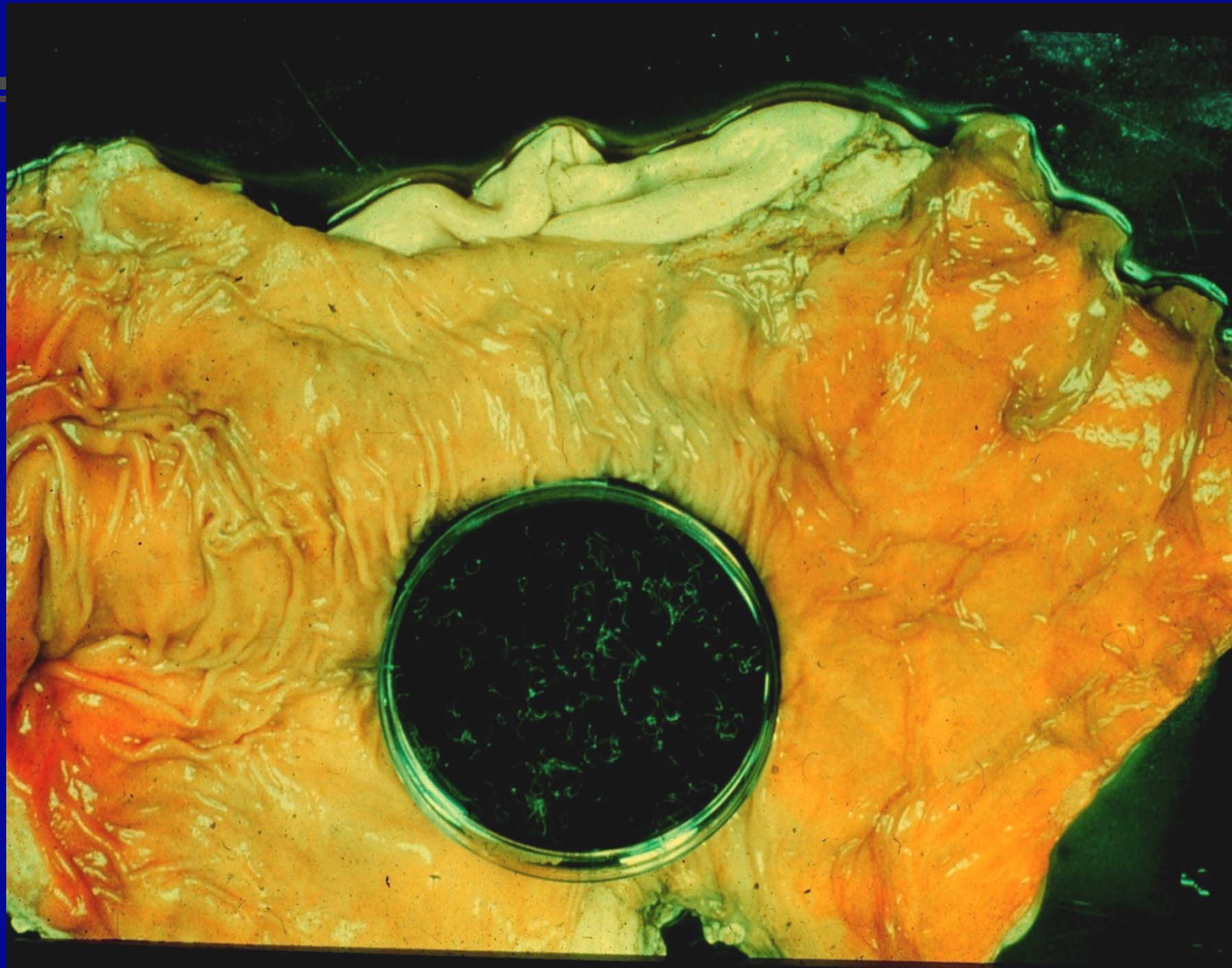
Deworming

- Research has clearly demonstrated that appropriate internal parasite control programs return economic benefits to cattle producers.

Cattle Internal Parasites -



Cattle Internal Parasites



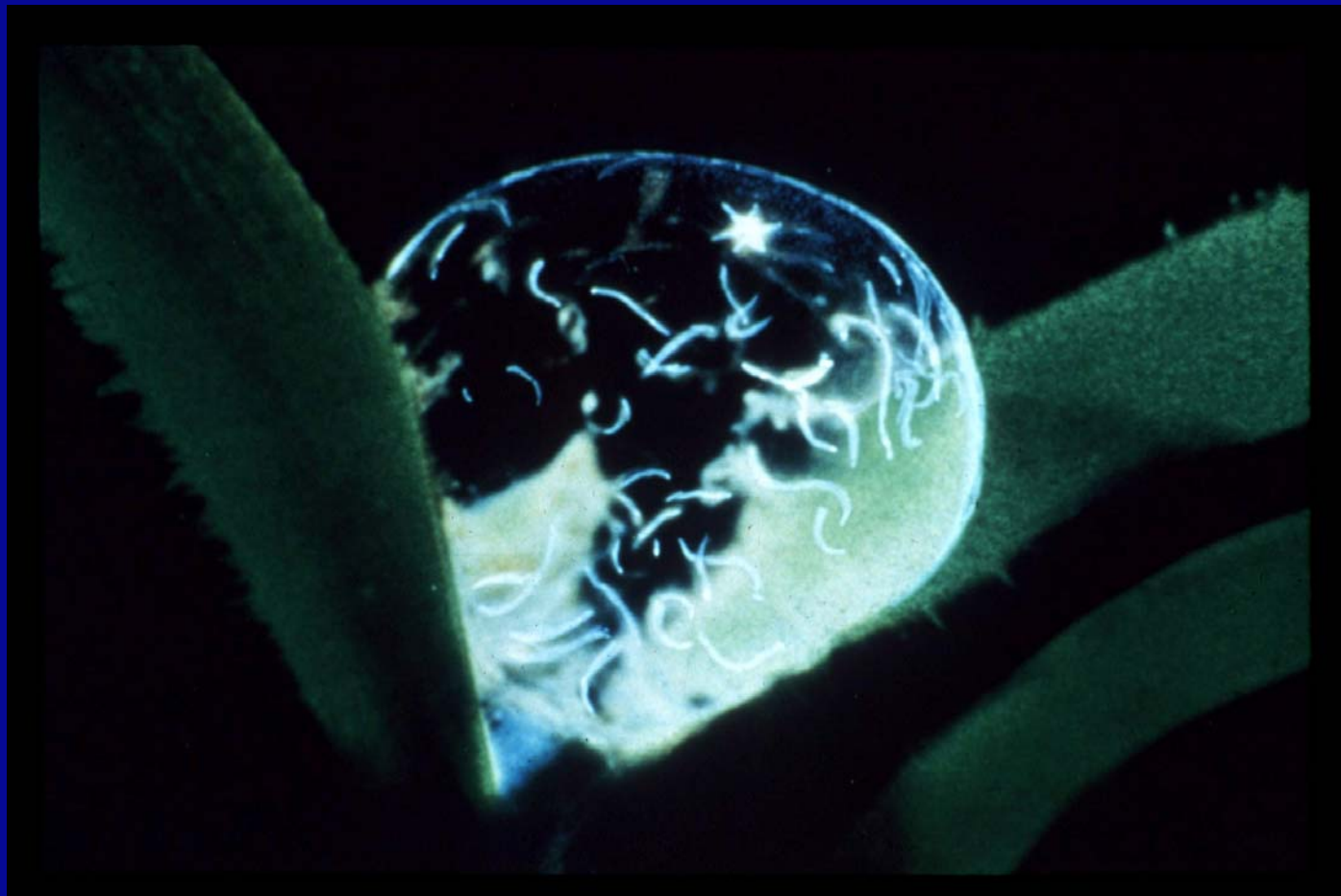
Deworming

- Key element is the level of contamination on pastures grazed by cattle
- Contamination = the number of developing stages or larvae of the parasites present on the plants that the cattle eat
- Larval numbers on pastures directly determine the number of worms that will be infecting cattle.

Adult and Larval Stomach worms



Parasitic larvae in a dew drop

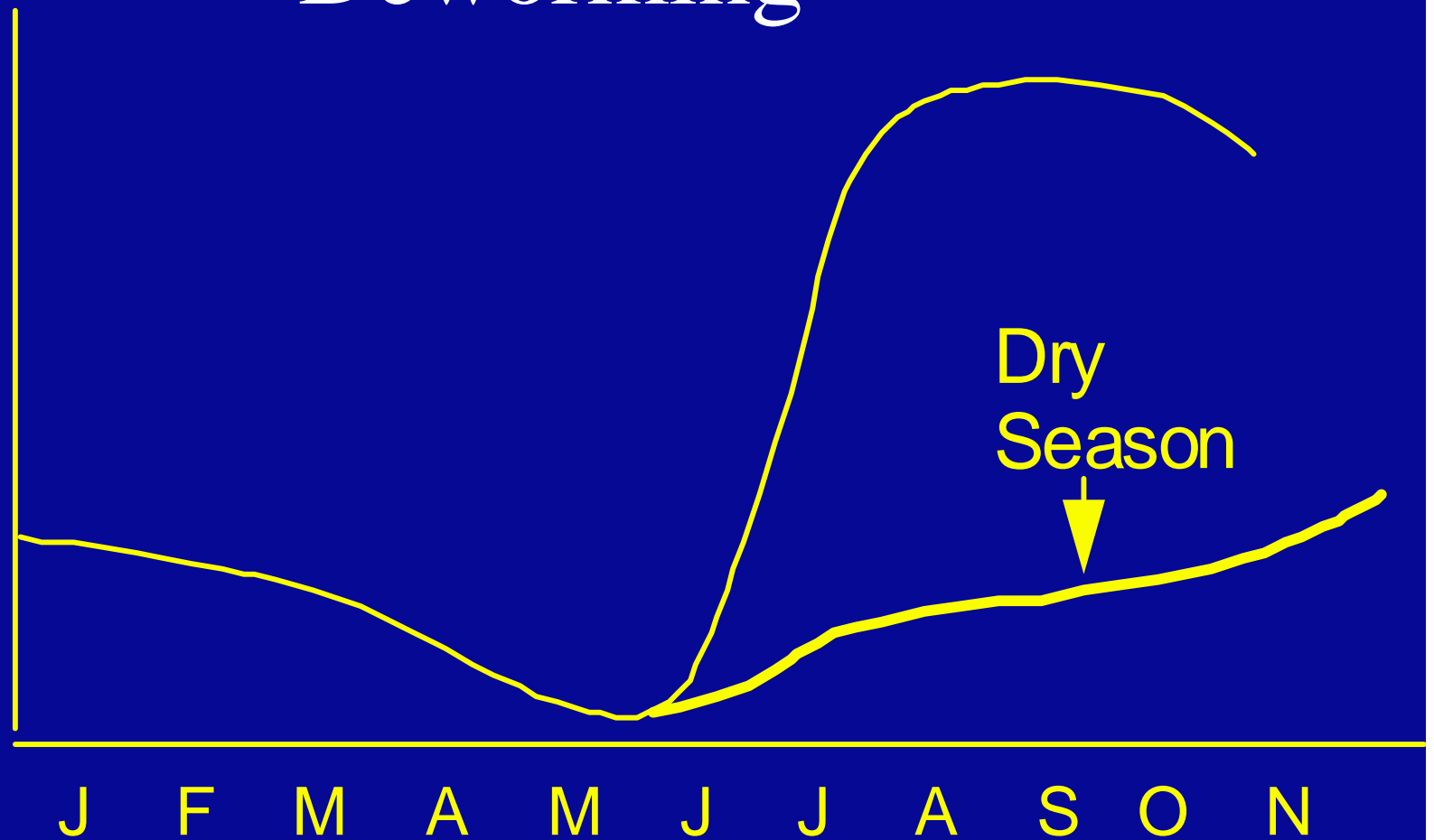


Deworming

- The most important factors that determine how long and how well the larvae survive on pasture are:
 - Temperature
 - Moisture
 - Type of soil
 - Management
- Free living parasite larvae are known to survive on pasture for many months or even years and they certainly survive over the winter

Deworming

Pasture
Larvae





12'' Pasture Stand

Canopy protects lower levels from from drying, maintains favorable environment for *Ostertagia* larvae.



Arrested Development:

- During periods favorable for development larvae picked up by the grazing animal will develop normally into adult parasites
- Larvae picked up during times preceeding severe conditions cease development inside the lining of the stomach
- *Ostertagia ostertagi* is the most important
- Arrest may last up to 16-24 weeks (no damage being done to the digestive tract)
- As large numbers of these larvae resume development, damage is done to the animal

Arrested Development:

- As with parasitism other times of the year, the most common outcome is an unnoticed decrease in production
- Occasional severe outbreaks of parasitic diarrhea may occur in late winter and early spring
- Outbreaks may not be recognized as a parasitic disease since parasitic disease is not expected during the time of year when cattle aren't grazing
- Winter inhibition is typical of northern climates, the summer inhibition of southern climates

Strategic Deworming

Traditional Dewormers
0,3,6 weeks

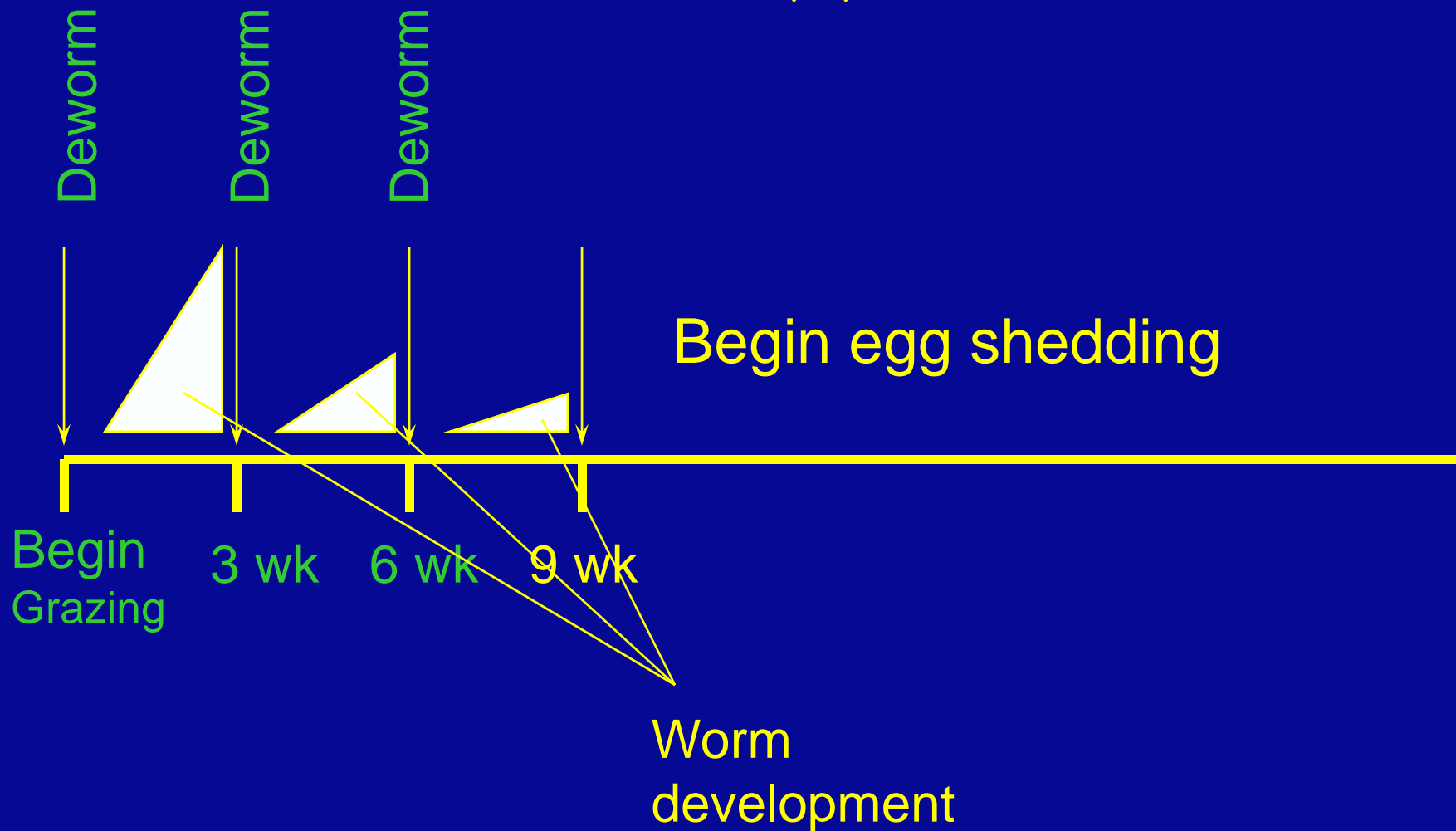


Table: Dewormer products commonly used in Virginia.

Drug	Trade Name(s)	Route	Cost for 500 lb. animal	Gets important Virginia worms?	Gets inhibited worms?	Special Features
<u>Levamisole phosphate</u>	<u>Tramisol</u> Injectable Solution	Injectable	\$1.00	Yes	No	
<u>Levamisole phosphate</u>	<u>Totalon</u>	Pour-on	\$1.45	Yes	No	Pour-on convenience
<u>Morantel Tartrate</u>	<u>Rumatel</u>	Boluses, Feed additive	\$1.25	Yes	No	
<u>Fenbendazole</u>	<u>Safe-Guard, Panacur</u>	<u>Drench, Paste</u>	\$1.35/\$2.70	Yes	At high dose	
<u>Fenbendazole</u>	<u>Safe-Guard pellets, mineral, etc. Moorman's Moorguard Minerals</u>	Oral consumable	\$1.50 to \$2.00	Yes	Probably not	On pasture or in feed treatment
<u>Albendazole</u>	<u>Valbazen</u>	Drench	\$1.50	Yes	Yes	
<u>Oxfendazole</u>	<u>Synanthic</u>	Drench, Paste	\$1.35	Yes	Yes	Small dose drench
<u>Ivermectin</u>	<u>Ivomec Cattle</u>	Injectable	\$2.00	Yes	Yes	Grub and lice control, Residual Effect
<u>Ivermectin</u>	<u>Ivomec Pour-On</u>	Pour-on	\$2.00	Yes	Yes	Grub and lice control, Residual Effect 2 weeks, Pour-on convenience
	Many generics	Pour on	\$.50-.80			
<u>Ivermectin</u>	<u>Ivomec Sustained Release Bolus</u>	Sustain Release Bolus	Not readily available	Yes	Yes	Grub and lice control, Residual Effect 135 Days
<u>Doramectin</u>	<u>Dectomax</u>	Injectable	\$2.50	Yes	Yes	Grub and lice control, Residual Effect of 3 to 4 weeks
<u>Moxidectin</u>	<u>Cydectin</u>	Pour on	\$2.50	Yes	Yes	Grub and lice control, Residual Effect of 4 weeks

50802

NDC 11716-5609-5

Levasole[®]

(levamisole hydrochloride)
Soluble Drench Powder
Anthelmintic

Each packet contains 46.8 grams of levamisole hydrochloride activity.

FOR ORAL USE IN CATTLE AND SHEEP

Administer as a standard drench with standard drench syringe or administer as a concentrated drench solution with an automatic drenching syringe.

RECOMMENDATIONS:

LEVASOLE (levamisole hydrochloride) is a broad-spectrum anthelmintic and is effective against the following nematode infections in cattle and sheep:

STOMACH WORMS: (*Haemonchus*, *Trichostrongylus*, *Ostertagia*)

INTESTINAL WORMS: (*Trichostrongylus*, *Cooperia*, *Nematodirus*, *Bunostomum*, *Oesophagostomum*)
(*Chabertia*—sheep only)

LUNGWORMS: (*Dictyocaulus*)

WARNING: Keep out of reach of children.

Net Wt. 1.8 oz. (52 g)

Pitman-Moore

Pitman-Moore, Inc.
Mundana, Ohio, U.S.A.

MADE IN IRELAND



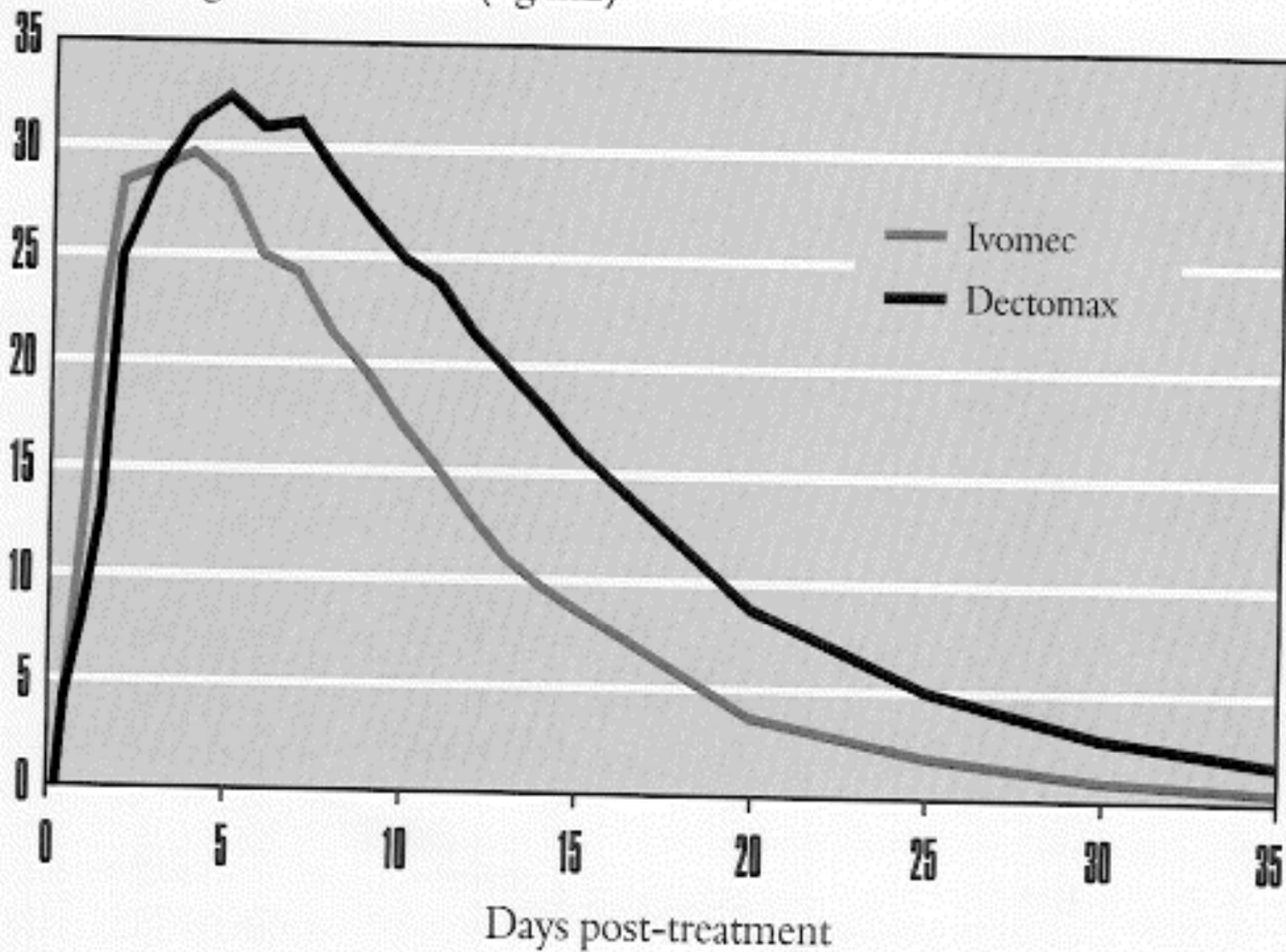
- Levasole[™]
Drench





Deworming

Plasma drug concentration (ng/mL)



CYDECTIN®

Pour-On

It's time for a pour-on that offers more.

- ✓ Broader control of both lice and mange¹
- ✓ Longest lasting efficacy against *Ostertagia*¹
- ✓ 1st rainfast pour-on endectocide
- ✓ Unique oil-based formula
- ✓ Non-flammable formulation
- ✓ Shorter 36 day meat withdrawal
- ✓ Always comes with veterinary advice

COMPOSITION

CYDECTIN® Pour-On for Cattle comes ready to use as a violet solution containing 5 mg/mL (0.5% w/v) moxidectin.

Persistent Activity: In cattle, CYDECTIN® Pour-On for Cattle prevents reinfection with *Ostertagia ostertagi* and *Dictyocaulus viviparus* for at least 28 days following a single application at the recommended dose rate.

DOSAGE AND ADMINISTRATION

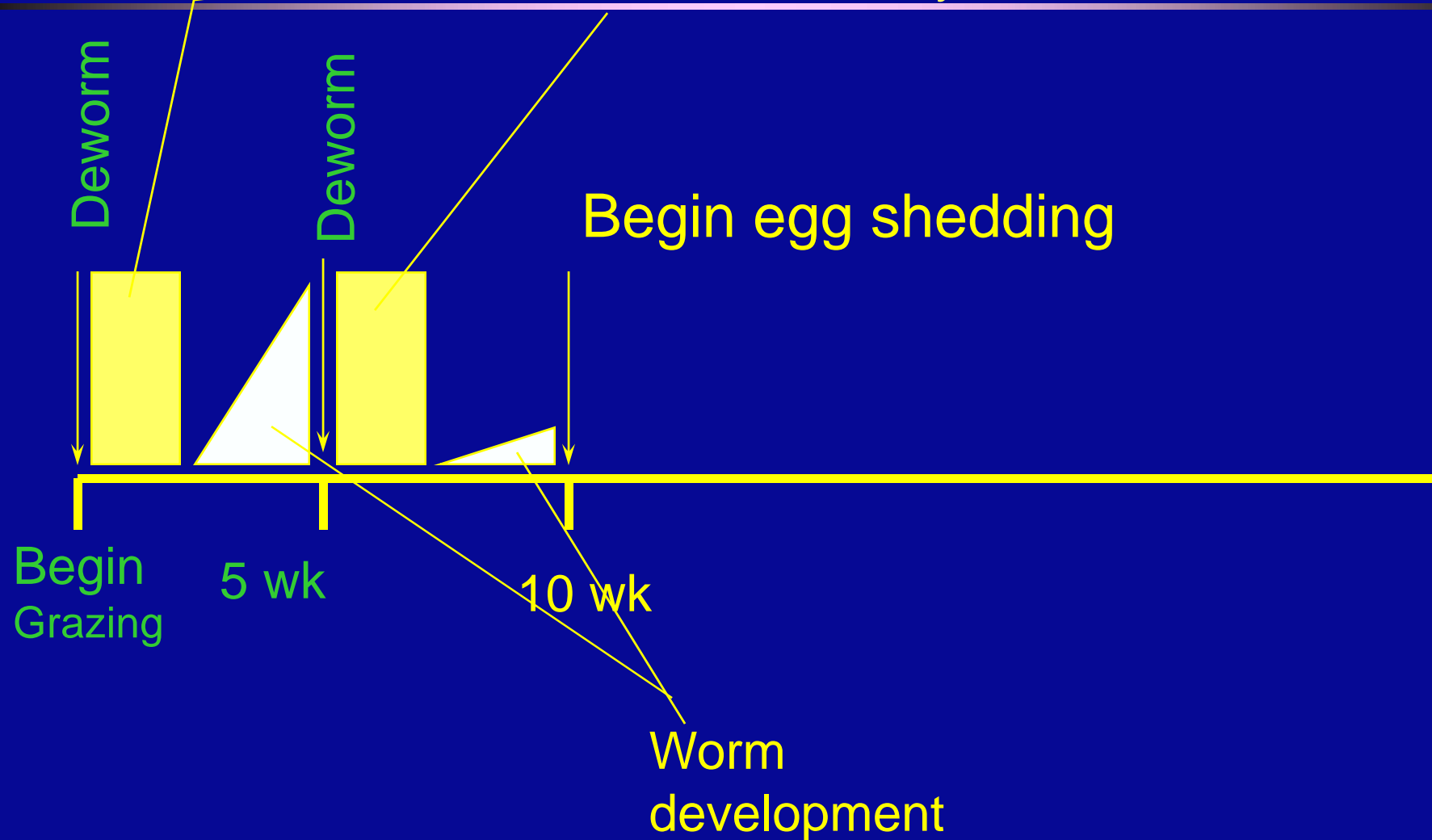
Dosage and administration: EXTERNAL USE ONLY. CYDECTIN® Pour-on for Cattle should be applied to healthy skin along the top of the back from the withers to the base of the tail. Use 1 mL per 10 kg bodyweight to administer a dose of 0.5 mg/kg.

Ivomec Inj.

0,5

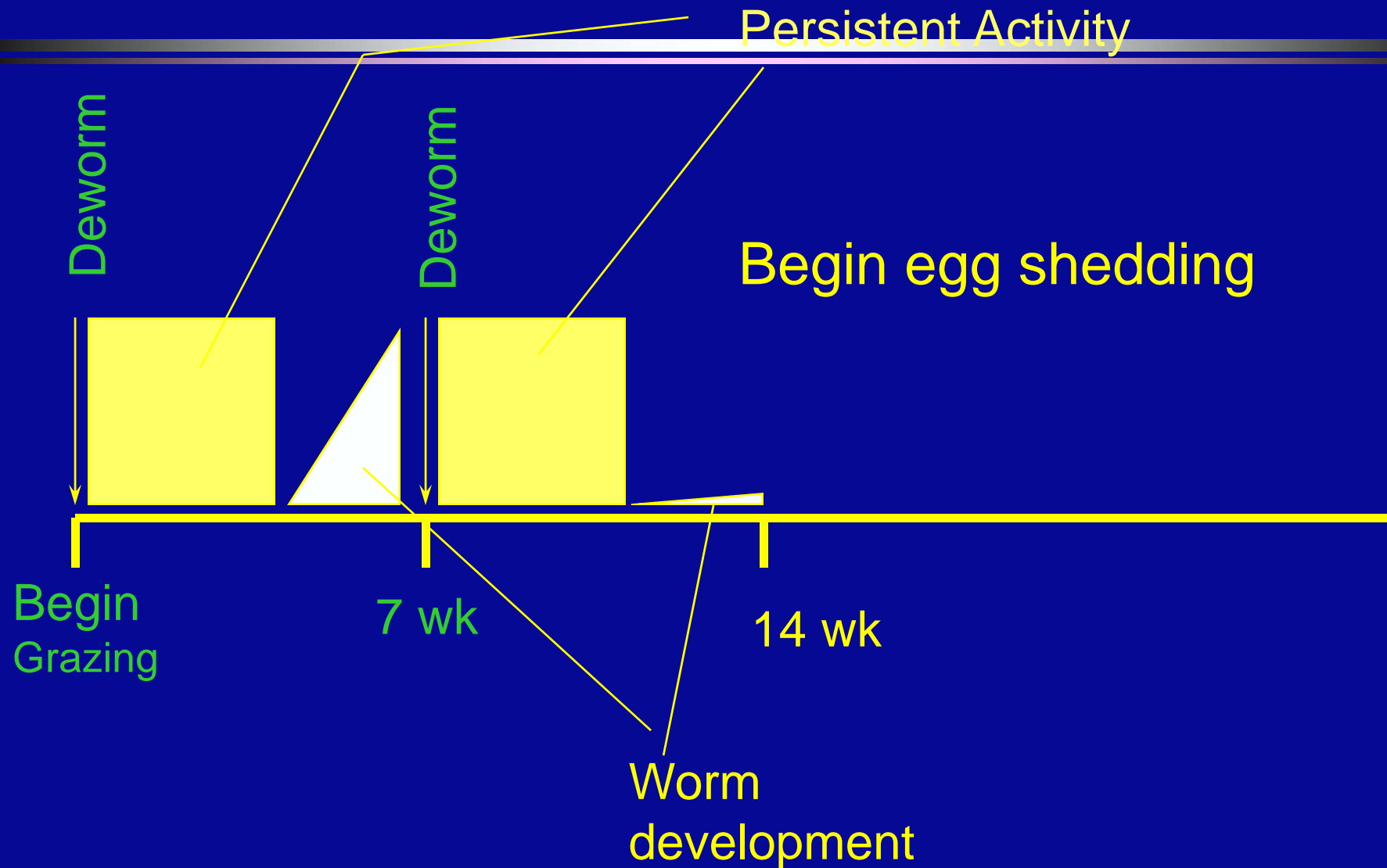
Strategic Deworming

Persistent Activity



Strategic Deworming

Dectomax® Pour On, Cydectin®
0,7



						PERSISTENT	MW	SW
DRUG	PRODUCT	HOW SUPPLIED	INDICATION	DOSE	ROUTE	ACTIVITY	HOURS	DAYS
Ivermectin	Ivomec	1% Injectable	Ostertagia Adults/L4	1cc/110lbs	SQ	3 Weeks	N/A	49
	(Generic)		Inhibited L4					
			Sucking Lice/Grubs					
	Ivomec	5% Pour-On	Ostertagia Adults/L4	5cc/110lbs	Pour-On	2 Weeks	N/A	48
	(Generic)		Inhibited L4/Grubs					
			Sucking/Biting Lice			6 Months		
			Horn Flies			4 Weeks ?		
	Ivomec	1% Inject. +	Ostertagia Adults/L4	1cc/110 lbs	SQ	2 Weeks	N/A	49
	Plus	Cloroson	Inhibited L4					
			Sucking Lice/Grubs					
			Liver Flukes					
	Drench	Ivomec Drench	H. Contortis	3cc/25lbs	PO			
Eprinomectin	Ivomec	5% Pour-On	Ostertagia Adults/L4	5cc/110lbs	Pour-On		0	0
	Eprinex		Inhibited L4					
			Grubs					
			Sucking/Biting Lice			6 Months		
			Horn Flies			4 Weeks?		
Doramectin	Dectomax	1% Injectable	Ostertagia Adults/L4	1cc/110lbs	SQ	3 Weeks	N/A	35
			Inhibited L4					
			Sucking Lice/Grubs					
	Dectomax	5% Pour-On	Ostertagia Adults/L4	5cc/110lbs	Pour-On	4 Weeks	N/A	45
			Inhibited L4					
			Sucking/Biting Lice					
			Grubs					
Moxidectin	Cyductin	5% Pour-On	Ostertagia Adults/L4	5cc/110lbs	Pour-On	4 Weeks	0	0
			Inhibited L4/Grubs					
			Sucking/Biting Lice					
Moxidectin	Cyductin	1% Injectable	Ostertagia Adults/L4	1cc/110lbs	SQ	3 Weeks	N/A	35
			Inhibited L4					
			Sucking Lice/Grubs					

Deworming

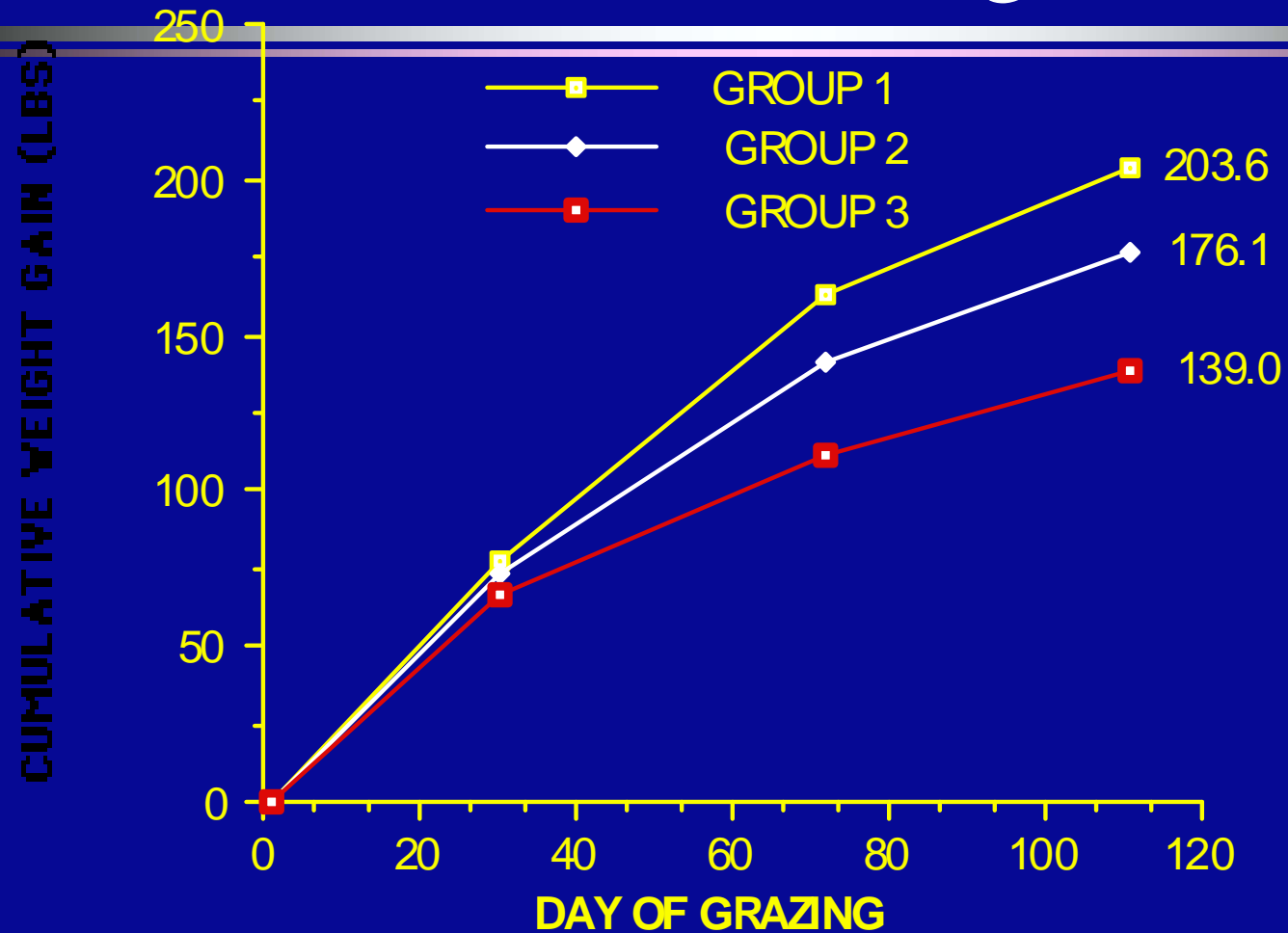


FIGURE 1. CUMULATIVE WEIGHT GAIN IN POUNDS

Deworming

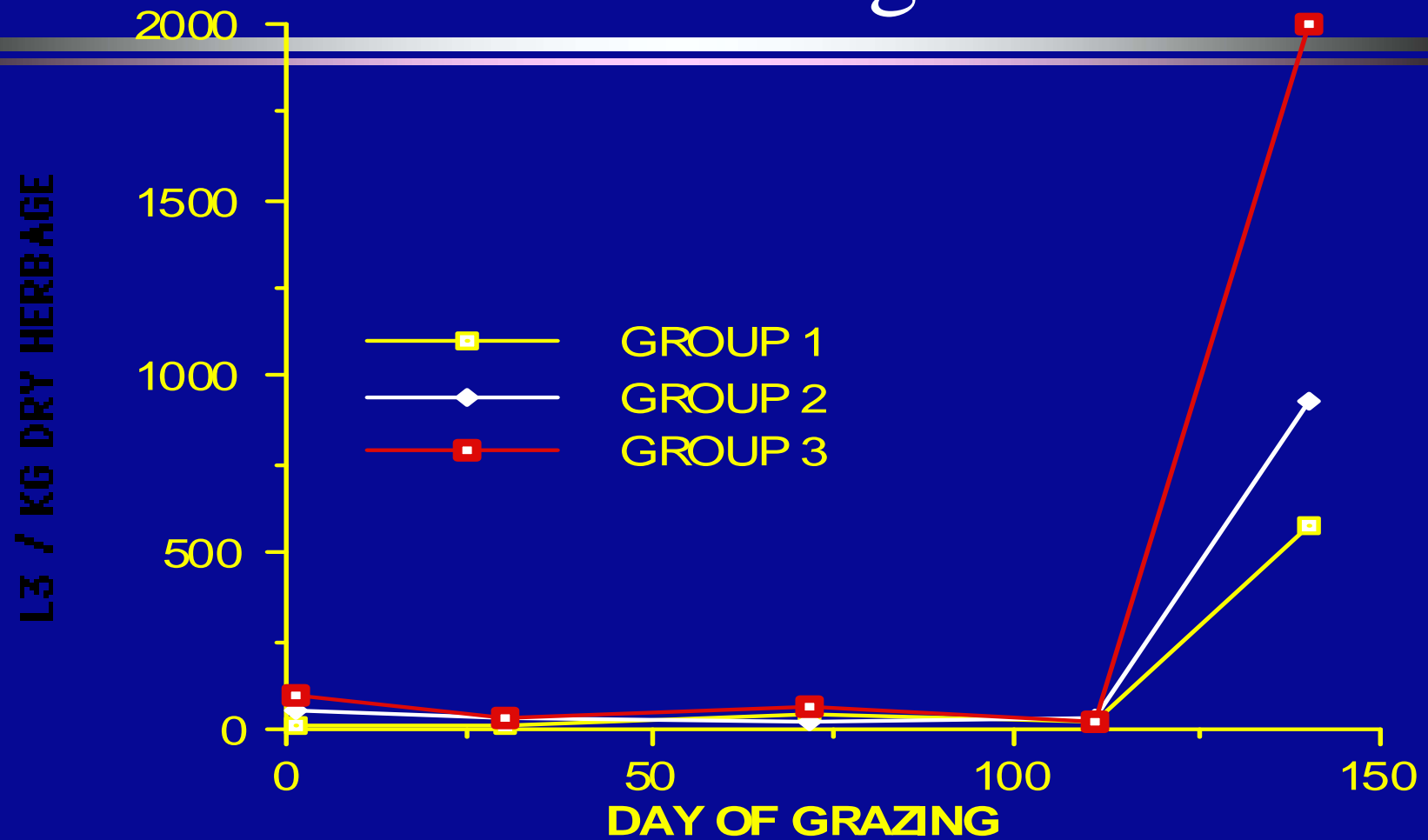
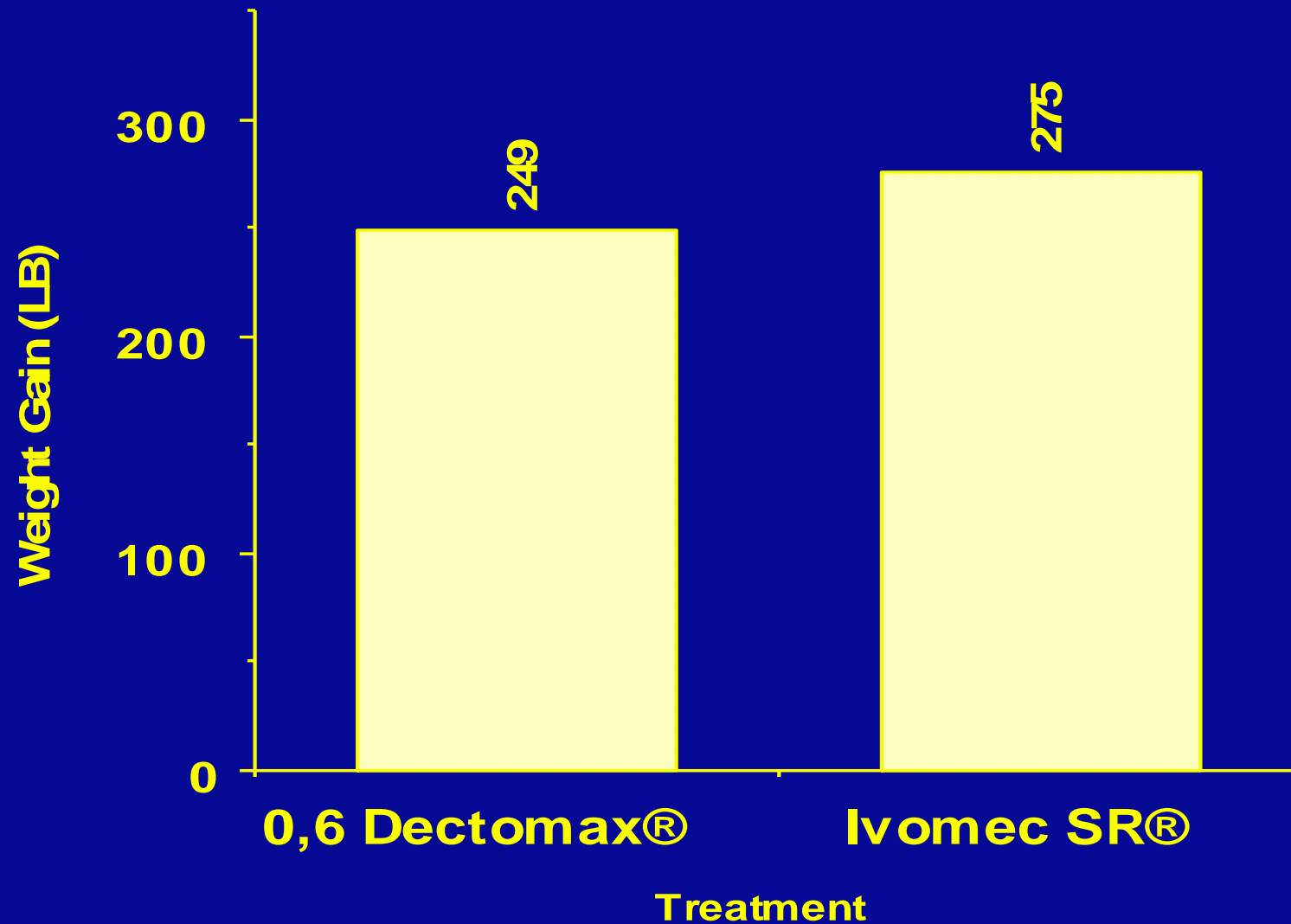


FIGURE 4. THIRD STAGE LARVAE FROM GRASS ANALYSIS.

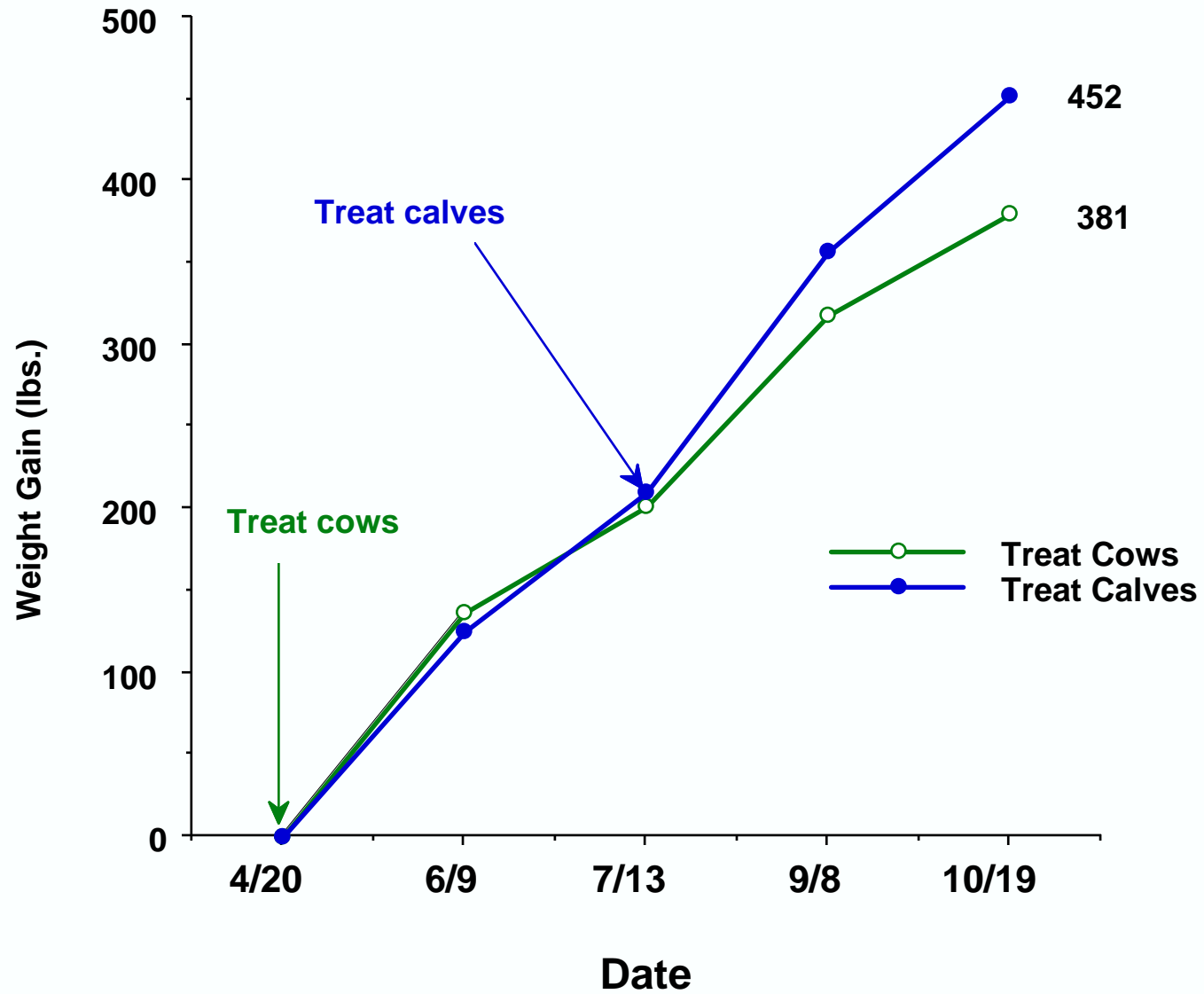
Dewormers

**Strategic Deworming Comparison - Bland Correctional Center
Fall-Born Weaned Heifers - 5/5/97-10/21/97**



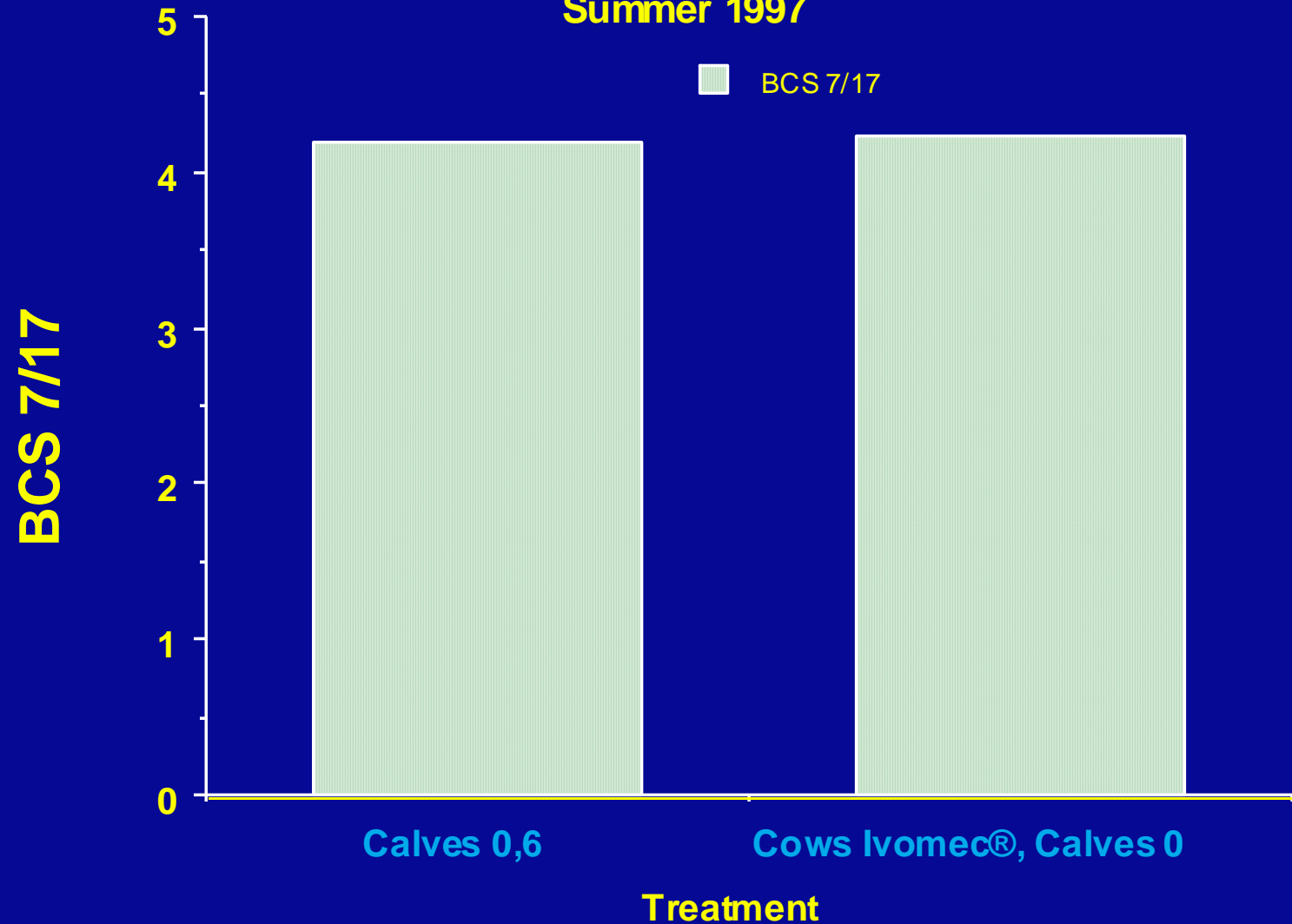
Y R	Treatments	Cow Wt. +/-
1- 88	Gp 1-Mature dams Start & Mid Gp 2-Calves only Mid Gp 3-2 yr.old dams Start & Mid, calves Mid	No difference
2- 89	Gp 1-Mature dams Start & Mid, calves Mid Gp 2-Calves only Mid Gp 3- Control, no treatment	On June 20- Gp1- 33 Kg Gp 2- 21 Kg Gp 3-23 Kg
3- 90	Gp 1-Mature dams Start, calves Mid Gp 2-Calves only Mid Gp 3- Control, no treatment	Gp 2 +177 greater than Gp 1 +158 greater than Gp 3 +141
4- 92	Gp 1-Mature dams Start, calves Mid ivermectin Gp 2-Calves only Mid ivermectin Gp 3- Calves only Mid fenbendazole Gp 4- Control, no treatment	No difference
5- 94	Gp 1-Mature dams Start Gp 2-Calves only Mid	No difference
6- 96	Gp 1 Deworm calves, Implant Mid; Gp 2 Dewo: No Implant Mid; Gp 3 No Deworm calves, Implant Mid Gp 4 Nontreated control No cow treatment any group	N/A

Cumulative weight gains for calves when cows were dewormed in spring and fall or calves only were treated mid-summer (July 13).
Craigsville, VA 1994



Deworming

**Cow Body Condition Score
Buckingham Correctional Center
Summer 1997**



Cowmectin Ivermectin Pour-On for Cattle



 [view larger image](#)

For the treatment and control of gastrointestinal roundworms, lung worms, grubs, horn flies, sucking and biting lice, and sarcoptic mange mites in cattle. Apply along back of animal at 5 ml. per 100 lbs. of body weight. Not cleared for female dairy cattle of breeding age.

A hazardous shipping charge of \$20.00 will be added to the price. (This does not show up in cart.)

Two 5 liter containers will ship for one \$20 Hazardous fee.

Compare to [Ivomec® Pour-On](#) and [Iver-On™ Pour-On](#)

FREE Pour-On Gun (MA-A5) \$21.49 value
With the purchase of two (2) 5 liter bottles of
Cowmectin (MA-C1). Expires: 01/31/2008



[Jeffers Shipping Policies](#)



[Request additional information about this product](#)

MA-C1	Cowmectin Ivermectin Pour-On for Cattle, 5 liter	\$59.95	Qty: <input type="text" value="1"/>	add to cart
--------------	---	----------------	-------------------------------------	--------------------

ZZ-MG-A	FREE Pour-On Gun (MA-A5) \$21.49 value with the purchase of two (2) 5 liter bottles of Cowmectin	FREE!	Qty: <input type="text" value="1"/>	add to cart
----------------	---	--------------	-------------------------------------	--------------------

- 5000 ml @ \$60 = .83 cents per ml
- 60 ml X .83 = \$.50 per cow
- Can you find a better lice/ grb Rx for 50 cents??