

# MidAmerica Ag Research

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## "Got Milk"



## Strategic Deworming for Maximum Cattle Performance

- The importance of parasite management
- Economic costs of parasitism
- Field studies comparing pour-ons, injectables and oral dewormers
- Lack of efficacy with endectocide pour-ons

## Proper deworming strategy adds to production efficiency.

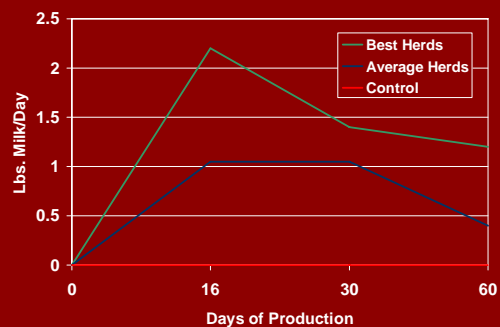
- Producers understand importance of internal parasite control for production efficiency.
- Clinical parasitism is mostly disappeared.
- Deworming is now standard practice on beef and dairy farms.
- Must have correct product at the correct time.

## Reasons For Economic Losses

- Producer Unaware of worm damage
- Timing & Frequency of treatments
- Choice of dewormer
- Parasites have greatest impact on high producing animals.



## Milk Production Treated vs Controls



## Level of Parasitism Related To

- Age of animals
- Pasture contamination level
- Stocking rate of animals
- Grazing environment & Weather
- Immune status of animals

## Parasites in Cattle at End of Three Separate Grazing Season

	1981	1982	1983
Stomach Worms	32,230	9,582	24,142
Intestinal Worms	51,829	9,051	48,158
Total Worms	84,059	18,633	72,300

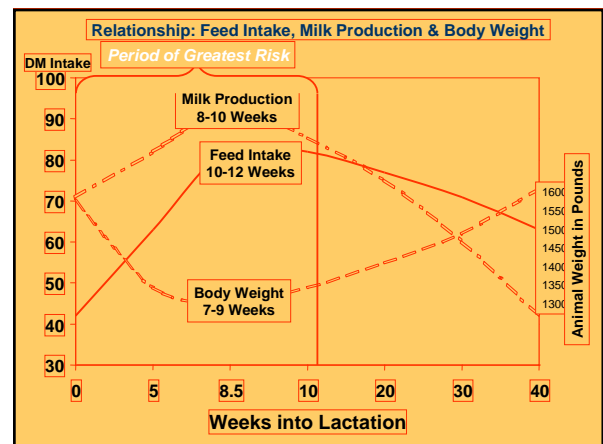
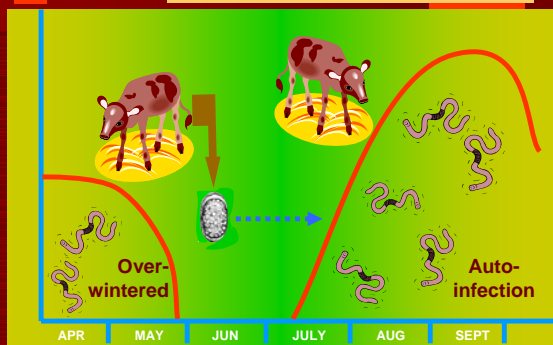
## What is Bovine Parasitism?

- It is a herd disease
- It is a production disease
- It develops during grazing
- 99% of all pastures contaminated

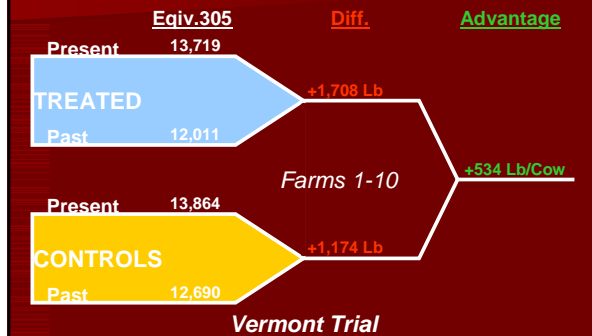
## Research Links Parasitism to Decreased Milk Production!



## Seasonal Parasite Development On Pasture

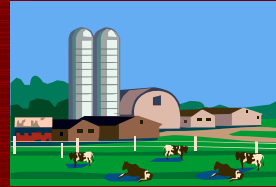


## Milk Production by Cows Dewormed at Freshening and Again 60-90 Days Later



## Designing a Program in a Dairy Operation

First determine the approximate level of parasitic contamination



### 1. High Parasite Contamination Level

- Cows grazing pasture during lactation
- When rotational grazing is practiced



### 2. Moderate Parasite Contamination Level

- Cows grazing pasture only during dry period
- Cows with access to an exercise lot only (with some grass)



### 3. Low Parasite Contamination Level

- Cows with access to dirt dry lot



### 4. Extremely Low Parasite Contamination Level

- Cows in total confinement
- Cows on a concrete dry lot



### Summary of Deworming Programs for Individual Lactating Dairy Cows

Parasite Contamination Level	Dry Period	Freshening *	Six Weeks Into Lactation
High	Wait	Deworm	Deworm
Moderate	Wait	Deworm	Deworm
Low	Wait	Deworm	Wait
Extremely Low	Monitor Annually		

\* If bred heifers were exposed to parasites during gestation period deworm prior to freshening

### Summary of Seasonal Deworming Programs for Dairy Herds

	Late Fall	Six Weeks After Turnout*
High	Deworm	Deworm
Moderate	Deworm	Deworm
Low	Deworm	Wait
Extremely Low	Monitor Annually	

\* Or 6 weeks after start of spring grazing season

### Summary Strategy For Lactating Dairy Cows

- Parasites have been shown to decrease milk production in early lactation
- Identify parasite contamination levels in each dairy operation
- Design deworming program based on individuals or herd treatment relative to contamination levels

The Best Dewormer in the World Used at the Wrong Time

*Is a waste of time and money!*



### Parasite Resistance to Pour-ons now Common Occurrence!

- Georgia herd treated with Ivomec PO only for number of years.
- 45 cows died due to Ostertagiasis
- Despite Treatment with Ivomec Pour-on, Ivomec Plus, Ivomec Eprinex, and Dectomax injection.
- Cattle remain in poor condition and all fecals remain positive.

## Injectable Endecticide vs Pour-On

### Ivermectin Injectable

- Dose 200 mcg/kg
- Plasma concentration  
Max=32 ng/ml plasma

### Ivermectin Pour-On

- Dose 500 mcg/kg
- Plasma concentration  
Max=12 ng/ml plasma



> Blood levels determine the amount of product reaching parasitic infections.

> Standard deviation for the Pour-On was extremely large at +/- 6ng/ml

> Some animals only receive 6ng/ml



Dectomax Pour-On Formulation - Product Monograph produced by Pfizer, Inc., 1999

## Endectocide pour-ons:

*poor efficacy against internal parasites, promotes resistance.*

### FEARS:

- Experience production losses due to failure of pour-ons to remove internal worm burden
- Continued egg shedding on pastures and, therefore, continued contamination
- Worms left following treatment by pour-ons will become resistance to avermectins.

## Avermectins

- ❖ Ivomec®
- ❖ Ivomec® Epinex™
- ❖ Dectomax®
- ❖ Cydectin®
- ❖ Generic Ivermectins

## Pour-Ons - Oil vs Alcohol Base

- ❖ Alcohol base pour-ons have 49-day withdrawal with residue levels in fat for 35 days.
- ❖ Oil base pour-ons have no withdrawal and disappear before eggs hatch 10-21 days post Rx.
- ❖ Alcohol base pour-on provide season long coverage.

## March 1-15, 2003

- 1,200 Cow/calf Operation in Southeastern USA Experiencing Parasite Problems.
- Ivomec Pour-on Given to all cows first week in March.
- Animals remain in poor condition, cows began to die.

## March 16-31, 2003

- Cattle remain in poor condition and continue to die.
- Two Cows necropsied.
- Diagnosed with Parasitic gastro-enteritis due to severe Ostertagiasis.

## April 1-30, 2003

- Cattle retreated with Ivomec Pour-on first week in April.
- Cattle in two pastures retreated with Ivomec on April 23.
- All cattle retreated with Ivomec Injection on April 30.

## May, 2003

- Cattle stopped dying, 45 cows died altogether.
- Cattle remain in poor condition.
- Merial suggested Ranch to switch to Ivomec Eprinex and to retreat in July

## July 2003

All cattle treated with Ivomec Eprinex

Cattle remain in poor condition!

## November, 2003

Cattle remain in poor condition

All cattle treated with Dectomax injection

## December , 2003

- All cattle retreated with Ivomec Plus on Dec, 2-4.
- Manufacture sends Veterinary Consultant to the ranch fecals samples taken to parasite check and found cattle with high counts

## January, 2004

- Cattle herd treated January, 14-16 with Safe-Guard® .125% Medicated Cubes.
- Fecal samples taken 16-days post-treatment.
- Samples split and sent to two laboratories.
- Results: Samples 98% free of parasite eggs & Body condition of the cattle dramatically improved

## February, 2004

- Cattle herd retreated February 27-29, 2004 with Safe-Guard® .125% Medicated Cubes.
- Fecal samples collected 16-days post treatment.
- Samples 100% negative for worm eggs.

## April, 2004

- Manufacturer provided Eprinex® Pour-on at no cost.
- All cattle treated with Eprinex the first week in April.
- Fecal samples taken 15-days post treatment.
- 73% of the samples positive for worm eggs.
- Counts ranged as high as 74 eggs per 3 gram.
- Avg. egg count of 8.2 (1,230 eggs/pound of manure).

## May, 2004

- Ivomec® Eprinex® Pour-on failed.
- Ranch retreats with Safe-Guard® .125% Medicated Cubes.
- Samples collected 15-days post treatment.
- 98% free of parasite eggs.

## Pastures with intact fecal pats



## Implication

- Dung beetle activity conceivably impaired by all-inclusive use of avermectins.
- Research shows that dung beetles help destroy parasitic larvae in fecal pat.
- High numbers of intact fecal pats indicate high larval challenge on pasture.
- High parasite challenge and resistance to avermectins caused morbidity and excessive mortality due to gastro-intestinal parasitism.

## Overall Summary

- Avermectin resistant parasites removed with fenbendazole medicated cubes given to all cattle.
- Fecal samples taken 14-days later were 98% to 100% free of worm eggs.





## Modified Wisconsin Sugar Flotation Method

### Technique

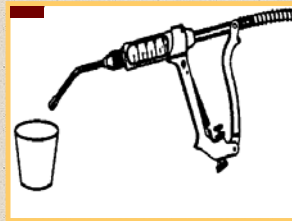
- Samples can be stored if refrigerated
- Sugar solution
  - One pound of sugar.
  - Add to 12 oz(355cc) of hot water.
- Slides can be refrigerated for reading later

### Materials

- Sugar solution & dispensing syringe
- Tea strainer
- 3/5 oz dixie cups
- Tongue depressors
- Taper bottom 15cc tubes
- Test tube rack
- Microscope slides & 22x22 mm cover slips

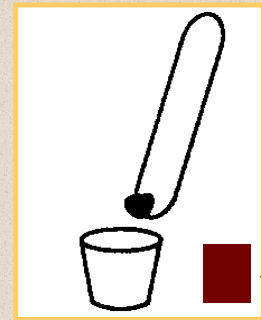
## Modified Wisconsin Sugar Flotation Method

Add 15 - 17 cc sugar solution to sample



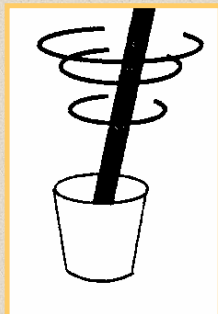
## Modified Wisconsin Sugar Flotation Method

Place 3 - 5 grams of fecal material into a 3 oz paper cup  
(About a thimble full)



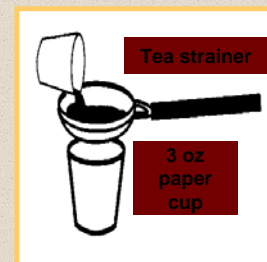
## Modified Wisconsin Sugar Flotation Method

Stir solution & fecal sample to an even consistency



## Modified Wisconsin Sugar Flotation Method

Pour mixture into a tea strainer over a 3 oz paper cup





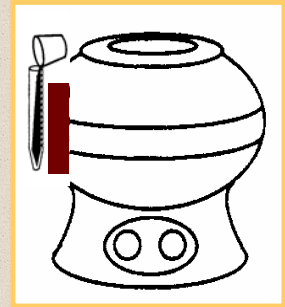
### Modified Wisconsin Sugar Flotation Method

Use a tongue depressor, press as much material through strainer as possible



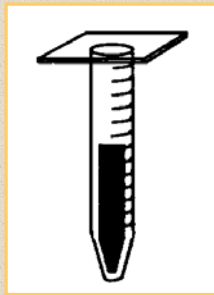
### Modified Wisconsin Sugar Flotation Method

1. Pour into 15cc taper bottom centrifuge tube.
2. Centrifuge in swinging arm centrifuge at 900 rpm for 5 - 7 minutes.



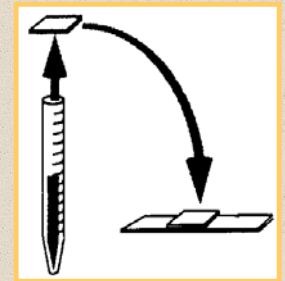
### Modified Wisconsin Sugar Flotation Method

1. Place tube in rack and top off with sugar solution to form a meniscus.
2. Place 22x22 mm cover slip on tube and leave in place for 2 - 4 minutes.



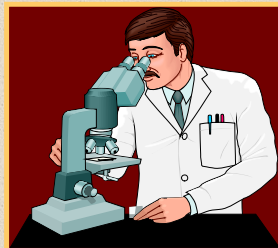
### Modified Wisconsin Sugar Flotation Method

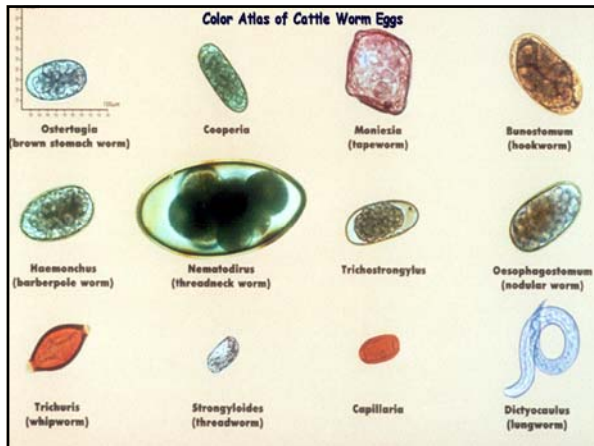
Lift cover slip upward & place on slide



### Modified Wisconsin Sugar Flotation Method

Use microscope to scan entire cover slip for egg count





**Form # \_\_\_\_\_ Please print information clearly. Page \_\_\_\_\_ of \_\_\_\_\_**

Date  REC  Mail in  Sponsor  E-mail  Consultant

Ranch or Farm:  Producer's Name:  Address:

City:  State:  Zip:  Phone:  Fax:  E-mail Address:

Internet Sales Representative

Method ID	Method ID	Color/Type	Color/Type	Color/Type	Color/Type	Color/Type	Color/Type	Color/Type	Color/Type	Color/Type	Color/Type	Color/Type	Color/Type	Color/Type	Color/Type	Color/Type	Color/Type

Locations:  Average Count:  Egg/ Pound Manure:

Complete sections only after results are analyzed

Signature of Internet Representative

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