

Parasite Control Programs For Cattle

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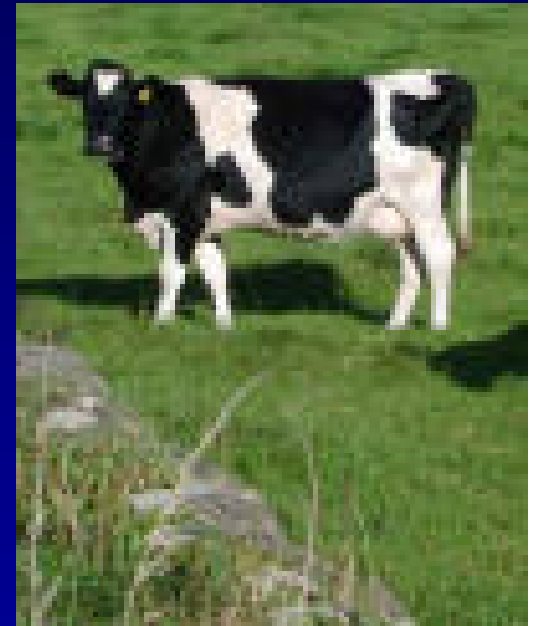
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Dairy Cows (> 2 yr. old)

- No consensus on whether treatment is economically justified
- Adult cattle (in good overall health) have excellent acquired immunity against gastrointestinal parasitic infection and disease
- Many dairy cattle are managed in complete or partial confinement



Dairy Cows

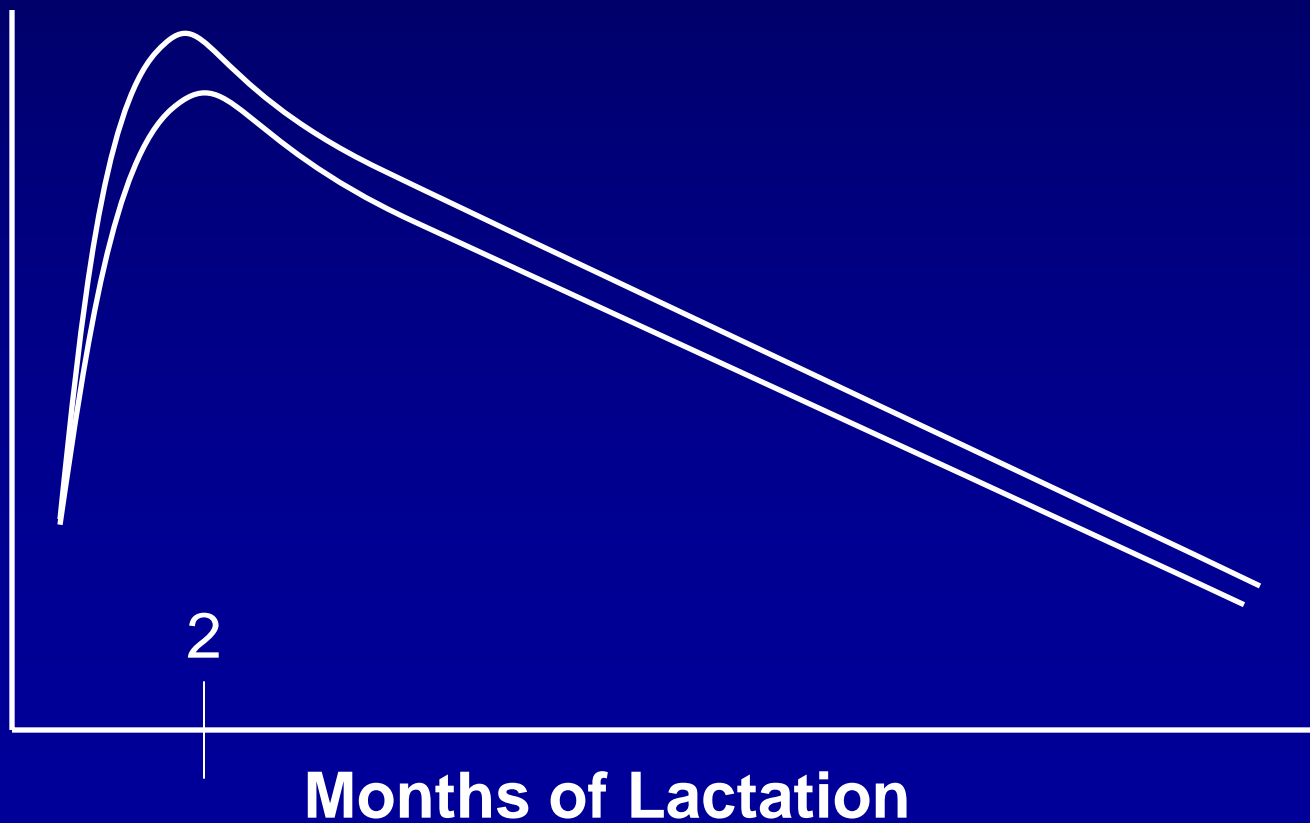
- It is difficult to understand how confined cows could benefit from deworming when they have minimal parasite burdens to begin with
- Alternatively, if cows are turned out to pasture, they are constantly exposed to low levels of reinfection
 - it is difficult to understand how a very temporary respite from a low level of parasitism could increase milk production over a 305 day lactation

However

Dairy Cows

- **Parturition and early lactation are very stressful periods**
 - negative energy balance
- **Mammary growth continues after parturition**
 - peak milk production in 4 - 12 weeks
 - feed intake is often limiting factor in reaching genetic potential for max prod'n
 - dynamics of lactation curve
 - small increase in peak milk prod'n may result in increased prod'n over course of lactation

Dynamics of Lactation Curve



Dairy Cows



- **The Dairy Cow controversy**

“To Deworm or Not Deworm?”

- **Pharmaceutical companies have vigorously promoted the practice of deworming lactating dairy cows**
- **Studies are inconclusive**
- **Data is insufficient to make blanket recommendations to treat based on cost-benefit considerations**
- **The appetite factor**

Dairy Cows



- Each farm must be evaluated separately
 - How much nutrition from pasture do cows get?
 - can do experiment on farm
- Treatment at calving may remove an additional source of stress
 - may increase milk production
 - Tx probably justified if cows are on pasture during dry period - usual mgmt scheme

Dairy Cows

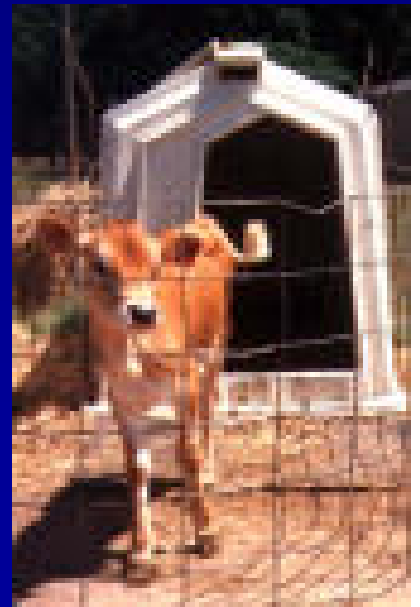
- Treatment choices (all have 0 day withdrawal)
 - Eprinomectin, moxidectin
 - persistent, expensive
 - Fenbendazole
 - short acting, cheap



Dairy Replacement Heifers

(9 - 24 mo. old)

- In their first season at grass are highly susceptible to parasitism
 - at great risk for production loss and clinical disease
 - decreased but significant risk in 2nd year
- Usually raised in confinement until old enough to graze effectively
- Once on pasture, often the most neglected animals on farm



Dairy Replacement Heifers

- Have not yet developed acquired immunity to GI parasites
- Without effective control will acquire heavy infections
 - shed large numbers of eggs in feces
 - heavily contaminate pasture with L3



Dairy Replacement Heifers

Northern US

- **Treat at turnout and again 8 - 10 weeks later with eprinomectin, doramectin, moxidectin**
 - **less handling – only need to work cattle 1 additional time**
 - **protected by residual drug activity during weeks 1-4/5 and 8-11/12**
 - **residual drug activity allows animals to actually clean up pasture – ingested L3 killed**
 - **no significant pasture contamination until >15 weeks into grazing season**

Dairy Replacement Heifers

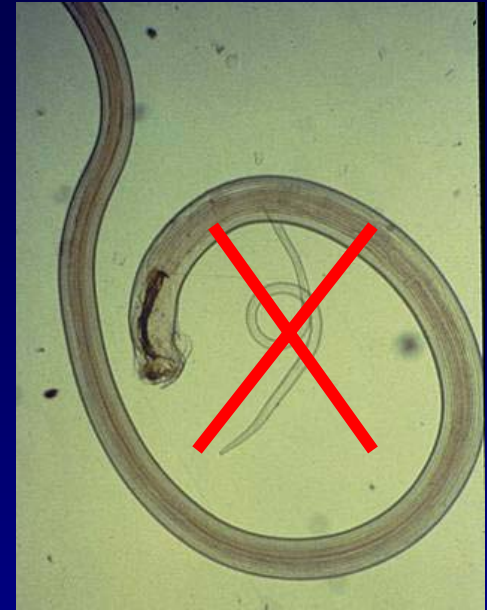
Southern US

- **No comparable programs have been worked out for the deep south**
- **Will depend upon timing (season) of turnout to pasture – type of production system**
- **Same strategy as for spring turnout in north?**
 - **will control worms but is it economically justified? -- may or may not be**

Dairy Replacement Heifers

Southern US

- Mid-Summer treatment (AM)
 - break *Ostertagia* life cycle
 - probably single most important treatment
 - Also get benefit of horn fly control
- Autumn treatment
 - timing depends upon management system and whether mid-summer Tx was given
 - 0 & 8-10 week Tx with AM may be best
 - Autumn - *Ostertagia* transmission begins



Dairy Replacement Heifers

Southern US

- **Deworm prior to turnout onto winter pasture**
 - **if turn out to clean pasture (winter-spring annual pastures)**
 - **1 - 2 treatments should be sufficient**
 - **if turn out to safe pasture (permanent pasture ungrazed for some period of time)**
 - **2 - 3 treatments**
 - **Do not turn out to contaminated pasture**
 - **Will need to treat throughout grazing period**



Beef Brood Cows



- No consensus on whether treatment is economically justified
 - similar arguments as for dairy cows
 - FEC are not reliable indicators of need for TX
- Healthy cows should probably be given a single treatment during the:
 - mid-summer in the southern states
 - late-fall, winter in the northern states
 - to kill inhibited *Ostertagia*

Beef Brood Cows

- **Poorly-conditioned southeastern brood cows should be given an additional treatment in the winter (Jan - Feb)**
 - eliminate worms acquired during the late fall and early winter when poor nutrition compromised their acquired immunity to worms
 - Most common time for calving – high physiological demands
 - new grass growth as spring approaches will improve nutrition -- improve level of immunity
- **Pre-breeding treatment (late spring) may be beneficial (improve fertility)**
 - time of year, condition of cows, previous treatments given, etc.

Vicious Cycle

poor nutrition - worms - anorexia



Nursing Beef Calves

- **Preweaned calves acquire relatively few worms**
 - level of pasture contamination with larvae from the relatively immune brood cows is low
 - much of their nutrition comes from mother's milk instead of grass
 - \$ better spent treating cows to increase milk production



Nursing Beef Calves



- **Spring - born calves in the south:**
 - treat in mid-late summer - inhibited *Ostertagia*
 - horn flies
- **As a general rule, calves should be dewormed at weaning**
 - weaning is very stressful
 - worms may be able to "get the upper hand" on otherwise healthy calves
 - stress + parasite infections will reduce immunity to other pathogens and may reduce IR to vaccines
 - Best to treat 2 – 3 weeks before weaning

Stocker Cattle

why is health management such a problem ???

- Most calves entering stocker programs have been recently weaned
- Often commingled with calves from many sources
- Exposed to many diseases for the first time
- "Off feed" for many days
- Many of the calves may never have received a vaccination

Stocker Cattle

why is health management such a problem ???

- Calves must establish a new social order
- Adapt to different feed stuffs
- Adjust to new surroundings
- In some cases acclimate to new weather conditions

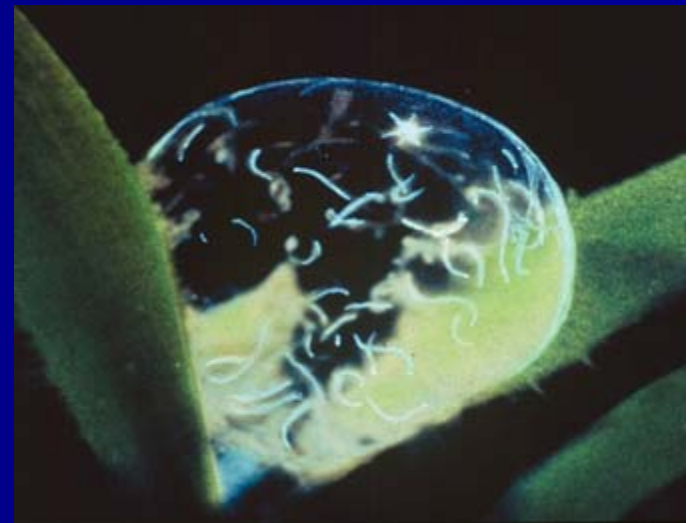


All This Equals High Stress Levels

- Increased susceptibility to viral and bacterial disease
- Increased susceptibility to parasites
 - Parasitic infections can have major impact on:
 - overall health
 - general susceptibility to disease
 - immune response to vaccinations
 - **animal growth**

Stocker Cattle Are At Great Risk For Production Loss

- Relatively large size and therefore large amount of feces produced combined with potential for high FEC can lead to very high levels of pasture contamination and parasite transmission



Stocker Cattle Are At Great Risk For Production Loss

- Additional risk because traditional stocking period of late autumn, winter, early spring in the southern states are conducive to development and survival of infective larvae - especially *Ostertagia*



Beef Stocker Calves & Replacement Heifers



- Unlike DRH raised in confinement and therefore “worm-free” when turned-out to pasture, beef animals will be infected
- In general, recommendations are virtually the same as for dairy heifers

Beef Stocker Calves

Southern US

- **Spring-born calves**
 - deworm at weaning (in fall) prior to turnout onto winter pasture
 - additional treatments as per DRH
- **Fall-born calves**
 - Treat cows in mid-summer
 - best \$\$ spent on dewormer for these calves
 - minimize *Ostertagia* contamination of pastures in fall - winter
 - Tx at weaning (late spring/early summer)



Feedlot Cattle



- **Generally treated with anthelmintic on arrival**
 - usually given an avermectin/milbemycin
 - kills internal and external parasites (mange)
 - kills arrested larvae with high efficacy
 - Goal = maximize weight gain
 - Remove any worms that might suppress appetite
 - **Ivomec-plus if from fluke-endemic region**
 - **IVM + clorsulon**

Herd Bulls



- Males are much more susceptible to parasitic infection and disease than females or neutered males
- Even though bulls have acquired immunity to trichostrongylids, they require more intensive management than cows
- Tx prior to breeding season
- Tx again mid-summer (south) and manage like stocker cattle during the autumn and winter
 - Stocking density is important to decision