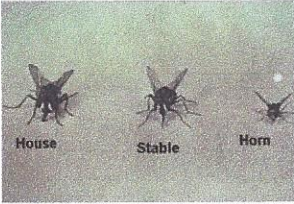


Muscid Flies

DIPTERA: Muscidae
house fly, face fly, horn fly, stable fly



Muscid Flies

Where they're produced

Horn fly – fresh manure] Range and pasture
Face fly – fresh manure	
House fly – organic material, garbage, feces, wet media to support aerobic microbial fermentation] Confined animal facilities
Stable fly – mixture of organic material (feed, manure, soil) and moisture (water, urine)	

Horn Fly

Life History

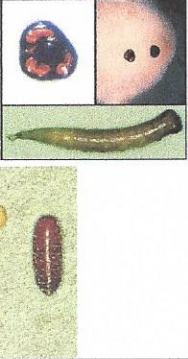
Egg: oblong, white, 25 – 30 per day

Larva: legless, tapered, feed on wet substrate,

Pupa: barrel shaped

Adult: house fly shape



Developmental time:
1 to 3 weeks in summer



Horn fly

Piercing mouthparts

- Lacerates skin
- Ingest blood: ♂ & ♀
- Obtain all nutrients from blood

Horn Fly

- Most common summer time pest on pastured cattle
- Adult flies spend 95% time on animal
- Prefer mature, weaned cattle
- Both sexes feed on blood, 25X per day
- Bites are painful

Horn Fly

Impact

- US losses estimated @ \$100 million
- 300+ flies for > 1 month WILL:
 - Reduce calf weaning weights (10 – 20 lb)
 - Decrease milk production
- Stocker cattle
 - Weight reduction (up to 18%)
- Expend energy
 - Defensive responses (tail flicks, head tosses, restless)
 - Spend more time walking, less time grazing

Horn Fly

Management

Mechanical

Biological

Chemical

- direct application
- self-application
- sustained release devices



Horn fly management

Mechanical

- Physically removing flies from cattle

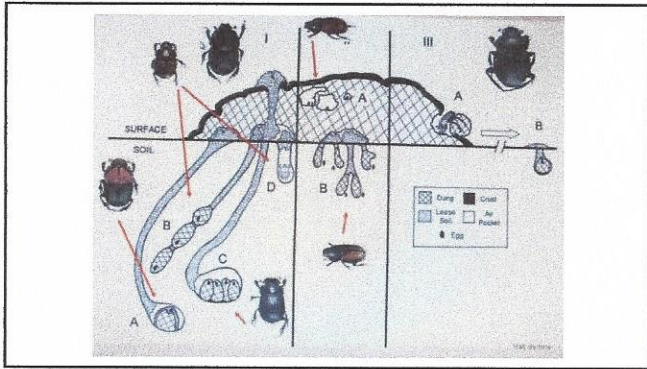
<http://www.youtube.com/watch?v=vANO6NV8-Jo>

Horn fly management

Biological

- Wasp parasites
 - Parasitize pupae
 - Releases across range and pasture labor and cost intensive
 - Short dispersal distances
 - Parasitism rate is low (5% seasonal average NE)
- Predators
 - Staphylinids and histerid beetles
 - Feed on eggs, larvae and pupae
- Competitors for same food source
 - Dung beetles
 - Reduce dung accumulation
 - Improve pastures
 - Increase fertility, improve soil structure,





Horn fly management

Chemical

Direct Application

- Sprays and pour-ons
 - Avermectins (ivermectin and generics)
 - Pyrethroids
 - Spinosad
- 2 – 6 wk horn fly control



Horn fly management

Chemical

Self-application: Dust bags, oilers

- Forced-use is best
- 75 – 80% control
- 1 bag per 10 – 20 mature cattle
- Check weekly



Horn fly management

Self-application

Oilers/backrubbers

Chain wrapped with burlap
Diesel + insecticide
(1 gal : 1 pint)

Pyrethroids, Co-Ral,
Ravap



Horn fly management

Sustained release

- Altosid + mineral tub
- Target consumption 4 oz per head per day
- 1 tub per 20 – 30 animals
- IGR passed out in manure, kills fly larvae
- Flies migrate, area wide control necessary



Mineral Supplement + IGR insecticide

- Tub and loose mineral
- Cattle separated (½ - 1 mi)
- Free choice
4 oz. per day
- Tubs weighed weekly
- Mineral supplied as needed
- Manure pats collected weekly
(treated and control)
- Fly counts taken weekly

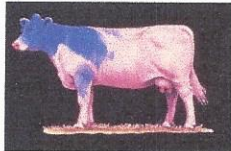


Loose Mineral Supplement + IGR insecticide

Conclusions

- Consumption excellent (≥ 4 oz per day per head)
- Very good larval control
- No effect on adult flies
- Flies will migrate to treated cattle from untreated cattle (1/2 to 1 mile not enough)
- Migrating flies affected outcome

Horn fly management



Insecticide ear tags

> Revolutionized horn fly control

- Insecticide slowly released
- Distributed through hair coat
- Kills horn flies on contact



Horn fly management

Insecticide impregnated ear tags

Advantages

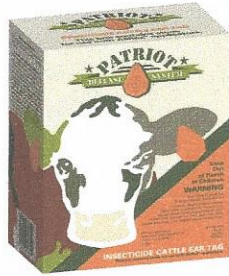
- ease of application,
- long duration of efficacy,
- small amounts of insecticide is placed in the environment and only on specific targets, and
- reduced risk to applicators



Horn fly management

Disadvantages

- Cost
- Resistance



Horn fly management

Resistance Management

- ✓ Alternate ear tag chemistry
- ✓ Alter application methods
- ✓ Don't tag before onset of fly season
- ✓ Tag bulls, cows, steers, not calves
- ✓ Remove tags at end of fly season



Summary Horn Fly Control

- Dust bags / Oilers
 - Good control, no resistance problems
 - Weekly checking, repair/replace bags
- Feed additives and boluses
 - Convenient
 - No effect on migrating flies
- Sprays / Pour-on
 - Economical
 - Multi-applications
- Insecticide ear tags
 - Easy to apply
 - Resistance



Muscid Flies

Face fly *Musca autumnalis*

- Nonbiting fly
- Introduced in North America in 1952
- Prefers temperate, moist areas
- Common in parts of Montana
- Females feed on facial secretions



Face Fly

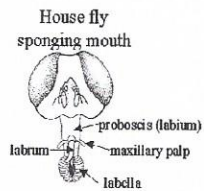
- Eggs deposited in fresh manure
- Larvae feed in manure
- Pupate in soil
- Adults active from April – October
- Overwinter as adults



Face Fly

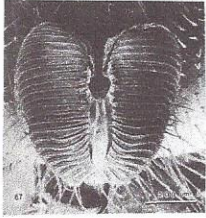
Mouthparts

- Spongy with prestomal teeth
- Can't cut skin
- Ingest liquids
- Common among other filth flies

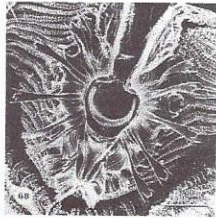


Face fly

Feeding abrades eye tissues



House Fly



Face Fly

Face fly feeding on conjunctiva





Steer after 5 days of confinement with house flies



Face fly

Effects on cattle

- General annoyance
- Damage eye tissue
- Mechanical vector of pinkeye
 - *Moraxella bovis*
- Biological vector of eyeworm, *Thelazia*

Face Fly Management

- Mechanical
- Biological
- Chemical
