starbar

A HIGHER LEVEL OF CONTROL

starbar 101

Introduction to Entomology

Why Control Insects?

- Three main reasons controlling insects is necessary
  - Nuisance
  - Economically damaging to crops and livestock
  - Disease transmission

Major external pests of livestock

- Flies
  - Common names
    - Houseflies, Face flies, Stable flies, Horn flies, Horse and Deer flies and Heel flies
  - Disease transmission
    - *E. coli,* Anaplasmosis, Pinkeye, *Thelazia* worms, Mastitis
  - Many characteristic responses to fly pressure on cattle

Major external pests of livestock

- Typical response to heel fly that is commonly called a “gadding response.”
- Heel flies are the adults of cattle grubs or cattle bots.
- Heel flies are non feeding in the adult stage and spend little time on the animals, which make them difficult to control.

Major external pests of livestock

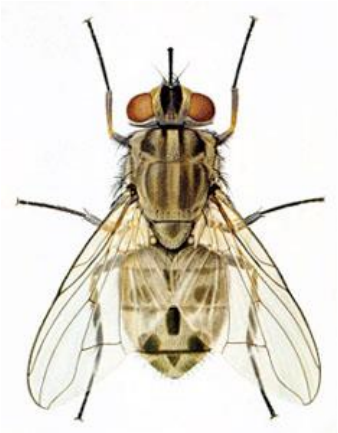
- Cattle will often stand in water to escape annoyance and irritation from flies

- Most likely to avoid heel flies, stable flies or heavy horn fly pressure

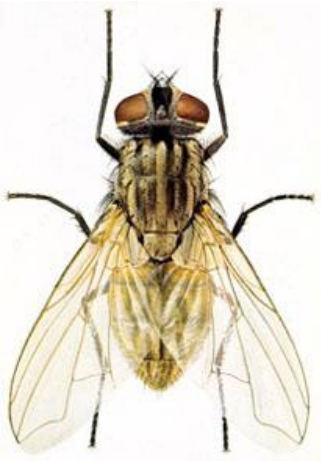
Major external pests of livestock

HORN FLY

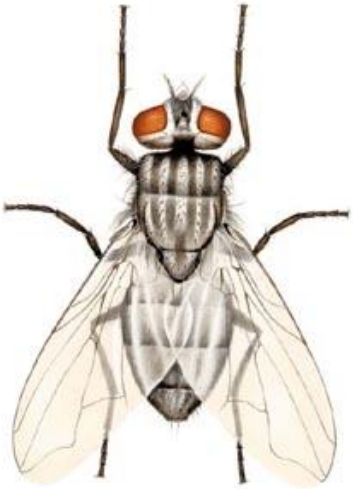
STABLE FLY



HOUSE FLY



FACE FLY



Housefly, *Musca domestica*

- Commonly associated with livestock, livestock facilities and human garbage.
- Feed on a variety of animal waste and human garbage.
- Solid foodstuff is first liquefied with saliva and then ingested with the sponging, sucking type mouthparts.

Housefly, *Musca domestica*

- Adults feed close to the ground.
- Resting sites are stationary objects such as wires, fences, and vegetation outdoors and on walls, ceilings and pipes inside buildings.
- Monitoring
  - Sticky traps
  - 3x5 index cards

Housefly, *Musca domestica*

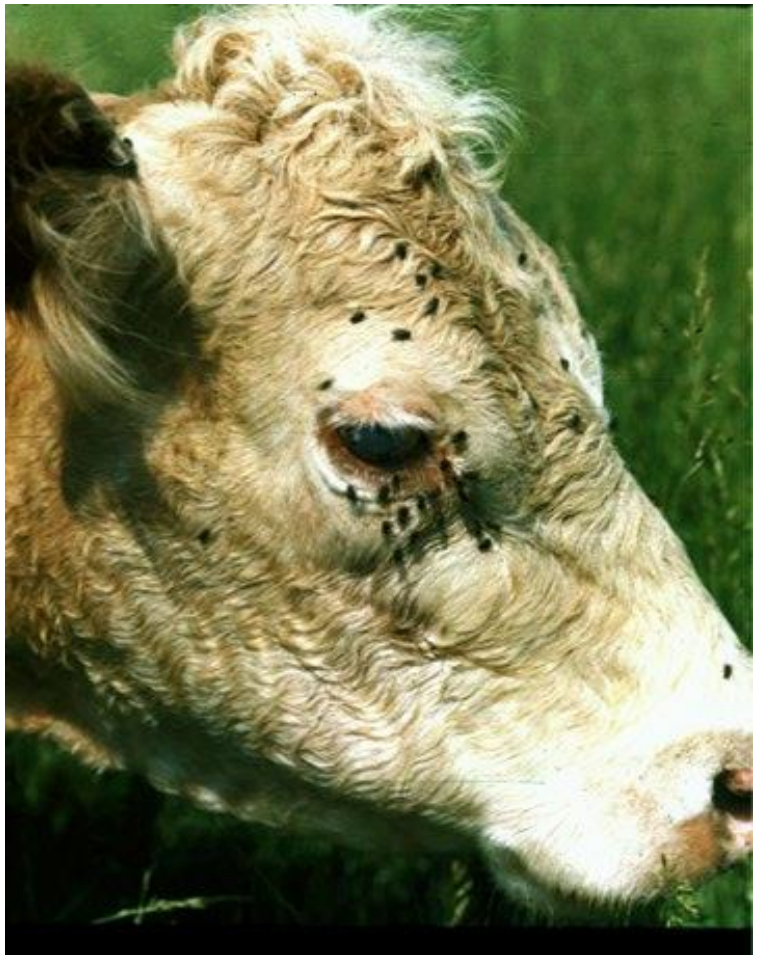
- Economic importance
  - Often confused with Face flies
  - Annoyance of livestock and workers
  - High populations close to residential areas create increased number of complaints by homeowners
  - Mechanical disease transmission

Housefly, *Musca domestica*

- Control
  - Premise sprays
  - Baits and bait stations
  - Sticky traps
  - Cultural control that includes reducing available breeding sites
  - On animal applications are NOT recommended

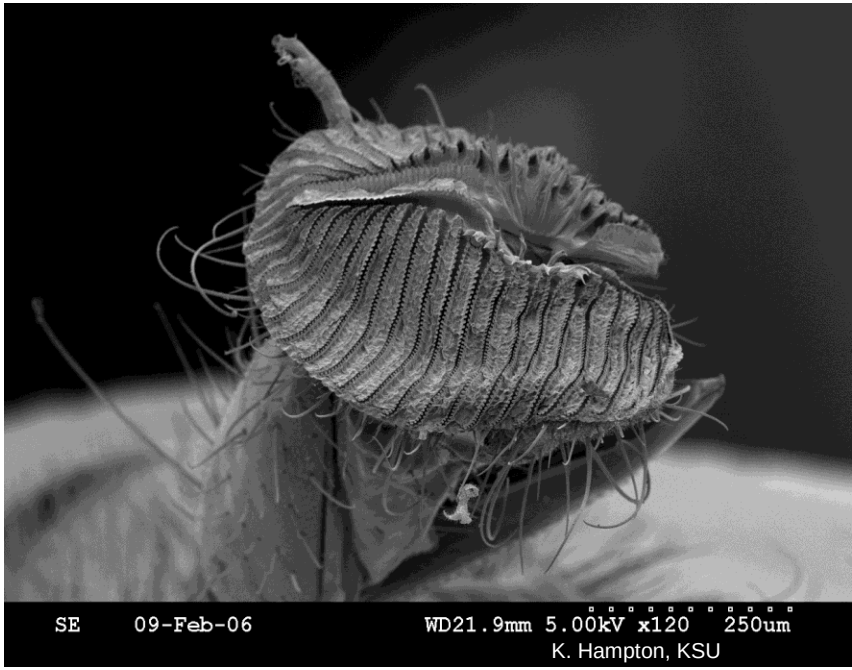
Face fly, *Musca autumnalis*

- Hosts
  - Cattle, other bovids and horses; occasionally feed on other animals
  - Prefer cooler climates



Face fly, *Musca autumnalis*

- Face flies are classified as non-biting flies
- Mouthparts are sponging, sucking similar to that of the housefly



Face fly, *Musca autumnalis*

- Biology
  - Only about 5% of the population are actually on the cattle
  - Females need more protein than males so 70% - 75% of the flies captured on animals are females
  - Males tend to feed on pollen/nectar
  - As the season ends, many flies will overwinter as adults in barns and attics and are referred to as cluster flies.

Face fly, *Musca autumnalis*

- Damage
  - Direct and indirect
    - Damage eye tissue
    - Transmit pinkeye and eyeworms (*Thelazia* spp.)

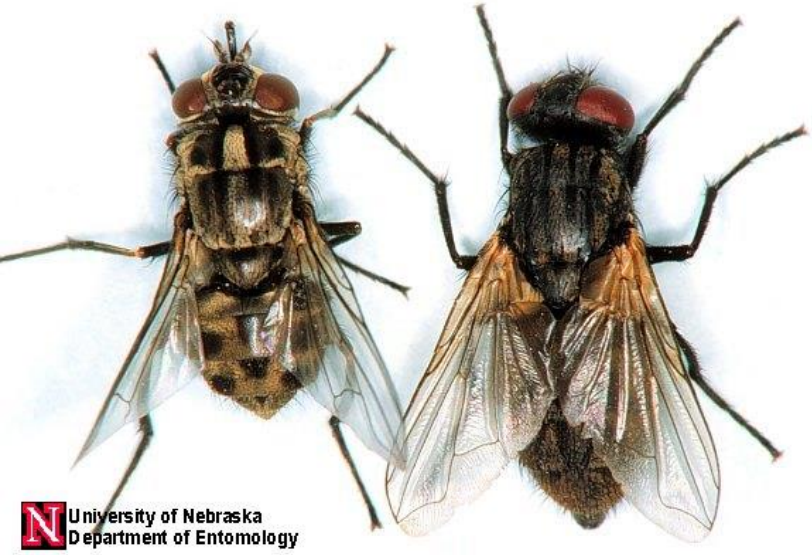
Face fly, *Musca autumnalis*

- Control
  - Pour-ons, back rubbers, dust bags, spot-ons, insecticidal ear tags, sprays, and dips on animals
  - Residual sprays in barns can be effective during the cool season

Stable fly, *Stomoxys calcitrans*

- Will attack a wide range of host animals
- Primarily feed on the legs of animals
- Persistent feeders inflicting a painful bite that causes considerable irritation

Stable fly, *Stomoxys calcitrans*



- Slightly smaller
- Checkerboard abdomen
- Distinct piercing, sucking mouthparts

Stable fly, *Stomoxys calcitrans*

- Piercing, sucking type mouthparts
- Both sexes feed on blood, females feeding more often because of requirements to produce and lay eggs
- Do not reside on animals
- Spend most of their time resting on vegetation or building structures

Stable fly, *Stomoxys calcitrans*

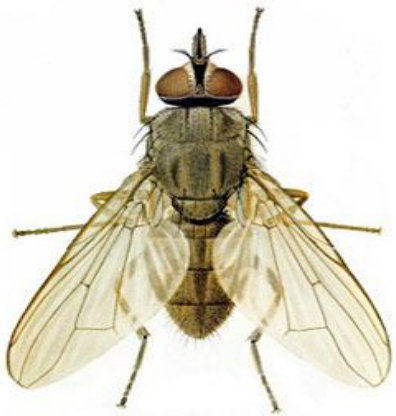
- Breeding sites
  - Eggs are typically laid in an area that contains a high amount of organic material
  - Become more of a problem in pastured cattle as round bales are fed.

Stable fly, *Stomoxys calcitrans*

- Economic threshold
  - 2 to 4 flies per leg

- Damage
  - Annoyance, loss of blood and loss of flesh
  - Viral infections
  - Have been shown to transmit mastitis

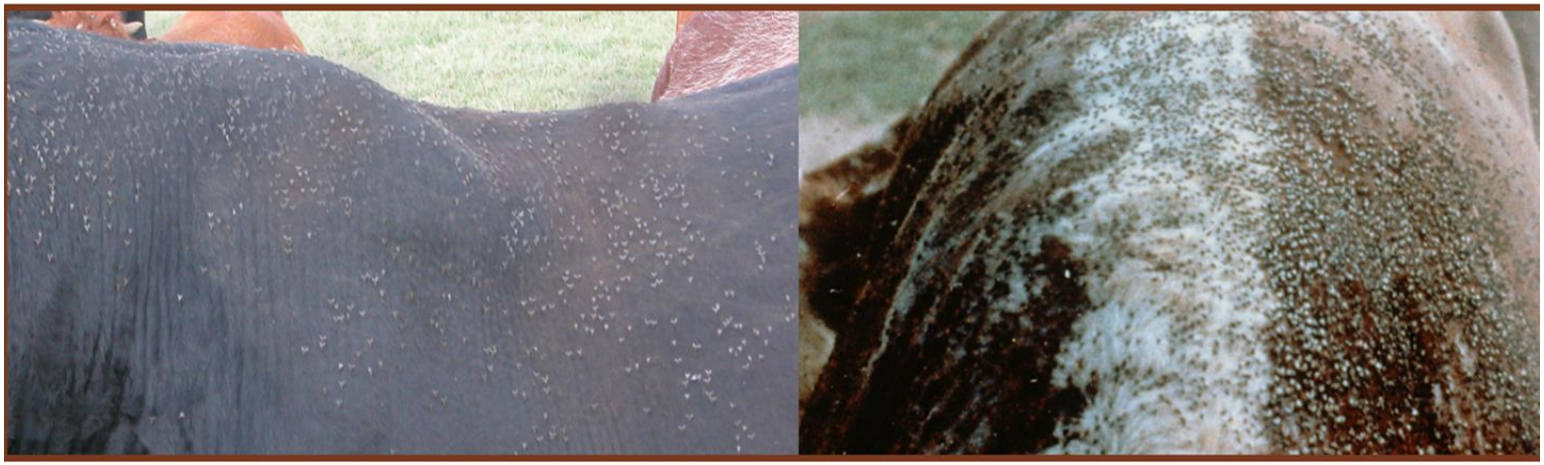
Horn fly, *Haematobia irritans*



- Of the 4 species shown, the smallest is the most economically damaging to the cattle industry.

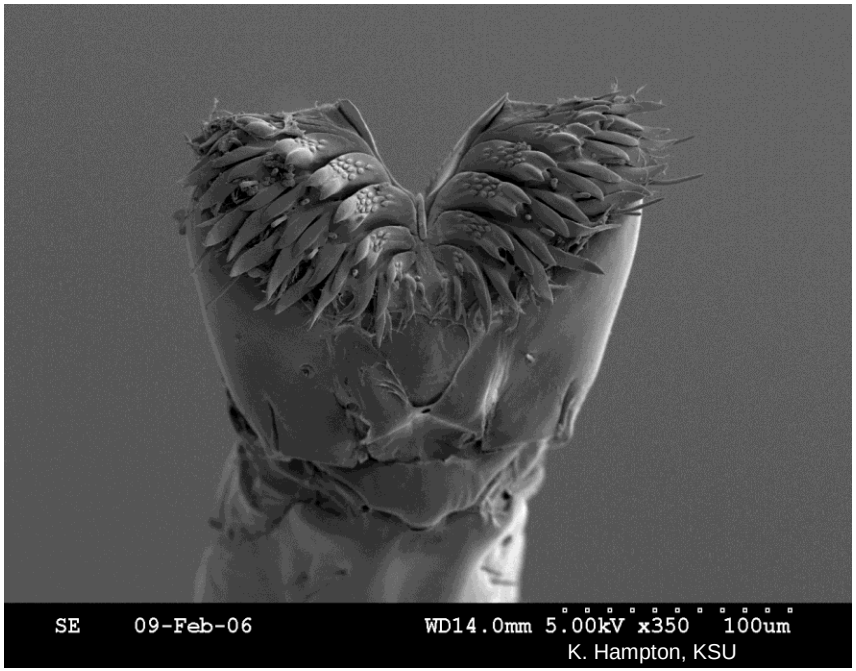
Horn fly, *Haematobia irritans*

- Small fly, about half the size of a stable fly
- Named for their behavior of clustering around horns of cattle in Europe, they cluster primarily on the backs of cattle in the U. S.



Horn fly, *Haematobia irritans*

- Piercing, sucking mouthparts
- Feed 30 to 40 times per day
- Remain on the host day and night
- Leave only to deposit eggs in manure



Horn fly, *Haematobia irritans*

- Pests of pastured cattle only
  - Eggs are laid in fresh (2–5 min. old) cow manure pats that are undisturbed
- Populations
  - 10,000 to 20,000 flies per animal reported in literature
  - 1,000 to 4,000 flies per animal are common in mid-summer months
- Economic threshold
  - 200 flies per animal

Horn fly, *Haematobia irritans*

Horn fly, *Haematobia irritans*

- Horn flies are often found on the sides and bellies of animals during the heat of the day

Horn fly, *Haematobia irritans*

- Damage caused by horn flies
  - Irritation
  - Annoyance
  - Sores ~ secondary infection
  - Blood loss
  - Stress

Photo by: Casey S. White

Horn fly, *Haematobia irritans*

- Results in…..
  - Kicking
  - Stomping
  - Head slinging
  - Tail swishing
  - Standing in water
  - Running

Horn fly, *Haematobia irritans*

- Translates to…..
  - Reduced grazing time
  - Energy consumption
  - Decreased feed eff.
  - Lower milk production
  - Decreased wt. gain
  - Lower BCS
  - Lower conception rates

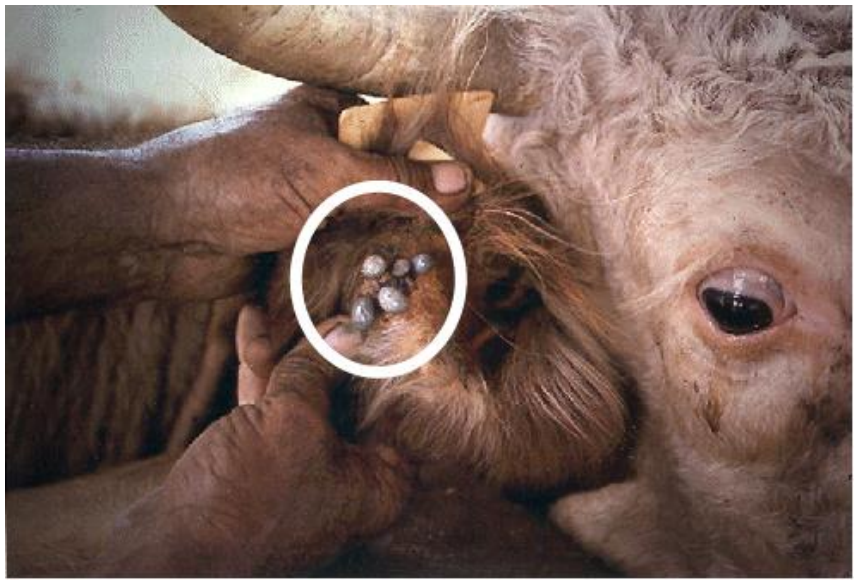
Horn fly, *Haematobia irritans*

- Control
  - Dust bags
  - Back rubbers
  - Whole animal sprays
  - Pour-ons
  - Insecticidal ear tags
  - Feed through products

Major external pests of livestock

- Ticks
  - Common names
    - Lone star tick, Gulf coast tick, Black-legged tick, Spinose ear tick, Southern cattle tick, Cattle fever tick, Winter tick, Tropical horse tick, American dog tick
  - Disease transmission
    - Anaplasmosis, Rocky Mountain spotted fever, Babesiosis, Texas cattle fever

Major external pests of livestock



- Engorged Gulf coast ticks
- Gulf coast ticks tend to feed primarily on the ears of cattle.
- Cattle that have been heavily infested may be missing parts of their ears which is termed “gotch” ear.

Major external pests of livestock

- Lice
  - Longnosed cattle louse
  - Shortnosed cattle louse
  - Little blue cattle louse
  - Cattle tail louse
  - Cattle biting louse

Major external pests of livestock

- Cattle biting louse infestation
- Treatment Threshold
  - More than two lice per four inches monitored
  - More than ten/inch have significantly reduced weight gains in cattle