Organic Livestock Production
Yreka
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What rules govern organic livestock production?

- USDA's National Organic Program
  - Maintains a list of allowed and prohibited substances (7CFR 205.603)
  - 15 member advisory board – evaluates and improves standards
  - Accredited certification agencies – grant or revoke organic certification
  - Organic inspectors – do not grant or revoke certification, provide information to agencies who decides

Basic rules – organic food must be produced without

- Conventional pesticides
- Petroleum-based fertilizers
- Sewage sludge based fertilizers
- Herbicides
- Genetic engineering
- Antibiotics
- Growth hormones
- Irradiation
- Always check with verifier if specific brand or product is approved

More basic rules – animals must

- Not be fed antibiotics
- Be fed 100 % organic feed (except trace minerals and vitamins)
- Have access to the outdoors
  - At least 120 days certified organic pasture for ruminants and for entire grazing season
  - At least 30% DM from organic pasture during grazing season
    - Except during finishing period

Records are critical

- Births
- Vaccinations
- Health issues and treatments
- Castration
- Weaning
- Movements

Prevention is cornerstone of organic animal health

- Biosecurity – separation, cleaning & disinfection
- Genetics – using breeds adapted to the climate and feed, resistant to parasites, choosing resilient replacements
- Low stress – includes shelter, handling, controlling predation, avoiding overcrowding
- Exercise – express normal behaviors
- Minimize exposure to disease and parasites – biosecurity - closed herds, limit visitors, C&D, grazing management
- Vaccination – allowed under NOP

Biosecurity

- Separation: quarantine pens, good fences, limit visitors
- Cleaning and disinfection:
  - Organic debris must be removed before disinfection
  - Allowable products:

What to C&D:

- Vehicles, trailers for transport
- Machinery used in animal areas
- Footwear
- Tools and equipment

Genetics

- Sheep with low fecal egg counts –
  - Lambs have higher immunity to parasites
  - Respond better to vaccination
- Cull underperforming animals

Nutrition

- Knowledge of toxic plants in the area

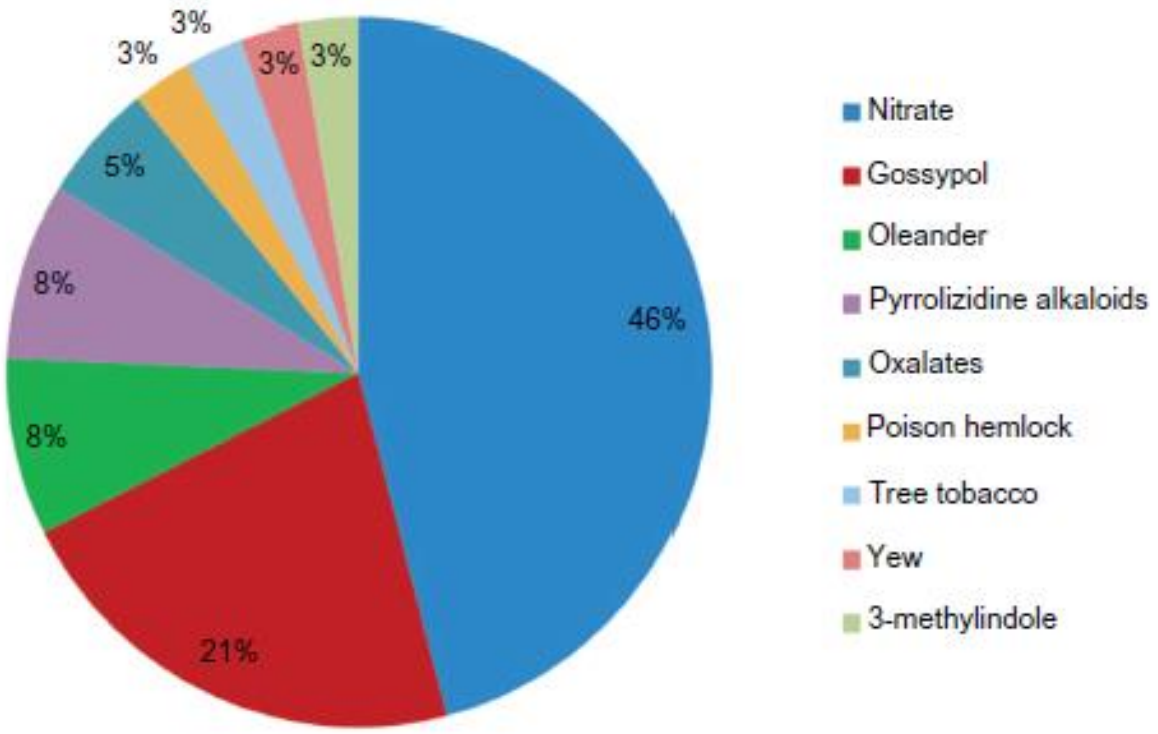

Figure 2 Break-down of the most common poisonous plant-related intoxications in cattle diagnosed by the California Animal Health and Food Safety Laboratory System.
Note: Incidents are reported as % of total plant intoxications (n = 37) between January 1, 2000 and December 31, 2011.

Varga and Puschner, 2012

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Livestock-Poisoning Plants of California

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Poisonous plants cause significant losses of livestock every year. A successful livestock operator must know which poisonous plants occur on a given range or pasture and how they can be controlled or avoided. This publication shows which plants are poisonous, tells how they affect stock, and suggests ways to reduce losses from poisoning.

Undesirable effects may result from a single ingestion of a large amount of a poisonous plant, but some plants are so toxic that very small amounts may result in severe disease or death. Other plants cause chronic poisoning only after ingestion over weeks or months. The later situation may result in clinical signs long after the exposure to the toxic plant material, and treatment may no longer be possible.

With few exceptions, livestock will not eat poisonous plants unless forced to by hunger. The single most important way to prevent poisoning is to use proper range and pasture management practices to provide ample forage, encouraging consumption of nontoxic plants. Areas infested with poisonous plants should be avoided when trailing, holding, or unloading animals. Supplemental feed may protect stock if these conditions cannot be avoided, but there are circumstances (for example, herbicide applications) that may change palatability or increase toxicity in some plants. If toxic weeds are embedded in alfalfa cubes or included in total mixed rations, animals may not be able to avoid ingestion of them.

Many poisonous plants may be controlled with herbicides. Often, however, the uneven distribution

Trace minerals

- Analyze forage
- Animal samples – blood, liver bx
- Submit carcass to CAHFS lab and request trace element screen

Water source

- The most important nutrient
- Animals always need clean, fresh water
- Scrub water tanks in summer to get rid of algae
- Chip off ice in winter
- Water quality

Table 1. Desired and potential levels of pollutants in livestock water supplies.

Substance	Desired range	Problem range
Total bacteria/100 ml	<200	>1,000,000
Fecal coliform/100 ml	<1	>1 for young animals >10 for older animals
Fecal strep/100 ml	<1	>3 for young animals >30 for older animals
pH	6.8–7.5	<5.5 or >8.5
Dissolved solids, mg/L	<500	>3,000
Total alkalinity, mg/L	<400	>5,000
Sulfate, mg/L	<250	>2,000
Phosphate, mg/L	<1	not established
Turbidity, Jackson units	<30	not established

Note: 1 milligram per liter (mg/L) is approximately equal to 1 part per million (ppm).
Source: From the *Agricultural Waste Management Field Handbook*, page 1-16. Based on research literature and field experience in the northeastern United States.

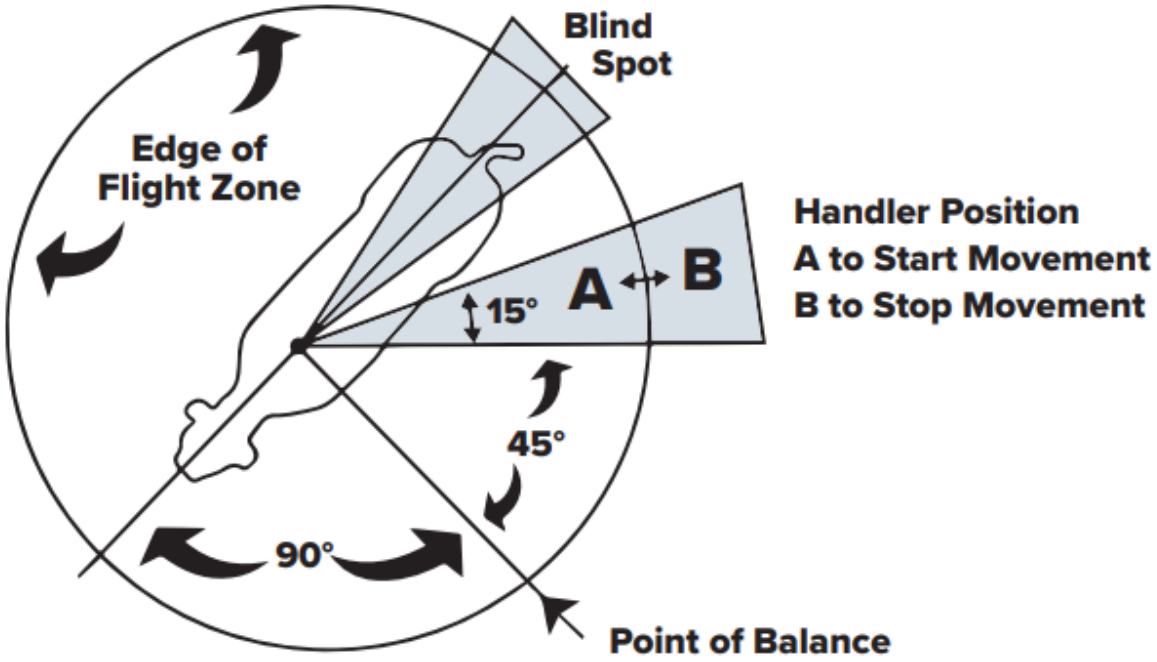
Pfost et a. Water Quality for Livestock Drinking

Sources of Stress

- Weather extremes
  - Shelter, shade
  - During heat stress:
    - adapt feeding times: feed at night/early morning, avoid feeding at hotter times of day
    - Feed smaller amounts more frequently
  - During cold stress:
    - Increase energy

Movement / Transportation

- First experiences must be positive
  - Walk through chute without catching
  - Provide reward after handling / transportation
  - Utilize flight zones
  - Drive without abrupt movements, starts/stops



Other types of stress

Predation stress:

- Fencing
- Guard dogs, llamas, donkeys

Overcrowding stress:

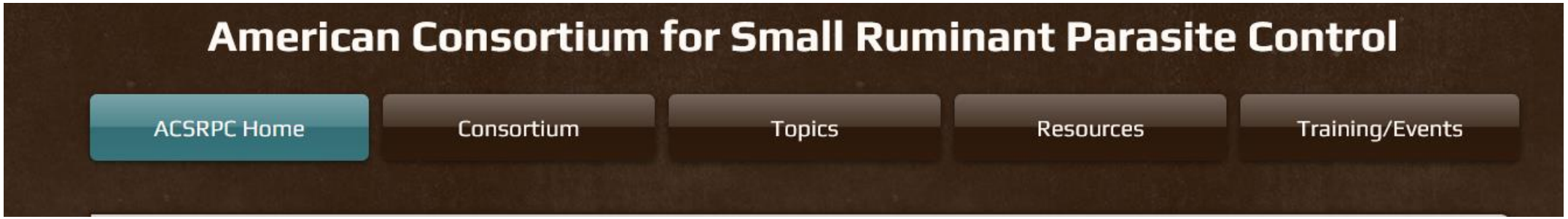
- Harder to keep hygienic
- Competition for feed, shade, etc.

Vaccination

- What are core vaccines for your species?
  - Cattle: Clostridial 7/8 way, 5-way viral respiratory +/- Lepto, Vibrio for breeding
  - Sheep/goats: CD&T
  - Pigs: Erysipelas, Porcine Circovirus, Clostridia, etc….
  - Poultry: Marek's, Newcastle, Infectious Bronchitis

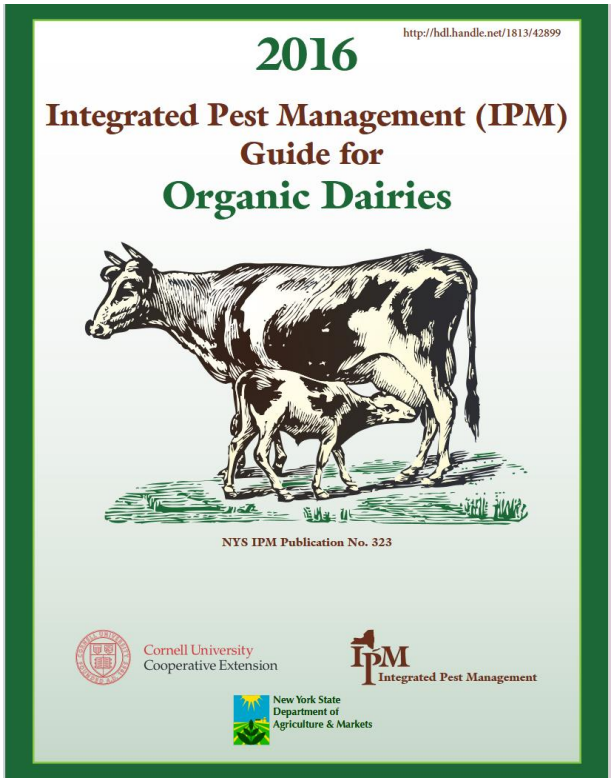
Internal Parasites

- Young are more susceptible – graze first on fresh pasture
- Don’t graze below 4 – 6 inches
- Rest pastures for 45 – 60 days
- High tannin forages reduce egg counts in sheep and goats (*Sericia Lespedeza)*
  - Does not work: Garlic, papaya, diatomaceous earth, pumpkin seed



External parasites

- Traps, sticky tape, etc.
- Predatory wasps work on smaller radius, but need to replenish
- Wind – ventilators
- Dung beetles – can bury up to 90% of cow manure in a pasture in one week
- Muscovy ducks search for larvae in manure pats
- Organic sprays often useless



Treatments when animals get sick

- "It's better to have a live animal than a dead organic animal."
- You must not withhold medical treatment from an animal to preserve its organic status.
- Careful if selling milk: organic treatments need veterinary label including withdrawal times

Available treatments

- Acupuncture
  - Reproductive issues
  - Injuries, lameness
- Botanicals
  - Aloe products: skin issues, improves immune function, must be certified organic, should contain 4000 – 5000 mucopolysaccharides per liter.
  - Essential oils: Peppermint, Lavender, Geranium, Pine – use 100 % therapeutic grade – more research needed
- Immune modulators: Amplimune: ETEC, infectious disease extra-label – requires prescription
- Pinkeye treatment: Vetericyn pinkeye spray – has shown efficacy

More treatments

- Prebiotics / probiotics
  - Aid in a healthy gut microbiome
- Trace and macro elements
  - Chelated or proteinated minerals are more bioavailable than inorganic forms of minerals

Questions?