

Excerpts from: (found in US Dairy Data Base <http://www.inform.umd.edu:8080/EdRes/Topic/AgrEnv/ndd/>)

PENNSYLVANIA DAIRY HEALTH AND BIOSECURITY MANUAL

Pennsylvania State University
Compiled by: Larry J. Hutchinson, D.V.M., extension veterinarian
Tina L. Smith, D.V.M., assistant extension veterinarian
Carolyn M. Burns, veterinary extension assistant

This manual is divided into eight sections. The first is a checklist, or calendar, of H/Bio practices. It is designed to help you organize, plan for, and carry out necessary H/Bio procedures. While the manual authors have suggested many specific procedures and their timing, the checklist also is meant to be customized by you and your veterinarian for your herd, in your situation and location. The remainder of this manual is a series of information sheets on Health/Biosecurity subjects and practices. This information will tell you the whys and the hows of the checklist practices. The information sheets are arranged by section:

Control of New Arrivals.
Control of Farm Traffic.
Separation of Groups.
Sanitation/Disinfection.

Preventive. Medicine
Maintaining High Disease Resistance
Meat and Milk Quality

CONTROL OF FARMTRAFFIC

Controlling traffic and visitors is an often forgotten but much needed part of biosecurity. Without good traffic control, the health of animals may be compromised and diseases spread by everything from infected garments to large and small equipment. **People spread contaminated material directly by means of boots, shoes, hands, and clothing.** Indirectly, disease can be transmitted by shared hoof trimmers, or on truck tires, farm machinery, and other equipment passing between farms.

Contamination and disease can also be spread within a particular farm, for example, by use of tools on healthy animals following their use on sick or infected animals. Avoid the use of common syringes and needles between cows to vaccinate, blood test, or administer drugs. This practice can promote the spread of diseases such as bovine leukosis from infected animals or carriers to noninfected animals.

Visitors should follow strict sanitation rules set by each farmer. Clean overalls and disinfected rubber boots or plastic disposable boots should be worn. Keeping a supply of **disposable boots** and extra pairs of clean overalls makes enforcing rules easier. Plastic disposable boots are available from your local farm supply or some farm supply catalogs*. **Boots should be changed or disinfected between farms or on the same farm after contact with unhealthy animals.**

Additional steps also help biosecurity. **Discourage visitors from entering the animal housing or feeding areas. Designate a specific visitor area to minimize contact with human carriers of disease.** Recording the names and addresses of visitors and the dates of their visits sometimes allows disease **outbreaks to be traced back to the carrier** if the particular incubation period of the disease is known.

Vehicles such as livestock trucks and tractors can be a source of contamination between farms. Ideally, the inside of beds, the bottom surfaces of vehicles, and the tires should be sprayed and disinfected prior to entering a farm. An alternative method to minimize outside contact with your herd is to place holding pens or hutches away from main housing areas. This way, the truck and driver avoid contact with all but one particular area and animal.

Domestic animals also are potential disease carriers. Cats and dogs can travel between animal groups on a farm or even between farms, thus spreading microorganisms. When possible, prevent dogs and cats from roaming the countryside. Their contact with dairy animals and feeding areas within a farm should be minimized. Traffic control is needed not only for humans and domestic animals, but also for wild animals such as rats, mice, birds, and predators. Specifics on these problems are covered in Birds, and Rats and Mice in this section.

Suppliers of plastic boots:

Nasco Farm and Ranch Catalog
901 Janesville Avenue
Fort Atkinson, WI 53538
(414)563-2446

Creutzburg Inc. Livestock Supplies
Box 7
Paradise, PA 17562
(717) 768-7181 collect or 1-800-233-0331

Bird/Rodent Pests and Feed

Avoid the Problem. One of the primary reasons birds are attracted to livestock facilities is the superabundant food source that is available. To minimize the likelihood of large numbers of birds concentrating in and around farm buildings, limit the availability of food and water by following these farm management practices on a daily basis:

1. Clean up all spilled grain.

2. Store grain in bird proof containers.

3. When possible, use covered feeders that exclude birds.

4. Maintain the water level in livestock waterers so that it is deep enough that birds cannot stand in it, but shallow enough that it cannot be reached by a bird perched on the edge of the waterer.

Rodents

Although good sanitation will seldom eliminate rodents, it will certainly aid in controlling them.

Conversely, poor sanitation is sure to attract rodents and permit them to thrive in greater abundance. The continual presence of a sizable rodent population suggests that too little attention is given to the premises; often this goes hand-in-hand with poor sanitation. Inadequate sanitation contributes to more serious rodent problems, but rodent infestation (particularly house mice) does not necessarily mean that sanitation is inadequate. On farms where **feed grains are handled and stored, or where livestock are**

housed and fed, it is generally impossible to exclude rodents from all available food. In such situations, removing shelter that rodents can use for hiding, resting, and nesting is valuable in control.

Regular removal of debris and control of weeds around structures will reduce the amount of shelter available to rodents. Additionally, a clean, 3-foot weed free perimeter around structures may make rodents feel more exposed and permits easier detection of rodent activity. Because mice can survive in very small areas with limited food and shelter, it is almost impossible to eliminate them through sanitation alone, particularly on farms. **Most buildings in which livestock feed is stored, handled, or used will support a thriving population of house mice if not mouse proof. Store feeds in rodent proof buildings, rooms, or containers whenever possible. Bins used for bulk feed should be kept rodent proof. Stack sacked feed on pallets with adequate space left around and under stored articles to allow easy inspection for rodent signs and placement of traps or baits.**

CHECKLIST

A. CONTROL OF NEW ANIMALS

- Request health certificate on all purchased animals.
- Check health certificates for dates and tests performed.
- Isolate animals for a minimum of 21 days; take rectal temperatures every 24 to 48 hours.
- Milk new arrivals last.
- Test for Brucella (30 days after arrival).
- Test for TB (30 days after arrival).
- Test for low prevalence diseases that are absent or controlled in your herd.
 - Johne's Disease
 - Bovine Leukosis
 - Strep ag mastitis
 - Staph aureus mastitis
 - Other
- Vaccinate 10 to 14 days after arrival with the same vaccine(s) used for the rest of the herd

B. CALF AND HEIFER CALENDAR

Birth

- Dip navel.
- Make sure calf is up and drinking colostrum, force-feed if necessary
- Inject selenium and vitamins A, D, and E

First 24 hours:

- Feed 12 pounds colostrum (average-sized calf)

2 weeks

- Administer nasal vaccine for IBR-P13.*

2 to 5 weeks

- Dehorn using electronic or paste method.
- Remove extra teats. (Avoid fly season)

5 to 8 weeks

- Wean when eating at least 1 pound of grain per day
- Start coccidiostat feeding if coccidiosis is diagnosed in calves

3 months

- Check fecal samples for worms.

5 months

- Administer Brucella vaccine (between 4 and 8 months); must be done by an accredited veterinarian.
- Worm.

7 months

- Give vaccines.
 - IBR.P13 BVD BRSV
- Worm*
- Tape or weigh; compare to a chart for breed standards.

13 to 15 months

- Tape or weigh heifer; breed if 750 pounds (Holstein).
- Check twice daily for heat signs. Heat detector may be helpful
- Vaccinate against leptospirosis, two doses 3 weeks apart.

18 months

- Administer nasal vaccine or killed vaccine to immunize for respiratory disease. *
- Check for pregnancy at 5 weeks or more after last service.

24 months

- Check fecal samples for parasites.
- Prepare for freshening

C. COW CALENDAR

Pre-calving

- Dry treat at last milking.
- Avoid overconditioning dry cow.
- Feed or inject selenium and vitamins A, D, and E.
- Vaccinate cow to protect newborn calf against coliform and viral scours.
- Consult with your veterinarian on dry cow management and health
- Clean and disinfect calf hutches between each and every use. If possible, move hutch to clean ground.

Post-calving

- Have a pre-breeding reproductive examination 30 to 45 days after calving.
- First service should be around 60 days after calving
- Should be sale with calf by 90 to 120 days after calving.
- Clip back quarters and udder in the fall.
- Have hooves trimmed annually, or as needed.

D. ENVIRONMENTAL MANAGEMENT

- Provide disposable footwear**
- Check rodent control devices.
- Establish visitor areas.**
- Establish a separate area for animals scheduled to be shipped.
- Select a trucker who regularly cleans and disinfects the vehicle.
- Establish a rodent control plan.
 - Use a rodent killer.
 - Clean feed and feeding storage areas daily.
- Minimize wild bird and animal traffic in cattle housing areas.
- Minimize domestic pet (cat and dog) access to cattle housing areas.

E. VACCINATION PROGRAM

- Vaccinate all heifer calves at 4 to 8 months for brucellosis.
- Vaccinate annually.
 - IBR-PI3 BVD BRSV Leptospirosis
- Other vaccinations recommended by your veterinarian

F. PARASITE PROGRAM

- Administer internal parasite control.
 - First worming, 3 weeks after turnout to pasture.
 - Second worming, 3 to 4 weeks later.
 - Third worming, fall, after animals come off pasture.
- Administer external parasite control.
 - Check for lice, warbles, and other parasites in the fall.
 - Administer treatment according to your veterinarian's recommendations.

G. QUALITY ASSURANCE

- Check drug labels for dosage and withdrawal prior to treatment
- Identify all drug treated animals.
- Hold milk or animals for recommended period of time after the last treatment before shipping.
- If in doubt, test for milk or meat residues by using a drug residue testing kit.
- Keep drugs properly stored, separating those drugs used for lactating and non-lactating animals.

* Does not apply to every herd

COMMON DISINFECTANTS: CHARACTERISTICS AND USES

	<u>Chlorhexidine</u>	<u>Formaldehyde and other Aldehydes</u>	<u>Chlorine Hypochlorites Chloramines</u>	<u>Iodophors</u>	<u>Sodium Hydroxide</u>	<u>Quaternary Ammonium Compounds</u>	<u>Cresols Phenols</u>
Spectrum of Activity							
Gram -bacteria	S.A.*1, not pyogenic cocci	Yes	Yes	Yes	Yes	Yes	Yes
Gram + bacteria	S.A., not pseudomonads	Yes	Yes	Yes	Yes	S.A.	Yes
Tuberculosis bact.	S.A.	Yes	S.A.	S.A.	S.A.	No	S.A.
Bacterial spores	S.A. at 1% concentration	Yes	S.A.	S.A.	Yes (5-10% solution)	No	No
Fungi	S.A.	Yes	Yes	Yes	Yes	S.A.	S.A.
Viruses	S.A., not parvovirus	Yes	S.A.	S.A.	Yes	S.A.	S.A.
Special Properties *2							
Resistance to organic debris	Good	Good	Very poor organic debris	Poor to Fair	Fair	Fair	Excellent
Effect of hard water	None	None	None*2	None*2	None	*3	None
Detrimental effect of heat	No	*4	*5	*5	No	No	No
Residual activity	Yes	*6	*7	Yes	Yes	No	Yes
Most effective pH range	Alkaline	Not affected by pH	Acid	Acid	Alkaline	Alkaline	Acid
Compatibility with anionic surfactants(soaps)	Yes	Yes	Yes	Yes	Yes	No	Yes
Compatibility with nonionic surfactants	Yes	Yes	Yes	Yes	Yes	Yes	No
Disadvantages	Reduced activity against certain organisms	Irritating fumes *8	Inactivation by organic debris	Inactivation by organic debris	Caustic w/soaps-limited spectrum	Incompatible	*9
Commonly Used Concentrations							
Disinfecting	1%	2-8%	Hypochlorites 3-5%*10,11	50-75 ppm 2-10%	400-800 ppm	Var.solution	
Sanitizing solutions	0.5%	1-2%	Hypochlorites 2-3%*11	12-25 ppm		200 ppm	
Appropriate Uses (E – Equipment	EPF CE - Clean equipment	EPF	CE P-Premises	CE F – Footbaths)	P	CE	EPF
Common Brands and Names *12	Nolvasan	Cidex DC&R Formaldegen Formalin	Choramine-T Chlorox Halazone	Betadine Iotec Isodyne Losan Tamed Iodine	Lye	Germex Hi-Lethol San-O-Fec Warden Zephiran Orthophenyphenol Sodiumorthophenyl- Phenate	Crest-400 Environ Larc Lysol

1. S.A.-Some activity.

2. Unless hard water is alkaline.

3. Reduces speed of kill.

4. Formaldehyde gas works best at 80-140 F.

5. Use at less than 110 F, active principal driven off by heat.

6. No, except slow-release formulas.

7. Hypochlorites: No. Chloramines: Yes.

8. Glutaraldehyde is less irritating and is superior to formaldehyde as a germicide alkaline.

9. Strong odor with coal and wood tar distillates.

10. 3.3% Chlorox inactivates parvovirus on clean surfaces.

11. Chloramines variable.

12. Products listed are intended as examples, not endorsement. Many suitable products are not listed.