Appendix F

WHY EVERY FARMER SHOULD BE UTILIZING PROVEN BIOSECURITY MEASURES:

Biosecurity is the application of protections and practices against infectious biologic agents that endanger the food supply. These protections and practices exist at many points in the animal handling process and limit the danger spread of disease causing organisms. When teamed with disinfection and sanitation procedures, biosecurity practices can eradicate or reduce pathogens to non-infectious levels. Serologic monitoring and vaccinations also insure flock/herd health.

Inadequate biosecurity can contribute to industry wide epidemics of highly pathogenic or exotic disease, resulting in quarantine and possible condemnation of flocks/herds. An infection by a non-virulent organism within a facility can be just as devastating economically, reducing production over the life of the facility without overt signs of disease. Once contaminated with pathogens, livestock facilities are extremely difficult and expensive to clean, sanitize and disinfect.

A further consideration related to biosecuity at all levels is the potential for terrorists to introduce pathogens into livestock and the food chain. This could cause significant direct and indirect economic loss. According to the Gilmore Commission "A concerted biological attack against an agricultural product offers terrorists a virtually risk-free form of assault, which has a high probability of success."

SOURCES OF DISEASE

Source contamination: Animals (wild and new introductions to flock/herd, semen), feed or water that carry a biological agent and transmit it. People, clothing or vehicles can harbor a biological agent that when moved around can spread the agent.
Vector contamination: Efforts to minimize vectors can significantly reduce disease transmission. Rodents, wild birds, insects, fomites (such as fecal material, feathers and dust) can be wind or water transmitted etc.
Facility Contamination: A major source of disease transmission is people (employees, service personnel, truck drivers, vaccination crews). Facilities may also be contaminated by new flocks/ herds and additions to flocks/herds.
Intentional contamination: A bioterrorist event that is intended to inflict harm in multiple ways. Motives could include market destabilization, economic loss, disruption of trade and imposition of embargoes and social in-stability through loss of confidence in the food supply.

LIVESTOCK MANAGEMENT

The most important first step is to obtain animals from a reliable source. Managing livestock/poultry facilities for maximum health and productivity requires a qualified facility manager trained to keep the livestock as healthy as possible and able to respond quickly and forcefully to any disease condition. Many factors must be considered to achieve maximum health and productivity, including optimum disease and infection controls, along with environmental provisions and safeguards.
Animal Selection and Maintenance: Livestock should be purchased from disease free certified herds. Poultry must be purchased from S. pullorum clean sources from National Poultry Improvement Plan (NPIP) participants. Hatching eggs and chicks must originate from S. pullorum clean stock. Sick birds

should be evaluated at a lab or by a vet. The state Department of Agricultural Resources (DAR) can assist in this process.

Stress Control: Provision of suitable housing, good quality feed and adequate, clean water minimize stress and generally increase flock/herd health.

Ventilation: Proper ventilation is necessary for control of various respiratory diseases.

Temperature: Control measures should be taken to avoid temperature extremes thereby avoiding stressors.

Stocking Density: Floor, feed and water space should be allotted according to age, breed, and type of animal.

Brooder House: Always clean the brooder house thoroughly and disinfect it before a new shipment of animals arrives.

Feed and Water: Feed should be of high quality. It should be balanced, free from toxins and palatable. Toxins in feed at a very low level can affect productivity and general health. Water should be clean, cold in summer, warm in winter. Water and feed are important as far as disease prevention is concerned because many vaccines and medicines are administered by adding them in feed and water. Contaminated feed, lumped feed or oxidized feed or feed, which has a bad odor, should be discarded.

Sick And Dead Animals: Sick animals should be evaluated at a lab or by a vet. The MA Department of Agricultural Resources may be able to assist in this process. Dead animals should be immediately removed from the building and buried, incinerated or disposed of properly.

Vaccination and Medication: Vaccination before infection occurs in a flock/herd is the best means of protecting the flock/herd. Vaccines may be live or killed. Live vaccines consist of live micro agents and can be given at a younger age than killed vaccine. They can be administered by injection, drinking water, eye drop application or inhalation.

With live vaccine there is always a possibility of secondary infection so they should only be used to prevent diseases that have already been present at your facility and have been unable to be eradicated by other means. The use of live vaccines must be approved by the state through the MA Department of Agricultural Resources. Killed vaccines must be injected and can cause reactions. The age of the animal and proper timing are very important. The most important consideration is to avoid over or under utilization of vaccines. A proper vaccination schedule for specific important diseases should be followed. In case of a disease out break, notifications should be made according to a set procedure. All diagnosis should be confirmed and recorded. Expiration dates of vaccines and medicines should be recorded; expired medications should be disposed. All medications and vaccines should be stored in a secure area.

Infection Control: The spread of disease between facilities is a major concern. Animals must be purchased only from sources, which are certified disease free and have records of appropriate vaccinations. Farms should maintain records of animals sold and their final destination.

Protection From Pests And Predators: Rats, mice, wild birds, flies and beetles can all cause contamination and spread disease such as salmonella. They should be kept away from buildings to the greatest extent possible and the buildings should have any access points boarded up. Livestock, especially poultry flocks with outside access need protection from owls, hawks, coyotes, foxes, etc. Outside enclosures should be covered.

Cleaning Animal Containment Houses:

After a flock/herd has been depopulated, manure from around the houses should be removed. Sunlight adds to the break down the pathogens. A complete cleanout of houses between each flock/herd is most desirable. If cleaning that often is not possible, broiler houses should have all organic materials removed, most be cleaned out completely then disinfected, at least once a year.

Equipment:

Farm equipment can be a source of disease transmission and should be cleaned and disinfected regularly. Dedicated equipment, for use on your farm only, is preferable.

ENVIRONMENTAL MANAGEMENT

Location: Facilities should be located at least 1 - 2 miles from other commercial facilities and in the case of poultry away from waterways used by migratory waterfowl. Location must be an appropriate distance from other livestock sheds, road facilities and other farm operations.
Construction: Housing should be of sound quality and suitable to environmental conditions of the geographic area. It should, to the extent possible, be without access points for rodents or stray animals, crevices, free of leaks and damp floors, etc. Roads should be built of all weather materials to reduce the transport of organic material on tires.
Access Restrictions: Records should be kept of all visitors to the farm, including vendors and inspectors. It should include names and addresses, dates of visits, and nature of business. Since different diseases have different incubation periods, once a disease has been identified, the farm may check the incubation period and identify potential carriers by reviewing records. All doors to livestock buildings should be locked and the keys stored in a secure location. When deliveries of livestock is accomplished, the entire crew should observe strict sanitary conditions since (1) The building they are entering has been disinfected, and (2) They may have made another delivery previously and different protective clothing should be worn at each stop.
Vehicles, Personnel And Visitors: Vehicles and people are major sources of flock/herd contamination. Parking should be away from the livestock buildings. Vehicles entering and departing the area where livestock are housed should be washed then sprayed with a disinfectant (including wheel wells and tires). Personnel movement should be restricted. Verify the identity of any unknown contractors or vendors. Protective outer clothing, including boots and headgear should be worn at all times when in and around the sheds.
Outside Security: Perimeters around facilities should be reasonably secure to prevent unauthorized entry. "No Trespassing" signs should be conspicuously posted. Lighting should be sufficient to allow surveillance of exterior of buildings and parking areas. Any outside storage bins or sheds should be securely locked and/or sealed to prevent tampering. Requiring positive identification, such as a driver's license, with sign in and sign out procedures in place should control entry into facilities.
Inside Security: Restricted areas should be clearly marked as such. Visitors, guests and non-farm employees should not be allowed to move about the offices, product areas or sheds without an authorized escort and, if necessary, being subject to all biosecurity conditions required.
Sanitary Traffic Control: Control of human traffic is essential. Lock doors, ban all visitors and allow building access only to authorized and necessary personnel who are wearing properly sanitized footwear, coveralls and headgear. Human hands may also spread infection and should be sanitized before entering a poultry building and before leaving the farm. The use of disinfecting foot dips or footpads at entrances and exits is desirable. A footpad can be fabricated using rubber pans with carpet pads cut to fit the pan and saturated with disinfectant.
Traffic control is not limited to humans. Any damage to a facility or open access should be screened or sealed to prevent animal, rodent and wild bird access. A possible exception would be cats, which can provide effective rodent control. Also, dogs can be trained and used to keep out intruders of all types.
Traffic Pattern: Routes through the facility should be "one way" and route personnel and vehicles from youngest livestock to oldest livestock and from clean areas to dirty areas and from individual livestock houses to common use employee areas. This minimizes movement of contaminants through the facility.
Farm Stores: Farm stores should be located away from your livestock housing areas. Do not allow customers access to your animal areas. If there is ever a disease break on your farm, requiring quarantining the premise, it is important to have a plan in place to route farm store customers away from animal areas.

Trucks and Service Personnel: No responsible livestock farm should allow livestock trucks or equipment, which is unclean or soiled with manure near the farm. In order to ensure prevention of disease the following procedures for cleaning trucks should be followed:

- Operator must wear disinfected clothing.
- Remove modules and scrape and brush litter from the transporter deck.
- Scrape and brush the sidewalls, floor and tail lift of enclosed vehicles.
- Remove deposits of mud, straw, etc., from wheels and exposed chassis.
- Using a disinfectant detergent, wash down the truck from top to bottom, paying particular attention to wheels, wheel wells and tail lift.
- Wash all tools and equipment.
- If applicable, due to contamination, remove all removable items from the cab and wash both these items and wash the inside of the cab.
- When washing is complete, use a high-pressure rinse with clean water.

The most effective method of operation for service personnel with vehicles is to treat their vehicles passenger compartment as clean and the cargo area as contaminated. Before calls a package of sanitized clothing for each stop (boots, cap and coverall) are sealed and placed in the clean area. After use they are removed and placed in the contaminated area. Each vehicle should be equipped with a bucket, brush, disinfectant, and a supply of clean water.

For more information or to discuss the biosecurity situation on your farm, call the Massachusetts Department of Agricultural Resources, Division of Animal Health at 617-626-1795.