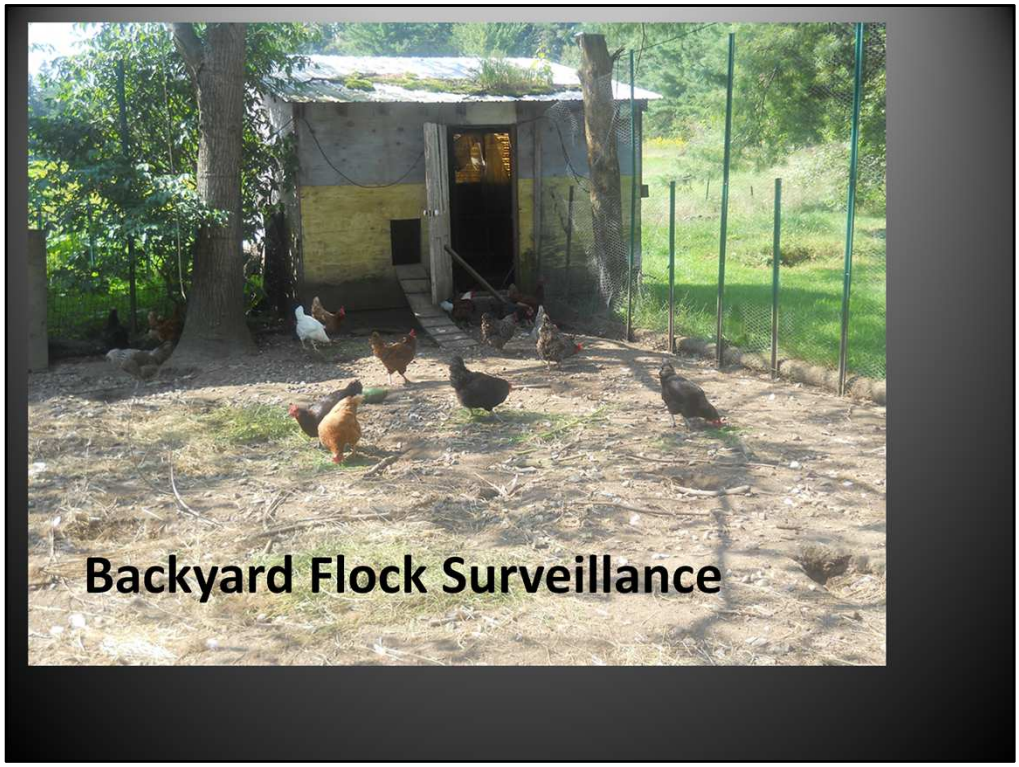
Avian Influenza Surveillance in Maine
Backyard Flocks, Livestock Auction and Commercial Egg Layers

Maine Department of Agriculture
Conservation and Forestry

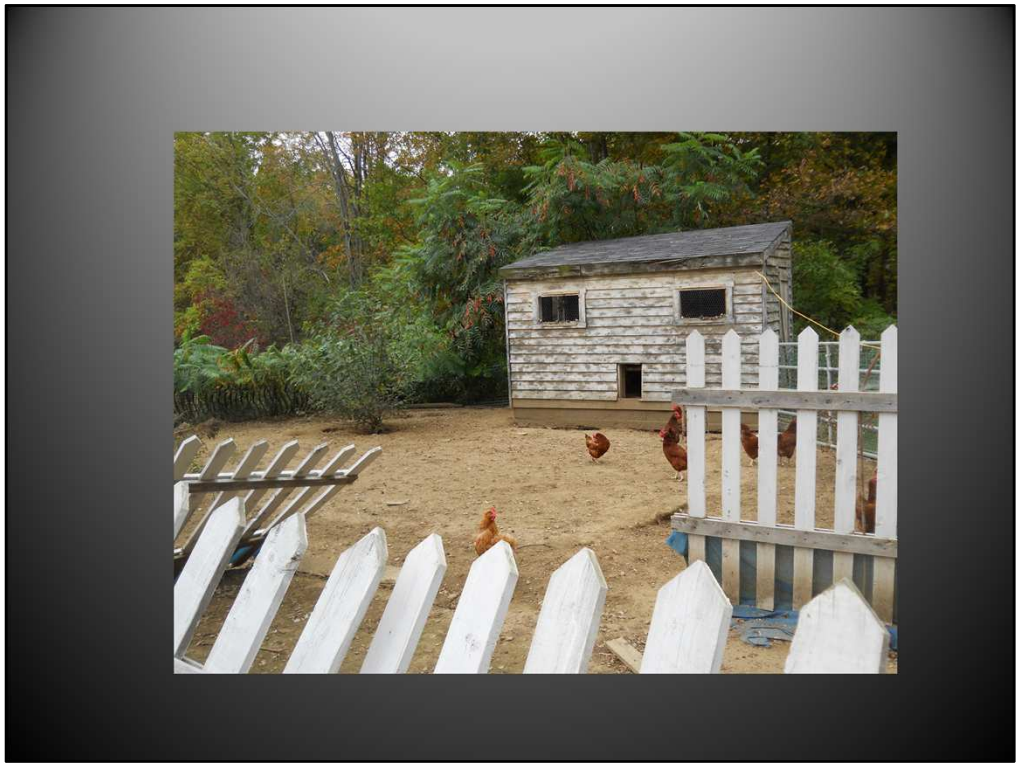
Bird Flu and ME

November 9, 2015

E.O. McEvoy DVM

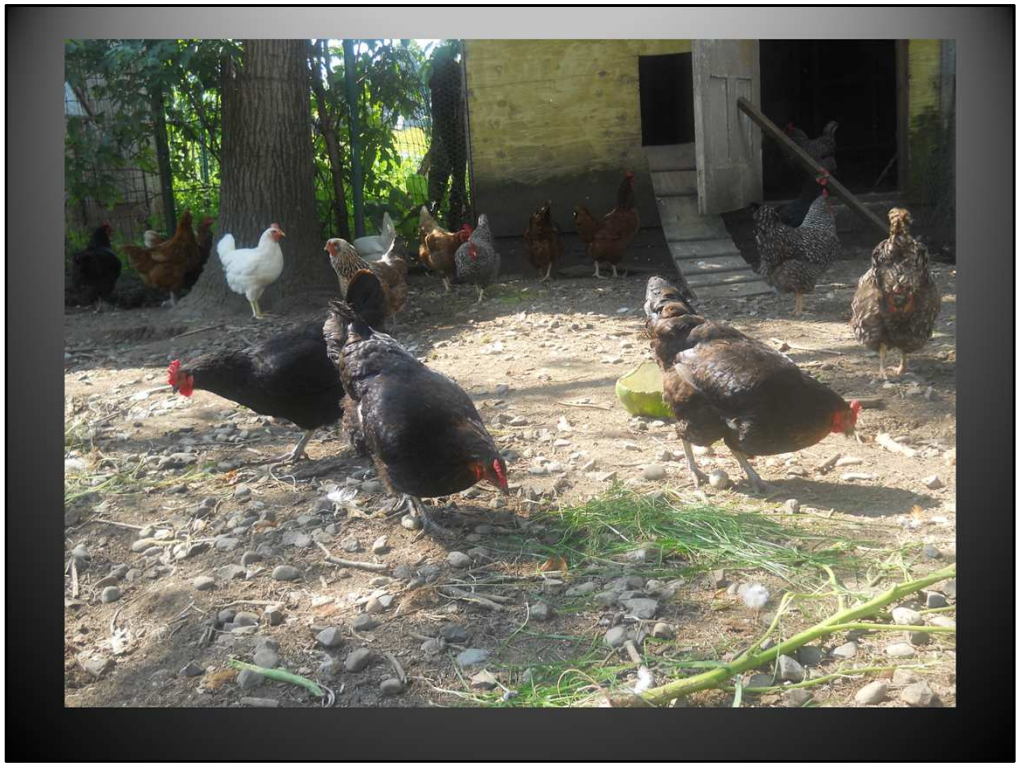


Typical backyard flock housing in rural Maine. Average flock is 25, range 6-50. SOM requirement that chicks are sold in batches of minimum 6 birds, and mail order hatcheries ship a minimum of 25.
Mixed flocks of egg layers, kept for personal egg consumption and for the enjoyment of keeping a pet that produces edible product without slaughtering it.



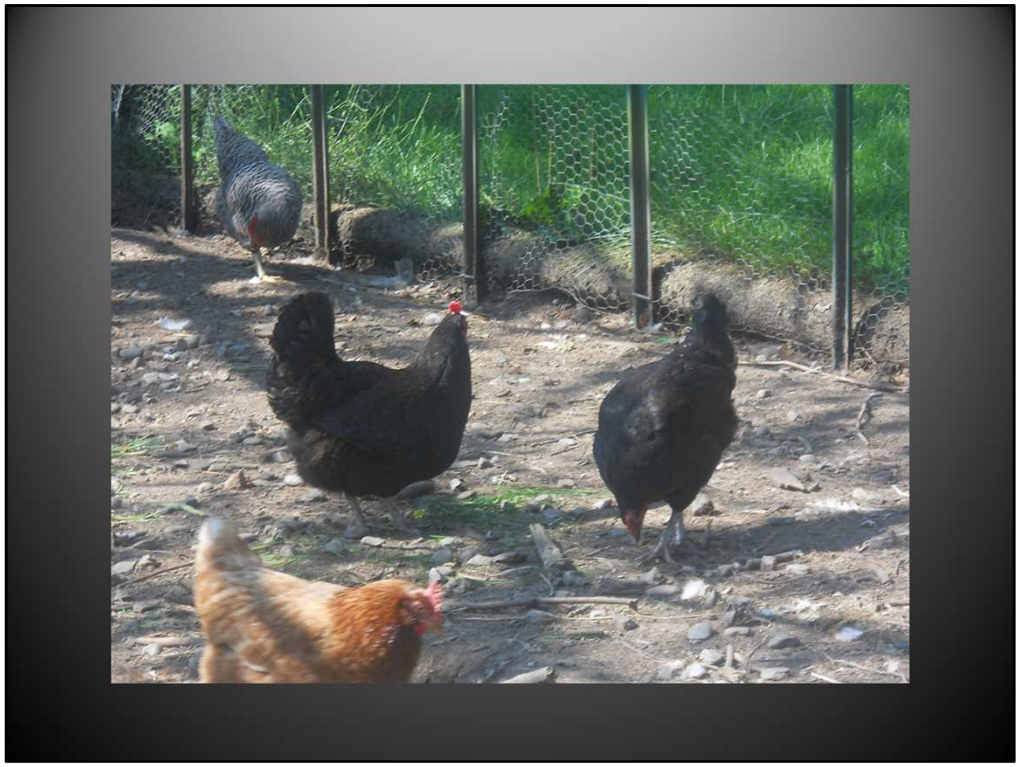
We see a wide range of housing and conditions under which poultry are kept. Some municipalities have regulations on housing and bird numbers and sex of birds. Roosters may be banned for nuisance noise reasons. (Don't worry, a rooster is not a necessary presence in order for hens to lay eggs, and in fact, hens can store sperm for a month!)

Poultry raised to provide meat differ significantly from egg-layer breeds. These birds have been selectively bred to grow rapidly and put on muscle at an impressive rate. Under optimal conditions where the chicks are provided with complete nutrition, excellent air and water quality, with adequate housing, these birds will grow to a marketable weight in just 8 weeks. Some strains have been created that take longer to achieve this weight, but do better in a pasturing situation, and are able to utilize more forage



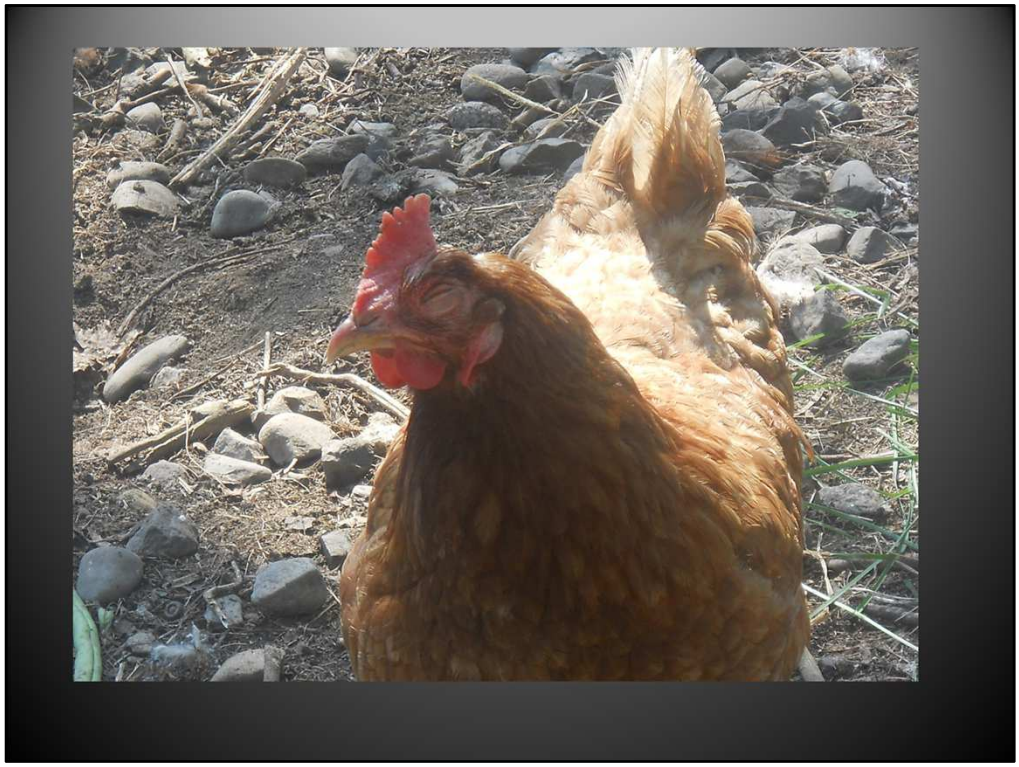
Backyard poultry keepers, whether they have egg layers or meat birds, are constantly watching their birds and are very aware when a bird is not acting normally..

Healthy birds are bright eyed, smooth feathered, walk erect and are always active and often quite vocal. Combs and wattles are red, legs are smooth and yellow (varying shade depending on length of lay) and their manure is solid with a white cap.



Poultry are a prey species- they are frequently the target of a variety of predators, on the ground and from the air. A sick chicken that isolates itself from the flock is at increased risk of being selected by a predator. Thus, a sick chicken will often show no signs of disease until it is moribund or dead.

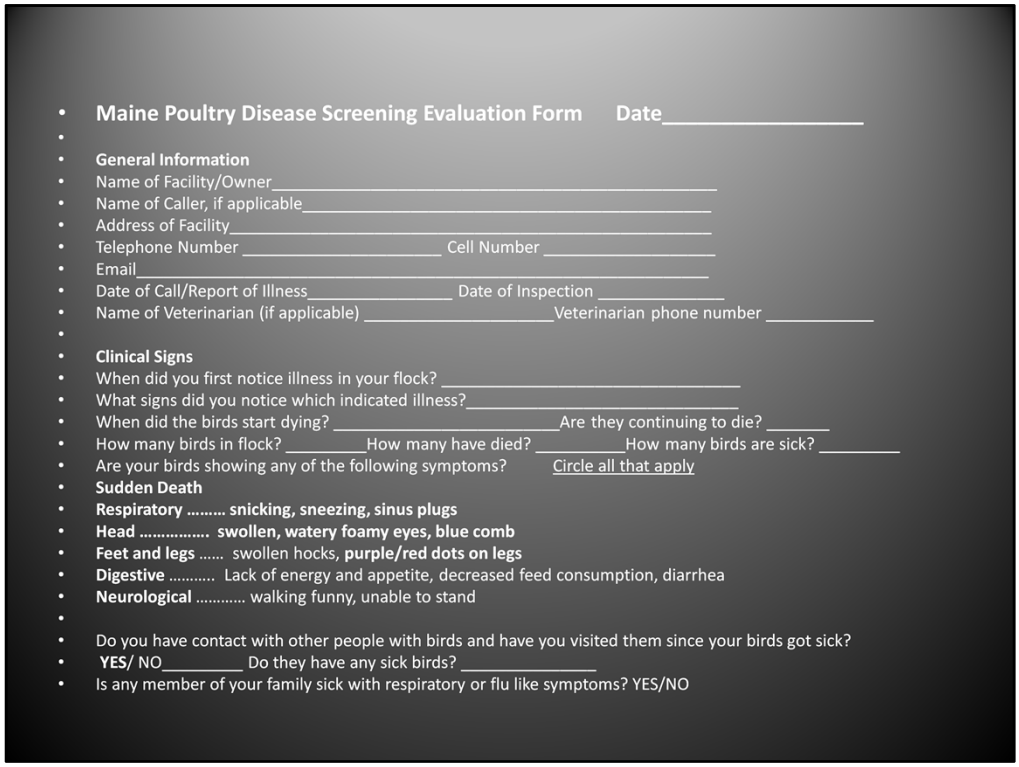
Poultry keepers often report that the flock was normal, all healthy, and then suddenly they found a dead bird in the morning. Sometimes it takes a while to figure out if the cause of death was a disease process or a predator. So called “chicken wire” as we see in this pen is OK for keeping chickens IN, but will not keep some voracious predators such as weasels OUT. Note fencing lifted up….



this hen was the only one in this backyard flock that was showing any clinical signs.. Is she winking at us or is this an early sign of conjunctivitis that indicates a systemic viral disease such as HPAI?

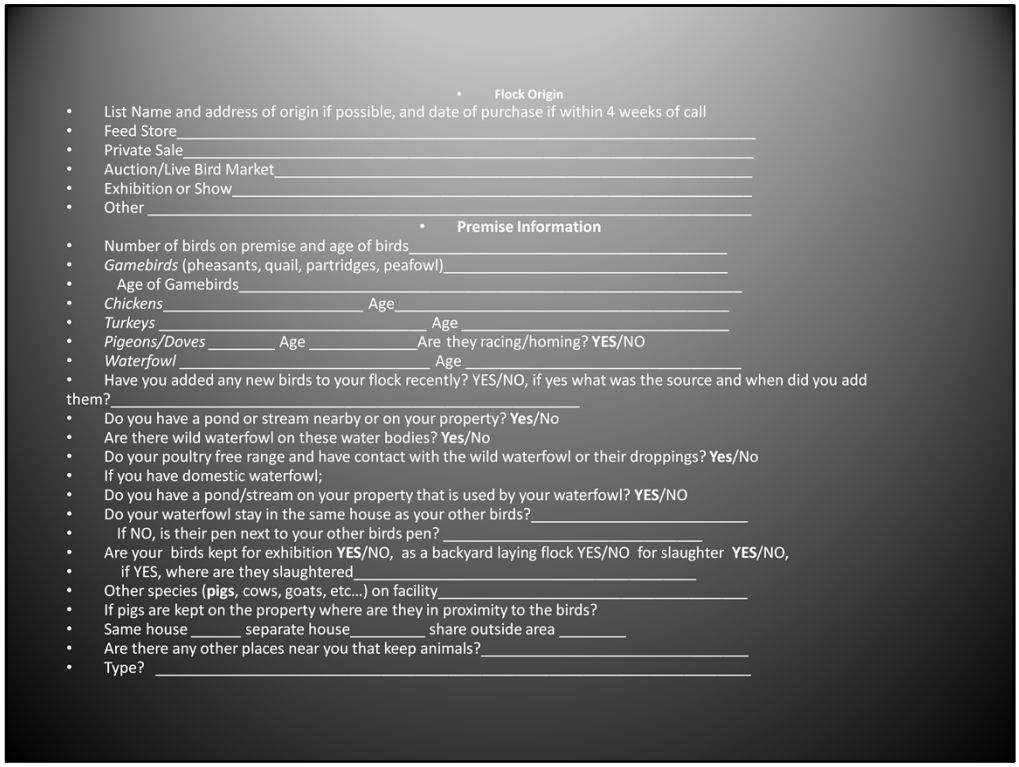
Our original message has been a bit refined to say: If a flock experiences 3 or more dead birds within a week's time, please call your State Veterinarian or the University of Maine AHL.

Evidence that our message was getting out was indicated by the number of dead bird sightings that were reported. We often fielded calls from concerned poultry keepers, for example one who had observed a dead chicken three months ago, and then another one today! One called reported a dead crow on the street a month ago, then one two weeks ago, and one this week. We used these calls as teachable moments, to help spread correct information about HPAI.



When we receive inquiries and reports of sick or dead birds, we ask certain relevant questions to determine what our appropriate response will be.

Using our Poultry Disease Screening Evaluation form, we record information about the location of the flock, the caller and the owner of the birds, and obtain what we can of a case history. We review clinical signs by system in an uncomplicated way, making suggestions to the caller to attempt to clarify what is going on with their birds.



We also ask questions about the origin of the flock, if birds were obtained from a feed store, an auction or live bird market, an exhibition or show or private sale from another bird fancier.

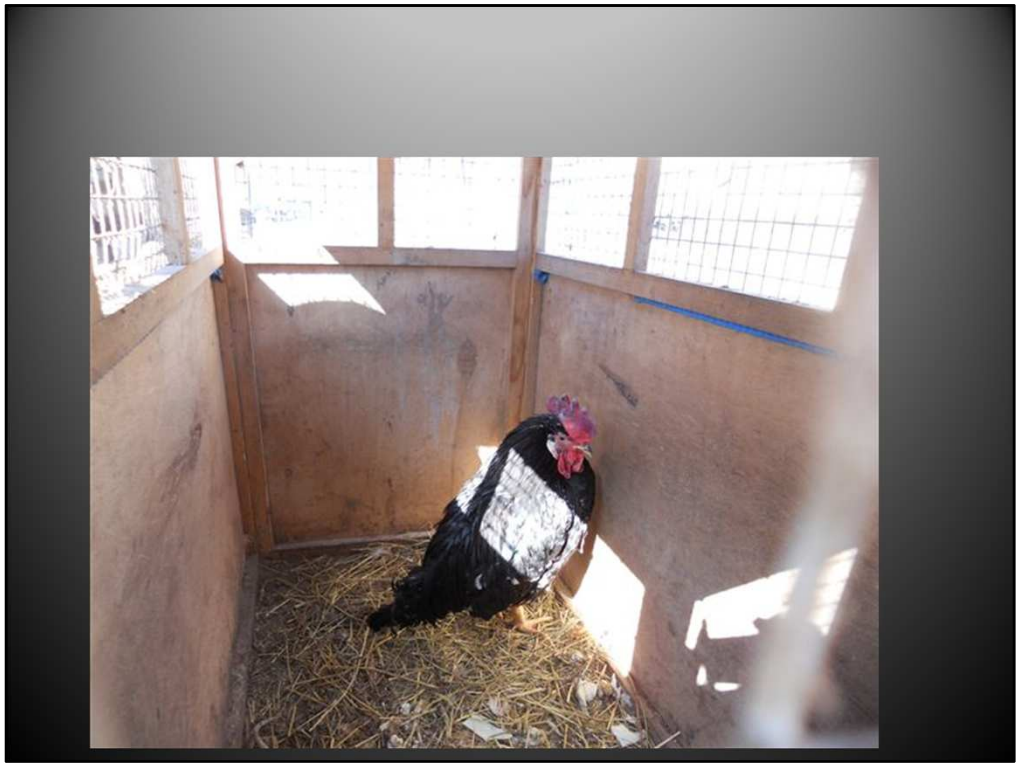
We gather important information about all species of poultry and gamebirds that are present on the property, as well as a history of recent additions to the flock, and the source.

The presence of a pond or stream and the possibility of contact between the domestic birds and wild waterfowl is discussed, as we expect this to be a major risk factor in the exposure to any disease carried by wild waterfowl.

Questions are asked about the presence of other species (pigs, cattle, goats) on the facility, and the proximity of the swine housing to the poultry house.

IF WARRANTED as determined by the questioner (poultry health technician and/or State Veterinarian, UMAHL Veterinarian) a flock visit is made.

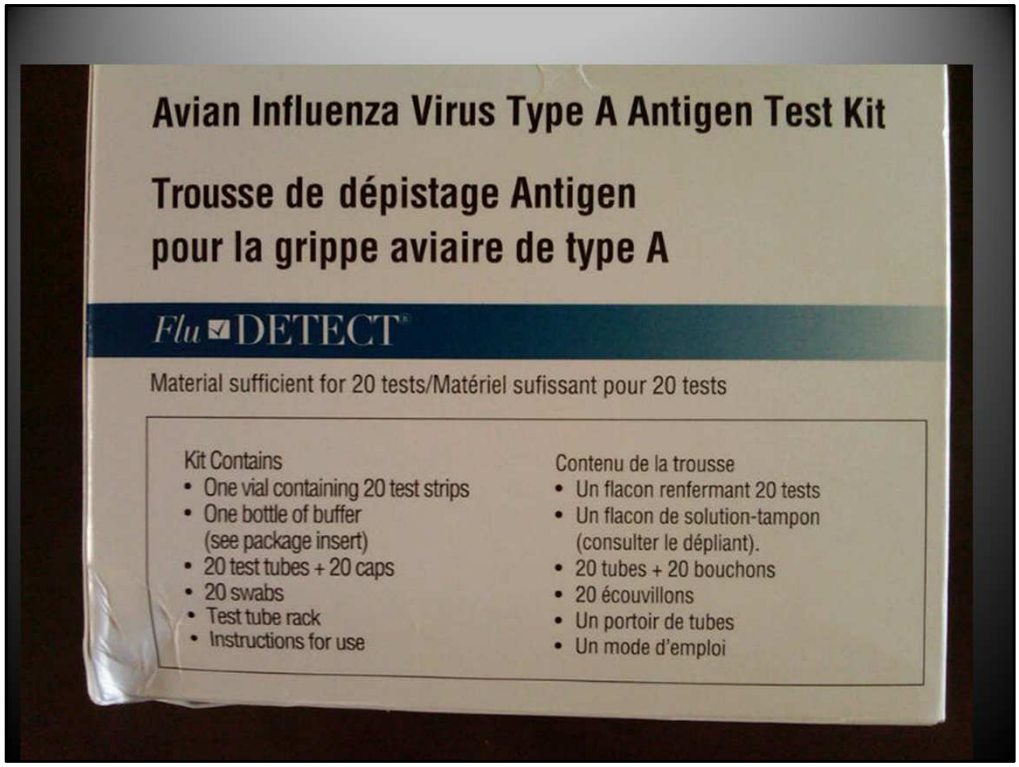
Cold November day, call to a flock reporting neurologic signs with diarrhea in a group of birds.



Bird was being held in appropriate isolation

This rooster showed Abnormal posture and demeanor. Comb swollen and discolored, necrotic tips.
This case was not HPAI, but without the diagnostic testing, one couldn't say. Many avian viral diseases have similar clinical signs at some point in the course of disease.

Sample collection. 20-25 g needle on the underside of the wing, blood sample for AI AGID as well as other disease screening.
Oropharyngeal swabs taken, for virus isolation.



We are able to perform on-site antigen detection with Flu-Detect when sick birds are presented. If we were to obtain a positive ACIA, we would obtain oropharyngreal or cloacal swabs for Virus Isolation.

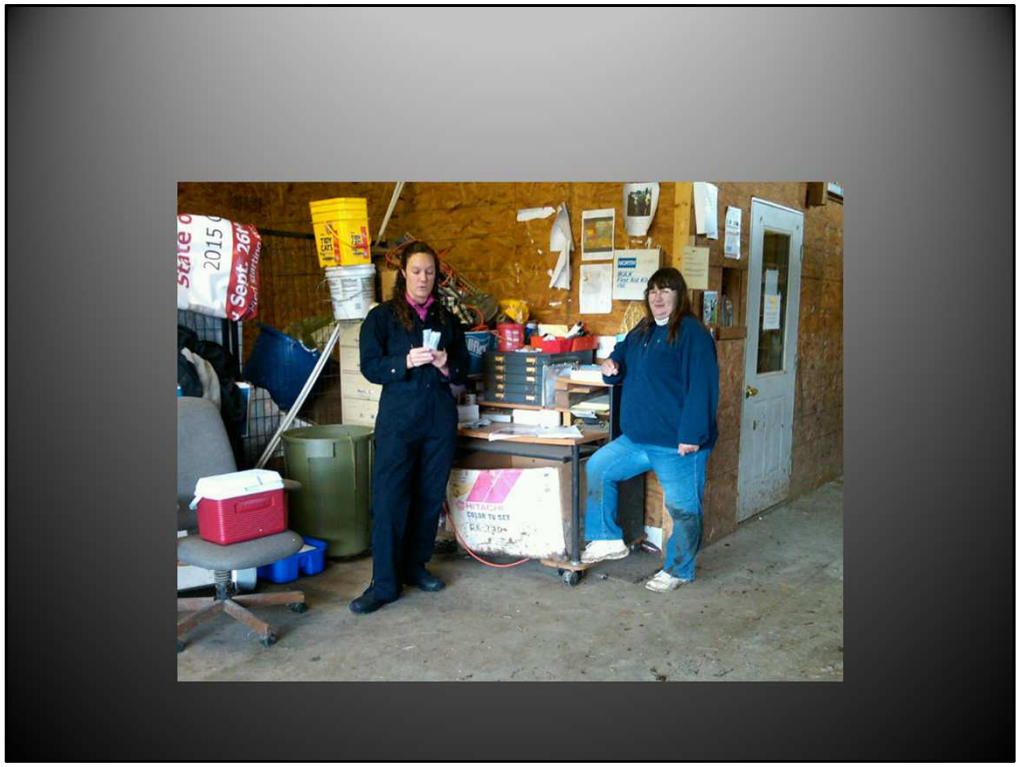
No positive results from field ACIA tests were found.

Maine's only licensed livestock auction is in Fairfield and runs every Monday throughout the year.

There is an impressive variety of items to be sold to the highest bidder, as well as plenty of livestock and poultry. Treasures spill out into the yard, to be inspected by prospective buyers.

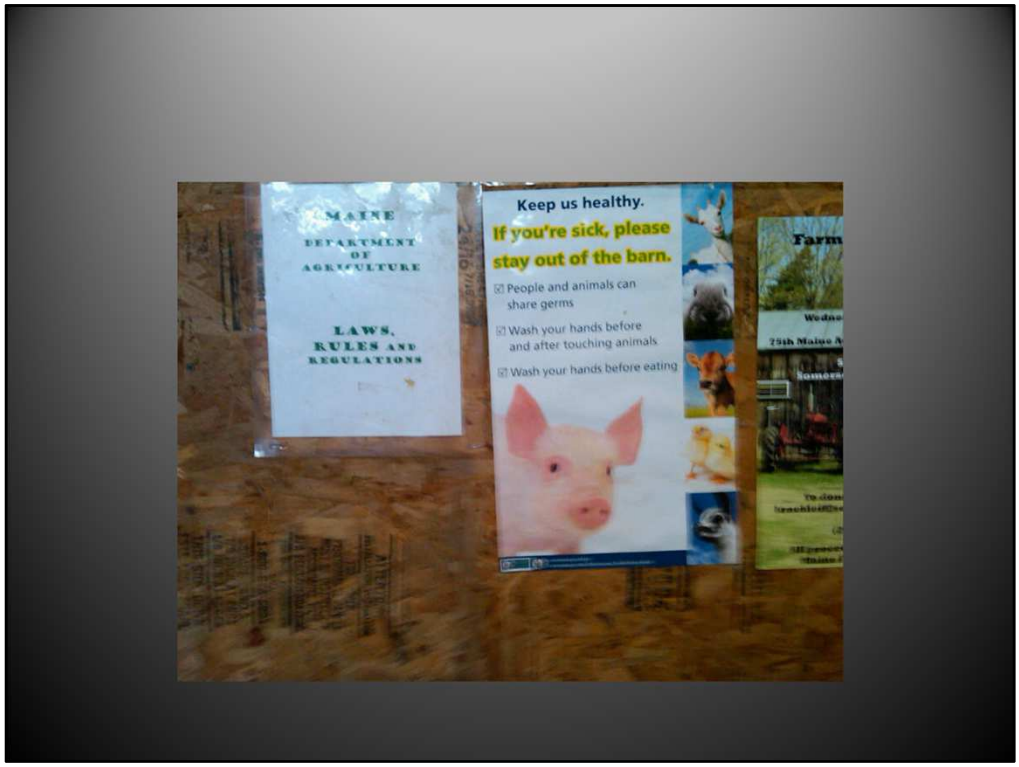
Somerset Auction Co. has a new sign in the livestock area with clear disclaimers: NOT RESPONSIBLE for escaped, stolen, sick or dying Animals either before or after purchase.

And lastly: CLOSE THE GATE behind you.

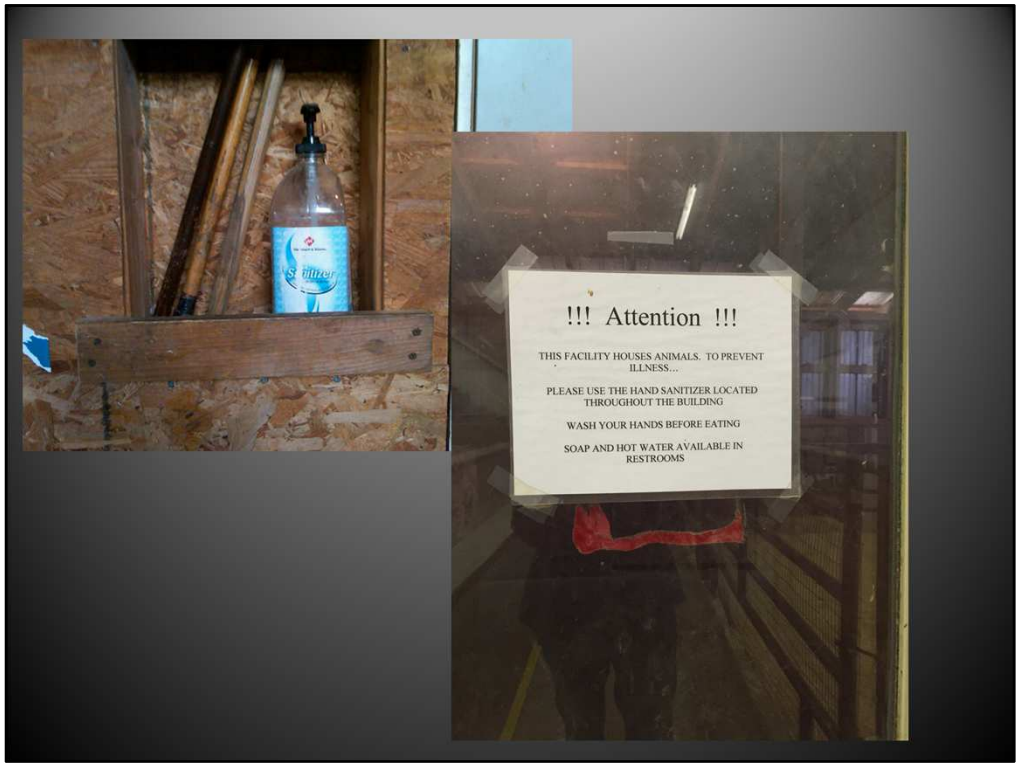


As animals and poultry are brought to the rear loading bay and checked in, this team was ready to process them. USDA Veterinarian Alicia Morse stands ready to examine and sample arriving poultry.

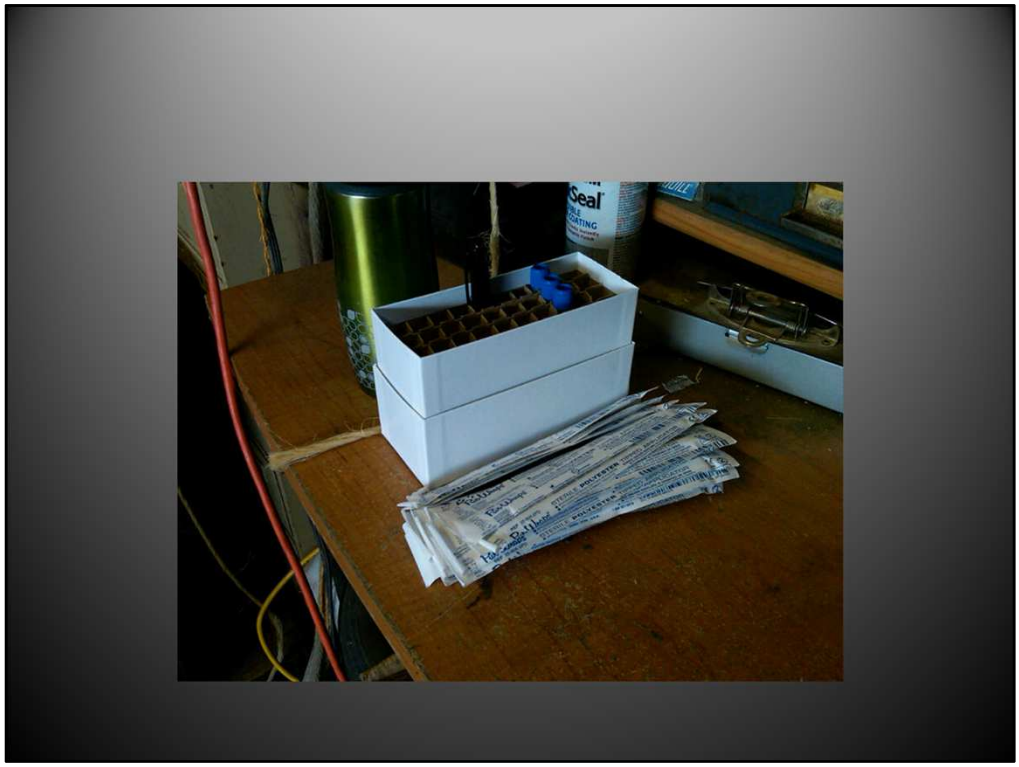
Poultry and waterfowl, and occasionally rabbits, are delivered to the auction in cardboard boxes or crates. Duct tape seems to be essential to preventing escapes.



The Auction has provided a space on a wall in the barn area for the Department of Ag Conservation and Forestry to put up notices and information.



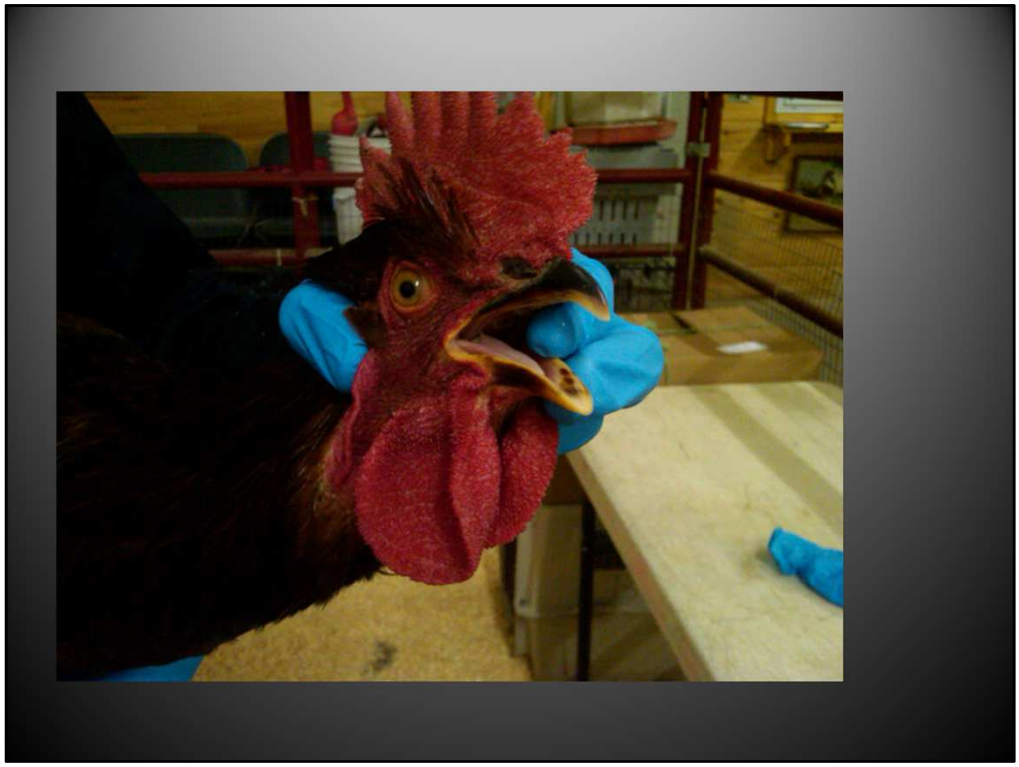
Hand sanitizer is made available for use in the barn area. This jug was not empty.



Materials are ready… bring on the poultry.

As the owners bring boxed birds to the check in, the boxes are labeled with a lot number and stacked in the auction room, just below the auctioneer. We monitor the boxes to ensure that the birds within have adequate ventilation.

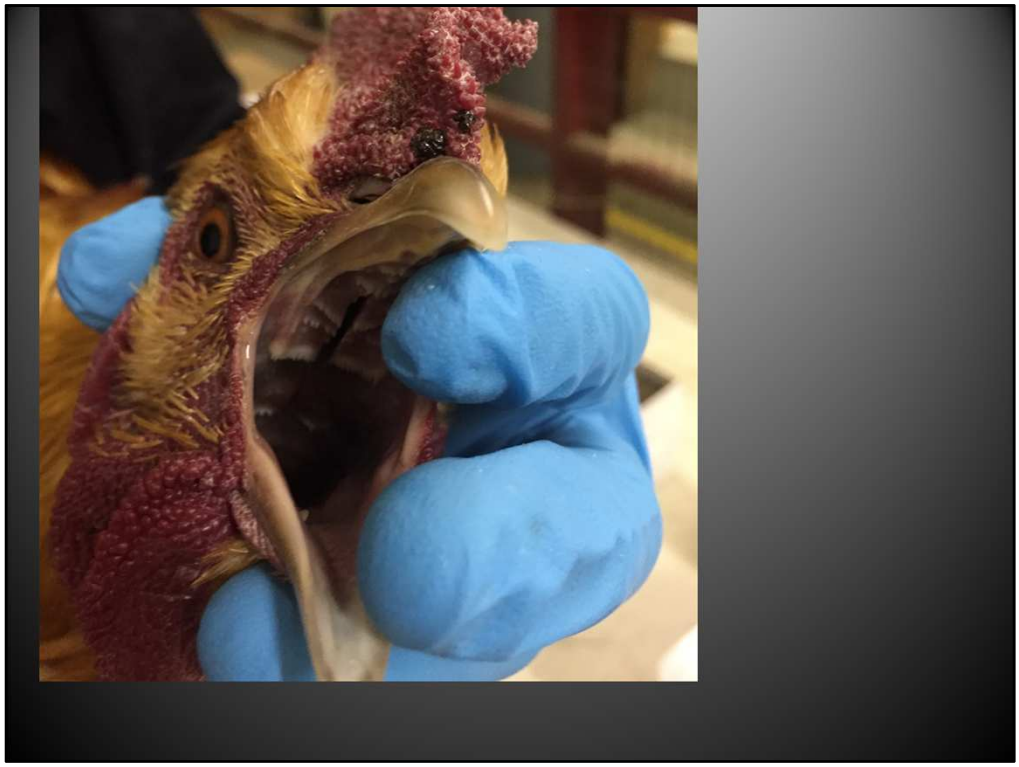
Untaping the boxes, grasping and restraining a bird for sampling with out loosing the bird is a challenge!



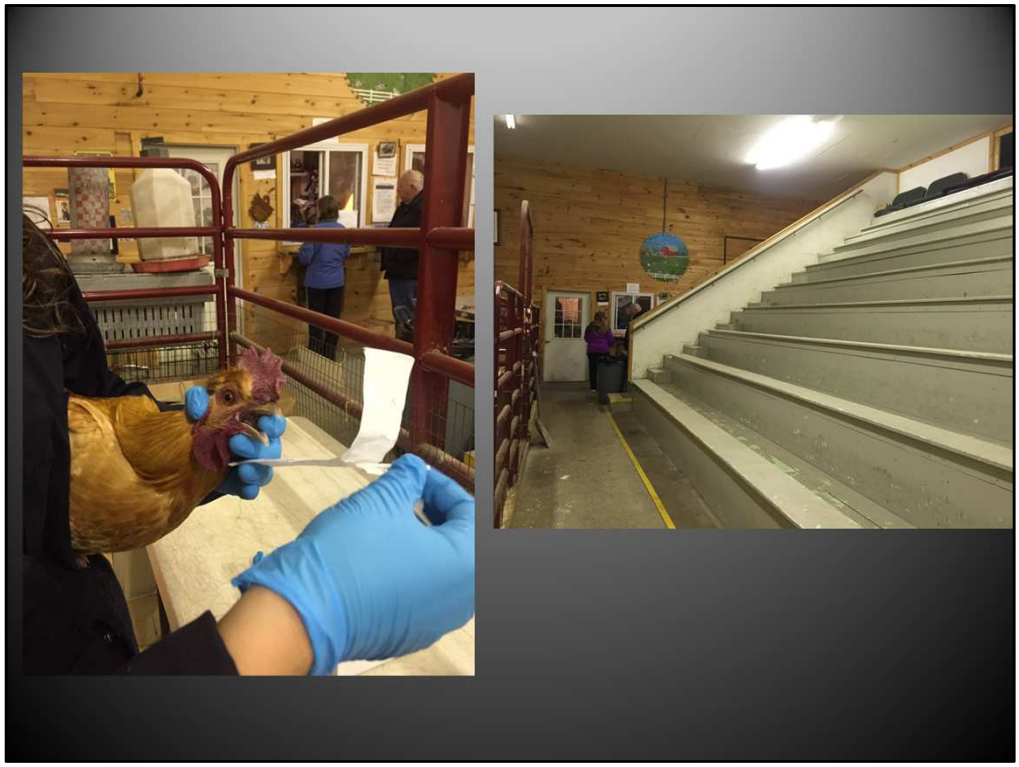
Restraining the bird under her arm, Dr. Morse gently opens the birds beak and holds it open by inserting her finger.

A polyester swab is used to swab the oropharyngeal region, and then up through the chloanal cleft.

Another rooster



Here’s a great view of the anatomy of a chicken’s mouth! Note cleft in the dorsal palate.



On some occasions there are members of the public who sit in the front row of the bleachers and watch the vet or the poultry health technician at work.

Swabs are placed in BHI broth and sent to the NVSL National Veterinary Services Laboratory for VI.

Commercial EGG layers

Maine has one large commercial egg laying facility, over 10,000 birds, with poultry houses in Turner, Leeds and Winthrop. The Turner facility has 2.3 million birds alone. There are approx 65 poultry houses in Turner, each housing 35-73,000 birds.

National Poultry Improvement Plan

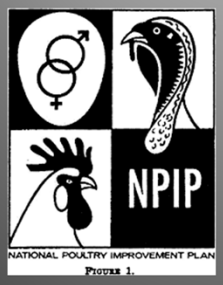
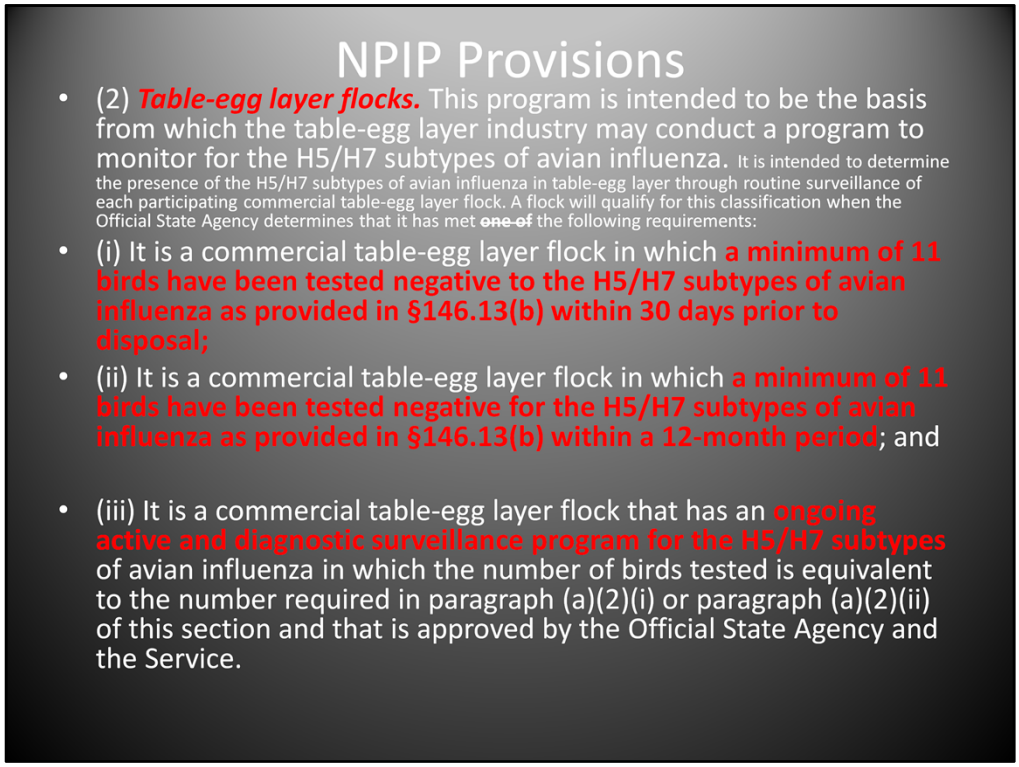


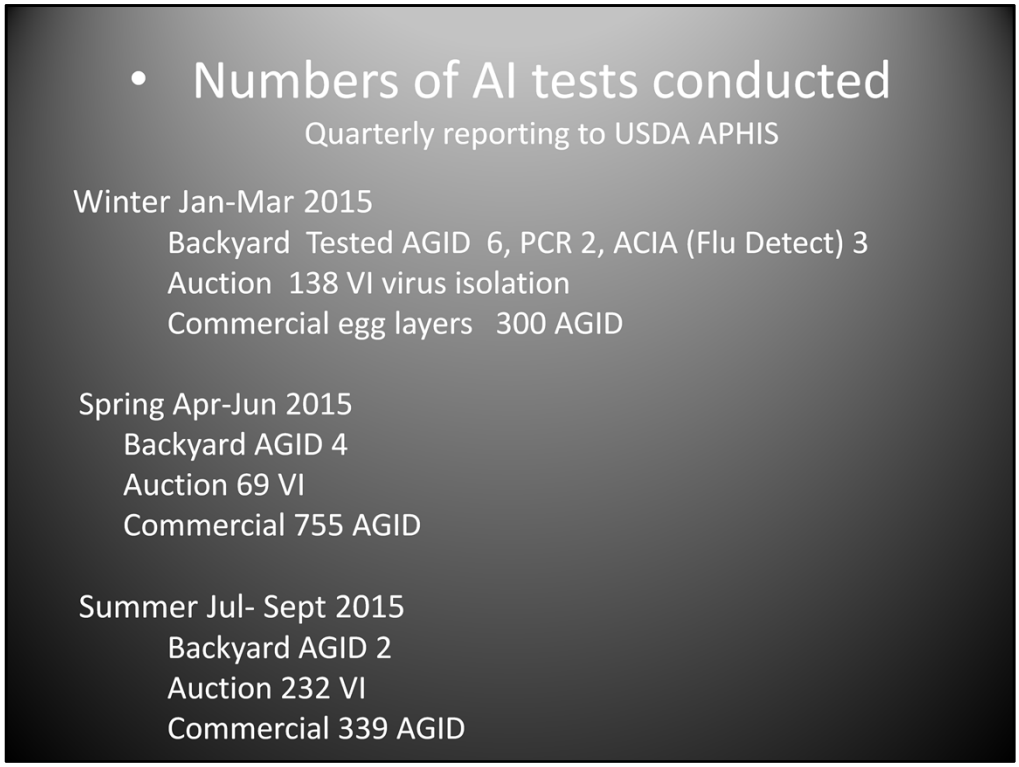
FIGURE 1.

Figure 2.

The National Poultry Improvement Plan was established in the early 1930's to provide a cooperative industry, state, and federal program through which new diagnostic technology can be effectively applied to the improvement of poultry and poultry products throughout the country. The development of the NPIP was initiated to eliminate Pullorum Disease caused by Salmonella pullorum which was rampant in poultry and could cause upwards of 80% mortality in baby poultry. The program was later extended and refined to include testing and monitoring for Salmonella typhoid, Salmonella enteritidis, Mycoplasma gallisepticum, Mycoplasma synoviae, Mycoplasma meleagridis, and Avian Influenza. In addition, the NPIP currently includes commercial poultry, turkeys, waterfowl, exhibition poultry, backyard poultry, and game birds. The technical and management provisions of the NPIP have been developed jointly by Industry members and State and Federal officials. These criteria have established standards for the evaluation of poultry with respect to freedom from NPIP diseases



Each poultry house is called a flock, thus the birds in each house are tested prior to the pullets (young birds) being housed, 12 months later, and then within 30 days of disposal as spent hens.



To summarize, this page shows the numbers and the types of AI testing that are done in Maine, sorted out quarterly for the first three quarters of 2015.
Backyard flocks were tested either as part of investigations in sick poultry (PCR and ACIA) or tested to satisfy import requirement of other states for exhibition.

The numbers of auction tests performed varied partly because of staffing changes, not necessarily due to changes in the number of poultry passing through the auction.

Commercial poultry AI surveillance is year-round, and the variation is quarters is largly due to timing of the egg and spent hen markets.

Thank you and I'll be glad to try and answer any questions.