

Pennsylvania Department of Agriculture Certified Poultry Technician Course

Bureau of Animal
Health and Diagnostic
Services



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Certified Poultry Technician Course Goals

- ✓ Recognize signs of avian disease
- ✓ Report suspected disease to PDA
- ✓ Understand how to reduce the risk of disease spread
- ✓ Use good biosecurity practices
- ✓ Understand basic PPE and personal safety
- ✓ Be familiar with PDA avian health programs
- ✓ Properly collect and submit samples for testing
- ✓ Be familiar with the whole blood agglutination plate test for pullorum
- ✓ **Understand LBMS procedures**-remember, if doing LBMS sampling, *call Hbg for certification training &* to be put on LBMS CPT list

Signs of Illness in Birds/Flocks

- Depression
(ruffled feathers, reluctance to move)
- Decreased water and feed consumption
- Weight loss
- Diarrhea, pasty vent
- Coughing, gurgling, discharge from eyes, nostrils
- Mortality



Reportable Avian Diseases

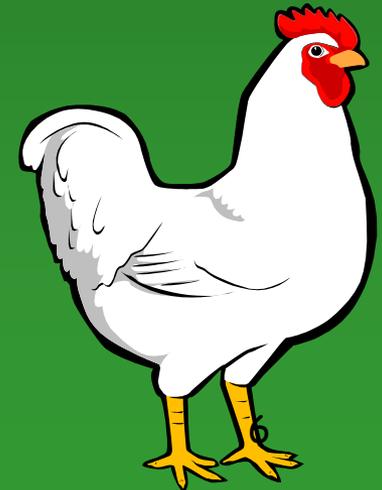
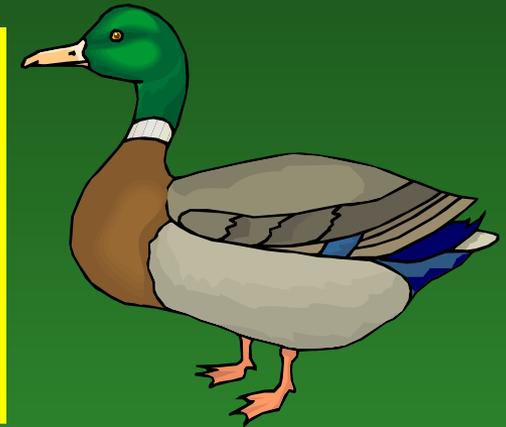


Avian Influenza (Bird Flu)

- Low pathogenic AI (LPAI)
 - Mild to moderate disease
 - Severity of disease related to environmental conditions and concurrent infections
- Highly pathogenic AI (HPAI)
 - Severe disease
 - High mortality

Reservoirs of AI viruses

- Wild migratory birds, waterfowl, shorebirds- ("natural" hosts)
- NE urban live bird markets - poultry ("accidental" hosts)
- Contact = risk factor



Swollen Eyelids and/or Sinuses



Tracheitis in infected bird



Discoloration of wattles and combs



Discoloration of skin on legs



Avian Influenza in pheasants



Increased mortality (but NOT ALWAYS!!!)



Exotic Newcastle Disease (END)

- Respiratory signs
- Neurologic signs (circling, twisting head)
- Depression
- Diarrhea
- Swelling of tissue around eyes and neck
- Increased mortality

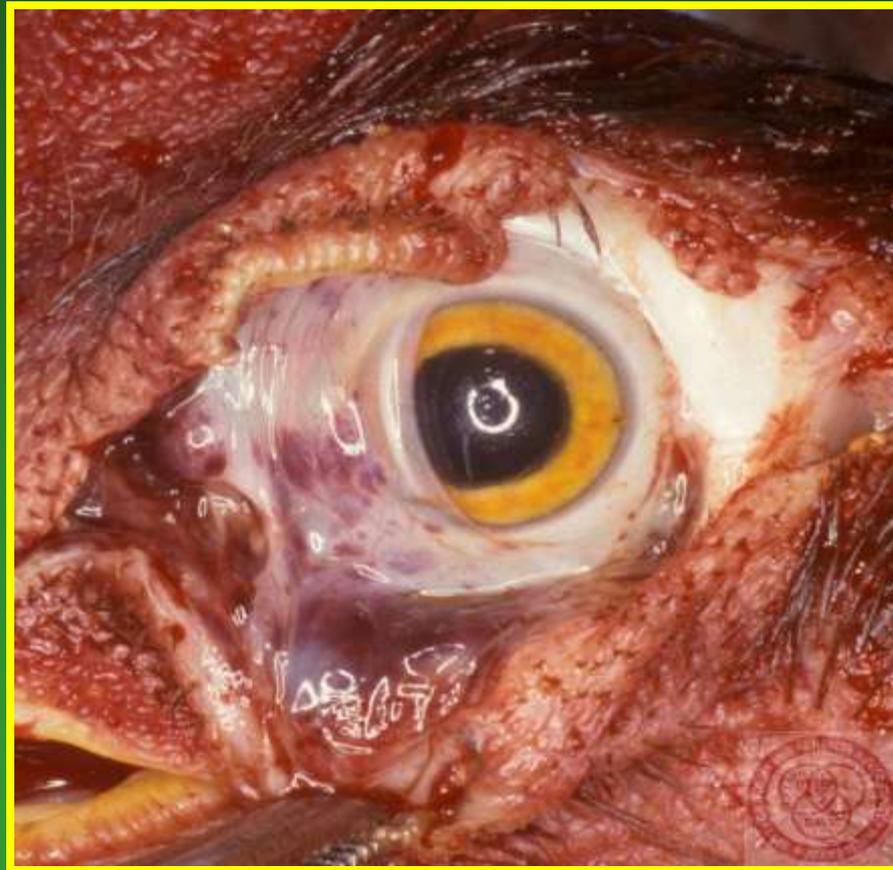
Purple discoloration of skin



Ulcers and necrosis in the gastrointestinal tract



Hemorrhages of conjunctiva and third eyelid



Pullorum Disease (Fowl Typhoid)

- Form of *Salmonella*
- Almost completely eradicated from US
- Infects chickens, turkeys, game birds and others
- Transmission is transovarial or horizontal
- Several tests for use in breeding stock

Clinical Signs and Lesions of Pullorum Disease

- Poor hatching rate, high early chick mortality
- Diarrhea, pasty vents, navel and yolk sac infections
- Localized granulomas in several tissues in birds that survive initial infection (heart, lung, joints, liver)
- Pedunculated, oily yellow or green misshapen yolks when ovary infected.
- Bronze colored enlarged liver

Pullorum Lesions



Ovary with misshapen yolks



Nodules in heart



Joint infection



Infected Navels



Enlarged liver

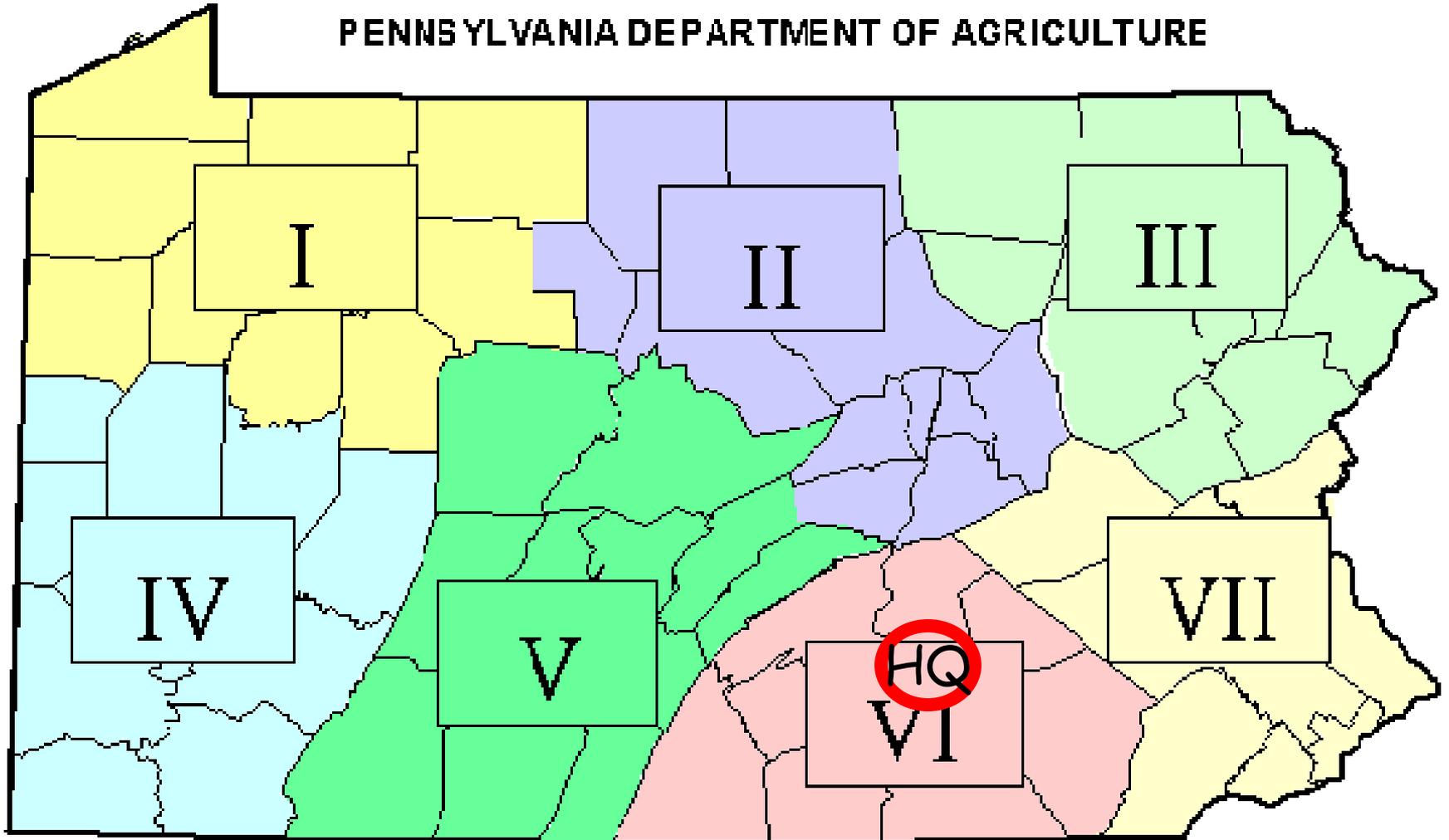


Salmonella enteritidis

- Food borne illness causing fever, abdominal cramps and diarrhea in humans
- Most types live in intestinal tract of healthy birds
- Transmitted to humans via contaminated food
- Infects all types of poultry
- Can be spread by rodents

If you suspect a reportable
disease.....

PENNSYLVANIA DEPARTMENT OF AGRICULTURE



CONTACT PDA IMMEDIATELY !



PADLS is here to help

- The poultry labs offer cheap necropsy services for backyard birds
- Can help discover the cause of disease or death and help make recommendations for dealing with the problem
- New Bolton Center (Kennett Square, Chester Co)
- Pennsylvania Veterinary Lab (Harrisburg)
- Penn State Animal Diagnostic Lab (State College, Centre Co.)

Personal Safety

- *Safety first* - protect yourself
- NO needle sticks
- Don't put needle caps in your mouth
- Use proper disposal containers
- If birds appear ill, consider zoonotic disease
- Wash your hands

PREVENTING DISEASE
SPREAD

BIOSECURITY

Biosecurity is not just for AI

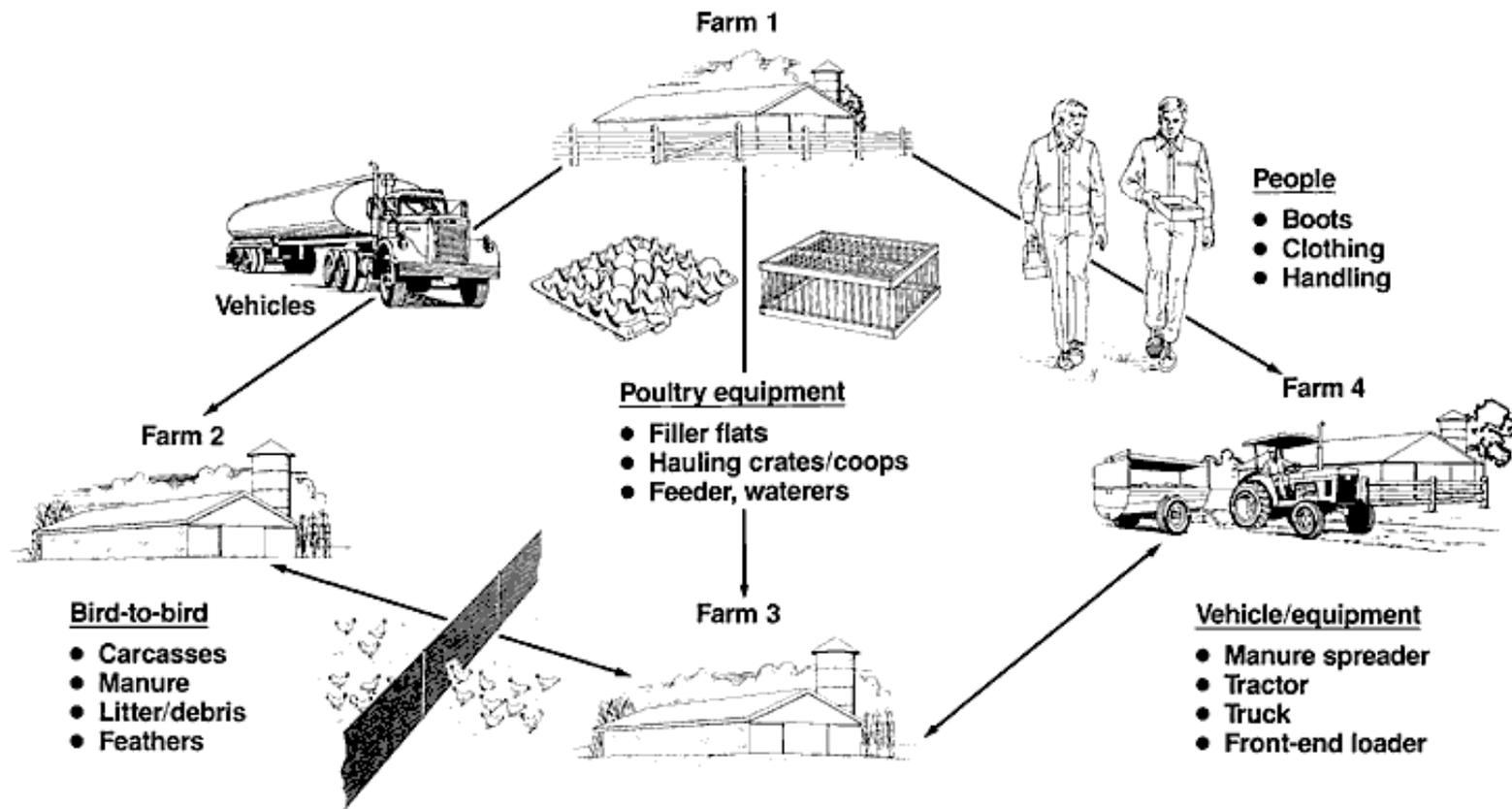
- We worry a lot about the effects of AI
- Biosecurity protects your birds from many other diseases
 - Mycoplasma
 - Pullorum
 - Newcastle Disease
 - Infectious Laryngotracheitis
 - Parasites

Biosecurity for Backyard Birds

- Biosecurity is very important and often overlooked in non-commercial poultry
- Protects your birds and the poultry industry as a whole



How Poultry Disease Spreads



When you visit, don't bring back souvenirs!

- Don't go to poultry auctions, swap meets, live bird markets, poultry shows, other flocks, commercial poultry houses and then go near your own birds
- Try to stay away from your own birds for at least 24 hours after visiting other poultry
- If that is not possible, wash your hands with soap and water and change your clothing and footwear

YOU as a CPT

- If you have birds of your own and you act as a CPT for other flocks:
 - Make sure your birds are healthy
 - Follow strict biosecurity practices when visiting other backyard flocks and when returning to your own flock
 - Don't have others bring their birds to your place for sampling
 - If you do a lot of work for other flock owners, consider NOT having birds of your own

Show Birds

- When you bring birds to a show, they may pick up diseases that do not become apparent for awhile
- Keep birds that have been at shows separate from the rest of the flock for at least 2 weeks so if they develop illness, they have not spread it to other birds



New Additions to Your Flock

- ✓ Add only healthy birds
- ✓ Use a reputable supplier
- ✓ Quarantine new birds before adding to your flock

Sometimes it is NOT nice to share

- Do not share poultry equipment, tools, lawn/garden equipment used around poultry
- Poultry disease is often carried on equipment, people, clothing, vehicles, etc.

Restrict Visitors

- Do not allow free access to your poultry areas
- If you must have visitors who have their own poultry, make sure they have disinfected or disposable footwear, clean clothing, and washed and/or gloved hands at a minimum

Restrict Visitors

- Wild birds can bring your birds diseases
- Most cases of AI in PA are in pastured poultry in contact with wild waterfowl
- Do not encourage wild bird visitation
- When possible, house poultry securely away from wild birds

Travel Precautions

- If you travel to other countries where they have poultry diseases that we do not have here (and don't want here)...
 - Avoid contact with any birds in those countries
 - Do NOT go anywhere near any birds in this country when you return for at least 48 hours and carefully wash all of the clothing and supplies you brought with you
 - NEVER bring back animals, animal products, or organic materials from foreign countries without specifically discussing it with USDA/APHIS

Be Sure To Always Obey Signage



Biosecurity signs



Farm Quarantines

Act 125

- Effective as of November, 2010
- Agricultural property owners can designate an "agricultural biosecurity area".
- A landowner may post a sign to designate measures required to avoid trespassing charges (PPE, etc)

Things you can use to prevent disease spread.

- ✓ Boots
- ✓ Coveralls/clean clothing
- ✓ Hairnet
- ✓ Gloves
- ✓ Masks
- ✓ Soap and water
- ✓ Foot baths

**Always wear boots that are
disposable or can be
disinfected**



Proper Cleaning Technique



- Remove excess dirt
- Use warm water and/or high pressure water
- Use a disinfectant to clean boots and non-disposable equipment

Disinfecting and Disposal of Equipment

Non-Disposabile Equipment

Rubber Boots

Cloth Coveralls

Light Box and Plate for Pullorum Test

Nets

Crates



Types of Disinfectants

- Hypochlorites (Clorox[®], et al = 5.25% sodium hypochloride)
 - 2 to 4 ounces (60-120 ml) per gallon of water
 - Damages rubber and clothing but inexpensive
- Iodophors (Betadine[®], et al = 1% iodine solutions)
 - 2 to 4 ounces (60-120 ml) per gallon of water
- Phenolics (Lysol[®], One-Stroke[®])
 - follow label directions
 - may not be as effective and can be expensive

Types of Disinfectants

- Chlorhexidine (Nolvasan® = .5%
chlorhexidine gluconate)
 - 1 to 3 ounces (30-90 ml) per gallon of water
 - may not be as effective and requires longer contact time
- Others
 - Virkon-S®: better for viruses, expensive
 - Quaternary ammoniums (Roccal ®): better for
bacteria

Disposable Equipment

Gloves / Hairnets / Masks

Disposable Coveralls and Plastic Boots

- * These items can be placed in a garbage bag and left at the farm for disposal.



Biohazard Supplies

- Needles
- Syringes
- Wasted Sample Tubes
- Swabs

- ** Minimize amount of supplies taken onto farm
- ** Make needles & syringes unusable before disposal
- *** Dispose of these items properly



Vehicle



- Park in a low traffic location
- Try not to drive through manure
- Disinfect tires and wheel wells if needed

GENERAL RULE

ONE FARM VISIT
PER DAY

Leg Bands





Seal it and crimp it so it stays on



Sample Collection and Testing

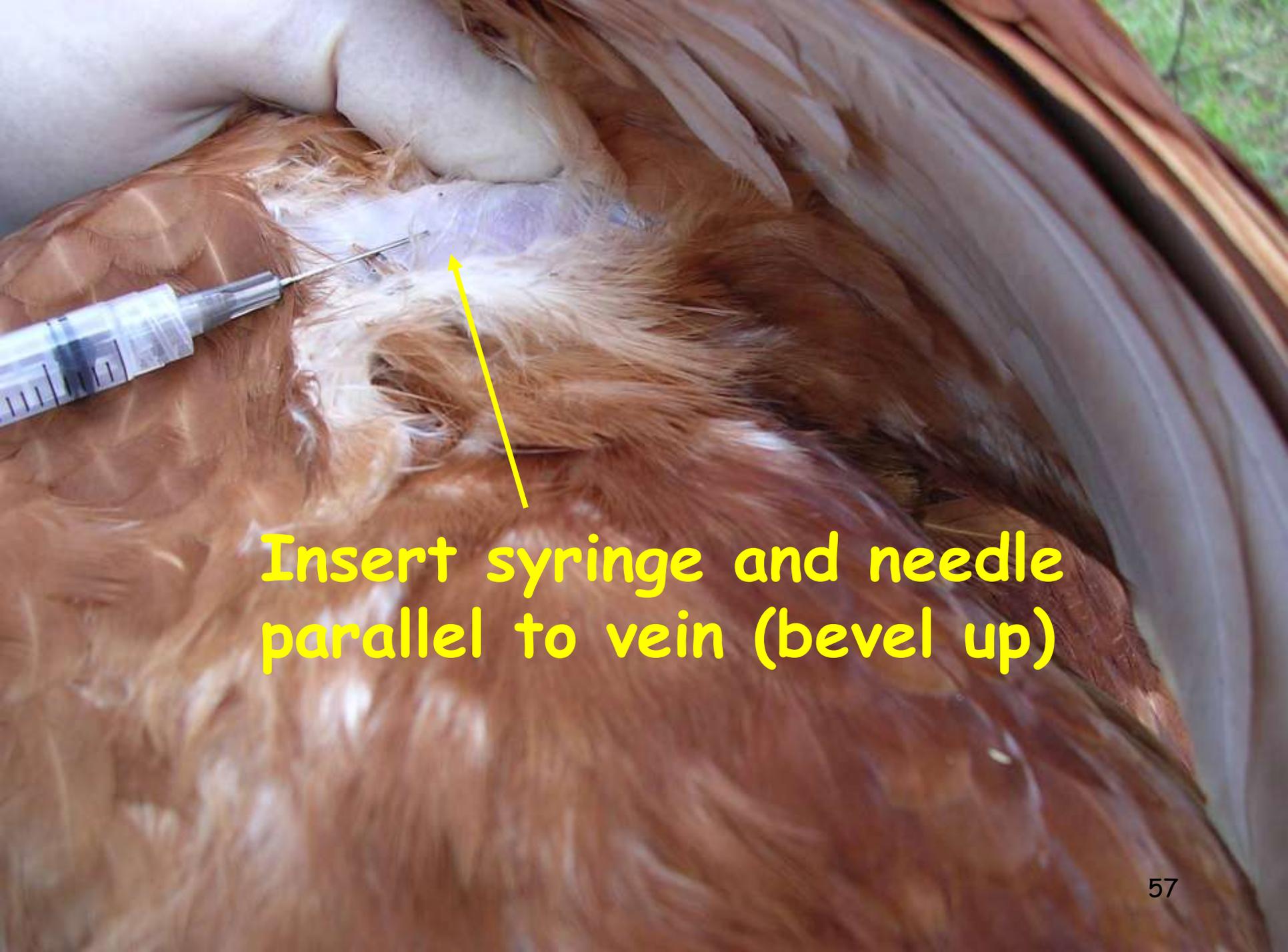
Blood Collection



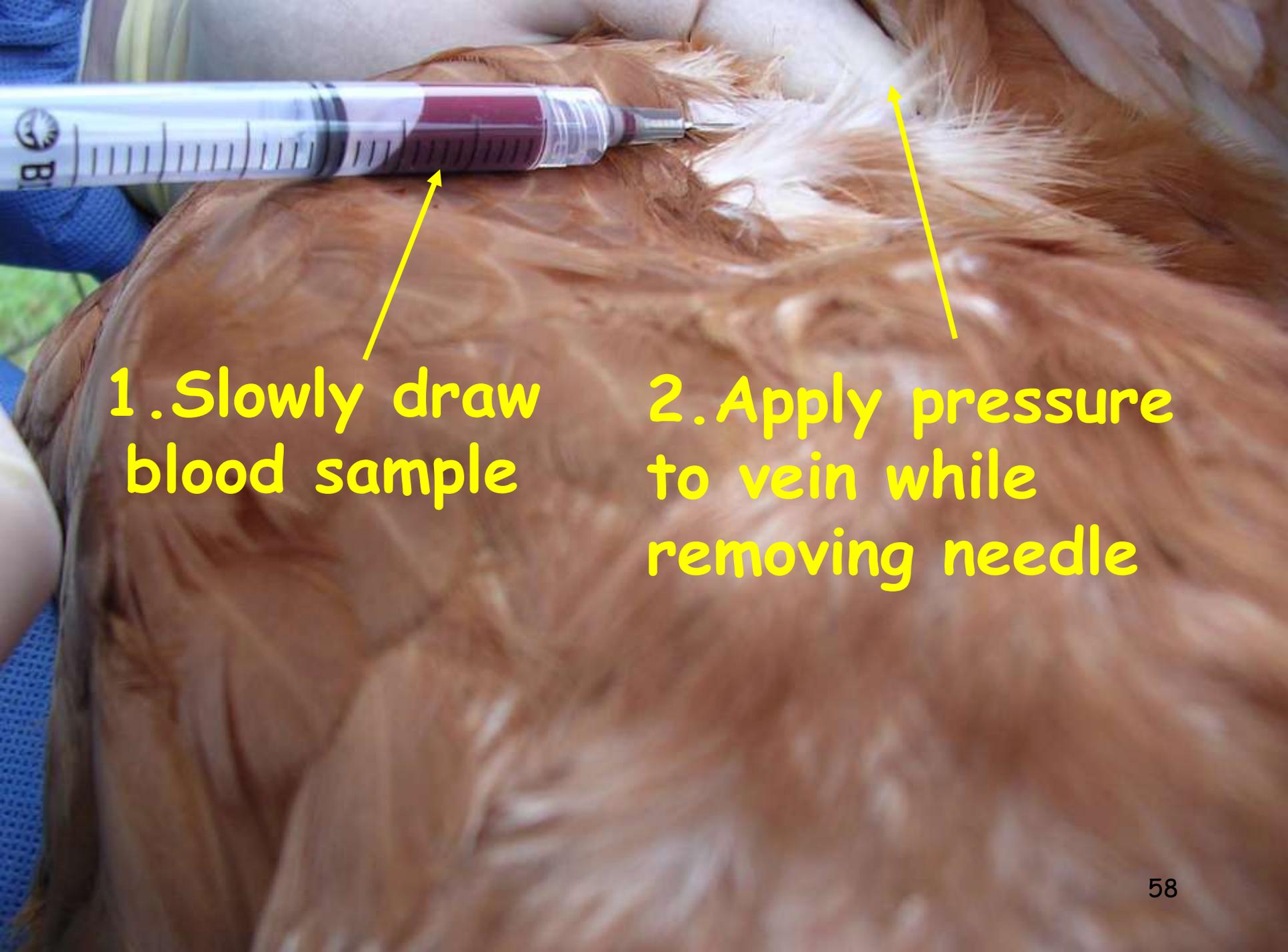
Proper, gentle restraint
is vital to avoid injury

Expose the Brachial Vein





Insert syringe and needle parallel to vein (bevel up)



1. Slowly draw blood sample

2. Apply pressure to vein while removing needle

Syringes and Needles

- Expense of each CPT
- The bigger the number describing the gauge of needle, the smaller the diameter of the needle
- Smaller game birds: 26g or 25g X 3/8 in. (tuberculin syringe)
- Bigger game birds and chickens: 22g - 20g X 1 in. (3cc syringe)
- Waterfowl and turkeys: 22 - 20g X 1 in (3 cc syringe)

Other supplies

- Contact info in packet
- Blood tubes, boxes and submission paperwork are from the Pennsylvania Veterinary Lab
- Official leg bands are from BAHDS in Harrisburg
- Banding pliers are available at a cost from the band manufacturer
- Media for swabs and the swabs can be obtained from the labs or, in some cases, from your regional PDA veterinarian

Blood Sample Handling and Packaging

- ✓ Label box properly with owner name, premise ID and date on side of box—not on lid (or on both). In some cases, labeling the individual tubes may be valuable
- ✓ Tilt blood tube box 30 degrees in its lid
- ✓ Dispense 1 - 2ml blood into: small tubes in blood boxes or red top blood tubes
 - Seal tubes with tape if delivering to lab; if shipping, use tubes with caps
 - Place completed submission form inside the box on top of the tubes
 - Seal box, place into plastic bag, seal bag
 - Disinfect plastic bag
 - Keep at room temp for several hours, then chill

Blood tube box for hand delivery



Blood tube box for shipping



Sample Handling and Packaging - Snap Cap Tubes

- For one test only - usually used for AI Monitored flock testing
- Put 2.0 mls of blood into tube
- Leave a small space at top so lid does not pop open during transport
- Seal tube
- Tubes into whirlpak bag, seal bag
- Label bag properly with owner name, premise ID
- Submission form into bag pocket
- Disinfect bag
- Keep at room temp for several hours, then chill

Sample Handling and Packaging - Snap Cap Tubes



Do's and Don'ts of Blood Submissions

Do

- ✓ Place blood in a clean, dust free tube
- ✓ Submit samples to lab ASAP
- ✓ Submit min. 2.5 mls when multiple tests requested
- ✓ Submit 2.0 mls for one test
- ✓ Send samples refrigerated using overnight courier (if you can't drive them to the lab)
- ✓ Contact lab directly when special test arrangements needed
- ✓ Be aware of lab holiday closings and weekend submissions

*****PADLS accepts the right to determine suitability of a sample***

Don'ts

- ✓ Do not submit contaminated or hemolyzed blood
- ✓ Do not send blood w/out a stopper or sealed tube
- ✓ Do not send incomplete paperwork or samples without paperwork
- ✓ Do not label box lid!

Cloacal Swab Collection and Handling

For AI testing of waterfowl



Waterfowl Testing

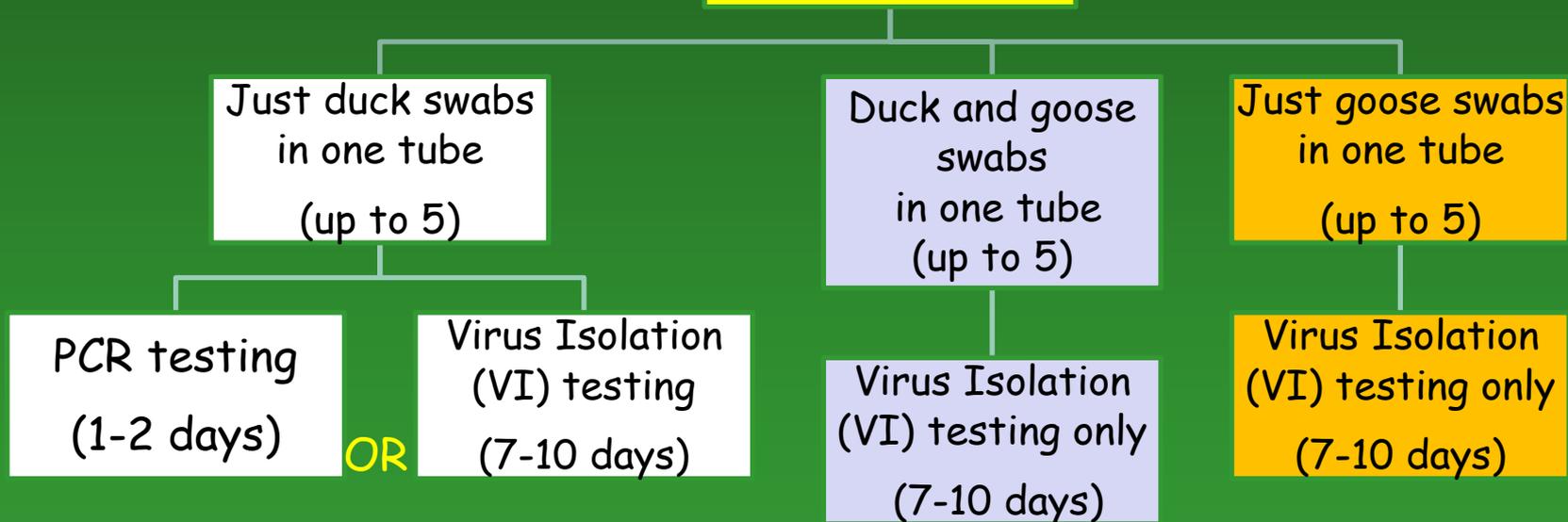


- Cloacal swabs required
- Virus isolation or PCR for domestic ducks
- For PCR, one bird type from one flock per tube (up to 5 swabs). Do not mix ducks and geese swabs in one tube.
- Virus isolation only accepted test for geese, wild ducks
- For VI, one bird type only per tube for LBMS or programs-but can mix duck and geese if for exhibit

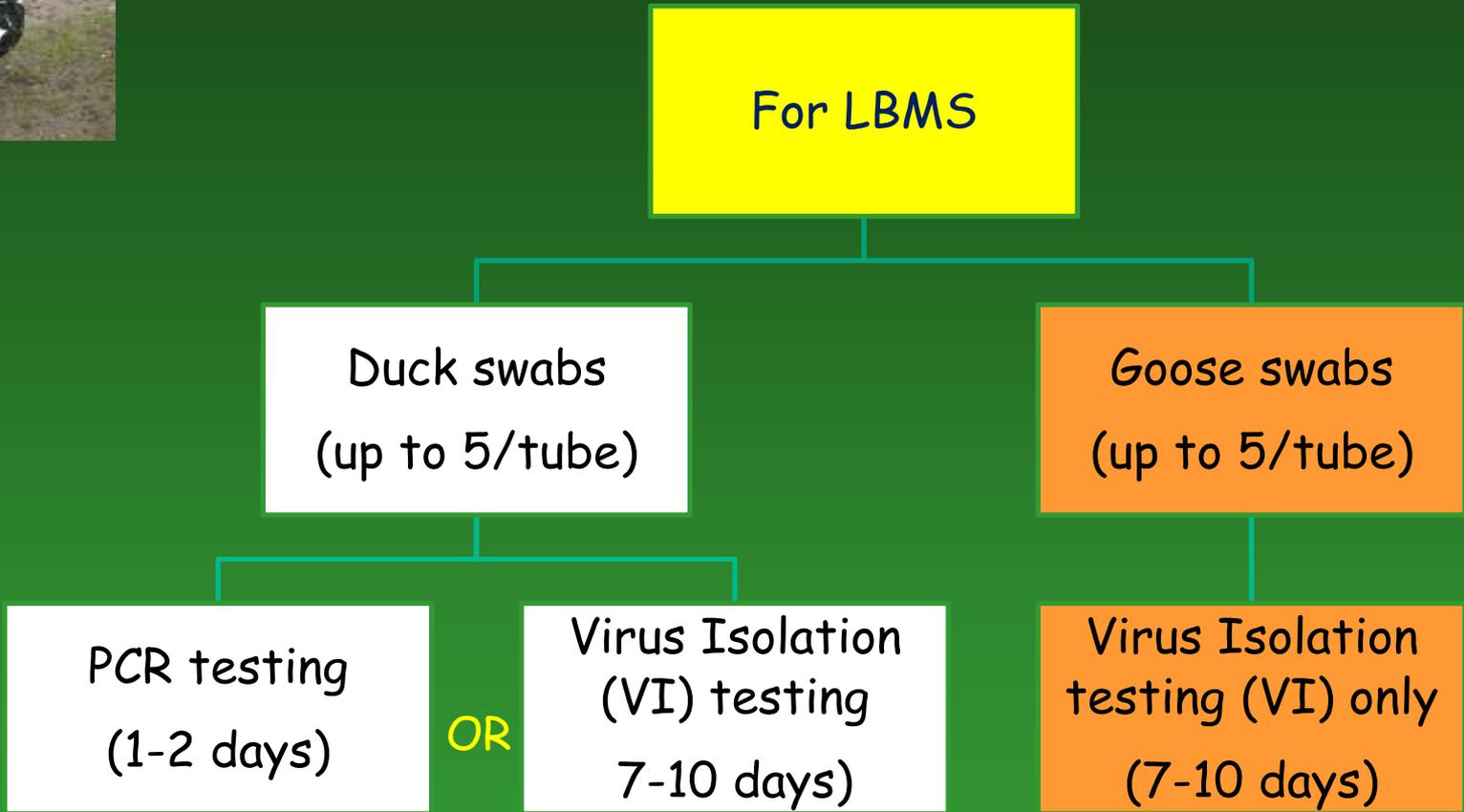
Waterfowl Testing for Show



For Show



Waterfowl testing for LBMS

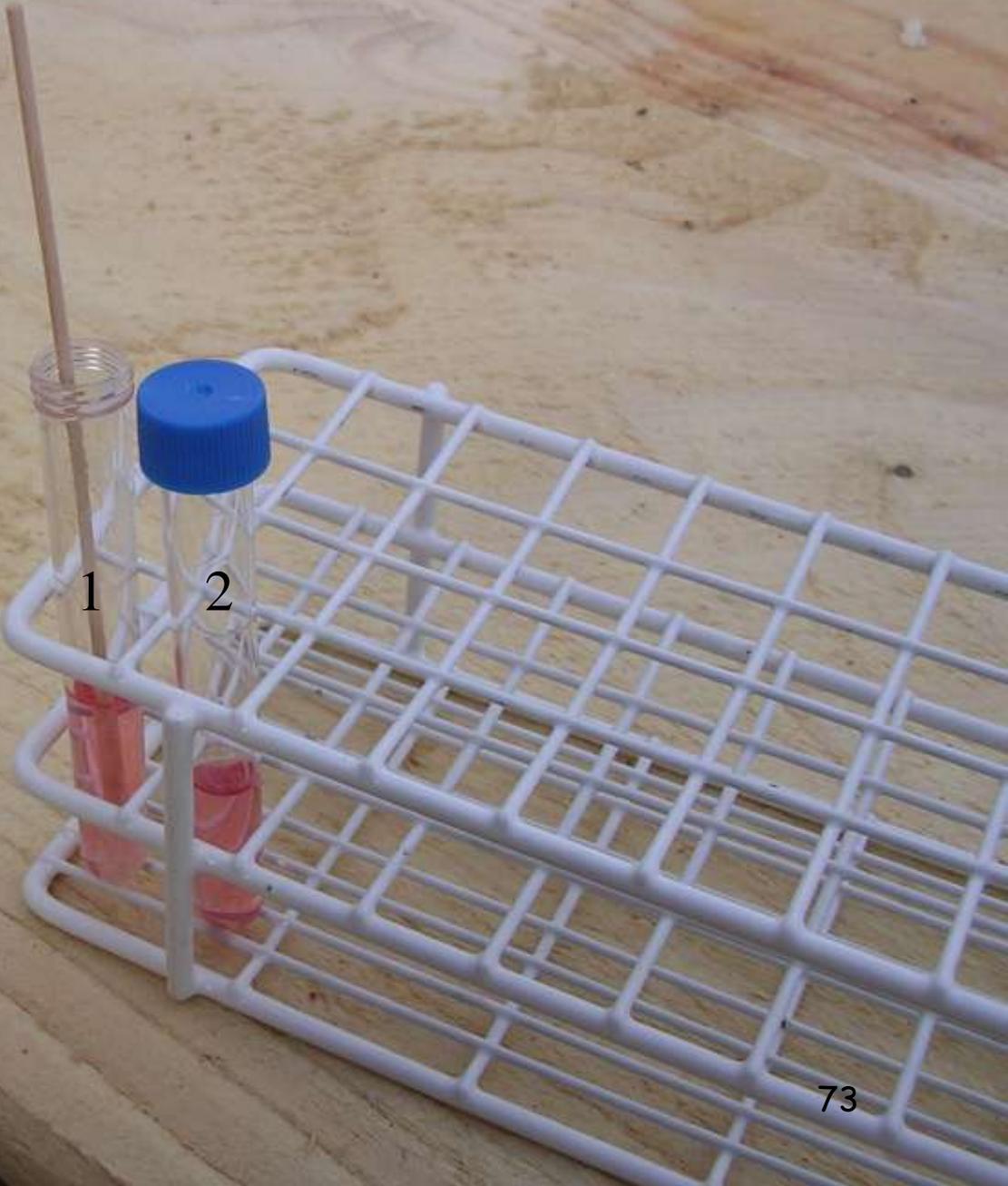


Expose the vent





Swab
vigorously to
get feces



1

2

Tracheal & Oropharyngeal Swab Collection and Handling

Tracheal Swabs

- To collect a tracheal swab sample, hold the bird's mouth open and watch the opening and closing of the larynx (opening to the trachea).
- Carefully introduce the swab down the trachea and gently rub the swab up and down along the trachea sides.
- The swab can also be drug along the tissues of the choanal slit.

Tracheal swabbing

Expose trachea

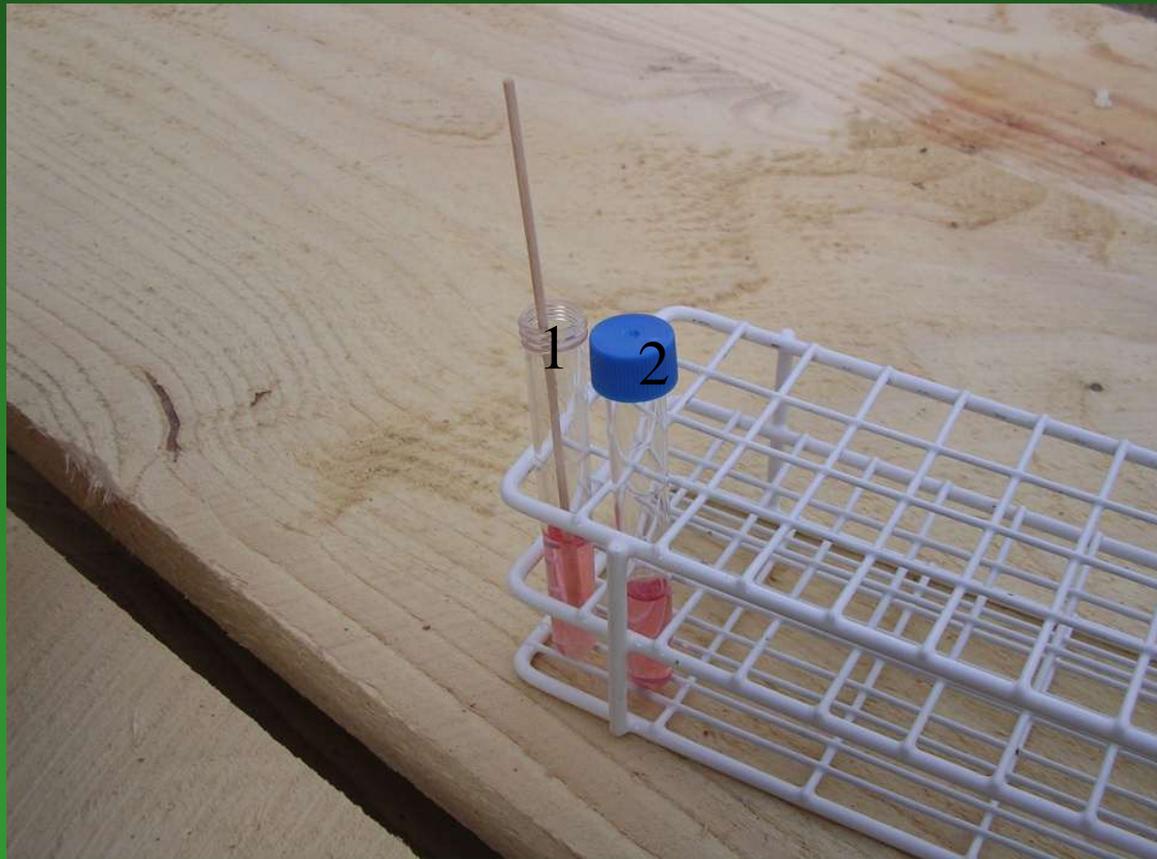




Oropharyngeal (OP) Swabs

To collect an OP swab sample, hold the bird's mouth open and introduce the swab into the bird's mouth. Gently rub the swab around the tracheal opening, making sure to drag the swab through the choanal slit as you pull the swab out of the bird's mouth.

Swab Handling



Do's and Don'ts of Swab Collection

Do

- ✓ Use dry swabs
- ✓ Swab and rub mucosa vigorously
- ✓ Make sure enough medium is used to cover samples
- ✓ Store medium in refrigerator
- ✓ Place swabs from one bird type per tube

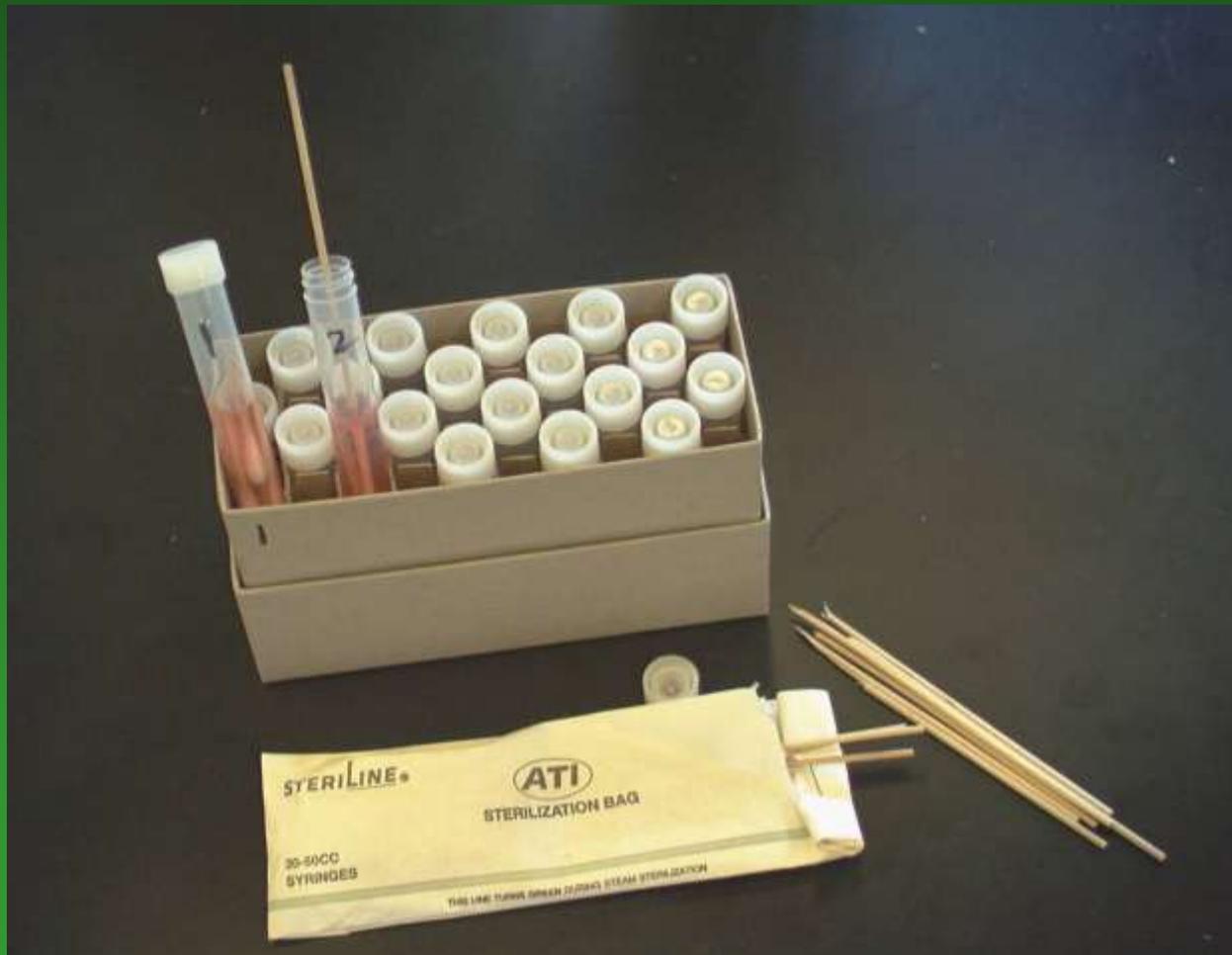
Do Not

- ✓ Do not use the same swab for multiple samples or birds
- ✓ Do not use cloudy or discolored media
- ✓ Do not put more than allowed # of swabs per numbered tube
- ✓ Do not mix, for example, geese and duck swabs in one tube for LBMS-OK for exhibit if VI testing

Number of Swabs/tube

- Gallinaceous birds:
 - (chickens, turkeys, quail, guineas, pheasants, etc)
 - Up to 11 samples/tube
 - If >5 swabs, swab bird, swirl swab in BHI, press to remove excess, discard swab
 - If < 5 swabs, leave swabs in tube, break off ends
- Waterfowl:
 - Up to 5 cloacal swabs/tube
 - Leave swabs in tube, break off ends to cap tube

Swab Handling



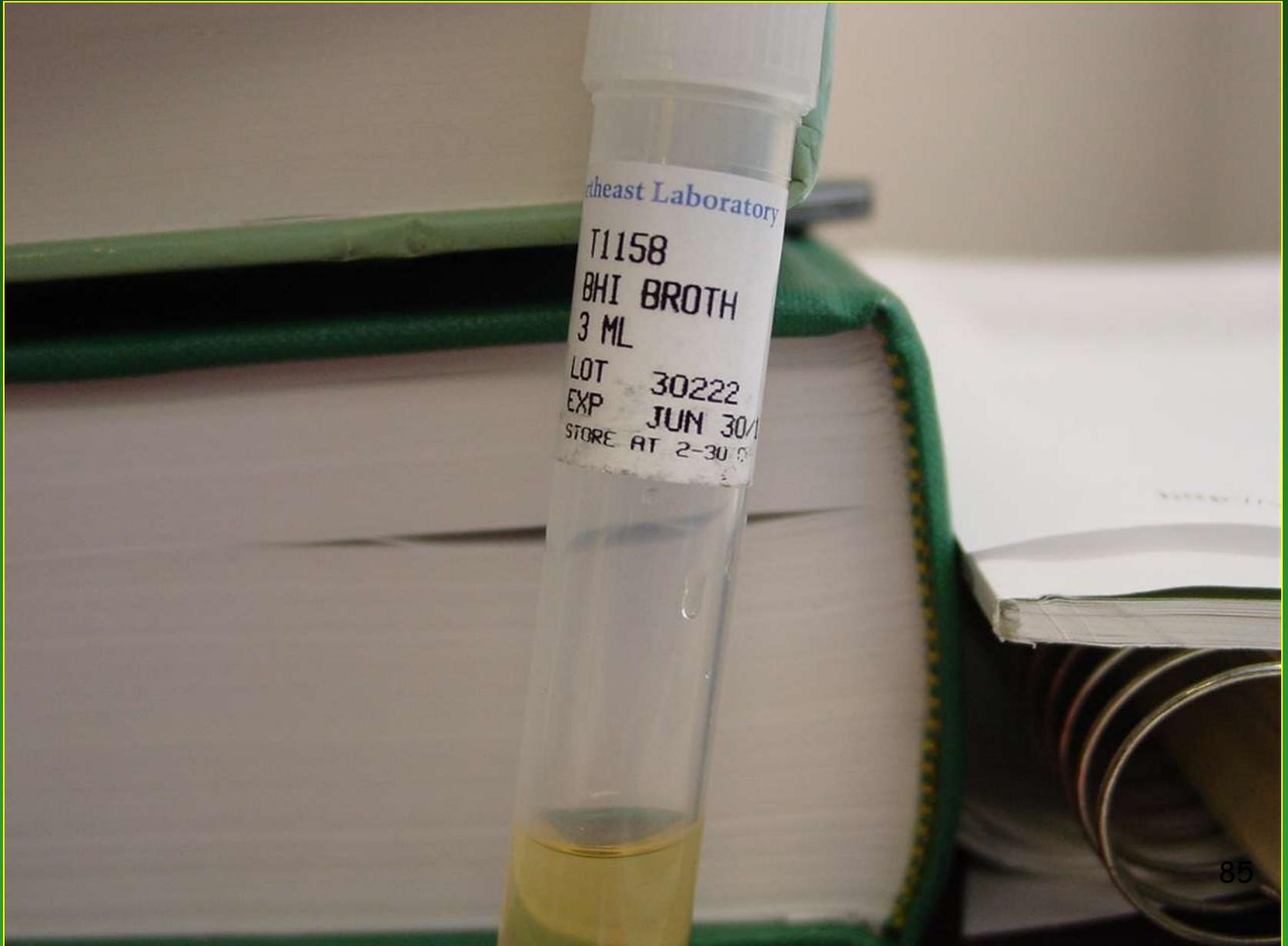
Swab Sample Handling and Packaging

- ✓ Label tubes appropriately
- ✓ Seal tubes securely
- ✓ Place in taller cardboard box (can be provided) or whirlpak bag with submission form attached.
- ✓ Bag or box must be properly labeled with owner name and premises ID and date
- ✓ Put box in a bag, seal, and disinfect outside of bag
- ✓ Store at refrigerator temperature
- ✓ Submit to diagnostic lab

BHI

- Media distributed for swab samples
- BHI is clear and a light yellow color
- Expiration dates will be provided with the media when you receive it

BHI



BHI



Mold



Fresh



Bacteria



Quiz-is this acceptable BHI?



Sample Submission to a Diagnostic Laboratory

- Samples can be delivered via (overnight) mail, courier, or drop off (*preferred method*)
- All samples must be properly packaged and labeled
- All samples must be accompanied by a completed submission form - or a test result may not be sent out

Do's and Don'ts of Sample Submission

Do

- ✓ Place paperwork in plastic bag
- ✓ Secure lids on all boxes
- ✓ Keep samples at refrigerator temperature
 - ✓ (after the initial room temp. period for blood samples)
- ✓ Include ice pack with all submissions
- ✓ Ship samples in styrofoam containers inside a cardboard box
- ✓ Call lab prior to arrival
- ✓ Apply leg bands to Pullorum tested birds

Do Not

- ✓ Do not ship open-top tubes via mail/courier
- ✓ Do not ship or deliver samples just prior to holidays or weekends
- ✓ Do not ship or deliver samples without completed paperwork

Sample Submission Problems

- Common problems
 - Poor quality samples
 - Not enough serum!
 - Incomplete or illegible paperwork
 - Spilled/damaged samples in shipment
 - Pullorum tested birds not banded or band numbers not included on paperwork
- CPTs will be contacted by the diagnostic laboratory to discuss the problem.
- The live bird market system is very unforgiving with respect to these problems. **WHEN IN DOUBT, CALL THE LAB AHEAD TO CONFIRM YOUR PROCEDURES** 😊

Sample Submission Form (handout)

Reporting of NEGATIVE Test Results

- Test results are reported by the laboratory
 - Sent in writing to the flock owner
 - Mail
 - Fax or email (owner will receive results sooner)
 - Sent in writing to PA Department of Agriculture
 - Sent in writing to the CPT only if requested on the submission form (or if the CPT is also the flock owner)
 - Mail
 - Fax or email (CPT will receive results sooner)

Reporting of SUSPECT or POSITIVE Test Results

- Testing may yield inconclusive or clearly positive results that require further sampling by regulatory officials.
 - Flock owner is notified by PDA personnel via phone
 - Results also sent in writing (mail or fax)
 - Follow-up testing is scheduled with flock owner
 - CPTs can be notified if requested on the submission form.
- CPTs are not involved in confirmatory or follow-up testing for suspect or positive test results in most cases. CPTs may be contacted by the PA Department of Agriculture for information pertaining to disease investigations.

Rapid Whole Blood Agglutination Plate Test for Pullorum



Plate with Light Source

Plate Test Supplies

LOOP



Pullorum Stained
Antigen



BLEEDER with LOOP



Identifying Tested Birds

Remember to ID:



Pullorum Tested Birds

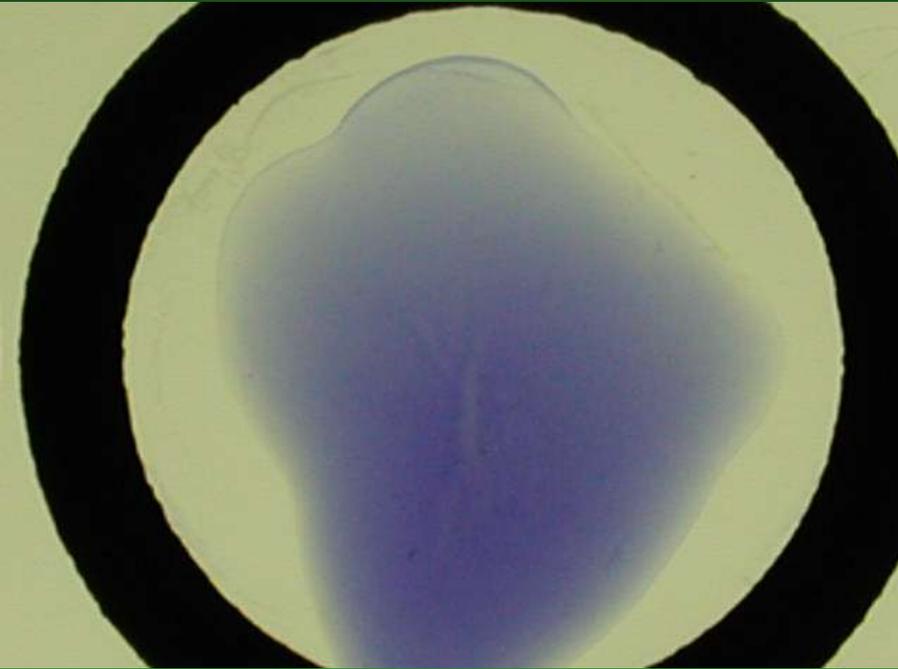
Birds destined for a
Pennsylvania Fair

NEED TO BE LEG BANDED if
pullorum reactor, isolated
so can be found and
retested

Pullorum Plate Test

- Whole blood test that cannot be used with turkeys
- 1 drop of whole blood to one drop of antigen
- Use only 1 test per square
- Rock plate for 2 minutes and read result
- Absence of agglutination (clumping) indicates negative result
- Agglutination indicates positive result-expect to get some positives if doing test properly
- All tested animals should be leg banded-all REACTORS MUST be banded
- Complete form and send to PDA

Pullorum Plate Test



No agglutination
=negative

Agglutination= reactor

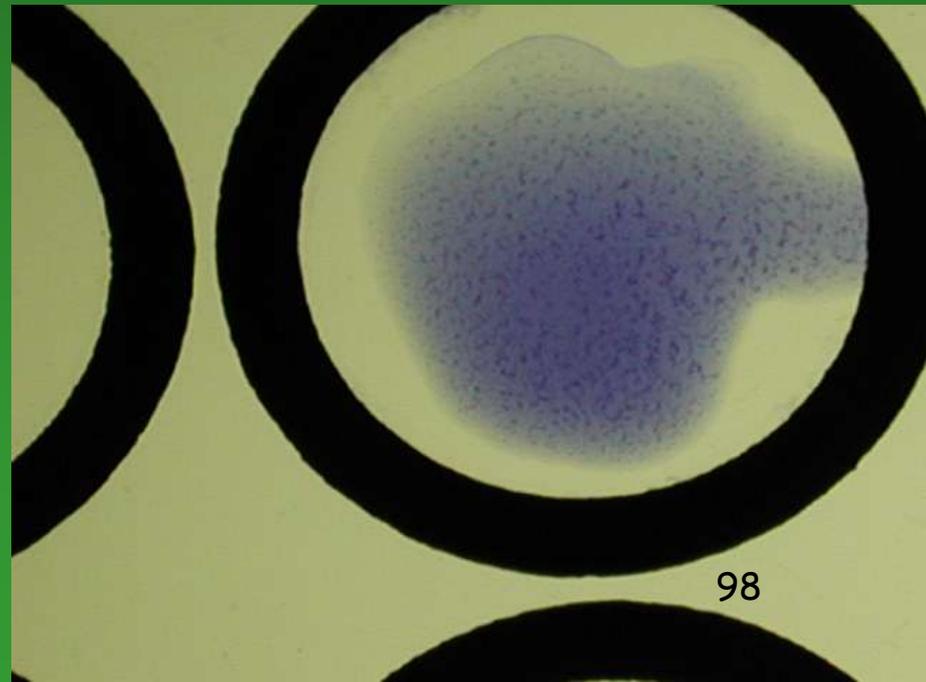
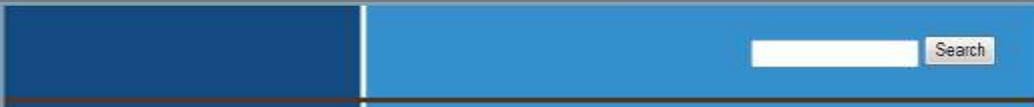


Plate Testing for Pullorum

- If suspect or positive plate test result, immediately band the bird, draw a blood sample and submit it to the lab for testing along with 9-2 or equivalent form, and submission form
- The blood sample at the lab is treated as the first sample
- If you do not submit a blood sample immediately, the bird will be considered a reactor
- Can submit bird instead of blood
- Not for turkeys





PADLS

Pennsylvania Animal Diagnostic Laboratory System

- Home
- About
- Directions
- Services & Fees
- Forms
- Rabies
- Employee Login



Structure and Locations of PADLS

PADLS has a unique structure in that it is a tripartite laboratory system. Each laboratory is able to provide expertise according to its resources. The three parts are Animal Diagnostic Laboratory, Pennsylvania State University, New Bolton Center, University of Pennsylvania and Pennsylvania Veterinary Laboratory, Harrisburg.

Directions

To get directions to our locations, enter a starting address below, select a location and click 'Get Directions'.

Address:

City:

Are you an animal Dealer/Hauler?

- Buying and reselling poultry
- Transporting poultry for a third party
- You must keep records of your transactions
- You must be licensed in PA



Live Bird Markets



Additional Requirements for LBM Certified Poultry Technicians

- Additional training in Harrisburg
- Authorization by PDA
 - On the "list"
- Annual reviews of LBM requirements
 - Continuing education
- Contact Dr. Nan Hanshaw for LBMS CPT certification training

Exhibition Poultry

Pennsylvania options

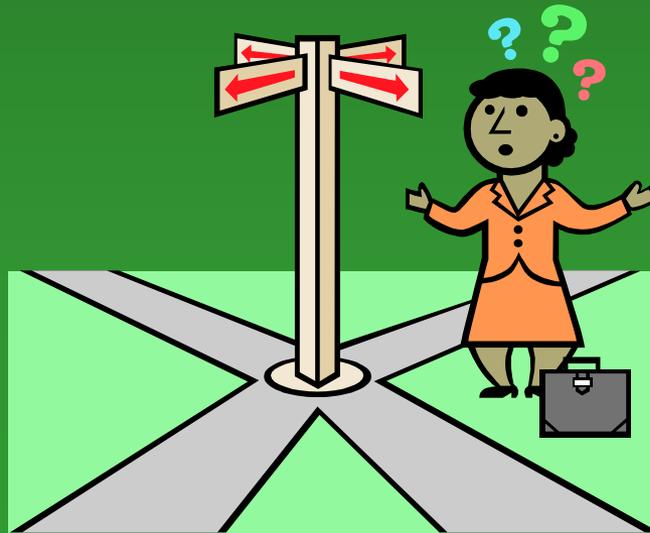


Fair Rules (PA Poultry)

- Unique identification-LEG BANDS
- Owner endorsed health certificate
- AI testing
- Pullorum testing
- PADLS user fees - check current user fee schedule each year
- Minimal charges to help cover costs at labs
- Swab testing more \$\$

Options for Meeting Testing Requirements

- NPIP
- PA-NPIP pullorum equivalent program
- PA AI monitoring program
- No program- just test to show



What is NPIP?

(National Poultry Improvement Plan)



- VOLUNTARY program for
 - *hatcheries/breeder flocks
 - *commercial flocks or proc. plants(AI only)
- Federal guidelines, state administrators

NPIP

- Pullorum Clean
- Annual test requirements - 300 or whole flock
- +/- AI Clean
- 30 birds tested quarterly

Other requirements: Sanitation, biosecurity, annual inspection, etc.

For more Info on NPIP...

- Call PDA to set up a time to go over the requirements

PA Pullorum Equivalent Program

- For exhibition birds only
- New in 2007
- Must complete an enrollment form with PDA with a premise ID if have one
- Must test 300 test-eligible birds or whole flock for Pullorum annually
- Annual PDA inspection

PA Pullorum Equivalent Program

- All flock additions must be from NPIP Pullorum clean or approved equivalent sources
- Flock cannot be mingled with non-program birds unless the other birds are kept separate until after they test negative
- Status good for one year

Individual Bird testing for Pullorum

- Still have the option of testing just those birds you wish to show for Pullorum
- Test result qualifies the bird to show for 90 days only
 - Use lab report for entry
 - Can end up under quarantine when you want to be at the show if you test too close to the show date
- May need to retest if you go to more than 1 show

Individual Bird testing Pros

- If you show a few birds at one or two shows, this requires the least testing



What do you test for Pullorum?

- Chickens greater than 4 months old
- Turkeys greater than 12 weeks old
- Game birds greater than 4 months old or at sexual maturity, whichever comes first
- Ratites at 12 months of age.
- NOT waterfowl (unless program flock) or pigeons

Pullorum Response Protocol

- If there is even one suspect on lab testing, the whole flock is quarantined until it is proven "clean"



Avian Influenza



AI Testing Options

- NPIP US AI Clean Program
- PA AI Monitored Flock Program
- Testing for Show only within 6 months of the date of the show (time frame may change from year to year)
- *Flock* test- no individual bird testing option



PA AI Monitored Flock Program

- Intended for Live Bird Market System (LBMS) flocks
- Test 30 birds, representative of the flock, every 21 - 30 days for 3 months to get status, then continue monthly
- To count as a flock, the birds must be together for at least 21 days with no untested additions
- Test birds 3 weeks of age and older (exceptions)

Testing for PA Exhibition only (non program)

- Test at least 30 birds (or whole flock if fewer than 30), at least 3 weeks old, within 6 months of the start of the show
- Cloacal swab & virus isolation test required for waterfowl



Example

- 4H exhibitor has 15 mature chickens and 10 mature ducks and is not on any programs (just testing for show)
 - Draw blood samples from all chickens and submit to the lab for AI testing within 6 months of the show
 - Also request Pullorum testing from the lab within 3 months of the show for chickens which will be shown (or from all chickens)
 - Take cloacal swab samples from all ducks and submit to the lab for AI testing within 6 months of the show

CPT Infractions

- Submitting samples without licensure
- Repetitive poor sample quality
- Incorrect documentation
- Inaccurate or incomplete submission forms
- Collecting samples outside of PA
- Fraud or misrepresentation

**Your license can be revoked and you can be fined
by Pennsylvania or other states.**

Annual Recertification of CPTs

- Annual re-application and license renewal
- Annual continuing education required for *NJ LBMS CPTs* - open-book quiz must be sent in with annual license application
- *ALL other CPTs are encouraged to review the materials*
- Updated information for CPTs will be on PDA website

The End



Any Questions?

*Remember-call us with questions BEFORE you
act!!!!*