



P.O. Box 134
Green River, UT 84525

UtahState
UNIVERSITY

COOPERATIVE
extension

UTAH GAME BIRD HEALTH AND MANAGEMENT SYMPOSIUM

**Green River, Utah
March 6-7, 2015**





UtahState
UNIVERSITY

COOPERATIVE
extension



UTAH GAME BIRD HEALTH AND MANAGEMENT SYMPOSIUM

March 6-7, 2015
Green River, Utah

March 6 (Friday)

INTRODUCTION & WELCOME

8:00 – 8:15 a.m. *Royd Hatt, Hatt's Ranch*
Warren Hess, Acting State
Veterinarian

HEALTH AND DISEASE

8:15 – 9:00 a.m.
Update on UDAF avian-related activities. *Warren Hess*
Acting State Veterinarian

9:00 – 10:20 a.m.
Game bird diseases and challenges *F. Dustan Clark*
Extension Veterinarian
University of Arkansas

10:20 – 10:30 a.m. Break

10:30 – 11:00 a.m.
Game bird parasite evaluation *David D. Frame*
Central Utah Veterinary
Diagnostic Laboratory
Utah State University

11:00 a.m. – 12:00 p.m.
Game bird parasite wet lab. *David D. Frame, et al.*

12:00 – 1:00 p.m. Lunch

MANAGEMENT

1:00 – 2:00 p.m.
Game bird management. *Royd Hatt*
Hatt’s Ranch
Green River, Utah

2:00 – 2:15 p.m. Break

2:15 – 5:00 p.m.
Game bird management. *Bill MacFarlane*
MacFarlane Pheasants, Inc.,
Janesville, WI

DINNER. TBA
5:30 p.m.

March 7 (Saturday)

9:00 a.m. to 12:00 p.m. Tour of Hatt’s Ranch
(breeder farm, hatchery, and
hunt club)

Utah Game Bird Health and Management Symposium

John Wesley Powell Museum, Green River, Utah March 6-7, 2015

SPEAKER INFORMATION



F. Dustan Clark

Center of Excellence for Poultry Science

University of Arkansas

Fayetteville, AR 72701

Phone: 479-575-4375

Fax: 479-575-8775

fdclark@uark.edu

- Ph.D., Veterinary Pathobiology, Texas A&M University, 1991
- M.S., Veterinary Microbiology, Texas A&M University, 1984
- DVM, Texas A&M University, 1980

Professional Experience

- Director of the Utah State University Provo Branch Veterinary Diagnostic Laboratory, 1988-1994
- Supervisor of the Utah National Poultry Improvement Program and Extension Veterinarian (avian species) in the Animal, Dairy and Veterinary Science Department of Utah State University.
- Diplomate, American College of Poultry Veterinarians
- Assistant Professor/Extension Poultry Health Veterinarian, Center of Excellence for Poultry Science, 1994



David D. Frame
Utah State University Extension
Phone: (435) 851-2233
david.frame@usu.edu

A 1980 graduate of Utah State University with a B.S. in Animal Science, Dr. Frame subsequently received his DVM degree from Oregon State/Washington State Universities in 1984. Dr. Frame completed an avian medicine residency with the University of California, Davis specializing in poultry pathology and diagnostics. He is board certified in the American College of Poultry Veterinarians. Dr. Frame was employed as chief veterinarian for Moroni Feed Company (Norbest), a commercial turkey cooperative located in central Utah, for almost 12 years before joining the faculty of the USU Animal, Dairy, and Veterinary Sciences Department in 1998 as an Associate Professor. He currently serves as the USU Extension Poultry Specialist with an additional assignment as poultry diagnostician for the Utah Veterinary Diagnostic Laboratory.

Dr. Frame has served on various national boards, including the General Conference Committee of the National Poultry Improvement Plan, an advisory committee to the United States Secretary of Agriculture. He presently serves as editor for the Western Poultry Disease Conference, an internationally renowned poultry disease forum.

A life-long love of birds hallmarks Dr. Frame's career. In earlier years he bred, raised, and showed many different breeds and varieties of exhibition chickens, and has judged poultry shows for a number of years.

Dr. Frame is married to Lisa Gilbert of Fairview, Idaho and they are the proud parents of two daughters and two sons (none of whom, however, are interested in pursuing a career in veterinary medicine!).



Royd Hatt
Hatt's Ranch
(435) 564-3224
royd@etv.net

Royd Hatt is a lifelong resident of Emery County, Utah having been born and raised in Green River. He and his wife, Toni, are the parents of four children. Royd and his family are owners of Hatt's Ranch game bird ranch. Royd has served as president, vice president, and board member of the North American Game Bird Association.



Warren J. Hess
Utah Department of Agriculture and Food
(801) 870-7818
wjhess@utah.gov

Dr. Warren J. Hess and his lovely wife, Lori, reside in Kaysville, Utah. They have 5 children (3 married), 8 grandchildren, 2 dogs and 3 horses. They love anything to do with family and each other.

Dr. and Mrs. Hess both grew up in Bountiful, Utah and graduated from Bountiful High School. Dr. Hess received his Doctor of Veterinary Medicine (DVM) degree from Colorado State University in 1989. He worked in private practice with a special emphasis in birds and exotic animals until 2004 when he left private practice to work for the Utah Department of Agriculture and Food. He currently serves as the Acting State Veterinarian for Utah.

Dr. Hess is a founding member of Utah Emergency Animal Response Coalition, Inc. (UEARC, Inc.), a non-profit 501(c)3 organization that supports efforts statewide to prepare people and communities to address animals in their emergency and disaster response plans. He is a founding board member and past president of the National Alliance of State Animal and Agricultural Emergency Programs (NASAAEP), a national organization that promotes state's interests and best practices in the animals in disasters arena. Dr. Hess sits on a number of national steering committees involved in assisting and guiding USDA and FEMA with their emergency management protocols for animals and animal owners.

Dr. Hess is a past president (2000) of the Utah Veterinary Medical Association (UVMA) and currently serves as chairman of the Disaster Committee in that association. In 2014 Dr. Hess was honored as the "Utah Veterinarian of the Year" by the UVMA. He served for many years in the Boy Scouts of America and enjoyed the association with the up and coming generations. He is actively involved in his neighborhood and church community.



William (Bill) MacFarlane

MacFarlane Pheasants Inc.
2821 South U.S. Hwy 51
Janesville, WI, USA 53546
1-800-345-8348 ext.16
608-757-7884
bill@pheasant.com

Bill MacFarlane owns and manages MacFarlane Pheasants, located in southern Wisconsin. MacFarlane Pheasants was established in 1929 and has grown to be one of the largest pheasant farms in North America. In 2012, MacFarlanes hatched 1.7 million pheasants, selling over 1 million of those as day old chicks. MacFarlanes sell mature pheasants, hungarian partridge, chukar partridge and french redleg partridges nationwide. They also produce pheasants for food, processing 150,000 pheasants annually.

Bill grew up working on the farm, then left and got an Economics degree from the University of Houston. Bill returned to the farm in 1979 and worked with his dad Don until Don's death in 1985.

Bill is married to Dori and they have five children. Bill most enjoys the marketing aspect of the pheasant business and oversees the farm's websites www.pheasant.com, www.pheasantfordinner.com, a forum at www.gamebirdforum.com and he writes a blog at www.gamebirdexpert.com. The farm also actively promotes the farms using E-Blasts, Facebook, Twitter and Pinterest. He is on the Board and a past president of the North American Gamebird Association.

Update on Avian Influenza Findings in the Pacific Flyway

The United States Department of Agriculture has confirmed several findings of highly pathogenic avian influenza (HPAI) in the Pacific flyway since mid-December. The first [commercial poultry detection](#) [JRH1] was in a turkey flock in California on January 23. USDA considers this finding to be part of the ongoing avian influenza disease incident. Commercial poultry producers follow strict biosecurity practices and raise their birds in very controlled environments. There is no immediate public health concern as a result of these detections.

Poultry Findings Confirmed by USDA's National Veterinary Services Laboratories Include:

State	County	Flock type	Species	Avian influenza subtype*	Confirmation date
OR	Douglas	Backyard	Mixed poultry	EA-H5N8	December 19, 2014
WA	Benton	Backyard	Mixed poultry	EA/AM-H5N2	January 3, 2015
WA	Benton	Backyard	Mixed poultry	EA/AM-H5N2	January 9, 2015
WA	Clallam	Backyard	Mixed poultry	EA/AM-H5N2	January 16, 2015
ID	Canyon	Backyard	Mixed poultry	EA/AM-H5N2	January 16, 2015
CA	Stanislaus	Commercial	Turkeys	EA-H5N8	January 23, 2015
WA	Okanogan	Backyard	Pheasant	EA/AM-H5N2	January 29, 2015
WA	Okanogan	Backyard	Chicken	EA/AM-H5N2	February 3, 2015
CA	Kings	Commercial	Chicken	EA-H5N8	February 12, 2015

* EA = Eurasian; AM=North American; EA-H5 viruses are highly pathogenic to poultry

Captive Wild Bird Findings Confirmed by USDA's National Veterinary Services Laboratories:

State	County	Species	Avian influenza subtype*	Confirmation date
WA	Whatcom	Captive gyrfalcon	EA-H5N8	December 14, 2014
ID	Canyon	Captive falcons	EA/AM-H5N2	January 16, 2015
ID	Kootenai	Captive gyrfalcon	EA-H5N8	January 29, 2015
ID	Canyon	Great horned owl	EA/AM-H5N2	February 2, 2015
ID	Kootenai	Captive gyrfalcon	EA-H5N8	February 6, 2015
ID	Canyon	Bald eagle	EA-H5N8	February 12, 2015

* EA = Eurasian; AM=North American; EA-H5 viruses are highly pathogenic to poultry

Wild Bird Findings confirmed by USDA's National Veterinary Services Laboratories are available [here](#).

Surveillance for avian influenza is ongoing in commercial poultry operations, live bird markets, and in migratory wild bird populations.

USDA is coordinating closely with its partners, including Washington, Oregon and California, Nevada, Utah, and Idaho State officials, the U.S. Department of the Interior and the U.S. Department of Health and Human Services, on avian influenza surveillance, reporting, and control efforts. The United States has the strongest AI surveillance program in the world, where we actively look for the disease and provide 100% compensation to affected producers to encourage reporting.

USDA continues to report these findings to the World Animal Health Organization (OIE) as part of the ongoing Pacific Flyway avian influenza incident. USDA is working with trading partners to minimize trade impacts on

poultry and poultry products as much as possible.

All bird owners, whether commercial producers or backyard enthusiasts, need to continue practicing good biosecurity, preventing contact between their birds and wild birds, and reporting sick birds or unusual bird deaths to State/Federal officials, either through your state veterinarian or through USDA's toll-free number at 1-866-536-7593. Additional information on biosecurity for backyard flocks can be found at healthybirds.aphis.usda.gov

USDA emphasizes that poultry, poultry products and wild birds (see [biosecurity and wild birds](#)) are safe to eat if they are properly handled and cooked to a temperature of 165 degrees Fahrenheit.

Background Information

The H5N8 virus originated in Asia and spread rapidly along wild bird migratory pathways during 2014, including the Pacific flyway. In the Pacific flyway, the H5N8 virus has mixed with North American avian influenza viruses, creating new mixed-origin viruses. This is not unexpected. These mixed-origin viruses contain the Asian-origin H5 part of the virus, which is highly pathogenic to poultry. The N parts of these viruses came from North American low pathogenic avian influenza viruses.

USDA has identified two mixed-origin viruses in the Pacific Flyway: the H5N2 virus and new H5N1 virus. The new H5N1 virus is **not** the same virus as the H5N1 virus found in Asia that has caused some human illness. The new H5N1 virus is not expected to be a human-health risk, but rather to have the same or a lower risk than H5N8. Detailed analysis of the virus is underway in cooperation with CDC.

Avian Influenza: Responding to Concerns About Influenza Type A Viruses

Avian influenza (AI), commonly known as “bird flu,” is caused by an influenza type A virus. Avian influenza viruses occur naturally in birds. Wild bird species (such as ducks, swans and geese) can carry the viruses but usually do not get sick from them. However, avian influenza in birds is very contagious and can make some domesticated birds (chickens, ducks, quail, pheasants, guinea fowl and turkeys) very sick or even cause death.

There are many different subtypes of influenza A viruses. These subtypes differ and are classified based on a combination of two groups of proteins on the surface of the influenza A virus: hemagglutinin or “H” proteins, of which there are 17 (H1-H17), and neuraminidase or “N” proteins, of which there are 10 (N1-N10). Many different combinations of “H” and “N” proteins are possible. Each combination is considered a different subtype, and can be further broken down into different strains.

AI viruses are further classified by their pathogenicity—the ability of a particular virus strain to produce disease in domestic chickens. Highly pathogenic avian influenza (HPAI) virus strains are extremely infectious, often fatal to domestic poultry, and can spread rapidly from flock to flock. Low pathogenicity avian influenza (LPAI) virus strains occur naturally in wild migratory waterfowl and shorebirds without causing illness.

The avian influenza viruses that cause concern in poultry and wild birds are HPAI viruses and any virus designated as H5 or H7, because H5 and H7 viruses have the capability to convert from LPAI to HPAI. They are considered notifiable avian influenza (NAI), and when found in a country, the World Organization of Animal Health (OIE) must be alerted.

Avian influenza viruses do not usually infect humans, but certain strains of AI have the potential to infect people and are referred to as “zoonotic.” If a highly pathogenic or zoonotic AI strain enters the

United States, it could have serious economic and health impacts on the poultry industry and public health.

The Asian strain of H7N9, first reported in China in spring 2013, has caused illness in people there. We have not found this Asian strain of H7N9 in the United States, but USDA's Animal and Plant Health Inspection Service (APHIS) is prepared to address any significant avian influenza found in our commercial poultry and wild birds. Our focus is on preventing, looking for, and responding to the detection of the virus in birds and poultry, with an emphasis on NAI viruses. We work collaboratively with other Government agencies, such as the Centers for Disease Control and Prevention who handle the human health impacts of avian influenza, and the Department of the Interior and state wildlife agencies who work with us on wild bird surveillance.

Since the Asian strain of H7N9 was detected only recently, we are still learning about the virus and how it behaves in both domestic and wild bird populations. At this time, we cannot determine the risk this virus poses to North America's birds, but from what we know about similar viruses and bird migratory patterns, the risk is presumed to be low. We are studying the virus to better understand how it behaves so that we can most effectively look for, and if needed, respond to a detection of this strain of H7N9.

Keeping AI Out of the U.S.

Our primary safeguard against the introduction of foreign strains of AI into U.S. poultry is through trade restrictions. Live birds, poultry and hatching eggs from countries affected by dangerous strains of AI cannot be imported into the U.S. Poultry products from affected countries are only allowed into the U.S. if the items are processed or cooked in a manner that will kill the virus.

Live birds imported into the U.S. are tested for AI and quarantined in a USDA facility for 30 days before entering the country. These measures, along with the agricultural inspections of cargo and passengers at ports of entry conducted by our partners at the Department of Homeland Security (DHS), effectively reduce the chances of dangerous strains of AI entering the U.S. USDA also works with DHS to help prevent illegal smuggling of poultry and poultry products.

To help protect birds raised by backyard and hobby owners from AI, USDA offers educational and outreach materials as part of the Biosecurity for Birds campaign. Biosecurity for the Birds materials are available at: http://www.aphis.usda.gov/animal_health/birdbiosecurity/about/downloads.htm

Looking for AI

USDA has a strong surveillance program in place, where we actively look for AI in commercial poultry and the Live Bird Market System. All commercial poultry flocks in the U.S. are tested for AI through industry, State and Federal efforts.

Wild birds are tested for influenza by USDA, in cooperation with the states and the Department of the Interior. The surveillance mostly targets the more dangerous HPAI strains, but we test for all types of AI. At this time, USDA conducts passive surveillance of wild birds, i.e. testing sick and dead birds suspected of being infected with AI.

LPPI viruses can move through wild bird flyways, but it is rare to see an Asian strain in North America. Our past research taught us a lot about the biology and timing of AI viruses in wild birds. As we learn more about this particular Asian H7N9 strain, we will continue to evaluate the risk of this virus arriving here and spreading in wild birds. Since avian migration occurs in late summer to early fall, we have more than sufficient time to adjust our wild bird surveillance activities, if it becomes necessary.

Addressing AI in the U.S.

If a HPAI or NAI virus is detected in U.S. poultry, USDA is prepared to respond. We have a detailed response plan in place to address the threat quickly and effectively.

If an HPAI infection is found in a commercial poultry flock, the flock is depopulated to prevent the spread of the virus. If a notifiable LPPI virus is detected in a commercial poultry flock, two strategies are available to manage the infection: 1) depopulation of the infected flock, or 2) controlled marketing. If the Asian strain of H7N9 is found in the U.S., since the virus can cause illness in people, we would use the depopulation strategy.

USDA eliminated NAI from the U.S. poultry population in the past, and will do so again for any future disease outbreaks. Following any outbreak, USDA would support the recovery of the poultry industry by working with foreign trading partners to reopen any lost export markets.

For More Information about Avian Influenza

USDA AI Website:

http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=avian_influenza.html

Report Sick Farm Birds:

If your farm birds are sick or dying, call USDA's Veterinary Services toll free at 1-866-536-7593, or your State Veterinarian or local extension agent.

Report Dead Wild Birds:

Dead wild birds can be reported to State or Federal wildlife agencies. Information on how to make contact with wildlife officials in your State is available at www.usda.gov/birdflu.

USDA is an equal opportunity provider and employer.



CENTER OF EXCELLENCE FOR POULTRY SCIENCE

UA Poultry Science Extension

UofA DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System

F. Dustan Clark, D.V.M., Ph.D.
Extension Poultry Health Veterinarian
Associate Center Director-Extension



Numerous Species of Gamebirds



Numerous Diseases

- Some diseases and problems are more common in certain regions of the USA
- Some diseases are more common in some species
- May be called something different in various regions



Bacterial Diseases

- Those caused by bacteria.
 - Gram negative and gram positive
- May be primary or secondary pathogens
- Usually respond to antibiotics
 - Many antibiotics are not approved for use in gamebirds (most)
- Some are extremely difficult or costly to treat
-

Bacterial Diseases

- E. coli (Colibacillosis)
- Omphalitis (Yolk infection)
- Botulism
- Mycoplasma infections
- Erysipelas
- Cholera
- Ulcerative enteritis (Quail disease)

Omphalitis Yolk Sac infection

Navel infection

- Many bacteria are capable of causing this problem
- Usually enter bird at or near time of hatch through navel
- Bacterial infection of the navel and yolk sac of chicks due to contamination before healing of the navel.
- *E .coli, Staphylococci, Proteus, Pseudomonas* and *Clostridia*. Gram positive/negative/anaerobic
- Large numbers can be affected
- High mortality
- Chicks are "mushy" or soft

Yolk Sac Infection

- Signs
 - No appetite, listless, huddle, reluctant to move, diarrhea, chirping, cold
- Lesions
 - Swollen abdomen, vent pasting, diarrhea, dehydration, weight loss
- Poor sanitation
 - Incubator, hatcher, Poor hygiene in breeders, use of contaminated eggs

Treatment and Control

Antibiotics are usually useless

Sanitation

Colibacillosis

- Caused by *Escherichia coli* *gram negative bacteria*
- Seen in many species
- Many *E. coli* are found in the intestines and cause no problems
- Usually seen in young birds 1-2 weeks
- Immunosuppressed birds
- Usually some degree of sanitation problem (wet litter, cold stress, etc.)
- Signs
 - Unthrifty birds, weight loss, decreased appetite, ruffled feathers, huddling, diarrhea (ADR)
- Lesions
 - Wet vents, weight loss, dehydration, pasting, soiled feathers, yolk sac infections, intestinal inflammation,
 - Septicemia
 - Hemorrhages, pericarditis, perihepatitis, pneumonia, enteritis, etc.

Colibacillosis

- Treatment and Control
 - Bacterial isolation and antibiotic sensitivity
- Probiotics
- Sanitation
- Antibiotics 3-5 days
- Bird proof and rodent proof pens

E coli



Botulism (Limberneck)

- Clostridium botulinum toxin
- Not infectious
- Ingestion of toxin from carcass or other decaying material, fly larvae
- Weakness, paralysis, loose feathers
- No clinical signs-high mortality
- No gross lesions
- Control
 - Remove dead birds promptly
 - Sanitation, fly control
 - Isolate affected birds-water drench



Dr. Jaime Ruiz



Erysipelas

- Caused by *Erysipelothrix insidiosa* (rhusiopathiae)
- Gram positive bacteria
- May be in soil (sheep/pigs)
- Sudden onset of mortality
- Signs
 - Listless birds, difficulty walking, appetite loss, diarrhea
- Lesions
 - swollen joints, swollen liver, hemorrhages on organs
 - Enteritis, no lesions
- Isolation of bacteria
- Treatment/Control
 - Penicillins, Sanitation, Biosecurity
 - Swollen
- Zoonotic potential

Ulcerative Enteritis

Quail Disease

- Contagious disease caused by *Clostridium colinum*
 - May start very suddenly or may be more chronic
 - High mortality and morbidity 100%
 - Bacteria is picked up orally and then shed in feces. Fecal -oral
 - Often seen subsequent to coccidia infections and/or overcrowding
 - Clinical signs
 - Listless birds, "humped" appearance, lack of appetite, eyes closed, ruffled, watery feces (white)
- ADR/HGD

Ulcerative Enteritis

- Lesions
 - Yellow-white necrotic foci in liver
 - Circular necrotic lesions in intestines (may be seen through intestinal wall)
 - Some blood in intestines, peritonitis, cecal cores
- Treatment/Control
 - Streptomycin , Bacitracin, Tetracyclines, Penicillin , Neomycin
 - Water soluble vitamins
 - Sanitation, all in/all out production, coccidiosis control, probiotics
 - Raise birds on wire
 - Problem

Ulcerative Enteritis



Viral Diseases

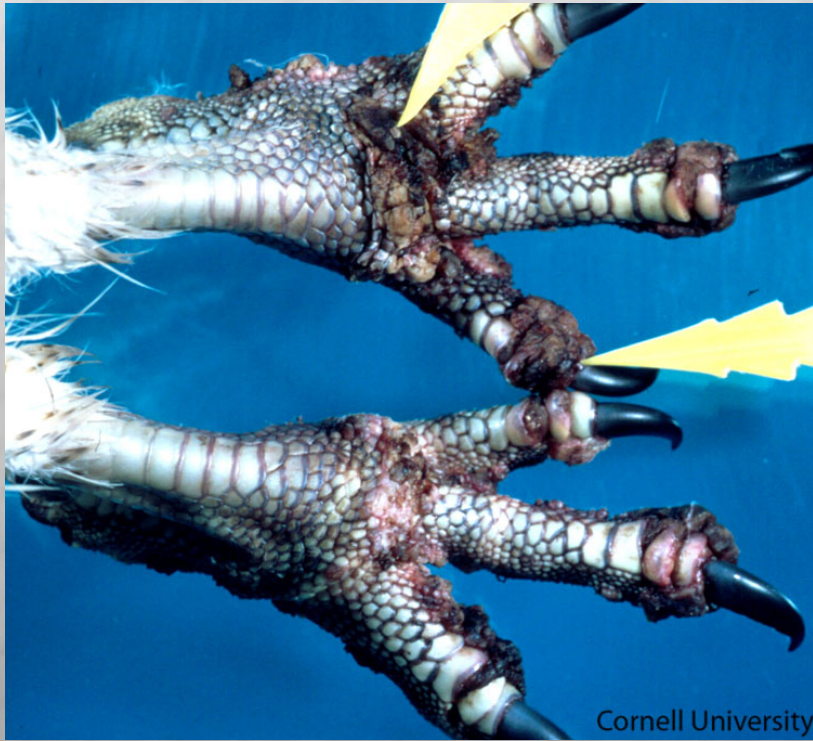
- Avipox
- Marble Spleen Disease
- Avian Influenza

Avipox Infections

- Avipox virus
- Two forms (Wet pox and Dry pox)
- Spread by viral contaminated fomites
- Mosquitoes
- Clinical Signs May be in flock several weeks
- Dry Pox (Skin form)
Birds may act normal or somewhat unthrifty

Wet Pox

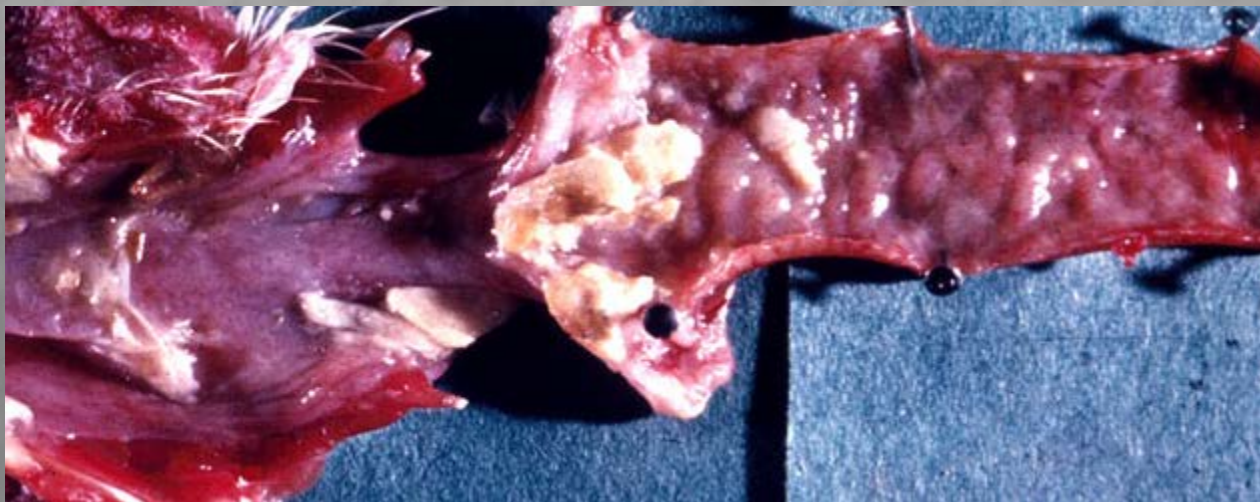
Difficulty breathing/swallowing. Open mouth
Inability to eat/drink
Weight loss
Mortality



Cornell University



(c) 2012, Richard M. Jakowski, DVM, PhD, DACVP



Marble Spleen Disease

- Viral disease of ringneck pheasants
- Adenovirus Type II Turkey Hemorrhagic Virus
- Outbreaks usually "spotty" on a farm and do not affect all pens on site
- Only seen in domestic pheasants ingestion of virus in feed, water, pecking, feces
- Mortality approximately 10%+ Morbidity can be 100%
Incubation 6-10 days
- Losses can continue over several weeks
- Recovered birds immune
- Clinical Signs
 - 2-8 month old birds affected
 - Sudden onset
 - Often without signs
 - Difficult breathing

Marble Spleen Disease

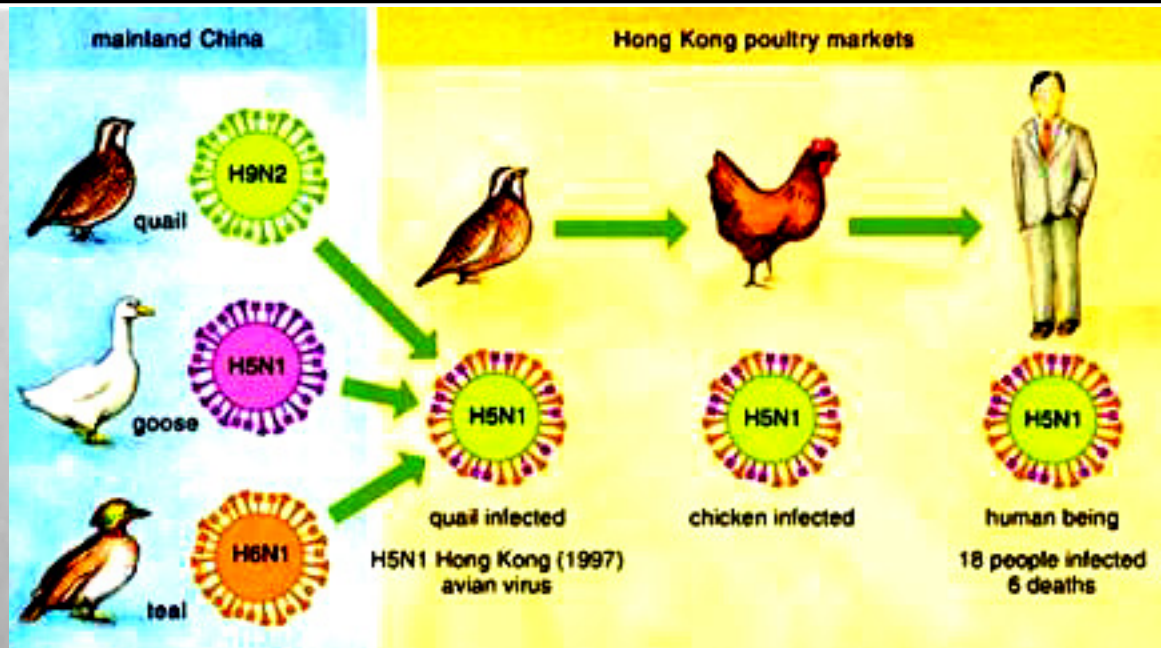
- Lesions
 - Swollen spleen
 - Mottles/marbled spleen
 - Pulmonary congestion/edema
 - Pulmonary hemorrhage
 - Swollen liver Necrotic areas in liver /spleen/lung histologically
 - Intranuclear inclusions in lung/spleen/liver
- Treatment and Control
 - No treatment
 - Best Management practices
 - Secondary infection control (antibiotics)
 - Vaccination
 - Biosecurity Practices

Marble Spleen Disease



Avian Influenza

- Highly contagious viral disease of poultry, gamebirds, other gallinaceous birds
- Influenza virus
 - H5 and H7 13H 9N
 - Carried by wild waterfowl
 - Virus is shed in feces, secretions Spread by fomites
- FADD
 - High Pathogenic Low Pathogenic
- Quarantine
- Low Pathogenic may have few if any clinical signs
 - Mild respiratory (cough, sneeze, nasal discharge)
 - Mild production drop
- High Pathogenic
 - Severe respiratory disease, thirst, production drop,
 - High Mortality



Avian Influenza

- Lesions
- None with Low Pathogenic
- Mild sinus inflammation, increase in mucus, diarrhea, low mortality

- High Pathogenic
 - High mortality
 - Swelling of face, neck, head
 - Hemorrhages in organs, legs, feet, sinus, etc.
- Treatment
 - None
 - Quarantine
 - Depopulate

- Biosecurity
- Reportable
- Zoonotic

Fungal Diseases

- Candidiasis
- Aspergillosis

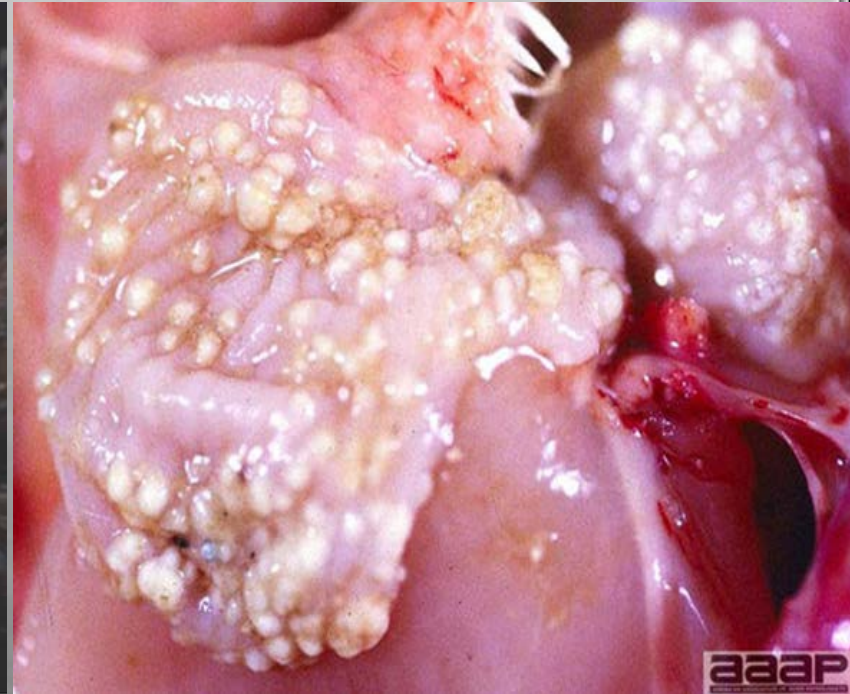
Candida

- Etiology: *Candida albicans* yeast-like fungus
- Usually associated with poor sanitation and overuse of antibiotics
- Any age can be affected
- Mortality and Morbidity are variable
- Clinical Signs
 - Non-specific signs, listless, unthrifty, ruffled, growth reduction, diarrhea, swollen crop, nasal discharge, slow crop empty time
 - ADR
- Lesions
 - Gray-white patches in throat, crop, sinus, choana, or crop

Candida

- Treatment/Control
- Reduce stress
- Proper use of antibiotics
- Antifungals in water or feed
- Reduced use of antibiotics
- Water sanitation

Candidiasis



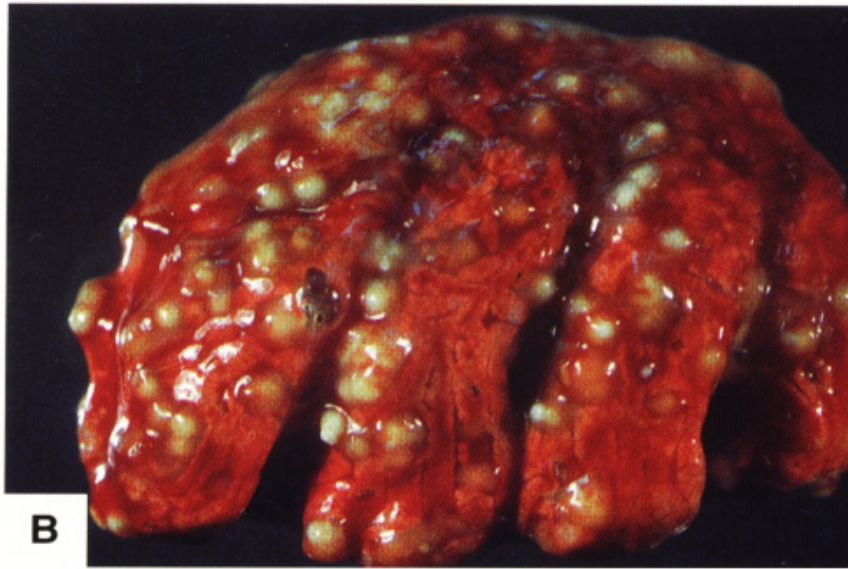
Aspergillosis

- Brooder pneumonia
- Inhalation of fungal spores (*Aspergillus fumigatus*)
- Poor sanitation
- Contaminated litter
- Poor ventilation
- Stress
- Clinical Signs
 - Difficulty breathing, gasping, closed eyes, nervous signs, ADR
- Lesions
 - Yellow/white nodules in trachea, lungs, air sacs, under eyelids
 - Fungal hyphae seen microscopically in tissues

Aspergillosis

- Treatment/Control
- Cull affected birds
- Antifungals in feed or water
- BMPs
- Biosecurity
- Sanitation

Aspergillosis



B
(Lung Nodules - Aspergillosis)

OldVeT.com

Protozoal Diseases

- Coccidia
- Hexamita

Coccidiosis

- Protozoan Eimeria
- Ingestion of infective (sporulated) oocysts
- Oocysts shed in feces
- Life cycle in intestinal cells
- Young birds primarily affected
- Clinical signs
 - Huddled, ruffled feathers, weakness, vent pecking,

Coccidiosis

- Lesions
 - Diarrhea, paleness, dehydration, weight loss, mortality, high morbidity
 - Intestinal lesions
 - Hemorrhages, necrotic areas, blood
- Treatment/Control
 - Sanitation
 - BMPs
 - Biosecurity
 - Coccidiostats



Hexamitiasis

- Protozoan Hexamita meleagridis
- Young birds
- Contact (bird-bird), contaminated feed/water, feces
- Clinical Signs
 - Weakness, huddling, ruffled feathers, mortality and morbidity variable 70+

Hexamitiasis

- Lesions
 - Dehydration, weight loss, gas filled intestines, frothy contents, mucus
 - Congested tissues and organs
- Diagnosis/Treatment/Control
 - Wet mounts from freshly euthanized birds
 - Antiprotozoal drugs
 - Biosecurity/Sanitation



Parasites

- Gapeworms
- Threadworms (Capillaria)

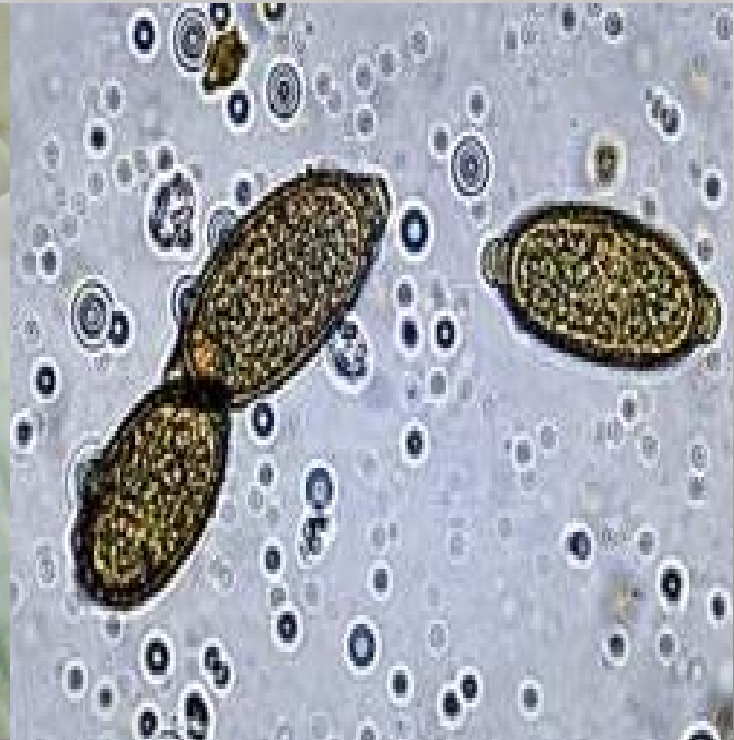
Threadworms/Capillaria

- Seven species
- Some affect crop other intestines
- Lifecycle is direct and indirect (needs intermediate such as earthworm)
- Clinical Signs
 - Appetite loss, huddle, unthrifty, ADR
 - Variable mortality and morbidity
- Lesions
 - Diarrhea, weight loss, dehydration, thickening of crop wall

Capillaria

- Diagnosis
 - Crop scraping
 - Intestinal scraping
 - Presence of eggs
- Treatment and Control
 - Anthelmintics
 - Off label usage
 - BMPs
 - Biosecurity

Capillaria



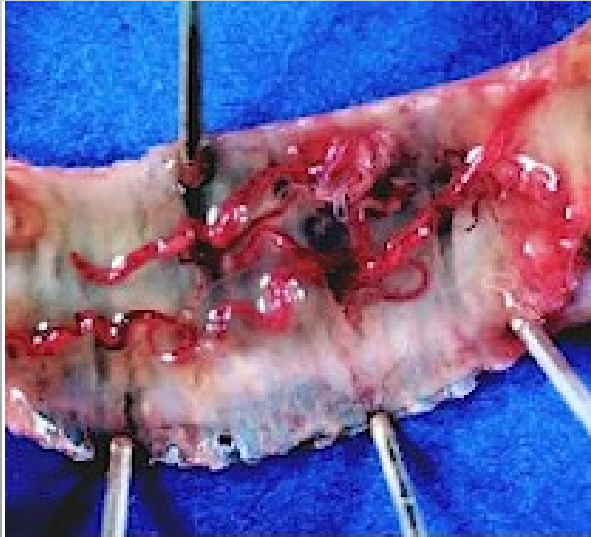
Gapeworms

- *Syngamus trachea* pheasants
- *Adults live in the trachea of the bird* red in color
- *Male and female attached together* Y shaped
- *Life cycle*
 - *Eggs coughed up, swallowed, pass out in feces, eggs ingested by bird for direct lifecycle, ingested by earthworm (indirect) bird ingests earthworm*
 -
- *Clinical Signs*
 - *Gasping, open mouth breathing, lack of appetite, respiratory sounds "gurgle/wheeze", coughing*
 - *Shaking of head*
 - *Snicking*
 - *Production drop*
 - *Wiping of head on shoulder, ground, etc.*

Gapeworms

- *Lesions*
 - *Weight loss, Excess mucus in mouth,*
 - *Inflamed trachea, worms visible in tracheal (red threads)*
- *Treatment/Control*
 - *Anthelmintics*
 - *Tilling of soil after growing season*
 - *Sunlight/Drying*
 - *Rotate pen use*
 - *Avoid overcrowding*
 - *BMPs*

Gapeworms



Nutritional Problems

- Rickets
- Visceral Gout
- Cannibalism

Rickets

- Vitamin D deficiency
- Calcium / Phosphorus imbalance
- Clinical signs
 - Inability to walk, soreness when walking, unthrifty
- Lesions
 - Rubbery bones and beaks, beading of ribs
- Treatment/Prevention
 - Diet
 - Vitamin/mineral supplement
 - Fat soluble vitamins (protect feed)
 - Prevention of enteric diseases
 - Stress reduction

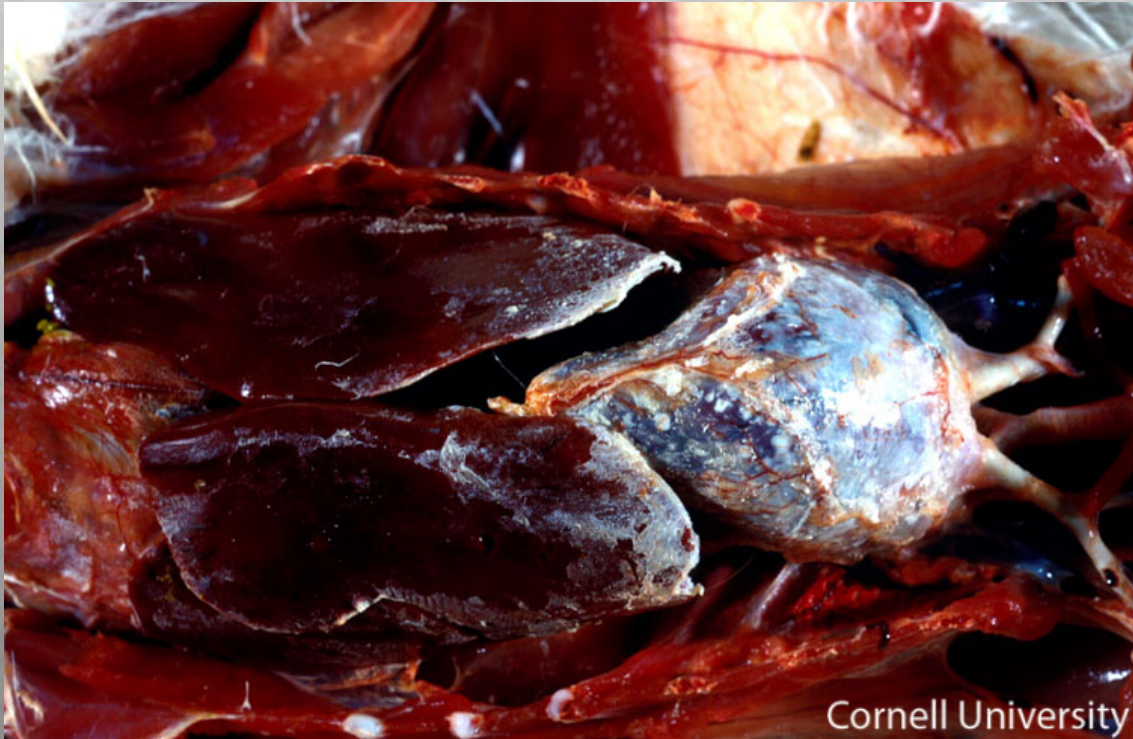


Visceral Gout

- Urate deposition around body organs or in kidneys
- Clinical Signs
 - None
 - Few urates in feces
 - Sudden death
- Lesions
 - Chalky white deposits on organs or in kidneys
 - Dehydration

Visceral Gout

- Causes/treatment
- Lack of water
 - Water will usually not correct those severely affected
- Sulfa usage
 - Kidney damage
 - Losses will usually continue for a few days



Cornell University

Cannibalism

- Causes
 - Overcrowding
 - Nutritional
 - Vitamins, protein, salt (low)
- Clinical Signs
 - Restless birds, Flighty, huddle, ADR
- Lesions
 - Feather loss
 - Skin injury
 - Upper beak torn at cere (base)
 - Toe lesions (scabs) nails missing
- Treatment/Control
 - Nutrition
 - Vitamins/Minerals
 - BMPs

MG

- Mycoplasma gallisepticum is a bacterium that causes upper respiratory signs. It can affect all ages but is usually seen in older birds. Birds are coughing or sneezing and showing discharge from the nostrils and eyes. In severe cases the sinuses under the eye swell up, often called Bulgy Eye. Symptoms are usually only seen when birds are stressed. Antibiotics may reduce symptoms but birds will remain carriers. The infection usually spreads via infected drinkers and can be passed on by infected layers through the egg. Strategic treatments, water sanitation, measures to reduce stress and vaccination will help in the prevention of the infection.

Biosecurity



Good Records

- Acceptable parameters
- Measurable data
- Past History
- Current Information
 - What are the birds doing ?
 - How long?
 - How many affected?
 - When did it first happen?
 - Has it happened before?
 - What has been done? (Changes)
 - Tests
 - Treatments
 - Deaths

Head & Neck Exam

Asymmetry of Face _____ Asymmetry of Lips _____ Smile _____

Lymph Nodes _____

TMJ _____

Mastication Muscles _____

Opening _____

Lateral Movement _____

Clicking/Jumping of Condyles _____

Vertical Distance _____ Midline Deviation _____ Group Function _____

Vertical Overjet _____ Horizontal Overjet _____ Anterior contact _____

Classification of Occlusion _____ Centric Relation _____

Cross Bite _____ Ortho _____ Other _____

Soft Tissue Exam

Oral Cancer Exam _____

Tongue _____

Lips _____

Lymph Nodes _____

Palatal Tissue Health _____

Frenum _____

Salivary Glands _____

Lesions _____

Tori _____

Fistulas _____

Food Traps _____

Hard Tissues

Missing Teeth _____ Tipping/Spacing _____

Frenulus _____ Discoloration _____

Fractured Restorations _____

Abfraction _____

Washout _____ Discoloration _____

Serious Teeth _____ Inadequate Contacts _____

Radiographic Exam

Alveolar Bone _____ Impactions _____

Periodontal Ligaments _____

Overhangs _____ Faulty Restorations _____

Heavy Calculus _____

Tarstion Involvement _____

Other _____

Periodontal Exam

Disease Classification _____ CLASS I _____ CLASS II _____ CLASS III _____ CLASS IV _____ CLASS V _____

Architecture _____ Color _____ Tone _____

Mobility _____ Bleeding Points _____

Recession _____ Microgingival _____

Plaque Index _____ Heavy Calculus _____

Brushing _____ Flushing _____

Motivation _____ Other _____

Personal Profile

Main Concerns _____ Fears _____

Patient Requested The Following: _____

Records Page

File Edit View Help

File No: 1 Name: JERRY A. CATTAN Date of Birth: 01/01/1941 Address: 22 SUCCESS AVENUE DENVER CO 80239 Page No: 1

Page Created on: 06/23/01

This scrollable window is for writing case notes.

Medical Condition(s):

This scrollable window is for recording medical condition(s).

Regular Medication(s):

This scrollable window is for recording regular medication(s).

Allergies / Alerts:

This scrollable window is for recording allergen and medical alerts...

Ad Hoc Medication(s):

This scrollable window is for recording ad hoc medication(s).

Monitor:

WK	BP	BGL	HBA1C	Chol	LDL	12/29/02	ADT
02/12/03	120	140/90	7.0	6.5	5.5	3.2	02/11/99 Hep B 3
12/29/02	130	150/90	8.0	7.5	7.0	4.0	10/06/99 Hep B 2
09/06/02	150	160/100	9.0	8.5	8.5	4.5	06/05/99 Hep B 1

Demographics:

Scanned Documents:

Date	Description	Source
03/07/03	Pul Blood Count	Southwest Pathology Service
03/10/03	Tray Chest	Southwest Radiology Clinic

75 Meg 12.5 Seconds 25 Page Lock 64 Back 15 Forward 26 First 27 Details 28 New 29 Save 30 Print 31 Print 32 Print 33 Print 34 Print 35 Print 36 Print 37 Print 38 Print 39 Print 40 Print 41 Print 42 Print 43 Print 44 Print 45 Print 46 Print 47 Print 48 Print 49 Print 50 Print 51 Print 52 Print 53 Print 54 Print 55 Print 56 Print 57 Print 58 Print 59 Print 60 Print 61 Print 62 Print 63 Print 64 Print 65 Print 66 Print 67 Print 68 Print 69 Print 70 Print 71 Print 72 Print 73 Print 74 Print 75 Print 76 Print 77 Print 78 Print 79 Print 80 Print 81 Print 82 Print 83 Print 84 Print 85 Print 86 Print 87 Print 88 Print 89 Print 90 Print 91 Print 92 Print 93 Print 94 Print 95 Print 96 Print 97 Print 98 Print 99 Print 100 Print

Bird Monitoring

- Recognition of problems early
- Observe behavior of birds
 - Individual
 - Flock
 - Interactions
- Early signs of diseases

Examination

- Preliminary
 - done while observing birds
- Complete
 - must catch bird
 - systematic examination of anatomic systems
 - checking for variation from normal

Learn Symptoms of Disease

- Increased mortality
- No appetite
- Diarrhea
- Coughing
- Lameness
- Ruffled feathers
- Decreased production
- Unusual behaviors
- Blisters, swellings
- High number of ill birds
- Unthriftiness ADR

Poultry Diseases

- Numerous Diseases in Poultry
- Comparisons
 - Backyard Hobby Flocks vs Commercial
- Some Diseases and/or Problems are more common
- Limitations on Therapy

Protect Birds by Raising their Resistance

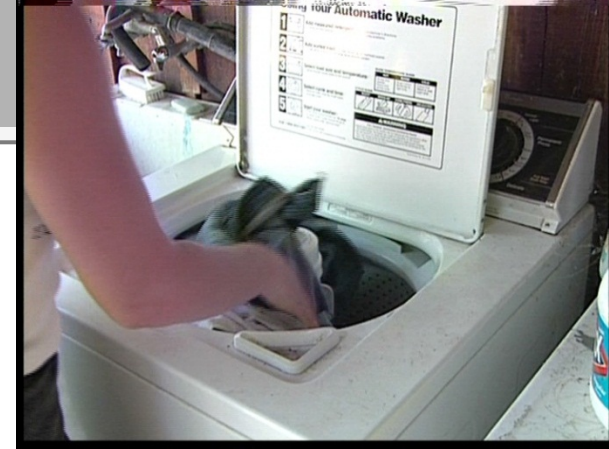
- Vaccination program
- Parasite control program
- Reduce stress
- Nutrition

Visitor or Traffic Control

- Second greatest threat
- May carry disease organisms
- May be necessary
- May bring equipment
- Restrict Access to animals
- Require identification
- Keep facilities & gates locked
- Change clothes, use coveralls, boot covers
- Wash hands and disinfect

Sanitation and Disinfection

- Keep farm clean
- Boot bath (scrub brush and disinfectant)
 - **Boots for on farm only**
- Coveralls
- Spray car/truck tires
 - **Clean floor mats**
- Wash (CD) all incoming equipment
 - **Best to not borrow equipment**





Protective Clothing Coveralls, Hat, and Boots



Appropriate Disinfectant for the Job

Commercial disinfectants

Bleach

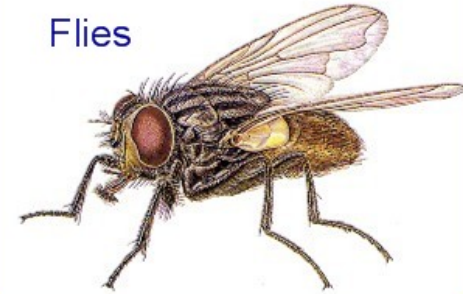


Pest Management

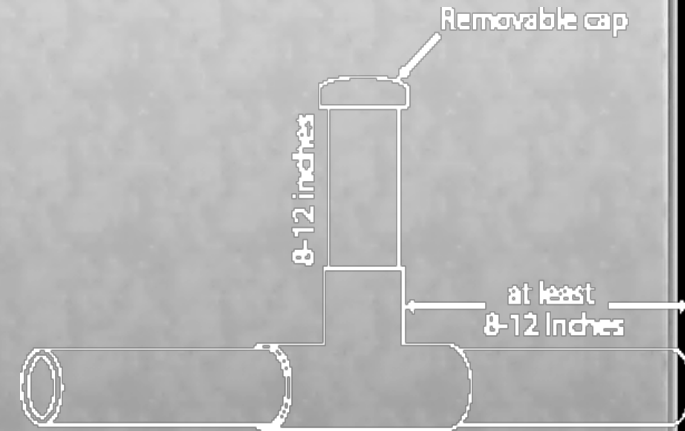
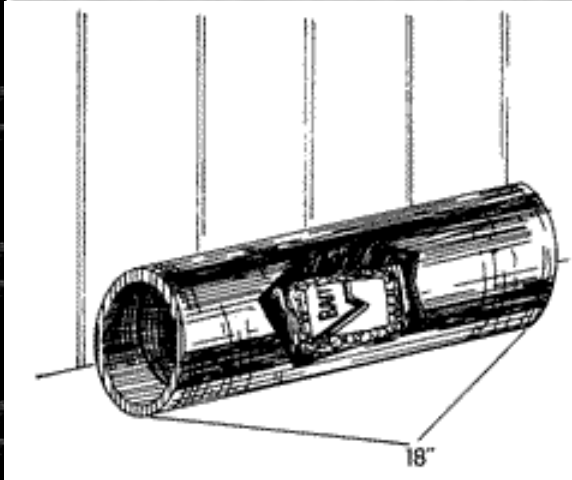
- Sources of Disease
- Rodents, flies, wildlife, animals, etc.
- Minimize contact
- General routine



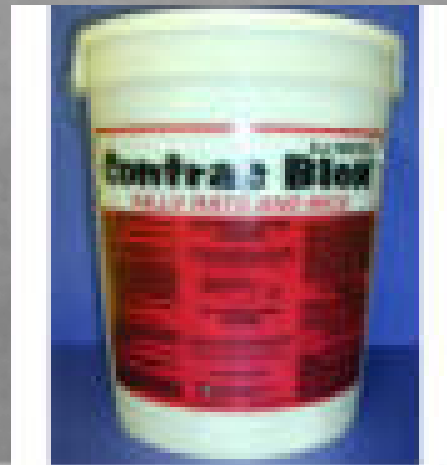
Flies



Bait Stations and baits



PVC Pipe Rodent Bait Station





Clean feed and water

- Water available at all times
- Clean water
- Prevent rodent contamination of feed
- Remove contaminated feed

Dead Bird Disposal

- Use an acceptable method
- Incineration, composting, rendering, etc

Assistance

- Isolate sick animals
- Have all dead animals necropsied
- Report unusual signs immediately
- Health certificates if out of state animals
- Veterinarian, County agent
- Participate in local, state, national, etc. associations
- State Cooperative Extension Service



Practice Biosecurity

- Do not visit your neighbor if you have a problem



**Be Vigilant in Disease
Prevention**

You Are Part Of The First Line of Defense





A portrait of James Madison, an American statesman and philosopher. He is depicted from the chest up, wearing a dark coat and a white cravat. His hair is white, and he has a serious expression. The background is dark and textured.

The Price of Freedom is Eternal Vigilance

- Diplomacy is the art of saying "Nice doggie" until you can find a rock.
-Will Rogers



GOOD LUCK

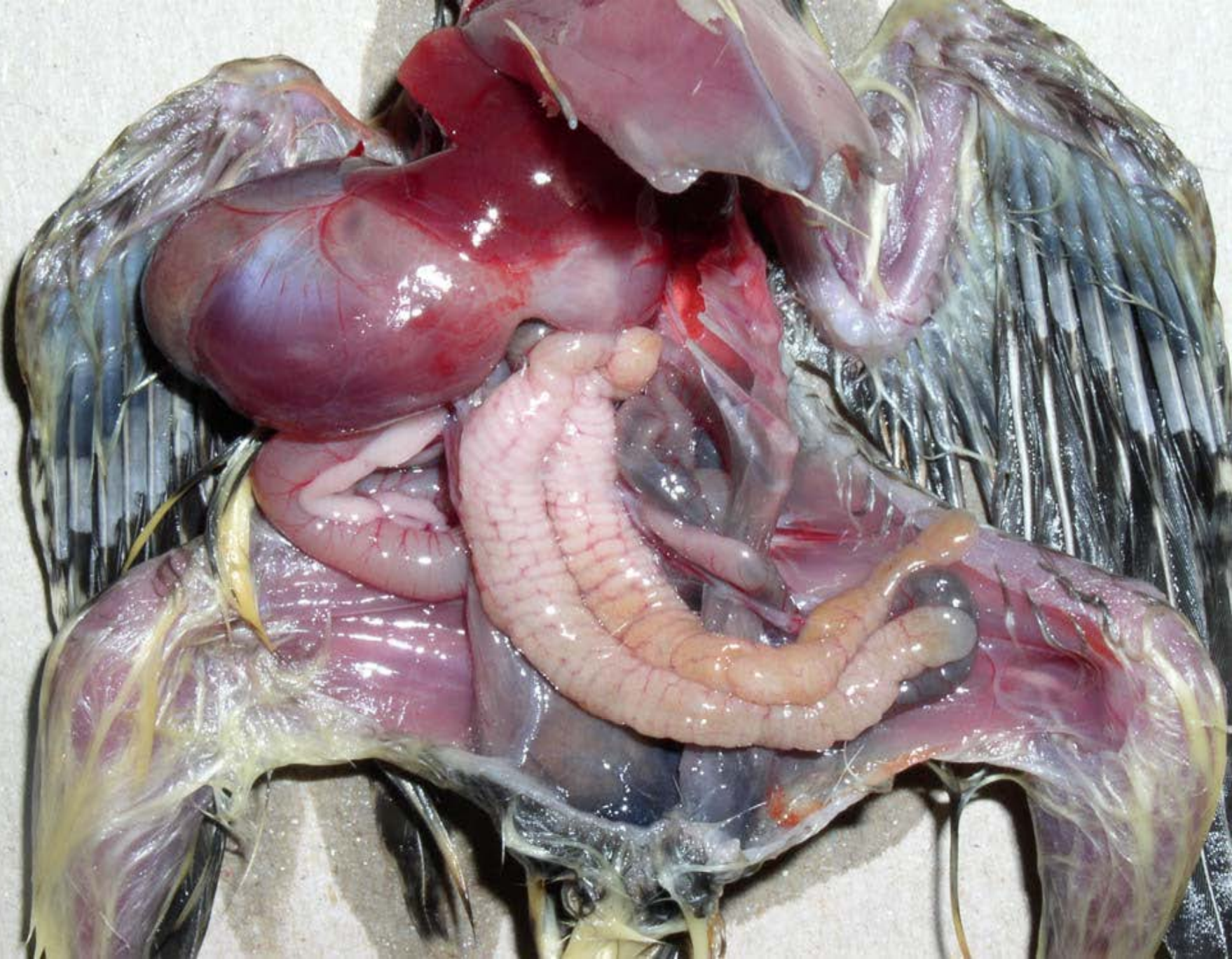
45
M.P.H.

DIAGNOSTIC FLOTATION METHODS FOR INTERNAL PARASITES

David D. Frame, DVM, DACPV

Utah State University Extension Poultry Specialist





Supplies Needed

- Microscope (\$80 to \$500)
- Microscope slides
- Coverslips
- Tissue scissors, scalpel, or sharp knife
- Eye dropper or squeeze bottle
- Sugar or ZnSO_4 solution (specific gravity 1.27 to 1.28)
- Receptacle for feces /solution mixture

Possible Suppliers

www.microscope.com (microscopes)

www.microscope-depot.com (microscopes)

www.coleparmer.com (slides, coverslips)

PAH-CustomerAccounts@pfizer.com (Ovassay™ systems)

www.atozvetsupply.com (Ovassay™ systems)

Local drug and grocery stores



Ovassay Plus Kit, 50 Tests

List Price: \$69.95

Our Price: \$58.99

Sale Price: \$58.99

You save \$10.96!



OVASSAY Plus Fecal Flotation System is the easiest and most accurate in-clinic method for identifying [▶ more info](#)



Ovassay Plus System, 50 Tests

List Price: \$99.95

Our Price: \$87.99

Sale Price: \$87.99

You save \$11.96!



OVASSAY Plus Fecal Flotation System is the easiest and most accurate in-clinic method for identifying [▶ more info](#)





SP 200

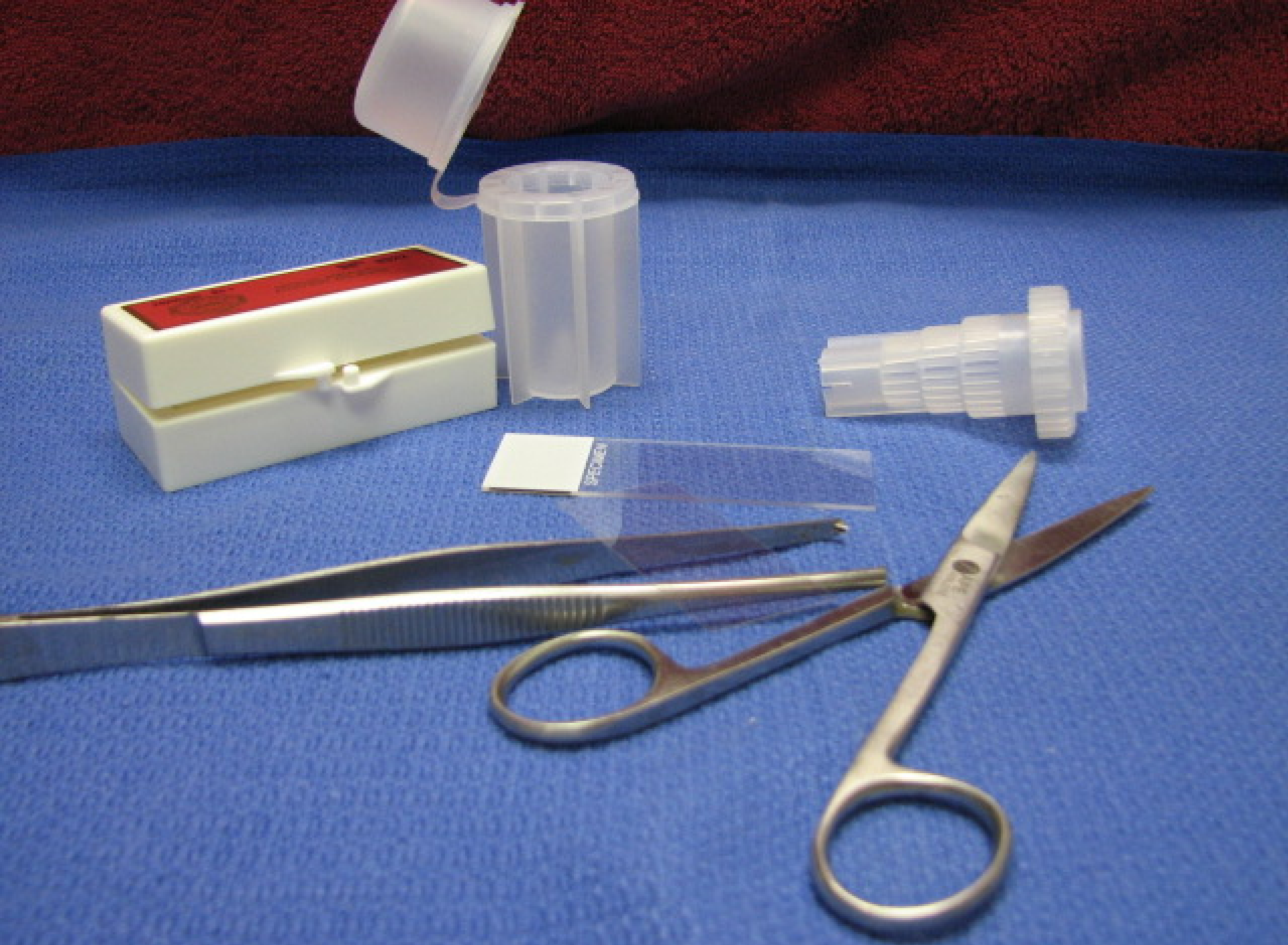
Thermo
SCIENTIFIC

For use with automatic labeling equipment
perforated, 3, 5 and 10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, 1000

COLDMARK™

1000

1000

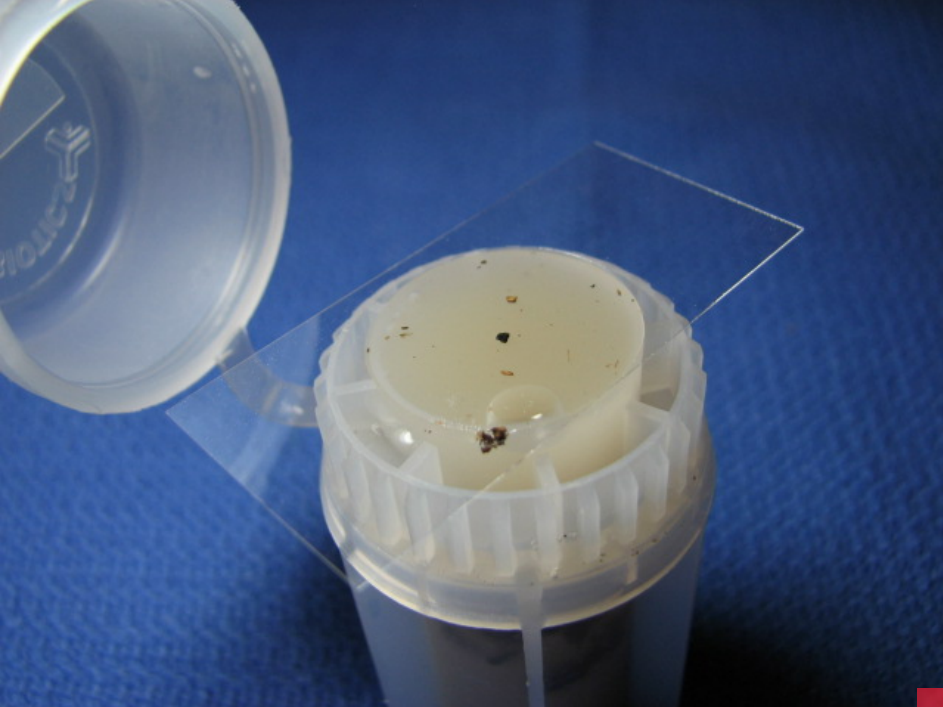












SPECIMEN



SP-170's



Solutions for Fecal Flotation

Solution #1 (1.27 specific gravity)

64 g (2 ¼ oz) white sugar

50 mL (10 tsp) water

Heat until dissolved.

Solution #2 (1.28 specific gravity)

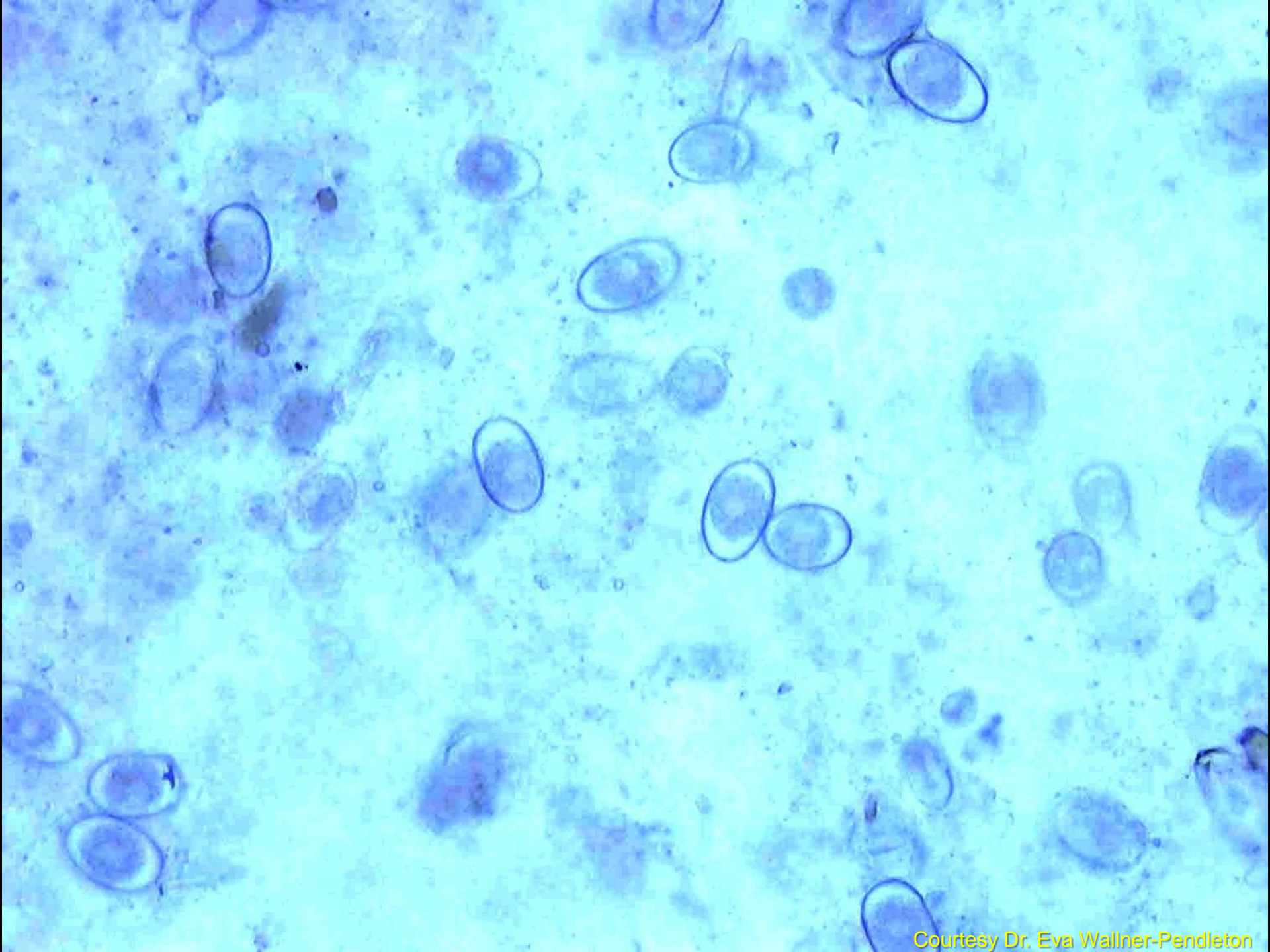
400 g (0.88 lb) table salt

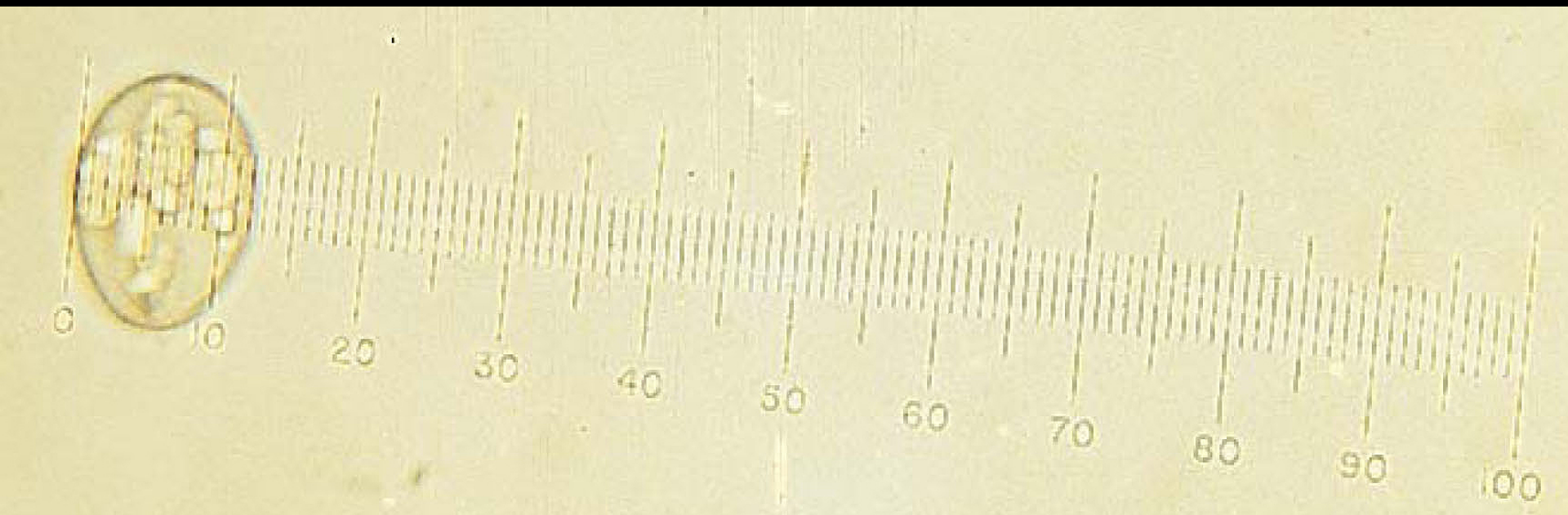
1 liter (34 oz) water

500 g (1.1 lb) white sugar

Dissolve salt in water and then add sugar.

Stir until dissolved.















LITTER FLOTATION PROTOCOL

David D. Frame, DVM, DACPV

Collection

1. Grab small handfuls of litter from various locations in the building, for example under waterers, around feeders, from middle of building, etc. Collect at least five representative samples. Mix, knead, and shake them all together in a ziplock plastic bag. Make sure the composite sample is well mixed and homogenous.
2. Label bag with:
 - a. Date of collection
 - b. Grower name
 - c. Building ID
 - d. Gender
 - e. Age of turkeys
3. Store sealed bag under refrigeration.

Solution (1.27 specific gravity)

H₂O 100 ml
Sucrose. 128 g

Mix and heat until all sugar is dissolved. Store in a closed container.

Procedure

1. Add 20 mL H₂O to 3 g litter.
2. Mix and strain through kitchen strainer.
3. Pour strained liquid into a 15 mL tube (e.g. plastic blood tubes with snap tops).
4. Centrifuge @ 1500 rpm for 10 minutes.
5. Decant the liquid (H₂O) and discard.
6. Refill tube with sugar solution.
7. Add coverslip. Let the tube with coverslip rest upright for 30 minutes.
8. After 30 minutes, gently lift coverslip from top of tube so as to not disturb the drop of accumulated debris, place on clean glass microscope slide, and read.

Breeder Selection

Why is a good breeder selection program important?

- * Performance/productivity of the breeder flock itself.
 - * Livability of the flock
 - * Number of eggs produced
 - * Fertility/hatchability of eggs
 - * Chick quality

How to Achieve These Goals

- * General Rules
 - * Select breeders from good hatches
 - * Target your groups ahead of time
 - * Select breeders at appropriate age (we use 18 weeks for hens; 22 weeks for cocks)

General Selection Criteria

- * Health/vigor
 - * Body confirmation
 - * Bright clear eyes
 - * No respiratory problems
 - * Fully feathered out
 - * Tail length and firmness of set
 - * Free of Defects
 - * Crooked toes
 - * Blindness
 - * Bad legs
 - * Crooked neck
 - * Hunchback
 - * Spurs or wattle on females
 - * No spurs or small spurs on males

- * Injuries

Specific Breed Criteria

- * Weight at desired age of shipping
- * Coloration – mostly male emphasis
- * Tails – length and retention

MacFarlane Ringneck

- * Weight
 - * Female 1.75-2.05 lbs.
 - * Male 2.7-3.0 lbs
- * Coloration
 - * Green down middle of back
 - * Sides dark orange
 - * Fully ringed and colored out
- * Tails
 - * Firmly set
 - * 20-23 inches

Kansas (K-Thunder) Ringneck

- * Weight
 - * Female 1.6-1.9 lbs.
 - * Male 2.25-2.55 lbs
- * Coloration
 - * More blue than green on back
 - * Sides yellow to light orange with large dark spots
- * Tails
 - * Carries its tail more erectly
 - * 21-24 inches
 - * Tails tend not to be quite set at 22 wks (24-25)

LT-X (Longtail Male X Mac Female)

- * Weight
 - * Female 1.75-2.05 lbs
 - * Male 2.7-3.0 lbs
- * Coloration
 - * Highly variable at present
 - * Trying to achieve Mac ringneck coloration
- * Tail
 - * Emphasis is placed on males tail length (24+ inches)
 - * LT males take longer for tail feathers to set (25+ weeks?)
- * Manchurian Cross (Pure Manchurian Male x Mac Female)
Weight
 - * Not a high priority as the hybrid offspring vary greatly in size due to the cross
- * Coloration
 - * Green back and dark sides desired
 - * Spot on cheek desired
- * Tails
 - * These birds have slow growing tails and set up late
 - * The wildness, strong flight and ability survive after release are the most important characteristics of this breed.

Melanistic Mutant

- * Weight
 - * Female 1.75-2.05 lbs
 - * Male 2.7-3.0 lbs
 - * Attempting to get to ringneck size
- * Coloration
 - * Males dark iridescent blue/green

- * Females solid black
- * No ringneck type patterns
- * Tails
 - * 20-22 inches at this time
 - * They are not set at 22 weeks and continue to grow to 24 inches

Preparation for placement is also important in the performance of the breeder flock

- * Clip wings to prevent injury
 - * Primaries and secondaries on males
 - * Primaries only on females
- * Peepers on all birds
- * Hood males if pre-lighting separate from hens
- * Vaccinate with autogenous bacterin for Mycoplasma at time of selection and again at time of stimulation
- * Dust for mites and lice
 - * We use a .25 permethrin dust on all birds before placement at breeder farm
 - * There are some new products that can be used in feed or in houses if infestation occurs
- * Burn spurs and toenails on males to reduce damage to hens
 - * Do this to indoor birds, large breeds and recycled males
 - * Do not do first year small breed males
- * Blood test for Salmonella (NPIP)

Conclusion

- * Selection within breeds is an ongoing process
- * There are always areas to improve, whether it be color, tail length, weight, etc.
- * In the end, the main goal is a consistent quality game bird

French Redleg Partridge

Barn Set Up for 12,000 chicks

- * 7 brooders
- * 80 mini drinkers
- * 70 feed flats
- * Feed system down & manually ran
- * Lights on 24 hours
- * Brooder lights hanging by brooders
- * Alarm system tested and set up
- * Fans set at minimum settings

Water

- * Mini drinkers get dumped and washed daily
- * Mini drinkers were taken apart and cleaned internally after being used for 3 days (done twice). This was done to prevent an overload of bacteria inside the drinker
- * On day 6, the bell drinkers that did not have minis attached were lowered
- * Starting on day 7, minis were removed from 2 to 3 bell drinkers and the bells were washed and lowered until all were bird level

Feed

- * Started on Fine Crumble of 28% Partridge Starter
- * Feed system down and feed allowed to drop out at a low setting
- * 70 feed flats were used and filled with about a gallon of feed each & refilled as needed
- * Flats were removed starting on day 7 by removing 5 the first day followed by 10 the remaining days until all removed
- * When down to the last 20 feed flats, they were moved closer to the feed system to transition the chicks into eating out of the pans

Prevention

- * A vitamin rotation was given to the birds - 3 days of vitamins, 1 day of water, 3 days of cleaner and repeated
- * Birds were given a preventative dose of Sulfadimethoxine at 19 days of age for 3 days
 - * They were given an additional dose if they were in the room longer than planned
- * Bedding was top dressed as needed
- * Temperature was lowered 1° a day after 8 days of age.
 - * Dropping too fast could cause piling or sickness

Moving to B room

- * Birds were planned to be in the A room for 4 weeks
- * At 4 weeks of age the door between the A & B room was opened.
 - * Lights in the A room were turned down and at full intensity in the B room
- * Most of the birds were over to the B room 24 hours later, but some still had to be 'pushed' over.
 - * Not recommended to move birds at 3 weeks or sooner than 24 hours after the door is opened
- * Birds were moved to the outside world at 9 weeks of age

Interesting Finds

- * It was found that if you did everything the same each day in a certain pattern the birds knew what to expect and would move out of the way without piling
- * If you deviated from the pattern or moved too quickly the birds would flush
- * If equipment failed and you needed to enter the room, you needed to be quick to prevent piling caused by deviating from the pattern

Raising Hungarian Partridge

Difficult Birds to raise

- * Size
- * Behavior
- * Sensitive

The Table Room

- * 28 Tables
- * Preferred size hatch about 7,000
 - * About 250 birds per table
- * Electric brooders
- * Quail feeders
- * Gallon and mason jar waterers
- * Paper towels

The A Room

- * Birds move in around the 7th day
- * 3 sections
- * 5 weeks B bit and moved to B room
- * Gas brooders
- * Wood shavings
- * Bell waterer minis

The B Room

- * 5 weeks old are B bit and moved into B room
- * Pen feeders
- * Moved outside at 8 weeks of age

The Biting Process

A Bit

- * Birds are 18 Days old
- * Birds are bit by section in A room
- * Remove dividers as birds are bitted
- * Catch about 50 birds at one time using net and bit barrel

B Bit

- * B bit is placed and bird tossed to B room
- * Birds are 5 weeks old
- * Catch about 60 birds at one time using net and bit box
- * As birds are bitted they are tossed in B room

Hatch Flow

- * Hatches are 2 weeks apart
- * Pens can hold up to 5 hatches
- * Table room
 - * 1 week
- * A room
 - * 4 weeks
- * B room
 - * 3 weeks
- * Total
 - * 8 weeks

Various Pheasant Pen Construction

Managing Your Gamebird Operation

Today's Game Bird Market

- Highly competitive
- Harder to delineate one's product (uniform higher standards in our industry)
- Price sensitive
- Flat demand

A Job or A Business

Are you running your business or is your business running you!

If you rely on "end of the year profits" as your payment for your labor – your farm is your job.

Pay yourself a salary AND budget your business to make a profit on top of your salary.

OR

Running your business as a business

- Budgets
 - Labor
 - Expenditures
 - Income
- Lock in as many input costs as you can
 - Feed
 - Labor
 - Propane

After you know your costs THEN determine the price you will charge for your birds

Be Realistic

If the commercial operations aren't cutting the corner – why do new producers think they can

Know your costs – e.g. delivery costs

Being a game bird producer is not a "get rich" strategy

Becoming More Effective as a Producer

There is no room for producers who are complacent and comfortable (not taking any risks).

Complacent producers will be forced out of business

Game Bird Production

Progressive producers who are open minded and willing to try new methods will survive.

If you are here at the meeting, you most likely tend to be more progressive.

- * To be successful – you will need to get out of your comfort zone and take a few risks.
- * Try some new methods
- * Take a good hard look at every part of your business to see what you might improve

Awareness and Openness

- Denial
- Recognition
- Acceptance
- New Methods

Attributes of a Successful Visionary Approach

Maintaining Bio-security

- Separation
 - Facilities
 - Employees
 - Equipment
 - Species
- Layout Time
 - Facilities
 - Equipment

- Vectors
 - Visitors
 - Pests
 - Birds from other farms

Bio-security-Measures to start with

- * -Limit Tours
- * -Limit the introduction of another farm's flock
- * -Limit vectors
 - Rats
 - Starlings
 - Delivery personnel

Bio-security-

Don't be part of the problem

- Blood test your birds
- Monitor your flock
- Have a vet inspect the flock once a month
- Supply health certificates as required
- Log visitors and deliveries

Genetics

- Specialization
 - Meat
 - Flight
- Feed conversion
- Egg production and fertility
- Disease Resistance
- Plays a key role in public opinion of the industry

- The market wants “wild” birds
 - flying ability
 - fear of humans
 - ability to survive in the wild
- Bird Appearance and Behavior
 - Size at maturity
 - Length (and strength) of the tail
 - Lack of aggressiveness towards other birds
 - Age to maturity
 - Coloration
 - Lack of defects

Animal Rights

PETA

Humane Society of the United States

Goal is to outlaw hunting either through direct or indirect intervention

- Protests at hunting preserves
- Ballot Initiatives
- Making guns illegal

Feed Prices

- Volatility
- Cost Per Bird

Consultants

- Bird Health
- Genetics
- Disease Control

- Nutrition
- Equipment

Organizations

- NAGA
-North American Gamebird Association
- State Game Bird Associations
- NRA, NSSF etc.

Protocols

- Why protocols are needed and important
- Develop
- Document
- Utilize

Protocols (The Manual)

- Anything and everything should be covered
- Medications, feed, contact numbers, etc.
- Cover the who, what, when, where, and why for setup and procedures.
- Marketing be able to communicate clearly to potential customers what makes your farm special
- Printed materials
- References
- Website and Social Media
- Active participation in the community
- Advertise on your vehicles
- Keep your business looking neat
- Back your product
- Sell quality goods

- Sell the health factor
- Sell quality not price
- Back your product
- Be professional
- Find out your strengths and promote them

Shipping

- Don't give Animal Rights group opportunity
- Use the proper vehicles
- U.S. Post Office and the airlines
- Bird Shippers of America
-legislation
- Animal Welfare Act

Making good decisions purchasing inputs (equipment, feed, propane, labor)

- **Thoroughly research what you will need before you contact suppliers**
- **Get more than one quote**
- **Be sure to ask about volume discounts and payment discounts**
- **Negotiate and contract your feed, propane and labor requirements before you set your season prices**

PURCHASING EQUIPMENT

- CHOOSING A VENDOR –
- Research the vendor's reputation
- Call other people in the industry for references
- Find out who the vendor supports (they might support PETA)
- Has the vendor shown loyalty and ownership in the past?
- Has the vendor taken responsibility for their mistakes.

- Story of woodchips
- Does the vendor play an active role in the industry?

Profitability

- Involve yourself in the process to counteract attempts to change tax laws in certain states
- Join state and national organizations
 - keep aware of what is going to affect you
 - keep aware of what is affecting others

Drug Availability

- Profit returns for the pharmaceutical companies is small
- NAGA
- CVM
- Congress passed a minor species usage bill – (three criteria must be met):
 - 1) A licensed vet must prescribe the drug and the feed mill must have this prescription on file
 - 2) The drug level utilized for the minor specie must be the same as the approved amount for the major specie
 - 3) All withdrawal times and stipulations used in major species must be followed for the minor species

Successful Delegation

- Makes work easier.
- Improves efficiency.
- Increases employee effectiveness.
- Develops employees.
- Ensures that the right people do the right jobs.

Development

- Running your farm lean
- Developing your employees
- Create an environment where employees can say what they are thinking

Work Environment

- Create an attractive workplace environment
- What makes a workplace environment attractive?
- Low turnover
- Family oriented culture
- Clean organized workplace
- Website appearance

What type of employee are you looking for?

- Make a clear what type of employee you are looking for
- Willing to work
- Team work oriented

Where to Look for Employees

- Post ad on your webpage
- Advertise in your local paper
- Careerbuilder.com
- Post ad at area universities
- Agcareers.com
- Monster.com

How to Determine if the Applicant is who you are Looking for

- Application
- Resume
- References
- Interview – punctuality, appearance
- Personality test
- Appearance of their car

- Eye contact
- Don't limit the number of times you interview
- Have more than one person interview the applicant

Hiring Tips

- Hire slow, fire fast
- If you hire someone and you know soon they are not a good fit, cut the cord right away
- Be independent minded entrepreneurs
- Work together through state and national organizations

Conclusion

These are recommendations that should help lead you to being successful in the game bird industry. If you are willing to take the risk, hopefully you will reap the rewards.

Ringneck-X Project
(Our MacFarlane Ringneck Pedigree Program)

Goals of the project where set in 2009

- * Assess our current breeder stocks
- * Assess other available breeder stocks
- * Identify targeted traits
- * Develop a selection program
- * Assess improvement
- * Identify pitfalls

Develop a more structured and detailed approach to breeder selection

Chick Mortality Stats – Benchmarks 2005 – 2009

Starve out period	Thru Move out
Day 1-7	50 days
2.93%	8.32%

Critical points.....

White Genetics Program

- * In late 2006 the focus for bodyweight improvement shifted toward 6 – 7 week weights
- * Almost immediately we observed lower chick mortality

Wolff Bellefontaine Results

2005 – Pre change	2009 – Post change
84,125 chicks placed	74,564 chicks placed
74,712 returned	68,418 returned
88.8%	91.8%
Overall Mortality 11.2%	Overall Mortality 8.2%

- * Most of the improvement would be in the first 6 weeks – average mortality reported between 4-5%

- * Results are validated by somewhat controlled rearing process

Integrating the white pheasant breeding strategy to Chinese Ringneck

Opportunities

Improved livability

Hardier chicks

Improved early uniformity

Easier rearing

More tolerant

Competitive advantage

Potential Pitfalls

Increase in adult body size

Reduction of wildness characteristics

Feather quality

Other potential unknown issues, i.e. disease

Defined Goal of the Project

- * Improve chick quality & livability without impacting desirable traits

Chick Thriftiness – Definition - Growing vigorously; thriving

****While maintain flight pheasant qualities****

Chick Selection

- * Rate of gain

Evaluation of weight gain between hatch day to 21 days of age.

Require wingbanding chicks, initial weight at hatchery and weighing at 21 days

- * 5 week bodyweight

Bodyweight evaluation at 5 weeks of age

Require individual weighting of birds at 5 weeks (peeping) and selecting top birds at 6 weeks

Male Selection Criteria

- * Bodyweight – Individual weight
- * Proper coloration – Acceptable/Not
- * Proper Body conformation– Acceptable/Not

- * Tail Length – Total Length Measured
- * Tail Quality – Acceptable/Not
- * No Physical Defects
- * No abnormalities

Female Selection

- * Bodyweight – Individual Weight
- * Proper body conformation-Acceptable/Not
- * No physical defects
- * No abnormalities

Evaluation of Pedigree Offspring – 2011-2013

- * Breeder Farm – Individual production records/security of flock
- * Hatchery – per standard procedures
- * Chick Crew – per standard procedures
- * Pen Crew – security of the flock and specific mortality records for individual groups.

Other Observations

- * Egg Production – similar to possibly better*
- * Improved hatchability
- * Age to maturity (ship-ability) improved
- * Uniformity

Transitioning birds from barns to flight pens