

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

# DIAGNOSIS OF POULTRY DISEASES

*“1 – Clinical INVESTIGATION  
OF FIELD PROBLEMS”*

*Prof. Dr. M. M. Amer*

# INTRODUCTION

Field case is a sum of interaction between many factors including:

1. Host: **(Susceptibility)**

Species , Age , Breed , General health , Genetic and Immunity.

2. Infection: **( Pathogenicity )**

Type, Virulence, Dose, Route, Duration and frequency of exposure .

3. Host parasite interaction: **(Pathogenesis)**

# DISEASE CAUSES

```
graph TD; A[DISEASE CAUSES] --> B[According to mode of spread]; A --> C[Role of infection];
```

*According to mode of spread*

*1. Non infectious:*

*Management or environmental*

*2. Infectious:*

*Virus, Bacterial, Mycotic or Parasitic.*

*3. Toxins:*

*Insecticide, Bacterial or mycotic toxin*

**Role of infection**

**1. Predisposing**

**2. Primary**

**3. Complicating**

# **RESULT OF DISEASE**

## **( ECONOMIC IMPORTANCE )**

**1. Mortality.**

**2. Low productivity:**

**a. Quantity .**

**b. Quality .**

**3. Reduce marketability:**

**a. Meat.**

**b. Eggs.**

**c. Chicks.**

**4. Costs:**

**a. Breeding. b. Prevention. c. Control. d. Medication.**

**5. Zoonotic.**

**6. National economy.**

# DIAGNOSES STEPS

## **a. FIELD**

- 1. History.**
- 2. Clinical exam.**
- 3. Pathpological exam.**
- 4. Sampling.**

## **b. Laboratory**

- 1. Virological.**
- 2. Bacteriological.**
- 3. Mycotic.**
- 4. Parasitological.**
- 5. Serological test.**

# Field examination

```
graph TD; A[Field examination] --> B[final diagnosis]; A --> C[Identify the problem]; B --> D["1. Skin form of pox.  
2. Acute ILT.  
3. Avian tumors."]; C --> E["1. Respiratory problem.  
2. Nervous problem.  
3. Locomotor problem  
4. Enteric Problem.  
5. Egg production.  
6. Unknown."];
```

final diagnosis



1. Skin form of pox.
2. Acute ILT.
3. Avian tumors.

Identify  
the problem



1. *Respiratory problem.*
2. *Nervous problem.*
3. *Locomotor problem*
4. *Enteric Problem.*
5. *Egg production.*
6. *Unknown.*

# TYPES OF INFECTIONS:

## Subclinical

No signs as immune system controls infection and develop immunity.

## Peracute

Very rapid progress in dis. Bird die within hours or days or recovered with develop Abs.

## Acute

Rapid progression of dis and bird die within days or recovered and develop Abs.

## PERSISTANT

### Chronic

Long term with constant shedding and Abs.

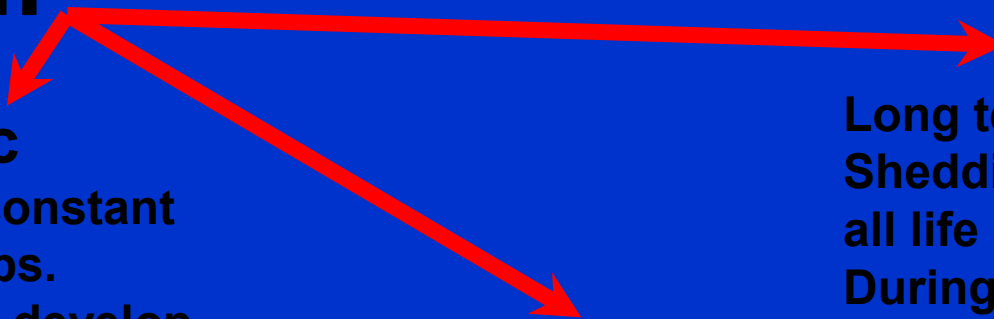
Bird may or not develop antibodies.

### Latent

Long term with intermit Shedding for ms or ys all life .no dis .or virus During dormancy.

### Slow

Progressive disease over months or years may cause death of bird.



# ***CLINICAL INVESTIGATION***

**Base on:** **I- Flock History.**  
**II. Palpation and inspection.**  
**III. Sampling.**

## ***I- Flock History:***

**It is a group of information about the past and present history of the flock under investigation, especially for the pathologist who has not seen the farm or the flock before .**

**These information could be obtained through:**

- a- Questions directed to the owner or veterinary supervisor, workers**
- b- Investigation of Farm production records.**
- c- Our observations.**



**The flock history should include the following information:**

**A- Identification:**

- 1- Date.**
- 2- Name, address and telephone no. of the owner.**
- 3- Farm address and telephone no. and manager's name.**
- 4- Type and no. of samples**
- 5- Request.**

**B- Case history:**

- 1- Species and breed of bird.**
- 2- Age.**
- 3- Purpose of production (broiler- table egg - breeders).**
- 4- Total number of birds.**
- 5- Percentage of sick birds (Morbidity rate) (Daily / Weekly)**
- 6- Number of dead birds (Mortality rate) (Daily / Weekly).**
- 7- Housing system (Closed/Open)**

**8- House type (litter, nests and batteries).**

***BROILER:***

**1. litter:**

- a- Stocking density.
- b- Bird space of feeders and waterers.
- e- Cleanliness and efficiency.

**2. Batteries:**

- a- Hygiene of and batteries.
- b- Cage design and stocking density.
- c- Cleanliness and efficiency.

***BREEDERS:***

- a. Stocking density.
- b- Nest to bird ratio.
- c- Cleanliness and efficiency.
- d- Cock to hen ratio.

***COMMERCIAL LAYER:***

- a. Stocking density.
- b- Nest to bird ratio.
- c- Cleanliness and efficiency.

# Chicken houses



## **8- Management practice (Sanitation and Hygiene).**

### **A-Ventilation:**

- a) Fans
- b) Inlets
- c) Temperature.
- d) Ammonia.

### **B- Lighting:**

- a) Pattern.
- b) Intensity.
- c) Duration.

### **C- Nutrition:**

- a) Supplier or home mix.
- b) Type of feed (powder or billets )
- c) Feeding regime.
- d) Quality.
- e) Total , weekly and daily feed intake.
- f) Total and weekly Feed conversion rate (FCR).

## **9- Production performance:**

**must be compared with:** a. **Breed standard.**

b. **Production records of previous flocks (Farm standard).**

### ***A) BROILERS:***

**Average total and weekly body weight to calculate Total and weekly Feed conversion rate (FCR).**

### ***b) Commercial Layers (Average):***

**1. Weeks of lay.**

**2. Weekly egg Production percentage:**

**(average egg/Hen/day – HAD). (average egg/Hen/week – HAw).**

**3. Production percentage birds housed**

**(Hen housed average-HHA).**

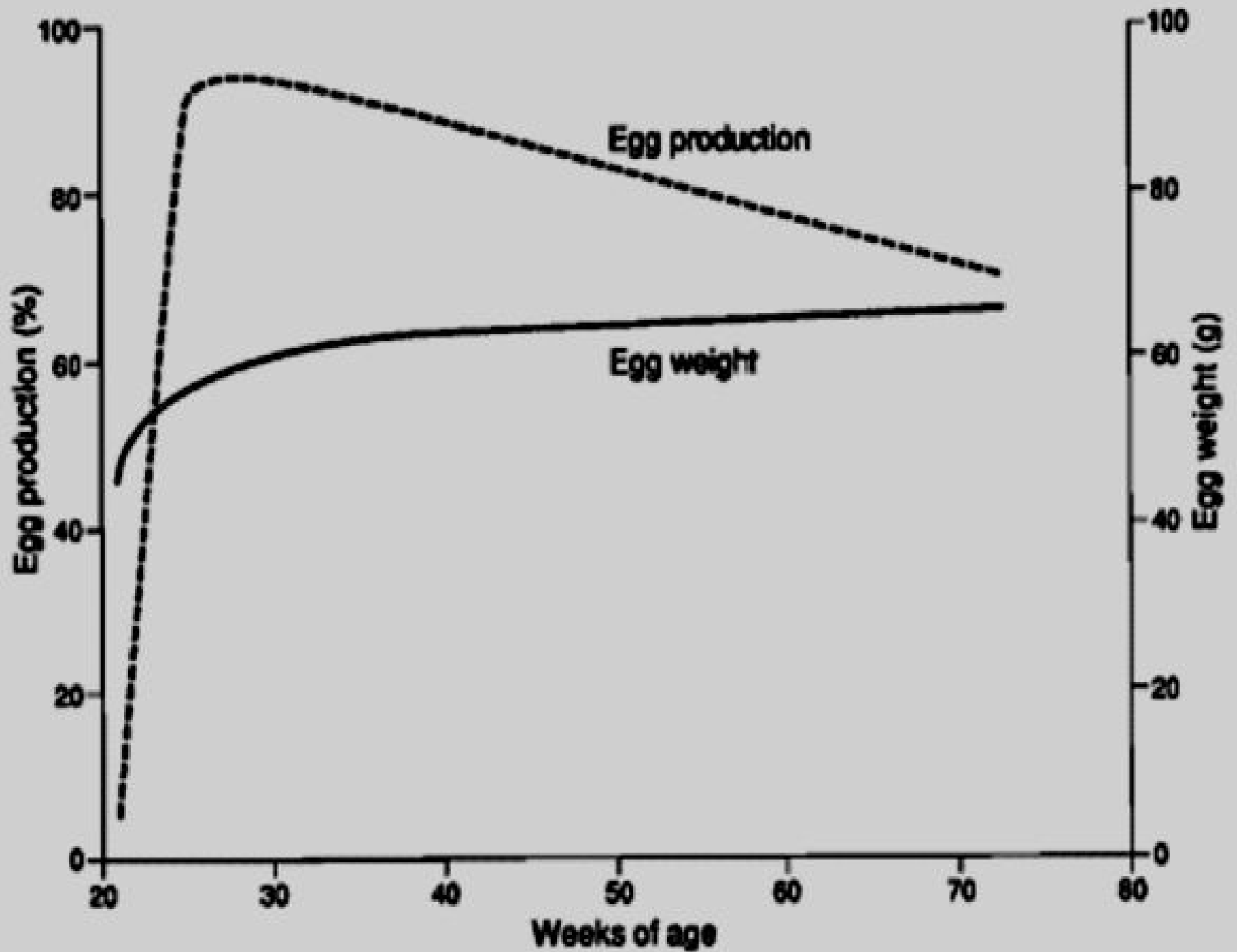
***b) Layers breeders :***

**a. Production performance as in commercial layer.**

- 1. Weekly hatching egg Production percentage:**  
(average hatching egg/Hen/day– HEH/D).  
(average hatching egg/Hen/week – HEH/w).
- 2. Production percentage birds housed**  
(Hatching egg/Hen housed average-HHA).

**b. Hatchery performance:**

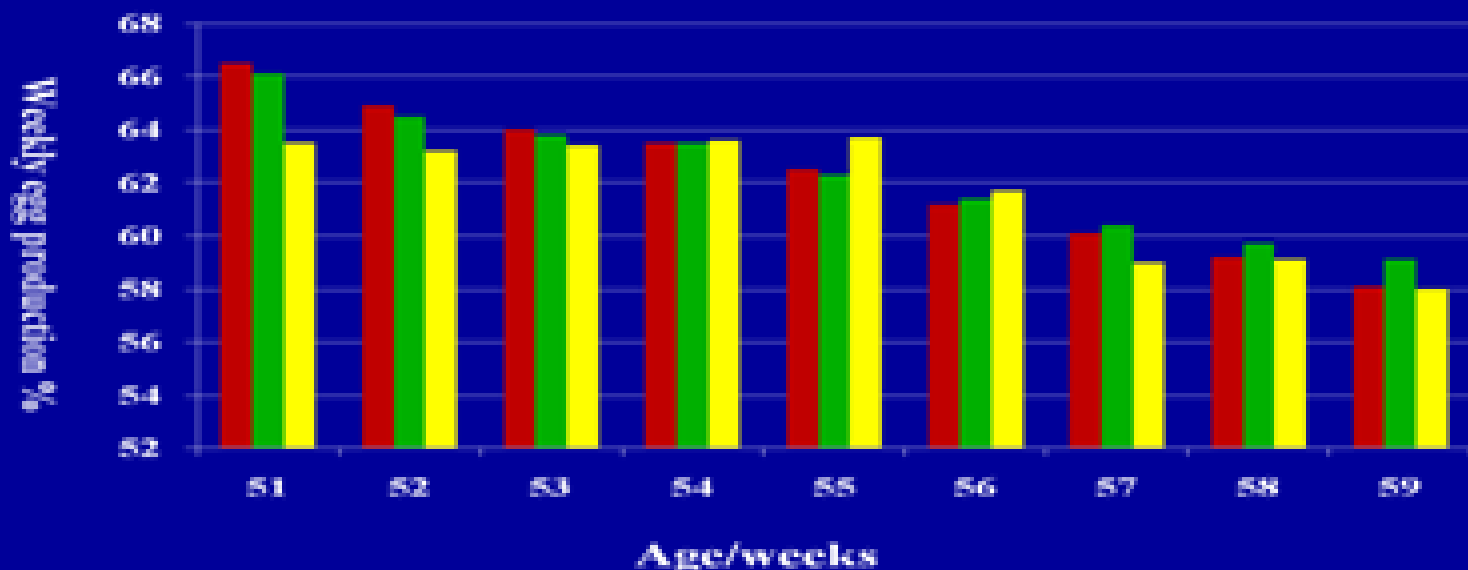
- 1- Fertility and hatchability rates.**
- 2- percentage of culls and marketable chicks.**
- 3- Marketable chick/ hen/ week and day.**



# Weekly egg production %

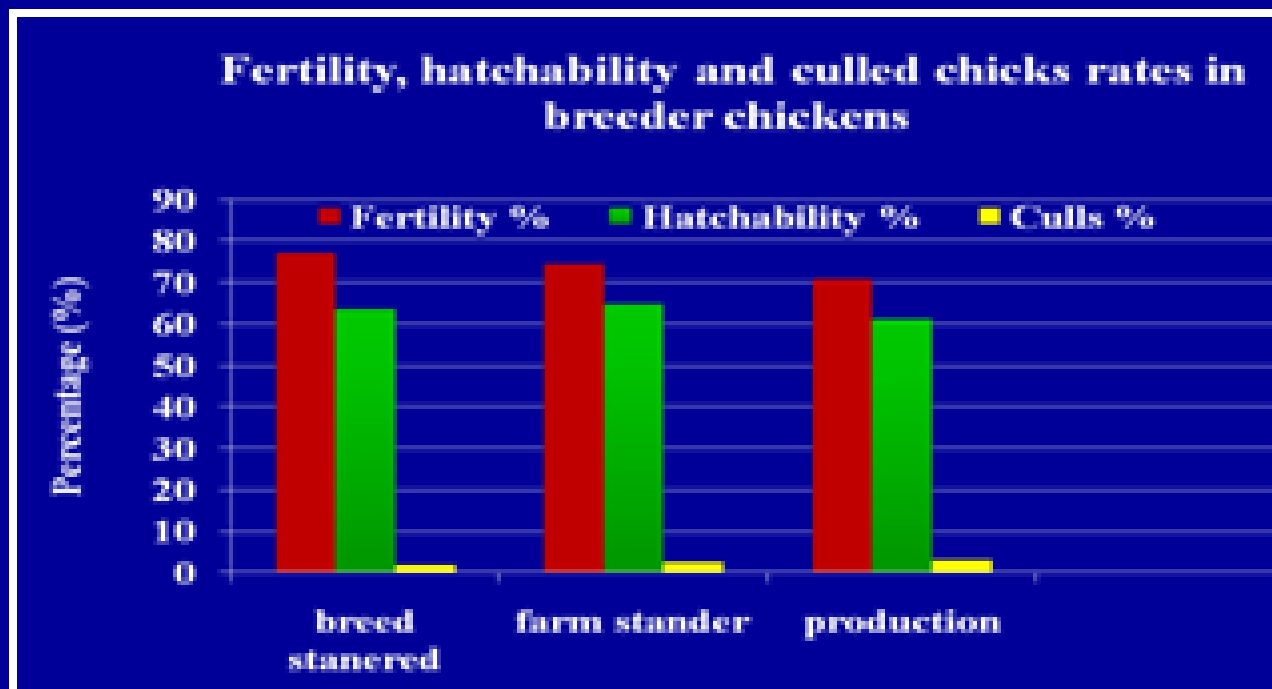
Age/weeks	breed stanered	farm stander	production
51	66.5	66.1	63.5
52	64.9	64.5	63.2
53	64	63.8	63.4
54	63.5	63.5	63.6
55	62.5	62.3	63.7
56	61.2	61.4	61.7
57	60.1	60.4	59
58	59.2	59.7	59.1
59	58.1	59.1	58

■ breed stanered    ■ farm stander    ■ production





	<b>Fertility</b> %	<b>Hatchability %</b>	<b>Culls</b> %
<b>breed stanered</b>	<b>77.2</b>	<b>63.66</b>	<b>1.85</b>
<b>farm stander</b>	<b>74.61</b>	<b>64.9</b>	<b>2.7</b>
<b>production</b>	<b>70.91</b>	<b>61.19</b>	<b>3.22</b>



## **10- Veterinary health care:**

- a) Vaccination details and record.**
- b) previous history of illness in the flock.**
- c) Drug treatment records.**
- d) Mortality and morbidity records of the flock.**
- e) Presence of parasite (Endo and Ectoparasites).**
- f) Laboratory records (Microbiology- serology ..).**

## **11- Existence of stress .**

## **12-Clinical picture (signs) or Owner complain.**

**a. General :**

**b. Respiratory :**

**c. Nervous :**

**d. Locomotors:**

**e. Enteric:**

**f. Reproductive:**

**g. Mortality:**

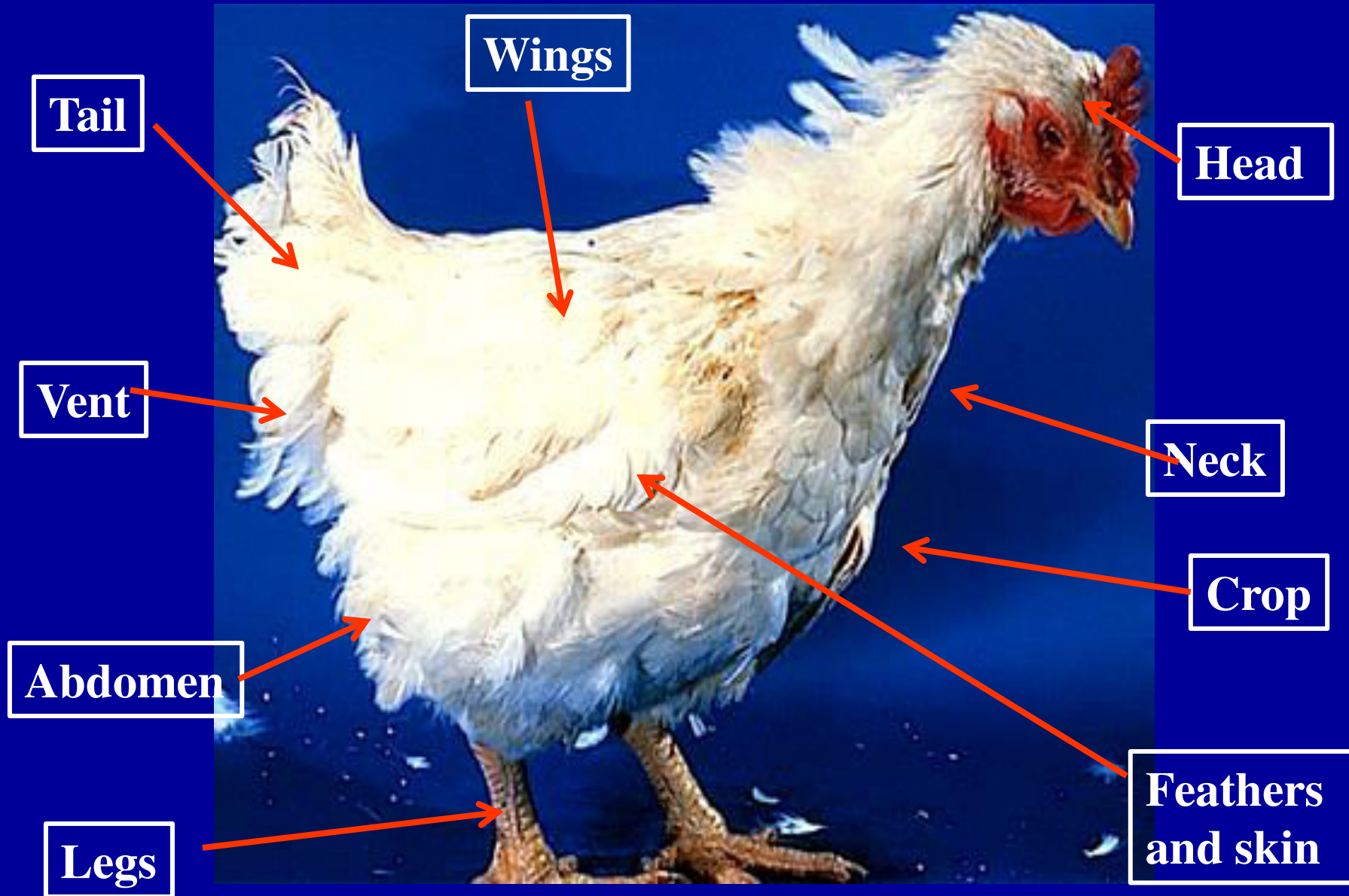
**On set and duration of signs or problem.  
The number of sick and dead birds.  
When and where birds were found dead?**

***N.B.:* Knowledge of management factors and unusual weather or farm events may make the between diagnosis of the flock problem and the finding of a few miscellaneous conditions in a sample that may or may not be representative.**

### **External Examination:**

**Look for the general attitude of live birds and all abnormal conditions should be noted carefully (Gait, signs, external parasites ,blindness and depression) before the specimens are killed.**

## Birds body regions

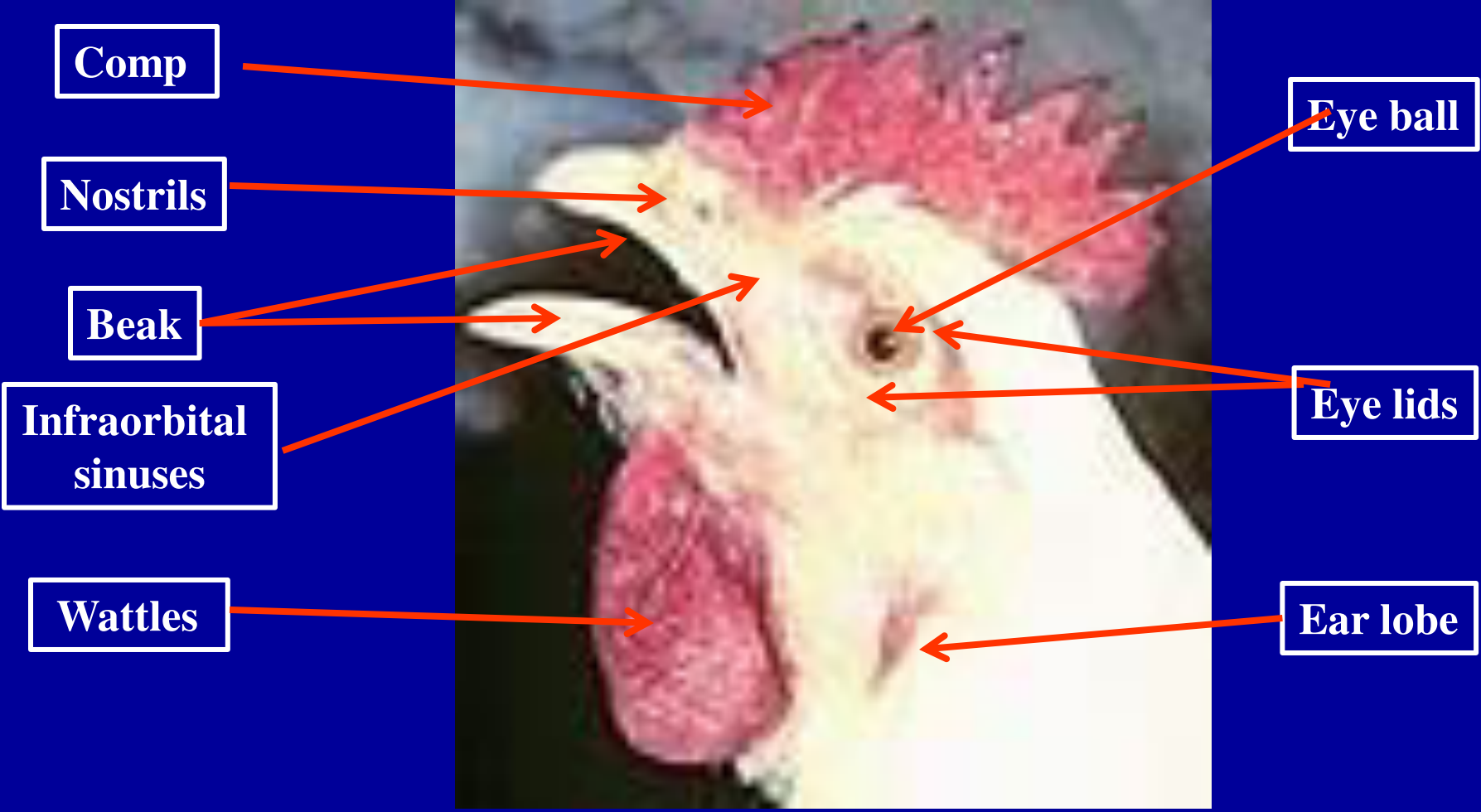


## ***II. Palpation and inspection.***

### **Common Clinical Findings in Poultry Diseases**

<b>Organ</b>	<b>Clinical Signs</b>	<b>Suspected Diseases</b>
<b>1- General appearance</b>	<b>Stunting</b>	<b>1. ISS in broiler chickens and broiler turkeys. 2. Fertile eggs from different source (Age / Breed)</b>
	<b>Variable weight gains</b>	<b>1. Different source of fertile eggs. 2. Infectious diseases. 3. Non infectious diseases.</b>
<b>2- Feathers</b>	<b>1. Ruffled</b>	<b>Most poultry diseases</b>
	<b>2. Brocken feathers</b>	<b>1. Cannibalism. 2. External parasites.</b>
	<b>3. Poor feathering</b>	<b>1. Nutritional deficiency diseases. 2. Chronic aflatoxicosis.</b>
<b>3- Skin</b>	<b>1. Feather follicle tumours</b>	<b>Marek's Diseases</b>
	<b>2. Gangrenous dermatitis (wing and thighs)</b>	<b>Clostridia infection.</b>

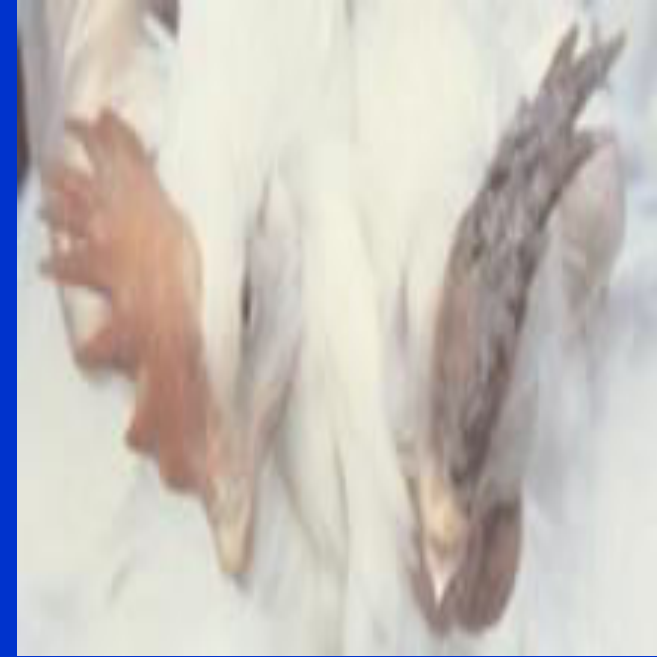
# Chicken head



**Face: General appearance of the head.**





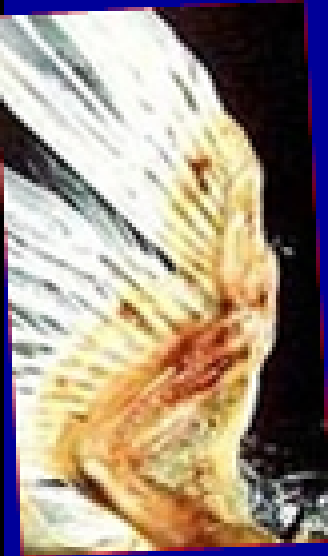




## 4-Head:

<b>4-Head:</b>	<b>1- Comp</b>		<b>1. pale</b>	<b>Chronic disease.</b>
			<b>2. Cyanosed</b>	<b>Acute septicaemic diseases.</b>
			<b>3. Wounds</b>	<b>Cannibalism</b>
			<b>4. Wart like modulus</b>	<b>Avian pox</b>
			<b>5. White chalky powder</b>	<b>Favus</b>
	<b>2- Wattles and Ear lobe.</b>		<b>1. Pale or cyanosed</b>	<b>Chronic disease. or acute.</b>
			<b>2. Swollen oedematous</b>	<b>Avian cholera</b>
			<b>3. Wart like modulus</b>	<b>Pox.</b>
	<b>3.Eye</b>	<b>lids</b>	<b>1- Wart like nodules</b>	
			<b>2- Swollen closed eyes</b>	<b>1. A Vit. A. 2. Aspergillosis. 3. Mycoplasmosis. 4. Localised (E coli -Salmonellosis).</b>
		<b>Conjunctiva</b>	<b>1. Pale and congested</b>	<b>As in comp.</b>
			<b>2. Casiated material</b>	<b>As in swollen, closed eyes.</b>
		<b>ball</b>	<b>Fish eye &amp; depigmentation</b>	<b>MD</b>
			<b>Swollen or destructed</b>	<b>E. coli, Aspergillosis.</b>
	<b>4. Nostrils</b>		<b>1. Moist or dried crusts</b>	<b>Rhinitis due to esp. dis.</b>
			<b>2. Wart like nodules</b>	<b>Pox</b>
	<b>5. Infraorbital sinuses</b>		<b>Swollen (uni- or bilateral)</b>	<b>1. Infectious sinusitis. 2. I. coryza.</b>
	<b>6. Face</b>		<b>Swollen face</b>	<b>ND, AI, SHS, I. Coryza</b>
	<b>7. Beak</b>		<b>1. Easily bent rubbery</b>	<b>Rickets</b>
<b>2. Crysty beak corner</b>			<b>Non infectious dermatitis</b>	
<b>3. Wart like nodules</b>			<b>pox</b>	

<b>6-Crop</b>	1. Empty	1- Most of y diseases.
	2. Swollen dowy pendulous	1. Pendulous crop.
	3. Over distension with fibrous material	Impacted crop
<b>7-Wings</b>	1. Black dots on the inner aspect	Seed tick infestation
	2. Wing arthritis	Arthritis of infectious and non infectious etiology
	3. Ruffled and some feathers directed upward	ISS in broiler chickens and broiler turkey's
	4. Broken feathers and pull out feathers	Feather picking and feather pulling.
<b>8-Abdomen</b>	1. Ascitis	1. ALC. 2. Chronic SGP . 3. Increased NaCl.
	2. Pasty vent.	Enterititis and diarrhea.
	3. Protrusion of small intestine.	1. Vent. Picking. 2. Mechanical death due to overcrowding.
	4. Ulcerated vent.	Vent gleet



**9  
Legs**



**1. Medullary bones**

**1. Rubbery & easy bent**

**Rickets**

**2. Slim and easily broken**

**Osteomalacia**

**2. Hocks**

**Hock arthritis**

**Infections with one or some or all :**

- 1. Strept. And Staph.**
- 2. Mycoplasma species.**
- 3. E. coli.**
- 4. Salmonella species.**
- 5. Reo virus.**

**3. Shank**

**Scales are rough, thick with exudates underneath and fall off of scales**

**Scaly leg disease**

**4. Foot**

**1. Toe arthritis**

- 1. Articular gout**
- 2. Strept. and staph.**

**2. Foot and arthritis**

**Strept. and Staph. (localized).**

**3. Scaly crusts on the plantar surface of foot**

**Non infectious dermatitis**

# Sampling:

## I. FARM

- **Birds:**
  1. Whole birds :            Dead                                Diseased.
  2. Blood:    Clotted            Non-clotted                        Blood Film.
  3. Tissues: Frizzed            Cool                                in formal saline.
  4. Eggs:
  5. Swaps: FARM
    - a. Vaccine:
    - b. Drugs:
    - c. Ration :
    - d. Air        :
    - e. Litter    :
    - f. Water    :

# Hatchery:

- a. Swaps:
- b. Eggs :
- c. Water:
- d. Air:
- e. Incubator Wastes:
  - 1. Culls
  - 2. Dead in shell
  - 3. Infertile

## References:

### **A. MANUALS:**

*A Laboratory Manual for Isolation and Identification of Avian Pathogens , Avian Disease Manual , Avian Histopathology , and Color Atlas of Diseases of the Domestic Fowl and Turkey, Avian Hematology and Cytology*

### **B. JOURNALS:**

*Avian Diseases, Avian Pathology, and Poultry Science, proceedings of regional poultry disease conferences, Hatchery practices.*

### **C. Books:**