

# Interpreting Vet Reports

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For PSIW  
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# Vet Reports and You



- Poultry is a unique industry where non-vets interact directly with labs
  - Other commodities are structured so that samples are taken and submitted by vets
  - Results are returned to the submitting vet
  - The vet then “translates” the report to the owner

# Vet Reports and You



- Because almost all reports are sent to vets, the lab (emphatically) does not make interpretations or give recommendations
- What they give you is data, not information
- Interpreting the data properly means you make proper decisions and help your clients

# Interpreting Vet Reports



- The best way to get vet reports interpreted is to get a vet to interpret them!
  - Honestly....we go to school for years for this stuff!
    - I've got 30 minutes to share insights with you
  - It is crucial that any vet involved is aware of the farm, the situation and the history
- Reports are complicated, and subtle
  - There are many factors that interact

# Types of Vet Reports



- Serology
  - Most common
- Virology
  - Becoming more common
  - Better info than Serology
- Bacteriology
- PM results

# Serology



- Look like this

## Infectious bronchitis virus - ELISA Method ID:V-002

Date Authorized: 2022-Sep-20 13:17

Sample ID: 22-076853-0001

Client Sample ID:

Specimen type: Group of samples

Number of samples 10

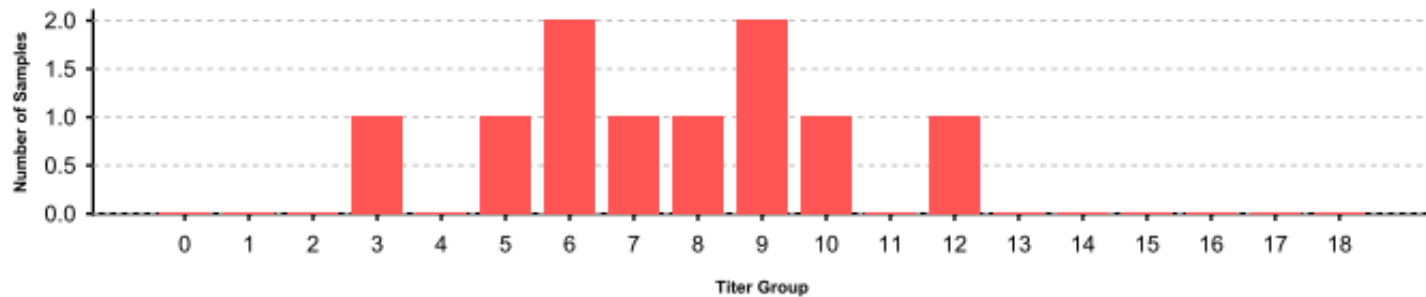
Mean titer 8610.500

GMean 7488.562

Standard deviation \* 4227.033

%Coefficient of variation 49.092

Titer Groups



# Serology



- For laying hens, I always recommend having something to compare vaccination status

Newcastle disease virus - ELISA - Chicken Method ID:V-002

Date Authorized: 2022-Sep-20 13:19

Sample ID: 22-076853-0001

Client Sample ID:

Specimen type: Group of samples

Number of samples 10

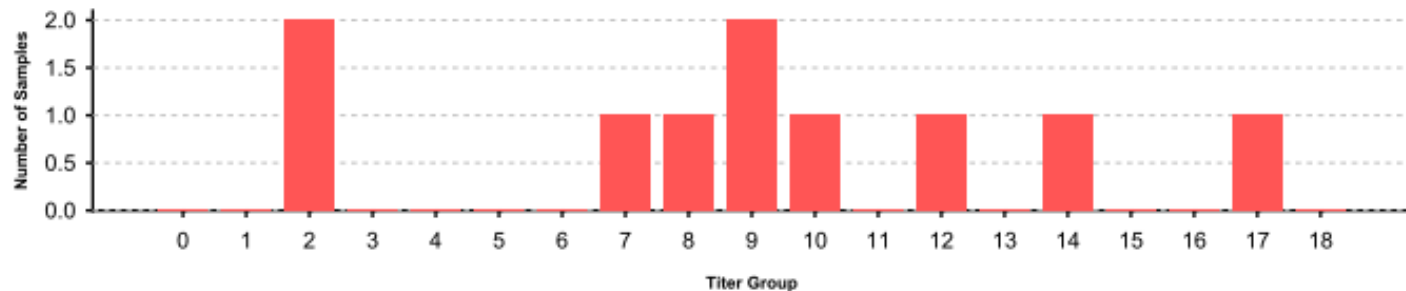
Mean titer 11965.800

GMean 8009.409

Standard deviation \* 8311.446

%Coefficient of variation 69.460

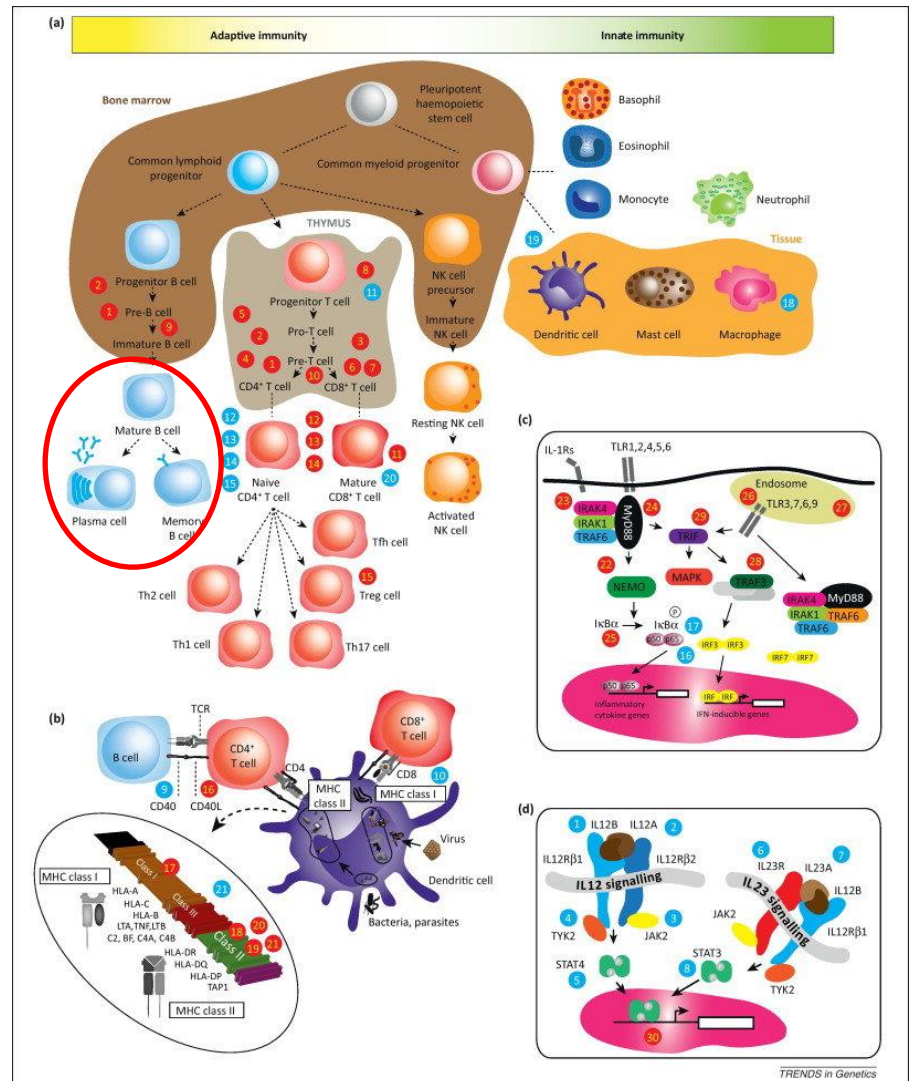
Titer Groups



# Interpreting Serology



- Things that complicate interpretation of serology
  - Serology is only a small part of the immune response
  - It is a reflection of the immune status, but the amount of importance depends on the disease



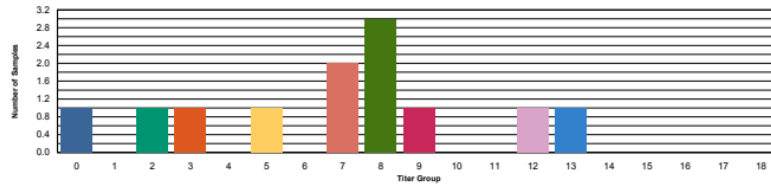


# What are GOOD titers?



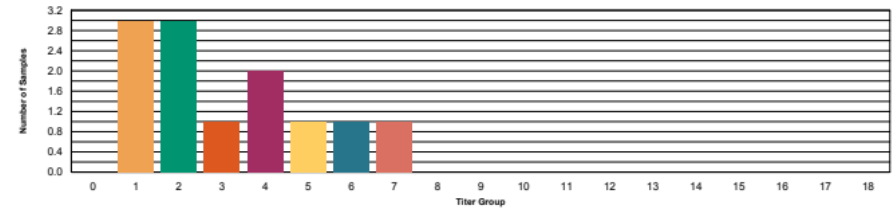
Specimen type: Group of samples  
 Standard deviation \* 5237.766  
 Coefficient of variation 66.503

**Titer Groups**  
For Strobbosser



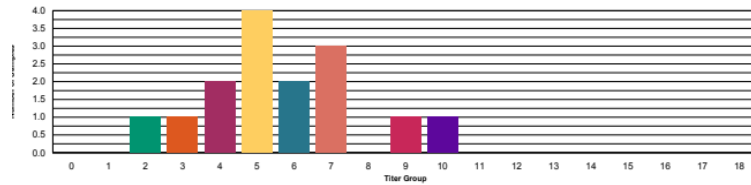
Specimen type: Group of samples  
 Number of samples 12  
 Mean titer 2768.083  
 GMean 2113.331  
 Standard deviation \* 1815.869  
 %Coefficient of variation 65.600

**Titer Groups**  
For Haverkamp



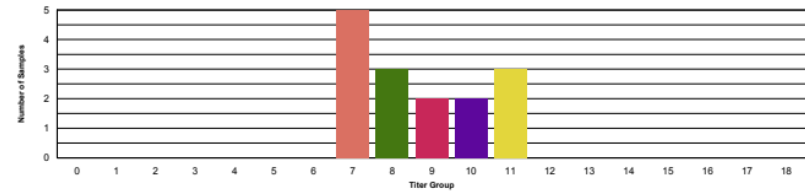
Mean titer 5754.200  
 GMean 5027.267  
 Standard deviation \* 3115.661  
 Coefficient of variation 54.146

**Titer Groups**  
For Dekalb (15)



Mean titer 10328.800  
 GMean 9796.896  
 Standard deviation \* 3368.331  
 %Coefficient of variation 32.611

**Titer Groups**  
For Shaver (15)



# Virology Reports



- We can now use molecular tools to investigate infections
  - Not all diseases, and not all are as effective
  - Improving our capabilities all the time
- Advantages
  - Identifies actual virus, rather than birds' response to an infection
    - Can be examined WHILE the infection is occurring, rather than afterwards
  - Gives a lot more information

# Virology Reports



- Disadvantages
  - Mostly just expense

## HISTORY

"- drop in feed consumption.  
- drop in egg production.  
- if +ve, please type."

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### Infectious bronchitis virus - phylogenetic analysis Method ID:V-005

Date Authorized: 2021-Nov-08 16:52

| Sample ID | Client Sample ID | Specimen Type<br>Sampling<br>Date / Time | Match | Compared To                    | Species Origin | Geographical<br>Origin | Reference ID | Strain / Subtype |
|-----------|------------------|--|-------|--------------------------------|----------------|------------------------|--------------|------------------|
| 0001      | Cloacal          | VTM Swabs                                | 99.4% | Infectious<br>bronchitis virus | chicken        | Ontario                | DMV          | AHL21-017385     |

#### Comments:

See attached file(s)

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### Infectious bronchitis virus rt-RT-PCR Method ID:V-005

Date Authorized: 2021-Nov-03 16:26

| Sample ID      | Client Sample ID | Specimen Type | Result (Ct) | Interpretation |
|----------------|------------------|---------------|-------------|----------------|
| 21-092898-0001 | Cloacal          | VTM Swabs     | 24.91       | POSITIVE       |
| 21-092898-0002 | Oropharyngeal    | VTM Swabs     | 27.3        | POSITIVE       |

#### Comments:

# Virology Reports



- Very important to type any virus you find
  - Otherwise, you might be finding vaccine viruses, and not field strains
  - High CT levels leave uncertainty

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## Infectious bronchitis virus - phylogenetic analysis Method ID:V-005

Date Authorized: 2021-Nov-30 16:49

| Sample ID | Client Sample ID | Specimen Type<br>Sampling<br>Date / Time | Match | Compared To                    | Species Origin | Geographical<br>Origin | Reference ID | Strain / Subtype |
|-----------|------------------|--|-------|--------------------------------|----------------|------------------------|--------------|------------------|
| 0002      |                  | VTM Swabs<br>21-Nov-22                   | 98.2% | Infectious<br>bronchitis virus | chicken        | USA                    | Mass-MA5     | vaccine          |

**Comments:**

See attached file(s)

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## Infectious bronchitis virus rt-RT-PCR Method ID:V-005

Date Authorized: 2021-Nov-25 17:07

| Sample ID      | Client Sample ID | Specimen Type | Result (Ct)  | Interpretation |
|----------------|------------------|---------------|--------------|----------------|
| 21-099949-0002 |                  | VTM Swabs     | 31.1         | POSITIVE       |
| 21-099949-0003 |                  | VTM Swabs     | Not detected | Negative       |

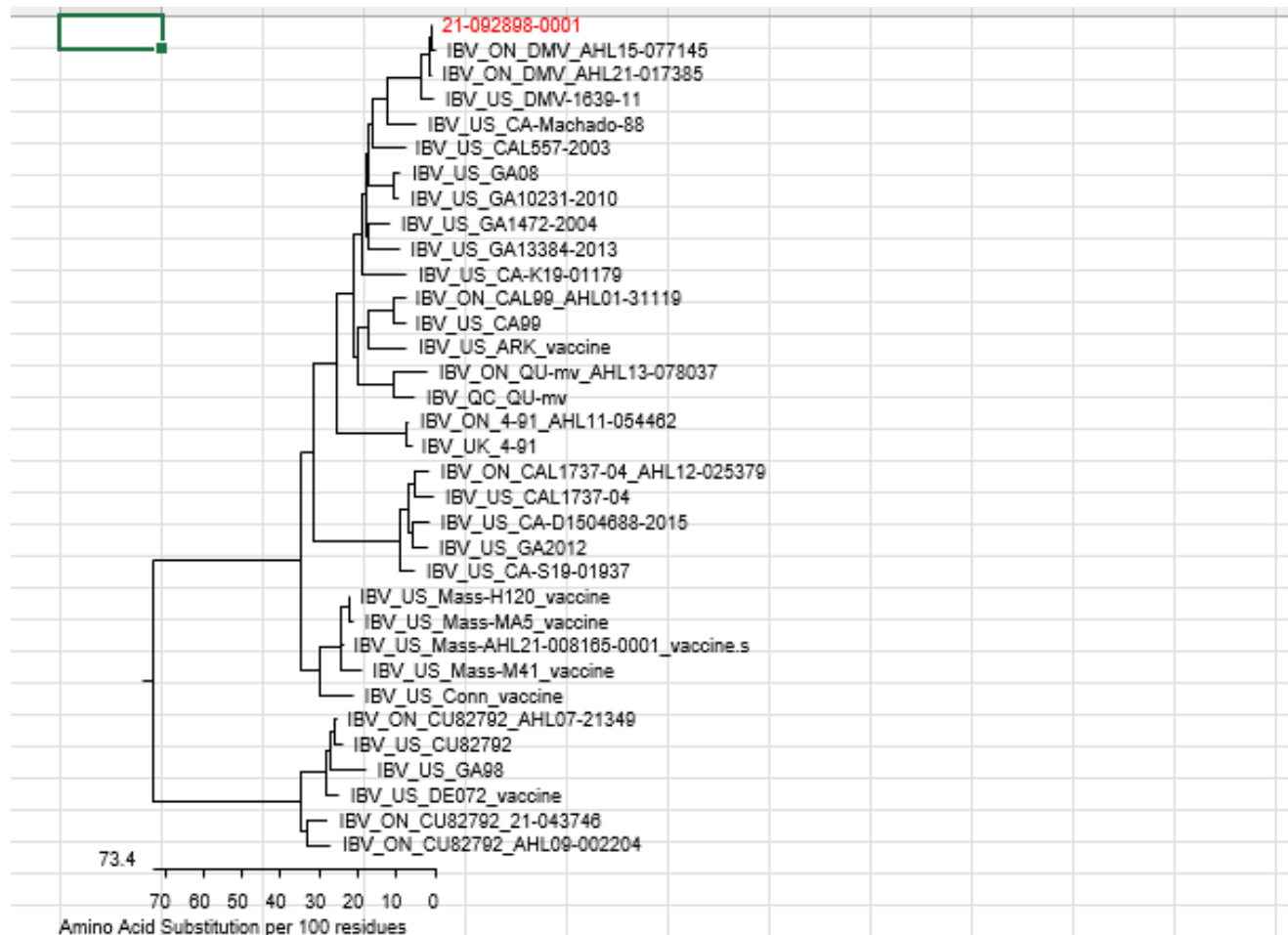
**Comments:**

Cycle threshold (Ct) is the cycle number when signal increases above the background. Ct is inversely related to target concentration – lower Ct indicates higher concentration of target nucleic acids in the sample. Ct 36.99 or less = POSITIVE; Ct 37.00 or higher = Inconclusive; Ct Not detected = Negative (the target was either not present or was below the detection limit).

# Virology Reports



- Can tell you what strain the virus is



# Bacteriology Reports



- Identifies bacteria that are swabbed
- Gives antibiotic sensitivity / resistance

**Bacterial culture** Method ID: BAC-001,002,004,006,007,011,012,013,014,015,031

Date Authorized: 2020-Feb-11 14:16

|   |  |  |  |  |
|---|--|--|--|--|
| LS Sample ID<br>Client Sample ID<br>Specimen Type | <b>20-010946-0003</b><br>Shell Gland A<br>Swab | <b>20-010946-0004</b><br>Shell Gland B<br>Swab | <b>20-010946-0004</b><br>Shell Gland B<br>Swab | <b>20-010946-0005</b><br>Shell Gland C<br>Swab |
| Tetracycline                                      |  |  | R  |  |
| Trimethoprim/Sulfa                                |  |  | S  |  |
| LS Sample ID<br>Client Sample ID<br>Specimen Type | <b>20-010946-0006</b><br>D<br>Liver            | <b>20-010946-0006</b><br>D<br>Liver            | <b>20-010946-0007</b><br>A<br>Lung             | <b>20-010946-0008</b><br>D<br>Lung             |
| Result  | Staphylococcus aureus                          | Escherichia coli                               | Staphylococcus aureus                          | Staphylococcus aureus                          |
| Level   | 3+   | 1+   | 3+   | 3+   |
| Ampicillin  | S  |  |  |  |
| Ceftiofur   | S  |  |  |  |
| Erythromycin                                      | S  |  |  |  |
| Gentamicin  | S  |  |  |  |
| Kanamycin   | S  |  |  |  |
| Penicillin G                                      | S  |  |  |  |
| Spectinomycin                                     | S  |  |  |  |
| Sulfonamides                                      | S  |  |  |  |
| Tetracycline                                      | S  |  |  |  |
| Trimethoprim/Sulfa                                | S  |  |  |  |
| LS Sample ID<br>Client Sample ID<br>Specimen Type | <b>20-010946-0008</b><br>D<br>Lung             |  |  |  |
| Result  | Escherichia coli                               |  |  |  |
| Level   | 1+   |  |  |  |

# Bacteriology Reports



- Disadvantages
  - Is the bacteria you isolate significant?
  - It takes ~5 days to get results
  - Several antibiotics on the panel can't be used in poultry

**Bacterial culture** Method ID: BAC-001,002,004,006,007,011,012,013,014,015,031

Date Authorized: 2020-Feb-11 14:16

| LS Sample ID<br>Client Sample ID<br>Specimen Type | 20-010946-0003<br>Shell Gland A<br>Swab | 20-010946-0004<br>Shell Gland B<br>Swab | 20-010946-0004<br>Shell Gland B<br>Swab | 20-010946-0005<br>Shell Gland C<br>Swab |
|---|---|---|---|---|
| Result  | Enterococcus cecorum                    | Enterococcus cecorum                    | Escherichia coli                        | No bacterial growth                     |
| Level   | 1+                                      | 2+                                      | 1+                                      |   |
| Ampicillin  |   |   | R                                       |   |
| Apramycin   |   |   | I                                       |   |
| Ceftiofur   |   |   | S                                       |   |
| Gentamicin  |   |   | S                                       |   |
| Kanamycin   |   |   | I                                       |   |
| Spectinomycin                                     |   |   | S                                       |   |
| Sulfonamides                                      |   |   | S                                       |   |

# Post Mortem Reports



- This may be the most difficult report to interpret
- Pathologists go out of their way to describe things objectively and precisely
  - Purposely do not weight findings, but describe ALL abnormalities equally
- Vocabulary is extremely specialized
  - Almost another language



# Post Mortem Reports



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**Histopathology**    **Method ID: AHL-002**

Date Authorized:            2020-Feb-19 19:20

scattered mononuclear cells and multifocal fibrin deposits. In 1 of these sections there are scattered mononuclear cells in the lamina propria of the secondary bronchus. There is also one cluster of mononuclear cells adjacent to the parabronchial smooth muscle. In the remaining section there is mild congestion and mild interstitial edema. There is mild accumulation of mononuclear cells in the lamina propria of the secondary bronchus. There are occasional parabronchi that have small accumulations of heterophils and fibrin.

**HEART.** In the single section examined there is regional interstitial edema and moderate multifocal accumulation of heterophils. There is marked intravascular accumulation of coccoid bacteria, vascular thrombi and necrosis of vascular walls and surrounding myocardial fibres.

**LIVER.** In 1 of 4 sections examined there is moderate congestion. In the remaining section there are occasional fibrin thrombi as well as occasional small areas of hepatocyte necrosis with heterophilic infiltrates.

**KIDNEY.** In the 2 sections examined there is congestion and in one of these sections there are small interstitial clusters of mononuclear cells.

**SHELL GLAND.** In 3 of 4 sections examined there is mild to marked interstitial edema. In the remaining section there is a localized area of the muscularis that has marked multifocal areas of necrosis surrounding clusters of bacteria that are forming into granulomas. One of these areas of necrosis extends into and involves the full thickness of the adjacent mucosa. In the muscularis surrounding these areas of necrosis there is moderate accumulation of heterophils and interstitial edema.

**JEJUNUM.** In 1 of 2 sections examined there are marked multifocal accumulations of coccoid bacteria surrounded by areas of necrosis that are in the mucosa, tunica muscularis and surrounding adipose.

**NOTE:** Significant findings are not evident in sections esophagus, duodenum, pancreas, ileum, ceca and magnum examined.

**HISTOLOGIC DIAGNOSES:**

Septicemia  
Heterophilic conjunctivitis  
Fibrinoheterophilic pneumonia  
Myocardial necrosis  
Hepatic necrosis  
Necrotizing salpingitis

**COMMENTS/INTERPRETATION:**

On histopathology there are lesions of fibrinoheterophilic pneumonia. There are also lesions of septicemia and in multiple organs there are areas of necrosis surrounding vessels containing clusters of bacteria.

Emily Martin

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# Interpreting Vet Reports



- Common things are common
- Some vet reports are confirming what you already know
- If not, it is important to be **SURE** you are interpreting the information properly
  - You already did all the work and incurred all the cost
  - Complete waste if you don't use the information accurately

# Interpreting Vet Reports



- In summary
  - Make sure you are turning the data into useful information
  - Vet reports are neither user friendly nor unambiguous
  - If you are not **SURE** you are getting the most out of your vet reports, involve a vet to make sure your effort isn't wasted