



The key to your profit

H&N
LAYER ACADEMY
IN DUBAI
07th to 10th

IB in the Production- Layer

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Infectious bronchitis- the disease(s)

- Initial(first) infection via respiratory tract
- Spread to kidneys, female reproductive tract – affects egg laying performance

Infectious Bronchitis

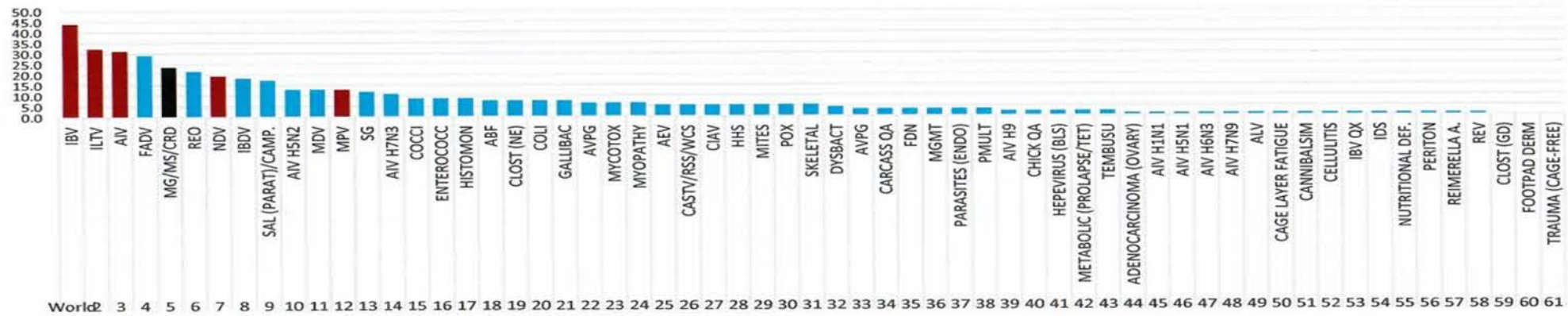
Considered by many the most economically relevant disease worldwide.



Worldwide (Emerging)



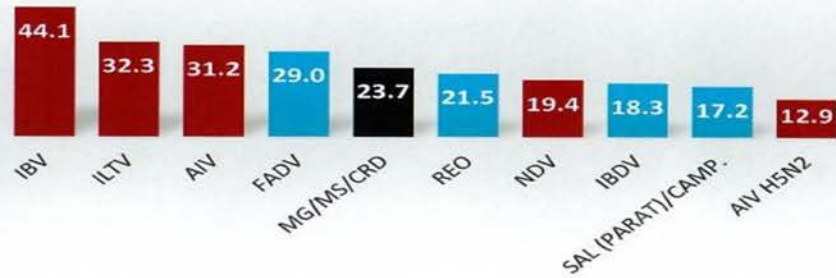
Worldwide Emerging (1-61)



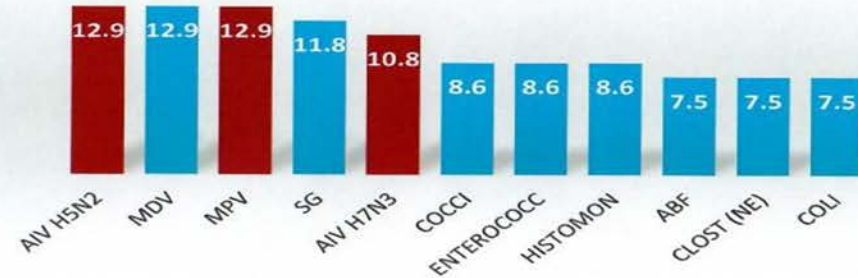
Worldwide (Emerging)



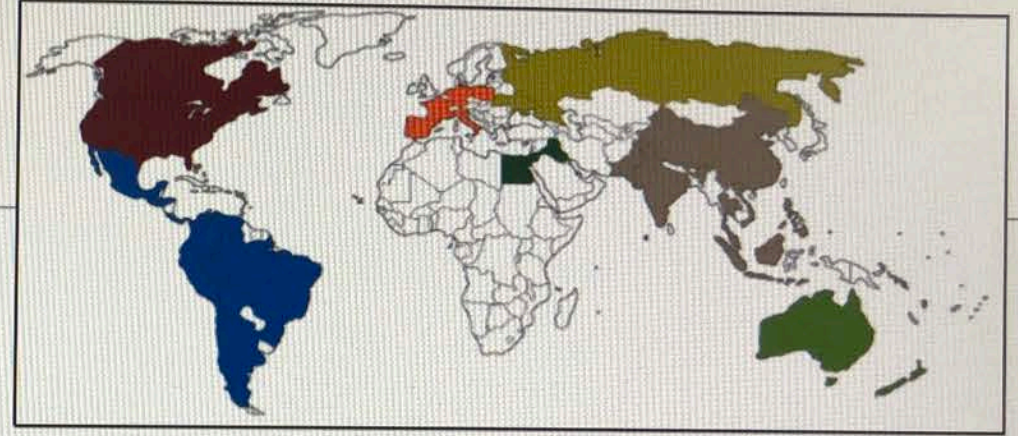
Worldwide Emerging (1-10)



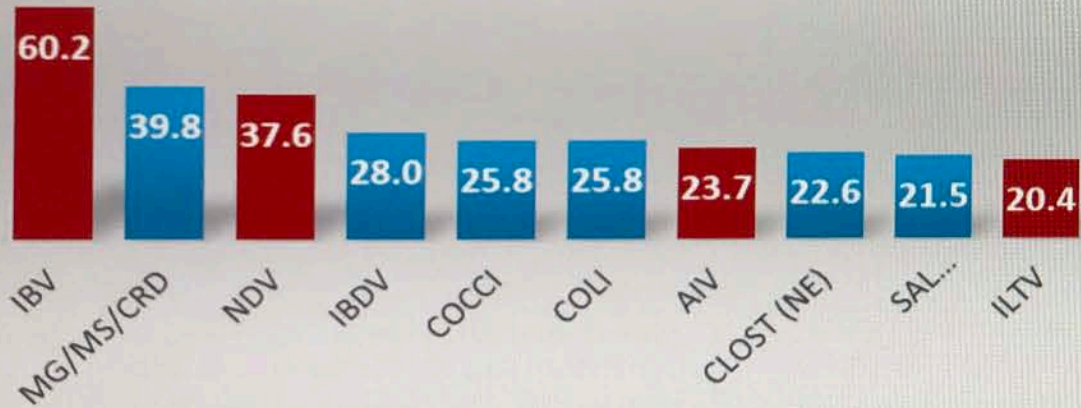
Worldwide Emerging (11-20)



Worldwide (Econ.)



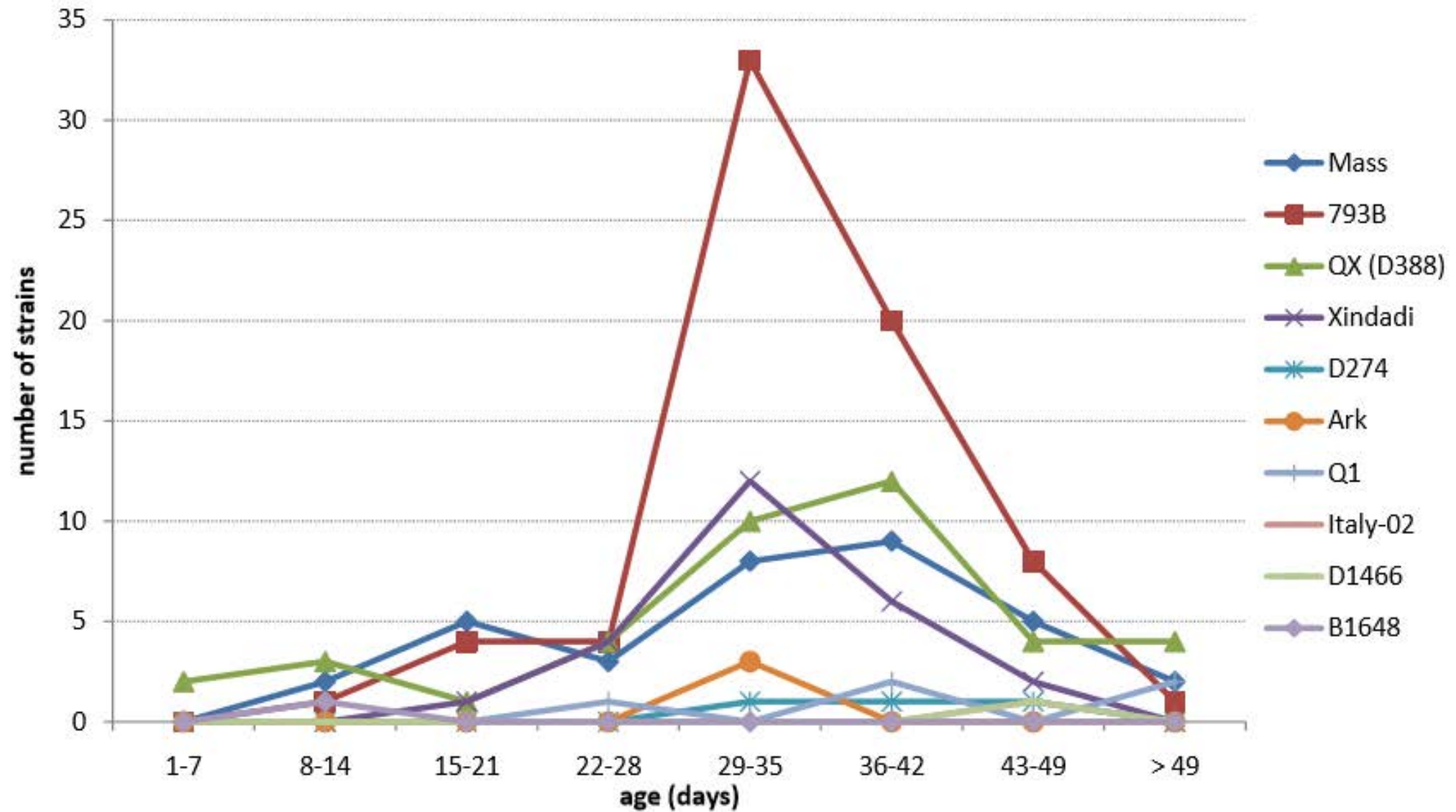
World Economically Important (1-10)



World Economically Important (11-20)

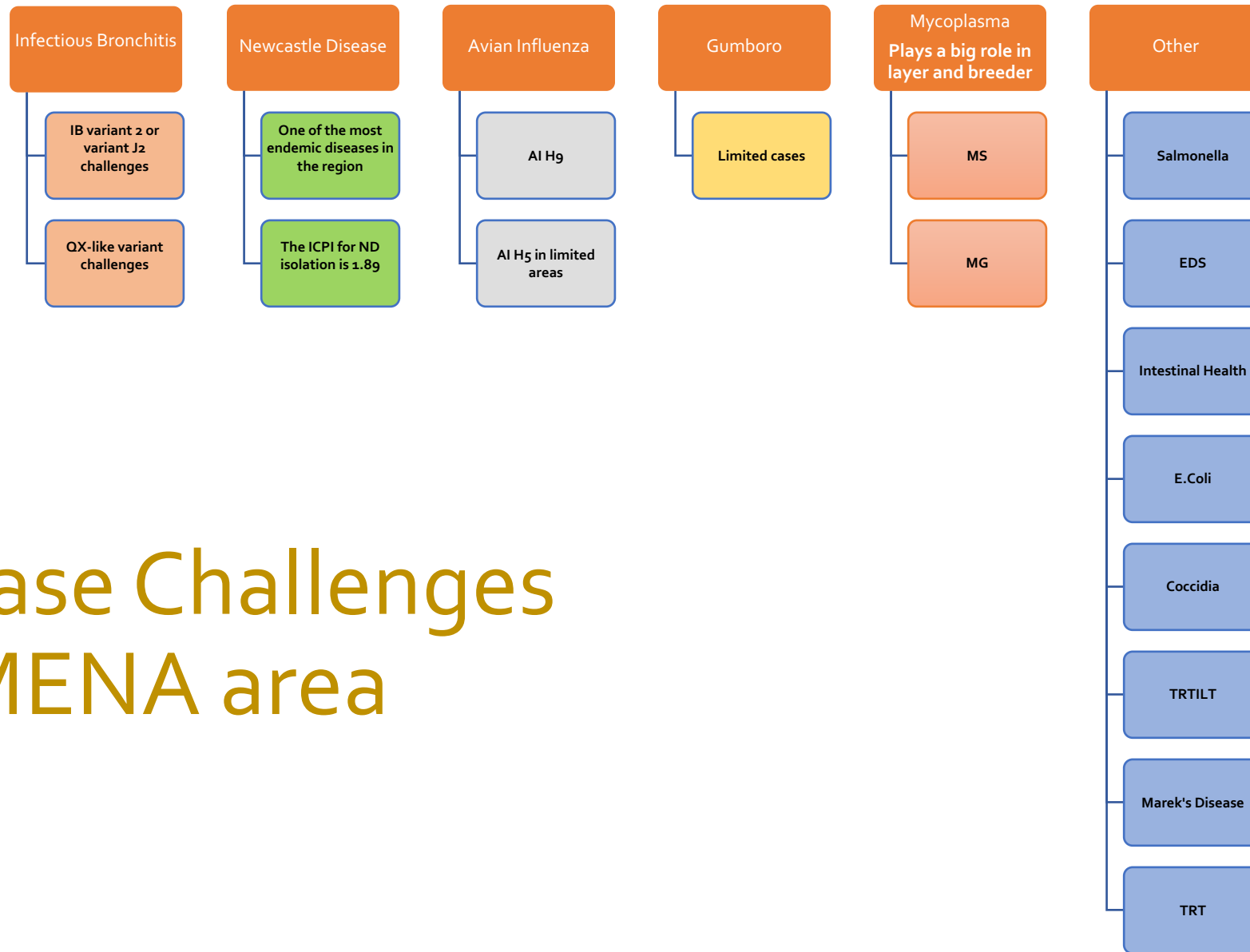


- 214 flocks showed signs of respiratory distress: 89% IBV positive.



Top listed Poultry Diseases – Asian area

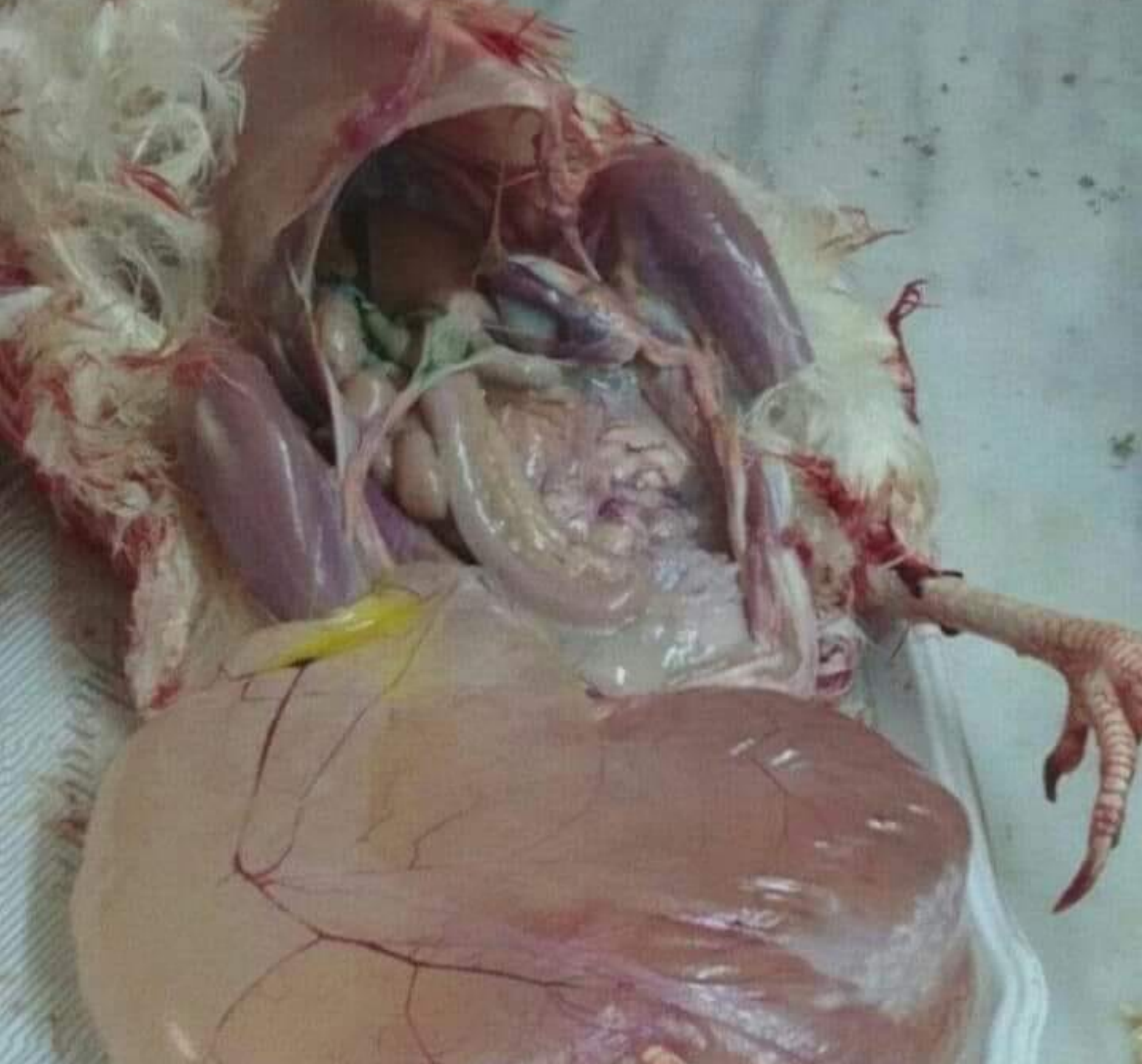
| | CHN | ROK | IDN | IND | JPN | PHL | PAK | LKA BGD | TWN | THL | MYR | VNM |
|----|----------|-------|-------|-------|-------|----------|---------|------------|-------|------|-------|-------|
| 1 | RC | SG | ND | IB | IB | ND | AI | IB | Coli | IB | ND | APV |
| 2 | IB | IB | NE | IBD | IBD | IB | ND | ND | ND | MG/S | IB | ORT |
| 3 | AI(L/HP) | MS/G | Cocci | ND+AI | Cocci | IBD | IB | MD | IBD | IC | IBD | IBD |
| 4 | MG/S | APV | IB | IBH | NE | ILT | CR D | ILT | MG/S | IBD | MG/S | MG/S |
| 5 | NE | Cocci | APV | CAV | MG | MG/S | Sal | MG | APV | | Cocci | ND |
| 6 | Cocci | NE | MG/S | MD | ILT | Reo | IBD | APV | PD | | Coli | IB |
| 7 | Sal/Coli | ILT | IBD | ILT | APV | APV | IBH | REO | MD | | NE | AI |
| 8 | IBH | MD | Coli | APV | Coli | Cocci | NE | IBH | Cocci | | Ecto | IC |
| 9 | IC | IBD | SMS | MG | | NE | CAV | ORT | CAV | | Pox | Cocci |
| 10 | APV | CAV | AI | IC | | Sal/Coli | Reo | IC | ILT | | IC | NE |



Disease Challenges MENA area

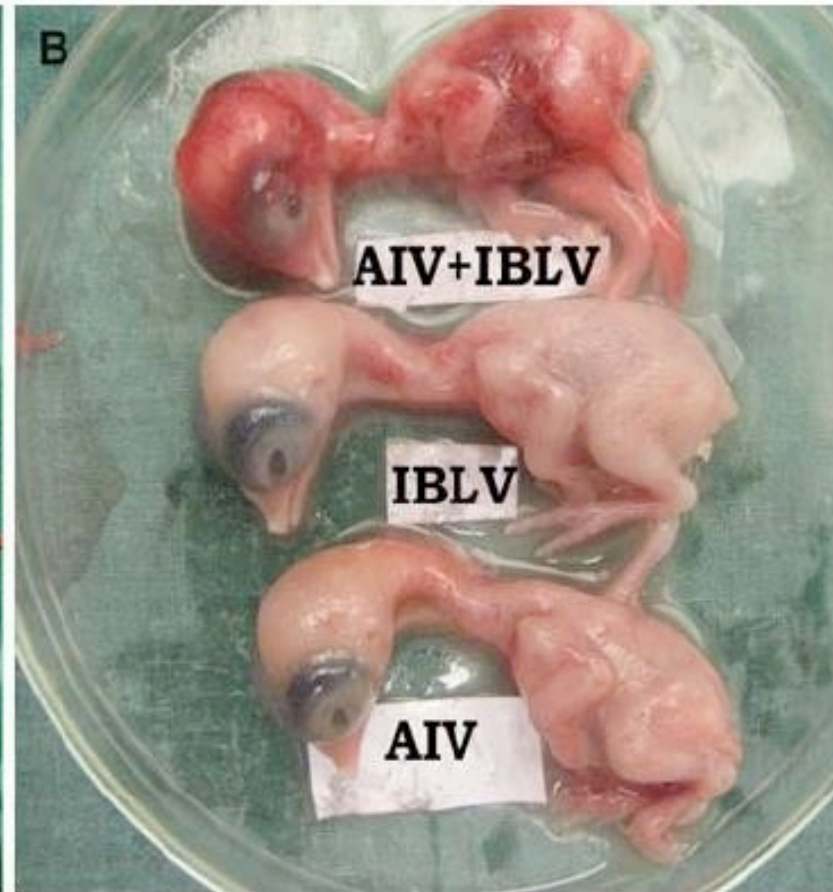
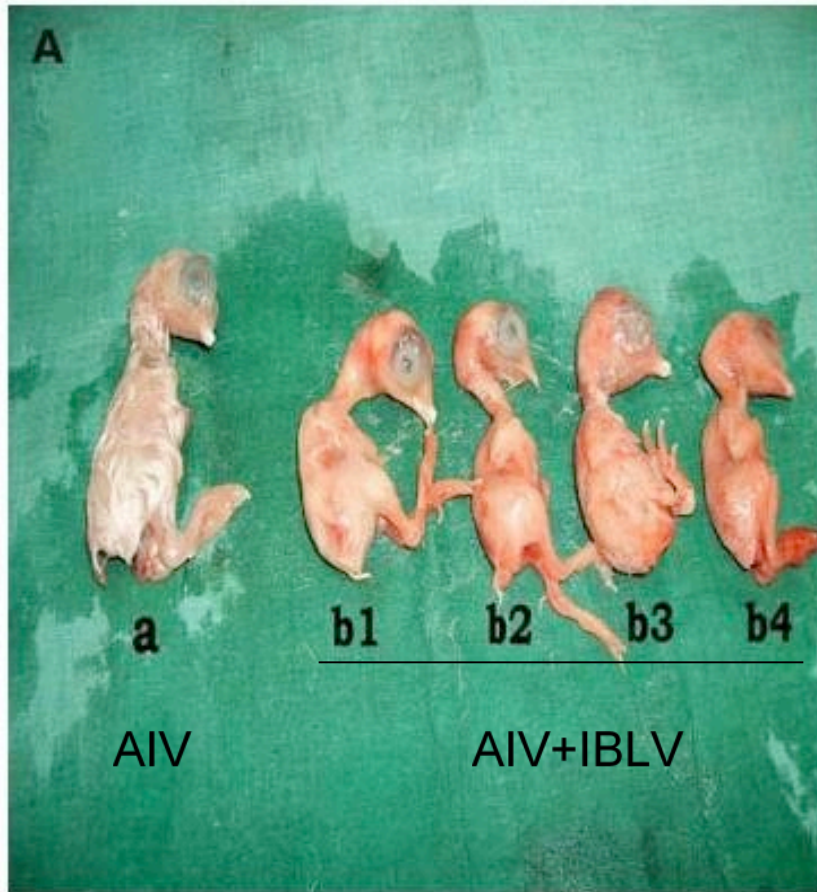


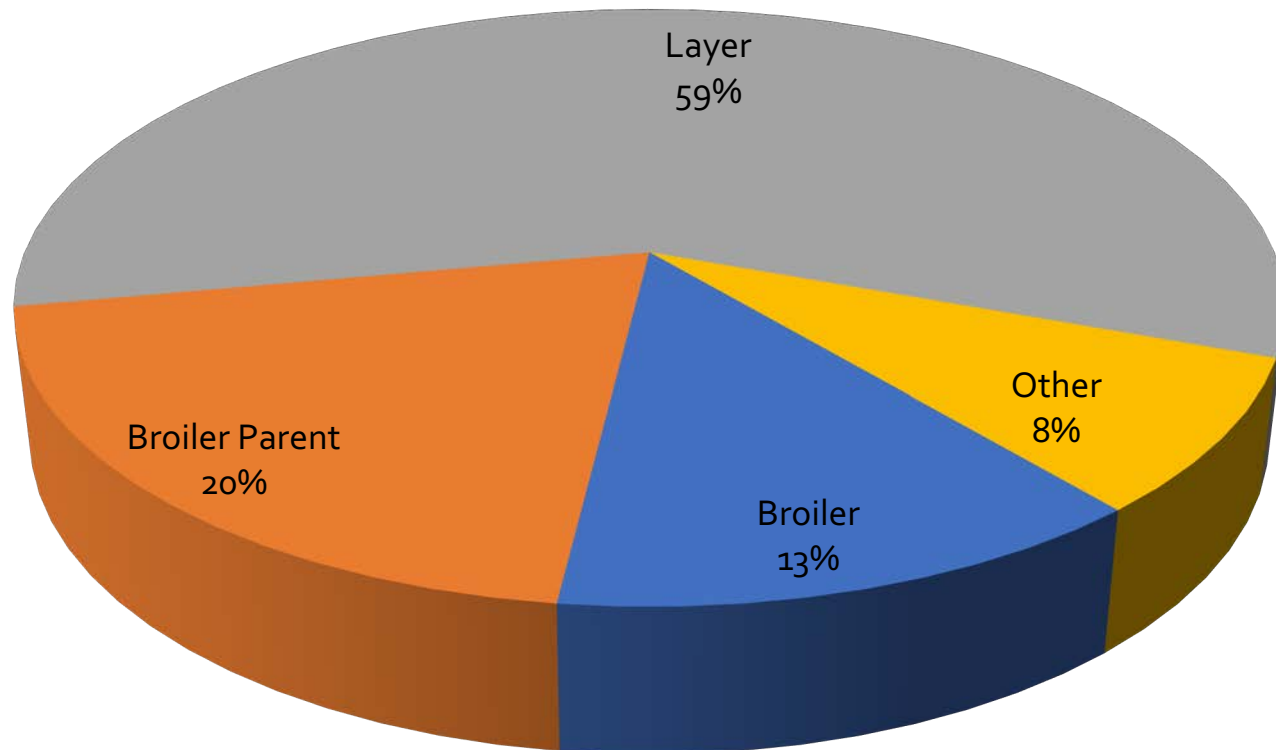




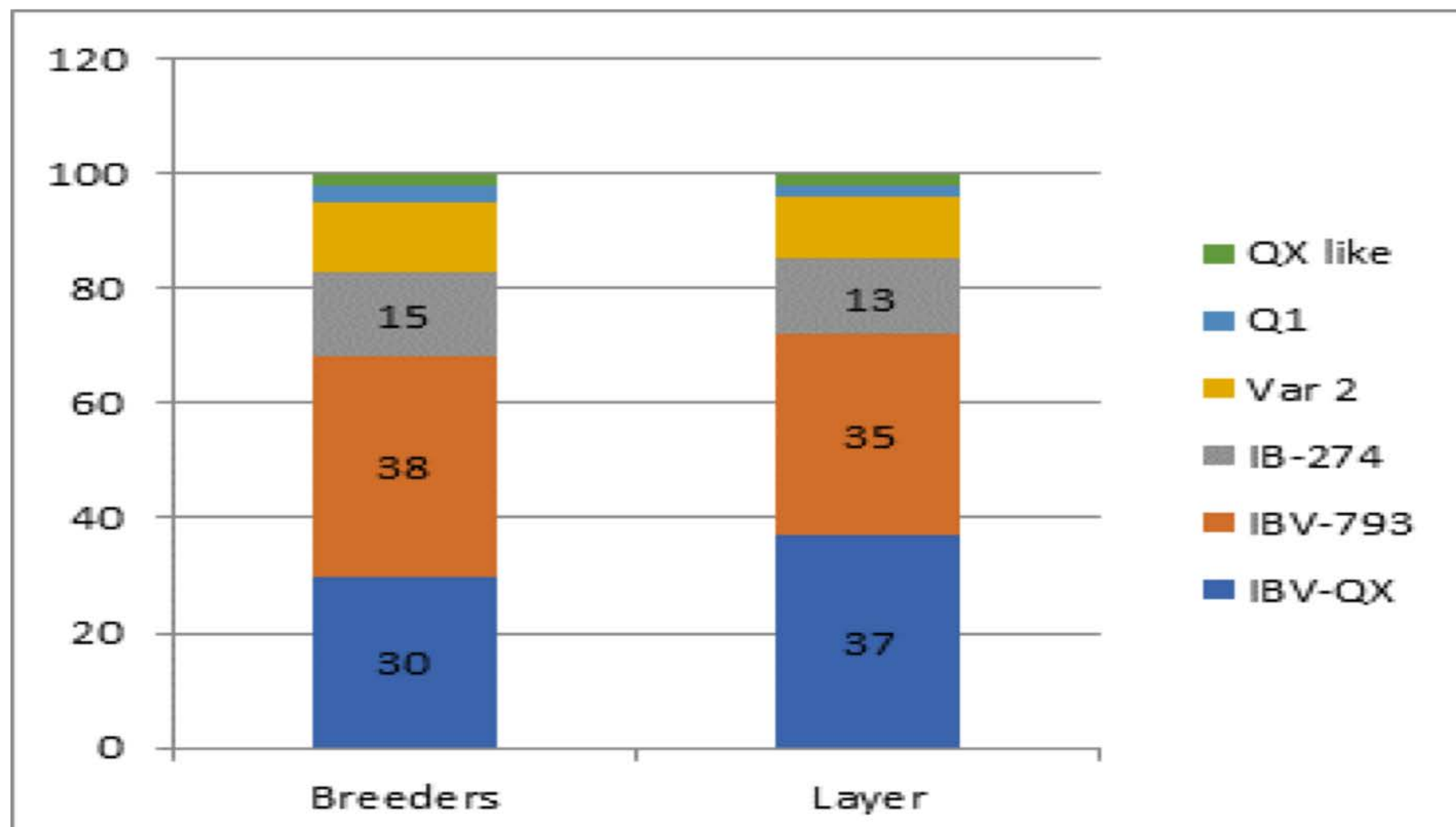








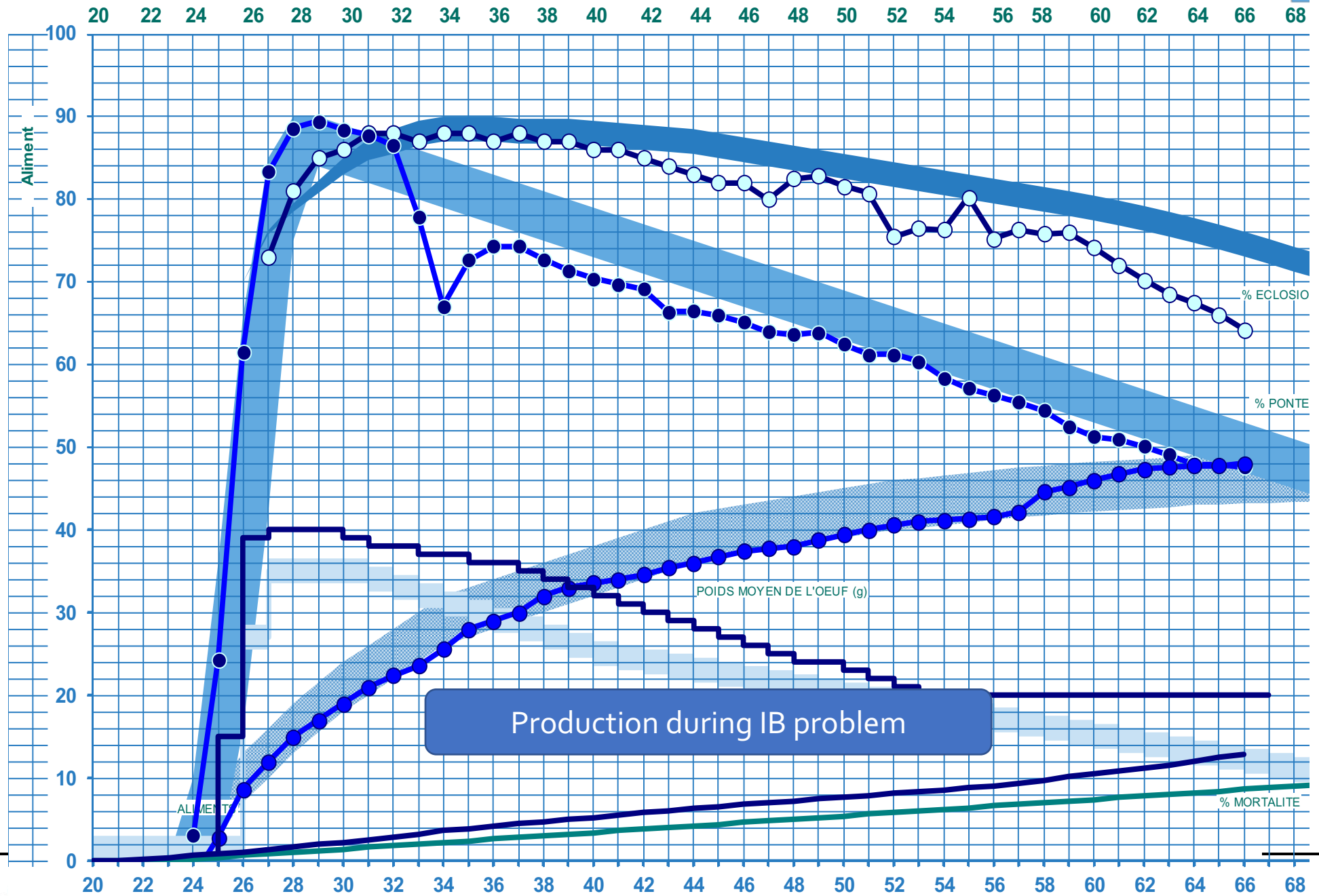
No of Submissions - 253



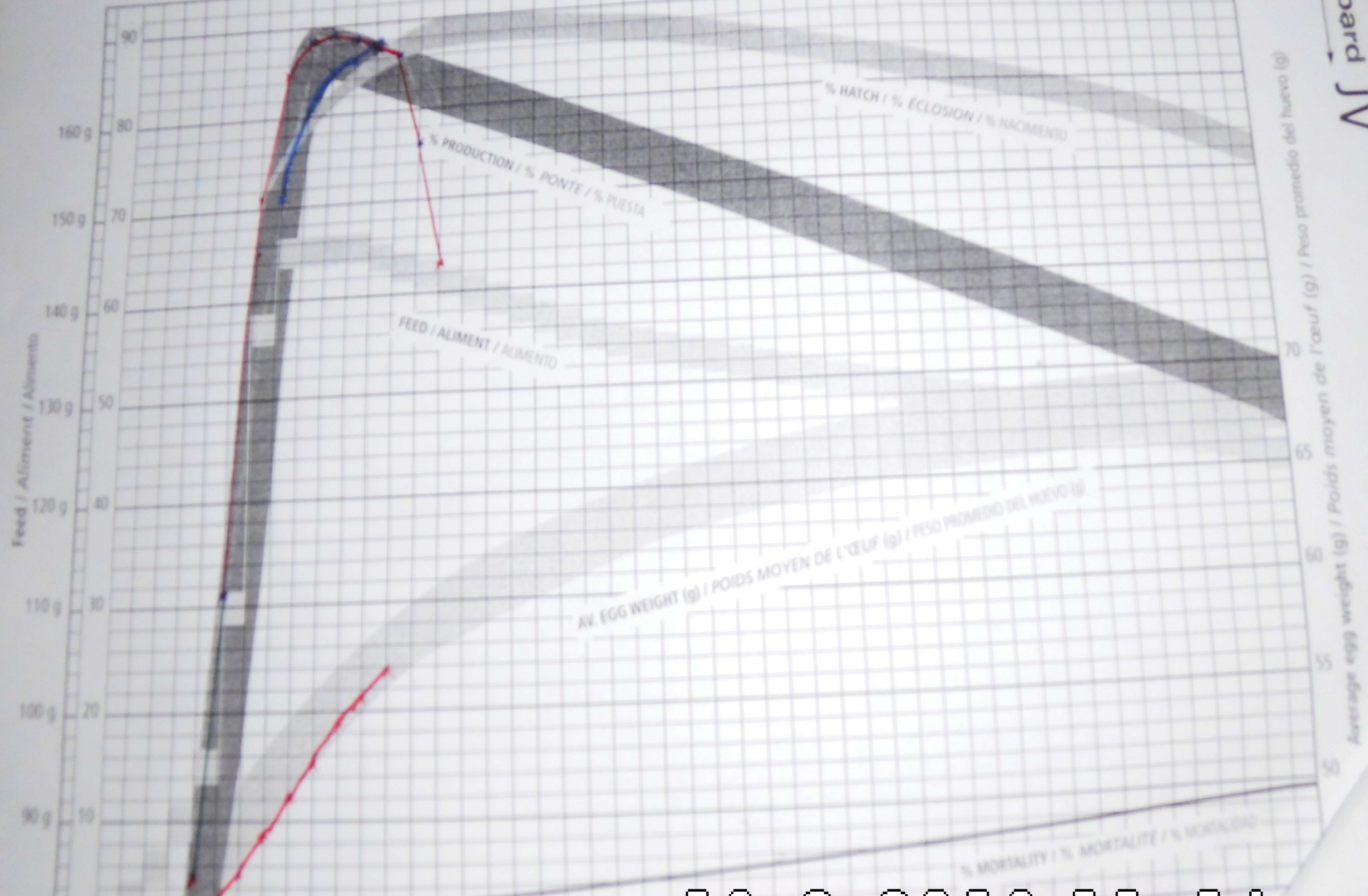
Why is IB still a problem?

- Highly infectious
- Persistent in the birds
- Fast dissemination.
- RNA virus - mutations
- recombination's
- Causes different diseases
- **Many different serotypes**





Production



Normal surface of the trachea covered by cilia.



After an IB infection the cilia on the cell's surface are destroyed. The mucous producing Goblet cells can easily be recognized. The bare tracheal surface is open to secondary (bacterial) infections



What can be done to improve control of IB variants?

First things:

- Attention to improving management and biosecurity
- Careful use of available vaccines.

This may not be enough:

- Apply the “protectotype” concept.
- Consider using an IB vaccine to a variant + Mass strains in the programme to get broad protection
- Application is very important .

Infectious Bronchitis

Effect of IB infections on layers and breeders at different ages

IB may cause
'false' layers



IB may cause
- production problems
- respiratory signs



1-10 days
of age

rearing
IB causes only
respiratory signs

±18 wks ± 75 wks
of age

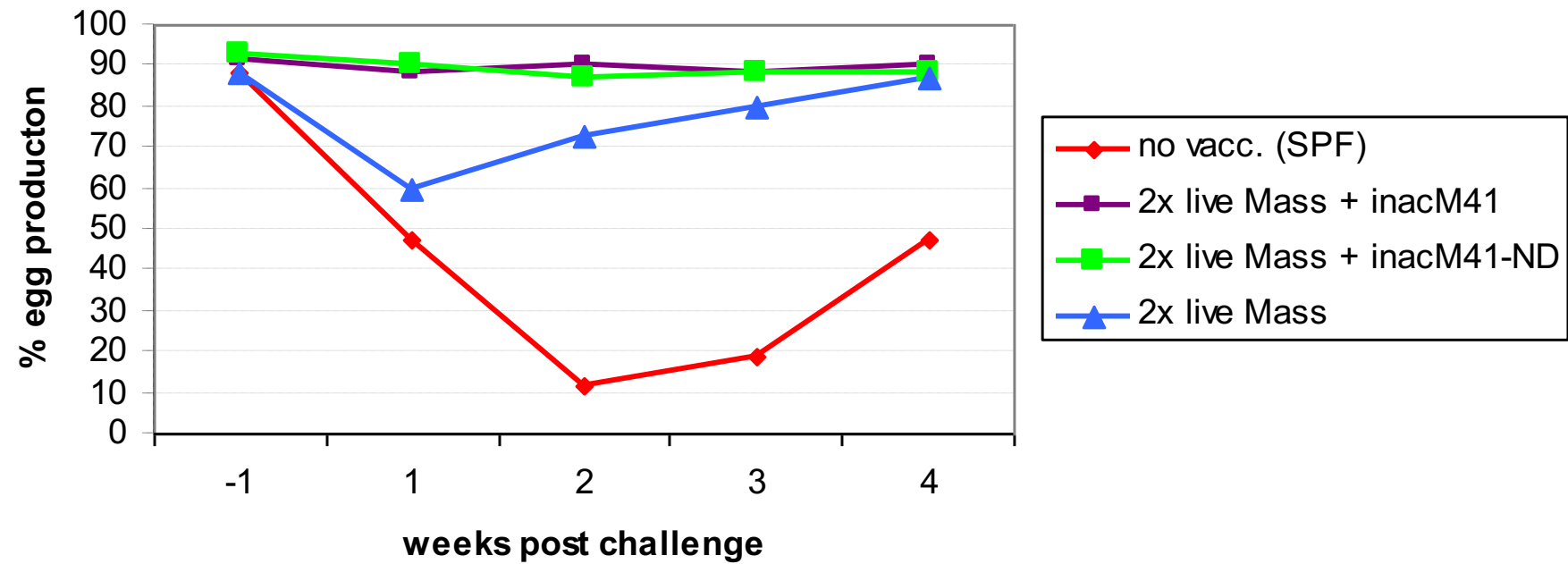
Scientific papers about protection of layers and breeders against IBV challenge

- Very limited number of papers

BOX, Veterinary Record 1980

- Mass challenge (aerosol) layers and 10 SPF birds at 31 weeks of age
 - Live Mass priming at 4 and 8 weeks
 - Inac boosting at 16 weeks

Egg production after IBV Mass challenge (wk 31) in layers (Box, Vet Rec, 1980)



Box, Veterinary Record (1980)

| Live priming | Inactivated vaccin | Mean HI M41 titre at Mass challenge | Drop in egg production |
|--------------|--------------------|-------------------------------------|------------------------|
| no | no | 3.2 | 77.2% |
| 2x Mass | no | 5.2 | 28.6% |
| 2x Mass | Inac M41 | 10.1 | 2.8% |
| 2x Mass | Inac M41+ND | 9.9 | 5.8% |

Conclusions of experiments by Box *et al*

- Boosting with inactivated vaccines increased the protection against damage of the oviduct/ovary after IBV challenge
- The higher level of protection against egg drop after IBV challenge is correlated with higher HI-titre (more is better)
- Best results after live priming and boosting with inactivated vaccine

Protection against variant strains

- For many variants a homologous priming + inactivated vaccine with same strain is not available
- Broad heterologous priming useful?
- Antigens in the inactivated vaccine?

Level of D388/QX virus neutralizing antibodies in breeders (non-D388 vaccines)

| Group | | Mean log ₂ VNT titer (SD) | | |
|-------|-----------------|--------------------------------------|--------------------------|---------------------------|
| | | Day 0 | 4 weeks post first Inact | 10 weeks post first Inact |
| A | Live | <7 | 7.0 | <7 |
| B | Live, Inact IB2 | <7 | 8.9 | 8.8 |
| C | Live, Inact IB3 | <7 | 9.0 | 9.3 |

Heterologous live priming and heterologous inactivated vaccines induced a high level of virus neutralizing antibodies against the D388/QX variant

More antibodies correlated with more protection against challenge

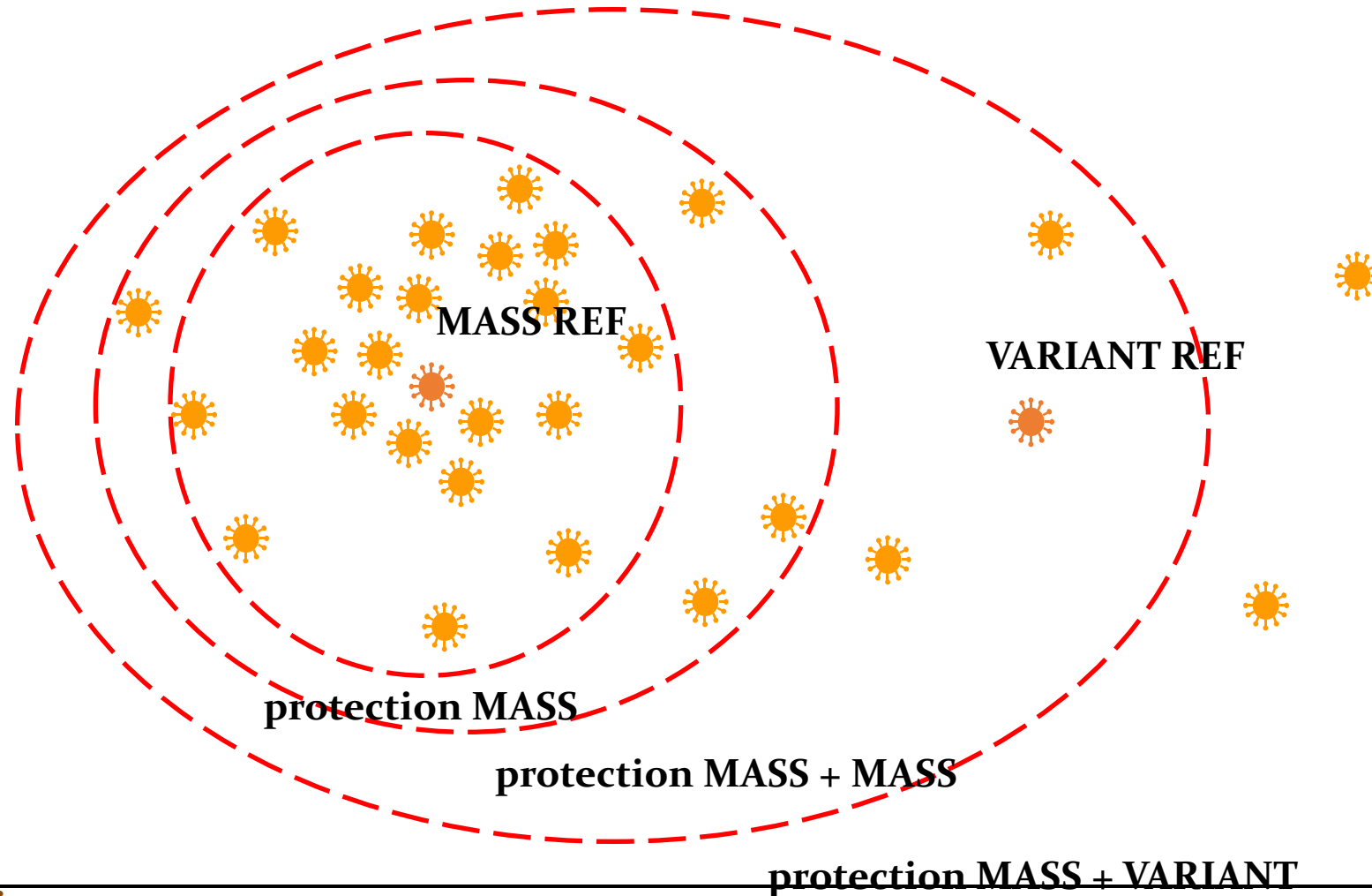
Conclusion priming/boosting

- broad live priming is helpful to induce more in neutralizing antibodies against more strains
- more strains in inactivated vaccine is helpful to induce more antibodies more strains
 - also dependent on strains, amount and quality of antigen per dose, adjuvant and application

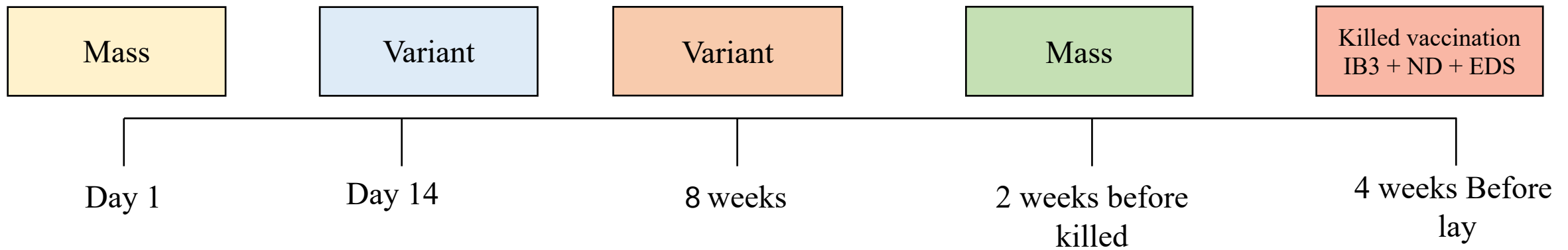
Summary

- Laying birds:
 - boosting with inactivated IBV vaccines helps to get higher antibody titers (related with higher protection).
 - a good live priming is important.
 - a broad heterologous priming is advised.
 - more strains in inactivated vaccine can help to induce more antibodies against other strains
 - not every variant needs its own vaccine (nor live nor inactivated)

I.B. VACCINATION: ADJUSTED TO THE EPIDEMIOLOGICAL CONTEXT



Vaccination Program Against IBV



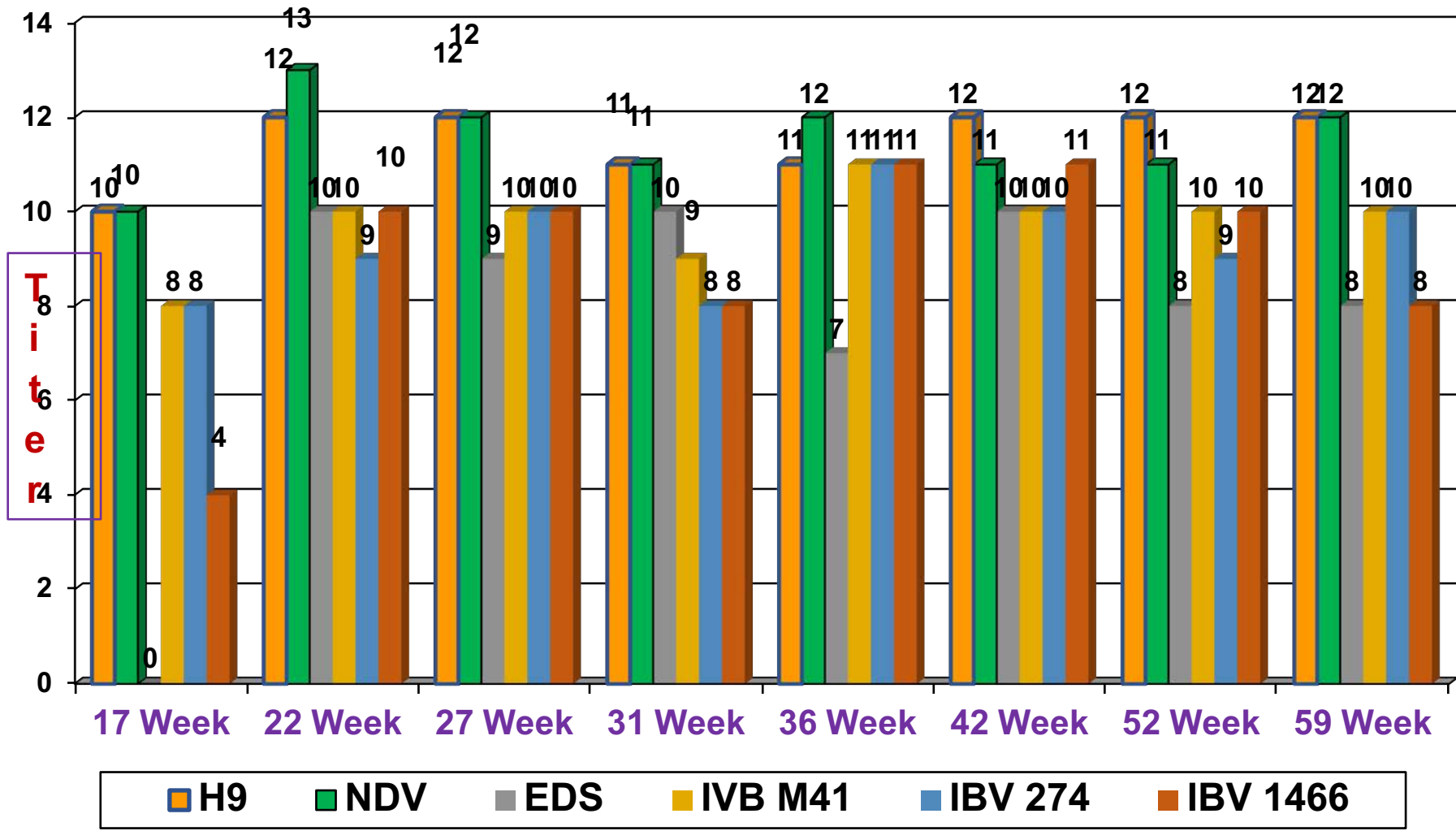
We advised Every 6-8 weeks after peak to have good local immunity during production

Filed data after using our IB₃+ND+EDS

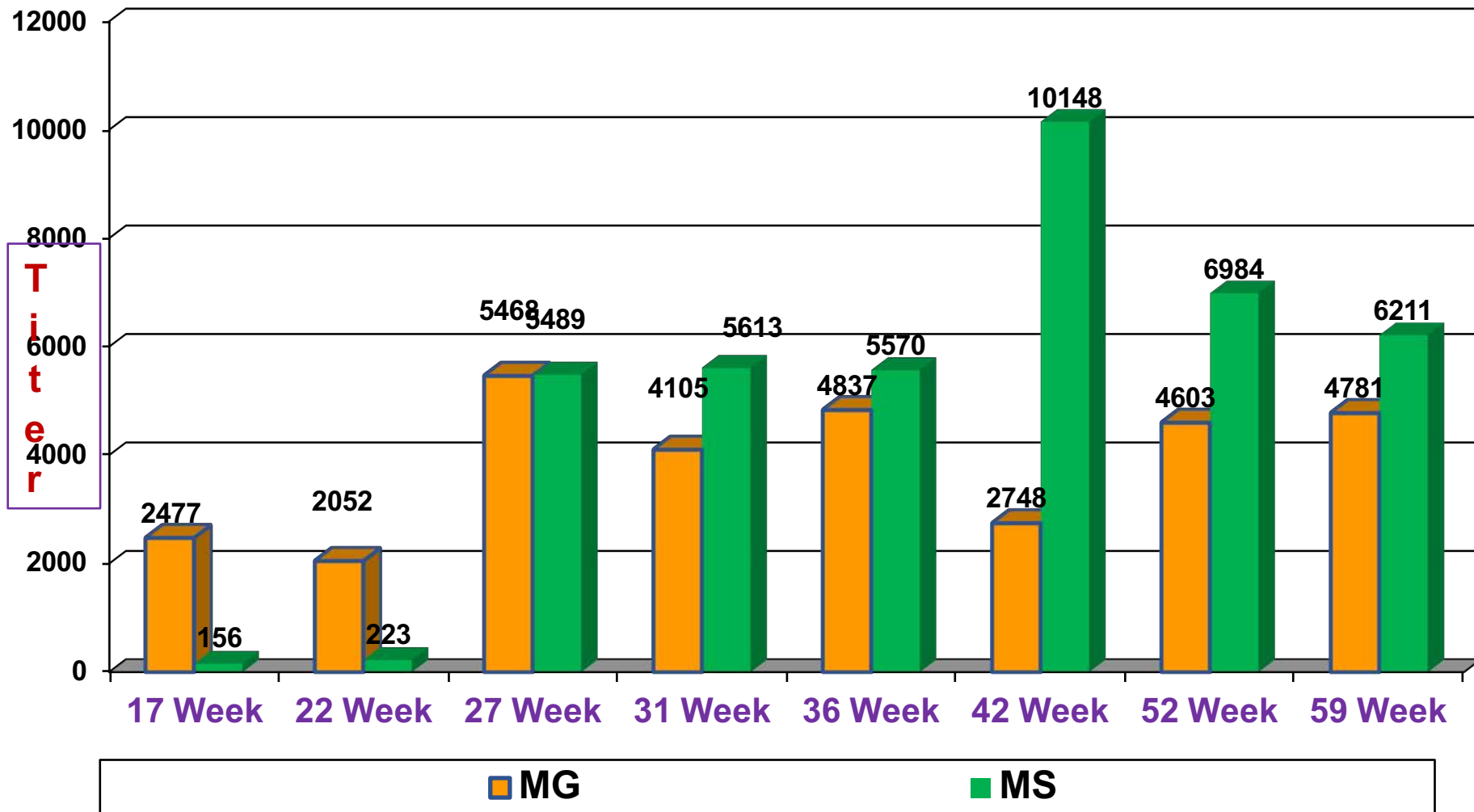
Case History

- A farm of 60,000 layer birds was chosen.
- The flock monitored was given @ day 1 IBV-Mass, @ day 14 CHB and @ 13 weeks IBV- 793, Then it was given inactivated boosting of IB₃ vaccine (Mass, 274 and 1466 strains) @ 17 weeks.
- Monitored monthly starting from age of 16 weeks until 42 weeks of age.

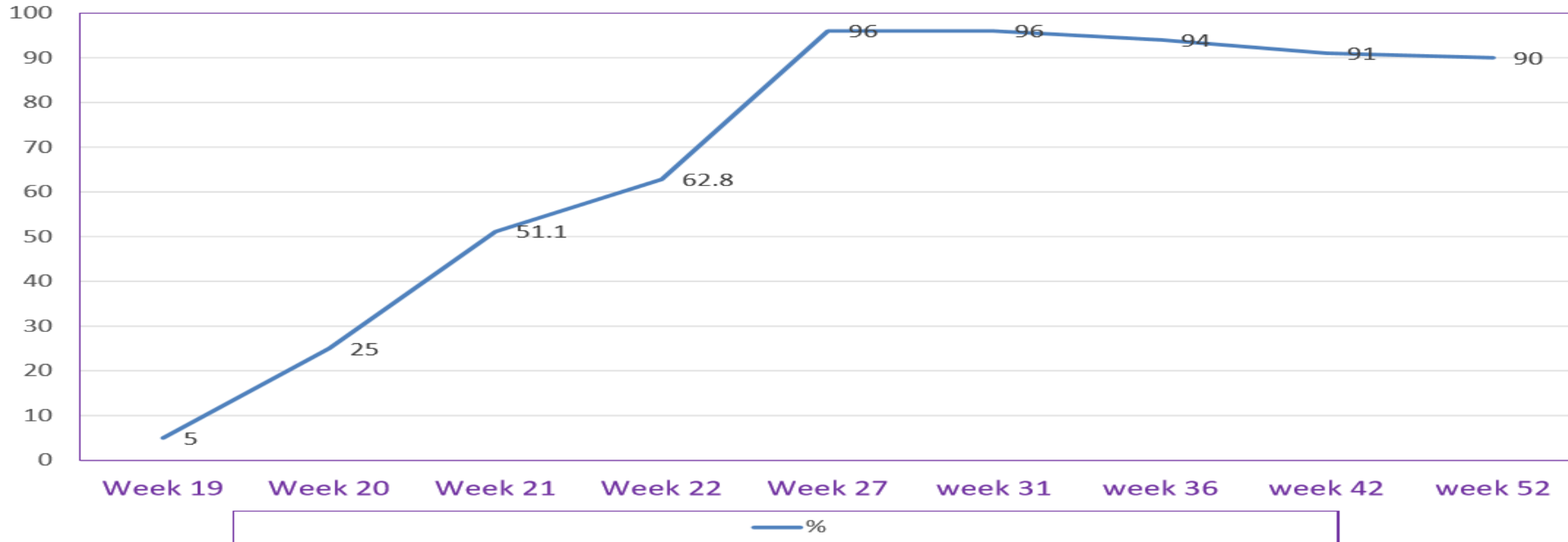
X Farm HI Test



Mawares Farm Elisa Test



Production Curve %



In conclusion, It was noticed that induction of the IB₃ vaccine (Mass/274 and 1466)

- Increased the protection against several IBV strains even in the present of MS challenge, which helps in reduction of MS damage compared to previous flock, before starting the vaccine,
- Also, it provides high level of protection against egg drop.
- Boosting with inactivated IBV vaccines helps getting higher antibody titers, which is related with higher protection.
- Presence of more strains in inactivated vaccine can help to induce more antibodies against more strains



Let the chicken talk



When & How to send To the Lab Samples



Use of Serology in Flock health monitoring programs

SEROLOGY IS USED FOR...



- Diagnostics

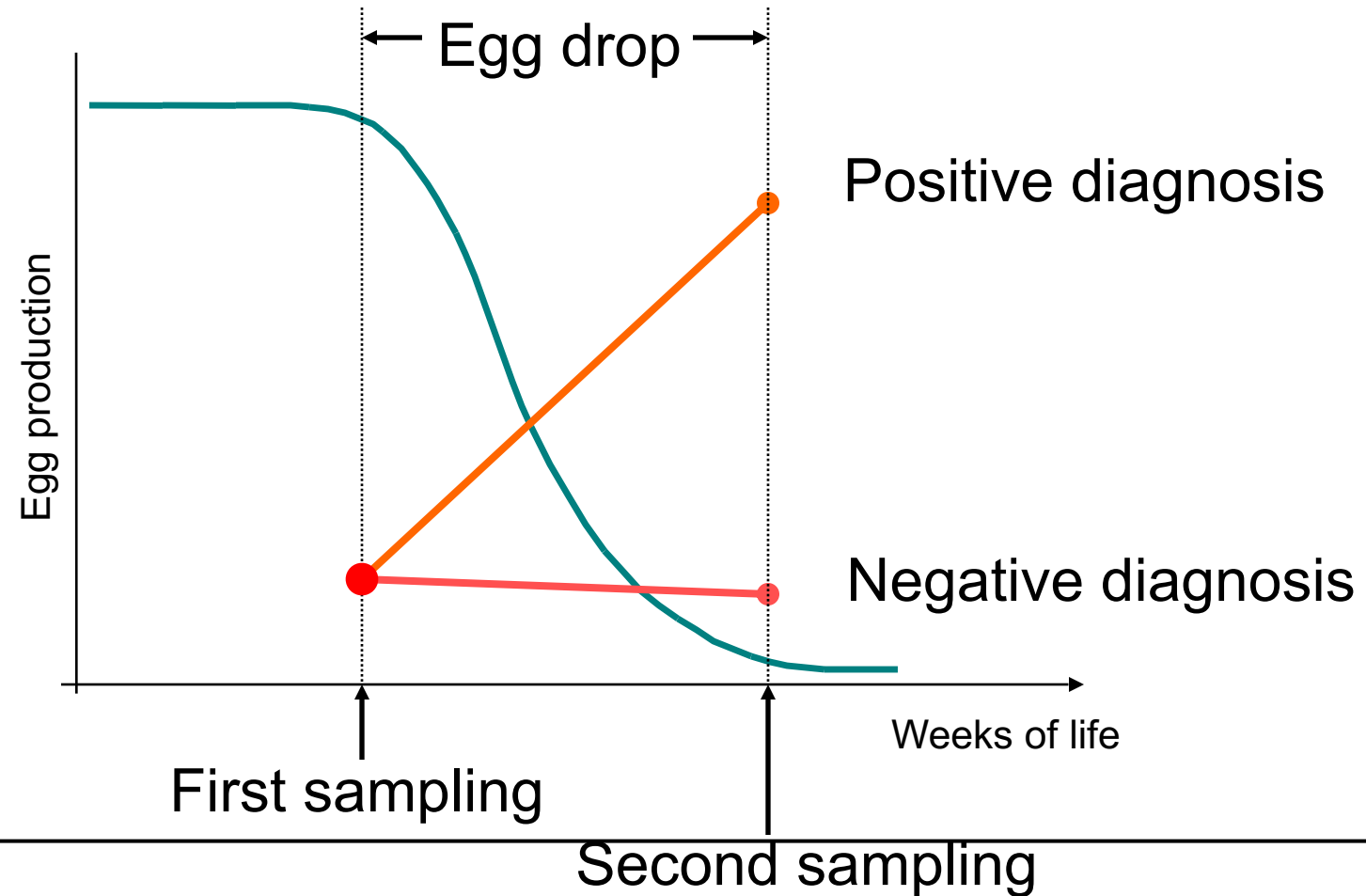


- Monitoring

...one problem remains:

INTERPRETATION

The Use of paired sera

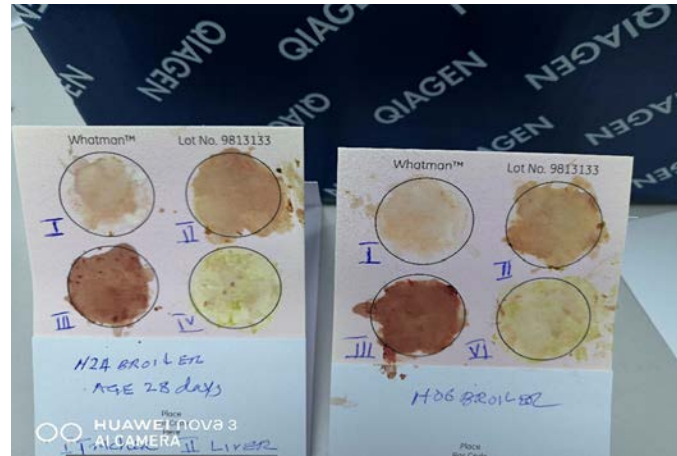


Sampling Protocol: tracheal and cloacal swabs

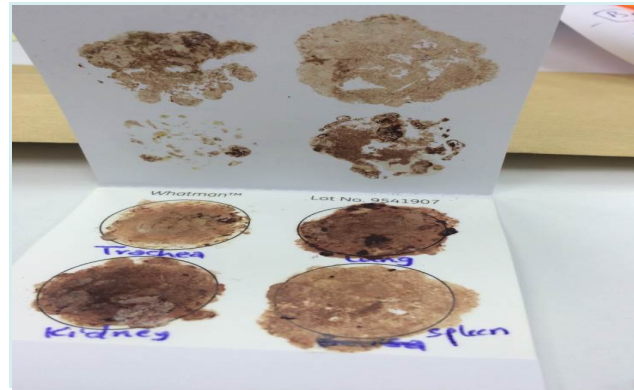




FTA Cards Quality



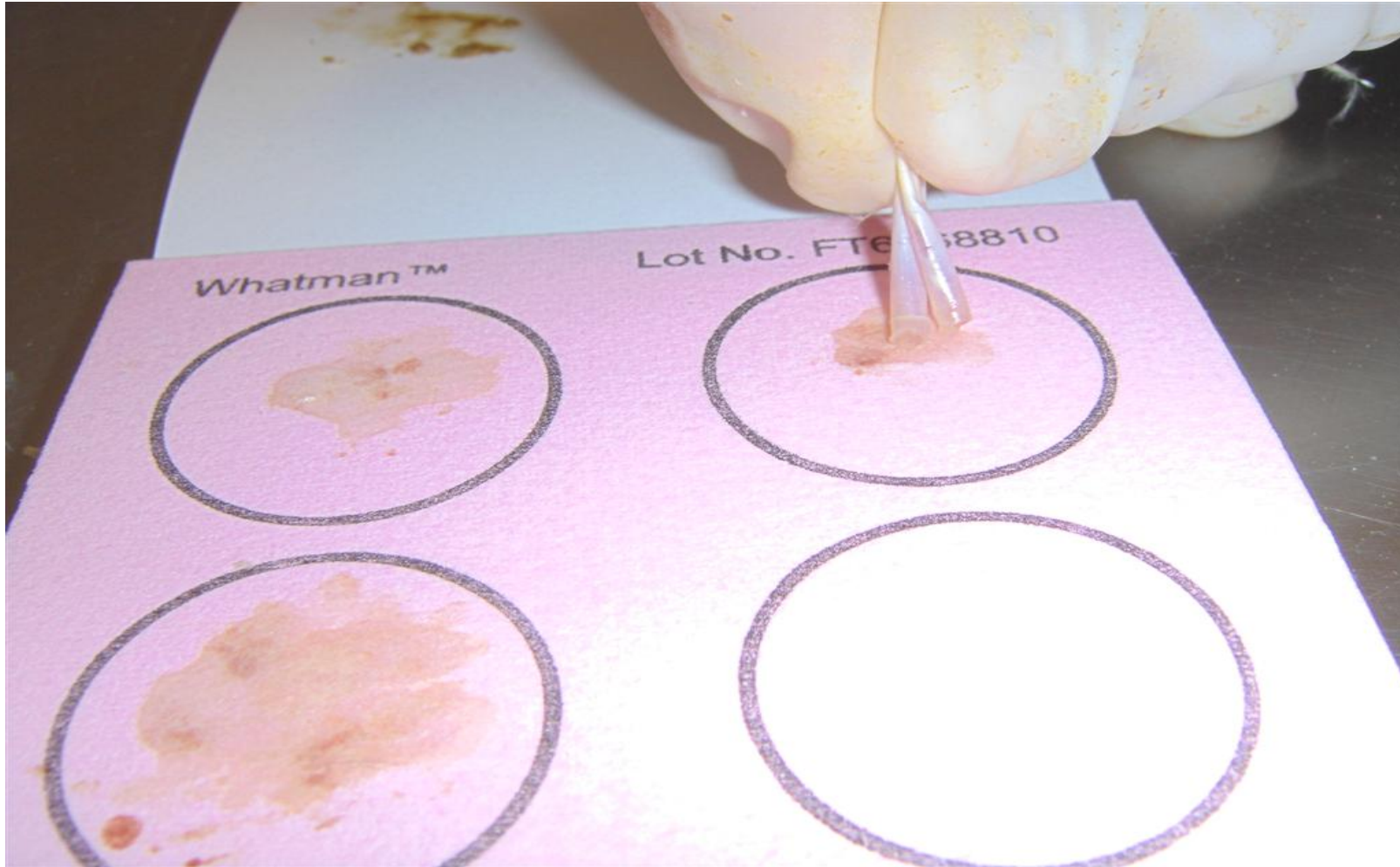
FTA Cards Quality-Continued



Samples for Marek



10 feathers /bird



Chicken Lifestyle

Thank you !

