MAR 24

# GLOBAL PROTECTION SERVICE

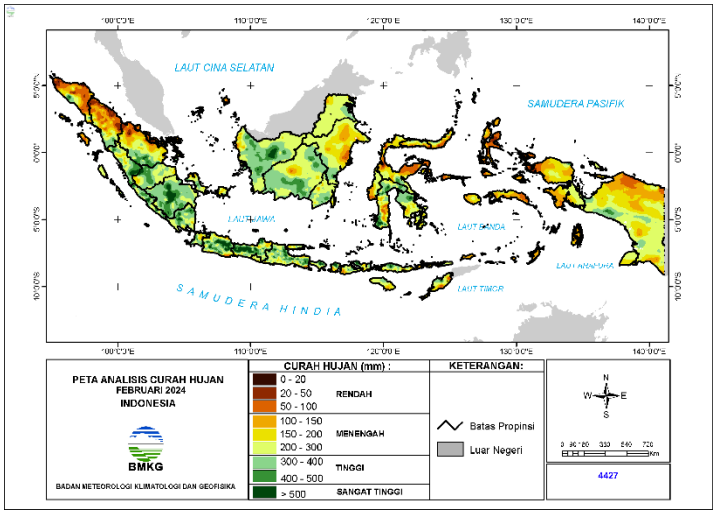
## DISEASE SURVEILLANCE REPORT
## Ceva Animal Health Indonesia

# Seven Most Reported Poultry Diseases in February 2024

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Monitoring diseases program have been carried out in the centres of poultry farming areas in two major islands in Indonesia, Sumatra and Java. Data collection was carried out by a team of veterinarians from Ceva Animal Health Indonesia in their responsibility areas. The diagnose was based on clinical symptoms and post-mortem analysis of the affected flocks. Laboratory tests for confirmation were carried out whenever necessary and possible.

The BMKG data analysis for February 2024 showed, the average relative humidity (RH) in the atmosphere generally ranges between 60 - 72%. The average surface temperature in February 2024 is 27,4°C – the highest at the same month since 1981. Overall, Indonesia have an increased of 0,9°C surface temperature compare to the normal range. Rainfall analysis for February 2024 were medium criteria (64%). 76% of Indonesia's territoriy were showered by rainy season. Detail of this weather report can be access in https://www.bmkg.go.id.



Extreme season are a tough challenge for farmers in providing comfortable and fresh air exchanges inside the houses. Failure of rearing management to anticipate the weather changes can cause the emergence of various diseases in poultry houses. In February 2024, there were total of 65 cases reported from 23 different diseases or condition – broilers reported 33 cases while layers reported 32 cases. Seven most prominent diseases will be explained further based on the area of occurrence. From the highest, those seven diseases are Complicated Chronic Respiratory Disease with 11 report or 17% of the total reports, followed by Infectious Bronchitis with 9 reports (14%), Heatstress with 5 reports (8%), Newcastle Disease, Chronic Respiratory Disease, Feed Quality and Coccidiosis each with 4 reports (6%). Other diseases were Infectious Bursal Disease with 3 reports (5%), Avian Influenza H9, Mycotoxicosis, Infectious Coryza, Necrotic Enteritis, Neonatal coli and Aspergillosis each with 2 reports (3%). And the rest of the reports are Avian Enchepalomyelitis, Fowl Pox, Helminthiasis, Post Vaccinal Reaction, Mismanagement, Dysbacteriosis, Slowgrowth and DOC Quality each with 1 case (2%) consecutively.

## CCRD

Complicated Chronic Respiratory Disease is a complicated condition mostly related to failure of rearing management in overcome the negative effects of the extreme weather. With the weather as previously described by BMKG, it is very likely to CCRD becoming the first reported cases in February 2024. Its came with a total of 11 reports or equal to 17% of total reports - all reports were from broilers. CCRD reported areas can be seen in Figure and Table 1.

| Areas | Species | No of Cases |
|---|---|---|
| Paya Bakung, North Sumatera | Broiler | 1 |
| Binjai, North Sumatera | Broiler | 1 |
| Batang Kuis, North Sumatera | Broiler | 1 |
| Banten, Banten | Broiler | 2 |
| Bogor, West Java | Broiler | 2 |
| Subang, West Java | Broiler | 1 |
| Bekasi, West Java | Broiler | 1 |
| Pati, Central Java | Broiler | 1 |
| Ponorogo, East Java | Broiler | 1 |

The term "complicated" in Complicated Chronic Respiratory Disease means that this disease caused by multiple factors, which includes non infectious factors like extreme weather, high humidity, poor water sanitation and poor ventilation management, or infectious factors such as virus (IB, ND, AI, ILT), bacterial (E. Coli, Mycoplasma sp) with E. Coli isolation as the most dominant bacteria. Primary agents (e.g., field a nd vaccine strains of infectious bronchitis virus and Newcastle disease virus, mycoplasmas, avian metapneumovirus in turkeys, dust, ammonia, etc.) injure the respiratory mucosa, allowing E. coli to enter the blood stream. There is airsacculitis of varying severity, and the lesion is usually of long duration.

This expression of the disease used to be called chronic respiratory disease or CRD when Mycoplasma gallisepticum was the initial insulting agent. Infected air sacs are thickened, opaque, and may contain caseous exudate. Other respiratory lesions include pneumonia (more frequent in turkeys), pleuritis (more frequent in chickens), and pleuropneumonia. In addition to airsacculitis and lung lesions, affected birds

usually have peritonitis and other lesions consistent with bacterial septicemia. The success keys to solve CCRD problem is, determine the initial cause of the complex, if its related to management factors, do the improvement, when it is related to viral infection such as IB or ND, improve the protection against the virus by vaccination and biosecurity efforts.




## IB

Infectious Bronchitis is the biggest virus threat for Indonesian poultry business, for sure. Case reports continuously increased in every area of surveillance. In February 2024, the avian coronavirus, again, marked its place as the second highest infection reported with 9 cases, which equal to 14% of the total February reports. 6 reports from broilers and 3 reports from layers. The areas affected by IB is shown in Table and Figure 2.

| Areas | Species | No of Cases |
|---|---|---|
| Banyuasin, South Sumatera | Layer | 1 |
| Kuningan, West Java | Broiler | 1 |
| Bekasi, West Java | Broiler | 1 |
| Cianjur, West Java | Broiler | 1 |
| Karanganyar, Central Java | Layer | 1 |
| Pati, Central Java | Broiler | 1 |
| Tulungagung, East Java | Layer | 1 |
| Malang, East Java | Broiler | 1 |
| Ponorogo, East Java | Broiler | 1 |

The ferocity of IB infections cause very severe performance disorders, both achievement of BW and FCR, high mortality (nephropatogenic strains), decreased of egg production, and high-cost of medications due to respiratory problems. IB infection have a tendency to complicate with respiratory viruses (ND, AI, ILT, etc.) and / or pathogenic bacteria (E. coli, Mycoplasma sp, Ornithobacterium sp). Because of its negative effect, in year 2017, Infectious Bronchitis have been stated as the biggest cause of economical losses in the poultry farming industry by Avian Health International.

IB is another disease that highly related to increasing humidity. With the average relative humidity (RH) that ranged very wide in the atmosphere, it is favor for avian coronavirus to cause problems in poultry. The presence of respiratory diseases in poultry farms could be caused by ineffective ventilation. Reduced ventilation usually results in an air pollutants, such as ammonia, carbon dioxide, dust and air-borne microorganisms.

The disease defined as a rapidly transmissible disease caused by avian coronaviruses, affecting the respiratory, urogenital, and intestinal tracts of hybrid layer, meat type, and fancy chickens of all age groups. Lateral spread of IBV may also affect quails, ring-necked pheasants, domestic turkeys and other gallinaceous birds. The airborne spread of IBV is the most common and most significant mode of

transmission in areas with a dense chicken population. Long distance, even intercontinental, spread of IBV is possible by trade in infected chicks, pullets, and adult chickens and also by contaminated eggs and multiple-use packing material.

Since infectious bronchitis virus have an ability to infect from DOC, it is highly recommended to provide protection through vaccination in the hatchery by combining a classical and a variant live IB vaccine that would provide a lifelong protection for broilers. As for layers, it is require to boosts both live and killed IB vaccines in pullets to laying period.




## HEATSTRESS

As previously mention by BMKG February 2024 analysis, the average temperature was the highest in the same month ever since 1981 with 27,4°C. An increase of temperature as +0,9°C compared to usual situation. The temperature felt by the bird is all the higher since relative humidity increases. Excessive humidity inside the building reduces the insulating value of feathers, contributes to litter deterioration and increases microbial and parasitic hazards. On the contrary, lower relative humidity increases the risks of dust-related respiratory disease. With the extreme weather condition together with managemental failure to overcome the high humidity, it was not surprising that Heatstroke reports came as the fifth most reported disease/ syndrome.

There were 5 cases of Heatstress in February 2024 (8% of total reports), 3 cases from broilers and 2 cases from layers. Areas with Heatstress can be seen in Table and figure 3.

| Areas | Species | No of Cases |
|---|---|---|
| Banyuasin, South Sumatera | Layer | 1 |
| Lampung, Lampung | Broiler | 1 |
| Banten, Banten | Broiler | 2 |
| Karanganyar, Central Java | Layer | 1 |

Birds are 'heat stressed' if they have difficulty achieving a balance between body heat production and body heat loss. This can occur at all ages and in all types of poultry. In the 'thermoneutral zone', birds can lose heat at a controlled rate using normal behaviour. There is no heat stress and body temperature is held constant. When conditions mean the 'upper critical temperature' is exceeded, birds must lose heat actively by panting. Panting is a normal response to heat and is not initially considered a welfare problem. But as temperatures increase, the rate of panting increases. If heat production becomes greater than 'maximum heat loss' either in intensity (acute heat stress) or over long periods (chronic heat stress), birds may die. The body temperature of the broiler must remain very close to $41^0$C ($106^0$F). If body temperature rises more than $4^0$C above this, the bird will die.

To help birds releaving the heat, there are some measurements need to be corrected, such as cooling the temperature felt by the animals (ventilation, mist spraying, etc), adapting diet and drinking water supplies, and correcting physiological imbalances (rehydrating, compensating for feed underintake, fighting against stress consequences, supporting liver and kidney function).




## ND

The Newcastle Disease ranked fourth in February 2024. The number of reports of ND continues to decrease every month, nevertheless, ND is still a very dangerous disease for poultry. ND wave that have been struck in South East Asia since 2010 continues to threat with 4 reports or equal to 6% of total reports, 2 reports each from broilers and layers. Most of reported cases of ND were came from farms that using conventional ND vaccination. Areas with ND reports can be seen in Table and Figure 4.

| Areas | Species | No of Cases |
|---|---|---|
| Banyuasin, South Sumatera | Layer | 1 |
| Tanjung Bintang, Lampung | Layer | 1 |
| Purwokerto, Central Java | Broiler | 1 |
| Malang, East Java | Broiler | 1 |

Ever since its first report in 1926, Newcastle Disease continuously threatening poultry, from backyard chicken to industrial poultry business. The high number of case reports every month shows that conventional ND prevention programs which based on a combination of live and killed ND vaccination have its limitations in protecting chickens from the ferocity of ND infections. The major problems in ND conventional prevention programs are the interference of MAB ND to the efficacy of ND vaccination, quality of on farm vaccination, and the prolonged postvaccinal reaction. The solution to stop ND infections in broilers, layers and breeders is to use the Vectormune ND vaccine which has been proven to provide maximum protection, reduce virus shedding and has no side effects.

From 2018 to 2020, Ceva Disease Surveillance Database always showed that ND is the number one enemy of the Indonesian poultry business. However, the situation changed after Vectormune ND was introduced in Indonesian market. In year 2021, the Database has shown a 52% decrease in ND reports compared to the year 2020. The reason behind this improvement is that farms that previously infected by ND have agreed to use Vectormune ND as their basic vaccination programme. These farms were fully protected by Vectormune ND and eventually stopped reporting repeated ND cases. Vectormune ND was able to prevent ND virus shedding from one period to the next, which ultimately succeeded in increasing protection against field ND virus challenges.

Newcastle Disease still a deadly and rapidly transmitted infection affect both meat and laying type chicken, causing enormous economical losses either due to high mortality that can reach 100% in young birds or losses of production performance like dropped egg production, poor FCR and bodyweight, until poor carcass quality. The solution to stop ND infections in broilers, layers and breeders is to use the Vectormune ND vaccine. The best ND protection started from the hatchery.




## CRD

As the rainy season in the equatorial region drags on, cases of respiratory disease increasingly dominate disease reports in poultry. Chronic Respiratory Disease is closely related to the failure of ventilation management to prevent the negative effects of extreme weather. In February 2024 there were 4 cases or 6% of Chronic Respiratory Diseases – all reports were from layers. The affected areas can be found in Figure and Table 5.

| Areas | Species | No of Cases |
|---|---|---|
| Banyuasin, South Sumatera | Layer | 1 |
| Sukabumi, West Java | Layer | 1 |
| Purwakarta, West Java | Layer | 1 |
| Pasuruan, East Java | Layer | 1 |

Many mycoplasma species can infect birds, but only Mycoplasma gallisepticum (MG), M. synoviae (MS), M. meleagridis (MM) and M. iowae (MI) are considered pathogenic in chickens and turkeys, and can cause economic losses due to stunted growth, condemnations associated with lesions, or synovitis, airsacculitis, decreased egg production, and decreased hatchability. Worldwide, the incidence of mycoplasma infection is favored by the intensification of poultry production.

Chronic Respiratory Disease (CRD) caused by Mycoplasma gallisepticum. The infection often complicated with viruses (Newcastle disease, coronavirus, metapneumovirus, etc.) or bacteria (Escherichia coli, Haemophilus spp., Pasteurella spp., Ornithobacterium rhinotracheale, other Mycoplasma sp, etc.) or with fungi (Aspergillus, etc.). Pathogenecity of the disease can be exacerbated by poor environmental conditions (high ammonia, dust, moisture, faulty ventilation, etc.), stress factors (social stress, handling, vaccination, selection, beak trimming, etc.). On farms, the most frequent mode of infection for MG or MS is the respiratory route.

Transmission occurs primarily by direct contact between sick or latent carriers and susceptible birds. Indirect transmission through human activity, wild birds or insects or livestock equipment is also possible. In addition, MG and MS can be transmitted vertically through the egg, either by contamination of the embryo by blood route, or because of contiguity between the oviduct and the infected air sacs. The percentage of infected eggs remains limited but probably allows the spread of infection in the hatchery and then the farms. The rate of vertical transmission would be greater in the first weeks of infection.




## FEED QUALITY

Feed is the most costly and influential factor in poultry production. Successful poultry production depends largely on the quality of the feed birds receive, which allows them to express their genetic potential. High-quality feed is a crucial aspect of animal health and food safety. Practical poultry diets are formulated from a mixture of ingredients, including cereal grains, cereal by-products, fats, plant protein sources, vitamin and mineral supplements, crystalline amino acids and feed additives. Increasing costs and decreasing supplies of traditional feedstuffs (due in part to food-feed competition and population growth) are expected to affect the future expansion of poultry production. This highlights the urgent need to make greater use of a wide range of alternative feeds (e.g. insect meals, food waste, agro-industrial byproducts) and to use fewer human-edible components in poultry diets. The use of most alternative feedstuffs is currently negligible, owing to constraints imposed by nutritional, technical and socio-economic factors. In many circumstances, feed resources are either unused and wasted, or used inefficiently.

| Areas | Species | No of Cases |
|---|---|---|
| Sukoharjo, Central Java | Layer | 3 |
| Karanganyar, Central Java | Layer | 1 |

A major nutritional problem in developing countries is the biological and chemical contamination of poultry feeds, which may have serious consequences on bird performance and the safety of poultry products for humans. In February 2024, feed quality problems increases and came as the sixth most highest cases in the month with 4 reports, and all reports were from layers. Areas with feed quality reports can be found in Figure and Table 6.

Feeds and feed ingredients can be evaluated physically as well as chemically. The physical evaluation of feed mostly provides preliminary information on the quality of the material. It involves assessing physical qualities such as weight, colour, smell and whether the material has suffered from any contamination by other materials. Chemically, feed is made up of water and dry matter. The dry matter contains organic and inorganic compounds. The organic part of feed is made of mainly carbohydrates, proteins, vitamins and fats and oils. The inorganic part is made of mineral elements, also known as ash. Feed or feed ingredients can be analyzed to provide values of each of these components. Apart from obtaining values

of chemical composition, the extent of utilization of these components by the bird, termed nutritive value, is also measured.

Of greater importance in feed evaluation is the response of poultry to particular feeds. This is regarded as the real nutritive value of the feed, and must be measured as part of feed evaluation. Nutritive value does not necessarily entail animal growth or egg production. It gives information on how much of each of the fractions in feed, i.e. starch or energy, protein (amino acids), fats, minerals or vitamins, was used by the bird. When feed is given to poultry, they are able to break down only a fraction of the feed and absorb it into the body for growth and egg production. The rest is voided in faeces and urine, which are excreted together by poultry. The amount of nutrients retained by the bird is an indication of the nutritive value of the feed.




# COCCIDIOSIS

In February 2024, Coccidiosis came as the seventh highest reported diseases with 4 cases or equal to 6% of the total reports - 3 cases from broilers and 1 case from layers. Figure and Table 7 shown were Coccidiosis have been reported.

| Areas | Species | No of Cases |
|---|---|---|
| Bogor, West Java | Broiler | 1 |
| Sukoharjo, Central Java | Layer | 1 |
| Pati, Central Java | Broiler | 1 |
| Demak, Central Java | Broiler | 1 |

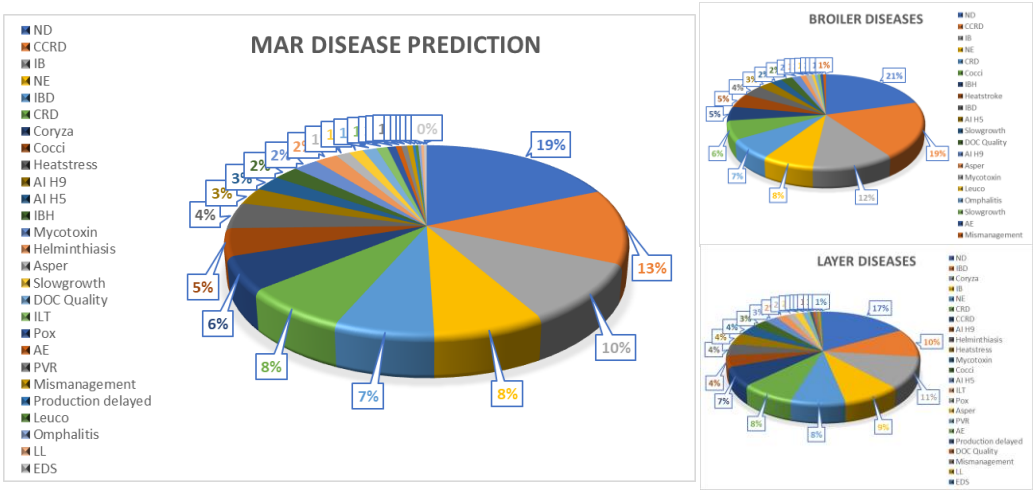
Coccidiosis is caused by various Eimeria species affecting mostly the digestive tract of poultry. With a global distribution of these parasites, the economical impact for this disease is estimated at over US$ 1 billion, due to production and animal losses as well as the cost of the widespread usage of prophylactic medications and vaccines. Due to the characteristics of the parasites and the management conditions in poultry production, the eradication of coccidiosis is not possible. With the ever increasing cost of developing new molecules and the pressure to use less medication in foodproducing animals, the control of cocciodiosis must rely on the current prophylactic methods combined with proper flock management.

The parasites responsible for coccidiosis in poultry belong to the family of the *Eimeriidae*, all obligate intracellular parasitic protozoa. The structure of the sporulated oocyst allows for the distinction between *Eimeria spp*. and other parasites like *Cryptosporidium spp*. Eimeria sporulated oocysts contain 4 sporocysts and each sporocyst 2 sporozoites. *Eimeria spp*. are extremely species specific for their host, with some species affecting only chickens, other only turkeys or guinea fowl. A number of species have been identified in chickens (7), turkeys (5), quail (1), guinea fowl (2), geese (4), pigeons (2) and pheasants (4).




## MAR 24 PREDICTION

Based on surveillance data for 6 consecutive years, we are able to predict the dominant disease occurring in a certain month. For the prediction of disease incidence in the next March 2024, the percentage of disease occurring in the same month during the previous 6 years is as follows.




The Indonesian poultry business will still facing multiple threats in March 2024. Especially when the extreme weather continuous. The three diseases with the highest probability are: ND 19%, CCRD 13%, and IB 10% opportunity. The three highest predicted diseases in broilers are : ND 21%, CCRD 19% and IB 12% opportunity. While layers prediction are ND 17%, IBD 10% and Coryza 11% probability. This prediction is intended to help the poultry community improve its prevention program, not as a guarantee of accuracy.

# CONCLUSION

In February 2024, the GPS Diseases Surveillance program have been reporting 65 cases from 23 different diseases or condition – broilers reported 33 cases while layers reported 32 cases. From the highest, seven most prominent diseases are Complicated Chronic Respiratory Disease with 11 report or 17% of the total reports, followed by Infectious Bronchitis with 9 reports (14%), Heatstress with 5 reports (8%), Newcastle Disease, Chronic Respiratory Disease, Feed Quality and Coccidiosis each with 4 reports (6%). Other diseases were Infectious Bursal Disease with 3 reports (5%), Avian Influenza H9, Mycotoxicosis, Infectious Coryza, Necrotic Enteritis, Neonatal coli and Aspergillosis each with 2 reports (3%). And the rest of the reports are Avian Enchepalomyelitis, Fowl Pox, Helminthiasis, Post Vaccinal Reaction, Mismanagement, Dysbacteriosis, Slowgrowth and DOC Quality each with 1 case (2%) consecutively. For more detail information of this report please contact Ceva Animal Health Representative in your area to help and provide solution to your poultry problems.