

1 Occurrence of Occurrence of animal infectious diseases in Japan Infectious Diseases

In Japan, under the Act, 28 diseases of particular importance for the livestock sector, including foot-and-mouth disease (FMD), CSF and HPAI, are designated as “Domestic animal infectious diseases.” In addition, 71 relevant infectious diseases following domestic animal infectious diseases are designated as “Notifiable infectious diseases,” and their occurrences are monitored by mandatory notification. Regarding Domestic animal infectious diseases, in 2023, HPAI occurred from autumn to the following spring, making four consecutive seasons (see → Special Feature 1). As for CSF, which occurred in Japan in September 2018 for the first time in 26 years, the number of outbreaks has decreased, but sporadic outbreaks continue to be reported. As for

FMD and ASF continue to occur in Asia; however, Japan remained disease-free. Surveillance of bovine tuberculosis and brucellosis has continued after disease-free status was achieved, and no new outbreaks have occurred. Occurrences of Johne’s disease have been continuously reported. Among Notifiable infectious diseases, the number of bovine leukosis cases has remained high. The WOAHP grants official disease status for certain diseases upon request from the member countries, and Japan is officially recognized as free from FMD, BSE, and African horse sickness, as shown in Chart 1-1.

Charts 1-2 and 1-3 show the annual number of cases of major Domestic animal infectious diseases and Notifiable infectious diseases.”

Chart 1-1 Official recognition of specific disease status by WOAHP

FMD	Free country without vaccination (2011)
BSE	Negligible risk (2013)
African horse sickness	Free country (2014)

Chart 1-2 Number of reported major domestic animal infectious diseases outbreaks (year)

		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Foot and mouth disease	# of farms	0	0	0	0	0	0	0	0	0	0
	# of animals	0	0	0	0	0	0	0	0	0	0
Enzootic encephalitis (Swine)	# of farms	2	5	0	0	0	1	0	1	2	2
	# of animals	3	17	0	0	0	2	0	1	4	5
Brucellosis (Cattle)	# of farms	0	0	0	0	0	0	0	0	0	0
	# of animals	0	0	0	0	0	0	0	0	0	0
Tuberculosis (Cattle)	# of farms	0	0	0	0	0	0	0	0	0	0
	# of animals	0	0	0	0	0	0	0	0	0	0
Johne's disease (Cattle)	# of farms	327	315	374	321	380	399	446	519	471	525
	# of animals	691	624	817	831	1066	809	957	1147	1060	1198
Bovine spongiform encephalopathy	# of farms	0	0	0	0	0	0	0	0	0	0
	# of animals	0	0	0	0	0	0	0	0	0	0
Scrapie (Sheep)	# of farms	0	1	0	0	0	0	0	0	1	2
	# of animals	0	1	0	0	0	0	0	0	1	2
Equine infectious anemia	# of farms	0	0	0	0	0	0	0	0	0	0
	# of animals	0	0	0	0	0	0	0	0	0	0
Classical swine fever*	# of farms	0	0	0	5	45	10	15	8	4	5
	# of animals	0	0	0	8	102	23	43	28	11	20
African swine fever	# of farms	0	0	0	0	0	0	0	0	0	0
	# of animals	0	0	0	0	0	0	0	0	0	0
Highly pathogenic avian influenza*	# of farms	2	5	5	1	0	33	25	66	38	23
	# of animals	13	27	33	8	0	113	152	255	94	61
Low pathogenic avian influenza	# of farms	0	0	0	0	0	0	0	0	0	0
	# of animals	0	0	0	0	0	0	0	0	0	0
Newcastle disease	# of farms	0	0	0	0	0	0	0	0	0	0
	# of animals	0	0	0	0	0	0	0	0	0	0
Foulbrood	# of farms	59	42	30	42	33	39	33	26	16	9
	# of animals	130	89	74	135	104	127	110	106	56	16

*Only animals diagnosed in accordance with relevant regulations are included in this table (i.e. animals culled as a result of outbreak response are not included in this table)
There were no outbreaks of the following infectious diseases between 2015 and 2024.
Rinderpest, Contagious bovine pleuropneumonia, Rabies, Vesicular stomatitis, Rift valley fever, Anthrax, Hemorrhagic Septicemia, Glanders, African horse sickness, Peste des petits ruminants, Fowl cholera, Avian salmonellosis, Swine vesicular disease.

Chart 1-3 Number of reported major notifiable infectious diseases outbreaks

		2015	2016	2017
Bluetongue (Cattle)	# of farms	0	0	1
	# of animals	0	0	2
Akabane disease (Cattle)	# of farms	3	2	0
	# of animals	3	2	0
Malignant catarrhal fever	# of farms	1	0	0
	# of animals	1	0	0
Lumpy skin disease	# of farms	0	0	0
	# of animals	0	0	0
Bovine viral diarrhea	# of farms	158	222	221
	# of animals	310	406	380
Infectious bovine rhinotracheitis	# of farms	14	15	13
	# of animals	129	648	54
Bovine leukosis	# of farms	2023	1998	2227
	# of animals	2869	3125	3453
Bovine ephemeral fever	# of farms	11	0	0
	# of animals	22	0	0
Bovine genital campylobacteriosis	# of farms	1	1	3
	# of animals	1	1	3
Trypanosomiasis	# of farms	0	0	0
	# of animals	0	0	0
Equine influenza	# of farms	0	0	0
	# of animals	0	0	0
Equine rhinopneumonitis	# of farms	25	26	18
	# of animals	42	59	34
Aujeszky's disease	# of farms	1	0	1
	# of animals	5	0	4
Swine transmissible gastroenteritis	# of farms	0	1	0
	# of animals	0	63	0
Porcine reproductive and respiratory syndrome	# of farms	34	29	23
	# of animals	131	82	58
Porcine epidemic diarrhea	# of farms	217	87	66
	# of animals	1088	420	251
Avian infectious bronchitis	# of farms	12	21	25
	# of animals	4717	3029	545
Avian infectious laryngotracheitis	# of farms	5	1	10
	# of animals	21	5	13
Avian mycoplasmosis	# of farms	6	16	2
	# of animals	23	58	8
Nosemosis of bees	# of farms	0	5	2
	# of animals	0	8	2

							(year)
2018	2019	2020	2021	2022	2023	2024	
0	1	0	0	0	0	1	
0	1	0	0	0	0	1	
0	0	1	0	1	6	0	
0	0	1	0	1	14	0	
1	0	1	0	0	1	0	
1	0	1	0	0	1	0	
0	0	0	0	0	0	22	
0	0	0	0	0	0	50	
230	207	148	109	76	70	75	
382	359	265	235	119	172	124	
4	9	5	12	4	7	3	
7	44	11	36	12	23	12	
2323	1944	2075	2179	2182	2317	2205	
3859	4113	4197	4375	4334	4493	4420	
0	4	0	0	0	0	2	
0	7	0	0	0	0	3	
1	1	0	0	0	0	0	
1	1	0	0	0	0	0	
1	1	0	0	0	1	0	
1	1	0	0	0	1	0	
0	0	0	0	0	0	0	
0	0	0	0	0	0	0	
24	17	19	13	18	9	17	
31	21	37	18	25	10	26	
0	0	0	0	0	0	0	
0	0	0	0	0	0	0	
0	1	0	2	0	0	1	
0	4	0	8	0	0	5	
27	25	19	18	28	9	14	
80	58	34	72	72	50	53	
33	137	35	34	6	24	3	
173	764	242	202	32	127	8	
27	15	25	28	19	24	23	
153	127	705	1417	96	136	138	
2	1	7	8	16	9	0	
8	20	16	27	74	43	0	
6	7	7	1	5	5	3	
13	25	28	2	15	13	13	
2	3	0	1	1	1	2	
4	4	0	1	8	1	17	

2 Domestic animal infectious disease surveillance

2-1 Brucellosis (cattle)

What is Brucellosis?

Brucellosis is a disease of cattle, goats, sheep, pigs, buffaloes, deer, and wild boars caused by *Brucella* species (*Brucella abortus*, *B. melitensis*, and *B. suis*), designated as a Domestic animal infectious disease in Japan. It is also recognized as a zoonotic disease because the pathogen is also infectious to humans. In pregnant cows, the disease is characterized by abortions and stillbirths caused by placentitis, and mastitis and arthritis may also be observed. In the case of bulls, orchitis and epididymitis may be observed.

Japan confirmed the free status of this disease in cattle herds through the nationwide surveillance conducted during FY2018-2020 (Chart 2-1-1).

Objectives and methods of surveillance

Since cattle herds in Japan have already been qualified as free from the disease, the surveillance is now

Chart 2-1-1 Number of brucellosis cases

	2022	2023	2024
(farms)	0	0	0
(animals)	0	0	0

Chart 2-1-2 Brucellosis surveillance of cattle in FY2024

Target cattle	# of cattle tested	# of negative	# of positive
Imported cattle	0	0	0
Bulls subject to seed stock inspection	81	81	0
Cows experienced abortion or stillbirth*	128	128	0

* Numbers indicated here are total numbers of samples since some animals experienced more than one abortion or stillbirth during the same fiscal year

being conducted with the aim of maintaining free status. Target animals for surveillance are imported cattle, bulls subject to seedstock inspection, and cattle that have experienced abortion or stillbirth. In case a positive result is obtained by a screening test, confirmatory tests will be conducted.

(1) Surveillance of imported cattle

Cattle that have been imported at least one year ago for the sake of breeding and/or milking are tested.

(2) Surveillance of bulls

Bulls used for breeding or semen collection and subject to seedstock inspection stipulated in the Act on Improvement and Increased Production of Livestock are tested. Note that the bulls targeted for the previous year's surveillance were excluded.

(3) Surveillance of cattle that experienced abortion or stillbirth

Cattle that have experienced abortion or stillbirth are tested. When possible, aborted fetuses are also tested.

Surveillance results

In FY2024, no imported cattle were tested; 81 bulls subject to seedstock inspection, and 128 cows that experienced abortion or stillbirth were tested, and all results were negative (Chart 2-1-2).

2-2 Tuberculosis (cattle)

What is Tuberculosis?

Tuberculosis is a chronic respiratory infectious disease caused mainly by *Mycobacterium bovis* (*M. bovis*). It is designated as a Domestic animal infectious disease of cattle, goats, buffaloes, and deer. *M. bovis* has a wide host range, including humans; thus, the disease is recognized as a zoonosis. The disease's incubation period ranges from several months to several years, and infected animals generally do not show any particular clinical signs until the disease progresses. In advanced cases, animals show respiratory symptoms such as coughing and dyspnea, and their general condition deteriorates, leading to death. Japan confirmed the free status of this disease in cattle herds through the nationwide surveillance conducted during FY2018-2020 (Chart 2-2-1).

Objectives and methods of surveillance

Since freedom from tuberculosis in cattle herds in Japan has been confirmed, surveillance is currently conducted to maintain free status. Imported cattle are targeted for surveillance. In case a positive result is obtained by the screening test, confirmatory tests will be conducted.

Surveillance results

In FY2024, no cattle subject to surveillance were identified, and therefore tuberculosis surveillance in cattle was not conducted (Chart 2-2-2).

Chart 2-2-1 Number of tuberculosis cases

	2022	2023	2024
(farms)	0	0	0
(animals)	0	0	0

Chart 2-2-2 Tuberculosis surveillance of cattle in FY2024

Target cattle	# of cattle tested	# of negative*	# of positive
Imported cattle	0	0	0

* Number of negatives includes cattle with a positive result in the screening test and a negative result in the confirmatory tests or definitive tests performed later.

2-3 Johne's disease (cattle)

What is Johne's disease?

Johne's disease is a disease caused by infection with *Mycobacterium avium* subsp. *Paratuberculosis* (MAP). The disease is designated as a Domestic animal infectious disease of cattle, sheep, and goats. The main clinical signs are chronic, persistent diarrhea, weight loss, and decreased milk production. The disease has a long incubation period and persists for several months to years without apparent symptoms until the onset of the disease. MAP is excreted in the feces of infected animals and spreads the disease in the herd. There is no vaccine or treatment available. The disease is present in Japan, and efforts to prevent the spread of the disease are made following the guidelines on measures against bovine Johne's disease.

Objectives and methods of surveillance

Johne's disease is a contagious disease characterized by a long incubation period, and the main countermea-

asures taken are to detect and cull infected cattle through periodic inspections. The target of periodic inspections is breeding cattle that are kept for a long period. For the farms where infection has been confirmed, follow-up tests are conducted to assess disease status, and pre-transfer inspections are undertaken on cattle before shipment from the farm.

(1) Periodic inspection

At least once every five years, periodic inspections are conducted on cows used for breeding and/or milking.

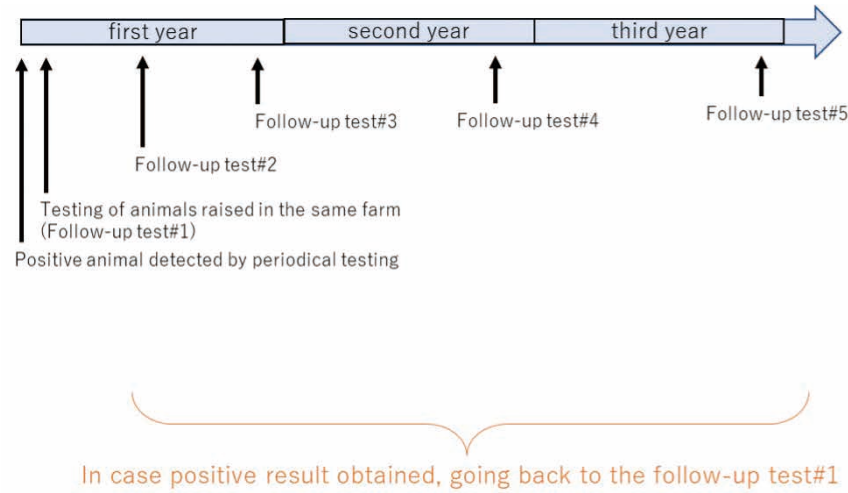
(2) Follow-up tests on infected farms

For farms where an infection has been confirmed, follow-up tests are conducted at least three times a year for the first year and then once a year for the following two years, resulting in at least five tests over three years. (Chart 2-3-1)

(3) Pre-transfer inspection on infected farms

Tests are conducted before shipment when cattle are shipped from the infected farms.

Chart 2-3-1 Time schedule for periodic inspection and follow-up tests



Surveillance results

Johne's disease surveillance is conducted using a combination of ELISA testing of serum samples, Johne's disease skin tests, real-time PCR of fecal samples, and fecal culture. In FY2024, Johne's disease testing was conducted on a total of 753,609 animals. (Chart 2-3-3)

Chart 2-3-4 Cattle with Johne's disease showing weight loss lower right: Cross-section of the intestinal tract of the cattle with Johne's disease (left) and healthy cattle (right)



Photo courtesy of NIAH, NARO

Chart 2-3-2 Number of Johne's disease cases

	2020	2021	2022	2023	2024
(farms)	399	446	519	471	525
(animals)	809	957	1,147	1,060	1,198

Chart 2-3-3 Johne's disease surveillance for cattle conducted in FY2024

Test type	Total number of animals tested*
ELISA (serum)	634,403
Johnin reaction	1,498
Fecal PCR	23,049
Fecal culture	94,658
Total	753,609

* Surveillance includes periodic inspection, follow-up tests, and pre-transfer inspection on infected farms. Multiple tests may be conducted on the same individual.



2-4 Bovine Spongiform Encephalopathy (BSE)

What is BSE?

Bovine Spongiform Encephalopathy (BSE) is a prion disease of cattle that was first identified in the United Kingdom in 1986, and the disease was first confirmed in Japan in September 2001. Cattle infected with abnormal prion protein develop the disease after a long incubation period of several years and show behavioral abnormalities and incoordination, leading to death within two weeks to six months. The disease is transmitted to cattle via feed contaminated with abnormal prion protein. Thus, a feed ban is implemented in order to prevent potentially contaminated feed from being fed to ruminants. In Japan, no new outbreaks have been reported since January 2009. In May 2013, Japan was officially recognized by WOA as a country with “negligible risk” (Chart 2-4-1).

Objectives and methods of surveillance

MAFF conducts BSE surveillance to confirm the effectiveness of control measures such as feed regulations and to maintain international recognition of Japan's BSE status. Surveillance is conducted on cattle that died on farms.

From April 2024, age classification for surveillance

was abolished, and surveillance has been conducted according to the following categories:

- (1) Cattle that died from causes such as dystocia or difficulty in rising
(Downer cattle)
- (2) Cattle that showed symptoms suspected to be related to BSE, such as gait abnormalities, incoordination, or behavioral abnormalities
(Cattle suspected of BSE)
- (3) Cattle that died after exhibiting progressive behavioral changes or unexplained neurological symptoms
(Cattle with specific clinical signs)

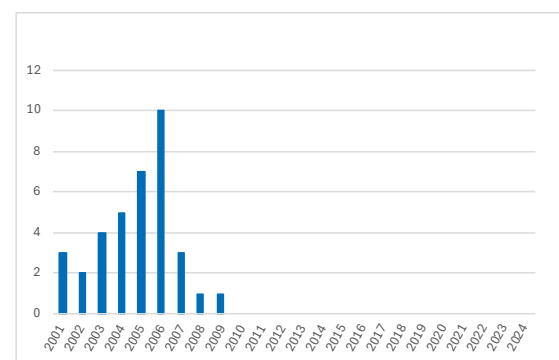
At slaughterhouses, BSE screening tests are conducted on cattle exhibiting neurological symptoms and other relevant clinical signs. The results are published on the website of the Ministry of Health, Labour and Welfare.

https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/kenkou_iryuu/shokuhin/bse/screening.html

Surveillance results

In FY2024, 3,041 dead cattle were tested, and all results were negative.

Chart 2-4-1 Number of BSE cases by year



2-5 Transmissible Spongiform Encephalopathy (scrapie)

What is transmissible spongiform encephalopathy?

Scrapie of sheep and goats, like BSE and chronic wasting disease of deer, is a prion disease caused by an abnormal prion protein. These diseases are collectively called transmissible spongiform encephalopathy (TSE) in livestock and are designated as a Domestic animal infectious disease. Scrapie in sheep and goats has been known for over 250 years, and sporadic outbreaks have been reported in Japan. Unlike BSE, which is transmitted through feed contaminated with abnormal prion protein, the route of transmission of scrapie is unknown.

Objectives and methods of surveillance

In order to detect infected sheep and goats on farms, TSE tests are conducted on dead or culled sheep and goats at 18 months of age and older and sheep and goats with specific clinical signs such as pruritus.

Surveillance results

In FY2024, testing was conducted on 322 sheep and 417 goats. Except for two positive sheep, all test results were negative.



2-6 Classical swine fever

What is Classical swine fever?

Classical swine fever (CSF) is a contagious viral disease of pigs and wild boars caused by the classical swine fever virus. The disease is highly contagious and has no treatment; thus, it is designated as a Domestic animal infectious disease. The disease is transmitted through direct or indirect contact with infected animals, including nasal secretions and feces of infected animals. Infected animals develop a variety of clinical signs ranging from acute cases with fever, leukopenia, anorexia, cyanosis of the auricle, and death in a short period to those with a long-term course. The strain currently prevalent in Japan is considered to be moderately virulent and less likely to show severe symptoms. In Japan, an outbreak was confirmed in September 2018 for the first time in 26 years at a domestic pig farm, and later, infection in wild boars was also confirmed (see → Special Feature 2). Currently, reflecting the spread of infection in wild boars, vaccination of domestic pigs in the designated area, and distribution of oral vaccine to wild boars are being conducted (Chart 2-6-3).

Objectives and methods of surveillance

Surveillance on domestic pigs and wild boars is conducted for early detection of CSF.

<Domestic pigs>

(1) Surveillance Methods

In addition to the inspections conducted in response to notifications for suspicion of CSF, antibody tests are conducted on non-vaccinated farms, and antigen tests are conducted using swine samples submitted for pathological appraisal.

①Periodic on-site inspections of farms,

In principle, each prefecture's livestock hygiene service center (LHSC) conducts on-site inspections at pig farms once a year to check the clinical condition. If abnormalities such as cyanosis or fever are observed, CSF testing is conducted.

②Antibody test

Antibody tests targeting pigs in non-vaccinated

farms are conducted to detect infection.

Testing of samples submitted for pathological appraisal

When pathological appraisal was conducted by LHSC upon producer's request, samples are also tested for CSF.

(2) Surveillance results

①Periodic on-site inspections of farms

In FY2024, on-site inspections were conducted on 1,942 farms (preliminary figures), and no abnormalities were found.

②Antibody test

In FY2024, Hokkaido was the only prefecture outside the area recommended for vaccination of domestic pigs. Testing was conducted on pigs from non-vaccinated farms in Hokkaido, and all results were negative for CSF.

③Testing of samples submitted for pathological appraisal

In FY2024, tests were conducted on samples collected from 542 pigs in 212 farms (preliminary results), with results negative for CSF.

<Wild boars>

(1) Surveillance Methods

Wild boars that were dead and those captured are tested for CSF.

(2) Surveillance results

With the expansion of CSF-affected areas, the number of wild boars tested has increased. In FY2024, 885 dead wild boars and 32,737 captured wild boars were tested. Among these, 194 dead wild boars (21.9%) and 1,083 captured wild boars (3.3%) tested positive by PCR, respectively.

Areas in which infected wild boars have been detected totaled 35 prefectures up to FY2023. In FY2024, infected wild boars were newly confirmed in Aomori, Ehime, Saga, and Nagasaki Prefectures, bringing the total to 39 prefectures.

A map showing the latest status of CSF in wild boars and a detailed survey analysis is available on the MAFF website.

<https://www.maff.go.jp/j/syouan/douei/csf/>



Chart 2-6-1 Number of CSF outbreaks

	2018	2019	2020	2021	2022	2023	2024
# of cases	6	45	10	15	9	4	5

Chart 2-6-2 Prefectures with CSF outbreaks in domestic pigs, prefectures with CSF-positive cases in wild boars, and prefectures recommended to vaccinate domestic pigs as of the end of FY2024.

Prefectures with CSF outbreaks in domestic pigs: Red (no outbreak in Red-shaded since FY2024.)
[24 prefectures](4,037,930 pigs (45.9% of the national total)*)
Prefectures with CSF-positive cases in wild boar: Red (except Okinawa and Chiba), Orange
[40 prefectures](5,499,360 pigs (62.5% of the national total)*)
Prefectures recommended to vaccinate domestic pigs: Red, Orange and Yellow
[46 prefectures](8,045,460 pigs (91.4% of the national total)*)

* Data are based on the Statistical Survey on Livestock in 2024.
* Numbers of pigs are calculated using R6 Livestock Statistics and vaccination target populations.

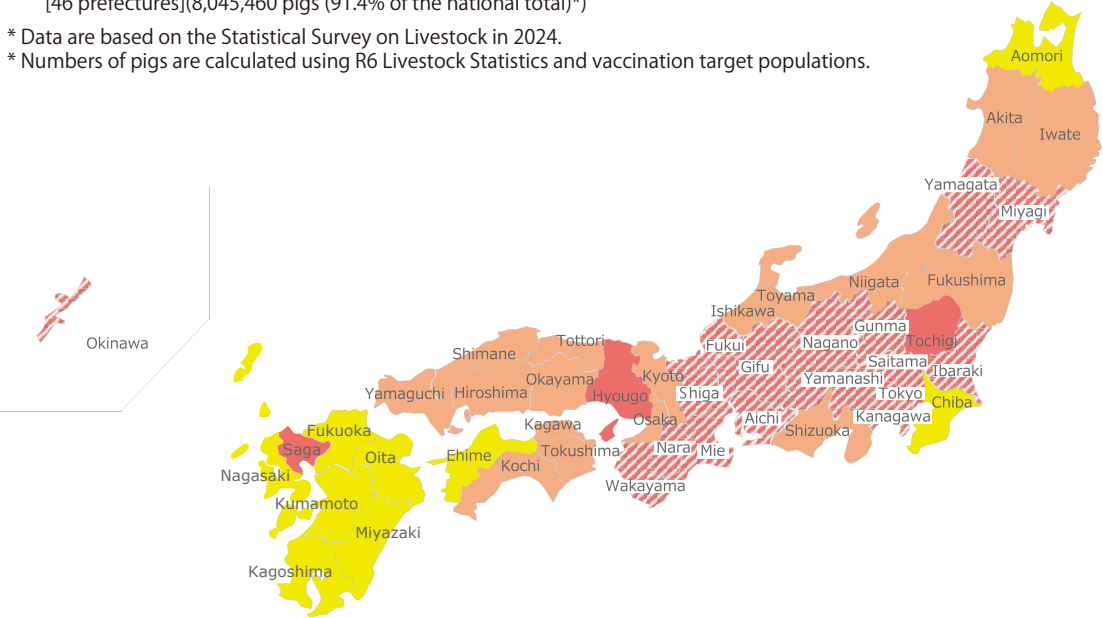


Chart 2-6-3 Surveillance on wild boars (PCR) in FY2024

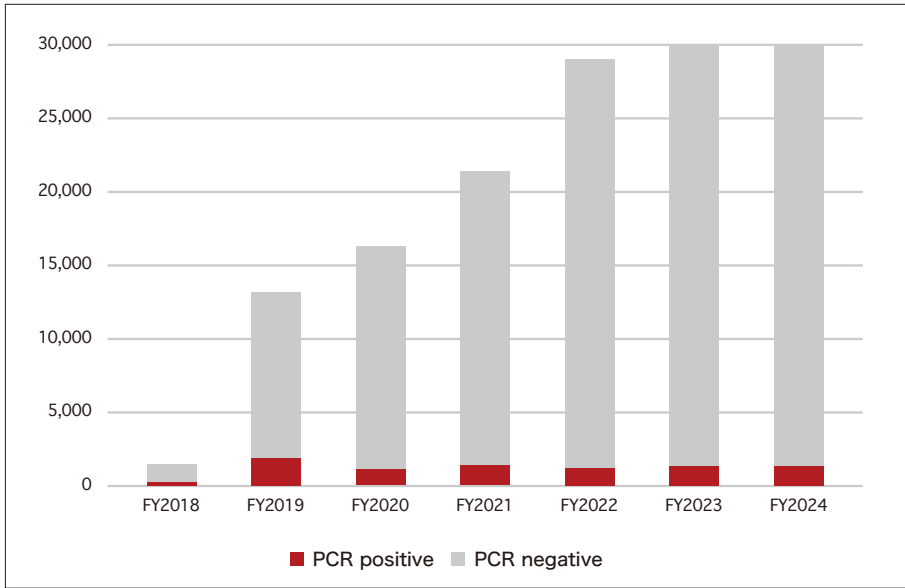
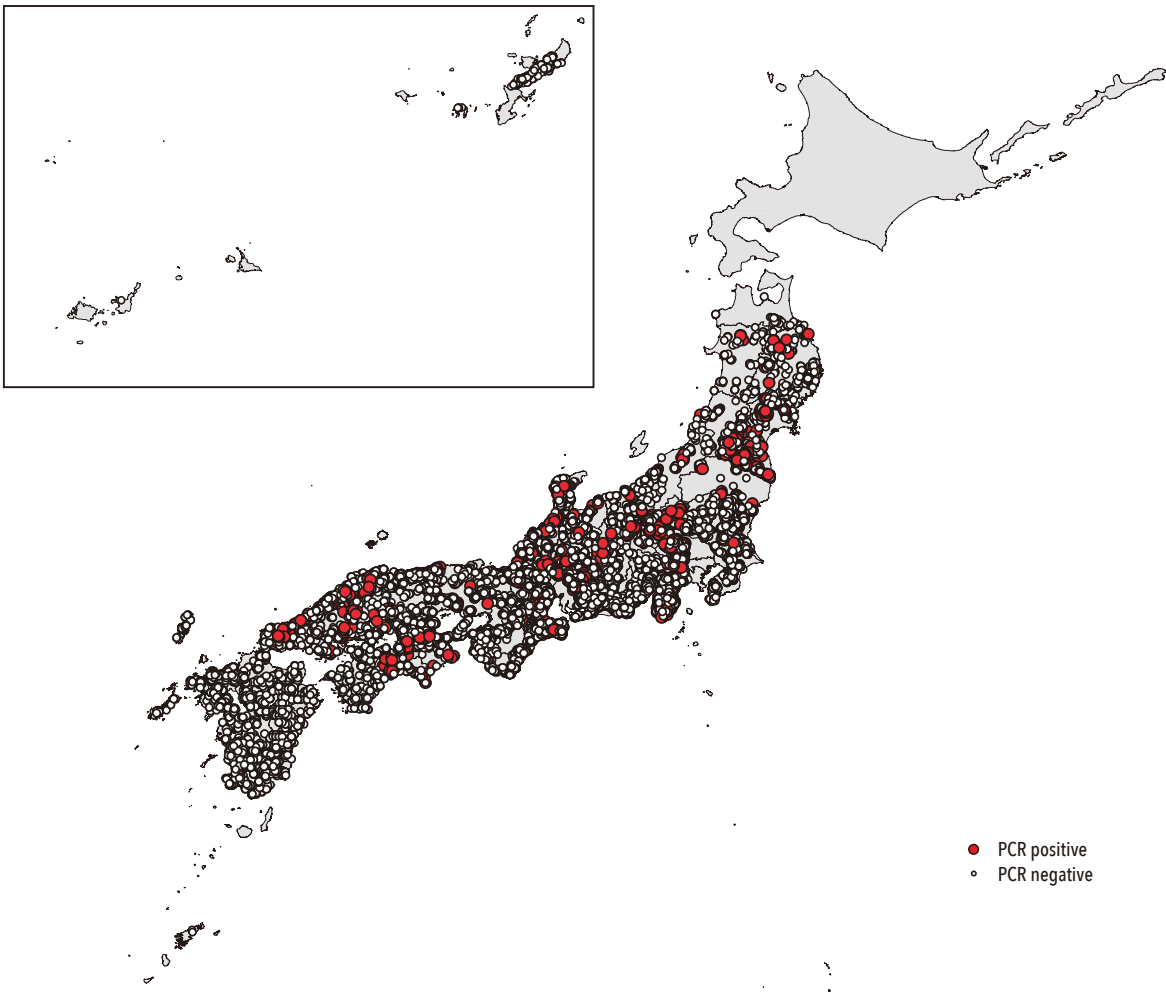


Chart 2-6-4 Distribution of wild boars tested for CSF in FY2024



2-7 African swine fever

What is African swine fever?

African swine fever (ASF) is a contagious disease of pigs and wild boars characterized by fever and systemic hemorrhagic lesions caused by African swine fever virus infection. Due to its high mortality without available treatment or vaccine, the anticipated impact on the livestock industry is enormous once it occurs, so the disease is designated as a Domestic animal infectious disease in Japan. ASF had been enzootic in the African region, however the infected area expanded after the infection spread to Europe in 2007. In the Asian region, the first outbreak was reported in China in August 2018; since then, the infection has been spreading in the region. To date, there have been no outbreaks in Japan, and Japan is increasing vigilance against the introduction of the disease from overseas.

Surveillance methods and results

Surveillance of domestic pigs and wild boars is conducted to monitor the invasion and occurrence of ASF in Japan.

<Domestic pigs>

(1) Surveillance methods

In addition to CSF surveillance, antigen tests are conducted using samples derived from domestic pigs and submitted for pathological appraisal.

① Periodic on-site inspections of farms

Each prefecture's LHSC conducts on-site inspections at swine farms once a year, in principle to check the

clinical condition. If abnormalities such as cyanosis or fever are observed, ASF testing is conducted in addition to CSF testing.

② Testing of samples submitted for pathological appraisal

When appraisal was conducted by LHSC upon producers' request, samples are also tested for ASF in addition to CSF.

(2) Surveillance results

① Periodic on-site inspections of farms

In FY2024, on-site inspections were conducted at 1,949 farms, and no abnormalities were detected.

② Testing of samples submitted for pathological appraisal

In FY2024, ASF testing was conducted on 157 pathological diagnostic samples from 193 farms, and all results were negative.

<Wild boars>

(1) Surveillance Methods

Tests for ASF were conducted on wild boars found dead or captured using the samples collected for testing for CSF.

(2) Surveillance Implementation results

In FY2024, 868 dead wild boars and 29,034 captured wild boars were tested for ASF, and all results were negative.

2-8 Highly pathogenic and low pathogenic avian influenza

What is Avian Influenza?

Avian influenza is a disease of avian species caused by influenza A viruses. According to the Act, the disease is classified into three types depending on virulence and probability of mutation. "Highly pathogenic avian influenza (HPAI)" is defined as the highly virulent type with a high fatality rate, and "Low pathogenic avian influenza (LPAI)" is caused by H5 and H7 subtype viruses with low pathogenicity. Other avian influenza subtypes are classified as "avian influenza." HPAI outbreaks (subtype H5) occur worldwide, and in Japan, a number of HPAI outbreaks are observed from late fall to early spring (Chart 2-8-1). On the other hand, in the case of LPAI, although the disease itself is highly contagious, infected poultry rarely shows clinical signs, which may delay detection. In other countries, mutations from LPAI into HPAI have been reported. There is no treatment for infected birds, and a stamping-out policy is applied once an infection is confirmed on a poultry premises. Early detection and notification of infected poultry are essential to prevent the spread of the disease.

Surveillance Methods

In addition to passive surveillance, in which inspec-

tions are conducted in response to reports of unusual conditions such as increased mortality, two types of monitoring are conducted to detect infection.

(1) Fixed-point surveillance

Farms with relatively high risk of infection, such as those located near stopover sites of migratory birds, are selected for continuous monitoring. Selected farms are tested for avian influenza (virus isolation and serum antibody tests) once a month.

(2) Enhanced surveillance

Serum antibody tests are conducted on selected farms from October to May of the following year, the migration season for wild birds. Farms are selected based on the number of farms in each prefecture.

Surveillance results

All samples collected through fixed-point surveillance and enhanced surveillance conducted from January to December 2024 were negative for avian influenza (Chart 2-8-2). In addition, for early detection of avian influenza, the Ministry of the Environment is conducting wild bird surveillance for avian influenza by testing the feces and carcasses of wild birds, especially waterfowl in winter.

https://www.env.go.jp/nature/dobutsu/bird_flu/

Chart 2-8-1 1 Number of avian influenza outbreaks in poultry

	2022	2023	2024
HPAI*	66	37	23
LPAI	0	0	0

*If winter to the following spring is defined as a "season", the number of outbreaks during the season is as follows.
2022-2023 season 84 cases
2023-2024 season 11 cases
2024-2025 season 54 cases

Chart 2-8-2 Avian influenza surveillance in 2024

		# of farms	# of birds
Fixed point surveillance	Virus isolation	4,471	44,710
	Antibody test	4,471	44,710
Enhanced surveillance	Antibody test	1,226	12,255

2-9 Arbovirus infection in cattle

What is Arbovirus infection in cattle?

Arbovirus infection is a general term to describe viral infections transmitted to humans and livestock by infected arthropods such as mosquitoes, ticks, and biting midges. Most arbovirus infections in cattle are transmitted by tiny blood-sucking insects called *Culicoides* biting midges. The major arbovirus infections in cattle in Japan are Akabane disease, Aino virus infection, Chuzan disease, Ibaraki disease, bovine ephemeral fever, and bluetongue. Akabane disease, Aino virus infection, and Chuzan disease are associated with abortions, premature births, stillbirths and births with congenital abnormalities when pregnant cows are infected with the viruses. In addition, some strains of the virus that

cause Akabane disease infect calves and cause neurological clinical signs such as paralysis associated with encephalomyelitis, which is called postnatal infection. Both Ibaraki disease and bovine ephemeral fever cause various clinical signs associated with fever when infected. In particular, Ibaraki disease is characterized by difficulty in swallowing, while bovine ephemeral fever is characterized by the inability to stand and decreased milk production. Cattle affected with bluetongue develop erosions and ulcers on the tongue, lips, nasal cavity, and oral mucosa. In cattle, the infection is often subclinical. The disease is more likely to develop clinical signs in sheep. These arbovirus infections are most likely to occur during summer and fall when blood-sucking insects are more active.

Chart 2-9-1 Number of cattle infected with arbovirus

		2022	2023	2024
Akabane disease	(farms)	1	3	0
	(perinatal infection)	1	4	0
Akabane disease	(farms)	0	3	0
	(postnatal infection)	0	10	0
Aino virus infection	(farms)	0	0	0
	(animals)	0	0	0
Chuzan disease	(farms)	0	0	1
	(animals)	0	0	1
Ibaraki disease	(farms)	0	0	0
	(animals)	0	0	0
Bovine ephemeral fever	(farms)	0	0	2
	(animals)	0	0	3
Bluetongue(cattle)	(farms)	0	0	1
	(animals)	0	0	1
Bluetongue(sheep)	(farms)	0	0	5
	(animals)	0	0	12

Objectives and methods of surveillance

Arboviruses are considered to be introduced into Japan each season by vectors carrying the virus, which travel on wind currents from the East and Southeast Asian region. Thus, surveillance is intended to detect the entry of the virus into Japan at an early point, thereby enabling increased awareness, facilitating vaccination, supporting proper diagnosis for abortions, and taking other countermeasures. Surveillance is conducted in the following two ways.

(1) Sero-surveillance

Arbovirus infections are more likely to occur from summer to fall when blood-sucking insects are more active. Thus, a total of four consecutive antibody tests are conducted from June to November in order to assess the entry of the disease by looking at seroconversion. The target diseases are Akabane disease, Aino virus infection, and Chuzan disease. Based on the past disease invasions, surveillance is conducted throughout Japan for Akabane disease, and in western Japan for Aino virus infection and Chuzan disease.

(2) Viral genome surveillance

Viral genome surveillance using PCR is conducted in Kyushu and Okinawa regions, where arboviruses are more likely to be introduced, to detect virus invasion earlier than by sero-surveillance. The target diseases are Akabane disease, Aino virus infection, Chuzan disease, Ibaraki disease, and bluetongue (Chart 2-9-2). In the target prefectures, a total of four consecutive PCR tests are conducted from June to November.

Surveillance results

(1) Sero-surveillance

In FY2024, sero-surveillance was conducted on 2,445 cattle from 800 farms. For Akabane disease, seroconversion was confirmed in Kochi Prefecture in August and in Okayama Prefecture in November (Chart 2-9-3). For Chuzan disease, seroconversion was confirmed in Shimane, Kagawa, and Kochi Prefectures in August, in Ehime, Kumamoto and Okinawa Prefectures in September, and in Fukuoka Prefecture in November (Chart 2-9-4). The seroconversion for Chuzan disease confirmed in these areas is considered to be caused by infection with the closely related D'Aguilar virus (DAGV). For Aino virus infection, seroconversion was confirmed in Okinawa Prefecture in September, and in Fukuoka, Saga, Nagasaki, Kumamoto, Miyazaki and Kagoshima Prefectures in November (Chart 2-9-5).

(2) Viral genome surveillance

In FY2024, viral genome surveillance was conducted on 135 cattle from 55 farms. Genes of epizootic hemorrhagic disease virus (EHDV) were detected in Kumamoto Prefecture in August, in Oita, Miyazaki and Okinawa Prefectures in September, and in Saga and Nagasaki Prefectures in November (Chart 2-9-6). The serotypes of EHDV were confirmed to be serotype 6 in Kyushu, and serotypes 6 and 7 in Okinawa Prefecture. For bluetongue virus, viral genes were detected in Oita Prefecture in September, and in Kumamoto and Miyazaki Prefectures in November (Chart 2-9-7). Genetic testing for viruses belonging to the former Simbu serogroup and the Palyam serogroup was negative for all samples. The results of bovine arbovirus infection surveillance conducted in previous years are available at the following website:

<https://www.naro.go.jp/laboratory/niah/arbo/index.html>

Chart 2-9-2 Arboviruses subjected to surveillance

Virus group	Virus (Viruses subject to viral genome surveillance underlined)
Simbu serogroup virus	<u>Akabane virus</u> , <u>Aino virus</u> , Peaton virus, Sathuperi virus, Shamonda virus
Epizootic hemorrhagic disease virus	Epizootic hemorrhagic disease viruses including <u>Ibaraki disease virus</u>
Palyam serogroup virus	<u>Chuzan virus</u> , D'Aguilar virus
Bluetongue virus	<u>Bluetongue virus</u>

Chart 2-9-3 Results of sero-surveillance for Akabane disease in FY2024

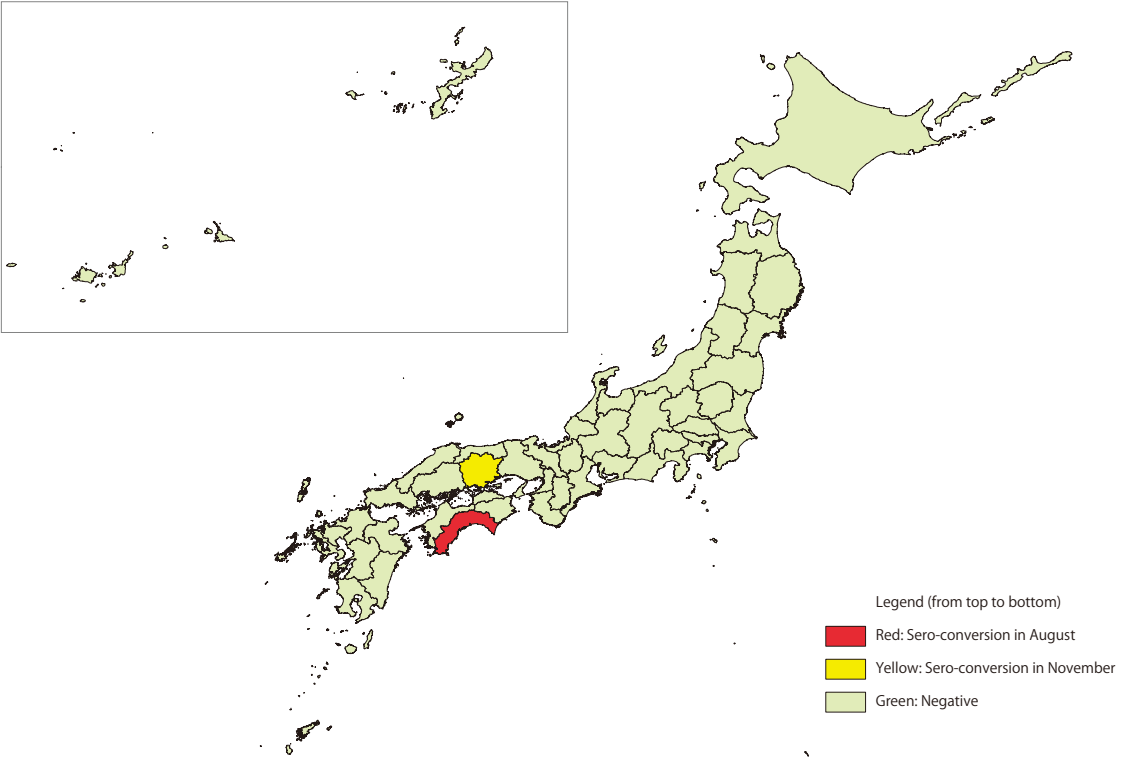


Chart 2-9-4 Results of sero-surveillance for Chuzan disease in FY2024

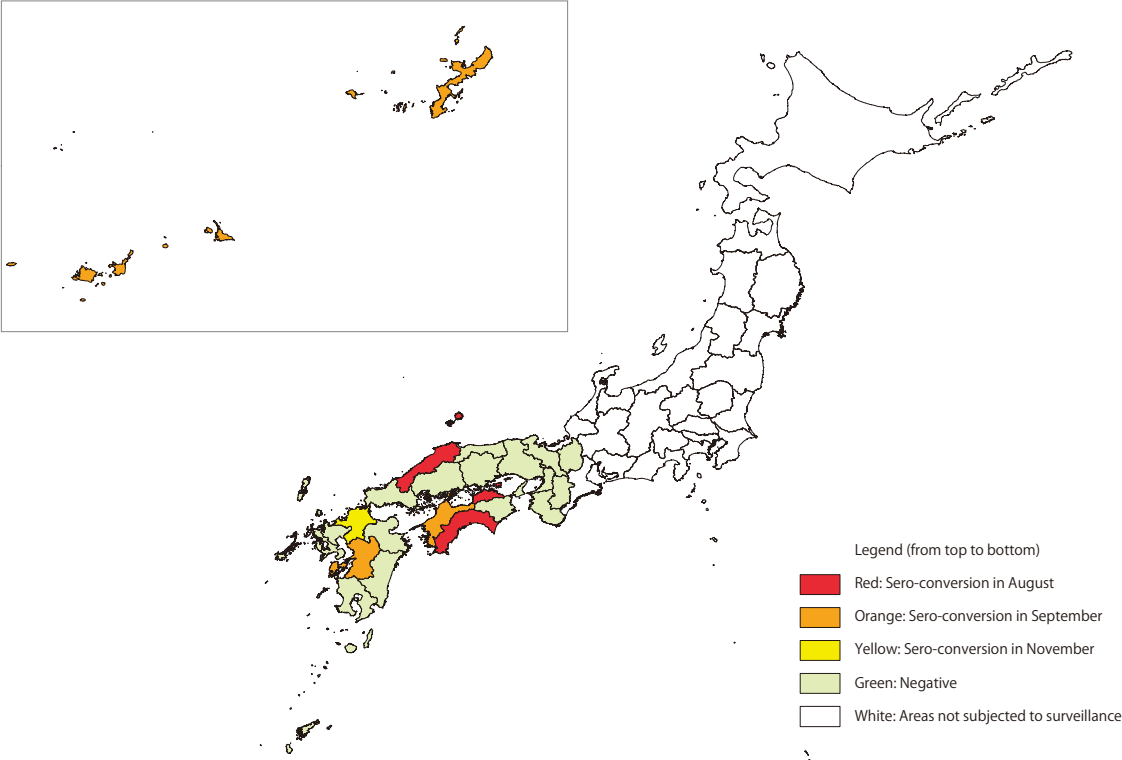


Chart 2-9-5 Results of sero-surveillance for Aino virus infection in FY2024

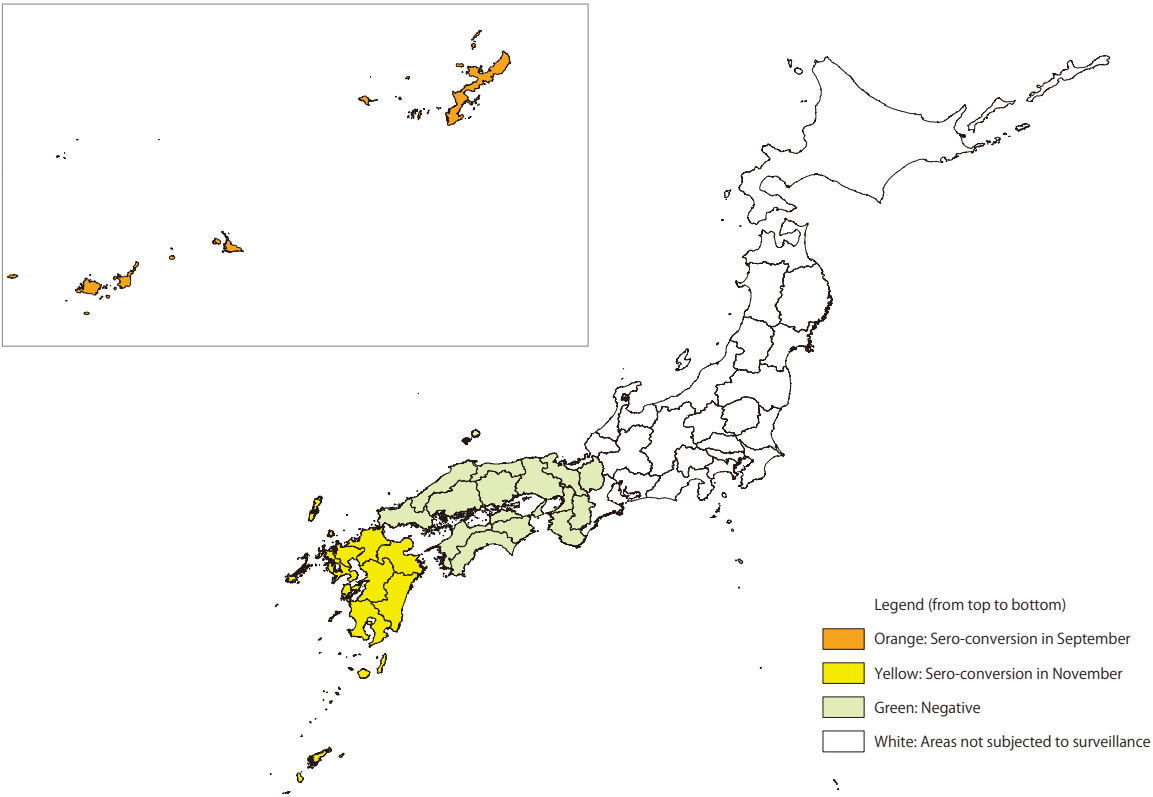


Chart 2-9-7 Results of viral genome surveillance for Bluetongue virus (BTV) in FY2024

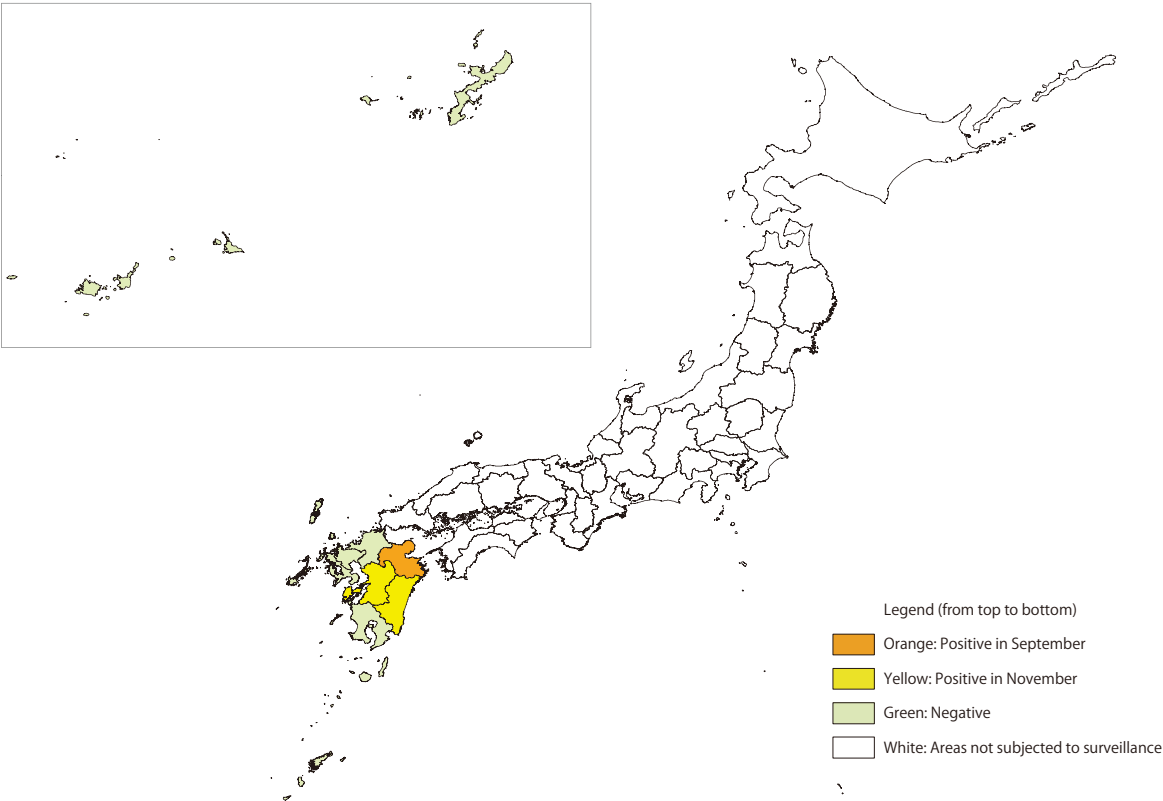
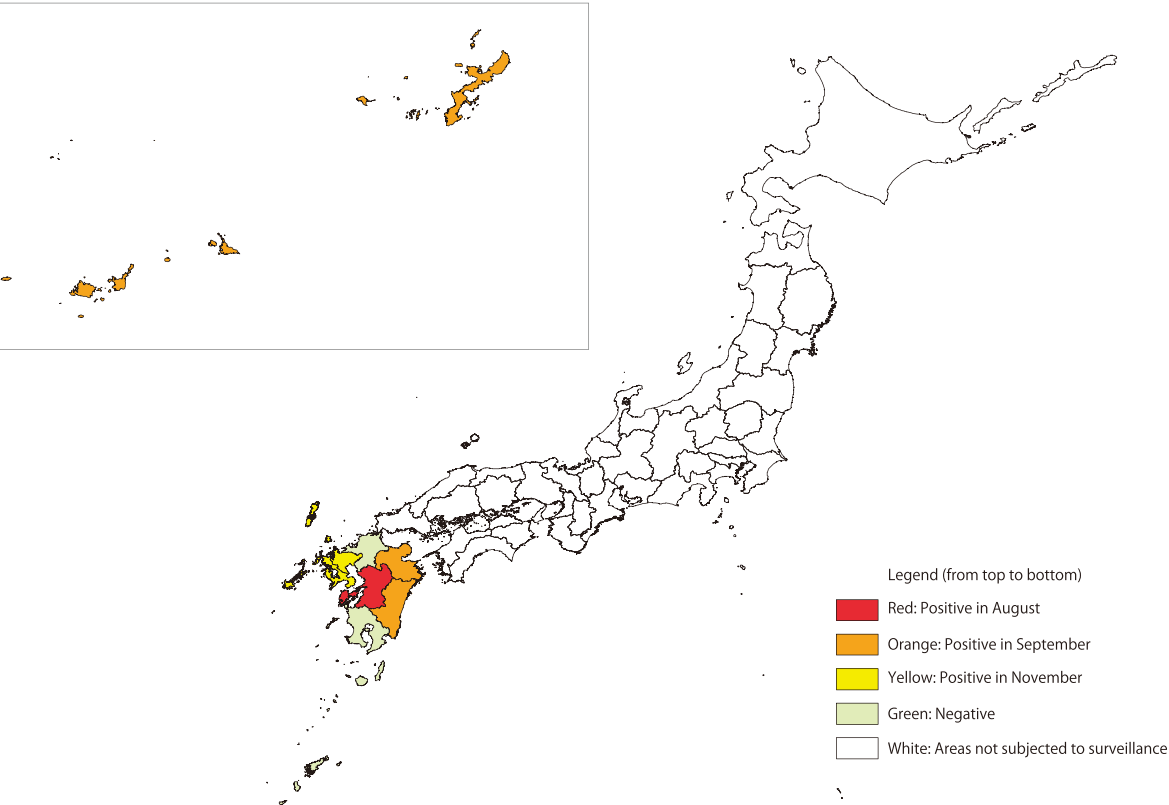


Chart 2-9-6 Results of viral genome surveillance for EHDV in FY2024



Epidemiological investigation following disease outbreaks

For particularly important livestock infectious diseases such as HPAI, CSF, and FMD, MAFF has established disease-specific “Guidelines for the Control of Specified Domestic Animal Infectious Diseases” in order to ensure a prompt response in the event of an outbreak. These guidelines define measures for prevention and control to be implemented through coordinated efforts among the national government, local governments, and relevant organizations.

When the occurrence of any of these diseases is suspected, prefectural governments conduct epidemiological investigations in accordance with the relevant guidelines. The purpose of these investigations is to prevent the further spread of the disease by promptly identifying animals and farms at risk of infection and implementing necessary measures such as culling and movement restrictions. Specifically, prefectures collect information on the movement of livestock, people, goods, and vehicles to and from the farm where the suspicion was reported, and carry out investigations to identify epidemiologically linked premises.

Furthermore, once a disease outbreak is confirmed, an epidemiological investigation team is formed to determine the potential source of the infection. This team consists of officials from MAFF, livestock hygiene officers from the prefecture in which the affected farm is located, and experts in epidemiology, virology, and wildlife, including wild birds. In principle, on-site investigations are conducted for all outbreak cases.

During on-site investigations, the team inspects the farm while interviewing the farm manager, confirming details such as the movement of poultry, people, and vehicles; biosecurity practices at entry and exit points (including the use of dedicated footwear and implementation of vehicle disinfection); routine farm biosecurity management; the presence of wild animals; and the surrounding environmental conditions. In addition, environmental samples are collected from locations such as shed floors, boots, and, in some cases, carcasses of wild animals found on the farm, and are tested for the presence of viruses.

The results of these investigations conducted by the epidemiological investigation team are summarized for each case and published on the MAFF website as on-site investigation summary reports. In addition, the findings are reviewed at official meetings of the epidemiological investigation team, where overall characteristics of the epidemic and issues identified through on-site investigations are analyzed. Based on these discussions, recommendations for future outbreak prevention and control are formulated and published as epidemiological investigation reports.

For example, the epidemiological investigation report on HPAI for the FY2024 season presented recommendations such as the designation of priority control periods and the implementation of coordinated, area-wide measures to reduce outbreak risk in regions with a high density of poultry farms. In this way, epidemiological investigations conducted during disease outbreaks play an important role in preventing disease spread and strengthening preparedness for future outbreaks.



MAFF
Information on Avian Influenza



MAFF
Outbreak Situation of Swine Fever in Japan



2-10 Other Surveillance

Wildlife Surveillance

Wild animals have been considered one of the potential routes for the introduction of diseases into live-stock populations. Even for diseases that are consid-ered to have been eradicated from livestock, there is a possibility that such diseases may be maintained in wildlife populations. Therefore, it is necessary to under-stand the status of livestock infectious diseases in wild animals.

For this purpose, MAFF is conducting surveillance targeting several wild animal species to monitor the prevalence of important livestock infectious diseases.

(1) Johne’s disease (targeting wild sika deer)

From FY2016 to FY2024, a total of 1,945 fecal sam-ples collected from wild sika deer were tested for Johne’s disease. As a result of PCR testing, 37 samples were identified as qualitatively positive (MAP was de-tected at low concentration). In addition, 10 samples were identified as quantitatively positive (MAP detect-ed above the reference level). Among these, three sam-ples were also confirmed positive by fecal culture (Chart 2-10-1).

(2) D’Aguilar virus (targeting wild sika deer)

D’Aguilar virus is an arbovirus transmitted to cattle by biting midges and is suspected to be associated with abnormal births in cattle.

Antibody testing for D’Aguilar virus was conducted on 1,297 serum samples collected from wild sika deer between FY2017 and FY2024. As a result, two samples (one sample each from Gunma Prefecture and Nagasa-ki Prefecture) were confirmed to be antibody-positive.

Of these two samples, one sample from Nagasaki Prefecture showed an equivalent neutralizing antibody titer against Chuzan virus, which has serological cross-reactivity; therefore, it could not be determined which virus the animal had been infected with.

(3) Chronic Wasting Disease (CWD) (targeting wild sika deer)

In FY2024, 80 samples (medulla oblongata) collect-ed from wild sika deer were tested for CWD, and all

samples tested negative.

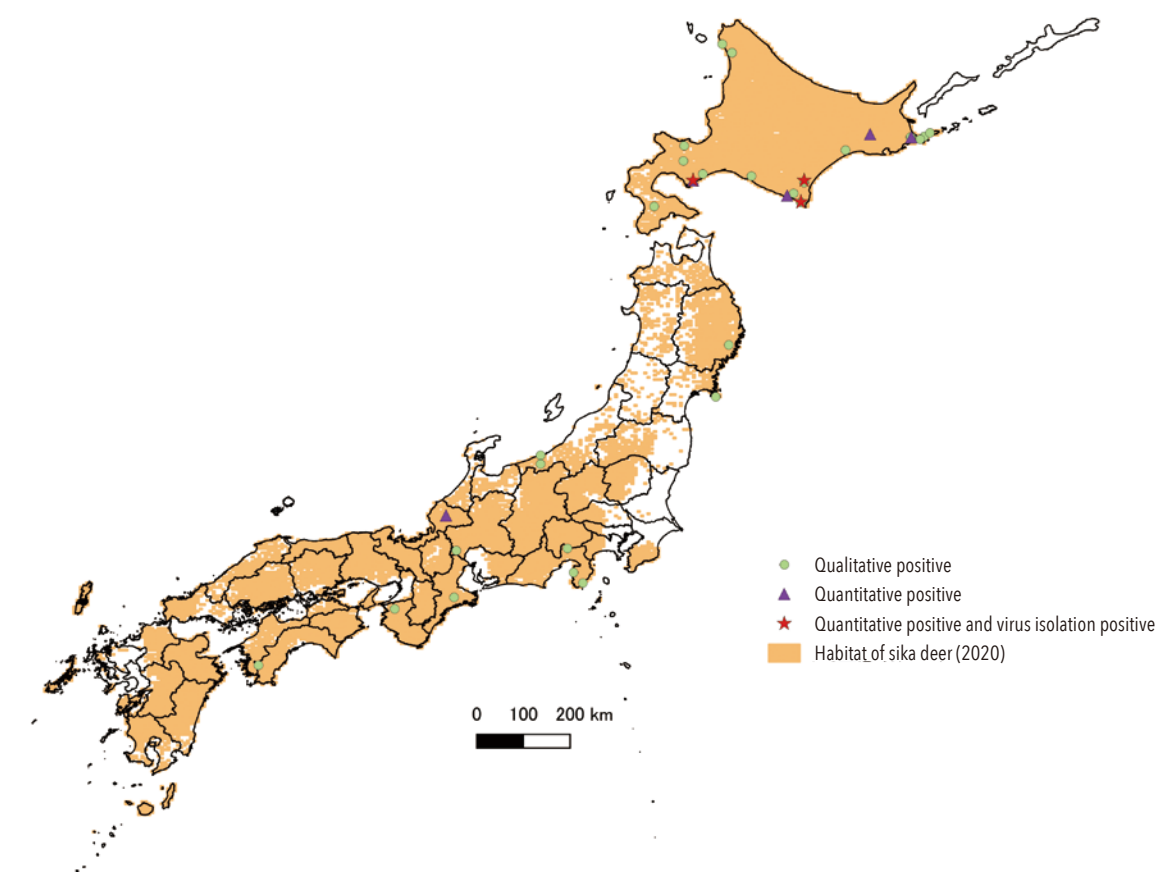
(4) Aujeszky’s disease (targeting wild boars)

Aujeszky’s disease is a Notifiable infectious disease characterized mainly by abnormal births in pregnant sows, neurological symptoms, and high mortality in suckling piglets. In Japan, eradication has been pro-moted based on the Aujeszky’s Disease Control Guide-lines, and no outbreaks in domestic pigs have been re-ported since 2017.

With regard to wild boars, in FY2023, surveillance was conducted on 320 wild boar samples collected from 32 prefectures nationwide. As a result, anti-body-positive results were confirmed in six samples from four prefectures (two samples from Mie Prefec-ture, one sample from Wakayama Prefecture, one sam-ple from Oita Prefecture, and two samples from Miyaza-ki Prefecture) (Chart 2-10-2).

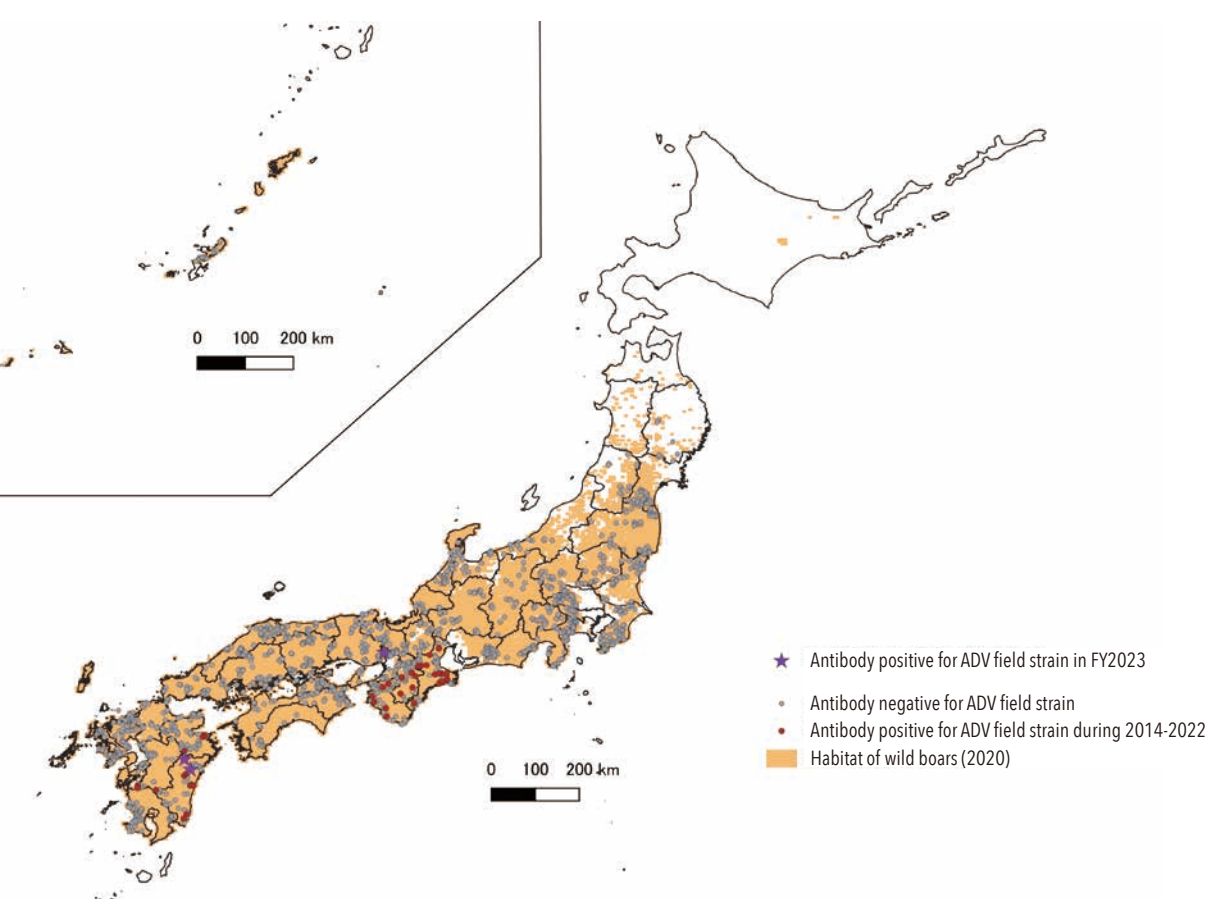
Surveillance is continuing in FY2024.

Chart 2-10-1 Johne’s disease surveillance in sika deer (2016-2024)



(Note: Habitat of sika deer is based on data published by the Ministry of the Environment (<https://www.env.go.jp/press/109239.html>))

Chart 2-10-2 Aujeszky’s disease surveillance in wild boars (FY2018-2023)



(Note: Habitat of wild boars is based on data published by the Ministry of the Environment (<https://www.env.go.jp/press/109239.html>). Although the map indicates wild boars habitat includes Hokkaido, according to Hokkaido, they originated from a captive boar-pig hybrid, and no wild boars in their natural state have been confirmed in Hokkaido.)

(5) Swine erysipelas testing (targeting wild boars)

Swine erysipelas is a Notifiable infectious disease of pigs and wild boars caused by *Erysipelothrix rhusiopathiae*. The disease can also infect other mammals, including humans, as well as birds. In Japan, more than 800 cases are reported annually in domestic pigs.

With regard to wild boars, antibody testing for swine erysipelas was conducted on 271 samples collected from 27 prefectures nationwide in FY2024. As a result, antibody-positive wild boars were detected in all 27 prefectures. In approximately half of these prefectures

(13 prefectures), high antibody prevalence exceeding 80% was observed.

More information on wildlife surveillance can be found at:

https://www.maff.go.jp/j/syouan/douei/katiku_yobo/wildlife_surveillance.html



Appendixes