Annual Report on Animal Infectious Disease Surveillance in 2021

Animal Health Division, Food Safety and Consumer Affairs Bureau, Ministry of Agriculture, Forestry and Fisheries

Preface

Japan has been addressing a number of animal diseases in order to promote livestock production and support the nation's diet. In particular, with regard to infectious animal diseases, Japan has been working for prevention of the invasion and spread of the transboundary animal diseases such as foot and mouth disease (FMD), classical swine fever (CSF), bovine spongiform encephalopathy (BSE), and highly pathogenic avian influenza (HPAI) in accordance with the Act on Domestic Animal Infectious Disease Control and other related laws, and has also achieved eradication of diseases that have long been endemic in Japan, such as tuberculosis and brucellosis in cattle.

In light of the current situation, after the confirmation of CSF outbreak in domestic pigs in September 2018 for the first time in 26 years in Japan, the infected area has expanded through infection in the wild boar population. Even after the start of the vaccination program against CSF in domestic pigs, sporadic CSF outbreaks have been reported. In addition, with regard to HPAI, the avian disease which is reported across the globe and occurs in Japan from autumn to early spring at the time of migration of wild birds, Japan conducts avian influenza surveillance in poultry and wild bird for the purpose of early warning. In addition, we also address diseases such as Johne's disease and bovine leukemia, which diminish livestock productivity.

In order to prevent the invasion and spread of infectious animal diseases, or to control and eradicate existing diseases, it is crucial to monitor the introduction and occurrence of diseases constantly, as well as to ensure prompt reporting of disease outbreaks. Thus, Japan conducts various animal infectious disease surveillance based on the yearly surveillance plan developed every year.

This Annual Report of Animal Infectious Disease Surveillance contains information on the disease status of infectious animal diseases, results of the surveillance, and other recent topics related to infectious animal diseases relevant to livestock. We believe it is essential to disclose the disease status in Japan in a simple and accessible format to improve the public's understanding on livestock production and eventually promote the export of livestock products. We hope that this annual report will be helpful to all those involved in livestock production and the animal health sector.

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Terms of Use

This document summarizes the animal infectious disease surveillance and other activities conducted in the fiscal year 2021 (April1,2021,through March 31,2022) in principle. Since some disease outbreaks and surveillance results are required to be reported on an annual basis while others are required to be reported on a fiscal year basis, the figures in this annual report are aggregated on either a yearly or annual basis, depending on the item. The figures compiled on a fiscal year basis are marked with "FY".

For the latest information on disease outbreaks, visit the Ministry of Agriculture, Forestry and Fisheries (MAFF) website.

Note that the URLs and QR codes of the websites in this report are current as of the publication and may be changed or deleted in the future.

CONTENTS

Special Feature 1

Response to the classical swine fever outbreaks

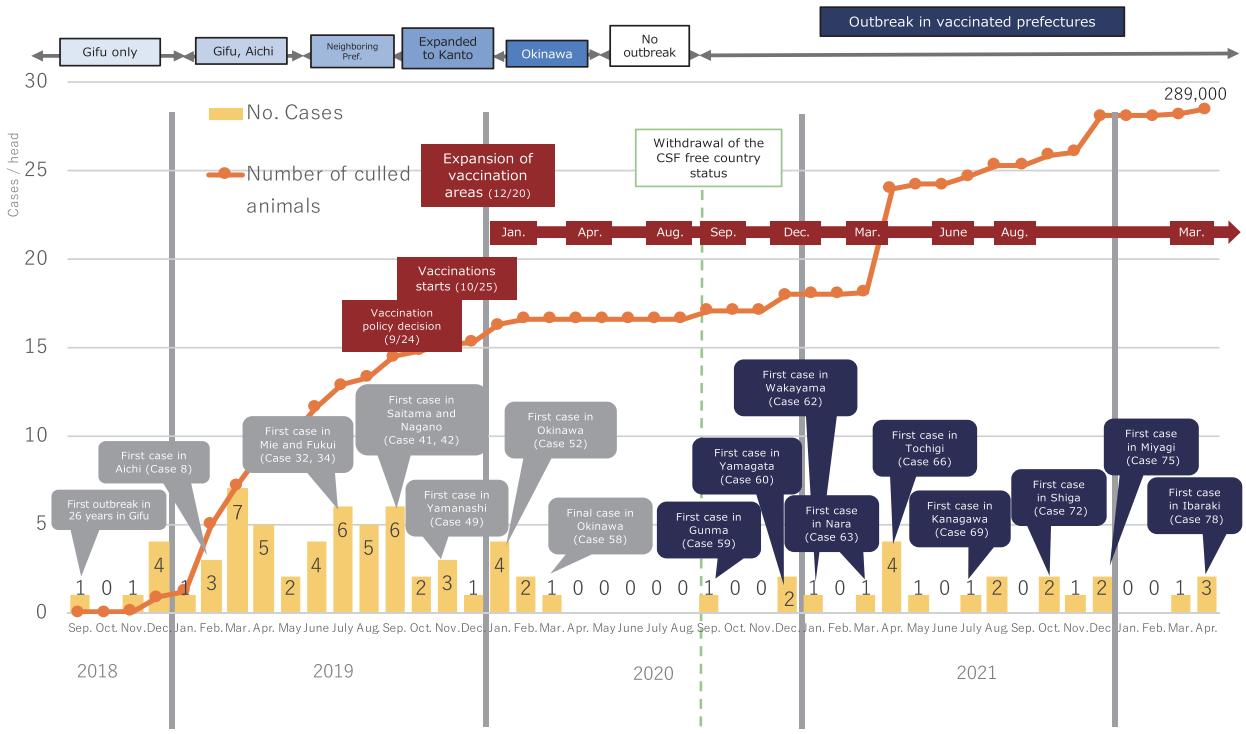
In September 2018, the first outbreak of classical swine fever in Japan in 26 years was confirmed on a swine farm in Gifu prefecture. As the disease spread in domestic pigs with the expansion of infection in the wild boar population, Japan initiated the application of oral vaccine (bait vaccine) for wild boars in March 2019 and vaccination of domestic pigs on a farm in the designated area in October 2019. Sporadic outbreaks have been confirmed on farms even after the CSF vaccination began in domestic pigs.

Outbreaks in domestic pigs

By the end of FY2020, 63 outbreaks had been reported in pig farms in 12 prefectures (Gifu, Aichi, Mie, Fukui, Saitama, Nagano, Yamanashi, Okinawa, Gunma, Yamagata, Wakayama, and Nara Prefectures). In FY2021, there were new outbreaks in Tochigi, Kanagawa, shiga, and Miyagi prefectures, bringing the total to 77 cases in 16 prefectures by the end of FY2021.

The designated areas for vaccination of domestic pigs are determined through discussions in an expert committee, taking into account the infection situation in wild boar and the wild boar habitat. In FY2021, nine prefectures were newly designated as areas recommended for the vaccination of domestic pigs, and in

Figure S1-1 CSF history in Japan since 2018



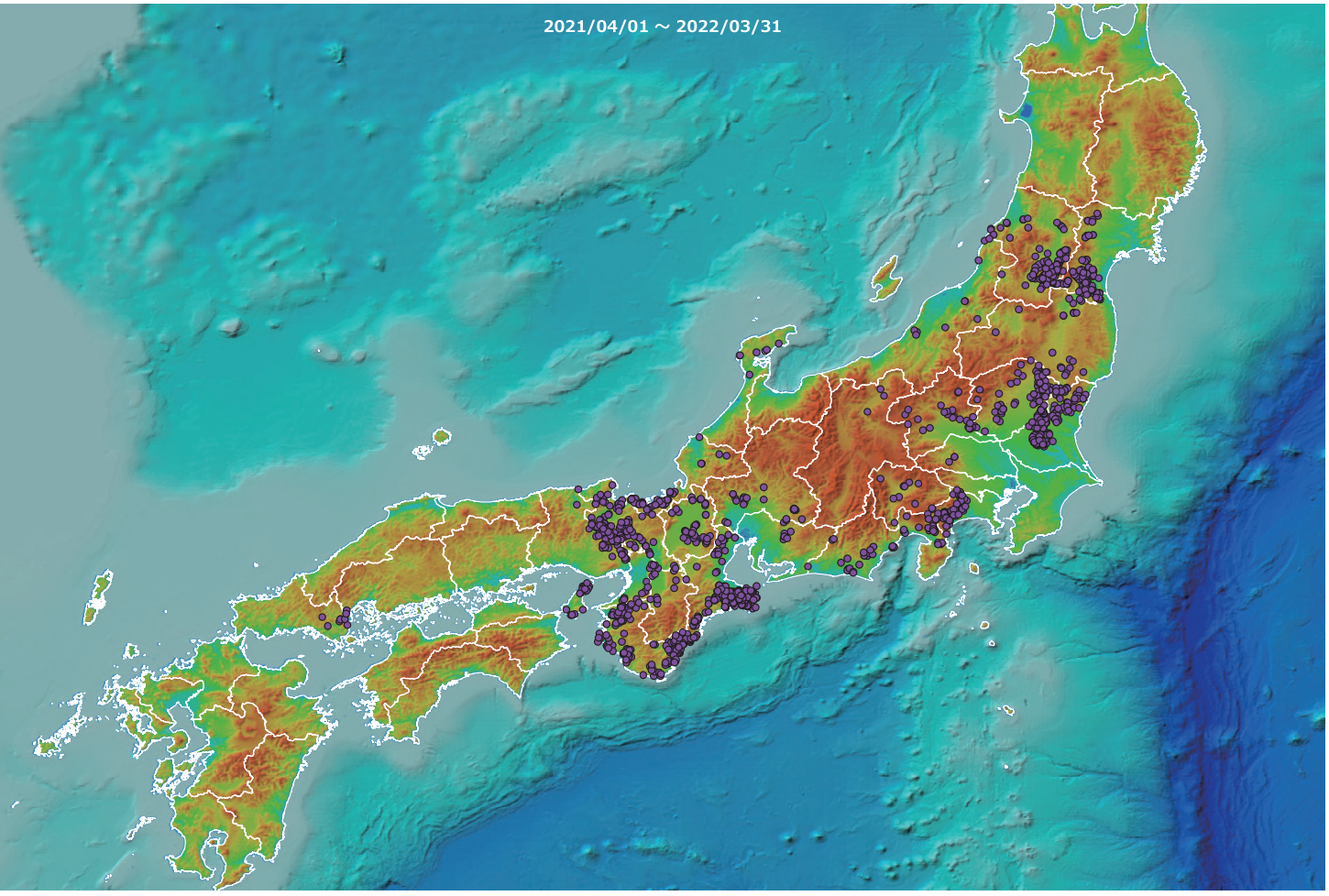
total, 39 prefectures (excluding Hokkaido and Kyushu) were designated. All outbreaks during FY2021 occurred within the vaccination areas.

Infection in wild boars

CSF cases in wild boars, confirmed in only two prefectures in FY2018 at the beginning of the outbreak, had been confirmed in 24 prefectures by FY2020. In FY2021, CSF cases in wild boars were reported in three more prefectures counting 27 prefectures in total at the end of FY2021.

Notably, in March 2022, an infected wild boar was reported in Yamaguchi Prefecture, located approximately 280 km west of Hyogo Prefecture, the westernmost wild boar-infected area in Honshu until then. According to the of whole genome analysis, the CSF virus derived from the wild boar detected in Yamaguchi Prefecture was found to be most closely related to a virus derived from the infected wild boar found in the eastern Kii Peninsula, approximately 500 km away, rather than to a virus derived from the infected wild boar found in Hyogo Prefecture and other relatively close locations. This finding raised concerns that the virus may have been introduced to the remote area through human activity.

Figure S1-2 Locations of CSF positive wild boars as the end of FY2021



Background map: GSI Geographical Survey Institute Tiles (color-coded elevation maps); ocean areas were created using data from the Japan Coast Guard's Maritime Information Department.

In response to the spread of infection in wild boars, 19 prefectures were newly added to the recommended area for the application of oral vaccine in FY2021. Approximately 1.53 million doses of oral vaccine were distributed in 28 prefectures until the end of FY2021. In addition, to reduce the density of wild boars and prevent the spread of the disease, enhanced trapping of wild boars has been implemented in areas where infection has been confirmed.

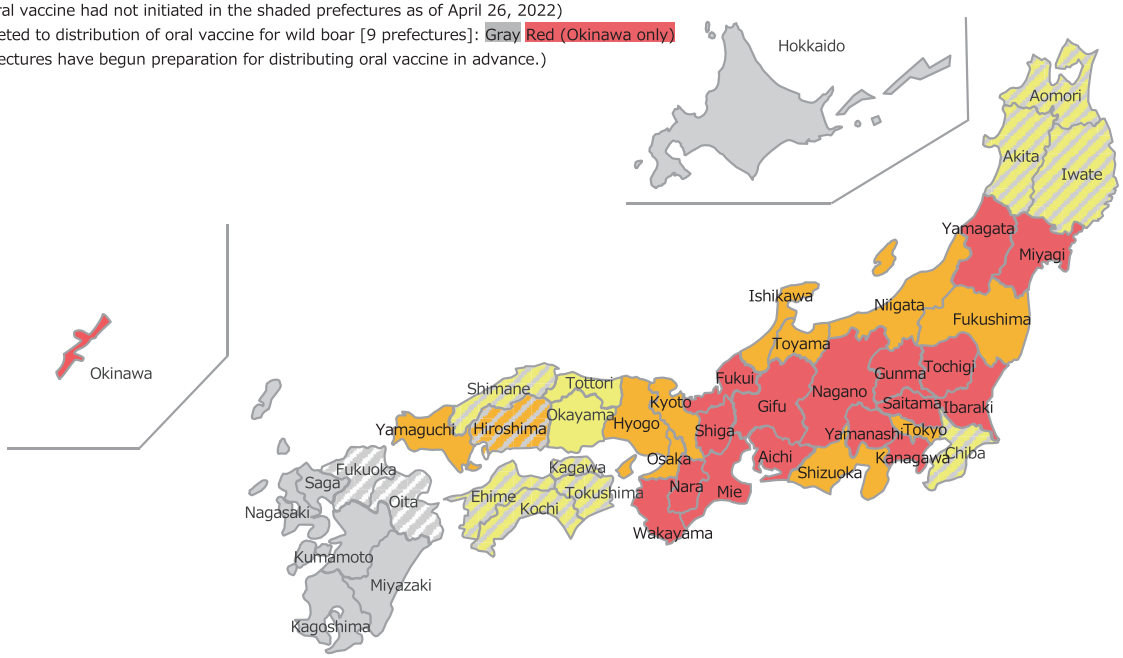
Outbreak features and measures applied

The epidemiological investigation conducted following outbreaks revealed that most of the outbreaks during FY2021 (all within the vaccination area) occurred in weaned pigs. In most situations, wild boars have been found in the vicinity of the affected farms. Comparison of the whole genome sequences of viruses obtained from the affected farms and infected wild boars indicates that in many cases, viruses closely related to those obtained from outbreak farms were detected in wild boars in the vicinity, suggesting that viruses carried by wild boars roaming around farms somehow entered the farms and infected domestic pigs.

Even in the vaccinated farms, there are always susceptible animals on the farm because each animal has its optimal period for vaccination and there is a gap between the actual timing of vaccination and the optimal period for effective vaccination. Therefore, it is impractical to prevent infection by vaccination alone when infected wild boars are present in the surrounding area, and strict biosecurity measures such as ensuring thorough disinfection when entering the pig shed, preventing entry of small wild animals which can be a source of mechanical transmission, avoid attracting wild animals by cutting down trees around farms, keep-

Figure S1-3 Prefectures subject to oral vaccine distribution as of the end of FY2021

Prefectures with CSF outbreaks in domestic pigs [17 prefectures]: Red
Prefectures with CSF cases in wild boars [27 prefectures]: Red (except Okinawa) Orange
Prefectures targeted to distribution of oral vaccine for wild boar [38 prefectures]: Red (except Okinawa) Orange Yellow
(Distribution of oral vaccine had not initiated in the shaded prefectures as of April 26, 2022)
Prefectures not targeted to distribution of oral vaccine for wild boar [9 prefectures]: Gray Red (Okinawa only)
(The shaded prefectures have begun preparation for distributing oral vaccine in advance.)

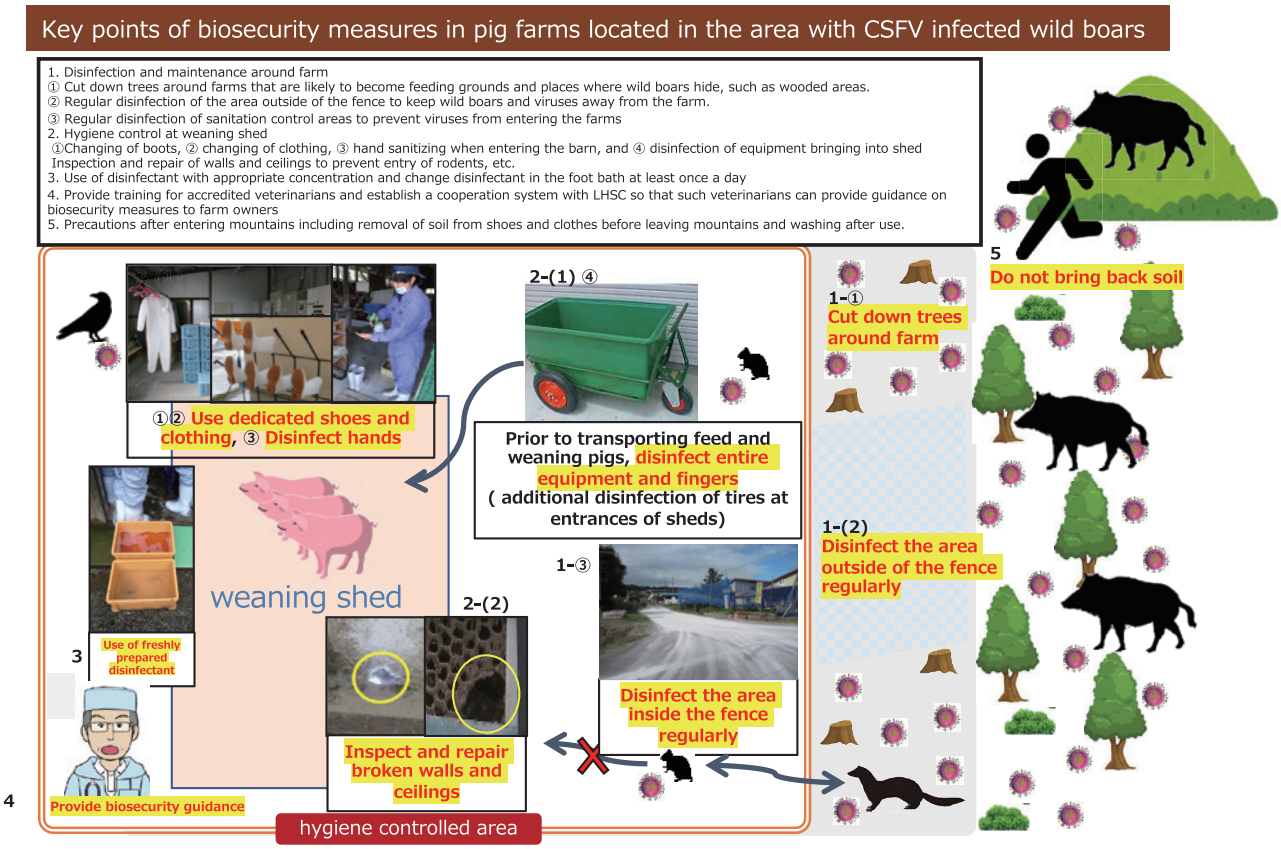


ing the farm organized, and disinfecting the area around the farm to keep wild boars and the virus away from farms are crucial. Furthermore, to prevent the virus being carried around by forest workers and tourists who enter the mountains, posters to raise awareness were distributed.

The latest updates on CSF, including recent outbreaks, results of wild boar testing and oral vaccination status in wild boars, can be found on the MAFF website. https://www.maff.go.jp/j/syouan/douei/csf/

Figure S1-4 A poster to raise awareness for hikers

FigureS1-5 Biosecurity measures in pig farms located in the area with CSFV infected wild boars



[Source: Subcommittee on Bovine and Swine Diseases, Expanded Swine Fever Epidemiological Study Team, December 7, 2021, Recommendations based on the outbreak of swine fever in Maebashi and Kiryu Cities, Gunma Prefecture.]

Special Feature 2

Highly pathogenic avian influenza in the 2021-2022 season

In 2004, the outbreak of highly pathogenic avian influenza (HPAI) was reported in Japan for the first time in 79 years. Since then, HPAI outbreaks have been repeated every few years from late autumn to early spring. In the 2021-2022 season (hereinafter referred to as "this season"), a total of 25 outbreaks were confirmed in 12 prefectures from November 2021 to May 2022, marking the second consecutive year of outbreaks following the 2020-2021 season, in which a total of 52 outbreaks were confirmed.

Overview of outbreaks during this season

In this season, a total of 25 outbreaks (H5N8 and H5N1 subtypes) have been confirmed in 12 prefectures across Japan from Kyushu to Hokkaido, starting from the layer farm in Akita Prefecture on November 10, 2021, caused by H5N8 virus.

In the past seasons, the last outbreak of the season was reported in April. However, this season, 8 cases (32% of the total) occurred in April or later, and the last outbreak occurred on May 14, indicating a prolonged outbreak season (Table S2-1, Fig. S2-1). 12 of the 25 cases (48%) occurred in Hokkaido and Tohoku regions.

Table S2-1 List of HPAI outbreaks in poultry during the 2021-2022 season

	area	date of confirmation	use	No. of animals (ten thousands)	subtype
1	Yokote-shi, Akita	11/10	Layer	14.3	H5N8
2	Izumi-shi, Kagoshima	11/13	Layer	3.9	H5N1
3	Izumi-shi, Kagoshima	11/15	Layer	1.1	H5N8
4	Himeji-shi, Hyogo	11/17	Layer	15.5	H5N1
5	Nankan-machi, Kumamoto	12/3	Broiler	6.7	H5N1
6	Ichikawa-shi, Chiba	12/5	Duck (Aigamo)	0.03	H5N1
7	Misato-machi, Saitama	12/7	Layer	1.7	H5N1
8	Fukuyama-shi, Hiroshima	12/7	Layer	3.0	H5N1
9	Sannohe-machi, Aomori	12/12	Broiler	0.7	H5N1
10	Saijo-shi, Ehime	12/31	Layer	13	H5N1
11	Saijo-shi, Ehime	1/4	Layer	8.3	H5N1
12	Saijo-shi, Ehime	1/4	Layer	14.2	H5N1
(12)	Imabari-shi, Ehime	1/4	Layer	0.6	–
13	Nagashima-cho, Kagoshima	1/13	Broiler	5.4	H5N1
(13)	Nagashima-cho, Kagoshima	1/13	Broiler	5.7	–
14	Yachimata-shi, Chiba	1/19	Broiler	6.6	H5N1
15	Sosa-shi, Chiba	1/26	Duck	0.17	H5N1
(15)	Sosa-shi, Chiba	1/26	Duck	0.12	–
(15)	Kasumigaura-shi, Ibaraki	1/26	Duck	0.11	–
(15)	Kasukabe-shi, Saitama	1/26	Duck	0.14	–
(15)	Kumagaya-shi, Saitama	1/26	Duck	0.04	–
16	Kuji-shi, Iwate	2/12	Broiler	4.5	H5N1
17	Ishinomaki-shi, Miyagi	3/25	Broiler	3.2	H5N1
18	Yokohama-machi, Aomori	4/8	Broiler	17	H5N1
19	Yokohama-machi, Aomori	4/15	Broiler	11	H5N1
20	Shiraoi-cho, Hokkaido	4/16	Layer	52	H5N1
21	Abashiri-shi, Hokkaido	4/16	Emu / Layer	0.05 / 0.01	H5N1
22	Daisen-shi, Akita	4/19	Layer	0.04	H5N1
23	Kushiro-shi, Hokkaido	4/26	Emu	0.01	H5N1
24	Ichinoseki-shi, Iwate	5/12	Emu	0.001	H5N1
25	Abashiri-shi, Hokkaido	5/14	Layer	0.08	H5N1

Some prefectures had multiple outbreaks, while others had only one outbreak. There were no outbreaks in the Hokuriku and Tokai regions. In addition to layer and broiler farms, HPAI outbreaks were also confirmed at duck farms, and at ostrich and emu farms.

Fig. S2-1 Number of outbreaks per month during the 2021-2022 season

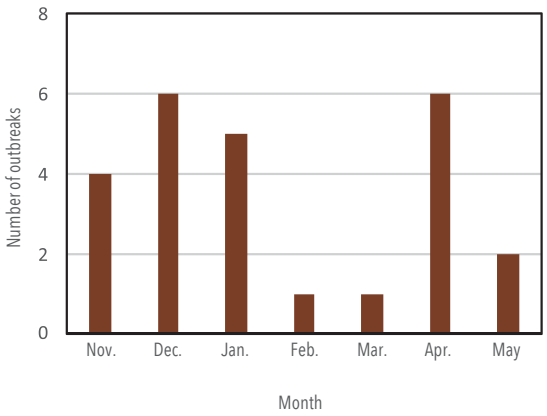
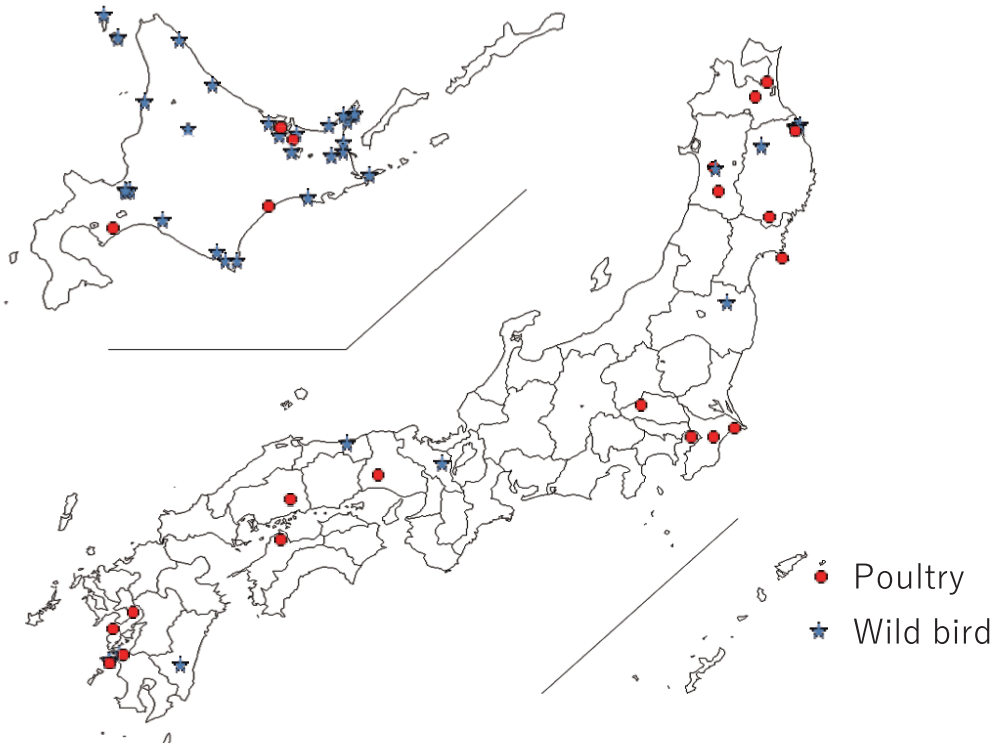


Fig.S2-2 Location of the HPAI confirmation cases in poultry and wild birds during the 2021-2022 season



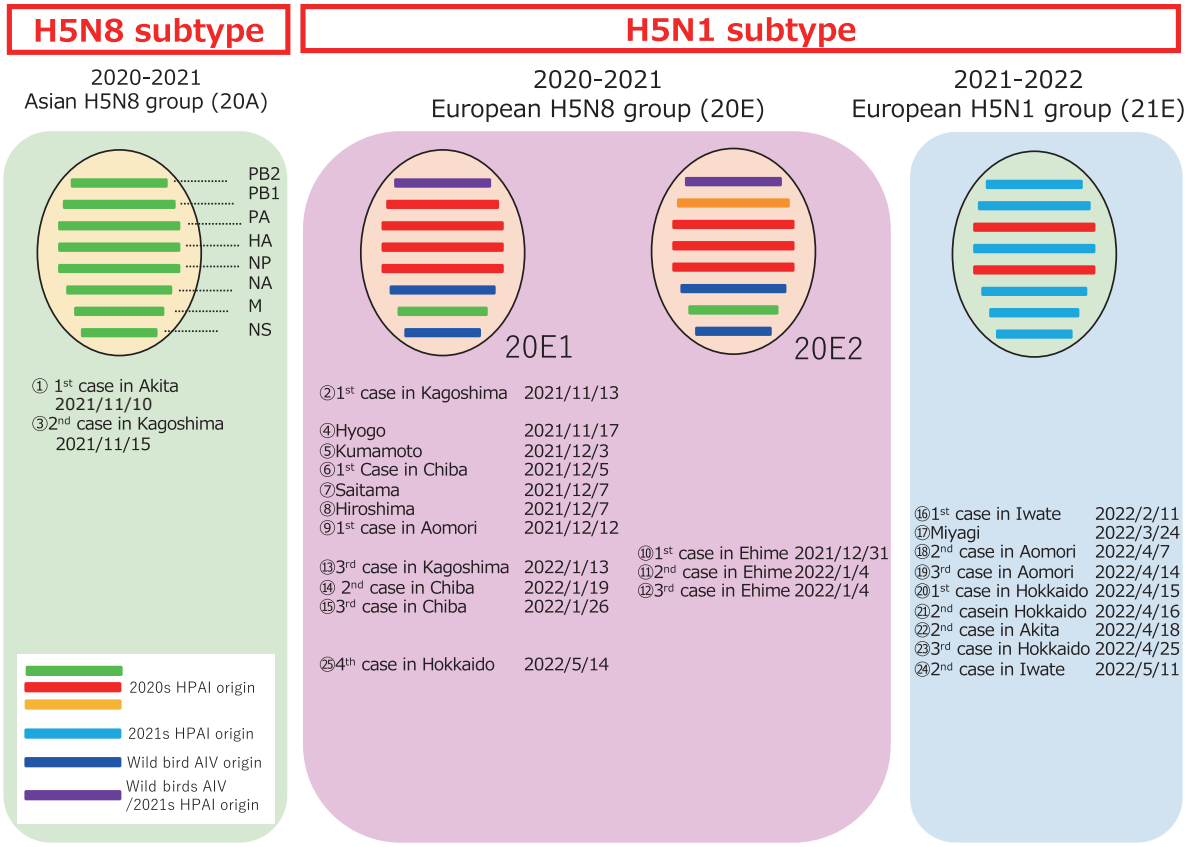
Outbreaks in wild birds

This season, a number of HPAI cases in various wild bird species was confirmed. A total of 107 HPAI cases (84 cases with H5N1, 7 cases with H5N8, 16 cases with H5) were reported in wild birds. Virus was detected in live or dead birds (13 species and 98 cases, respectively), feces (1 case), and environmental samples such as habitat water (8 cases) from November to May of the following year, in 8 prefectures in Japan. In addition to ducks, which are thought to be carriers of the virus through migration, raptors and crows were confirmed to be infected with the virus. Regarding crows, from January to April, HPAI virus infection in jungle crows in northern Tohoku and Hokkaido areas were confirmed in a row. The infection was massive and widely spread, and many carcasses were recovered in the same municipality.

Characteristics of isolated viruses

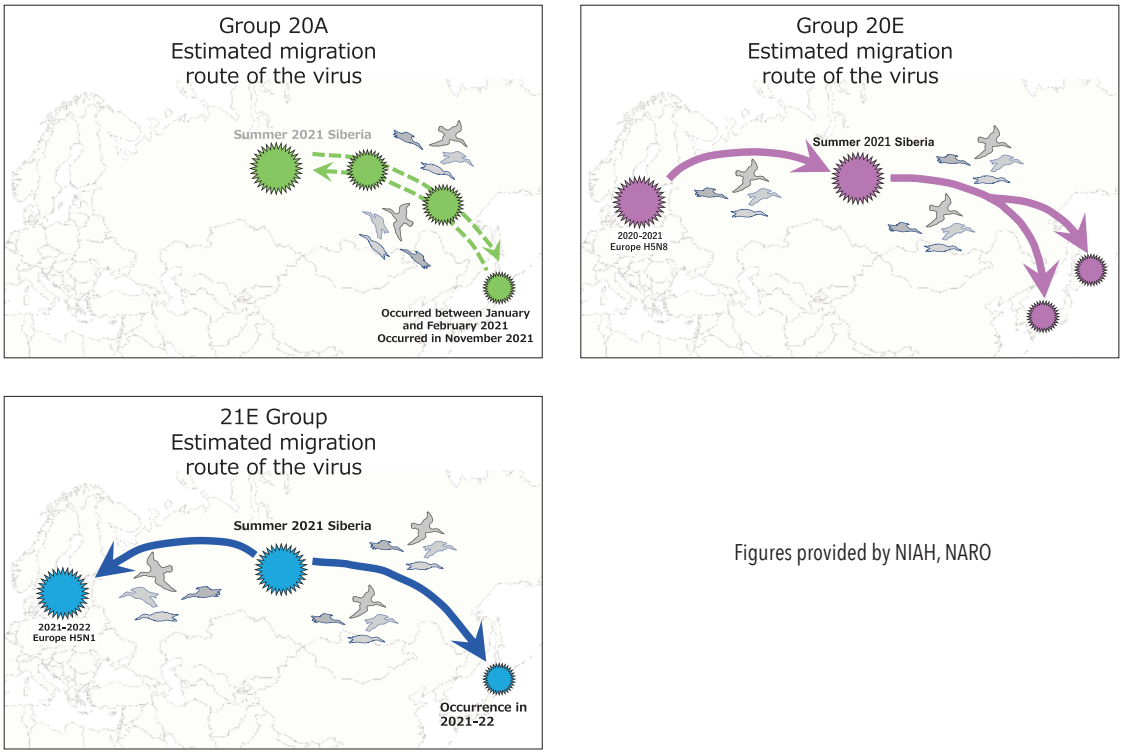
Whole genome sequencing analysis was conducted to genetically characterize avian influenza viruses isolated from 25 outbreaks in poultry this season. Based on the analysis, three groups were identified. The H5N8 subtype was the one isolated in Asia, including Japan, from 2020 to 2021 (2020-2021 Asian H5N8 group: genotype 20A) and H5N1 subtype was further divided into two groups; the H5N8 subtype isolated in the European region from 2020 to 2021 (2020-2021 European H5N8 group: genotype 20E) and H5N1 subtype isolated in European region from 2021-2022 (2021-2022 European H5N1 group: genotype 21E) (Figures S2-3 and S2-4). Furthermore, 2020-2021 European H5N8 group includes two types of gene reassortant virus genotypes 20E1 and 20E2, indicating that four different viruses were introduced into Japan by migratory birds.

Fig.S 2-3 Genetic diversity of H5N8 HPAI virus based on phylogenetic analysis targeting 8 segments



Figures provided by NIAH, NARO

Fig.S2-4



Figures provided by NIAH, NARO

Response to outbreaks

In preparation for HPAI outbreak, taking opportunities such as the national animal health meeting and publishing official notifications, MAFF called on prefectures and relevant organizations to take measures to prevent occurrence and spread of the disease, including ensuring early detection and early notification, before the arrival of migratory birds. In response, all stakeholders took actions for preparedness before the season began. For example, prefectures issued warnings to poultry owners, formulated mobilization and procurement plans to prepare for outbreaks, and secured prefectural stockpiles.

In response to the outbreak on poultry farms, relevant institutions, organizations, municipalities, and the self-defense forces cooperated in taking disease containment measures such as prompt culling of birds and disposal of contaminated items to prevent the spread of the disease. In addition, the National Institute of Animal Health (NIAH) of the National Agriculture and Food Research Organization (NARO) conducted confirmatory tests around the clock to confirm the results of tests conducted by the prefecture and to evaluate pathogenicity so that prompt response measures could be initiated. Furthermore, an epidemiological investigation team consisting of government officials and experts entered the affected farm and conducted epidemiological investigations.

The last outbreak of this season occurred on May 14, 2022, at a layer farm in Hokkaido. Containment measures were completed on May 15, 2022, and all movement restrictions were lifted on June 6. Japan declared HPAI free on June 13, 2022, in accordance with the World Organisation for Animal Health (WOAH) Terrestrial Animal Health Code.

For more information on HPAI, see also following website.
https://www.maff.go.jp/j/syouan/douei/tori/index.html

Photo courtesy of (top) Hokkaido, (right) NIAH, NARO

1 Occurrence of animal infectious diseases in Japan

In Japan, under the Act on Domestic Animal Infectious Diseases Control (Act No. 166 of 1951), 28 diseases of particular importance for livestock sector, including 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.

In 2021, among the Domestic animal infectious diseases, CSF outbreaks were sporadically reported throughout the year, as in the previous year (see Special Feature 1). In addition, a total of 25 cases of HPAI outbreaks occurred in the 2021-2022 season (see Special Feature 2). Japan maintains the free status of FMD and African swine fever (ASF), which continue to occur in the Asian region. Japan also remains BSE-free. For bovine tuberculosis and brucellosis, the free status of the domestic cattle herd was confirmed through intensive surveillance conducted for three consecutive years starting in FY2018, and the disease freedom was declared (see COLUMN on page 27). The occurence of Johne's disease, one of the Domestic animal infectious diseases, and bovine leukosis, one of the Notifiable infectious diseases, are continuously confirmed.

The WOAH 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.

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

Table 1-1 Official recognition of specific disease status by WOAH

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

Table1-2 Number of reported outbreaks of the major Domestic animal infectious disease (year)

		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
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
Infectious encephalitis (pig)	# of farms	3	4	6	2	5	0	0	0	1	0
	# of animals	15	8	8	3	17	0	0	0	2	0
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	1	0	0	0	0	0	0	0
	# of animals	0	0	1	0	0	0	0	0	0	0
Johne's disease (cattle)	# of farms	211	294	326	327	315	374	321	380	399	446
	# of animals	405	573	783	691	624	817	831	1066	809	957
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	0	0	0	1	0	0	0	0	0
	# of animals	0	0	0	0	1	0	0	0	0	0
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	0	0	0	5	45	10	15
	# of animals	0	0	0	0	0	0	8	102	23	43
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	0	0	4	2	5	5	1	0	33	25
	# of animals	0	0	18	13	27	33	8	0	113	152
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
Foul brood	# of farms	42	49	57	59	42	30	42	33	39	33
	# of animals	127	230	168	130	89	74	135	104	127	110

*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 2012 and 2021.
Rinderpest, Contagious bovine pleuropneumonia, Rabies, Vesicular stomatitits, Rift valley fever, Anthrax, Hemorrhagic Septicemia, Glanders, African horse sickness, Peste des petits ruminants, Fowl cholera, Avian salmonelosis, Swine vesicular disease.

Table1-3 Number of reported major Notifiable infectious diseases outbreaks (year)

		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bluetongue (cattle)	# of farms	0	0	0	0	0	1	0	1	0	0
	# of animals	0	0	0	0	0	2	0	1	0	0
Akabane disease (cattle)	# of farms	5	7	2	3	2	0	0	0	1	0
	# of animals	5	8	2	3	2	0	0	0	1	0
Malignant catarrhal fever	# of farms	0	2	1	1	0	0	1	0	1	0
	# of animals	0	2	1	1	0	0	1	0	1	0
Lumpy skin 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
Bovine viral diarrhea/ mucosal disease	# of farms	118	120	134	158	222	221	230	207	148	109
	# of animals	189	228	259	310	406	380	382	359	265	235
Infectious bovine rhinotracheitis	# of farms	20	19	19	14	15	13	4	9	5	12
	# of animals	288	1006	105	129	648	54	7	44	11	36
Bovine leukosis	# of farms	1446	1680	1683	2023	1998	2227	2323	1944	2075	2179
	# of animals	2090	2310	2415	2869	3125	3453	3859	4113	4197	4375
Bovine ephemeral fever	# of farms	5	2	0	11	0	0	0	4	0	0
	# of animals	15	2	0	22	0	0	0	7	0	0
Bovine campylobacteriosis	# of farms	1	1	0	1	1	3	1	1	0	0
	# of animals	1	1	0	1	1	3	1	1	0	0
Trypanosomiasis (cattle)	# of farms	1	1	1	0	0	0	1	1	0	0
	# of animals	1	1	1	0	0	0	1	1	0	0
Equine 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
Equine rhinopneumonitis	# of farms	25	21	19	25	26	18	24	17	19	13
	# of animals	48	46	54	42	59	34	31	21	37	18
Aujeszky's disease	# of farms	1	0	0	1	0	1	0	0	0	0
	# of animals	3	0	0	5	0	4	0	0	0	0
Transmissible gastroenteritis	# of farms	1	8	14	0	1	0	0	1	0	2
	# of animals	1	70	469	0	63	0	0	4	0	8
PRRS	# of farms	34	36	19	34	29	23	27	25	19	18
	# of animals	87	157	39	131	82	58	80	58	34	72
Porcine epidemic diarrhea	# of farms	0	44	836	217	87	66	33	137	35	34
	# of animals	0	180	3885	1088	420	251	173	764	242	202
Infectious bronchitis	# of farms	14	5	13	12	21	25	27	15	25	28
	# of animals	538	48	1058	4717	3029	545	153	127	705	1417
Infectious laryngotracheitis	# of farms	5	6	4	5	1	10	2	1	7	8
	# of animals	10	22	15	21	5	13	8	20	16	27
Avian mycoplasmosis	# of farms	1	5	3	6	16	2	6	7	7	1
	# of animals	4	218	14	23	58	8	13	25	28	2
Nosemosis	# of farms	0	3	0	0	5	2	2	3	0	1
	# of animals	0	3	0	0	8	2	4	4	0	1

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 boar caused by Brucella species (*Brucella abortus, B. melitensis, B. suis*), designated as a Domestic animal infectious disease in Japan. It is also recognized as a zoonotic disease because the pathogen is also infective 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 herd through the nationwide surveillance conducted during FY2018-2020.

Objectives and methods of surveillance

Since cattle herds in Japan have already been qualified as free from the disease, the surveillance is now being conducted aiming to maintain 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 was 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 that were targeted for the surveillance in the previous year were excluded.

(3) Surveillance of cattle that experienced abortion or stillbirth

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

Table2-1-1 Number of brucellosis cases

	2019	2020	2021
(farms)	0	0	0
(animals)	0	0	0

Surveillance results

In FY2021, 1,774 imported cattle, 1,995 bulls subject to seedstock inspection and 363 cows that experienced abortion or stillbirth were tested and all results were negative.

Table2-1-2 Brucellosis surveillance of cattle in FY2021

Target cattle	test type	# of cattle tested	# of negative	# of positive
Imported cattle	screening tests	1,774	1,774	0
	confirmatory tests	0	0	0
Bulls subject to seedstock inspection	screening tests	1,995	1,995	0
	confirmatory tests	0	0	0
Cows experienced abortion or stillbirth*	screening tests	363	363	0
	confirmatory tests	0	0	0

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

2-2 Tuberculosis (cattle)

What is Tuberculosis?

Tuberculosis is a chronic respiratory infection caused mainly by *Mycobacterium bovis (M.bovis)* and is designated as a Domestic animal infectious disease of cattle, goats, buffalo, 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 herd through the nationwide surveillance conducted during FY2018-2020.

Objectives and methods of surveillance

Since cattle herds in Japan have already been qualified as free from the disease, surveillance is now being conducted aiming to maintain free status. The surveillance targets imported cattle and bulls subject to seedstock inspection. In case a positive result was obtained by the 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 based on the Act on Improvement and Increased Production of Livestock are tested. Note that the bulls that were targeted for surveillance in the previous year were excluded.

Surveillance results

In FY2021, 1,759 imported cattle and 1,995 bulls subject to seedstock inspection were tested and all results were negative.

Table 2-2-1 Number of tuberculosis cases

	2019	2020	2021
(farms)	0	0	0
(animals)	0	0	0

Table 2-2-2 Tuberculosis surveillance of cattle in FY2021

Target cattle	test type	# of cattle tested	# of negative	# of inconclusive	# of positive
Imported cattle	screening tests	1,759	1,759	0	0
	confirmatory tests	0	0	0	0
Bulls subject to seedstock inspection	screening tests	1,995	1,995	0	0
	confirmatory tests	0	0	0	0

COLUMN

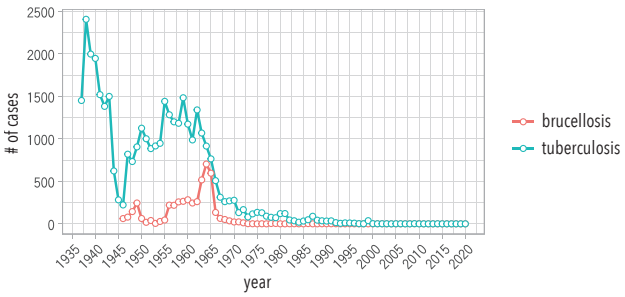
Declaration of the free status of brucellosis and tuberculosis in cattle herd in Japan

In Japan, many cases of brucellosis and tuberculosis had been confirmed in cattle herds until the 1960s. Then disease eradication policy was pursued under the Act on Domestic Animal Infectious diseases control including detection-and-culling of positive cattle based on the periodic inspections. Since no new outbreaks of brucellosis and tuberculosis in cattle herds were confirmed after 2010 and 2014, respectively, it was determined that the diseases were highly probable to be eradicated from Japan. Thus, during FY2018-2020 (April1,2018-March31,2021), Japan conducted nationwide surveillance to be qualified as disease free in accordance with the WOAH Terrestrial Animal Health Code. As a result, no positive cases of both brucellosis and tuberculosis were found during the three-year surveillance.

In addition to the results of this surveillance, MAFF confirmed that the inspection system at slaughterhouses and the import quarantine system met the requirements presented in the Terrestrial Animal Health Code and thus declared the free status of both diseases to the WOAH. The declarations for both diseases are available on the WOAH website

(https://www.woah.org/en/what-we-offer/self-declared-disease-status/).

Changes in the number of cases of brucellosis and tuberculosis in cattle herds



Surveillance conducted to be qualified as disease-free (FY2018-2020)

Active surveillance on farm

	# of farms tested	# of animals tested
tuberculosis	3,164	43,357
brucellosis	3,167	43,691

Surveillance of cows experienced abortion or stillbirth

	# of tests conducted	# of animals tested*
brucellosis	971	969

* The difference between the number of tests conducted and the number of animals tested was caused by multiple abortions by the same individual.