

## 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. MAPs are excreted in the feces of infected animals and spread 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 measures taken are to detect and cull infected cattle through periodic inspections. The target of the periodic inspections is breeding cattle that have been kept for a long period. For the farms where infection has been confirmed, follow-up tests to assess disease status and pre-transfer inspection are conducted 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.

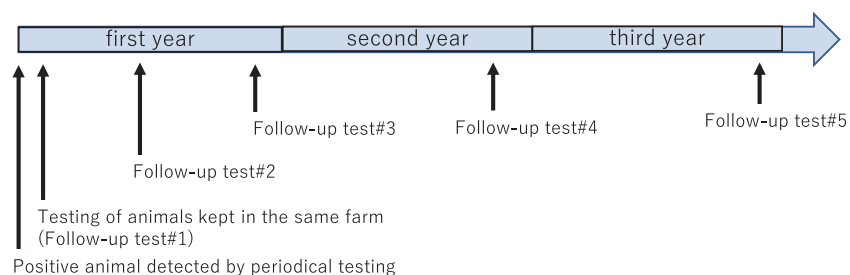
#### (2) Follow-up tests on infected farms

For farms where 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, that counts at least five times in three years.

#### (3) Pre-transfer inspection on infected farms

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

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



## Surveillance results

Johne's disease surveillance is conducted through a combination of ELISA testing using serum, skin test, real-time PCR of fecal samples, and fecal culture. The number of cases of Johne's disease in recent years and the status of surveillance in 2021 are as follows.

Figure2-3-2 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: NIAH, NARO

Table2-3-1 Number of Johne's disease cases

	2017	2018	2019	2020	2021
(farms)	374	321	380	399	446
(animals)	817	831	1,066	809	957

Table2-3-2 Johne's disease surveillance for cattle conducted in 2021

test type	total number of animals tested*
ELISA (serum)	519,013
Johnin reaction	2,026
Fecal PCR	29,045
Fecal culture	83,193
total	633,277

\* 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 after a lapse of two weeks to six months. The disease is transmitted to cattle via feed contaminated with abnormal prion protein. Thus feed ban is implemented in order to prevent the feeding of potentially contaminated feed to ruminants. In Japan, no new outbreaks have been reported since January 2009, and in May 2013, Japan was officially recognized by WOAHP as a country with "negligible risk".

### Objectives and methods of surveillance

MAFF conducts BSE surveillance on cattle that have died on farms or other cattle exhibit clinical signs in

terms of preparedness for a re-occurrence of BSE and to maintain international recognition as BSE-free.

The cattle to be tested are as follows

- (1) Cattle that died at 96 months of age or older
- (2) Cattle 48 months of age or older that exhibited incoordination and difficulty in rising before death (downer cattle)
- (3) Cattle exhibit progressive behavioral changes or unexplained neurological symptoms prior to death, regardless of age in months (cattle with specific clinical signs)

At slaughterhouses, BSE screening tests are conducted on cattle aged 24 months or older that exhibit neurological symptoms and other relevant clinical signs. The results are published by the Ministry of Health, Labor and Welfare on its website.

<https://www.mhlw.go.jp/houdou/0110/h1018-6.html>

### Surveillance results

In FY2021, testing was conducted on 21,428 dead cattle, with all results negative.

Fig.2-4-1 Number of BSE cases by year

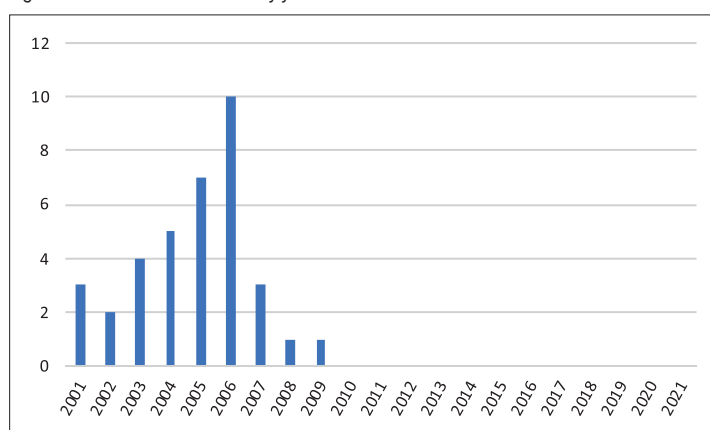


Table2-4-1 BSE surveillance conducted in FY2021

	# of tested
Ordinal dead cattle	13,718
Downer cattle	7,684
Cattle with specific clinical signs	26

## 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. They are collectively called transmissible spongiform encephalopathy (TSE) in livestock and designated as a Domestic animal infectious disease. Scrapie in sheep and goats has been known for more than 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 goats at 12 months of age and older.

### Surveillance results

In FY2021, testing was conducted on 237 sheep and 436 goats, with all results negative.

