

# Current status of bovine TB/zoonotic TB & Brucellosis Republic of Korea

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## Bovine TB/Zoonotic TB

### CURRENT SITUATION of Bovine TB

- ❖ (Occurrence) The number of cases is decreasing due to continuous inspection and culling policies, but 200 to 300 cases continue to occur nationwide every year.

Year	'18	'19	'20	'21	'22	'23
Case(Head)	448(3,497)	448(2,987)	279(2,687)	246(1,861)	217(1,147)	217(1,377)

#### Statistics on the number of heads of cattle in South Korea from 2018 to 2022

Animals	2018	2019	2020	2021	2022
Korean native cattle	92,238* (2,961,521)	89,731* (3,078,184)	88,994* (3,227,181)	89,824* (3,415,332)	87,852* (3,557,385)
Dairy cattle	6,360 (407,894)	6,168 (408,135)	6,106 (409,790)	6,105 (409,798)	5,888 (389,860)
Beef cattle	7,474 (151,471)	7,276 (158,371)	7,174 (168,005)	7,153 (174,127)	6,924 (169,362)
Total	106,072 (3,520,886)	103,175 (3,645,190)	102,274 (3,804,976)	103,082 (3,999,257)	100,664 (4,116,407)

\*No. of farm herds (No. of cattle).  
Data of the total number of herds and cattle (in total, by dairy, beef and Korean Native) were derived from Korea Statistical Information Service

#### The annual herd and animal incidence rate tuberculosis in cattle 2018 to 2022 in Korea

Classification	Cattle	2018	2019	2020	2021	2022
Herd incidence (per 1,000 herds)						
Korean native cattle		7.29	7.31	5.36	3.83	4.11
Dairy cattle		12.58*	21.89*	10.15*	9.66*	6.79*
Beef cattle		2.41	4.26	1.67	2.24	1.73
Total		7.26	7.97	5.39	4.06	4.10
Animal incidence (per 10,000 animals)						
Korean native cattle		7.58	9.87	7.09*	3.85	4.07
Dairy cattle		12.87*	17.37*	7.98*	6.78*	6.90*
Beef cattle		9.81	6.61	2.50	7.81*	1.48
Total		8.29	10.53	6.99	4.32	4.23

No. of farm herds (No. of cattle).  
Data of the total number of herds and cattle (in total, by dairy, beef and Korean Native) were derived from Korea Statistical Information Services  
Herd incidence: (Number of infected dairy herds/Number of total herds) x 100  
Animal incidence: (Number of infected cattle/Number of total cattle) x 100  
\*P<0.05.

## DIAGNOSIS, SURVEILLANCE, CONTROL

- ❖ (Surveillance and inspection system) Inspection of dairy cows over 1 year old, trading houses, etc.

category	Inspection target	Inspection cycle
Regular	Dairy cows over 1 year old	More than once a year
Transaction	Livestock market, farm to farm transactions	At every transaction
Outbreak	Cattle raised on outbreak farms	More than twice until movement restrictions are lifted

- ❖ Tuberculosis surveillance performance for the past 3 years: ('21) 1,050 thousand head, ('22) 1,052, ('23) 923
- ❖ (Control measures) Cattle infected with tuberculosis will be culled, movement restrictions will be taken for the farm where the disease occurred, and re-inspections will be conducted for all cattle being raised. If no abnormalities are found, quarantine measures will be lifted
- ✓ For cattle culled, compensation of 100% of the livestock transaction price will be provided in accordance with the Livestock Infectious Disease Prevention Act (however, reduction measures will be taken if the farm is at fault))

## ONE HEALTH APPROACH

- ❖ (Inter-ministerial cooperation system) Operating of joint zoonotic infectious disease countermeasure committee of related organizations (APQA, KCDC)
  - ✓ Prepare measures for zoonotic infectious diseases(including TB) through regular meeting (once every six months) ('04~)
- ❖ (Information sharing) Providing information on the occurrence of livestock infectious diseases (KAHIS) to KCDC for the management of zoonotic infectious diseases ('17.4~)
- ❖ (Joint epidemiological investigation) Establishing and operating a joint epidemiological investigation response system for major zoonotic infectious diseases (3 types: Q fever, brucellosis, tuberculosis)
  - ✓ (Preparation of joint epidemiological investigation manual for '22~23)
- ❖ (CPX) Strengthen the capacity to respond to zoonotic infectious diseases Disease by annually participate in KCDA hosted CPX with related ministries

## CHALLENGES AND WAY FORWARD

Minimize the occurrence through control measures such as early detection through surveillance, culling of infected cattle, and movement restrictions on farms where TB has occurred ⇒ Establish a foundation for TB free country

- ❖ (Surveillance) Establish a risk-based early detection and surveillance system for TB
- ❖ (Testing) Evaluate the existing testing system (sensitivity, specificity) and estimate the true prevalence rate (actual infection level) by region
- ❖ (Facility improvement) Support for installation of Cow blood collection supporting facility (stanchion)
- ❖ (Education) Education and promotion of quarantine rules to raise awareness of tuberculosis
  - ✓ Promote sanitary rules for farms through notification messages to farms, and encourage early reporting of suspected livestock such as weakness, abortion (APQA), Occurrence to affiliated farms Provide information regularly, check inspection certificates, etc. Publicize farm sanitary standards (associations and organizations)
- ❖ (Budget expansion) Expand budget to support installation of quarantine facilities such as fences to block the inflow of external risk factors such as wild animals
- ❖ (New project) Operation of a private-led 'Public-Private-Academic Joint Cattle Disease Control Countermeasure Committee' to improve TB control

## Brucellosis

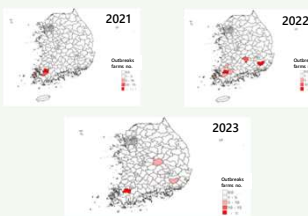
### CURRENT SITUATION of Bovine Br

- ❖ It is being managed stably through continuous inspection and culling policies, and although the outbreaks increased in some cities and counties in 2021, the occurrence trend has been decreasing since 2022

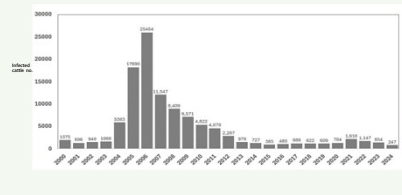
➢ Of the 184 cases in 2021, 4 cities and counties in South Jeolla Province accounted for 128cases(70%)

Year	'13	'17	'20	'21	'22	'23
Case(Head)	118(979)	92(686)	126(784)	184(1,610)	114(1,147)	59(828)

#### <Outbreaks maps of Bovine Br>

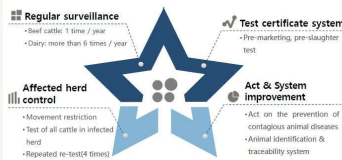


#### <Annual outbreaks of Bovine Br(2000 ~2024), KAHIS>

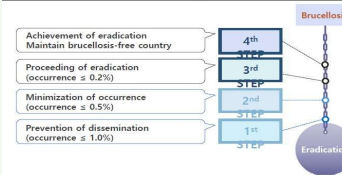


## DIAGNOSIS, SURVEILLANCE, CONTROL

### Key control strategy



### Graded control strategy



### Control measures in farm

- Reactors : destroyed (within 10 days)
- Suspects : retest between 30 to 60 days, ≥ 2 times
- Movement restriction for at least six months
- Animal identification and traceability
- Three consecutive negative tests after last reactor
- Recommend depopulation in repeated occurrence farms(≥ 3 times), abortion in reactor, and those proving causative agents
- Epidemiological investigation & trace back
- Test on epidemiological farms & neighboring farms(≤ 500m)

### National Surveillance Programs

- Herd plan  
Herd screening test (dairy cattle - bulk milk)
  - MRT / milk-ELISA : 6 times / year
- Individual plan  
Serological test
  - Periodical test : ≥ 1 time/year
  - Screen test : RBT
  - Confirm test : Tube, ELISA, CF, (FPA)

### Control strategy

- Vaccination prohibited
- Stamping-out policy
  - National serological surveillance : all cattle(≥ 12 months)
  - Reactors : stamping out → 80% compensation
- Test certificate system
  - Pre-marketing, pre-slaughter test (except castrated cattle)
  - Validity period: 2 months
- Abortion monitoring : Report & request test for abortion
- Sanitation : Cleaning and disinfection
- Education and Publicity

## ONE HEALTH APPROACH

- ❖ Measures for high-risk group such as farm workers
  - Wear PPE when taking quarantine measures for stillborn calves, infected cows and thoroughly disinfect after handling contaminated materials
- ❖ Cooperation with KCDC : monitors human infection of livestock Br
  - ❖ In the event of livestock Br, it conducts inspect and provides disease prevention education to related workers

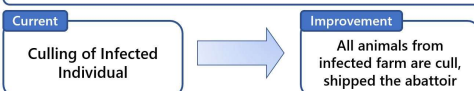
## CHALLENGES AND WAY FORWARD

- ❖ (Enhance surveillance system) Establishing risk based early detection system

- ◆ Improvement of data collection system(Agrix) including test results for risk analysis
  - Improve data collection including individual test results by farm/individual and movement information between farms by individual
- ◆ Selection of targeted surveillance subject\* through risk analysis
  - Epidemiological farms (livestock trading farms of outbreak farms, farms within 500m of outbreak farms, small farms, cattle raised by livestock traders, super-spreading farms as a result of network analysis)
- ◆ Selection of appropriate sample collection volume for statistical surveillance of high-risk farms\*
  - Estimation of surveillance volume based on statistics considering prevalence of brucellosis in high-risk farms
- ◆ Evaluation of existing testing system (sensitivity, specificity) and estimation of true prevalence (actual infection level) by region

### ※ Promotion of research service for improvement of brucellosis surveillance

- ❖ Establishing a foundation for Brucellosis eradication and Br free country



Amendment of the executive order(Feb.1 2024)

If Local veterinary authority determine that it is necessary for disease control purposes, he or she may recommend to the mayor of the relevant jurisdiction to cull all animals at the affected farm

