

Development of new technology for rearing healthy dairy cows

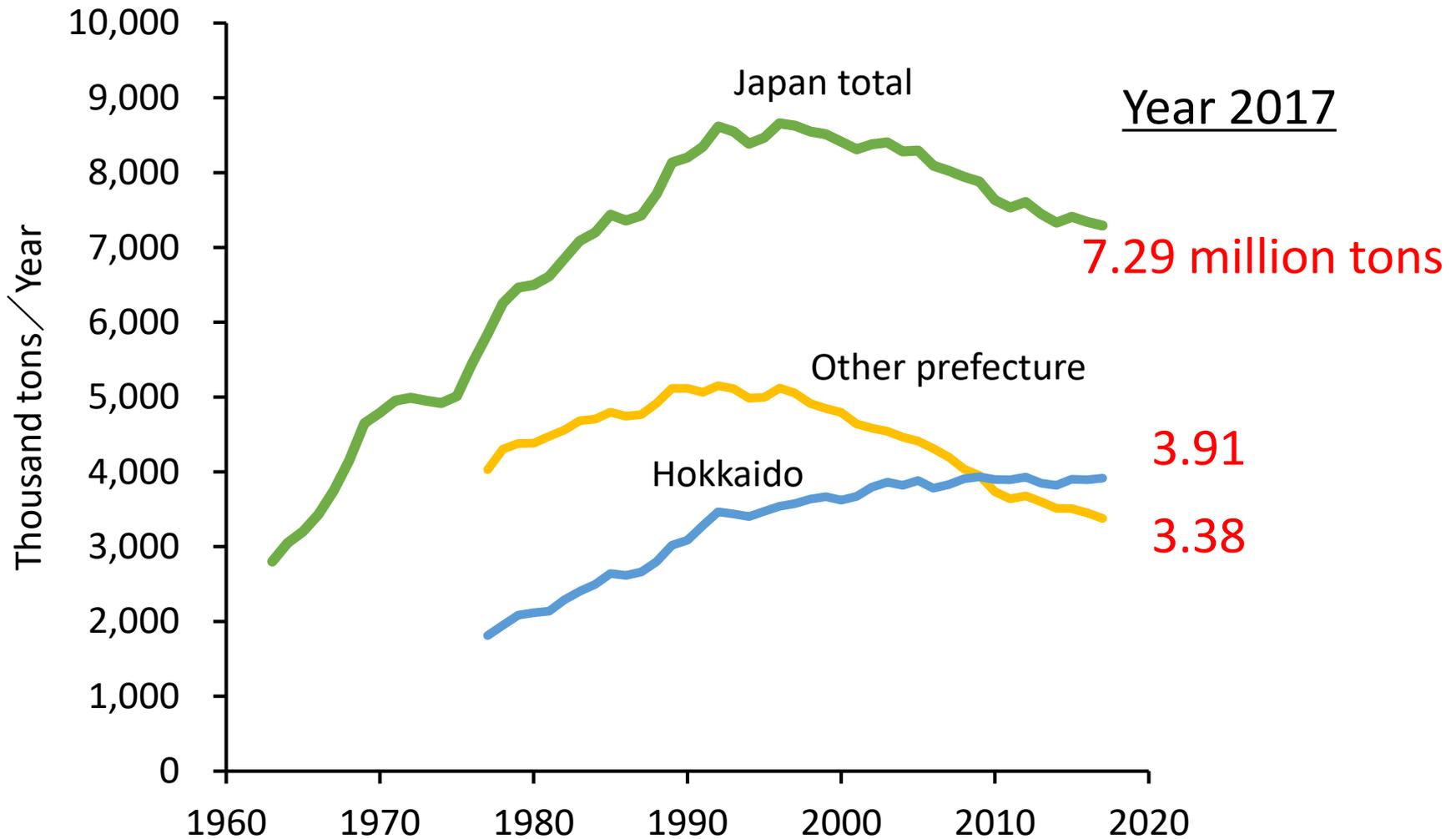
Koichiro UEDA

Research Faculty of Agriculture

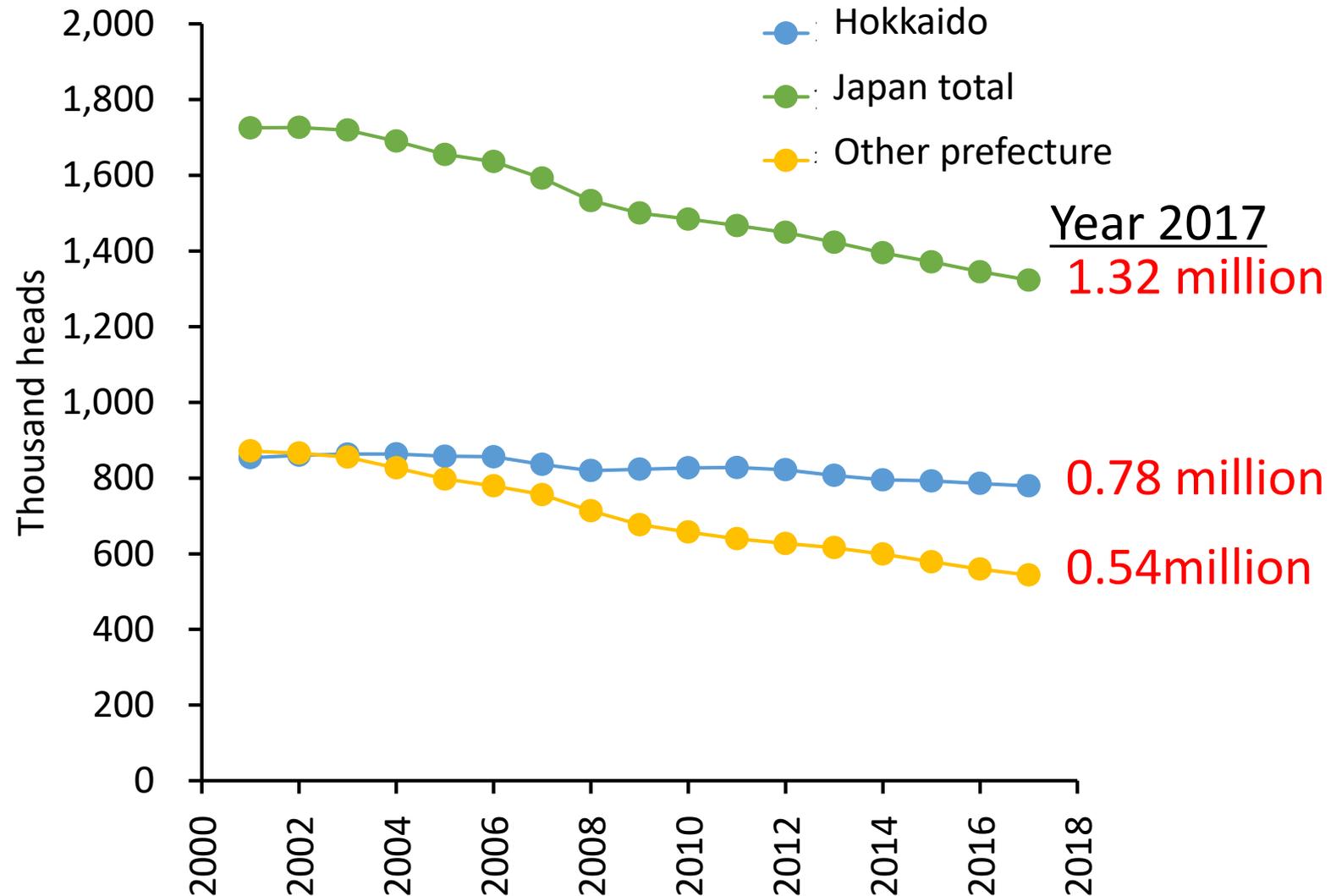
Hokkaido University



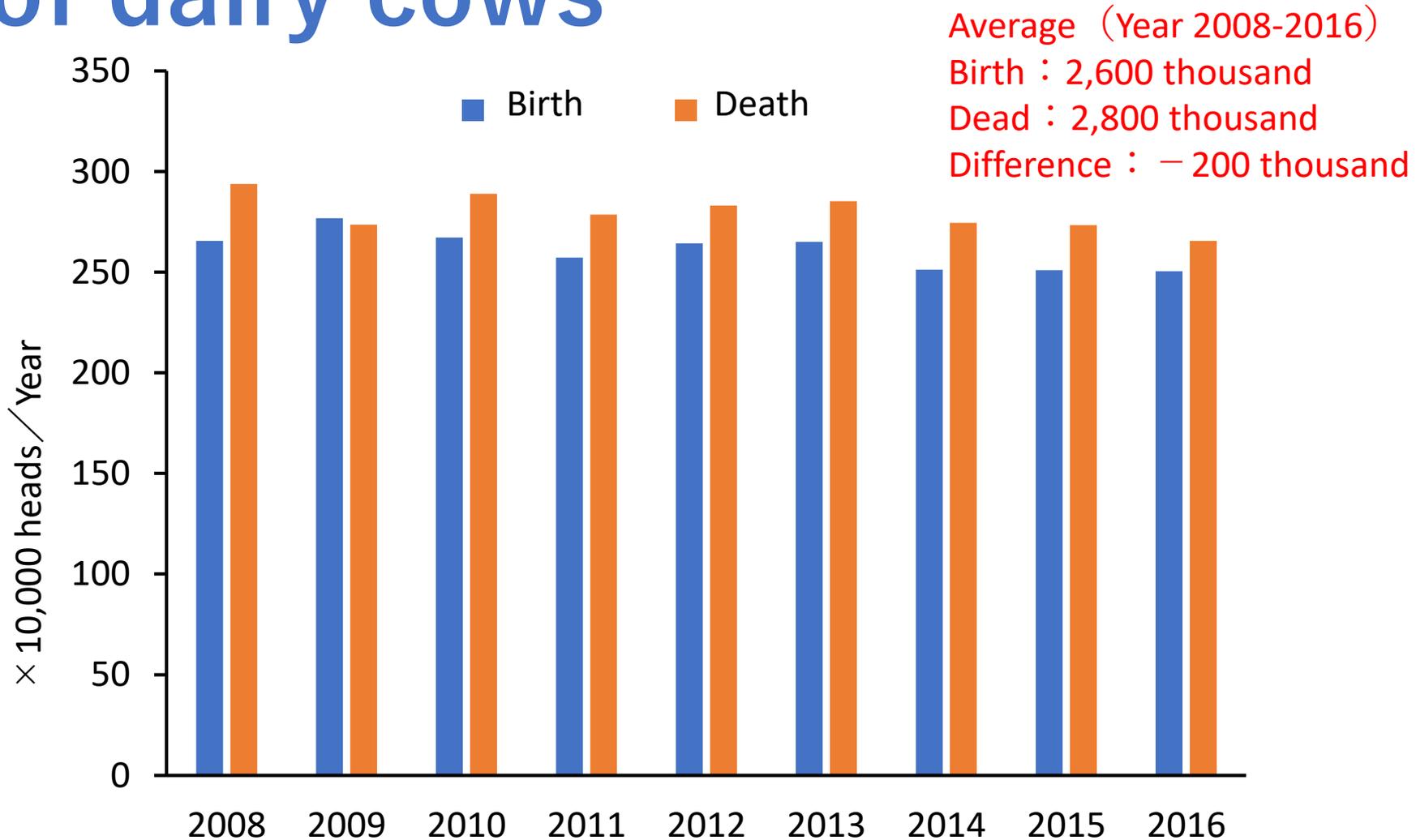
Milk production in Japan



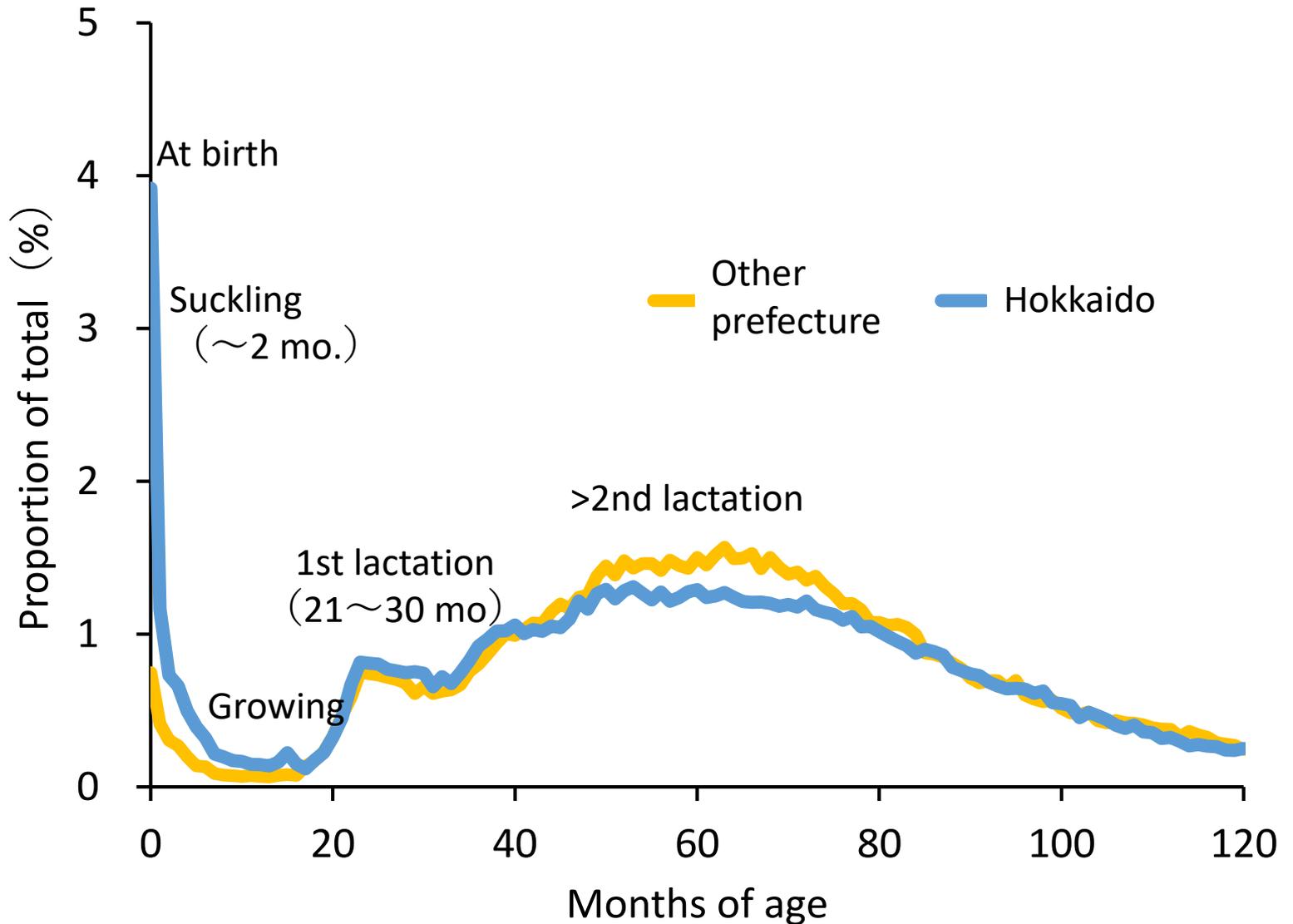
Decrease in number of dairy cows



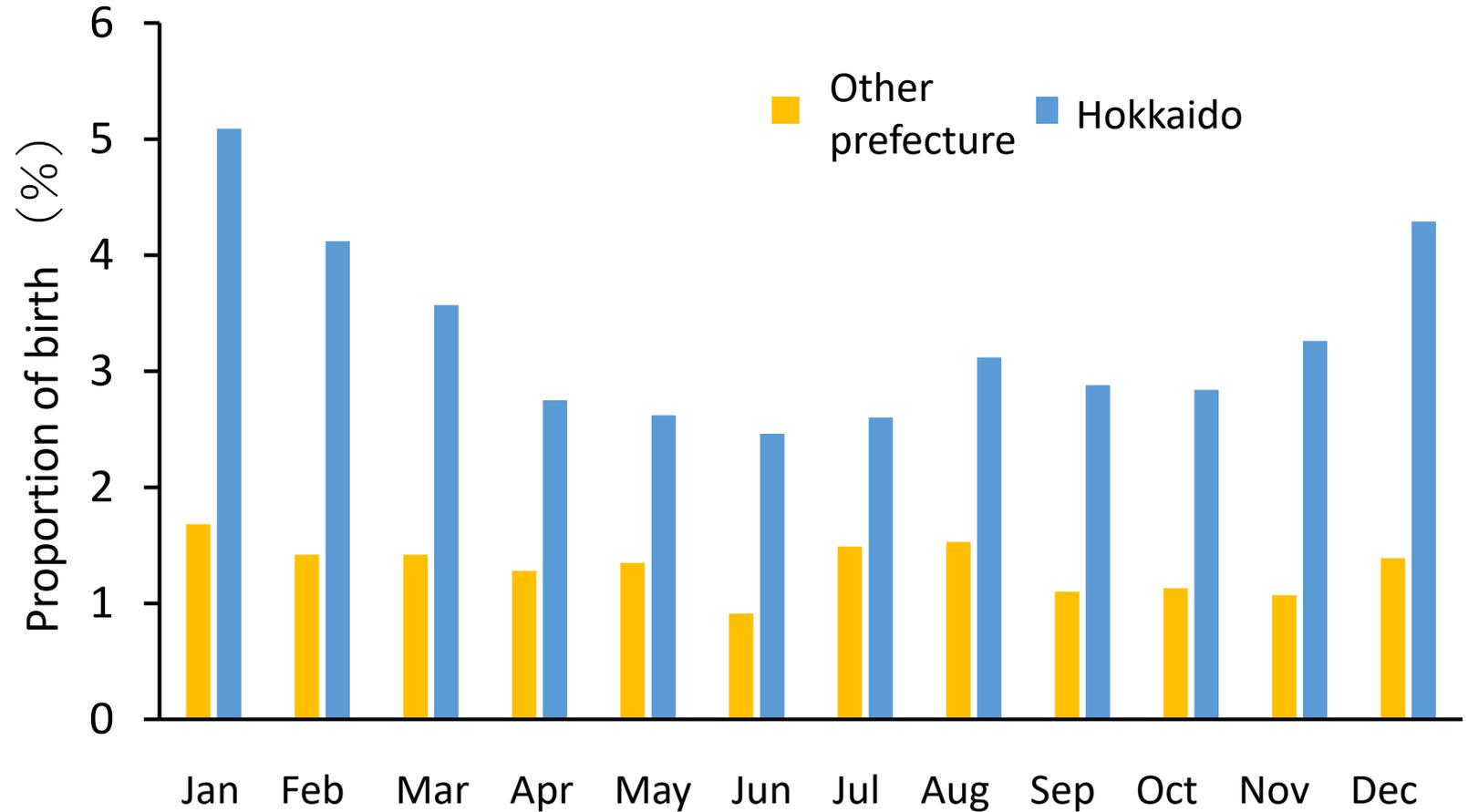
Number of birth and death of dairy cows



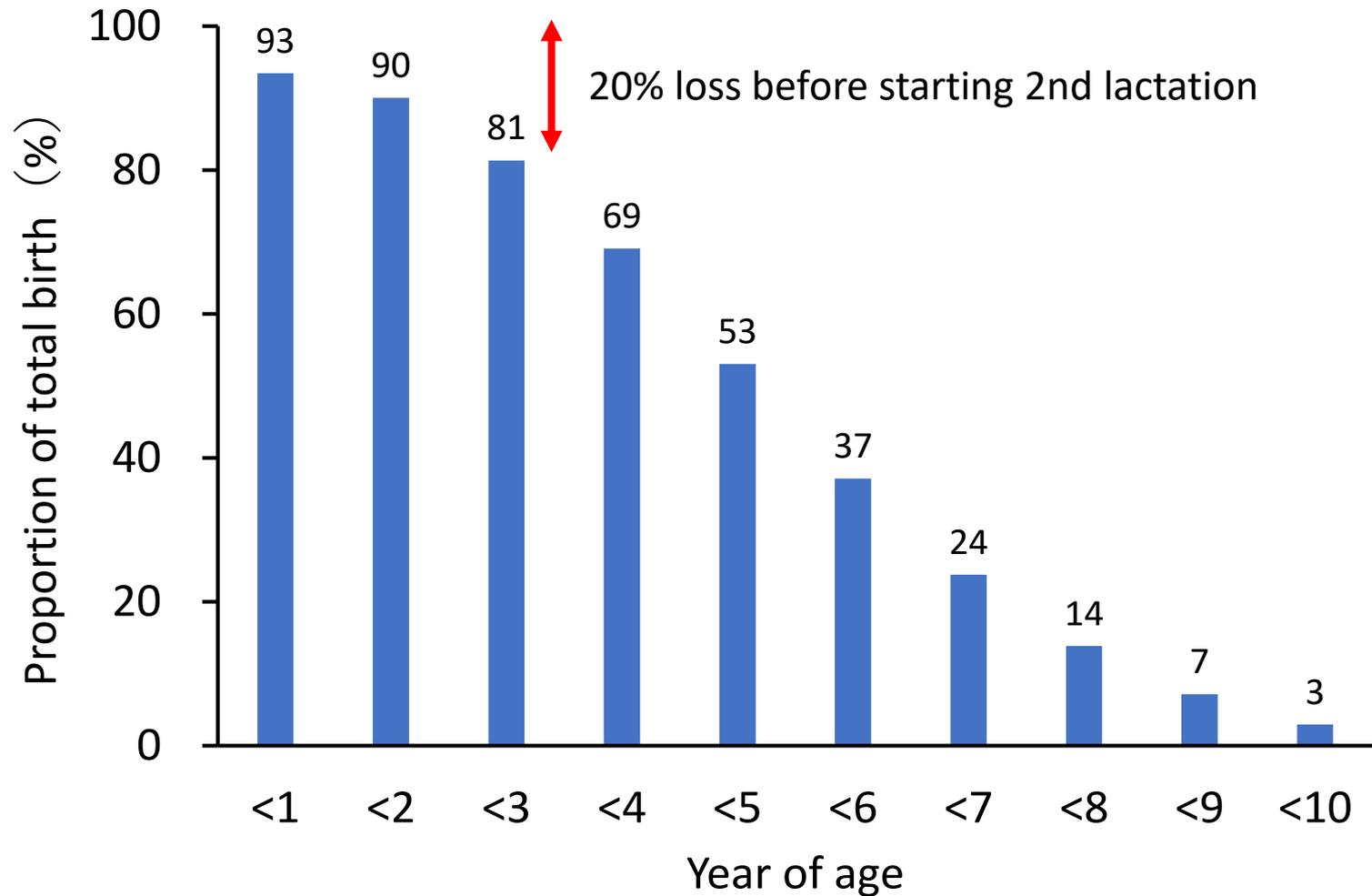
Changes in death rate with age



Mortality within 1 month of age



Survival proportion with age



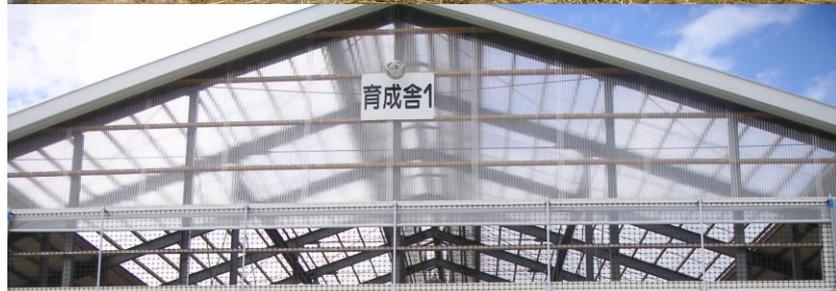
Number of farms for depositing dairy calves and heifer in Hokkaido



	Souya	Okhotsk	Tokachi	Kushiro	Nemuro	Total
2013	1	7	15	5	18	56
2014	2	9	17	4	20	63
2015	2	7	18	4	20	66
2016	4	10	20	4	21	70
2017	18	16	21	9	26	99

Farms for depositing more than 1,000 heads of dairy calves and heifer

Seabright co. (Toyokoro)



GigaFarm limited co. (Bekkai)



Automatic suckling system



Planning project of new technology for calves and heifer management

- ❑ Hokkaido University
 - ❑ Rakunogakuen University
 - ❑ Hokkaido Research Organization
 - ❑ CS solution co.
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- Reduction of loss risk during suckling stage
 - Heifer management for reducing of loss risk during 1st lactation
 - Monitoring for big herd of calves and heifer
 - Management advising system for labor shortage



Reduction of loss before 2nd lactation

- Risk of death during suckling by disease
- Risk of loss during 1st lactation by negative health and growth factor for growing heifer



Reduction of risk

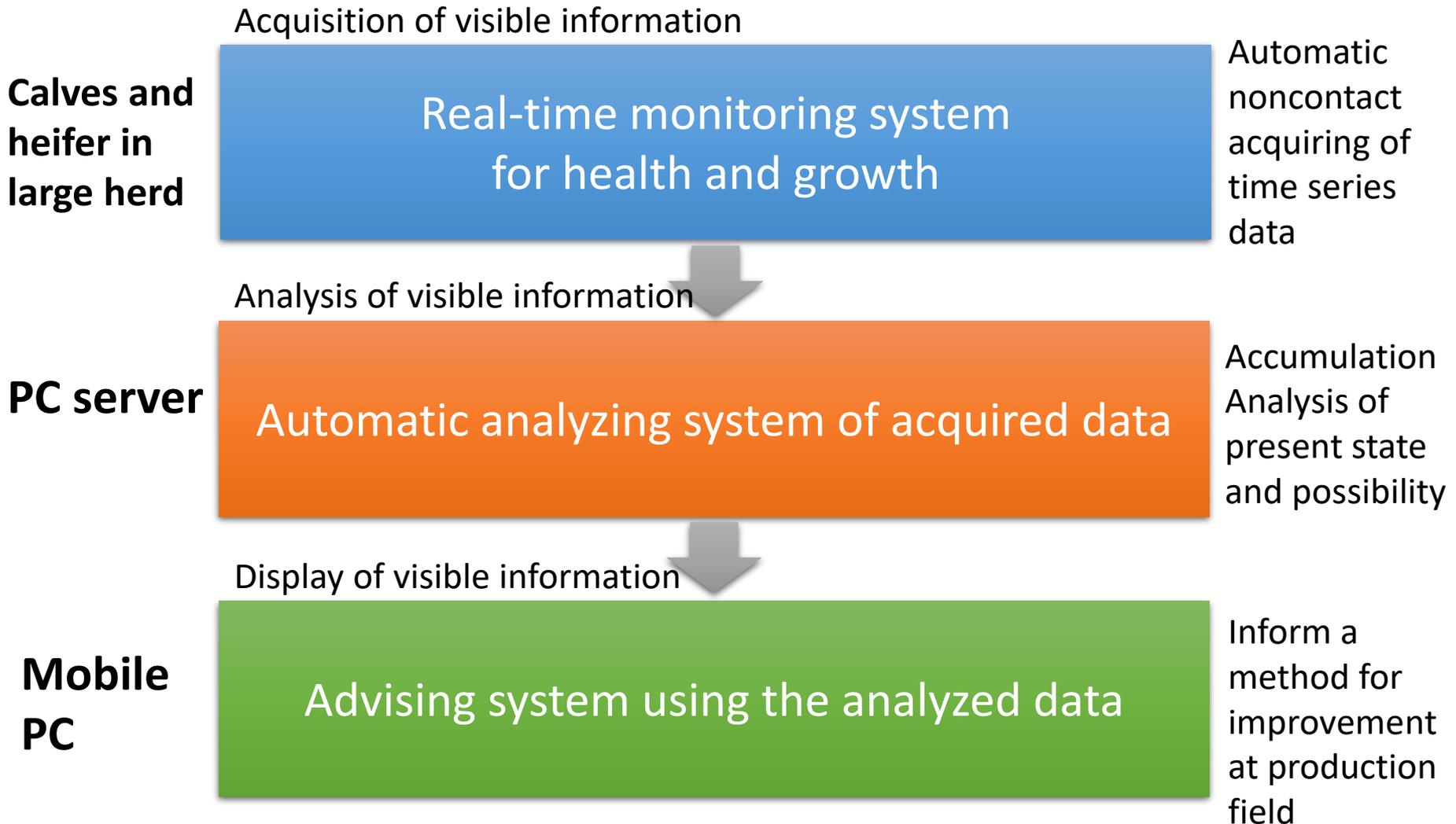
Reduction of loss before 2nd lactation (20%)



Resultantly
Durable dairy cows

Reduction of loss after 2nd lactation

Technological concept of risk reduction using visible information for large-scale farm and labor shortage



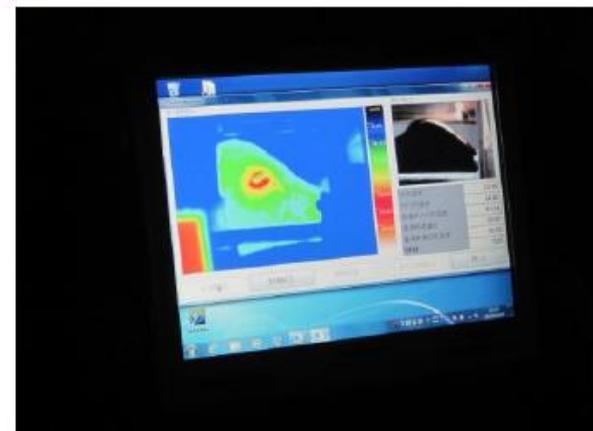
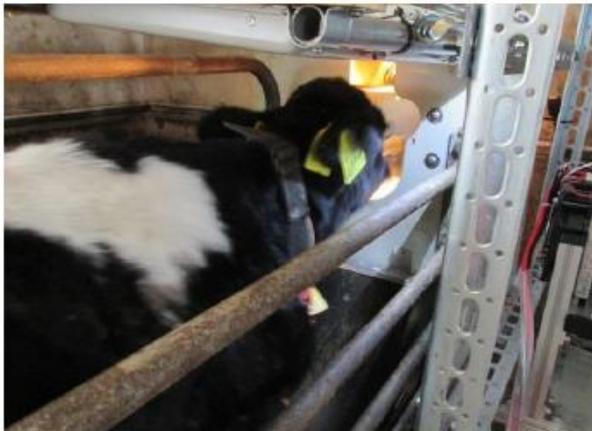
Automatic body temperature measurement at automatic suckling system

Technology by CS solution co.

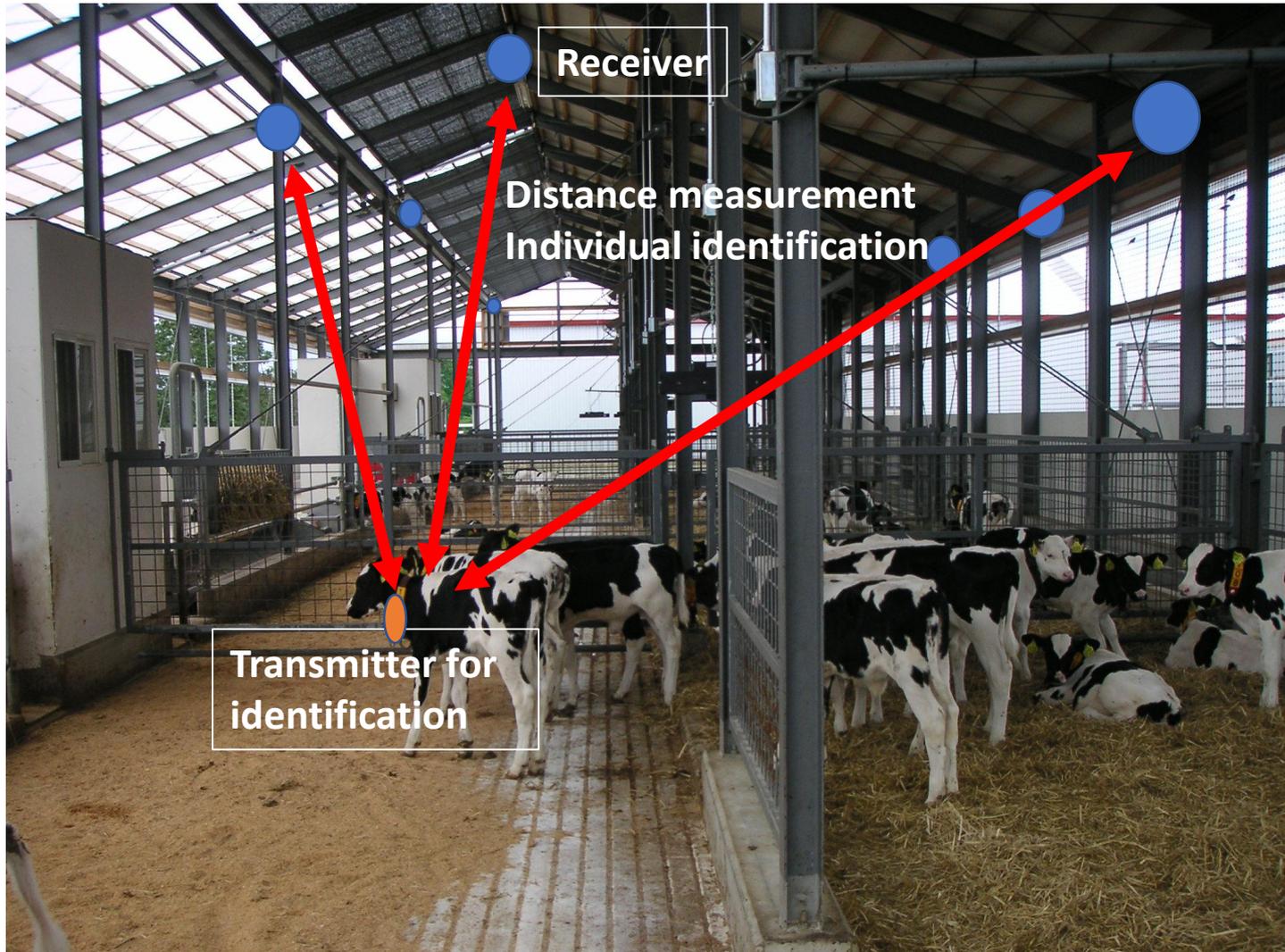
Fitting RFID tag for individual identification



Measuring eye temperature during suckling



Monitoring active mass of calves



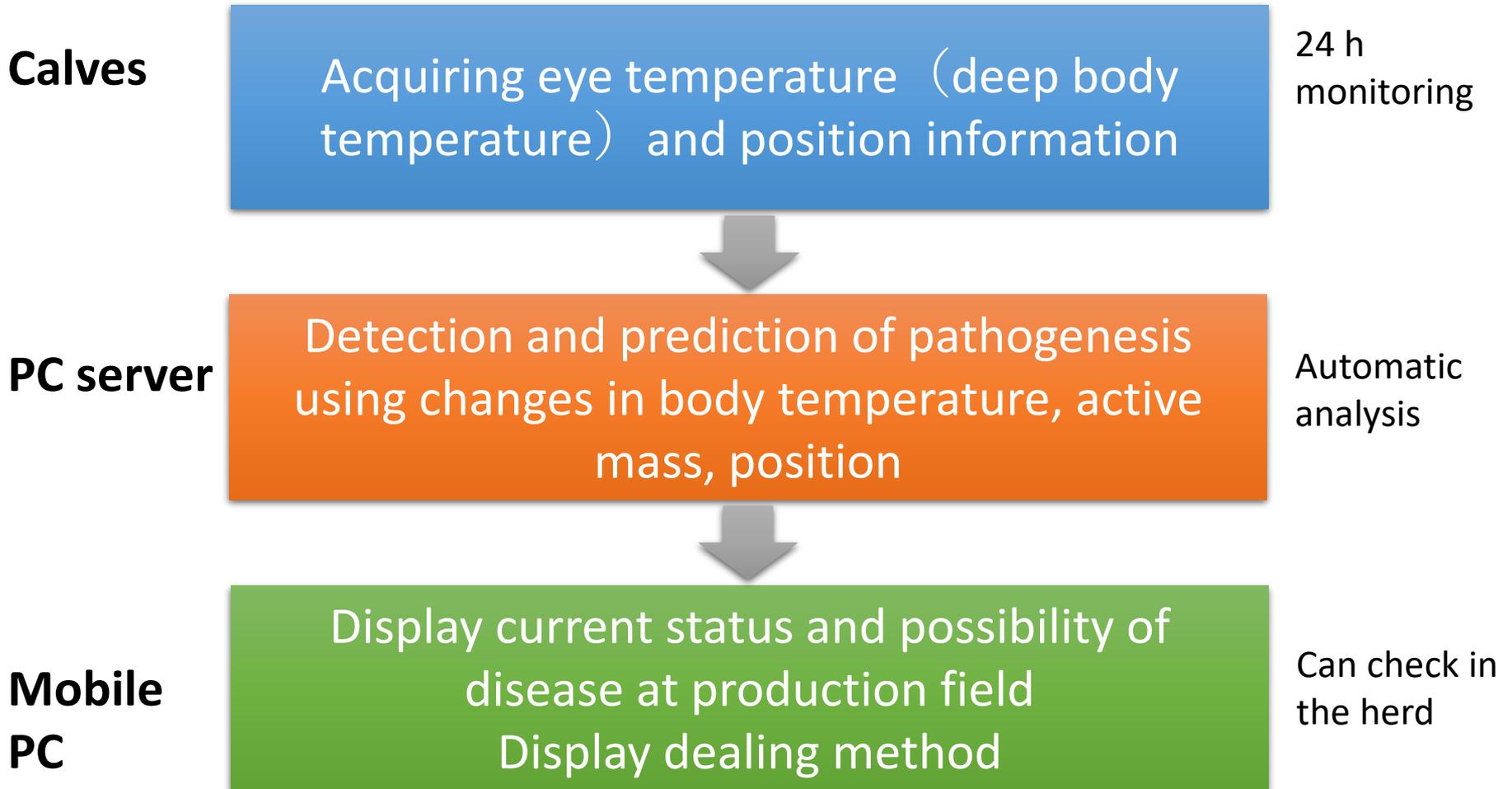
Position
coordinate



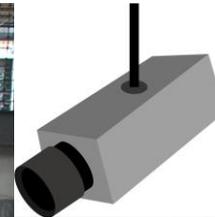
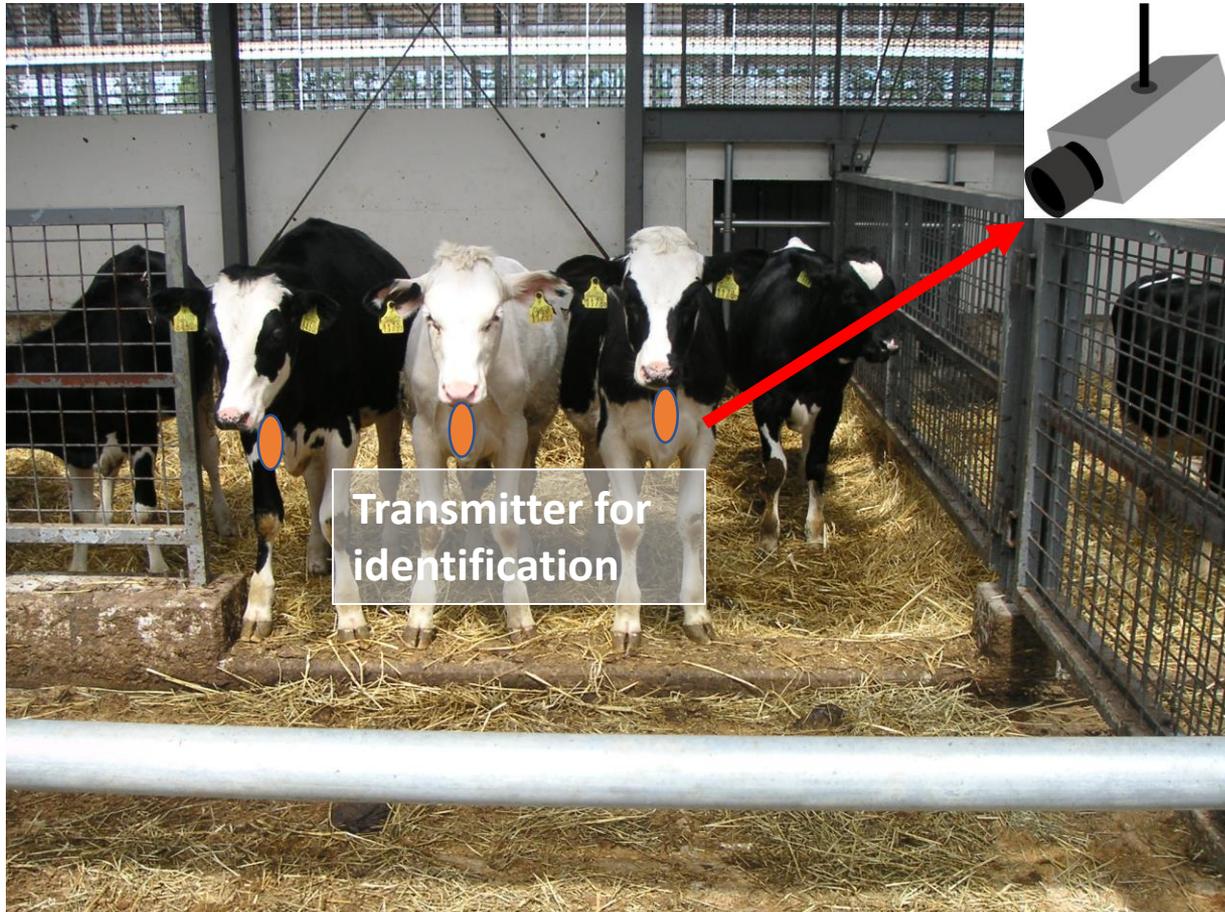
Time-series
change of
moving

Residence
time at near
manger

Early detection of calve disease



Measurement of body conformation for growing heifers



Automatically taking images by 3D camera



Estimation of body conformation

Optimization of growth for heifers

