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Suggested guidelines for vaccination of cattle in Korea

There is no published vaccination guideline to cattle even though each vaccine company suggested the program based on their products. Also, most of veterinary vaccines are multivalent. Therefore, it is very difficult to standardize the program. Now, we are suggesting the general vaccine programs based current situations in cattle industry in Korea.

Keywords: Vaccination, Cattle, Korea

Infectious diseases are one of the burdens in the beef and dairy production. Therefore, vaccination has been considered as an important component of control and prevent infectious diseases. To maximize the vaccine effects, other factors such as good nutrition, adequate ventilation, effective sanitation, and other herd management procedures should be properly worked because vaccines help the prevention of infectious diseases. Although several vaccines have been developed and applied to both beef and dairy industries, vaccination programs are variable depending on farm situation without the standardized program.

About 3.5 million of cattle in both beef and dairy cattle are raising in Korea which is indicating the current situation of cattle industry in Korea. Number of cattle was increased during the last decade, especially Korean native cattle, Hanwoo. Increase in the number of animals is closely related with the increase of outbreak in infectious diseases. Therefore, several vaccines for cattle have been developed and used in cattle industry. However, vaccination programs are different depending on the situation of countries, regions, farms and farmer's attitude.

Therefore, vaccination program should be developed in cooperation with the field veterinarian based on individual herd circumstances, including disease history, management, housing, feeding practices, breeding, etc. However, it is not easy to develop the vaccination program with field veterinarians in Korea. Therefore, we would like to suggest generalized vaccination guidelines in our country (Tables 1, 2). But, these guidelines are adjustable to each farm depending on the current situation of each farm in management and immunological status.

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Table 1. Suggested vaccine programs for dairy cattle

Disease	Age	Vaccination time	Route	Type of vaccine
Anthrax+black legs	All ages with more than 6 months old	April every year	SC	Combined (2 types)
Respiratory diseases ^{a)}	Adult	1st: April every year 2nd: October every year	IM	Combined (5 types)
	Feeders and calves	1st: 3 months old 2nd: 4 months old		
Diarrhea vaccine for calves ^{b)}	Cow (first parity)	1st: 5-6 weeks before calving 2nd: 2-3 weeks before calving	IM	Combined (3 types)
	Cow (from second parity)	At 2-3 weeks before calving		
Akabane disease	Adult	March every year	SC	Single
	Feeder with more than 6 months old	1st: March every year 2nd: April every year		
Bovine ephemeral fever	Adult	May every year	IM	Single
	Feeder with more than 6 months old	1st: May every year 2nd: June every year		
Foot and mouth disease	Adults and feeder	Every 6 months	IM	Combined (3 types)
	Calves	1st: 2 months old 2nd: at 4 weeks after 1st inoculation		
Rabies	All ages with 6 months old	June every year	IM	Single

SC, subcutaneous; IM, intramuscular.

^{a)}The combined vaccine contains infectious bovine rhinotracheitis virus, bovine viral diarrhea virus, parainfluenza type-3 virus, bovine respiratory syncytial virus, and *Histophilus somni*.

^{b)}The combined vaccine contains bovine rotavirus, bovine coronavirus and *Escherichia coli* + pilus antigens (K99, F41).

Table 2. Suggested vaccine programs for Korean native cattle (Hanwoo)

Disease	Age	Vaccination time	Route	Type of vaccine
Anthrax+black legs	All ages with more than 6 months old	April every year	SC	Combined (2 types)
Pneumonic pasteurellosis	Calves	1 month old	IM	Single
Respiratory diseases ^{a)}	Adult	1st: April 2nd: October every year	IM	Combined (5 types)
	Feeders and calves	1st: 3 months old 2nd: 4 months old		
Diarrhea vaccine for calves ^{b)}	Cow (first parity)	1st: 5-6 weeks before calving 2nd: 2-3 weeks before calving	IM	Combined (3 types)
	Cow (from second parity)	At 2-3 weeks before calving		
Akabane disease	Adult	March every year	SC	Single
	Feeder with more than 6 months old	1st : March every year 2nd: April every year		
Bovine ephemeral fever	Adult	May every year	IM	Single
	Feeder with more than 6 months old	1st: May every year 2nd: June every year		
Foot and mouth disease	Adults and feeder	Every 6 months	IM	Combined (3 types)
	Calves	1st: 2 months old 2nd: at 4 weeks after 1st inoculation		
Rabies	All ages with more than 6 months old	June every year	IM	Single

SC, subcutaneous; IM, intramuscular.

^{a)}The combined vaccine contains infectious bovine rhinotracheitis virus, bovine viral diarrhea virus, parainfluenza type-3 virus, bovine respiratory syncytial virus, and *Histophilus somni*.

^{b)}The combined vaccine contains bovine rotavirus, bovine coronavirus and *Escherichia coli* + pilus antigens (K99, F41).