

# ALPHA™-7 Vaccine vs Conventional 7-Way Vaccine Titer Study

## Key Points

- Six months after vaccination with ALPHA™-7 vaccine, 17 of 20 calves administered a single dose had antibody levels of 100 or above, while 0 of 20 calves administered a conventional 7-way vaccine had titers at 100 or above.\*
- Calves receiving two doses of ALPHA-7 (branding time and at weaning) had over 4 times higher antitoxin titers to *Cl perfringens* Type D than calves given two doses of conventional 7-way vaccine.

## Study Design

Location	LX Ranch, Amarillo, TX
Study animals	98 fall born calves nursing cows. 117 fall born calves nursing first-calf heifers. All cows and heifers had prior to calving received at least two doses of conventional 7-way.
Procedure	All calves randomly given numbered ear tags. Calves with even numbers given ALPHA-7. Calves with odd number given competitor's conventional 7-way. All calves were vaccinated at branding (1-3 months of age). At spring weaning, 181 days later, blood samples were taken from 20 randomly selected calves from each group of vaccinates and booster vaccine was give as per chart below. Serum samples tested for antibody titers to <i>Cl chauvoei</i> and for antitoxin units to <i>Cl perfringens</i> Type C, and <i>perfringens</i> Type D.

## Treatment Groups

	n	Initial Vaccine	Booster Vaccine at Weaning
Group 1	10	ALPHA-7	ALPHA-7
Group 2	10	ALPHA-7	Conventional 7-way
Group 3	10	Conventional 7-way	ALPHA-7
Group 4	10	Conventional 7-way	Conventional 7-way

Seventeen days following booster, blood samples were taken to compare *Cl perfringens* Type D antitoxin units. Some calves in each group could not be caught for sampling.

## Study Results

### *Clostridium chauvoei* Micro-agglutination Antibody Titer at weaning (181 days following first dose of vaccine)

Titer Achieved	<10	10	11-100	100	101-250	250-500	500-1000
ALPHA-7 # of calves	0	2	1	3	10	3	1
Conventional 7-way # of calves	19	0	1	0	0	0	0

\*Protected levels established by USDA APHIS

**Study Results**  
***Clostridium perfringens* Type D Antitoxin Units**  
**181 days following first dose of vaccine**

Units Achieved	<0.1	0.1	1	5	10	20
ALPHA™-7 # of calves*	3	5	8	1	1	1
Conventional 7-way # of calves	19	1	0	0	0	0

\*one calf had insufficient serum sample to test

***Clostridium perfringens* Type C Antitoxin Units**  
**181 days following first dose of vaccine**

Units Achieved	<1	1	5	10
ALPHA-7 # of calves*	11	5	2	1
Conventional 7-way # of calves	16	4	0	0

\*one calf had insufficient serum sample to test

***Clostridium perfringens* Type D Antitoxin Units**  
**17 days following booster dose**

Units Achieved	# of calves	<0.1	0.1	1	5	10	20	40	60	Average Units
Group 1 # of calves*	10	0	1	1	0	5	2	1	0	18.1
Group 2 # of calves**	8	1	2	0	0	3	0	1	1	16.3
Group 3 # of calves***	8	1	1	0	1	3	1	1	0	12.0
Group 4 # of calves****	8	0	2	3	3	3	0	0	0	4.2

\* ALPHA-7 + ALPHA-7

\*\* ALPHA-7 + CONVENTIONAL 7-WAY

\*\*\* CONVENTIONAL 7-WAY + ALPHA-7

\*\*\*\* CONVENTIONAL 7-WAY + CONVENTIONAL 7-WAY

## Bottom Line

- At 181 days after vaccination, 100% of calves given one dose of **ALPHA-7** had *Cl chauvoei* titers at or above 10; 5% of calves receiving conventional 7-way had titers above 10.
- At 181 days after vaccination, 84% of calves given one dose of **ALPHA-7** had *Cl perfringens* Type D antitoxin units at or above 0.1; 5% of calves receiving conventional 7-way had antitoxin units above 0.1.
- At 181 days after vaccination, 42% of calves given one dose of **ALPHA-7** had *Cl perfringens* Type C antitoxin units at or above 1.0; 20% of calves receiving conventional 7-way had antitoxin units above 1.0.
- At 17 days after booster, *Cl perfringens* Type D antitoxin units were highest for calves receiving two doses of **ALPHA-7**, and over 4 times greater than those calves receiving a conventional 7-way at branding followed by a conventional 7-way at weaning.