BW data were truncated at 30 months in order to minimize BW being confounded by late pregnancy weight gain. Raw data were reviewed for outliers and values greater than 2.5 standard deviations within a given monthly population were censored. Analysis of variance (ANOVA) statistical models for repeated measures were used to determine effect of age, gender, breed, season of birth, and all interactions on BW. Models accounted for herd as a covariant. Regression modeling of BW on age was used to generate standardized growth and average daily gain curves for the 5^{th}, 25^{th}, 50^{th}, 75^{th}, and 95^{th} percentiles of the population data.

Results

The censored data ANOVA included 2946 observations on 647 individuals from the 10 farms. Age ($P < 0.0001$), gender ($P = 0.013$), season of birth ($P < 0.018$), and their interactions (age x gender, $P < 0.0001$; age x season, $P < 0.0001$; age x gender x season, $P = 0.0002$) significantly influenced BW. Breed did not influence BW ($P = 0.2$), but there was a breed by age interaction ($P = 0.0001$). As expected, alpaca cria exhibit a rapid rate of growth and BW accretion in the first 6 months of life, and reach a median BW of 66 to 77 lb (30 to 35 kg) by weaning age. A slower growth rate was observed, as expected, post-weaning. The growth curve then begins to plateau around 25 months of age when the animals reach maturity, with a median BW of 143 to 165 lb (65 to 75 kg). The median growth curve is characterized by the equation: BW (kg) = 8.89 + 4.66*age (mo) - 0.32*Age^2 + 0.015*age^3 - 0.00024*age^4 ($r^2 = 0.97$, $P < 0.0001$). Maximum daily gain was observed in the second month of life, and declined over the following months.

Significance

Though there are some limitations to this data set, these standardized curves provide a starting point in evaluating alpaca BW growth characteristics relative to quality of the nutritional program. Further studies should include frame size and body condition score measures in order to refine and improve upon these growth curves. These growth curves are based on typical US management feeding systems (forage and supplement), and may not necessarily apply to pasture-based feeding systems.

Evaluation of bovine viral diarrhea virus (BVDV) transmission from a persistently infected goat to pregnant goats and calves

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Introduction

Infections with bovine viral diarrhea virus (BVDV) occur in various artiodactyls. Persistent infections occur in non-bovine species, but rarely in goats. Recently, a persistently infected (PI) goat was born following experimental infection of pregnant goats. The present study evaluated the potential of BVDV transmission from the PI goat to pregnant goats and calves.

Materials and Methods

The PI goat was housed in an isolation room (~97 ft^2 or $9m^2$). BVDV shedding was monitored by monthly viral titration on nasal swabs. Sequentially, 2 groups of BVDV-naïve pregnant goats (3 per group) and 2 groups of BVDV-naïve calves (2 per group) were cohabitated with the PI goat for 3 days. Pregnant goats were freely commingled with the PI goat, sharing feed and water sources. A wire-panel separated calves from the PI goat, allowing nose-to-nose contact. Hay, feed, and water sources were exchanged twice daily between calves and PI goat. On days 0, 6, 8, 10, and 14 and days 0 and 28 following exposure, blood was collected for virus isolation and virus neutralization, respectively. Hay boxes and feed troughs were swabbed to evaluate environmental presence of BVDV.

Results

Shedding of BVDV by the PI goat was documented on nasal swabs (viral titer: ~10^4 $CCID_{50}$) and positive

PCR results on environmental samples. While cohabitation did not result in BVDV transmission to pregnant goats, 1 calf per group became infected. The second calf in each group did not become infected.

Significance

Results suggested that PI goats can shed and transmit BVDV, but the transmission potential may be lower than from PI cattle.

A survey of caprine arthritis encephalitis in midwestern goats

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Introduction

CAEV is an incurable disease of goats that has social and economic impacts. Clinical disease includes encephalitis, arthritis, mastitis, and progressive respiratory disease. In the last 25 years there have been significant changes in the US goat industry. Recent prevalence studies are lacking and historic studies may not reflect changes in the industry. The purpose of the study was to establish the prevalence of CAEV in midwestern herds that are not actively controlling for CAEV.

Materials and Methods

Herds were recruited through local contacts and invitation through the Nebraska Dairy Goat Association. Herd survey provided contact information, goat inventory by age, type and breed, knowledge of CAEV, and management practices. All goats 10 months or greater were sampled and tested by CAEV cELISA at WADDL Pullman, Washington.

Results

We sampled 3488 goats from 57 herds in 6 states. Description of data listed prevalence by goats sampled, type, gender, breed, age, farm, management type, and size. Analysis by logistic regression produced 2 final models, individual and herd. The individual model reported increase in odds ratio for age until 5 years, and various dairy breeds compared to meat breeds. Herd model showed increased odds ratio for management types, median age of herd, and herd size.

Significance

Variation in prevalence was noted at herd and individual level. Breed, age, management type, median age, and herd size were important for prevalence. Knowledge of prevalence of CAEV in sub populations of goats will help veterinarians and producers make choices on the importance of CAEV control in certain populations.