

## **PATH ANALYSIS INFEKSI VIRUS *BOVINE VIRAL DIARRHEA* PADA ANAKAN SAPI *BRAHMAN CROSS* EX-IMPOR DI KABUPATEN PENAJAM PASER UTARA DAN KABUPATEN PASER PROVINSI KALIMANTAN TIMUR**

**Niken Pandan Sari  
15/388352/PKH/00551**

### **Intisari**

*Bovine Viral Diarrhea* (BVD) menyebabkan kerugian ekonomi yang besar pada industri peternakan di seluruh dunia, termasuk di Indonesia. Infeksi virus BVD pada sapi selama kebuntingan dapat menyebabkan kematian embrio dini, efek teratogenik, dan fetus menjadi terinfeksi secara persisten (*Persistently Infected/PI*). Importasi sapi bunting dari negara lain berisiko membawa penyakit salah satunya fetus PI BVD. Tujuan penelitian ini untuk mengetahui seroprevalensi BVD pada anakan sapi *Brahman Cross* ex-impor serta faktor yang berasosiasi dengan kejadian infeksi BVD, dan mengetahui hubungan kausal diantara faktor risiko tersebut menggunakan *path analysis*. Kajian lintas sektorsial digunakan dalam penelitian ini. Sampel sebanyak 252 ekor sapi *Brahman Cross* ex-impor umur 6 sampai 28 bulan diperoleh dari 165 peternak yang ada di kabupaten Penajam Paser Utara dan kabupaten Paser. Metode sampling yang digunakan adalah tahapan ganda dengan pemilihan peternak secara proporsional dan ternak secara kluster. Serum diuji dengan *Enzyme-Linked Immunosorbent Assay* (ELISA) antibodi dan *Antigen Capture* (ACE) ELISA. Data faktor risiko diambil dengan wawancara menggunakan kuisioner dan pengamatan langsung pada peternakan, kemudian data dianalisis secara univariat, bivariat, multivariat, serta *path analysis*. Hasil penelitian menunjukkan seroprevalensi BVD sebesar 11,1%, dan tidak ditemukan sapi PI. Variabel ternak yang berpengaruh ( $P < 0,05$ ) terhadap seropositif BVD secara bivariat adalah kecamatan Long Ikis dan *Body Condition Scoring* (BCS)  $< 3$ . Variabel peternak yang berpengaruh terhadap seropositif BVD ( $P < 0,05$ ) adalah jumlah kepemilikan ternak  $\geq 4$  ekor. Model antibodi terhadap BVD yang diperoleh dari analisis multivariat adalah adanya jenis ternak lain campuran sapi ras lain dan kambing (OR:11,2), kecamatan Long Ikis (OR=5,1), kontak langsung dengan ternak lain (OR=4,3), luas area ternak per ekor (OR=1,1), jumlah ternak (OR=1,1), dan BCS (OR=0,3). Faktor risiko yang berpengaruh langsung terhadap seropositif BVD adalah luas area ternak per ekor, kecamatan Long Ikis, jumlah ternak, dan kontak langsung dengan ternak lain. Faktor risiko yang berpengaruh secara tidak langsung terhadap seropositif BVD adalah jenis ternak lain campuran yaitu sapi ras lain dan kambing. Berdasarkan hasil seropositif dapat disimpulkan sapi anakan *Brahman Cross* ex-impor di kabupaten Penajam Paser Utara dan kabupaten Paser pernah terinfeksi BVD.

**Kata kunci :** seroprevalensi, ELISA, BVD, kajian lintas sektorsial, antigen, *path analysis*

## **PATH ANALYSIS : INFECTION OF BOVINE VIRAL DIARRHEA IN BRAHMAN CROSS EX-IMPORTED CATTLE IN PENAJAM PASER UTARA DISTRICT, PROVINCE OF KALIMANTAN TIMUR**

### **ABSTRACT**

Bovine Viral Diarrhea (BVD) causes large economic losses in the livestock industry throughout the world, including in Indonesia. BVD virus infection in cattle during pregnancy can cause early embryonic death, teratogenic effects or the fetus becomes persistently infected (Persistently Infected / PI). Importation of pregnant cows from other countries for meat self-sufficiency programs is at risk of carrying the disease, one of which is the possibility of a positive fetus PI BVDV. A cross sectional study was carried out to determine antibody and antigen specific BVD seroprevalence in unvaccinated ex-imported Brahman Cross cattle, to identify risk factors associated with BVD infection and to find out causal relationships between risk factors using path analysis. Sera from 252 Brahman Cross cattle aged 6 to 28 months was carried out from 165 farmers in Penajam Paser Utara and Paser Districts. Multiple stage sampling method was used with proportional selection of breeders and clusters of cattle for each selected breeder. Sera were tested using Enzyme-Linked Immunosorbent Assay (ELISA) antibody and Antigen Capture (ACE) methods. Risk factor data was taken by interview using questionnaire and direct observation on farms. Data were then analyzed by univariate, bivariate, multivariate, and path analysis. The results showed that seroprevalence of BVD in Penajam Paser Utara and Paser districts was 11,1%, and there were no persistent infection (PI) cows in this study. Farmer variables that significantly associated to BVD seropositive antibodies ( $P < 0,05$ ) was the number of cattle ownership  $>4$  head. Animal variables that significantly associated to BVD seropositive antibodies ( $P < 0,05$ ) were Long ikis sub-district, and Body Condition Scoring (BCS)  $< 3$ . Models of BVD antibodies were the presence of other types of mixed cattle (other cattle breed and goat) (OR = 11,2), Long Ikis sub-district (OR = 5,1), direct contact with other livestock (OR = 4,3), area of cattle per head (OR = 1,1), number of cattle in farm (OR = 1,1), and BCS (OR = 0,3). Risk factors that had a direct effect on BVD seropositive were the area of cattle per head, Long Ikis sub-district, number of livestock, and direct contact with other livestock. Risk factors that had an indirect effect on BVD seropositive were other types of mixed animals (other cattle breed and goat). The results of this study concluded that there was a natural infection of BVD in ex-import Brahman Cross cattle in Penajam Paser Utara and Paser districts.

**Keywords:** seroprevalence, ELISA, BVD, cross sectional study, antigen, path analysis