

## **ACCURACY OF FAMACHA<sup>®</sup> SCORING SYSTEM FOR DETECTION OF ANAEMIA IN SRI LANKAN INDIGENOUS GOATS UNDER FIELD CONDITIONS**

**M.S. Kurukulasuriya<sup>1</sup>, K.M.G.M.K.K. Kulathunga<sup>2</sup>,  
H.B.S. Ariyaratne<sup>3</sup>, R.P.V.J. Rajapakshe<sup>3</sup>, C.M.B. Dematawewa<sup>2</sup>,  
S.H.G. Wickramaratne<sup>4</sup>, L.J.P.A.P. Jayasooriya<sup>3</sup>, D.M.S. Munasinghe<sup>3</sup>,  
L.G.S. Lokugalappatti<sup>3</sup> and G.L.L.P. Silva<sup>2\*</sup>**

<sup>1</sup>*Faculty of Animal Science and Export Agriculture, Uva Wellassa University,  
Sri Lanka*

<sup>2</sup>*Faculty of Agriculture, University of Peradeniya, Sri Lanka*

<sup>3</sup>*Faculty of Veterinary Medicine and Animal Science, University of Peradeniya,  
Sri Lanka*

<sup>4</sup>*Department of Animal Production and Health, Gatambe, Sri Lanka*

*\*pradeepas@pdn.ac.lk*

Gastrointestinal parasitism such as haemonchosis causes severe anaemia in goats leading to considerable losses in production. In the global scenario, FMACHA<sup>®</sup> scoring is widely used for detecting anaemia in sheep and goats, and identifying animals which needs anthelmintic treatment. This study was conducted to identify the relationship between packed cell volume (PCV), faecal egg counts (EPG) and FMACHA<sup>®</sup> score and to investigate the sensitivity, specificity, negative predictive value (NPV) and positive predictive value (PPV) of FMACHA<sup>®</sup> test in detecting anaemia in Sri Lankan Indigenous (SLI) goats under field conditions. A total of 109 SLI goats of 3-6 months age from 24 farms in Vahare Veterinary Range were used for the study. Blood and faecal samples were collected for detection of PCV and EPG, respectively, and FMACHA<sup>®</sup> scores were recorded from each animal. The prevalence of gastrointestinal parasitism, relationship among PCV, EPG and FMACHA<sup>®</sup> were estimated, and sensitivity, specificity, NPV and PPV of FMACHA<sup>®</sup> test were calculated. FMACHA<sup>®</sup> score 4 and 5 were considered as test positive, and anaemia was confirmed when PCV <19%. Data were analyzed using MINITAB 16 software. High prevalence of gastrointestinal parasitism is reported from the selected SLI goat population (77.7%). According to PCV, only 0.4% goats were anemic. The sensitivity of the FMACHA<sup>®</sup> test is 100% and was able to identify all true anemic animals. However, the specificity of test is 23.1% and NPV is 4.8%. Therefore, majority of the test positives (76.9%) were truly non-anemic limiting authenticity of the test. The observed positive correlation between EPG and FMACHA<sup>®</sup> and negative correlation between PCV and EPG reflects the presence of haemonchosis which had caused anaemia in goats (P<0.05). Further the presence of negative correlation between PCV and FMACHA<sup>®</sup> (P<0.05) reflects the ability of FMACHA<sup>®</sup> in identification changes of PCV in SLI goats, though not in the level expected as described elsewhere for goats. The analysis of mean PCV for each FMACHA<sup>®</sup> category (3, 4 and 5 - 28.8±0.7%, 25.5±0.3% and 19.0±0.8%, respectively) revealed higher mean PCV values than suggested for each category. Hence, the actual PCV levels of SLI goats will not reflect in their eye conjunctiva colour and FAMACHA<sup>®</sup> scoring system cannot be used to detect the actual anaemic status in SLI goats. However, the level of reflection of anaemia from FAMACHA<sup>®</sup> scores may be different in crossbred goats according to the level of their cross breeding. The present findings will be useful in future detection of anaemia levels in crossbred goats.

*Financial assistant given by the International Atomic Energy Agency Grant 16124 is acknowledged.*