696 Web forums as a method for engagement on contentious issues in dairying: Should pain relief be provided during disbudding and dehorning of dairy calves? D. M. Weary,* C. S. Schuppli, and M. A. G. von Keyserlingk, *University of British Columbia, Vancouver, BC, Canada.*

Many people have positive views about dairy farming but this goodwill may be eroded if industry practices fall out of step with changing public expectations. Previous work has indicated that a particularly contentious topic is the use (or lack thereof) of pain control during painful management procedures. To better understand the expectations of different stakeholders to the use of pain control during routine painful procedures, we used web-based virtual "town hall" meetings to provide some background information describing the procedures and issues and allow people to respond to the question: "Should pain relief be provided when disbudding and dehorning dairy calves"? Anybody with access to the Internet could participate, and individuals working in dairy industry were targeted via a short article and link to the forums published in Progressive Dairyman. Over 200 people participated in 5 different web forums; 36% were students or teachers, 10% animal advocates, 25% farmers, veterinarians, and industry professionals, and 29% had no involvement in the dairy industry. The majority (86%) responded "Yes"; 7% "Neutral" and 7% "No." Participants in any one forum could not see the responses in other forums, allowing the discussions to proceed independently. Despite this independence, the majority of respondents in every forum (varying from 82% to 90%) indicated that pain control should be provided (i.e., chose "Yes"). Responses varied with participant demographics; for example, only 64% of producers chose "Yes" versus 90% of veterinarians. However, within every demographic category measured (e.g., sex, age, etc.) the majority argued that pain control should be provided. These results suggest that practice on farms that do not routinely provide pain mitigation for these procedures is out of step with widely held values (including those of dairy producers), suggesting the need for new policy and better incentives to encourage use of appropriate methods of pain control.

Key Words: animal welfare, analgesic, survey

697 Preliminary assessment of graded *Garcinia kola* seed meal on the performance, hematology and serum enzymes of broilers. O. A. Ogunwole, E. A. Iyayi, M. D. Olumide,* O. Arinola, and O. A. Adebiyi, *University of Ibadan, Ibadan, Oyo State, Nigeria.*

A preliminary assessment of the incorporation of graded levels of *Garcinia kola* seed meal (GKSM) and a commercial symbiotic Biovet YC on the performance, serum enzymes, hematology and organ weights of broilers was undertaken in a trial lasting 6 weeks. One hundred and 50 chicks of Arbor acre strain were randomly assigned to 6 treatments comprising of 25 birds per treatment and 5 birds per replicate. Diets 1, 2, 3, 4, and 5 contained *Garcinia kola* meal at 0, 2.5, 5.0, 7.5 and 10.0g/100g and the sixth diet had Biovet-YC at 0.1g/100g of feed. Routine antiviral vaccinations were administered on the birds but without any medication throughout the course of the trial. Feed intake and weight gain were significantly ($P < 0.05$) lowered by increasing GKSM inclusion above in the feed. Values obtained for serum alkaline phosphatase (19.82, 21.40, 21.20, 21.05, 20.82 and 22.90 µg/L for birds on treatments 1, 2, 3, 4, 5 and 6 respectively) were significantly ($P < 0.05$) higher with increasing inclusion of test ingredient. The red blood cell counts and the weight of kidney were significantly ($P < 0.05$) higher for birds on treatment 5. *Garcinia kola* meal should be incorporated at lower levels below 2.5g/100g in broilers diet. The bioactive component of *Garcinia kola* could be extracted, characterized and exploited for poultry production.

Key Words: *Garcinia kola* meal, serum indices, organ weight

698 Water usage and discharge volumes on New Mexico dairy operations. T. M. Vander Dussen*[1], G. R. Hagevoort[1], J. Lazarus[2], E. Naumburg[2], R. Ganta[2], and K. D. Casey[3], *[1]Agricultural Science Center at Clovis, New Mexico State University, Clovis, [2]Glorieta Geoscience Inc., Santa Fe, NM, [3]Texas AgriLife Research, Texas A&M System, Amarillo.*

Water usage on western dairies has become a topic of much debate in recent years. Much of the debate is fueled by incomplete information about the volume of water pumped (total water diversion) and its subsequent distribution for dairy purposes or for irrigation. Water diverted to the dairy is consumed by the cows, used for cooling of milk or cows, or utilized for cleaning. The large majority of the cooling and cleaning water is discharged into the lagoon system and recycled as irrigation water. In New Mexico a discharge permit (DP) is required to discharge "green water" into the lagoon system, and the maximum allowed discharge volume is defined in the permit. Metered discharge volumes into the lagoon system are reported monthly. A review of New Mexico's State Engineer and Environment Department records attempted to determine how much water is actually discharged. Average discharge volumes varied largely depending on the waste water management practices, in particular the use of a flush system. Based on the average herd size in NM (2,293), the average discharge volume per milking cow in 2011 was 28 GPD. Dairies with direct land application or total evaporation systems (19% of DP's) discharged lowest water volumes, typically well below 10,000 GPD. Since individual herd sizes are not reported, it is unknown if large discharge volumes (>100,000 GPD) were simply due to a large herd size, a large flush-system, or poor water management. Over the 2006–2011 reporting period, average discharge volumes peaked in 2008 at 87,000 GPD but have since decreased 27%. Some of the noted measures producers have taken to reduce water usage are: switching from water- to air-cooling systems, abandoning the practice of flushing alleys, reducing hose sizes in barns and wash pens, installation of timers on hoses for wash pen cleaning, etc. Dairies surrounding the Rio Grande watershed reported lower discharge volumes than dairies along New Mexico's East side with little or no nearby surface water. A lower discharge volume ultimately reduces: 1) the risk of accidental non-permitted discharges to waters of the US, 2) the costs of production, and 3) the total water footprint of the dairy operation.

Key Words: water usage, discharge volume, water footprint