



**WCAP**<sub>2013</sub>

# 11<sup>th</sup> World Conference on Animal Production PROCEEDINGS



中国畜牧兽医学会  
CHINESE SOCIETY OF VETERINARY MEDICINE

## 11th World Conference on Animal Production

conducting milk and beauty competitions regularly and competitions are getting tense every year. So far 32.7 litres per day is the highest yield. Breeders are directly involved in organizing the milk testing for Sahiwal. Red Gold Club membership is awarded for any cow that produces 18 litres or more milk on the record day. RCCSC and SCBS video tape the event. So far more than 100 cows have qualified to become the member with farmers decorated with cash awards and certificates. Actually about 1/3rd of these cows produced more than 25 litres a day and were awarded the membership of Sahiwal Platinum club which even offers better incentives. Young calves selected from such dams are further selected for progeny testing program. Bulls that do not qualify the semen quality standards but are considered good for natural mating are loaned to satellite herds, Sahiwal herds having no access to artificial insemination. Embryo transfer has also started. Efficiency of embryo production and implantation is lower than that of commercial standards but is likely to improve in future. Registered population is also being targeted to 30000 cows to improve accuracy of bulls. Research and development institutions have a continuous cooperation and farmers are converting from hopeless to hopeful state. SCBS has been active player in the decision making of conservation and development of Sahiwal cattle and is committed to conserve the breed through improved utilization for generations to come.

**Keywords:** Conservation; Breed improvement; Development; Cattle society; Sahiwal cattle

### WCAP2013-4.1-01-020(GS)

#### The effect of timing of supplementation on herbage intake, animal performance and rumen function for lactating dairy cows.

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The objective of this study was to examine the effect of daily timing of supplementation on dairy cow dry matter intake (DMI), rumen function and subsequent milk production. Ten fistulated lactating dairy cows were blocked as pairs by parity, milk solid production ( $1.73 \pm 0.09$ ), body weight ( $519 \pm 25$  kg), days in milk ( $163 \pm 12.5$ ), and BCS ( $3.9 \pm 0.21$ ). All cows were offered two thirds of their estimated DM intake over a period of 4 hours, from 1600 to 2000 h, as cut herbage (ryegrass + clover pasture). Cows within pairs were randomly allocated to one of two treatments, in which cows were offered one third of their estimated DMI as maize silage either before am milking ( $n=5$ ) (approximately 9 hours before herbage was provided; 9BH treatment) or after pm milking ( $n=5$ ) (approximately 1 hour before herbage was provided; 1BH treatment). The experiment included a 9 day adaptation period prior to a 5 day measurement period (10-14). DMI and milk yield were recorded daily. Milk samples were analyzed for milk composition and milk urea nitrogen on day 10 and 14. Rumen samples were analyzed for pH, volatile fatty acids (VFA), and  $\text{NH}_3\text{-N}$  at 0700, 0900, 1100, 1300, 1500, 2000, 2200, 2400, and 0300 hours on day 10. Data were analyzed using ANOVA with time of feeding as a treatment effect and time of sampling as a repeated measurement. Maize silage intake did not differ between treatments. Herbage intake was higher ( $P=0.03$ ) for 9BH compared with 1BH treatment ( $11.2$  vs.  $10.4$  kg DM/cow/day, respectively). Milk yield was higher ( $P=0.001$ ) and milk solids

production tended to be higher ( $P=0.09$ ) for 9BH compared with 1BH treatment ( $15.4$  and  $1.63$  vs.  $18.8$  and  $1.48$  kg/cow/day, respectively). Milk composition and milk urea nitrogen were not affected by timing of supplementation. Mean ruminal pH and concentrations of total VFA, acetate, butyrate, and  $\text{NH}_3\text{-N}$  were not affected by treatment. However, 9BH showed a 27% reduction in the peak of the  $\text{NH}_3\text{-N}$  compared with 1BH treatment. Mean propionate concentration tended to be higher ( $P=0.09$ ) and acetic:propionic ratio tended to be lower ( $P=0.07$ ) for 9BH than 1BH, averaging  $23.4$  vs.  $19.7$  mmol/l;  $7.16$  vs.  $8.8$ , respectively. Changing time of supplementation for 9 hours rather than 1 hour before pasture allocation may reduce the substitution of pasture, increase herbage intake and improve animal performance. In addition, it might alter rumen fermentation end products and improve nitrogen utilization.

**Keywords:** Fistulate; Maize silage; Supplementation; Herbage intake

### WCAP2013-4.1-01-006

#### Lactation performance of purebred and crossbred dairy cows on pastures and impact on fertility.

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Robust knowledge of the critical determinants of lactation performance and correlations with fertility traits is essential for elucidating the underpinning relationships between genetic merit for high milk yield and reproduction. Holstein-Friesian, Jersey and Holstein-Friesian x Jersey breeds constitute the vast majority of milking cows in Tasmania's mainly pasture-based dairy farms in Australia where genetics and seasonal fluctuations in pasture quantity and quality influence lactation performance. We tested the hypothesis that many decades of selection for high milk yield will lead to a gradual but progressive decline in reproductive performance under pasture-based production systems. Therefore, the main objective of our research was to conduct a multi-trait analysis of lactation performance in purebred and crossbred dairy cows and quantify the relationships with fertility traits under grazing conditions. Test-day lactation and reproductive performance data from 2006-2010 in 428 dairy farms in Tasmania with an average herd size of 300 cows were subjected to General Linear Models and correlation analyses. Lactation performance was found to be a function of breed, physiological status and age of the cow, regional location, season and year of calving. Older, multiparous, Holstein-Friesian cows gave significantly higher milk yields than younger, primi-parous calves with a linear increase in milk yield, protein, fat and calf birth weight as cow parity increased from 1 to 3. Lactation and fertility traits had an antagonistic relationship as high milk yield was associated with increases in calving interval, interval to first breeding and number of days open. It was concluded that for unbiased comparisons of cow mating plans, milking routines between and within pasture-based and seasonally bred dairy herds, adjustments for breed, parity, regional location, season and year of calving will be necessary. Furthermore, a balance must be struck between selecting for high milk yield and fertility-related traits to minimize the impact of the antagonistic relationship between lactation and reproductive traits on cow performance.

**Keywords:** Lactation; Fertility; Pasture-based; Tasmania; Correlations