

COMPARISON OF TEMPERAMENT SCORE, FLIGHT SPEED AND HEAD WHORLS TO ASSESS TEMPERAMENT OF WEANER CATTLE

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Temperament in cattle is becoming increasingly important in quality assurance programs for meat production, and is associated with tenderness and eating quality (Bindon *pers.comm.* 2001). Subjective scoring techniques such as described by Burrow *et al.* (1991) are being used to describe/measure temperament. An objective measure such as flight speed, as described by Burrow *et al.* (1997), has also shown to be an accurate measure of temperament.

Two hundred and six autumn born Angus, Hereford, Limousin and Simmental sired steer and heifer progeny were scored for temperament three weeks after weaning on 20/1/2000 (S1). This was repeated on 2/2/2000 (S2), 9/2/2000 (S3), and the steers only on 24/7/2000 (S4). On each occasion three independent scorers, selected from either A, B, C, D, E, or F, scored the animals whilst being weighed, using the 5 point scoring system described by Burrow (1991). Flight speed (seconds) of each animal exiting the scales was also measured using an electronic timer, (T1, T2, T3 and T4, respectively, as shown in Table 1) (Burrow *et al.* 1997). Position and type of hair whorl was also recorded (Grandin *et al.* 1995). There was a positive correlation between scorers ($P < 0.001$), significant negative correlation between score and flight time ($P < 0.001$), but no significant relationship between whorl measures and temperament or flight time ($P > 0.05$). In Table 1, figures in bold indicate the main comparisons.

Table 1 Correlations between scorers, temperament scores and flight time from weighing scales

| | S1-A | S1-B | S1-C | S2-B | S2-C | S2-D | S3-B | S3-C | S3-D | S4-C | S4-E | S4-F | AvS1 | AvS2 | AvS3 | AvS4 | T1 | T2 | T3 | T4 | |
|-------|-------------|-------------|-------|-------------|-------------|-------|-------------|-------------|-------|-------------|-------------|-------|--------------|--------------|--------------|--------------|-------------|-------------|-------------|----|--|
| S1-A | 1 | | | | | | | | | | | | | | | | | | | | |
| S1-B | 0.84 | 1 | | | | | | | | | | | | | | | | | | | |
| S1-C | 0.83 | 0.91 | 1 | | | | | | | | | | | | | | | | | | |
| S2-B | 0.55 | 0.54 | 0.51 | 1 | | | | | | | | | | | | | | | | | |
| S2-C | 0.56 | 0.56 | 0.58 | 0.86 | 1 | | | | | | | | | | | | | | | | |
| S2-D | 0.59 | 0.58 | 0.53 | 0.88 | 0.84 | 1 | | | | | | | | | | | | | | | |
| S3-B | 0.60 | 0.59 | 0.57 | 0.64 | 0.63 | 0.66 | 1 | | | | | | | | | | | | | | |
| S3-C | 0.58 | 0.56 | 0.56 | 0.67 | 0.66 | 0.68 | 0.90 | 1 | | | | | | | | | | | | | |
| S3-D | 0.60 | 0.58 | 0.56 | 0.66 | 0.61 | 0.68 | 0.95 | 0.91 | 1 | | | | | | | | | | | | |
| S4-C | 0.47 | 0.50 | 0.50 | 0.51 | 0.56 | 0.55 | 0.58 | 0.58 | 0.58 | 1 | | | | | | | | | | | |
| S4-E | 0.50 | 0.49 | 0.48 | 0.47 | 0.50 | 0.54 | 0.51 | 0.52 | 0.54 | 0.84 | 1 | | | | | | | | | | |
| S4-F | 0.46 | 0.48 | 0.49 | 0.47 | 0.50 | 0.51 | 0.54 | 0.57 | 0.56 | 0.85 | 0.84 | 1 | | | | | | | | | |
| Av S1 | 0.93 | 0.97 | 0.96 | 0.56 | 0.59 | 0.59 | 0.61 | 0.59 | 0.61 | 0.52 | 0.51 | 0.50 | 1 | | | | | | | | |
| Av S2 | 0.59 | 0.59 | 0.56 | 0.96 | 0.93 | 0.96 | 0.67 | 0.70 | 0.68 | 0.56 | 0.53 | 0.52 | 0.61 | 1 | | | | | | | |
| Av S3 | 0.61 | 0.59 | 0.58 | 0.68 | 0.65 | 0.69 | 0.97 | 0.96 | 0.98 | 0.60 | 0.54 | 0.57 | 0.62 | 0.70 | 1 | | | | | | |
| Av S4 | 0.50 | 0.52 | 0.52 | 0.51 | 0.55 | 0.56 | 0.58 | 0.59 | 0.59 | 0.95 | 0.94 | 0.95 | 0.54 | 0.57 | 0.60 | 1 | | | | | |
| T1 | -0.39 | -0.43 | -0.46 | -0.32 | -0.37 | -0.33 | -0.32 | -0.36 | -0.34 | -0.32 | -0.26 | -0.24 | -0.45 | -0.36 | -0.35 | -0.29 | 1 | | | | |
| T2 | -0.36 | -0.39 | -0.41 | -0.42 | -0.49 | -0.43 | -0.41 | -0.40 | -0.42 | -0.40 | -0.33 | -0.30 | -0.41 | -0.47 | -0.42 | -0.36 | 0.72 | 1 | | | |
| T3 | -0.33 | -0.39 | -0.40 | -0.40 | -0.43 | -0.42 | -0.43 | -0.44 | -0.45 | -0.39 | -0.35 | -0.32 | -0.39 | -0.44 | -0.45 | -0.38 | 0.55 | 0.72 | 1 | | |
| T4 | -0.31 | -0.32 | -0.34 | -0.39 | -0.42 | -0.41 | -0.40 | -0.44 | -0.43 | -0.43 | -0.39 | -0.43 | -0.34 | -0.43 | -0.44 | -0.44 | 0.45 | 0.60 | 0.52 | 1 | |

These results show a strong correlation between scorers at each scoring time, between average scores, and between flight speeds. The moderate correlation between flight time and score indicates that flight speed could be used to assess temperament. Flight speed is an objective measure and has the potential to be automated, in association with electronic scales.

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