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# The effect of increasing dietary fibre and the provision of straw racks on the welfare of sows housed in small static groups

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## Abstract

*This study assessed the effects of increasing dietary fibre levels in concentrate rations and providing access to straw in racks on the welfare of pregnant sows housed in small static groups. In a 2 × 2 factorial design experiment, 128 Large White × Landrace pregnant sows were offered one of two diets: (i) High fibre diet with 9% crude fibre, or (ii) Control diet with 4.5% CF, and one of two levels of access to a foraging substrate: (i) access to straw in racks or (ii) no straw. The study was replicated eight times using groups of four sows, and treatment periods lasted four weeks. Sows were housed in pens with voluntary cubicles and a slatted exercise area and were offered a wet diet twice a day. Back-fat levels were measured before sows were mixed into groups at 28 days post partum, and four weeks later. Aggressive interactions were recorded on the day of mixing, and injury scores were recorded one week post mixing. Scan sampling was used to collect data on general activity, posture and location of the sows, and on sham-chewing and bar-biting behaviours across the treatment period. In addition, detailed focal observations were carried out on all sows across the treatment period. Straw usage was also recorded. There were no treatment effects on changes in back-fat levels over the treatment period. Treatments had no effect on post-mixing aggression or on injury scores. However, focal observations showed that sows with access to straw were involved in fewer bouts of head-thrusting over the treatment period. Control diet sows spent more time inactive than sows on the high fibre diet, however high fibre diet sows spent more time lying with eyes closed than sows on the control diet. Sows on the high fibre diet with access to straw showed less sham-chewing and bar-biting behaviour than sows in other treatments. These results show that although a diet containing 9% crude fibre promoted resting behaviour, it was necessary to combine it with access to straw to reduce stereotypic behaviour of sows in small static groups.*

**Keywords**: *animal welfare, behaviour, fibre, sows, static groups, straw rack*