

The Sustainable Grazing Systems National Experiment No. 2. Scientific outcomes and effectiveness of the research and development processes

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Abstract

The Sustainable Grazing Systems (SGS) National Experiment used 13 innovative research and development integrating processes to combine 6 diverse research sites across the southern high rainfall zone into a single, integrated experiment. Sites collected a common data set about the productivity and sustainability of grazing systems, so that issues beyond the site level could be explored. Essential to this approach were database and modelling tools that enabled across-site issues to be examined by a mix of conventional data analyses and modelling scenarios. This had not been previously attempted at this scale for the Australian grazing industries.

Major outcomes from the individual site and theme analyses were tabulated, providing a comprehensive summary of the SGS National Experiment research findings. Many of the research findings were new, and overall the SGS National Experiment improved our understanding of the processes operating in grazing systems and their interactions. The main conclusion from this substantive study was that graziers can use a combination of strategies to enhance the productivity and sustainability of their pastures, such as sowing deep-rooted perennial grasses, enhanced soil fertility, amelioration of low soil pH, and grazing methods that include rotation and rest.

Since the SGS National Experiment was itself an experiment, participants were surveyed to assess the integrating processes used, their implementation, and leadership and influence within the SGS National Experiment research group. Researchers rated the 13 innovative research and development processes for their potential to improve research and for the extent to which the processes were effectively implemented within SGS. The average potential score was 8.2 (out of 10). Four integrating processes had a potential score ≥ 9.0 : the investment in a communication and product development year (the 'harvest year'); a common database structure across all sites; the use of themes to integrate across sites; and the use of protocols and minimum datasets to guide the research and data collection. We discuss possible ways to make these processes more effective. While 18 researchers had defined and active leadership roles from the outset of the SGS National Experiment, 2 researchers dominated the scientific influence and leadership.

Despite some implementation problems with the SGS National Experiment processes, internal and external reviews indicated that the SGS National Experiment met most of its goals and objectives. Because of the processes implemented, the SGS National Experiment framework has provided a new benchmark for conducting large-scale rural research in Australia.

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