

Alternative management of rice straw

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Similar to other rice producing countries, rice straw management is a major challenge in Australia. Currently, there are limited options for its use and due to its great abundance, low nutritional value and low density, most of it is currently burnt in fields soon after harvest. This is an efficient and economical way for farmers to manage the straw, sterilising the soil of weeds and pests and providing good time to sow a following winter crop whilst exploiting any residual soil moisture left over from the preceding rice crop. Burning tends to also be preferred, as incorporation of the heavy straw load back into the soil can prevent the development of a good seed bed which hinders the establishment of a crop following rice in the heavy clay soil types, typical of rice growing areas of south-eastern Australia. Conversely, however, the open burning also produces large smoke clouds which are generally considered undesirable by communities, and which generate greenhouse gas emissions and air pollution with possible risks to human health. In future, government regulation may impose restrictions on straw burning, which could impact quite heavily on the viability of rice enterprises. Burning may also impact soil sustainability in the longer term through loss of soil nutrients, carbon and possibly beneficial soil biodiversity. Therefore, it is timely for alternative, economically viable solutions for straw management to be assessed for feasibility and implementation.

The research provides an overview of alternative options for rice straw other than open field burning, taking into account cost benefits for farmers and the industry and being cognisant of life cycle assessment. It presents agricultural producers and agro-industry with potential ways of creating value from low value rice straw in a sustainable way that may fit with farm operations. The research may assist in guiding research and development that is required to develop new opportunities for rice straw management and ensure the outcomes of new practises are sustainable for famers and for policy development at industry level.