Final Report Summary

Improved oat varieties for hay production 2020
Objectives

This project aimed to summarise the research conducted in the National Oat Breeding Program from January 1998 to December 2020. The project is a historical perspective of the creation and development of the first dedicated oat breeding program for improved hay varieties globally. Over the years, the National Oat Breeding Program has aimed to improve agronomic traits, disease resistance and quality in hay varieties grown in south-east Australia and WA. With a changing climate, dry growing conditions and a trend of hay production into traditional low rainfall regions, the research has focused on developing tolerance to dry conditions in varieties.

Expected outcomes from National Oat Breeding Program research were improved oat hay varieties that are more productive in traditional and non-traditional oat growing regions to meet current and emerging export market demands. This project meets AgriFutures Australia’s priorities by promoting the development of quality oat hay for a sustainable and profitable fodder industry.

Outcomes

During the 22 years of breeding improved oat varieties for hay production, advanced breeding lines were promoted to yield trials based on hay productivity, hay quality, disease resistance and agronomic traits. There were eight hay varieties released on a shoestring budget as part of the program, with an average of 2.8 years between releases. An additional four varieties released from the milling grain stream have become popular for hay production. Three advanced breeding lines are in breeder seed production, with the first commercial seed increase in 2021.

Implications

The release of oat varieties suited to oaten hay production by the extended SARDI-led National Oat Breeding Program has seen widespread industry uptake of these varieties. This has been particularly evident in high-export fodder-production areas in SA, WA and VIC, which is reflected in delivery of product to processing plants.

Background

A fledging Australian export oat hay industry started in 1988 with a few containers of about 100,000 tonnes (t). The industry has continued to grow strongly, based on improved hay yield and quality, and more than one million t of hay was exported in 2016. The total value of the Australian export hay industry is about $407 million per annum. Japan, the largest customer, is a mature market for export oat hay and has remained stable. Korea and Taiwan also import smaller amounts of oat hay. China is a growing export market due to consumers’ appetites for dairy products. Producers in China are also starting to understand the nutritional importance of oat hay in the diet of dairy cattle.

In Australia, export oat hay has become an essential component of the long-term profitability of cropping systems for many growers. Gross margins in central Victoria are often $500 to $1200 per hectare. In addition, benefits to the grower are control of resistant ryegrass, an option as a break crop and an opportunity to recover higher value compared with a grain crop during frost or drought. Additionally, the production of oat hay can provide growers with an earlier cash flow compared with grain.

Research

Breeding priorities, developed in conjunction with hay processors and growers, form the foundation of oat hay variety improvement. Classic breeding methods using phenotypic data for promotion of breeding lines have been the basis of the oat hay breeding program.

Publications


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