

NSW DPI:

New organic specialty grains project

Increasing awareness of the link between diet and health has led to growing demand for specialty grains and their products within the health-food sector.

Specialty grains such as spelt (*Triticum aestivum* var. *spelta*), cereal rye (*Secale cereale*) and Kamut® (*Triticum turgidum*) are claimed to exhibit superior nutritional attributes to other more common cereals such as wheat.

It is these nutritional claims that have sparked the greatest interest, particularly in the health food sector. The most common use for specialty grains is as a substitute for wheat flour in breads, pasta, cookies, crackers, cakes, muffins, pancakes and waffles.

In Australia, organic spelt is processed for flour and further value-added into bread, licorice, spelt flakes and pasta. Specialty grains have also attracted interest in the livestock industry as feed supplements and for grazing potential.

European research is investigating spelt as a high-protein meat and bone-meal replacement for livestock feedstuffs.

In Australia, spelt grain production is estimated at 4000 tonnes and the retail value of processed organic spelt products estimated at \$7.7 million.

Estimates suggest markets exist for about 10,000 tonnes of organic spelt grain per year, with an on-farm value of \$10 million (de-hulled) and retail value of \$19.2 million.

The greatest demand is for organically produced specialty grains but poor yields and market irregularities are frustrating industry expansion. Many processors import grain in an effort to maintain consistent supply but, as a last resort, may cease production altogether.

Estimates suggest more than half of the volume (about 10,000 tonnes) of these specialty grains or their products (for example, flour) required by Australian processors is imported, offering opportunities for import replacement.



Seed increase block of spelt genotypes at the NSW DPI's Yanco Organic Research Site. Photo: R. Neeson.

Some processors suggest if supply irregularities were solved, increased confidence in the marketplace could see the demand for these grains double over the next few years. Introducing specialty crops will increase on-farm biodiversity and provide increased crop rotation options for organic farmers.

Environmentally, the seeming adaptability of spelt and other specialty grains suggests they may have a role to play in Australia's marginal agricultural landscapes and in traditional cropping zones as the impacts of climate change are felt.

Some overseas research suggests spelt, Kamut® and cereal rye perform better than many traditional grains (such as wheat) under limited nutrients and water availability. They will

thus help to sustain productivity and profitability of organic cereal-pasture enterprises.

A new three-year project conducted by researchers associated with the EH Graham Centre for Agricultural Innovation (a collaborative alliance between NSW DPI and Charles Sturt University) aims to develop more reliable cultivars of spelt and other specialty grains for organic production.

It is supported with funds through the Rural Industry Research and Development Corporation's (RIRDC) Organic Produce Program.



Some spelt genotypes at the NSW DPI's Yanco Organic Research Site. Note extreme variations in plant growth habit (prostrate versus upright). Photos: R. Neeson.



Participants at the recent Riverina Organic Farmer's Organisation and Biological Farmers of Australia Organic Roadshow inspect the spelt genotype trial planted at Yanco Agricultural Institute's Organic Research Site. Photo: D. Lemerle.

Other groups involved include the Department of Natural Resources and Environment, Victoria; organic farmers from three regions (Cootamundra, Coleambally, and Grafton), who will be directly involved in spelt selection and agronomy experiments; and the Biological Farmers of Australia Co-op Ltd. (BFA).

Project leader, NSW DPI's organic farming liaison officer Robyn Neeson, said the project's main objectives were to improve supply and quality of organic spelt through selection of superior lines well-adapted to organic production systems and which exhibit acceptable quality characteristics from a nutritional and processing perspective.

She said the three-year project would involve intensive selection trials as well as a number of experiments to gather improved agronomic information, including optimal sowing dates, sowing rates, weed competitiveness, phosphorus (P) and nitrogen (N) requirements, thus enabling organic farmers to optimise the yield and quality of spelt, Kamut® and cereal rye.

Information gained from the P and N experiments will enable organic farmers to make informed decisions about paddock selection for spelt, their fertiliser management, and potential performance of spelt on their farms.

The experiment information will be compiled into a comprehensive agronomic information package. The project

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began in July and the seed increase of 63 spelt genotypes is underway at the NSW DPI's Yanco Agricultural Institutes Organic Research Site.

A glasshouse trial has also been established at Yanco to compare the P response of spelt (3 landraces), Kamut® (1 selection), cereal rye and traditional bread wheat. Observations are being made of the spelt genotypes growth, yield and quality characteristics.

Organic farmers will be invited to assess spelt lines growing at Yanco during a field day in December and will be asked to provide valuable input for the project by ranking their order of preference

for key physiological attributes which best adapt spelt to their organic production systems.

Next year, trials will expand to include sites at NSW DPI's Yanco and Vic DPI's Rutherglen Organic Research Sites and on organic farms at Cootamundra and Coleambally.

These trials will assess spelt genotypes for their local adaptability to a range of soil types and under both dryland and irrigated conditions.

Outcomes of the project will hopefully provide producers with greater confidence in organic production requirements and techniques for these grains, leading to a more sustainable organic grain industry better able to expand to its full market potential. ■

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