LONG CHAIN OMEGA-3 COLLABORATION
GRAINS SECTOR FACT SHEET

The Project

- A new canola variety to be trialed within five years has huge potential for Australian grain growers.

- Nuseed (a wholly owned subsidiary of Nufarm Ltd), the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Australian Grains Research and Development Corporation (GRDC) have joined in a $50 million dollar research collaboration to develop a high-value vegetable oil which will contain the same high quality, long chain omega-3 oil that traditionally comes from fish.

- The project takes a whole of chain approach, combining scientific research and agricultural expertise with commercial support. The three parties have signed two major agreements to develop and market plant-made omega-3 oils, utilising world leading precision gene technology (or Genetic Modification).

- The organisations' combined expertise positions this research to successfully develop and commercialise the world's first omega-3 plant-made canola oil. The long chain omega-3 canola oil will be used for human consumption and also have applications such as in the aquaculture industry.

- Pending achievements of research milestones, it is expected that the first elite canola line trials will start in 2013 with expected commercial launch in 2016.

The need

- The potential demand for omega-3 canola oil is enormous. Long chain omega-3s in the diet are essential for human health and optimal body function.

- The benefits are well documented, playing important roles in heart and brain health, child and infant development, inflammation and other health functions.

- Nutritionally important long chain omega-3 fatty acids include eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). EPA and DHA are polyunsaturated fatty acids, commonly found in ocean algae and oily fish such as salmon. The typical Western diet does not provide enough EPA and DHA omega-3s, which may contribute to increased risk of chronic diseases and hundreds of thousands of preventable deaths[1].
- Consumers are becoming more aware of these health benefits, and are seeking more omega-3 oil in their diet.

- These healthy oils are commonly derived in ocean microalgae, which are consumed by fish, including tuna and salmon, and in turn, humans. Tuna oil contains one of the highest natural proportions of omega-3 oil.

[1] Global Organization for EPA and DHA Omega-3 website http://www.goedomega3.com/

- When global population growth is taken into account, it is estimated that 70 million tonnes of fish above existing production is needed, just to meet projected consumer demand[2] for omega-3 oil.

- Omega-3 sourced from wild fish stocks will be unable to meet future demand, and aquaculture should be well positioned to meet this need, but given aquaculture fish food – meal and oil – is essentially fish, the situation is unsustainable.

- By developing a variety of canola rich in omega-3, the project will not only provide an alternate food source for aquaculture fish, but deliver another source of omega 3 oils for human consumption.

- The research project will utilise precision gene technology (or genetic modification) to develop and commercialise high quality, long chain omega-3 canola oil.

- Omega-3 canola oil has a myriad of potential uses in aquaculture, food and nutrition and the pharmaceutical sector, presenting growers with a new canola variety for grain markets.

The benefits of canola omega-3 oil

- *Sustainability:* Plant-based omega-3 oil production is a sustainable, long-term solution to the growing demand for omega-3 oils. Advanced precision gene technology will be used to transfer one plant's gene, to another (from microalgae to canola).

- *Quality:* This world first long chain omega-3 canola oil is low in saturated fat and achieves the highest levels of omega-3 oil in oilseed plants at commercially viable levels.

- *Consistency*: The precision gene technology strategy is based on robust world leading science and produces oil with consistent omega-3 DHA and EPA profiles.

- *Commercial*: This alternative long-chain omega-3 canola oil supplement in fish feed will provide Australian growers with an exciting new variety for domestic and international grain markets.

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About the Omega-3 Oil Research Collaboration

This collaboration brings together three of Australia's leading organisations in grain research. The CSIRO through its Food Futures National Research Flagship providing investment, the research science behind omega-3s and developing transgenic omega-3 canola; Grains Research and Development Corporation (GDRC) providing investment; and Nuseed providing investment and development, including regulatory and breeding expertise to the collaboration.

[2] Public statement, Geoff Allan, NSW Department Industry and Investment 7/03/2010

Company background information

CSIRO

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) is Australia's national science agency and one of the largest and most diverse research agencies in the world. CSIRO applies its world-leading scientific knowledge to create jobs, national wealth, a healthy and sustainable environment and improved living standards for all Australians. CSIRO is enhancing Australia's food production systems through an integrated 'farm-to-fork' approach. CSIRO is delivering science to enable increased productivity and efficiencies at the farm level, improving the quality and yield of Australian crops, developing innovative food processing technologies, creating new value-added foods, and developing the nation's livestock, aquaculture and fishery industries. www.csiro.au

Nuseed

Nuseed, a wholly owned subsidiary company of Nufarm is a global seed company committed to the breeding and production of high performance planting seed including canola, sunflower, grain and forage sorghum. Nuseed is committed to the development of elite seed products that drive value both on the farm and through the agrifood chain. Nuseed is a member company of the Global Organization for EPA and DHA Omega-3 (GOED). www.nuseed.com

GRDC

The Grains Research and Development Corporation (GRDC) is one of the world's leading grains research, development and extension (RD&E) organisations. GRDC invests in RD&E to provide growers with vital information, knowledge and resources to support effective competition by Australian grain growers in global grain markets, through enhanced profitability and sustainability.

The GRDC's investment in farming practices, plant varieties, and new products has helped position Australia's growers as the best in the world. www.grdc.com.au