



## IRRIGATION RESEARCH & EXTENSION COMMITTEE

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FOR IRRIGATION CROPPERS

### **Industrial hemp**

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Demand Farming Australia is a joint venture between Aurora Research and Elders Ltd, supported by the NSW Department of Primary Industries, NSW Department of State and Regional Development and Local Government.

Demand Farming is about efficient supply chains, information and improved market linkages that will give farmers more power in negotiating contract supply arrangements.

A collaboration of initially 1000 of the top 30% of Australian farmers will be put together, with the participating farmers being spread across approximately 40 strategic locations in Australia, of which approximately 400 farmers will be in New South Wales. This aggregation of farms will be equivalent to a land bank greater than \$2 billion, which gives greater negotiating power and market leverage.

Demand Farming Australia engages farming businesses in a systematic roll-out across Australia, and the best farmers will select themselves as they will be innovative, forward thinking and willing to invest in new opportunities.

Demand Farming's emphasis is in quality assured, traceable food, fibre and energy crops that meet the specific high standards required for the specialty markets, particularly in the ever growing Asian food sector. With the growing need for renewable energy crops for fuelling our energy needs, an increasing demand is emerging for renewable crops that are, not only carbon neutral, but also environmentally tolerant in the ever changing agricultural landscape.

Workshops are conducted with interested farming businesses, followed by Farm Audits of the participating farm, recording farming practices, production capabilities, soil types, water availability, climate, etc. This data will provide aggregated estimates of potential for a large range of produce, with large volumes, which are of interest to customers who prefer to buy from one quality and traceable source rather than many small suppliers or 'anonymous' pooled product.

A group of sales staff based overseas will sell to large customers, aggregated volumes of high-quality produce which will command higher prices than mixed quality offerings. There will also be sales to Australian customers but the main opportunities will be in exports.

Significant ongoing investments in market intelligence, consumer research and market opportunity evaluations will provide participating farmers with significantly more opportunities and less risk than trying to undertake research themselves.

Participating farmers will be offered contracts with farm gate prices based on quality parameters, an input/output model, crop check systems and anticipated gross margins and internal rate of return. This will enable farmers to compare current returns per ha and per mg of water against the Demand Farming Australia offers.

Participating farmers have the choice to decide whether they wish to participate in the offers or not. Increased medium to long term returns, diversification, sustainability and reduction of risk with less market fluctuations are all objectives set out by Demand Farming Australia.

The aggregation currently stands at 150 farmers in 22 shires within New South Wales totalling 480,000 hectares of arable land worth in excess of \$1 billion farm gate value.

## **Industrial Hemp**

Industrial Hemp (*Cannabis sativa* L.) is also known as 'Indian Hemp', 'Cannabis' or 'Hemp'. Industrial Hemp requires well drained fertile, neutral to slightly alkaline, clay loam or silt loam soil. The requirement for a well-drained site is necessary as Industrial Hemp plants are particularly sensitive to waterlogged soil.

Traditionally, products made from Industrial Hemp fibre included rope and cordage, sailcloth, carpet backing, canvas, and apparel (such as the original Levi jeans made from Hemp Denim). Recent investigations have revealed that contemporary uses of Industrial Hemp include reinforcing fibre for paper, fibre-reinforced plastics, polycomposites, fibreboards, geotextiles, textile fabrics (apparel and industrial), animal bedding, kitty litter, industrial absorbent products and insulation. Many uses for the oil and seed have been developed or are under investigation, including animal stockfeed, soap, oil, paint and varnish and cosmetics. In some countries, (not Australia), the seed and oil from Hemp plants are used in food products.

Field trials for research purposes had been permitted in New South Wales since September 1995 under the Drug Misuse and Trafficking Act 1985 which is administered by NSW Health. The allowable upper limit for THC in trial crops was set at 0.3%, and the Act does not allow for commercial production of the crop. Trials have been conducted at a range of sites, and fibre and seed production has been assessed. Up until recently, 10 hectares was the maximum trial size.

Industrial Hemp is now a step closer to becoming a new production crop in New South Wales, following the passing of the Hemp Industry Bill 2008 through the New South Wales Upper House in June, 2008.

Demand Farming was instrumental in this change in legislation which will allow this crop to potentially become a main stream agricultural crop. This Bill, which introduces a new licensing scheme allowing the production of Industrial Hemp in New South Wales with THC levels of 0.5% and an environmental allowance up to 1%, will be in place for the 2008 spring planting.

Demand Farming Australia has identified a number of areas where Industrial Hemp production would be suitable:

- McIntyre Valley, Gwydir and Namoi Valleys
- Macquarie and Lachlan Valleys
- Casino and Northern Rivers regions
- Riverina and Murrumbidgee Irrigation areas

Through the Demand Farming database, it has been identified that an Industrial Hemp crop is estimated to have an immediate potential of approximately 20 - 30,000 hectares of production. This would potentially be worth \$50-\$100 million of farm gate revenue, seasonal dependant converting to \$300-400 million in regional revenue from value adding and manufacture, for both domestic and international markets over the next 10 years.

Limitations to the extent and rate of growth are very apparent for an industry, as very large capital requirements are required for the processing of Industrial Hemp with infrastructure needs not dissimilar to that of the Cotton Industry, and their processing using cotton gins, which are specific to first stage manufacture. Currently, there are Plants operating in Europe but, capital requirements in the vicinity of tens of millions of dollars, are required for such technology.

During recent trips to Europe, Demand Farming has identified demand from a number of markets, particularly the high end European car market, packaging and specific building products. Demand has also been identified in the Australian market and currently, Demand Farming is working with Futuris Automotive and General Motors plus a number of major building and packaging companies.

In the car market, Industrial Hemp fibre is pelletised and blended with PEP (Polypropylene) for blow and injection moulding in such products as dash boards, roof linings and car infill panels in models like BMW 7 series, Mercedes E and S class and even the floor pan of the new Porsche Cayman.

Recently, Demand Farming imported 2 x 1 tonne samples of pellets from Germany, from two presently manufacturing companies, to test in the General Motors manufacturing facilities in Australia and ascertain if such a fibre has economic potential in the main stream Australian car market. This testing will be completed in August 2008 and will give clear guidelines to the extent of the potential demand and ability to model production capacity within Demand Farming nationally.

Demand Farming has also been in discussions with a number of medium and large scale building suppliers in Queensland, New South Wales and Victoria investigating the possibility of the fibre and hurd being used as additives in current building materials and potential new green renewable products made from Industrial Hemp and its natural characteristics and with regards to packaging, negotiations have commenced with a number of high profile companies who manufacture pallets, crates, container bump boards plus plastic bag replacements.

Breeding Programs for Industrial Hemp have occurred across the globe, mostly in temperate northern hemisphere climates. A number of individuals and companies in Australia have selected and bred varieties more suitable to the Australian climate with some having excellent success rates at a farm gate and potentially, manufacturing and processing level. Demand Farming has secured the exclusive rights to the only Registered Industrial Hemp Seed Breeder in Australia who is currently undergoing seed expansion in northern Australia for possible commercial release, over the next 2-3 years.

Demand Farming recently met with the Director General of NSW DPI to have input and seek assistance in compliance and management of Industrial Hemp in New South Wales. In addition, Demand Farming is discussing with NSW DPI roles in agronomic management, such as nutritional and water use efficiency factors for growing guidelines specific to New South Wales and Australian conditions.

Industrial Hemp is an exciting new crop for New South Wales and Australian farmers.