

## Greener Business Alliance Project

## Case Study 6

### Tarac Technologies Pty Ltd



#### Company profile

Tarac Technologies Pty Ltd (Tarac) is both a supplier to, and a receiver of goods from the Yalumba Wine Company, and is located in Nuriootpa.

Alfred J Allen founded Tarac in 1929, after experimenting in his backyard shed where he recovered tartrate salts and residual grape alcohol from fermented winery by-products. Soon afterward the first commercial recovery plant was established. Tarac now owns and operates four strategically located distilleries and processes up to 80 per cent of Australia's fortifying grape spirit, and about half of its bulk brandy requirements.

#### Manufacturing processes

Four principal processes are undertaken at the plant:

##### Alcohol recovery via distillation from spent winery marc, wine and filter cake.

Alcohol is recovered using a single distillation column. This process uses steam to vaporise alcohol. The "bottoms" from this process are sent to the calcium tartrate recovery plant for further treatment.

##### Production of Calcium tartrate

Calcium tartrate is generated from filter cake and centrifuge de-sludge. It is then sent to Italy for conversion to food grade tartaric acid and returned to Australia. Tarac is investigating the feasibility of installing a purification process at the site.

##### "GrapEX" – red grape skin colour extraction

The GrapEX process uses a double extraction method to gain the best efficiencies in extracting colour from red marc.

##### "Vin-life" - grape seed extract production

Vinlife is produced from grape seeds typically extracted from white grape marc. This process is a solids separation process, which separates the seeds from the skins. Waste grape skins join the spent marc waste stream.

**Link to Yalumba** - Tarac supply Yalumba, as well as the wine industry generally with three principal products:

- » tartaric acid (approximately 65 t/yr)
- » grape alcohol for Fortification (approximately 20 kL/yr)
- » red grape skin extract



**Action undertaken**

An eco-efficiency audit was conducted at Tarac in March 2002 that inspected and reviewed the company facilities and activities. This included assessment of the:

- » Supply chain (transportation and logistics)
- » Inputs including energy usage (electricity, gas), and water usage
- » Outputs including waste generation, and products

The three main objectives for future development and implementation by Tarac were:

- » Sustainable reuse of grape marc through the recovery of alcohol, grape skin and seed extracts. Use marc recovered (following extraction) as stockfood/fertiliser.
- » Sustainable reuse of filter cake/tartrate waste through the recovery of tartaric acid and alcohol. Use the resultant sludge for compost.
- » Supply Yalumba with tartaric acid packaged in 'bulky' bags, on returnable pallets, reducing packaging and transporting waste.

The following table provides a summary of the Action Plan.

AREA	ACTION	POTENTIAL BENEFITS
<b>Spent Marc</b>	Investigate local composting options for re-use on vineyards.	Re-use of waste material. Reduced transport costs. Reduced water consumption in vineyards.
<b>Filter cake &amp; tartrate waste</b>	Sustainable use of filter cake and tartrate waste.	Reduced waste.
<b>Tartaric acid</b>	Supply tartaric acid to Yalumba in Bulky bags.	Decreased packaging waste.
<b>Renewable energy</b>	Burn spent marc to generate energy or steam for distillation on-site.	Reduced energy costs.
<b>Tartaric acid production</b>	Investigate purification opportunities in Australia for tartaric acid.	Reduced transport costs and energy use. Cheaper production.
<b>Wastewater re-use</b>	Use stormwater on-site and treated wastewater for irrigation of vines in the area.	Reduced water consumption of growers. Decrease stormwater discharge to environment.
<b>Product stewardship with Yalumba</b>	Modify tank washing practices and install centrifuge to clarify wines.	Less energy use at Tarac facility.
<b>Co-generation</b>	Investigate installing a co-generator.	Reduced electricity use and greenhouse gas emissions.
<b>Greenhouse gas emissions</b>	Take the Greenhouse Challenge.	Reduced greenhouse gas emissions.

### **Project outcomes**

As a result of the project Tarac has received direct cost savings and identified the following specific outcomes:

#### **Environmental benefits**

Processed 3,150 tonnes of grape marc, recovering 127,000 Lal (alcohol), with spent marc used as mulch/stockfeed.

Recovered 38.7 tonnes of tartrate, processed 610 tonne of filter cake, with sludge supplied to Peats Soil and Garden Supplies for composting.

Currently using 30 kL of recycled water for tartrate process.

#### **Economic benefits**

Cost savings to date in marc reprocessing has resulted in a saving estimated at \$5,000 per year.

#### ***Other issues that have arisen include:***

Overall, the company has a positive attitude to the environment and was already knowledgeable regarding the issues in their factory and in the impacts their operations have on the natural environment.

Supplying bulky bags of Tartaric acid does not seem viable as product goes hard if not used quickly. However other alternatives for the bulk supply of Tartaric Acid are being developed including the supply of liquid tartaric acid.

The GBAP has been a worthwhile project to be involved in and has increased Tarac's competitive edge by enhancing the company's environmental image. With focussed, eco-efficient objectives and actions in its Action Plan, Tarac are seeing reductions in land-fill waste and water usage. Several projects are still on-going and yet to be valued in terms of cost savings.