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Rural Industries Research and Development Corporation

Producing Capers in Australia

Viability Study

A report for the Rural Industries Research and Development Corporation

by Jonathon & Samantha Trewartha

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Foreword

The caper plant is native to the Mediterranean and has never been grown commercially in Australia. The value of imported processed capers sold wholesale in Australia is estimated to be around five million dollars annually and Australian diets are continuing the trend towards Mediterranean foods. This study was implemented to assess whether Australian regions with a Mediterranean type climate could support the farming of capers as an alternative Australian crop and aimed to initiate the development of a production system for capers.

In the process of the trial the assumption that the caper plant would grow in areas of Australia not suited to conventional agriculture was encouraged with the confirmation that they grow in poor nutrient soils, are salt tolerant, appear to be drought resistant and are not eaten by kangaroos & rabbits.

The caper plant is very versatile and has a range of culinary uses including edible buds, berries and leaves. Future marketing of caper products will be able to make much of the high level of antioxidants that the caper contains making it a healthy as well as a tasty addition to a meal. Other potential markets may exist for the beautiful caper flower.

While capers are a high value product they are very labour intensive during harvesting and while this does offer new opportunities for employment in regional areas labour costs will have to be carefully monitored if a future industry is to compete with cheaper imports over the longer term.

The caper trial undertaken at Mannum established which varieties provide the best yields in the initial growing phase and developed a good working knowledge of optimal growing methods and environmental requirements. As they mature, plants that respond best under the test site conditions will be identified as suitable for commercial planting.

This project was funded from RIRDC Core Funds provided by the Australian Government.

This report, an addition to RIRDC's diverse range of over 1500 research publications, forms part of our New Plant Products R&D program, which aims to facilitate the development of new industries based on plants or plant products that have commercial potential for Australia.

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Peter O'Brien
Managing Director
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About the Authors

Jonathon and Samantha Trewartha
Jonathon is a Mining Engineer that started experimenting with growing capers in Australia about five years ago. Samantha has a background in marketing and writing, and together Jonathon and Samantha are farming and researching capers as a potential new crop for Australia and processing and selling caper products.

Figure 1 - Authors –Samantha & Jonathon Trewartha

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Executive Summary

The value of an Australian Caper Industry to regional Australia includes; the introduction of an alternative crop for areas (including arid, low rainfall areas) that may be unsuited to conventional crops, significant new opportunities for employment in regional areas, potential to farm in an environmentally sound manner, export potential, import replacement in a market that is currently entirely supplied from overseas and consequently increased consumer choice to purchase healthier, tastier alternatives.

Capers have an established and growing market both locally and overseas and are integral to the Australian trend towards Mediterranean diets. As well as giving consumers an alternative to imported products, fresher, firmer, high quality, locally produced capers provide an opportunity for product innovation and further value adding by the food manufacturing industry.

Australian capers are attractive to a niche "foodie" market supportive of regional produce and seeking quality and flavour but will not have a mass market until the price can be reduced to compete with cheaper imports. An overseas export market may exist and recently Asia has been increasing olive oil imports assuming by extension that there may be a market for other Mediterranean produce.

Capers can be farmed in an environmentally sustainable system drawing on its unique qualities. Typical of a desert plant, capers love heat, grow in poor nutrient soils, require few inputs (water, fertilizer, chemicals), handle high salinity and they appear quite resistant to pests and disease.

Initial marketing initiatives have produced a great response. The website is generating many enquiries. Feedback from food personalities and well known chefs sampling Australian caper products has been excellent and most have demonstrated their support, expressing an interest in purchasing, using and/or selling Australian Capers.

A database of people who are interested in investing, growing and buying produce has been maintained. Various media (television, print and radio) have indicated their interest in featuring the capers and this will contribute to the dissemination of information regarding potential opportunities in this industry.

The Australian Caper Company has successfully trialled an initial 300 caper plants and subsequently a commercial crop of 1000 plants at Mannum in South Australia. Successes include the propagation of the caper plants using seed and cuttings, a growing understanding of water and fertilizer requirements, pests and diseases, different pruning, processing and trellising techniques, farming techniques appropriate to organic production methods, product processing techniques and the market for caper products as well as the establishment of a web-site (www.australiancapers.com.au), and the completion of a financial model to represent commercial caper farming.

For the medium term it is recommended that Research and Development focus on the main areas of risk that need to be quantified and managed. Those areas include; methods to reduce harvesting costs, Australian market research, the establishment of quality control systems to underpin price premiums in a niche market, identification and effective control of pests & diseases, nutrient & irrigation requirements for maximum productivity and product diversification opportunities for gourmet food manufacturers.

1. Introduction

A global cuisine appears almost inevitable as the world's diverse foods are increasing available internationally. Food tastes are expanding and, as lifestyles focus increasingly on healthy and sustainable food, the Mediterranean diet is becoming increasingly attractive and demand for capers is growing. Steve Hubbard, worldwide Marketing Manager for Griffith Laboratories, a global manufacturer of food ingredients, commented on capers as one of several "potential celebrities in the culinary world" (Food Product Design magazine).

Capers have a long history of use by humans; the first evidence of consumption dating back to around 18 000 years ago in Upper Egypt, in Iran and Iraq in 6000bc, in ancient Greece, in Rome in the middle ages and in Spain and France in the last several centuries. Capers were useful in medicine and cosmetics. Hippocrates wrote about the medicinal properties of different caper plant tissues and capers are still recognised today for their medicinal value and in particular the health giving properties of the anti-oxidant bioflavinoid rutin which the plant contains in considerable amounts.

Today, global trade in capers involves around 60 countries and average annual production is estimated around 10 000t. Australia imports all caper product and an immediate opportunity exists for import replacement for a niche market of consumers concerned with quality, flavour, freshness and regionality. Opportunities for value adding in the food manufacturing sector and export markets should also be examined over the longer term.

While the caper is extremely versatile with a number of edible parts, the caper of commerce is in fact the immature flower bud picked before it opens into flower. Buds that are left to flower then ripen into caperberries that can be pickled for use as a condiment if picked before they ripen and burst open. Capers are a perennial plant that is an outstanding candidate for successful propagation in the dry, semiarid, saline Australian environment. The plants deep root system suggests that aside from its accepted use in stabilising eroding slops it may play a part in rehabilitating saline land.

Given that Australia has much in common with the Mediterranean to which capers are native and there is a growing market both locally and overseas it was decided to investigate the feasibility of growing capers in Australia.

2. Objectives

Research intended to establish wether capers grown in Australia were a viable new crop to Australia, in a pilot study near Mannum, South Australia. Field trials were conducted over the first three years of plant growth to answer simple questions about; varieties, phenology, plant growth, and yield under Australian conditions and production systems.

Figure 2 – Caper Bud, Flower & Berry.

(photographers David & Cathy Cox)

3. Methodology

The methodology was modified at the start of the third year of the trial when it was discovered that we had four varieties in the trial instead of the planned two. The immaturity of the "mother plants" from which the cuttings were originally taken made it difficult to determine varietal differences earlier and as plants matured identification has been more exact. The increase in the number of varieties was seen as an opportunity and the methodology was modified to accommodate this change.

3.1 Initial Methodology

Three hundred plants grown from cuttings were planted at Mannum under drip irrigation in a randomised block. Plants were assessed for; ease of establishment, growth rate, general habit of growth in relation to ease of picking, resistance to pests and diseases, size of buds and fruit, quality of produce and yield.

Test 1: Variety Assessment

Compare two varieties under a standard growing system (moderate irrigation regimes) to establish growth habits, phenology, yield and quality. Mulching was a standard process.

Test 2: Optimising Yields

1 – Variety for comparison
2 – Irrigation regimes: low and moderate
3 – Fertiliser regimes: with and without

Fertiliser treatment was based on soil tests. Base levels of nutrients were applied pre-planting and over time additional nitrogen was applied in varying amounts and affects on growth measured.

Data collected in '01 to '03 focussed on production and measured; number of leaves per shoot, number of stem shoots, number of laterals, length of stem and regularity of bud formation according to variety, fertilizer and water volume. Mortality rate and salt content of irrigation water was also recorded.

Tests to establish the effectiveness of mounding and pruning methods were trialed separately in a demonstration plot. All plants were grown under organic principles.

3.2 Modified Methodology

In '03/'04 the trial site was increased to include an extra 37 plants bringing the total number of two year old plants to 293.

Yield by variety was the only factor measured. All other variables (water & fertilizer) were kept constant.

4. Markets and Marketing Issue

4.1 General

Morocco and Turkey lead world production followed by Spain (2600 hectares) and Italy (1000 hectares). Capers are largely harvested in the wild in Turkey and Morocco and those cultivated plantations that do exist are not as impressive as those in Italy (where caper farming has a long tradition) or Spain (where the industry has received considerable government support and research assistance).

Australia currently imports all caper products and although the customs data for imports of foods in this category is non-specific it is estimated that around 600t of product is imported with a wholesale value of approximately five million Australian dollars.

An opportunity exists for a niche market initially targeting discerning consumers concerned with image, freshness and quality and extends to the food service industry, gourmet food outlets, produce markets and gourmet food manufacturers. High production costs make it unlikely that Australian capers will be competitive in the broader market for cheap imported capers.

With an increasing focus globally on sustainable production systems and quality, Australia has an international reputation for "clean and green" food production and the establishment of good quality control measures would position Australian caper products to take advantage of a high-end export market to Asia in particular. Asia is increasingly enjoying Mediterranean flavored foods as can be seen by a sharp increase in olive oil consumption over the last 15 years and it is assumed that by extension a market may exist for quality caper products.

In order to compete with established, low cost caper producers in countries with low labor costs the Australian industry would need to find ways to increase economies of scale and decrease the cost of production. Opportunities exist for a fledgling industry to combine resources limiting capital expenditure, ensuring supply and sustainable price points in the marketplace, reducing competition between growers and developing a quality control system that maintains Australia's commercial advantage as a quality producer. Until the market is established, the potential for over-zealous planting by growers raises the very real concern of oversupply, flooding the market, lowering prices and ensuring the demise of a young caper industry.

4.2 Australian Capers

A label and a brand name "australiancapers", has been created. Both have received a very good response. See Figure 1 - Label

A Website has also been created "www.australiancapers.com.au." which includes an opportunity for browsers to email enquiries.

Figure 3 – Packaging & Labelling

A group of people were chosen to sample the capers and provide feedback on taste and presentation. The response was positive in every case.

Among those selected were;

- Maggie Beer (Chef and Food Writer – South Australia)
- Stephanie Alexander (Chef and Food writer – Victoria)
- Stephano Di Pieri (Chef and TV Personality)
- Prof Barbara Santich (Academic, Food Writer and Author)

5. Production Requirements

5.1 General

Capers are native to the Mediterranean and as a general rule of thumb they can be found in regions where olives and almonds are grown.

The caper bush requires a semiarid climate. Mean annual temperatures in areas under cultivation are over 14C and rainfall varies from 200-680mm/year. A rainy spring and long, hot, dry summer are important for production.

The caper bush can withstand temperatures of over 40C in summer but it is sensitive to frost during its growing period. It is a deciduous plant able to withstand low winter temperatures of –10C.

Capers have been found in the foothills of the Alps at altitudes of over 1000m but they generally prefer lower altitudes and are closely associated with the ocean, growing wild over rocky cliffs and on dry coastal ecosystems withstanding strong winds. They appear to have no specific topographical preferences although a gentle slope may assist drainage.

Deep and well-drained sandy to sandy-loam soils are preferable although the caper adapts well to chalky soils and some clay as long as the drainage is good. Soil pH between 7.5 and 8 is optimum though pH values from 6.1 to 8.5 can be tolerated. The caper plant is able to grow well in poor soils as it has an ability to maximize the uptake of nutrients.

5.2 Australian Capers

5.2.1 Location

Mannum, in the Murray-Darling Basin, South Australia was chosen as the test site after research into environments where capers are grown overseas suggested compatible climate and soils. A small trial plot was established in 1999 and to date 1,000 plants of various ages and varieties have been successfully planted.

5.2.2 Irrigation, Rainfall & Temperature

A minimal water regime (0.17 litres/plant/day) was used in the spring/summer of ‘02/’03 to combat high mortality rates observed in waterlogged young plants in ‘01/’02. Although plants continued to flower, they did appear stressed. Plants overseas have been observed to grow in dry conditions without irrigation and it was concluded that continual watering in short bursts discouraged the development of a deeper root system. The irrigation strategy for ‘03/’04 saw a significant improvement in results when water application was increased to 2.6 litres/plant/day estimating that each plant was delivered 40 litres of water through irrigation.

‘03/’04 Saw a continuation of drought conditions with rainfall measuring 219.6mm for the first 11 months (see Chart 2–Mannum Rainfall). The growing season of Sept. to April had rainfall of 106mm.
The ‘02/’03 year had similar rainfall measuring 216.9mm with 134mm falling between Sept. to April.

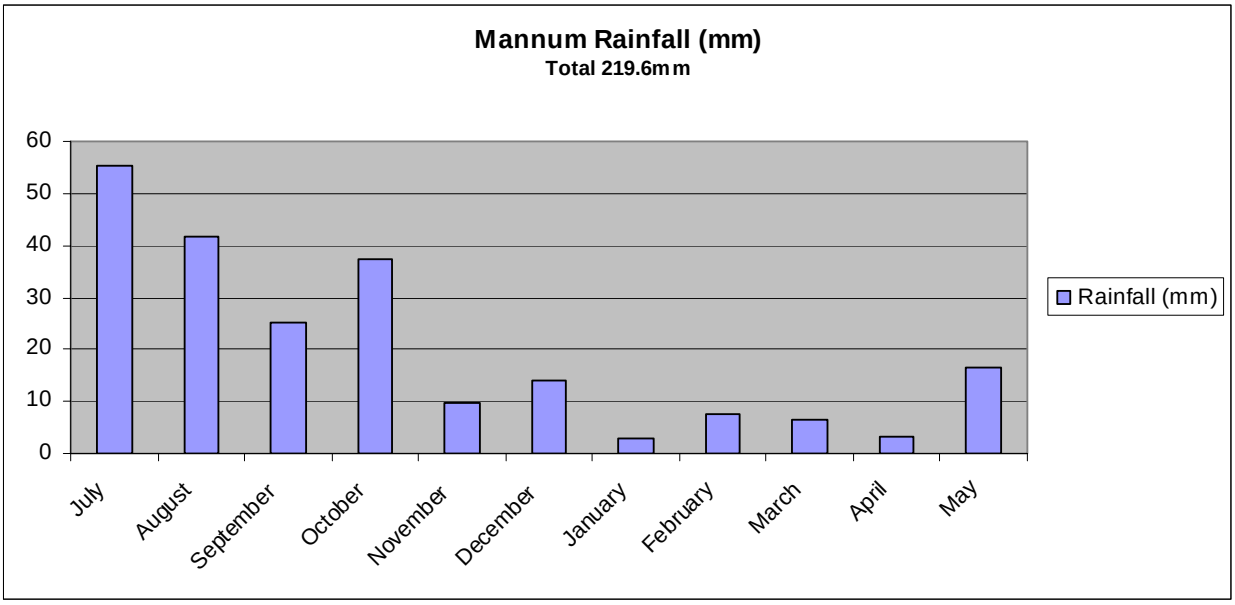

Table 1 – Mannum Rainfall '03/04

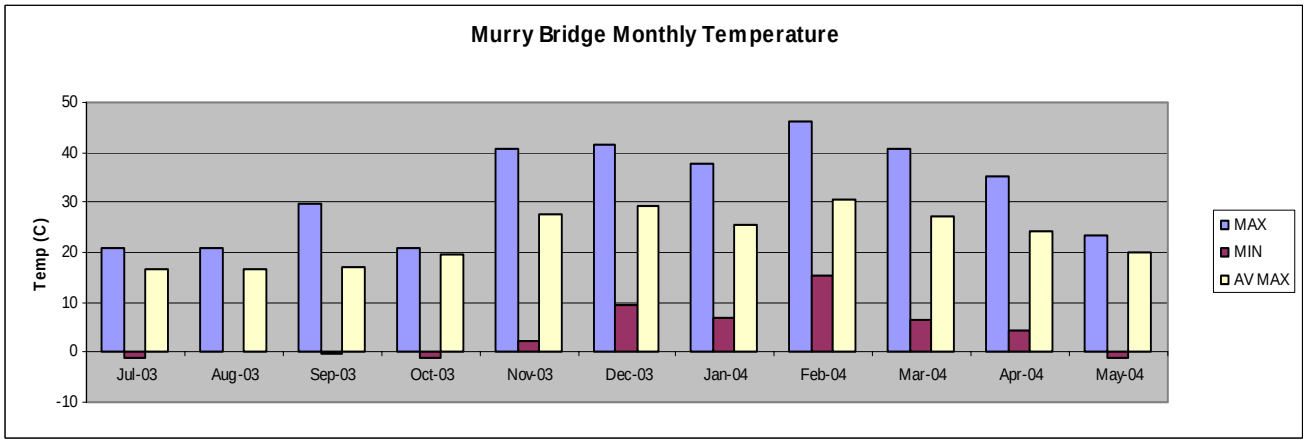

Table 2 - Murray Bridge Monthly Temperature – 2003 to 2004.

6. Varieties

6.1 General

Few, if any, caper breeding programs have been undertaken worldwide and, given the existence of extensive variations within the cultivated varieties, it is difficult to define the genetic material available.

Caper seed germination is usually poor and although germination rates can be improved by partially removing seed coats, seeding direct into the field would give limited success (approximately 5%) and is not recommended.

Caper bushes grown from cutting have an advantage over seed-propagated bushes, as they are genetically identical with their source. This avoids high variability of production and quality. However, root systems in cuttings are very delicate, resulting in a high mortality rate and potentially greater susceptibility to drought in the first years after planting.

The Mannum farm has identified five different caper types and while the parent plant genetics are unknown it is exciting to note that several of the varieties have shown the advantageous characteristics of commercial plants in Italy. The five varieties are all members of the species *capparis spinosa* and only one variety has the large stipular spines that can make harvesting difficult. Varieties that possess favourable qualities in the areas of productivity, bud quality, (flavour and processed appearance), ease of harvesting, short and uniform flowering periods, drought tolerance and resistance to pests may contribute to lowering the cost of producing capers in Australia.

6.2 Australian Capers

Four varieties are included in the trial site. Varieties are labelled “S”, “E” “M” & “P”. To accurately identify plants both berry and bud must be present. See table 1 Varieties.

Variety	*Plants*
S	55
E	35
M	117
P	86

Table 3 – Varieties in RIRDC Plot

A fifth variety with spines is being separately assessed outside the trial.

Figure 4– Variety “S”

Figure 5 – Variety “M”

Figure 6 – Variety “E”

Figure 7 – Variety “P”

6.3 Propagation

6.3.1 Seed

Promising germination results have been obtained from seed harvested from our own plants (a success rate of over 15%). Various techniques of pre-treatment of the seeds will be continuously trailed to further improve germination results.

6.3.2 Cuttings

The success of propagating from cuttings has improved over the last few years. Initial problems included the difficulty of establishing the root system.

7. Agronomy

7.1 General

Caper plantings are productive for at least 25 to 30 years so site selection is important. Soil, water availability and climate are the main aspects to be considered with the caper growing best on non-stratified, medium textured, loamy soils.

The ground is prepared through moldboard plowing and harrowing or digging backhoe pits for each caper if the ground is rocky.

Plants are usually planted in a square design and spaced from 2 to 6 meters apart to accommodate their sprawling growth.

Fertilisation can take place 20-30 days before planting or applied at planting. The type of fertiliser used and application rates is related to plant age and soil nutrient content. Phosphate and potassium fertilisers are generally applied every two to three years.

With first year plants over-watering must be avoided, as wet roots will kill the caper plant. Water availability is the most limiting production factor and where possible plants should be drip irrigated to encourage productivity. A full yield of anything from 1,5 to 5 kg can be expected in three to five years.

In winter, dormant plants are heavily pruned back to remove dead wood and watershoots. This is essential for production as flower buds arise on one-year-old branches.

Competition with weeds may be particularly serious while establishing young plants and some herbicide treatment might be considered along with mechanical weed removal. Mulch is also effective in limiting weed growth. Once the caper is established most of the ground is rapidly covered by the caper bush canopy and weed development is largely suppressed.

7.2 Australian Capers

7.2.1 Planting Out

The caper plant must be planted after the last frosts. The caper is a deciduous plant that is susceptible to frost when young and severe frost is likely to cause mortality in young plants. In older more established plants frost may burn new growth.

7.2.2 Mortality

All trial plants were grown from cuttings and as of March ’03, total mortality rate over a three year period was 33%. The following are possible reasons for what is perceived to be a high mortality rate;

1. Fine roots not established on young plants (‘01/’02)
2. Root rot from initial over-watering of young plants (‘01/’02)
3. Shallow, weak root system because of the incorrect irrigation strategy.
4. Insufficient water in a season that was the driest on record.

Our success in reducing the mortality rate of young plants improved greatly in a planting undertaken in 2002 (outside the trial) where 210 new plants had a reduced mortality rate of 19%. This appears to have been influenced by planting more mature plants (6 months instead of 3 months) and planting later in spring to avoid the last frosts.

7.2.3 Fertilizer
We use Neutrog Rapid Raiser pellets. Extremely low rainfall for the season combined with the ineffectiveness of dripper irrigation in assisting the breakdown of the pellets slowed the conversion of the pellets to nutrients available in a form accessible by the plants. This was reflected in some die off of leaves at the base of the stems as the tips were growing. After one good period of rain the plants appeared healthier.

Soil tests at the end of the season showed adequate nutrients were present.

7.2.4 Salinity
In an attempt to demonstrate the overseas experience where caper plants grow in a saline environment, we selected two rows outside the trial plot in October ’02 for a saline water trial. One row contained more mature two year old plants and the second row contained 6 month old plants. Both were put on high salinity bore water up to 9.11 dS/m (9110 EC or about 5500 ppm).

The older plants continued to grow at a healthy rate and 4 of 6 young plants established well. Few horticultural plants other than date-palms can tolerate irrigation water of such high salinity.

7.2.5 Pruning
In late autumn this year (‘04) plants were lightly pruned.

7.2.6 Trellising
If the caper plants can be trellised rather than allowed to sprawl on the ground, picking and management would be much easier.

Four one year old plants were selected for a trial of trellising. One lateral per plant was trained up a single stake. This single lateral reached a height of between 400mm and 600mm during the growing period but unfortunately all died back during the winter.

8. Pest and Disease Control

8.1 General

The caper bush appears not to be particularly sensitive to pest damage and insects do not appear to be a limiting problem.

Since the caper is a new crop in Australia there is a risk that as yet unidentified pests or disease may prove harmful. Further consideration should be given to the fact that no organic insecticides have been approved for use on the caper plant and biologically integrated pest management approaches should be researched and tested.

8.2 Australian Capers

During the three years of research no pesticides were used. Farm management allowed the natural eco-system to evolve and eggs and caterpillars were generally destroyed by hand while picking. This requires particular vigilance in late November – early December and has been a successful strategy to date.

There appear to be four main pests although the fourth remains unidentified to date. Identified pests include:

1. White Cabbage Moth – part of the attraction of the caper plant may be its relation to the Brassica (cabbage) family. The moth is present in the field from November to March peaking in late November/December.

2. White Caper Moth – so named because it is traditionally associated with the indigenous caper species. The caper moth is present in the field from November to March and peaks in late November/December. This is by far the most damaging and numerous of pests. It is voracious in its appetite and can quickly strip a lateral of all its leaves and buds. In some ways this is advantageous for pest control because one can easily locate the caper caterpillar presence by damaged leaves.

   The Caper moth appears to prefer the taller plants. If continued observation proves this to be the case, a pest management plan may include inter-planting "S" Variety (taller plants) among plants with a lower profile in an attempt to concentrate the moths making them easier to detect and eliminate.

3. Snails can damage or kill young plants as they consume all new green growth before plants are established. Snails do not appear to be a major threat to mature plants.

4. A fourth pest was detected over several weeks in January/February. It attacked the tallest laterals of some plants leaving pinholes along a length from 1.5cm to 4cm. Eggs were found in the damaged area although these may be from an opportunistic secondary insect. Night and day observations could not identify the pest and although grasshoppers were occasionally found in small numbers near the plants, a direct link could not be proved.

It should be noted that we found no evidence of kangaroos or rabbits eating the caper leaves. This is extremely encouraging considering this area was in a drought and the capers were a green and tender offering. It is deduced that the kangaroos and rabbits could be put off by the mustard oil found in the buds, leaves and stems of the plants.

Overseas experience regularly reports that the caper plant has few pest and diseases. At present this appears relevant to the Australian experience.

9. Harvesting and Processing

9.1 General

9.1.1 Harvest

Harvesting is the most costly aspect of caper production since it is done manually. Bud production is continuous throughout the summer and pickers visit the same plant every 8 to 20 days resulting in around 12 harvests per season. Harvesting frequency has a direct bearing on the final size and quality of the product and determining the optimum time interval is influenced by the market one is picking for i.e. smaller buds require more frequent picking and result in less weight picked per hour. Picking times of 1kg/hour have been reported for mature plantations (5 year old plants) but this has not as yet been achieved in our trials.

9.1.2 Processing

Immediately after harvest, capers are sorted and graded to size. Italian capers are graded into 6 sizes on a scale from >7mm to <13mm. Capers are then packed in brine or under layers of salt in order to remove the intensely bitter flavor and to preserve them.
Approximately 30-50 days later they are repacked in vinegar or salt and packaged in glass bottles for retail sale or in larger plastic containers (5kg) for sale to restaurants or in bulk for wholesale. Caperberries are similarly pickled for retail sale.

9.2 Australian Capers

9.2.1 Harvesting

Production for two hundred and ninety three two-year-old plants ('03/'04) was 54.4 kg's, which was achieved in 13 harvests from 20th November to 20th March. There was a good correlation between high temperatures, frequency of picking and time weighted yields. (See Chart 4 – Yields of Capers vs Maximum Temperature and Rainfall).

Two hundred and fifty six one-year-old plants ('02/'03) produced 7.2 kg's. This was achieved in 17 harvests between 15th November and 18th April.

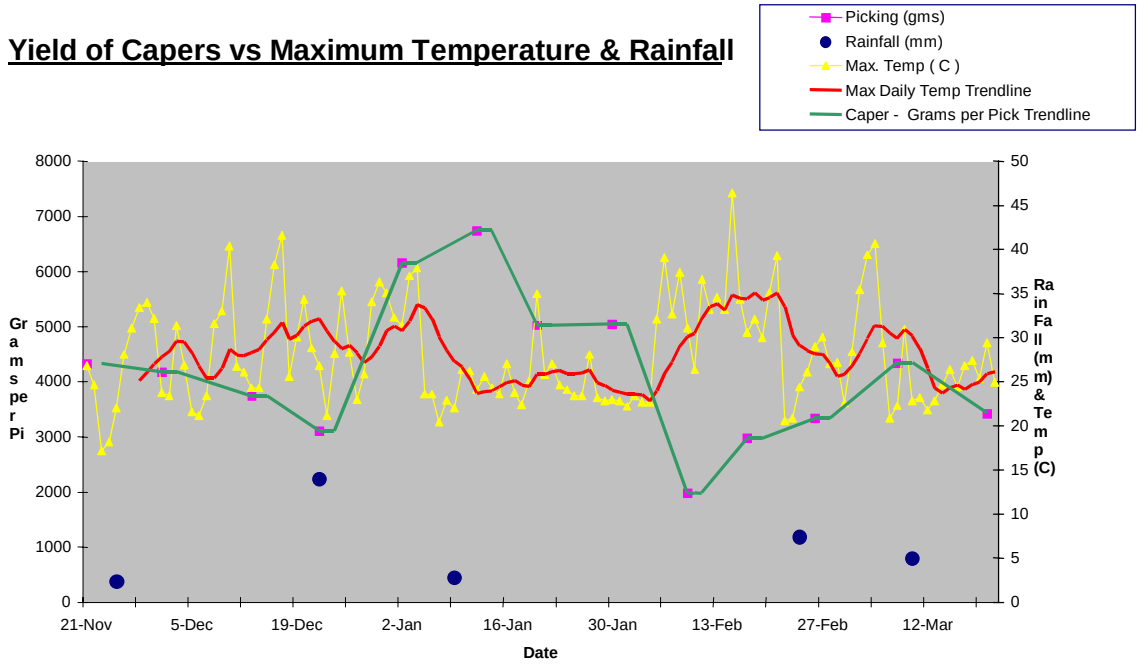

Table 4 – Yields of Capers vs Maximum Temperature and Rainfall

9.2.3 Processing

Three processes using salt to extract the bitterness out of the raw caper were trialed:

i. Salting and drying capers – poor results (had to re-hydrate in a brine solution because method failed to extract bitterness)
ii. Salting in a brine solution – good results
iii. Salting in capers own liquid – good results

10. Financial Information

The two most important factors underpinning a viable Australian caper production are sale price and harvesting cost. The financials below assume a healthy premium on Australian grown produce and are comparable with prices achieved in other Australian boutique industries including the Olive and Wine industries. Capers are currently grown organically assuming a further premium.

Table 5 - Financials

Investment Inputs

(Assumes area of 1 hectare)

Year 1		**$/ha**
Field Investigations		300
Land	$1400/ha	1,400
Infrastructure	Site specific - shed, fences, power	8,000
	Pump and dripper lines	2,800
Plants	1100 plants @ $8/plant	8,800
Machinery	Tractor $35/hr	300
Establishment	Site clearance	100
	Labour $12/hr	720
	Fertilizer & other material	700
Overheads	Eg Management and office expenses.	8,000
Working Capital	3 Years	88,000

Recurrent Inputs

Year 5		**$/ha**
Pruning	Labour $12/hr	300
Fertilizer		500
Chemicals		300
Harvesting	Assume a picking rate of 0.5kg per hr	72,000
Primary Processing	Salting	2,100
Transport to Secondary Processing	Site specific (high value, low volume product)	
Overheads	Site management	12,000

Yield (after 5 years)

		(Kg/ha)/pa
Primary Yields	Caper buds - 3kg per bush	3,300
Secondary Yields	Caperberries - 600g per bush	660

Table 7 - Demand

Demand Value	Average retail price over total crop (non processed) - $/kg	40
Quantified Demand	Estimated imported processed products – tonnes/pa	600
Price Elasticity	Medium term impact on the current market price with the introduction of Australian grown capers is expected to be neutral. The growth rate in caper product consumption in Australia is assumed to absorb any local production.	
Projected Demand	It is assumed that the Australian and USA markets are similar and USA data indicates an average growth rate of 6% pa over 14-year period (‘89 to ‘02).	

Table 5

Notes: Gross margin figures for a 'typical' production site are not available and are not included here.

11. Discussion of Results

The results so far have been in line with objectives and all major milestones have been achieved. Continued monitoring will take place as the plants reach maturity over the next few years.

A trial site of an initial 300 Caper plants was successfully established in a field of 1000 plants at Mannum, South Australia. Progress to date includes successful propagation of caper plants using seed and cuttings, a good practical understanding of establishment practice, water and fertiliser requirements, pests and diseases and organic production methods, a trial of different pruning, processing and trellising techniques and an understanding of caper processing and caper products.

Unquantified risk areas include harvesting cost, quality control, pricing concerns, marketing and market development and industry controls to prevent over-zealous planting for a limited market. Not to put too fine a point on it, the maintenance of a premium price is essential to fund production costs and the establishment of a market. Capers are a low volume, high value product and if costs are to be recovered then capers must be pitched at the top end of the market. Consequently, the establishment of quality control systems for all aspects of the business is essential. We are assuming a market exists among those for whom food quality and taste are important and that Australian capers can capitalise on consumers desire to link with producers, respect the environment, protect their health and support regional growth.

There appears to be no shortage of potential growers in Australia and interest in the project is high with many requests for information through the website www.australiancapers.com.au. An opportunity exists to build a cohesive and well structured organisation of caper producers working together to ensure quality and price in a premium market, however further market research and additional research into plant varieties is important before many more plantings are undertaken.

12. Implications

12.1 Economic Benefits

Global growth in caper trading is estimated to be around 6% per annum and opportunities exist in import replacement of high quality capers for a niche market as well as in export.

12.2 Social Benefits

12.2.1 Regional Australia

A new industry will generate regional jobs and incomes and will contribute to the wealth of the region as a whole. Jobs will be created in harvesting as well as in the processing and distribution industries. Every hectare of capers planted is estimated to produce 15 jobs over a 3 month period and 1 to 3 permanent jobs. This is equivalent to six to eight permanent jobs per hectare.

12.2.2 Farmers

Capers provide a salt tolerant, alternative commercial crop that can adapt to lower quality soils.

12.2.3Consumers

The caper is growing in popularity as Australian diets are increasingly influenced by Mediterranean flavours and consumers will benefit from increased choice, product innovation and health. High quality locally produced capers produce a tastier, fresher and firmer product, free of toxic residues (Moroccan capers were recently rejected by some EU countries for toxic residue) and a healthy alternative to imported products. Product innovation will increasingly provide diversity.

12.3 Environmental Benefits

The plant grows in poor nutrient soils, is salt tolerant, some varieties appear to be drought resistant, they require few environmental inputs and kangaroos & rabbits appear not to be attracted to them.

12.4 Ecological sustainability and biodiversity

The Caper plant lends itself to an organic or low impact farming system requiring few inputs (water, fertiliser) once established. They do not appear to be prone to pests and disease limiting the need for chemical applications and the root system combined with the established canopy reduce weed growth.

13. Recommendations

13.1 Short Term

Research and Development should be focused on the main areas of risk that need to be managed: As discussed these areas include:

- Reduction in Picking Cost – (Harvest Management)
- Market Research - Local
- Quality Control
- Identification of Pests & Disease
- Nutrient & Irrigation requirements
- Add on Value Product potential

13.2 Medium Term

Ongoing success of growing and marketing capers would put pressure on Australia to improve efficiencies and compete effectively with cheaper imports. Research and Development should support the expansion of a viable Australian Caper industry undertaking research to;

- Reduce Picking Costs – harvest management, mechanisation, trellising
- Market Research - export
- Optimum Variety Selection
- Diversify and add value through product innovation

14. Key References

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