

GAWLER RIVER FLOOD RECOVERY PROGRAM

2005-2007



VIRGINIA
HORTICULTURE CENTRE
SOUTH AUSTRALIA

**FINAL
REPORT**



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Flooded vineyard

25 March 2008

This document
contains confidential
information.

Virginia Horticulture
Centre
PO Box 847, Virginia
South Australia 5120

Cover Photo:
Flooding over rail
and road.

Executive Summary

A summary of the whole program

- This Report finalises the reporting of the SA Government "Gawler River Flood Recovery Program". The previous Stages of the Program, that were commissioned through Primary Industries & Resources SA (PIRSA) and Department of Families & Communities (DFC), have been reported separately in detail. This report is presented by PIRSA covering the program areas that it managed, the report broadly outlines both the activities of Stage 1 and gives detail of the successes of Stage 2.
- The flooding of the Gawler River occurred in the Virginia area north of Adelaide between 8th and 10th November 2005, and was estimated to have cost the horticultural industry \$40 million in lost production, and \$25 million dollars in loss and damage to on-farm infrastructure.
- The State Government provided funding for Primary Industries & Resources SA (PIRSA) to initiate a recovery program which was jointly conducted by Virginia Horticulture Centre and Rural Solutions SA, between November 2005 and June 2007.
- The two-stage program kept growers on their properties in the aftermath of the flood, helped growers get back into economic production, and increased grower's efficiency during the recovery process.
- Stage 1 of the recovery program commenced immediately the river broke its banks (November 2005 - June 2006) and dealt with immediate human and industry needs. Assistance was provided with short to medium term family living needs, financial assistance, debt management and agronomic, soil and plant disease advice.
- In Stage 1, Farm Business Assistance Grants provided grants to flood affected growers to assist them with short-term funding problems. There were 112 applications forwarded to PIRSA, Prudential and Rural Finance. 87 applications were approved for a total of \$854,000.
- Stage 2 of the recovery program (July 2006 - June 2007) re-positioned the region's horticultural industry at a higher level of technology, improved management practices, marketing and profitability than it was prior to the flood.
- Stage 2 of the recovery program included activities relating to:
 - ✓ technical support to horticulture businesses and industries
 - ✓ delivery of horticulture industry training and business skilling program
 - ✓ development of new horticulture products and markets
 - ✓ development and delivery of natural resource management strategies
 - ✓ support services to Community Development project
 - ✓ program management, coordination and reporting



Emergency response

' The Gawler River flooding in the Virginia area was estimated to have cost the horticultural industry \$40M in production, and \$25M in on-farm infrastructure.'

Executive Summary

A summary of the whole program

- The technical support to horticultural businesses in the program resulted in all but three growers impacted by the flood being assisted to stay within their business, and an estimated \$8 million dollars being generated in short-term crops prior to cropping cycles being re-established. Growers were assisted to exit the industry but retain adequate equity.
- Horticultural training packages developed in the program will result in an estimated 10% improvement in profitability. The 40 participants received nationally recognised qualifications; Cert IV in Production Horticulture and in Rural Business.
- New horticultural products and market development in the program included:
 - ✓ Expansion of the SA Grown supply chain of Virginia Horticulture Centre, with a two-fold increase in the number of growers and retail outlets carrying the branded product, and retail volumes increased in response to advertising.
 - ✓ Installation and use of product preparation and packaging equipment which has been installed in the Community Kitchen at Virginia, allowing producers to experiment with value-adding before making personal investment.
- Natural resource management strategy development in the program has included:
 - ✓ A \$300,000 commitment to a joint City of Playford and Virginia Horticulture Centre initiative to redevelop the drainage on Park Road.
 - ✓ A detailed report into the resurrection of the Thompsons Creek system to create effective wetlands and a viable flood water outlet for the future was developed. This report will be used to influence appropriate agencies to take responsibility for the restoration of this drainage system.
- The state government invested over \$1.35M in the Gawler River Flood Recovery Program, from which an excellent positive benefit of 64% internal rate of return has been estimated. Without funding there would have been slow recovery, reduced regional investment and increased potential for similar event damage in future. This program's activities and outcomes have enabled improvements for responding to similar natural disaster events.



Flooded orchard

' The program's cost benefit analysis indicates an excellent internal rate of return on the \$1.35M initial investment in state funds.'

Background

Why the program was needed

- The program was needed to provide an emergency response and recovery program to the 8-10 November 2005 flooding event of the Gawler River. The flood affected Virginia and other suburbs across Adelaide and the Adelaide Hills.
- The Adelaide Plains is an important horticultural production and processing area, includes 20,000 hectares of agricultural land, has 1200 growers in the industry, and directly employs over 3000 people.
- The farmgate value of agricultural production in the region is \$92M including wine grapes, and the gross food revenue is \$709M. The region has 6% of South Australia's population and contributes 8% to the state's gross food revenue.
- The flooding was estimated to have cost the horticultural industry in the region \$40M (farm gate) in lost production, and \$25M in loss and damage to on-farm infrastructure. Flooded crops included vegetable field and glasshouse crops, fruit and nut orchards, and vineyards. There were unknown costs due to damage to soil structure, salinity, drainage and impacts on other natural resources.
- About 440 land parcels and 328 owners were affected; houses were flooded, and emergency accommodation and potable water required; flood water and properties with septic tanks were pumped. Hazardous sites were also cleared, and flood damaged goods removed. 207 people registered at the recovery centre, and 125 growers registered at the Virginia Horticulture Centre.
- The Gawler River Flood Recovery Program aimed to:
 - ✓ keep growers on their properties in the flood aftermath
 - ✓ help growers get back into economic production
 - ✓ increase grower efficiency during the recovery process
 - ✓ create spin-off to the wider community including producers that were not flood affected



Flooded vegetables

' The program was needed because the area is an important horticultural region, and help was needed to get growers back into economic production after the flooding. '

Aerial view of widespread flooding



The Flood Recovery Program

What the program entailed

There were four activity areas in Stage 2 of the program:

- **Technical support to horticultural businesses and industries**

- ✓ Records of technical services provided loaded on a client database.
- ✓ One-on-one technical advice provided to address technical issues identified by industry and identified on properties.
- ✓ Back up technical support provided for soil and other testing.
- ✓ Analysis and reporting on types of inquiries handled.
- ✓ Information packages developed to assist high frequency inquiry types and workshops.
- ✓ Recovery workshops to facilitate adoption of remedial actions.

- **Delivery of horticulture industry training and business skilling**

- ✓ Assist growers to establish sound business structures
- ✓ Training and skilling program developed to suit different client types and needs
- ✓ Business mentoring support for new businesses
- ✓ Investment support, facilitating relationships with lending institutions
- ✓ Training programs to nationally recognised accreditation levels. Participant benefits or qualification to a prescribed target level.
- ✓ Training in management of new controlled environment greenhouse structures, hydroponics and crop production
- ✓ Provision of industry traineeships and cadetships
- ✓ International training support and study visits where applicable.
- ✓ Survey of training needs.
- ✓ Provision of training facilities including in-field greenhouse and other practical learning facilities

Accredited training



Modern greenhouse

' The program's Stage 2 recovery phase repositioned the region's horticultural industry at a higher level than prior to the flood, following the initial emergency response Stage 1, which dealt with immediate needs after the flooding.'

The Flood Recovery Program

What the program entailed

• Development of new products and markets

- ✓ Identification of new product and market opportunities
- ✓ Facilitating new business development to meet market volume requirements, (new marketing groups plus joint packing operations and cool room facilities)
- ✓ Establishment of 5 collaborative marketing groups and supply chain implementation.
- ✓ Brand development, merchandising development and sales programs
- ✓ Communication and promotion strategies to inform industry about new product and market opportunities.
- ✓ Interface with Community Kitchen and SA Food Centre where appropriate to deliver outcomes.
- ✓ Food Safety Programs Development of 5 new value added products or markets.

• Development of natural resource management strategies

- ✓ Whole farm planning (Property Management Planning or equivalent) for drainage and irrigation
- ✓ On farm storm water management from greenhouses, demonstrations and strategies
- ✓ Provision of planning services for farm management of storm water
- ✓ Preparation of 25 on-farm plans for drainage and irrigation
- ✓ Links to regional storm water management plans & drainage initiatives
- ✓ Natural Resource Audits of vegetation and environment
- ✓ Regional weed management strategies
- ✓ Farm interface with regional flood and other risk management strategies
- ✓ Waste recycling and improvement of hazardous chemicals management
- ✓ Improved community understanding on how to respond to natural disasters
- ✓ Provide technical input to regional drainage and water management strategies
- ✓ Delivery of a regional natural resource audit, including input to regional weed management strategies



Stormwater management

' The flood recovery program included technical support, training, market development and natural resource management strategies.'

Field day on grower property



The Flood Recovery Activities

Technical support to horticultural businesses and industries

- **Technical support** activities included improvement of soil structure, soil health and salinity management, integrated pest management (IPM) and production techniques such as new growing systems.
- **Database** of clients was established and enquiries analysed.
- **New hydroponic systems** were estimated to have resulted in a 100% increase in production and yield increases to 10-14 kg/m².
- **Information packages** on soil structure, composting, integrated pest management (IPM), development with feedback from growers preferring hands on workshops and mini field days over information packages.
- **Workshops** included re-vegetation, soil conditioning, crop rotation, responsible chemical use (including how to use exemptions) and production techniques such as mounding.



Soil testing

Gourmet carrots



Gourmet vegetable field trial



' The technical support included advice, soil and plant testing, information packages, workshops and field days.'

The Flood Recovery Activities

Delivery of horticulture industry training and business skilling

- Property Management Planning** Multiple entry points through PMP with more created to attract growers to the program. Production elements were favoured by participants as the starting point and included:
 - ✓ Advanced Hydroponics 27 people
 - ✓ Basic Hydroponics 20 people
 - ✓ Irrigation – skills recognition 22 people
 - ✓ First Aid 53 people
 - ✓ Chemcert 55 people
 - ✓ Snake Awareness 48 people
 - ✓ Cert IV in Production Horticulture
 - ✓ Cert IV in Rural Business
 - ✓ On Farm Natural Resource Management
 - ✓ Quality Assurance
 - ✓ Recognition of current competencies
- Sound business practices** were established through workshops, resources, templates and information packages to assist in the adaptation of new laws including:

ACCC	Horticulture Code of Conduct
	Understanding contracts
	Establishment of horticulture agreements
ATO	Farm Asset Depreciations
Ausveg	Veg Vision 2020
Plant Health	Plant Health Bill
- Ongoing Investment support** for 3 businesses has included:
 - ✓ Business mentoring
 - ✓ Induction training
 - ✓ Recruiting processes
 - ✓ Computer networking systems
 - ✓ Planning approval & requirements
 - ✓ Business planning, structures and budgeting
 - ✓ Expansion planning



Replanting after flood

' Training in production was favoured by participants as a starting point. This led to further interest in other courses such as business skilling.'

Training in safe chemical use and First Aid



The Flood Recovery Activities

Development of new products and markets

- **Gourmet vegetable production** has been expanded across the entire supply chain, with 10 top end restaurants involved and growers taking on commercial production. Consumer sales and feedback are obtained through weekly farmers market sales, and additional variety trials are currently in progress with immediate commercial application and market.



Top-end restaurant involvement

- **Singapore retail market** surface investigation and cold chain management systems has included relationship development. The Singapore Importers Study Tour in January 2008, highlighted SA Grown producers and other interested parties, and included delegates from major supermarket chains.

- **SA Grown brand** Market identification for the SA Grown brand has developed with IGA, Foodland, Eudunda Farmers, independent retailers and a closer alliance with Romeo's Retailer Group. New value added products under the brand have included potatoes, dried apricots, currants, sultanas, brussel sprouts, rhubarb, celery, broccoli florets, lebanese cucumbers, apple cucumbers and radish. **Brand development** activities have included television commercial production and air time with Channel 7; radio campaigns with Mix 102.3FM & Cruise 1323AM, with building and call to action sales-based campaigns on a monthly basis; personality agreement with Rachael Sporn for SA Grown marketing activities; creation of a direct mail consumer database; sports club healthy fundraising program; advertising and sponsorship; Link with Grab 5! – exposure to 4000 children; alliance with Romeo's Retailer Group; exhibition at the Royal Adelaide Show & Riverland Field Days; and ongoing marketing strategy planning & implementation. **Merchandising and sales programs** have involved weekly retail visits, and development of merchandise such as shelf wobblers, posters, recipe cards and sales coordination.



SA Grown label

- **Ripe horticulture industry newspaper** was launched aiming to inform growers with regular articles on new products and markets. In 12 months *Ripe* has grown from 40 to 100+ outlets, distribution from 1,500 to 7,000, direct distribution from 800 to 1,500, and state & national coverage.
- **Community kitchen and Packaging facility** have been integrated, with packaging demonstrations to at least 56 growers/ producers. Two Packaging Expo's have been organised and successfully attended with an expanded version, with a 'Roadshow' in December 2007. New additional packaging equipment has become available to growers and commercial relationships developed for continued expansion.



SA Grown label capsicums

' The development of new products and markets has resulted in the promotion and expansion of the SA Grown brand on domestic and export markets.'



SA Grown label in supermarkets

The Flood Recovery Activities

Natural Resource Management Strategies

- **Recycling systems** now mandatory for greenhouse building permits – developed in conjunction with the City of Playford & the District Council of Mallala.
- **Planning assistance** for 12 properties for on farm water storage and management.
- **Farm drainage and irrigation plans** - 27 plans have been developed.
- **Upgrade of storm water** management infrastructure on Park Road – 2.8km of new drains.
- **Wetlands Development** of Thompsons Creek.
- **On Farm mini-wetlands** have been established as part of the storm water management system.
- **On-Farm NRM property audits** - 13 completed.
- **Weed management program** has resulted in 150ha of creek frontage under new program.
- **Risk management assessments** have been completed on 8 farms badly affected by floods and they have had civil works done to minimise future flood risk.
- **Effective management strategies** based on PMP training have been completed (15 units).
- **Waste recycling** program of Virginia Horticulture Centre has involved over 50 properties in the program. A co-ordinated chemical waste removal program is now available to growers and there is a continuation of the **DrumMuster** drum recycling program and **ChemCert** chemical user courses.
- **Virginia Safe in Emergencies** project has been established.
- **Underground drainage** for Park Road has been bought forward 10-15 years as a result of working relationships.

On-farm mini wetlands



DrumMuster
pesticide drum
recycling

' The natural resource management activities included recycling systems, waste recycling farm drainage and irrigation plan, wetlands development and flood risk management assessment.'



Greenhouse
plastic recycling

The Achievements

What were the outcomes and benefits

- **Farm Business Grants** There were 112 Farm Business Grants submitted and 87 approved for a total of \$854,000 to provide grants to flood affected growers.
- **Grower Database** There were 125 growers who registered at Virginia Horticulture Centre in the aftermath of the flood. Their records and followup were managed via database enabling the extent of the flood affected area to be spatially mapped and more accurately assessed.
- **Technical Support** The technical support to horticultural businesses in the program resulted in all but three growers impacted by the flood being assisted to stay within their business, and an estimated \$8 million dollars being generated in short-term crops prior to cropping cycles being re-established.
- **Horticultural Training** packages were developed in the program which have resulted in an estimated 10% improvement in profitability. The 40 participants have received nationally recognised qualifications including Certificate IV in Production Horticulture and in Rural Business.
- **New horticultural product and market development** has included expansion of the SA Grown supply chain of Virginia Horticulture Centre, with a two-fold increase in the number of growers and retail outlets carrying the branded product, and retail volumes increased in response to advertising.
- **Product preparation and packaging** equipment which has been installed in the Community Kitchen at Virginia, has allowed producers to experiment with value-adding before making personal investment.
- **Natural resource management** strategy development has included a \$300,000 commitment to a joint City of Playford and Virginia Horticulture Centre initiative to redevelop the drainage on Park Road.
- **Drainage system restoration** A detailed report was developed into the resurrection of the Thompsons Creek system to create effective wetlands and a viable flood water outlet for the future. This report will be used to influence appropriate agencies to take responsibility for the restoration of this drainage system.



Flood affected vegetable crop

' The technical support to horticultural businesses in the program has led to an estimated \$8 million dollars being generated in short-term crops prior to cropping cycles being re-established.'



Packaging equipment facility

An Economic Analysis

A cost - benefit analysis of the program

- An economic analysis was conducted by comparing the benefits and costs associated with the Gawler River Flood Recovery Program.
- The program received an initial investment of over \$1.35M in state government funds, and the Net Present Value of the program is estimated between \$2.07m to \$3.10M (for current discount rates of 5% to 10%), with an expected Internal Rate of Return of 64%, across a 10 year period (refer Appendix 4, and definitions below).
- Therefore the program is estimated, with a high level of confidence, to generate a large net positive return to the horticulture industry around Virginia. Compared with other similar valued projects, this project has delivered an excellent outcome.
- The Gawler River Flood Recovery Program is a good example of an activity which will contribute to regional development by its value adding to local labour and capital and its utilisation of local comparative advantage.
- The recovery and likely probable expansion of the horticulture industry around Virginia will generate secondary and social impacts through new employment in both reconstruction and operating phases. This will create new employment opportunities and could provide the catalyst for substantial future economic development.

Glasshouse capsicum grower



Modern glasshouse tomatoes

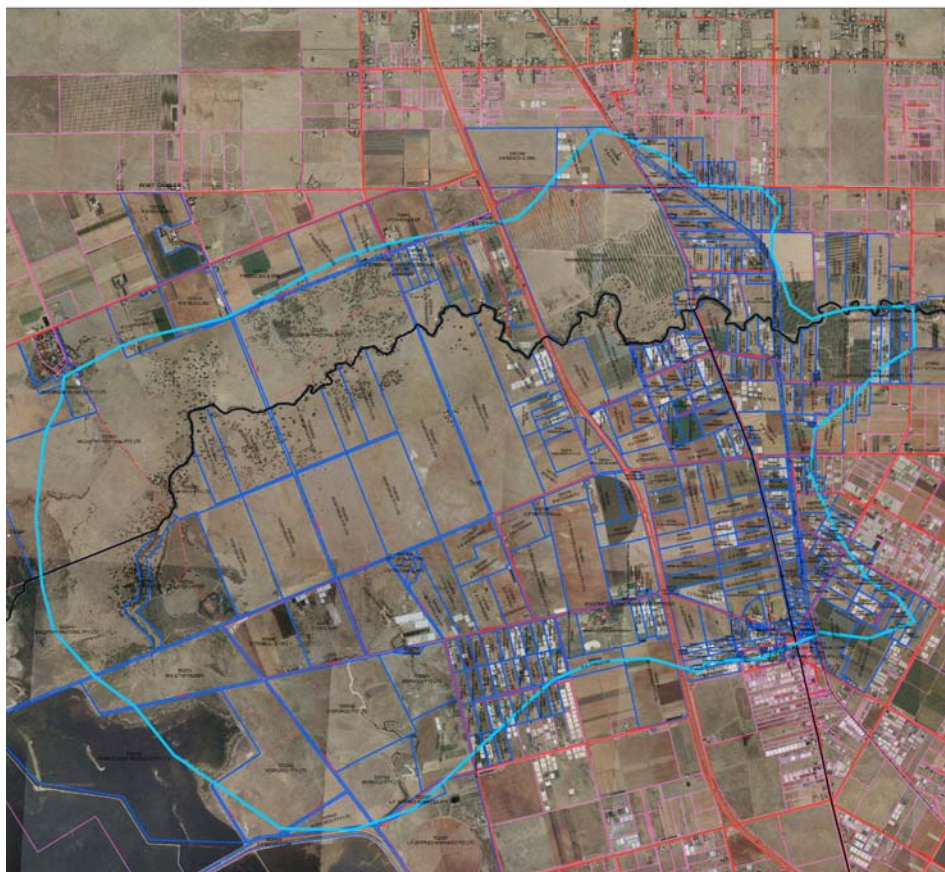
' The flood recovery program was a good example of an activity which will continue to contribute to regional development - by value adding to local labour and capital, and utilisation of local comparative advantage.'

-
- NPV is the sum of a flow of annual net benefits, each of which has been discounted to present day estimates. Discounting is required because a dollar available for spending (or investing) today is more valuable than a dollar that won't become available until a later period. The IRR is the discount rate at which the present value of benefits equals the present value of costs. Or, alternatively, it is the rate at which the NPV is equal to zero.
 - Additional recovery activities were undertaken by PIRSA, local government and others which are beyond the scope of this analysis. This predicts the situation without the PIRSA investment, which would be slow recovery, reduced regional investment and increased potential for similar event damage in future.

Appendix

Appendix 1: Map of flooded grower properties

Gawler River Flood Zone - 10th November 2005

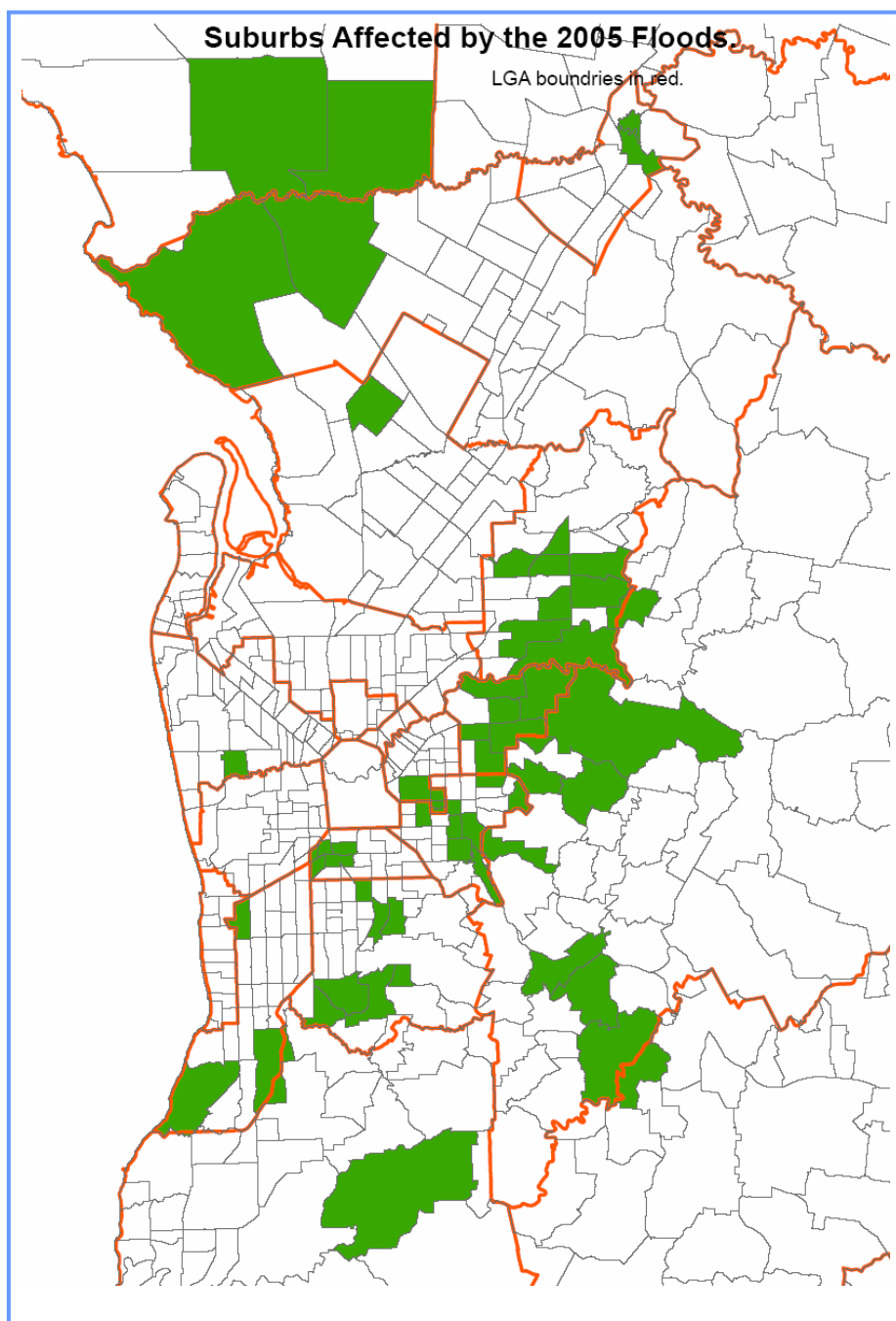


CONFIDENTIAL

Imagery supplied by ImagisMedia
Image Resolution: 0.5 metres
Currency of image: 2005
Map Projection: Lambert Conformal Conic
Datum: Geocentric Datum of Australia 1984
Flood boundary captured on 10/11/2005 at 0900 hrs
from helicopter using hand-held Garmin GPS
Map produced by PRISA
Spatial Information Services
Date: 17th November 2005

Disclaimer
Primary Industries and Resources SA uses the best available data. However, GIS data and product accuracy may vary. GIS data and products may be developed from sources of differing accuracy, accuracy only at certain scales and times, based on modelling or interpretation, incomplete data being modelled or revised, etc. Primary Industries and Resources SA reserves the right to correct, update, modify or replace GIS products without notification. Primary Industries and Resources SA cannot assume the accuracy, completeness, reliability or suitability of this information for any particular purpose. Using GIS data for purposes other than those for which they were created may yield inaccurate or misleading results. The recipient may neither assert any proprietary rights to this information nor represent it to anyone as other than South Australian Government produced information. Primary Industries and Resources SA shall not be liable for any claims involving loss of information with respect to lost profits, lost savings or any other consequential damages.

Appendix 2: Map of flood-affected suburbs



Appendix 3: Grower & business database

A database was established to provide effective tracking and recording data in relation to technical services, visits and reports provided for flood-affected growers and businesses. The database is now available for ongoing use within the industry. The information logged included test results, one-to-one technical advice, appointments with specialist advisers, applications received and grant information. All specific financial, delicate and/or confidential information was removed from the database at the conclusion of the flood recovery process.

SAMPLE DATA BASE ENTRY FORM

A
GROWER

English Speaking: ☐ Yes ☒ No
Export Status: ☐ Not Exporting ☒ Exporting

RECENT EVENTS:
CURRENT QUALIFICATIONS:
GROUP MEMBERSHIP: ☐ Virginia Fresh Pty Ltd, ☐ Farm Help?, ☐ Agri Issues Group (AUSVEG)

Surname: GROWER
Given Name: ANDY Middle Name:
Trading Name: PICKEM, PACKEM AND RUN
Entered by tina 3/07/06

POSTAL ADDRESS:
GREENHOUSE RD
VIRGINIA SA 5101
Australia

STREET ADDRESS:
AS ABOVE
VIRGINIA SA 5101
Australia

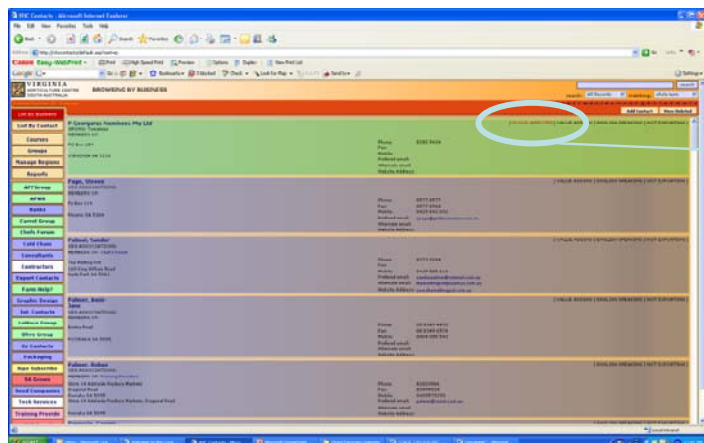
RESIDENTIAL ADDRESS:
Australia

FLOOD GRANT DETAILS
18

Application Number: 5006 Application Date: 12 / Nov / 2005
Courier/Fax Date: -- / -- / -- Grant Approved: Yes
Counselling Required: No Grant Status: Couriered
Agronomy Team Required: Yes
Counselling Status: No Events Agronomy Status: No Events
Assistance Required: AGRONOMIC INFORMATION CAN BE INPUT HERE
BUILDS A GROWER PROFILE AND ACTION LIST

Additional Comments:

Office Phone: 82629200
Fax:
Mobile: 0408 687 1
Home Phone:
Preferred email:
Alternate email:
Website Address:
Nationality: Antigua and Barbuda
Preferred Language: Assyrian
Membership Level: Gold
Membership Paid: No
Drum Muster: Yes
Chemical Exemption: Yes
Grower: Yes
Flood Affected? Yes



FLOOD AFFECTED

Appendix 4: Program cost-benefit analysis

FLOOD RECOVERY PROGRAM ELEMENT	OUTCOMES (benefit to region and/or state)	BENEFIT \$	COST \$
Technical support to horticulture businesses and industries	Return the effected areas to full productivity by 30/6/2007	\$40m pa	\$310,200
	Improve productivity of affected business by 10% through adoption of improved technology	\$4m pa	
Deliver horticulture industry training and business skilling program	Improved business structures enabling new business development (eg. accessing bank loans), minimum 20 businesses, 10% improvement in profitability.	\$ 0.6m	\$264,071
	Adoption of hydroponic systems over a minimum of 20 ha of greenhouse	\$1m	
	Property Management Planning cycle undertaken by minimum 20 growers		
	New business investment minimum of 20 ha @ \$100 per square metre	\$20m	
	Annual production value	\$12m pa	
Development of new horticulture products and markets	Development of at least 5 new value added products. Create minimum of 25 new jobs.	\$2.5m pa	\$220,640
	Enhanced retail wholesale and processing alliances		
	Attract investment by one major food value adding business to the region	approx \$20m investment	
Development and delivery of natural resource management strategies	Reduced risk of major damage to horticulture crops by 50% in a similar flooding event, estimated 1 year in 20	\$20m	\$284,900
	10% reduction energy consumption for irrigation etc		
	Capital invested in water and waste recycling and management	\$0.5m minimum invested	
Support services to Community Development project	Value attributed to the Community Development Project		\$46,620
Program management, coordination and reporting	Effective management of project resources and implementation of regional outcomes		\$225,880
TOTAL			\$1,352,311

