

**Supplying information
on demand via the
Potato Internet
Service**

Leigh Walters
SA Farmers Federation

Project Number: PT04002

PT04002

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PT04002 (July 2006)

Potato Internet Service

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HAL Project Number PT04002 (July 2006)

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Purpose This work reports on the development of a national extranet service for the Australian potato industry. Due to the Communication Program moving from the South Australian Farmers Federation to AUSVEG, work stopped on the project in February 2006. The outcomes of the work were transferred to AUSVEG to be incorporated into an expanded AUSVEG internet service.

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Media Summary

A new password protected internet service will be incorporated into the existing AUSVEG internet site using information collected in this project.

To get maximum value from investment in research and development, growers, processors and the service industry need to be able to access information quickly to make management decisions. The Potato Internet Service was designed to meet this challenge by providing a 24 hour a day, seven day a week potato information service.

This project looked at how to consolidate and add to existing information sources. The aim was to use the internet to position information products so industry could take full advantage of what each had to offer rather than using the internet to replace existing information products. The internet provided a powerful tool to add value to existing information products – as well as providing the opportunity to provide novel services.

The Potato Internet Service was to be a password protected internet site (extranet) providing information previously identified as important by industry. It was to provide users with rapid access to information and the ability for information of choice to be forwarded directly to the user by email when it became available.

Many internet sites today look good but do they really provide what the customer needs? ‘Flash’ packaging is only a plus if the product is good inside and produces considerable repeat interest by customers.

If a product is bad inside, often no amount of ‘flash’ packaging will attract the customer back. Therefore content should always come before design if the desire is to establish a long lasting high value service.

Information is of greatest value if it is available at your fingertips when you need it. Research outcomes have traditionally been made available during and at the end of projects. The Potato Internet Service was designed to provide access to past information quickly through Potato Archives, and keep growers and others in industry up to date with new information and developments.

The first projects to gather information about what was needed in the service (PT97025, PT98037) were carried out in 1998. Funding to start the Potato Internet Service came through in November 2004.

These difficulties in getting funding causing the delayed start to this Potato Internet Project and the move of the national Communication Program from the South Australian Farmers Federation to AUSVEG at the end of March 2006, led to the project’s termination.

The challenge for the potato industry is to learn from what has been done and not lose site of why they are investing in an internet service.

Introduction

For levy payers to benefit from research and development funded by the potato levy, it was essential that information generated by the projects reached growers in a form that could be used. This required an effective distribution system, good quality publications, field days, workshops, an informed service industry and very importantly, a means for growers to access information when they needed it.

Until the arrival of the internet, it had been very difficult to provide rapid access to the industry knowledge base in research and development (R&D) and information to support adoption of new technologies. The closest we had come to achieving this goal was through industry specialists and the telephone. The CDROM version of Potato Archives will also greatly assist in this regard.

Where good industry specialists existed, they were often highly regarded. Australia though is a very big country, with many potato growers operating in areas with little in the way of service industry support.

Our starting point

The potato industry was rapidly becoming very sophisticated where effective management of information and other resources had become crucial to its long term success. Most growers worked long hours and had difficulty managing all the information they received. When asked, many growers did not want to receive any more information but were always seeking good quality information. In essence they were after quality rather than quantity.

An issue that caused ongoing problems was the ability of growers to be able to access information when they needed it. Common remarks were - "Yes, I remember seeing an article on that but in what publication did I read it and do I still have it?" or "I thought research had been done or was being done on this topic, how do I find out about it?"

Growers have an immediate need for information to solve the problems they face. Being able to obtain the right information quickly could have a significant impact on decision making and farm profitability.

Where to now

Growers, processors and the service industry needed to be able to access research and development outcomes more easily and information to assist in adoption of new technologies such as contacts for professional support, publications on a topic and recent news relevant to determining the importance and timing of change. This necessitated taking advantage of what the internet had to offer.

Why the internet

The internet provides communication opportunities not available through other means. It is open 24 hours a day and anybody can connect to it relatively cheaply. For the first time, people can get information when they need it rather than when someone else wants to provide it.

The internet would not replace existing services but rather compliment them, with some services changing to take full advantage of its functionality.

Publications such as Potato Australia and Eyes on Potatoes would still play a very important role in raising awareness of R&D and industry issues. The internet though could add value to these products by providing more timely access to the latest information and in conjunction with Potato Archives, provide easy access to past information generated by the R&D program.

The issue is therefore not of the internet replacing other information products but rather how the information products are positioned so that industry can take full advantage of what each has to offer. The internet provides another powerful tool to add value to existing information products.

Work already done

Considerable work had already been completed towards developing a Potato Internet Service.

This included the following projects:

- Investigating electronic information services used by the Potato Industry in the USA (PT97025) – Barry Philp
- Facilitating the introduction of electronic information products and services to the Australian Potato Industry (PT98037) – Nathalie Jarosz, Leigh Walters and Barry Philp
- Business plan for a national internet site for the potato and vegetable industries (VX00023) – Leigh Walters and Craig Feutrill

The following projects also provided intellectual property for the internet site:

- Coordinating technology transfer in the Australian potato industry (PT96009) – Leigh Walters
- Making past industry information from R&D more accessible (PT00027) – Leigh Walters *et al*
- Implementing the Potato Industry's communication plan (PT00001) – Leigh Walters

Databases were developed as part of PT96009, PT00027 and PT00001. These were to be used to supply information to the internet site.

Delayed start

Funding difficulties delayed the start of the project until late November 2004.

Further delays were then experienced due a major upgrade of the software packages being used for the database systems. This forced us to rebuild many of our databases and then upgrade again within twelve months. We were still waiting for release of the database web server when it was decided the project would be cancelled late in 2005, resulting in its termination in February 2006.

Project termination

The Communication Program was concluding and being transferred to AUSVEG at the end of March 2006.

Given AUSVEG already had an internet service in place, it soon became apparent that to impose another system onto the organisation would have caused considerable problems. It would have been like running two financial management packages in a small business. It was just not practical.

The project was therefore terminated.

The information generated in the earlier stages of the project and in past projects was transferred to AUSVEG to help establish a new password protected internet service for the potato industry.

The following information describes the work carried out and the original strategy for the Potato Internet Service.

Implications of past work on site development

Earlier research (PT97025, PT98037, VX00023) highlighted important issues to be considered when developing an internet service. One of the most important was the difficulty of keeping a site up to date.

A number of users had commented on sites being out of date and therefore of less value (PT96009). Website providers also highlighted the difficulty of keeping sites up to date (PT00001). These sentiments were common in all our investigations.

If an internet site was to be valued, there had to be a reason for people to visit and return after their first visit. One attractant was user confidence that the latest information would be displayed. For this to happen, information needed to be updated frequently and in a timely manner. Information management was therefore crucial in the planning the internet service.

When first looking at how a number of businesses and government departments used the internet, then looking at a range of sites (PT96009, PT98037) and talking to people using the internet and involved in updating information (PT97025, PT98037, PT96009), the following points soon became apparent:

- The internet sites of many organisations seemed to lack a clear purpose. Their structure, particularly government sites, too often reflected internal organisational arrangements rather than being designed to address users' needs.
- Business and government internet sites often contained a lot of out of date information and lacked current information. (A large part of the problem appeared to be due to inadequate resources being allocated to keeping the site up to date. The cost of updating has been, and I believe still is, greatly understated as a cost to the business and often resourced in an ad hoc way).
- Many organisations seemed to lack formal processes to ensure internet sites were kept up to date. Sites often became out of date without people realising within organisations.
- Most internet sites were kept separate from internal information systems. This had important implications for information management and quality:
 - People in organisations often did not use their own site for day to day business so when information went out of date, it did not impact on them directly. In some cases, only when customers commented on a problem did organisations become aware something had gone astray on their internet site.
 - Adding information to the internet site was often separate to updating the same information on internal systems. Given internal systems were often more critical to the effective day to day business operations, the internet was seen as a lower priority.
 - Information systems in organisations were often not designed to accommodate the internet site's needs, so linking internal systems with the site was quite difficult.

The above observations had quite significant implications for site development and management. It also highlighted how many organisations were still struggling how to use the internet effectively to add value to their business. It would also seem many organisations still lacked a clear idea about why they were using the internet.

Another very importance influence on how the potato internet service was designed was the directive from industry that the internet site should pay for itself through sponsorship and advertising. This was made through the national workshop (PT98037) and later reinforced through the Potato R&D Committee.

Given that internet advertising was at a very early stage when planning for this project was carried

out, the directive provided quite a challenge.

Strategy

The strategy for the Potato Internet Service was quite simple in concept but very challenging to implement.

1. Develop a site that would be valued and used by levy payers, processors and the service industry.
2. Develop an integrated system so changes in information on the internal database system were reflected on the internet service. This would eliminate double entry of most of the information, ensure mistakes were more quickly picked up and site information updated at the same time as internal systems.
3. Design the site to provide rapid access to information thereby reducing browsing time.
4. Provide information that added value to Potato Australia and Eyes on Potatoes rather than duplicating it.
5. Provide the opportunity for people who wanted to supply information (ie. researchers, businesses) to people who wanted to receive information (ie. growers, service industry, processing field officers) using a self-governing system to the benefit of both parties.
6. Provide an attractive environment to advertise, sponsor and provide value adding services to the mutual benefit of the potato industry and provider whether that be a commercial company or government department.
7. Develop an internet site that could be updated with minimal external support.
8. Develop a business strategy that would allow the internet service to be self-funding within three to five years.

Method

There were three key elements to the Potato Internet Service:

- Front end – what the user sees on their browser
- Back end - contains all the bits the user does not see
- Operational arrangements –systems that enable everything to happen as planned

Front end

A prototype Front end was developed and refined in VX00023 based on the outcomes of PT98037. The prototype was used to establish what information services were required and issues to be considered in the development of a potato internet service.

This work highlighted a number of subtleties that impacted on usability and greatly influenced site design.

In this project, the prototype was further developed and the processes by which information was collected, stored and supplied to the Front end established.

The Back end databases could also mimic aspects of the front end to facilitate fine tuning of the services and testing. A key aspect of the design was to make the process of using the site as intuitive as possible.

Final design of the front end would then use a professional designer to take it to the last stage.

(i) Home page

The internet site consisted of an entry screen where users entered their username and password which then led to the home page. The following prototype screenshots, although crude in design, give some idea as to the nature of the site.



Figure 1 - Home page (Prototype only)

The key aspects of the home page were:

- Services – located in the green (or shaded) bar
- What is new in the last month section which was also available as an email service
- Issues page which linked to important pages on other sites or that could be generated locally
- General information – items below the issues
- News – externally and internally generated news
- Search engine using a special search results list format (see Figure 2)

Search results - Quality Assurance	
Australian Potato Industry Quality Assurance Guide for Potato Farmers Eric Coleman, QDPI	Publications Booklet
Foodinfo Department of Agriculture, Food and Forestry Australia	Links Quality Assurance
Richard Bennet Horticulture Australia	Contacts Industry Group

Figure 2 – Search result showing the output format (Prototype only)

The search results list used a simple, easy to follow format so relevant information could be identified quickly.

The services in red (top right of each listing) and the green items underneath (eg. Booklet) were categories for which each service was broken into. Refer to service screenshots below to see the categories for each service. Categorisation was very simple so that it could be easily learnt.

(ii) Contacts

Seeking technical advice was something growers did all the time. Knowing who to talk to and being able to ascertain this quickly was important for all managers.

Contacts for technical information

Home state All

Chemical Co	Markets
Consultants	Merchants
Fertiliser Co	Packaging
Government	Processors
Industry groups	Rural suppliers
Irrigation	Seed
Laboratories	Other
Machinery	

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Figure 3 – Service 1: Contacts (Prototype only)

Key aspects of the Contacts page were:

- Intelligent search engine
- Ability to look only within your own state
- Can select by category if the user was not sure of what to search for.
- Advertising at the bottom

Once a person was identified by the list similar to Fig 2, the following was displayed.

Contact information

Leigh Walters
Technology Transfer Manager (Potatoes)
SAFF
PO Box 6014
Halifax Street
Adelaide SA 5000

Phone 08 8232 5555
Fax 08 8232 1311
Mobile 0419 033 172
Email lwalters@saff.com.au

Facilitates communication and technology transfer in the Australian potato industry and Assistant Editor of Eyes on Potatoes and Potato Australia.

Figure 4 Contact details

Individuals wanting to be included on the service would need to give their consent, including what details to be included.

(iii) Research

By far the largest service on the site was to be Research which contained past and current research. Three key additional services were also being explored for inclusion – diseases, nutrition and soil insect pests.

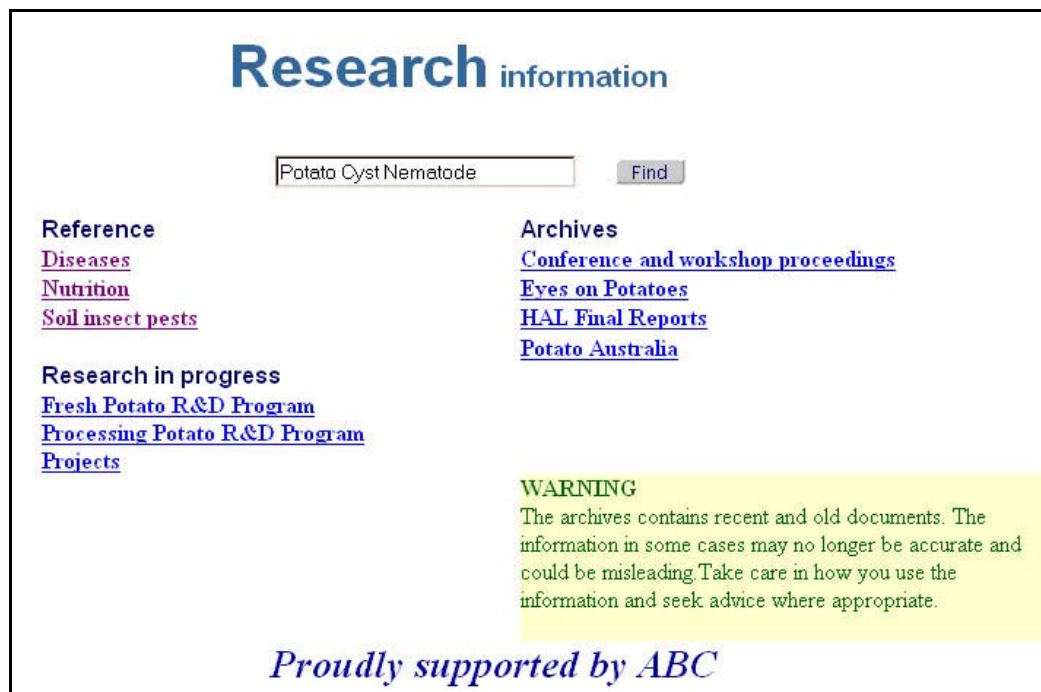


Figure 5 – Service 2: Research (Prototype only)

Key aspects of the Research page were:

- Intelligent search engine
- Reference databases on key topics
- Research in progress – information on programs and projects currently underway.
- Archives – The internet version of Potato Archives. The original aim of the internet version was to focus on material not on the CDROM version. The internet version would be searched and a list produced. If documents chosen were on the CDROM version located on your personal computer, then the local information would be used otherwise the file downloaded for viewing from the internet site. For most information, local files would be accessed with only the documents released since the last version of the CDROM needing to be downloaded. This greatly reduced download times while ensuring the latest information was available. Whether a user had the CDROM would be indicated in their profile with the version number. Unfortunately since the proposal was submitted firewalls and virus programs have greatly reduced browser functionality to protect users from viruses, worms and other internet nasties. This feature was to be further explored before finalising the service.
- Advertising at the bottom.

(iii) Publications

An enormous amount of information already exists in the form of publications that may or may not be accessible through the web.

For many people it was quite frustrating trying to find out what was available and then working out how to get it. With so many publishers and distributors, the task was often quite difficult. The task was made even more difficult by many publications not being available through commercial distributors.

A simple means of finding where to get publications of interest would save users a lot of time.

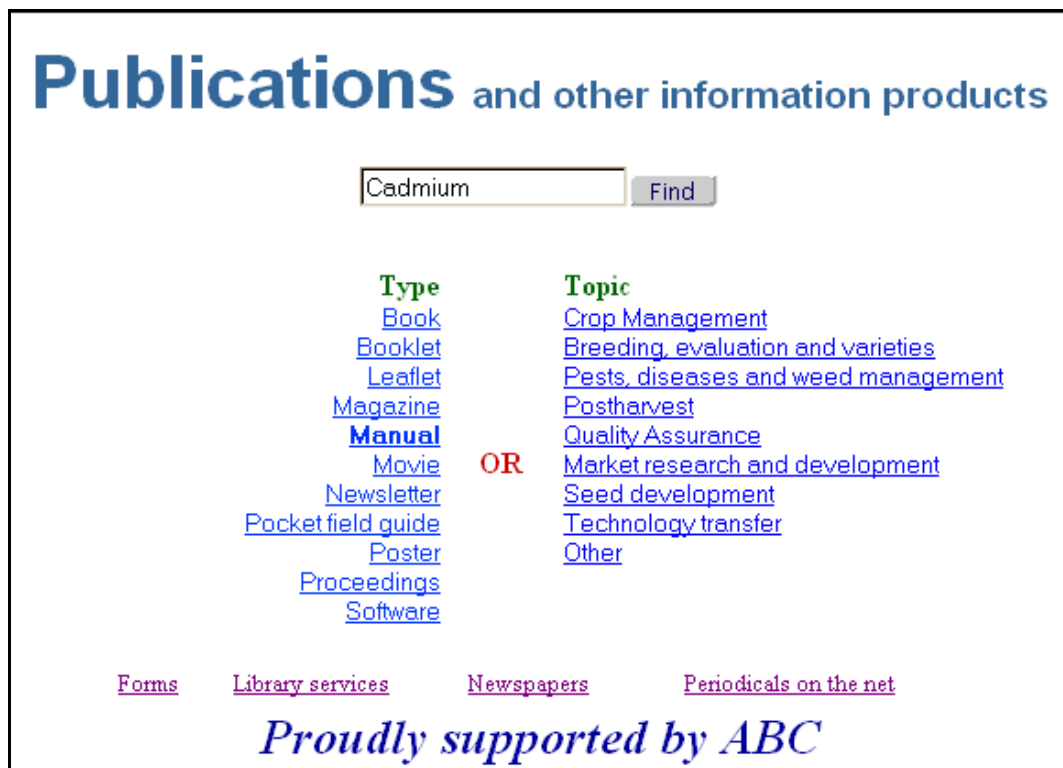


Figure 6 – Service 3: Publications

Key aspects of the Publications page were:

- Intelligent search engine
- Publications categorised by type and topic as an alternative to the search engine
- Forms – Various industry forms that could be downloaded (eg. QA forms)
- Library services – Access to library services relevant to the industry
- Periodicals on the net – Links to internet publications such as newsletters
- Advertising at the bottom

(iv) Email updates

Keeping people informed about topics of interest is something the internet can do quite easily. Past research in PT98037 identified that email lists were not trusted by many people. The main concern was that once on the list people perceived it was difficult to get off. The other issue was the process was not very user friendly to the non-computer person unused to computer jargon.

Designing a user friendly email service was not difficult but it was only part of the challenge. The other was having useful content so people would use the service.

Content could be provided by Site Administrators but this would have severely restricted the type of material provided. What was needed was a simple way to encourage good content and reward information providers when they did a good job.

In the commercial world, businesses have the profit and sales incentive. Feedback loops for email providers were not always present and yet researchers, in particular, were keen to know whether their information was meeting their audiences' needs.

To develop an incentive to participate and develop good products for an email service involved:

- providing feedback on use, state and user type demographics
- having a simple quality assurance process to ensure appropriate content was included
- maintaining a performance standard. If people did not use the item it would be removed from the site. Having an item continue on the site would be a clear indication it was meeting some peoples' needs. This encouraged providers to think carefully about what to provide to get good

responses, the responses in turn providing encouragement for their effort. This in turn encouraged future participation.

Email updates to keep you informed

By subscribing to items, information can be sent through the email on topics of your choice. If you no longer want to receive the information simply choose unsubscribe and you will be removed from the mailing list. All personal details are kept on a secure computer.

The size of emails is controlled and if an email to be sent exceeds 500KB then you will be notified and given the option of whether to download the item.

You currently subscribe to: **Important industry news**
 Diseases and pests

Please choose items and then press subscribe to be included on the mailing list or unsubscribe to be removed. You are in control of what you receive except in an industry emergency. In this instance all registered users of APIS will be notified through the email.

Alerts

Important industry news
 New potato internet sites

Research updates

Diseases and pests
 Marketing

Newsletters

Biofumigation Newsletter
 Bacterial Wilt Update

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Figure 7 – Service 4: Email updates

Key aspects of the Email updates page were:

- Research, non-commercial and commercial items (eg. newsletter, alert) that could be chosen by the user to be download to their computer automatically when they became available.
- Users had full control over what was downloaded and could therefore experiment. Users’ main concern with email lists (PT98037) were that once they were on lists they couldn’t get off. This approach gives the user full and importantly, simple control.
- Items the user was currently subscribed to were listed.
- If an item did not perform to previously agreed criteria, it would be removed.
- Suppliers would be provided regular statistics to show how many people used their service. This provided an important feedback loop so suppliers could improve if they were not providing what users wanted. Researchers often commented they produced a leaflet or newsletter and sent it out and never really knew whether it met users needs (PT96009). Unlike a commercial service where a business either made money if successful or didn’t, researchers often wondered how many people were really interested in their work.
- Opportunity for commercial services. A company might have a used machinery newsletter which they could include and pay a fee for using the service.
- Advertising at the bottom

(v) Coming events

The Coming events section is a common feature on many internet sites. The challenge was to make it attractive for people to use and include items.

Coming events

[How to submit an event](#)

October 2001

16 [NaPIES demonstration trial field day at Ballarat, VIC](#)
Contact: Ed Murphy (03) 8976 5463

24 [Seed Workshop at Murray Bridge, SA](#)
Contact Paul Hady (08) 8765 6543

November 2001

16 [NaPIES demonstration trial field day at Colac, VIC](#)
Contact: Jim Murphy (03) 8976 5463

24 [Harvest Workshop at Robertson, SA](#)
Contact David Holt (08) 8765 6543

December 2001

16 [NaPIES demonstration trial field day at Koo Wee Rup, VIC](#)
Contact: Paul Murphy (03) 8976 5463

24 [Potato Growers Day at Mt Gambier, SA](#)
Contact Bob Peake (08) 8765 6543

Figure 8 - Service 5: Coming Events

Key aspects of the Coming Events page were:

- Simple listing of events with the most recent ones first
- Option to have a 1-3 page PDF linked to the item for downloading
- Easy mechanism for submitting events

(vi) Links

The Potato Internet Starter Pak had been available since December 1997 to enable users to gain quick access to internet sites relevant to industry. The internet helped take this popular service one step further with provision of a powerful search engine that still retained the high relevance of the outcomes.

Links to the internet

World Australia

[Australian sites](#) [Overseas sites](#) [Telephone directories](#) [Search engines](#) [Search tips](#)

WARNING !

The internet can be regarded as a very, very large library. As with any library how you use the information is your responsibility. Anybody can put information on the internet. The quality of the information is dictated by the author or provider of the material. A lot of information has also been developed for a specific audience. Use the information carefully.

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Figure 9 – Service 6: Links to internet sites across the planet

Links was simply a more advanced version of the Potato Internet Starter Pak.

Key aspects of Links page were:

- Intelligent search engine which could select only Australian sites
- Category searches for Australian and overseas sites (see Figure 10)
- Useful tools for the internet
- Advertising at the bottom



Figure 10 – Service 6: Sites could also be listed by category

The above information provided the starting point and the site was to be further developed over the life of the project.

Back end

The Potato Internet Service would have consisted of a password protected internet site or extranet linked into the industry's National Database System based at the South Australian Farmers Federation.

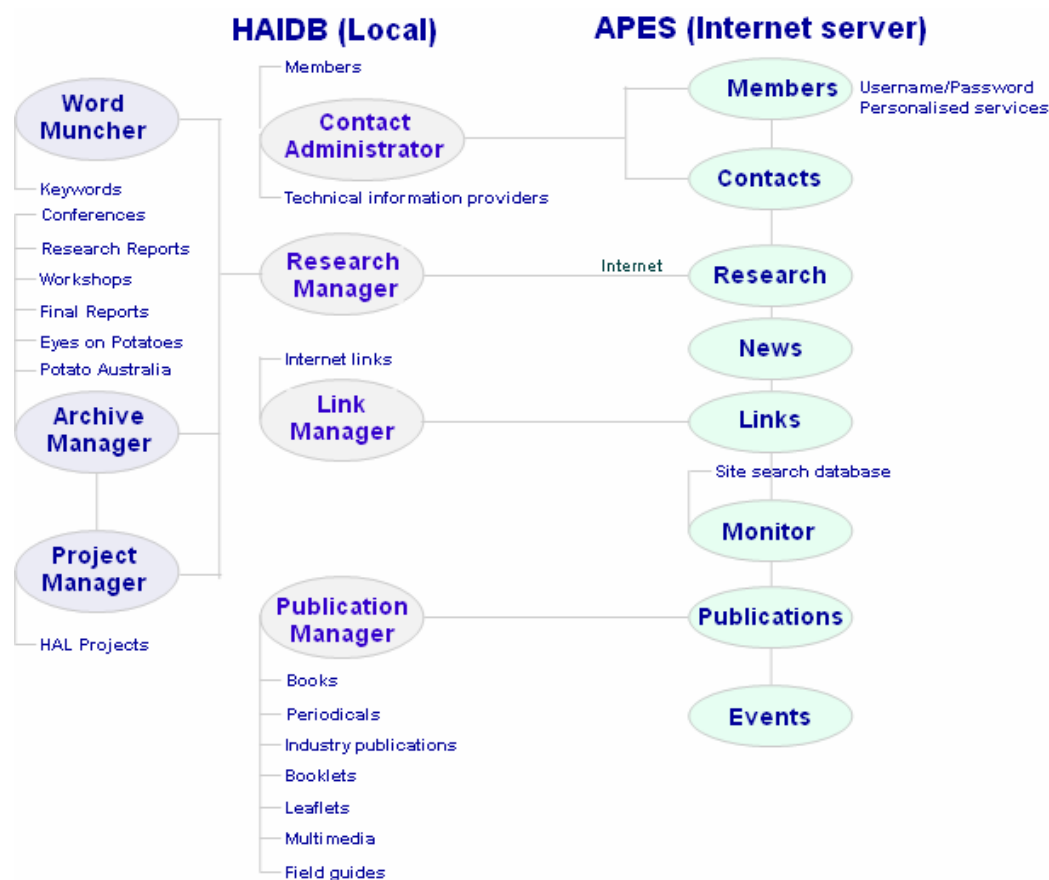


Figure 11 – Potato Industry Extranet Service - databases

(i) National Database System

The National Database System consisted of eight databases:

- Contact Administrator – contact details used for the distribution system, networking, email newsletters, Processing Potato Research and Development Contact Directory and many specialised services.
- Project Manager – information on current and past projects from HAL (current project information provided by HAL by a regular download).
- Publications Manager – details on potato publications and how to obtain them.
- Links Manager – internet links to potato sites (replaces the Potato Internet Starter Pak which was a free package emailed out to people on request).
- Research Manager – consolidates information from Project Manager and Archive Manager for Potato Archives and current projects.
- Archives Manager – tracks production of files for Potato Archives and maintains copyright details
- Word Muncher – produces keywords for the search engine

It also contained a local version of Potato Archives with Final Reports, Conference Proceedings and articles from Potato Australia and Eyes on Potatoes. This was not used for the internet site. All support information for Potato Archives was fed through Research Manager.

(ii) Server – where the browser gets all its information from when querying the internet site

The database server was to be located at a server farm that had the necessary support infrastructure

such as high speed telecommunications, backup power and security.

A number of simple flat file databases designed to answer data requests quickly (Contacts, Members, Links, Research, Publications) would be on the server. These would be updated via the National Database System by a secure SSL link.

Two databases (Events and News) would be updated by a Content Management System on the server that could be accessed through the National Database System main menu.

The Monitor database was to maintain information for searching the site and regularly updated itself when new data was added.

Other information consisted of databases for specialised services (many ideas mooted – none finalised), static internet pages and a large number of PDFs (mainly for Potato Archives) and image files.

The database server was to consist of an Apple XServe running Mac OS X Server, Filemaker Server 8 Advanced and Apache. As Filemaker currently only runs on Apple and Microsoft platforms Linux was not considered.

(iii) Why use Filemaker

All databases had been constructed using Filemaker Pro 8 which was chosen as it provided a rapid development environment and was very reliable. Although not the most powerful database product on the market, it provided a good balance between speed, features, ease of development and reliability.

HAIDB Contact Manager and HAIDB Project Manager had been built using Filemaker and used by potato and vegetable industry development officers since 1998. The databases were originally built for the Vegetable Internet Service which did not proceed, but people using the databases found them very useful for their day to day operations and continued to use them. As the databases formed a core part of the potato information system, they were updated for both the potato and vegetable industries. Since that time, four of our distributors and our publications Editor have also adopted HAIDB Contact Manager.

Given the success of the earlier databases, Filemaker continued to be used and Filemaker Server 8 Advanced (web server version) was to be used for the internet server. This meant databases on the server and at SAFF were totally compatible and meant cheaper and simpler updating.

The server version also had many features that allowed rapid expansion of services without investing in new software.

Operational requirements

The operational arrangements of the site would have been integrated into the existing activities of the office. An extra support person (3 days a week) would manage the day to day updating of systems while the TTM focused on managing future development, troubleshooting and relationship building with service providers.

(i) Relationship building

The initial site was to be developed over the three years of the project at a rate existing resources (people and money) could handle. A key plank of the second development stage was relationship building with service providers to explore linking in important industry-focused services into the Potato Internet Service for the benefit of all.

Preliminary discussions with the state departments of agriculture resulted in a desire to further explore possibilities. The goal was to develop a link that gave duly recognised the provider while enforcing certain quality parameters to maximise the service's client benefits. For it to work, it had to be a win-win situation where both parties gained by the service's high performance. A service may be a disease warning service based on automatic weather stations, market reporting, soil organic matter

calculator. Many of these could have resided on other sites located anywhere in the world. The possibilities were enormous.

(ii) Computer systems

Keeping the proposed site up to date was going to be a major challenge. Conventional static web pages or Content Management Systems would play a role but alone would not be enough. The amount of updating required to keep a service such as one proposed, would have been considerable and would easily overwhelm a small team using the above two approaches.

Where major efficiencies could be made was by reducing the double handling of data. Given our group was very reliant on the National Database System for day to day work, the obvious and simplest way of reducing workload was to link the National Database System with the internet server. In that way, data entered into one would be reflected in the other.

It sounds easy but in practice a number of challenges existed. They were:

- Existing databases had to be modified to accommodate the internet and a range of new features added to facilitate checking and specialised maintenance.
- We needed to develop a secure updating process which would not compromise the security of confidential material not destined for the internet. The security was to be in the form of pulse transactions along a SSL encrypted line with additional security at the server and at the SAFF end. Server security can be relatively straight forward if few operating system services are used and those not used shut down. Maintaining fewer entry and exit points greatly minimises risk and strengthened our ability to secure the channels that are left open for internet traffic. Existing firewalls at SAFF could easily accommodate the new system.
- Updating needed to be automated as much as possible to reduce the work involved.
- Information needed to be stored in ways that would allow it to be packaged for the different services such as the internet, publications or distribution. There needed to be consistency of data structures used by the services even though the end results may look quite different.
- Were the built in security features of the software we intended to use adequate?
- How would we manage data flows between the different databases to minimise problems developing.
- And once the system was working – how could we simplify it?

Our operational arrangements relied heavily on having a low maintenance system so the focus could be on the customer rather than the system.

(iii) Commercial services

To move towards a cost neutral operation, the following needed to be implemented:

- Link internet advertising with the national publications (Eyes on Potatoes, Potato Australia) and offer packages using the same Advertising Manager for publications and the internet.
- Simple advertising that used few resources and would download quickly.
- Sponsorship of specialised services.
- Membership for non-levy payers (ie. HAL funded researchers, HAL and key people excluded.)
- Charging for commercial email updates. (These still had to be selected by the user and if they did not perform removed from the service after a predefined time.)

Timeline

The project contract was signed in November 2004 and the South Australian Growers Federation received the first payment at the end of that month.

Before that, the Filemaker database system went through a major upgrade from Version 6 to 7. As their database engines had been totally redesigned, many of our databases had to undergo considerable rebuilding to ensure they worked properly and to take advantage of the many new features.

Version 7 turned out to be very 'buggy' which further stalled our development. Filemaker then brought out Version 8 in August 2005 which overcame most of the problems that had not been solved through updates. The web server version was not released though until January 2006.

In late 2005 the future of the project was reassessed given the current communication program was ending and the service would need to be moved to AUSVEG. It quickly became apparent there were problems in continuing along the initial path. After discussions with AUSVEG staff and my Management Committee, the Potato Industry Advisory Committee and HAL were informed of the decision to cancel the contract.

The work to the end of the project and most importantly, the information collected in the National Database System, was forwarded to AUSVEG for incorporation into their own system.

Work carried out

The following work was carried out before project end:

- HAIDB Databases were redesigned and awaited arrival of the database server to develop server modules (APES databases) and streamline the system.
- Database security was checked via penetration testing from an external server. Its passed without problems.
- Database performance was checked by establishing a trial internet server using Filemaker and Apache on a Pentium III computer connected to a conventional landline and accessed by ADSL. Performance for updating was excellent.
- Speed transfer issues were investigated to establish the basis for a site benchmark but this was not finalised.
- Data was updated in Contact, Publications and Links databases.
- Hardware requirements were resolved based on research and extensive discussions with developers and suppliers. An Apple system was chosen for its stability, security and reliance on open source software which provided considerable development possibilities.
- Server farm site location options were established. Adnap and Internode in Adelaide were chosen as preferred sites to host the server.
- The mechanics of integrating the server system and National Database System were researched particularly with regard to authentication processes and security. As we were using a late release version, this was more difficult than expected. (Later, Filemaker released more detailed information clarifying a lot of the issues in question).
- Data transfer processes were investigated to minimise the amount of data that would be sent to a browser. As we were using XML databases a balance needed to be struck between using XML and plain text so as not to increase download times. We also explored issues relating to Potato Archives, due to the large size of some of the files.

Discussion

Difficulties in getting funding, delaying the start of the Potato Internet Project, ultimately killed it. The first projects to gather information about what was needed in the service (PT97025, PT98037) were carried out in 1998. Funding to start the Potato Internet Service came through in November 2004.

Timeline

- Stage 1 **Improving awareness of electronic information products and services**
Projects - PT97025, PT98037, PT96009
1998 - 2004
To have an informed debate, people in the potato industry needed a greater understanding of what electronic information services had to offer. This was achieved through the national potato publications, the Potato Internet Starter Pak and industry information nights.
- Outcomes
- Numerous Eyes on Potatoes and Potato Australia articles.
 - Pull out brochure on electronic information services in Eyes on Potatoes (Nathalie Jarosz, Barry Philp and Leigh Walters)
 - 35 group sessions Australia wide on new technologies (Leigh Walters)
 - Development and distribution of the Potato Internet Starter Pak (up to 330 users) which provided access to potato internet sites around the world. (Leigh Walters)
- Stage 2 **Benchmarking the current situation**
Projects - PT97025, PT98037
1998 – 1999
Information was required about what could be achieved and funding options. Four investigations were undertaken:
1. Identifying industry attitudes to electronic information products and services through a series of focus group sessions in four states (Nathalie Jarosz).
 2. Investigating overseas electronic information products and services by visiting key overseas centres in the USA (Barry Philp)
 3. Investigating electronic information products and services in Australia (Systems Intellect and Agknowledge)
 4. Investigating options to commercialise electronic information products and services (Systems Intellect and Agknowledge).
- Outcome – A detailed report was produced for each investigation providing the baseline information for the next stage.
- Stage 3 **National Workshop**
Project - PT98037
1999
A two day national workshop was held on June 23-24 1999 to consolidate knowledge gained from Stage 2, discuss implications and gather information to develop a strategy for effective introduction of electronic information services to the Australian potato industry.
- Outcome – The basis for developing a more detailed strategy in Stage 4. Key outcomes included working with the vegetable industry and having a site that could become self-funding over time.
- Stage 4 **Development of a business plan for a national internet site for the potato and vegetable industries**
-

Project – VX00023

2000-2001

A prototype internet site focusing on key services was developed and discussed with focus groups in each state. The prototype was modified after each meeting based on feedback. At the end of all the meetings the prototype was further refined and sent out to the group participants. The prototype was again modified based on feedback and the process repeated once more.

Based on the outcomes of the previous stages and the prototype a business plan was prepared and presented to the National Office of Information Economy and then to the Potato and Vegetable R&D Committees.

Outcome – Business Plan used to obtain funding support. External funding application to the National Office of Information Economy rejected.

Stage 5

National internet service for the Australian vegetable industries

Project – PT00001, VG97080

Internet project not commenced

Revised funding proposal submitted to both Potato and Vegetable R&D Committees.

Outcome - Project supported by both R&D Committees then the vegetable decision overturned by AUSVEG while they reviewed their communication program. Potato R&D Committee then decided to go it alone and requested a submission for the next funding round.

Stage 6

Potato Internet Service

Project - PT04002

2004 - 2006

Once funding was received in November 2004, work started on development of the internet service.

Outcome – Work delayed due to software updates which resulted in the need for major upgrades to the database system. The late release of Filemaker Pro 8 Server Advanced meant the internet server development could not begin until January 2006. As the Communication Program was being transferred to AUSVEG at the end of March 2006, the contract was terminated in February once loading of the databases had been completed to a satisfactory stage.

It is hard to maintain support over such a long period.

User interface

A lot of effort was spent on user interface issues to improve the usability and value of the internet service. Much of this knowledge unfortunately will be lost as it involves subtleties in design.

The approach used to develop the user interface was to start with the grower or service delivery person and develop from that point forward. The design and approaches in many instances were therefore not what would be regarded as normal industry practice by developers.

The approach to searches and presentation of the search results were also non-standard. The long term aim was to develop the search technology so that the results better matched users' needs. This created two major challenges - how to gain better access to information on databases and how to use personal preferences more effectively to deliver a more valuable outcome.

Conventional crawling and indexing to provide the 'food' for search engines had major limitations given the nature of the proposed site.

The initial proposed search approach relied on an older-style two tiered keyword search with priority indicator. Initially this would provide acceptable results quickly while allowing a more sophisticated indexing approach, using personal preference data, to be developed in the background and brought on line at a later date.

In developing a service, existing approaches can be modified from other industries or the developer can go back to first principles and develop the paradigm for the approach to be used.

The project leader decided to go back to first principles given the outcomes of the earlier research. This was seen as the best way to ensure an internet service was developed that would be valued by industry.

Many internet sites today look good but do they really provide what the customer needs? It should be remembered that 'flash' packaging is only a plus if the product is good inside and results in considerable repeat interest by customers.

If a product is bad inside, often no amount of 'flash' packaging will attract the customer back. Therefore content should always come before design if the desire is to establish a long lasting high value service.

In conclusion

The challenge for the potato industry is to learn from what has been done and not lose site of why they are investing in an internet service.

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