

Py harvest – warfare on flowers

BRA's approach to harvest this season can well be likened to all out warfare on pyrethrum daisies. Armed with a logistic system based on that of aircraft carriers, BRA has employed an army of 'state of the art' harvesters, along with the best operators in the country.

BRA's Planning and Logistics Manager, Bill Casey, said that this year's harvest had scaled up significantly from last year and that the military style logistic techniques were ideal to keep harvest operations running smoothly in a hectic environment.

"Its shaping up to be our best and biggest harvest ever. We've got more tonnage, increased area, 18 harvesters instead of 10 and we've increased the productivity of the harvesters significantly as well. The weather's generally been kind to us too," he said.

Ian Folder, BRA's Managing Director, said that the harvest army involved close to \$8 million dollars worth of contractor capital.

"Our contractors are the best harvest people you can get and the harvesters are state of the art machinery - new and reliable. Some contractors are local and some are from the mainland so we've got tremendous resources of skill, experience and technology," he said.

Ian said that, in addition, two of the major harvester manufacturers in the world have brought harvesters to Tasmania to test their performance in pyrethrum crops this year.

"These include the largest combine harvester ever built and a brand new rotary harvester – the first one in Australia."



Part of the 'army' ready for the 1999 harvest

However the success of the field 'army' brought another dilemma. The record rate of crop intake meant a potential shortfall in storage space loomed just three weeks into the harvest.

Faced with the unwelcome prospect of having overfilled storage sheds, the contractors drew on their mainland experience and suggested grain style bunkers as a short term storage option.

Within a week, two bunkers, each 20m x 60m, had been designed and built, ready to receive the harvested crop material if required. Obtaining covers for the bunkers posed quite a challenge but once again the contractor network found a solution with all the resourcefulness of an army in battle.

A tarp manufacturer in Toowoomba, Queensland was recommended and within 18 hours of the order being placed, the tarps were completed. However BRA could not find a carrier prepared to guarantee to deliver them to Tasmania in the time frame required.

One of the contractors volunteered the assistance of his brother who picked up the tarps at midday one day and was waiting at the gates of the shipping company at Melbourne wharf by 7.00 am the next morning – a drive of some 1500 kilometres.

Ian said that the building of the bunkers in such a short time frame would have been impossible to achieve in a more bureaucratic company burdened with traditional, time consuming, decision making processes.

"We would have still been writing the proposal! It was made possible because we were able to draw on the intellectual horsepower of those around us and then put it into action. It was the strength of the network we had built up that allowed us to find such an innovative solution to a challenging set of circumstances," he said.

This same 'can do' philosophy has enabled BRA to achieve higher productivity from the harvesters this season.

Bill Casey has worked closely with the contractors to improve the capacity of the machines. These changes are being field tested this season on a number of harvesters and, if successful they will become the standard for the future.

Similarly, despite the hectic pace of operations, Bill has managed to invest time in researching improvements to the windrowers.

"We need to do this testing work now while the last of this season's crops are being cut, so that we can implement any changes right from the beginning of next year's harvest," Bill said.

Expansion plans on track

Expansion plans to increase the area planted to pyrethrum in Tasmanian to 2000 ha by the year 2000 are right on schedule with a total of 720 ha being planted during 1998.

Field Production Manager, Matthew Greenhill, said that this was a terrific outcome as BRA had planned to put in 700 ha.

"We are really pleased with the way planting went this year," Matthew said.

"We had dry weather to get the crops in during July and August which allowed us to get 95% of the crop

planted by September and then we got good follow up rains in October."

"This meant that we got excellent establishment and we expect almost all of those crops to get through to first harvest."

In addition to the favourable weather conditions, Matthew attributes the good planting outcome to improvements in seed quality and in drilling technology.

"The combined efforts of a number of researchers have lead to advances in seed quality, the treatment and cleaning of seed and improved storage. There has also been a lot of work done in improving drilling operations, in particular, control over planting depth," Matthew said.

In planting 720 ha over the last year, BRA has attracted 42 new growers to the industry. Matthew said the focus groups that were held in 1997 helped the company identify the reasons why some farmers had not yet taken on pyrethrum as a crop within their rotation.

"In many cases this was simply a lack of information about the crop, the returns and the management requirements. Once we became aware of this we made sure we got this information to potential growers with the tremendous result of bringing in so many new growers."

BRA consolidates with new facilities at Ulverstone

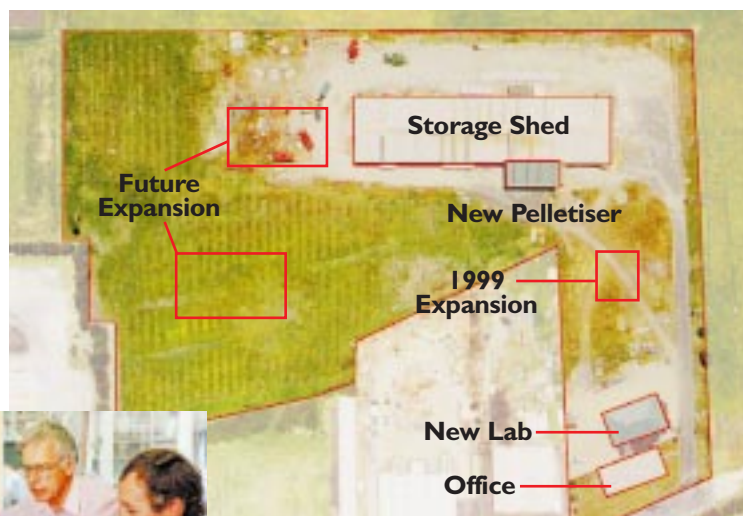
The last year has seen a major consolidation of BRA's Tasmanian operations at Ulverstone.

Following the purchase in 1997 of a three hectare site with an existing office and a 2,500m² storage shed, BRA has added a new, purpose built laboratory and a new crop pelletiser.

Commissioned in late November, the lab was designed by the Chief Chemist, Helen Faber, in conjunction with her engineer husband, Gerke. The new lab is much larger to cope with the increasing number of analyses as BRA expands its production base. Helen says the extra space is 'fantastic'.

The new lab also offers improved work flow and all dusty operations such as receipt of crop samples and drying and grinding of crop material are well separated from the analytical section.

In a further component of its expansion strategy, BRA also designed



John Boevink and Leigh Mackey fine-tuning the operation of the pelletiser in the purpose-built control room

and built a new crop pelletiser at the Ulverstone site during the 1998 spring. With a budget of over \$700,000, this project was one of the biggest single operations BRA has undertaken, according to Director of Manufacturing, John Boevink.

John said that with the acquisition of a second pelletiser and a huge new hammermill, capacity has been doubled.

"With the increased plantings, we will have greater and greater throughput. The extra capacity will mean we will be better able to keep up with harvesting and have less storage requirements," John said.

"We have also put in a more efficient cooler and a new control room, which will give us greater precision in achieving close to perfect storage conditions for the pellets."

John said it is important that pellets be stored under exacting environmental conditions as this minimises the possibility of loss of pyrethrins prior to extraction.



Helen operating the new HPLC which analyses materials for their chemical constituents

Samples, samples and more samples - the BRA lab is a busy place

Have you ever wondered just what Chief Chemist, Helen Faber, and her team do in the lab all year?

The simple answer is thousands of analyses of pyrethrum plant material. Each extraction takes 3-4 days to process from the time the sample of flowers arrives at the lab through until the computer prints out the pyrethrin analysis.

During the harvest season, the two machines that do the pyrethrin analyses run 24 hours per day, completing 30 samples per day each. At this time, the priority is on the samples from each paddock taken as the crop is loaded onto the trucks. Grower crop payments are based upon these crop assays.

However the testing doesn't stop with grower's crops. Helen's team has a lot more to do yet. BRA has developed a rigorous testing procedure which audits pyrethrin levels from the paddock through until the final product is shipped to the customer.

Even before crops are harvested, 1/3 of all paddocks are sampled and analysed for pyrethrin content to establish what is in the paddock to start with.

Once the crops have been harvested, more samples are taken at the pelletiser, after extraction and of course the refined product. Even the refinery by-product is tested.

This extensive testing procedure quickly shows up any problem areas and ensures that pyrethrins are not lost during the manufacturing process. Whilst most of the samples from the extraction are tested on-site, a percentage are sent to the lab at Ulverstone as a check on the process.

In addition, before any product is shipped to a customer, Helen retests it to ensure the product specifications exactly match the customer's requirements.

And when all of the above is done, Helen and her staff also process approximately 400 samples per year from all the different researchers that make up the extensive pyrethrum research team.

All this means that the lab is a busy place all year round and its smooth and efficient operation is vital to BRA and BRA's growers and customers.



Students, Diane Connell and Andrew McBride, grinding samples ready for analysis



World record pyrethrum crop for first time grower

Kindred grower, Kevin Goodwin's first direct drilled crop was a world record, with a harvested yield 75% above the average for the season. And not only was it his first direct drilled crop but it was also his first pyrethrum crop!

Although Kevin doesn't have the experience of previous pyrethrum crops to draw on, he has compared notes with a number of other growers.

"About the only things that seemed to be different for my crop was that I irrigated it one more time coming into flower than most other people I talked to, four times instead of three, and I was putting on more water each time. I put on 45mm and they seemed to be putting on 25mm or a fraction more," Kevin said.

The crop was direct drilled in October 1996, a little later than the preferred time of August/September. Since it was a very dry year, the crop had to be irrigated several times to get it established. However when it did come up, it achieved a very good plant density.

The paddock lies well to the northwest and was in good condition at sowing even though it had been

continuously cropped with vegetables for 25 years. Kevin always grows green manure crops between vegetable crops and he feels this might account for the high carbon level in the paddock.

"It wasn't a bad paddock for weeds," Kevin said. "It went in after a cereal crop, so it got an extra one or two grass sprays."

Kevin said that all the sprays went on at the right time. "I'm very fussy with spraying," he said.

According to Kevin, he just did everything according to the recommendations and the harvest went very smoothly.

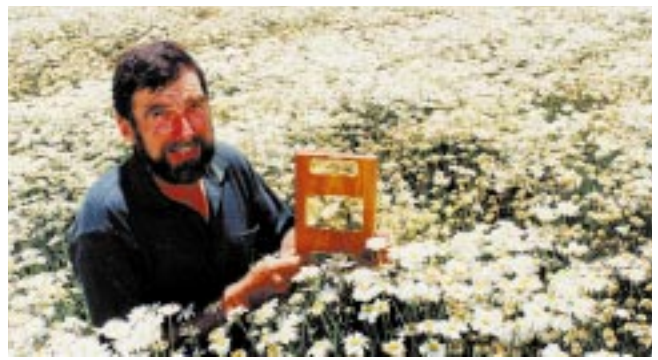
"It will be interesting to see what happens this season. Being a second year crop now, I expect it to yield a bit less but at the moment it looks a picture," Kevin said.

Kevin started growing pyrethrum after many years of growing vegetables.

"I have done gross margins on my crops for a number of years now and the pyrethrum returns look very attractive," Kevin said.

"So I planted this first pyrethrum crop of 4.4ha in 1996. The gross margin for this crop was very good even when you account for the 18 months before you get an income. Only potatoes and a dammed good crop of onions give that sort of gross margin."

"Even with an average crop of pyrethrum, the gross margin is still comparable to vegetables and you don't



Kevin with his 1998 Top Crop Award in his high yielding direct drilled crop, here approaching its second harvest

have the wear and tear on your land and you don't have to own expensive specialised machinery."

Kevin feels that BRA's move to direct drilling probably ensured the viability of the industry, making the crop cheaper to get in the ground and saving labour. He says that with all the research that BRA and the growers have just done on seed and drilling, "you are now pretty much sure of the crop being well established".

"And by being able to sow that bit earlier, in the July to September period, you are less likely to need to irrigate the crop as much to get it established and that's dollars in your pocket. Also if you can get the pyrethrum up before the spring flush of weeds, then weed control is less of a problem."

Kevin now grows 24 ha of pyrethrum, which is half his croppable land. He says that for him, the future lies in pyrethrum and other alternatives to vegetables.

The top 10 growers each received a plaque acknowledging their world record crops



BRA's Field Production Manager, Matthew Greenhill addressing growers at the R&D day in October 1998

cover crops and the stale seed bed technique. A project investigating the feasibility of biological control of sclerotinia disease in pyrethrum was also inspected.

The next stop featured John Bonney's recently planted crop that demonstrated how a well established, direct seeded crop should look like, two months after planting. At this site, the benefits and operation of a new irrigation scheduling tool, the Gofer, was demonstrated.

The last farm stop looked at an ex-pyrethrum paddock of Athol Gillham's that has gone back into a cropping rotation and been planted with potatoes.

The tour finished with a look at the improvements at BRA's new site in Industrial Drive, Ulverstone, including the major storage shed and the new laboratory and office.

After a meal, everyone had the opportunity to talk informally with all of the researchers and find out more about the work being done.

Brian Chung said that a survey conducted at the meeting had indicated that growers really liked the format of the evening and encouraged BRA to continue providing this type of opportunity to see and hear about the R&D work being done.

Growers R&D day

Last October around 150 people took up the opportunity to learn about the pyrethrum research being undertaken in support of the industry.

R&D Manager Brian Chung said it was the biggest attendance BRA has had to any of its R&D days.

"It's great to see so many people are really interested in finding out about what improvements they can make with their crops and the other advances that our research is providing for the industry in Tasmania," Brian said.

A bus tour featured research on weed and disease control. A number of new products are being evaluated for their effectiveness in controlling weeds. A permit has been obtained to trial one of these products semi-commercially in 30 ha of crops this season.

Other approaches to weed control were demonstrated, including the use of



Martin Anderson checking that an order is filled precisely to customer specification

Investment in refinery pays dividends

BRA's bold move in 1996 to commission its own refinery has provided large savings in refining costs and has allowed BRA to sell refined products direct to the customers.

Prior to 1996, all of the oleoresin extracted from the Tasmanian crop had to be sent to Minnesota, USA to be refined. But since the BRA refinery has been commissioned, much of the crop is refined at Ulverstone.

John Boevink, Director of Manufacturing, is proud of the fact that the refining process developed by BRA does not use flammable solvents and that there are no waste products. The only by-product is sold for its waxes and even the hot air from the process is used to heat up the oleoresin after it comes out of the coolstore.



Preparation for drilling

Direct seeding pays off

Direct seeding is proving to have big advantages over the old transplanting method of establishing a pyrethrum crop.

Although some in the industry were sceptical of the change at first, the results of last year's harvest have laid these fears to rest.

Direct seeded crops yielded, on average, a lot higher than transplanted crops and the gross margin to growers was exactly what BRA had projected. The top crop yielded 75% above average and at least seven sites yielded more than 25% higher than the average.

Field Production Manager, Matthew Greenhill, said that BRA had now demonstrated that high yields can be achieved.

"The next challenge is to get a higher proportion of production up to that higher figure," he said.

"I'm sure we can. We've learnt a lot since 1995 when we first started this direct seeding with about 50 ha of trial sowings. We've got a lot of information from our research projects and experience in the field and its showing up in the yields our growers are getting."

Matthew said that growers have adapted well to the change in production methods and they are reaping the benefits through higher densities at crop establishment, higher prospective yields and better returns.

Approximately 720 ha of direct seeded crop has been successfully established during 1998 and will be ready for harvest during 2000. Further expansion in direct seeded crops is planned for the 1999 sowing season.

Food for thought

If the 720 ha of new pyrethrum plantings achieved in 1998 had been done using the old split method, then it would have taken 250,000 people hours to get the crop in the ground.

Matthew Greenhill and contractor, Tom Butler, in a direct drilled crop 3 months after sowing



Growers keen to improve their business efficiency

Pyrethrum growers are jumping at the opportunity to improve their business efficiency through an innovative new electronic commerce project initiated by BRA.

With a grant of \$108,000 from the Tasmanian Electronic Commerce Centre, BRA aims to assist pyrethrum growers take advantage of the opportunities for improved business management now available through electronic commerce.

Research and Development Manager, Brian Chung, said that the grant will allow BRA to assist growers financially in purchasing computers and the appropriate software for their needs and help them connect up to the Internet.

"Most importantly we will also provide training which will be tailored to the needs of our growers and introduce them to some of the operations that are now available electronically. Things like comparing chemical and fertiliser prices, ordering online, electronic banking and bill payment, getting up to date weather, market and crop production information and communicating by e-mail with field staff and fellow growers," he said.

"Growers need to know how to access and utilise information and services that can actually help them carry out their business activities quickly and efficiently. This project will help them understand how computers and the Internet can aid farm business management."

BRA wrote to all its growers late last year, inviting them to participate in the project. Brian says the interest by growers has been overwhelming with over 70 wishing to participate.

"The challenge will be in matching the training to grower needs," Brian said. "The participating growers range right across the spectrum of computer skills from beginners to growers with quite advanced knowledge, skills and experience. We held a meeting in February to assess just what training is needed and we will put the appropriate training in place as soon as we can."

"As well as the training we will provide, we are also hoping those who are already using e-commerce will share their experiences with others, speeding up the learning curve for everyone."

Brian says that all members of the farming family are encouraged to participate in the training and to use the computer facilities.

Sassafras grower, Rob Nichols thinks the project is a great opportunity to learn how to integrate his computer into his farming business.

"We already use the computer for invoicing in our poultry enterprise but we don't use it at all in the farming side. Being involved in this project will give me the stepping stones I need to computerise the farming side," Rob said.

"Being able to network with other growers will be really valuable. It would have been really useful this year if I had been able to quickly draw on other people's experiences with weed control," he said.

"I also want to learn how to use the Internet so I can access information on poultry that I can't get here in Tasmania and probably can't get anywhere in Australia."

Brian Chung says that by helping growers improve their business operations, BRA aims to improve the business efficiency of the whole pyrethrum industry, thus giving the Tasmanian industry a competitive edge in the world marketplace.

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