December 2003 Vol 4 No. 2

BEANSTALK

Centre for Legumes in Mediterranean Agriculture Newsletter

CLIMA/CRC CHRISTMAS PARTY

Date: Wed 17th December

Time: 5.00 - 9.00pm approx.

Where: CLIMA and CRC lawn

Cost: $15 in advance to Greg Madson
Children under 13 free

Santa Claus:
Please bring a present ($5 max) for Santa to give your child

Details: Margaret Campbell
mcc@cyllene.uwa.edu.au

CLIMA SEMINAR SERIES 2004

Please contact Debbie Thackray to suggest topics and speakers. In particular we value the earliest possible advice of seminars offered by visitors during 2004.

CLIMA BIENNIAL REPORT

This report has been updated to include the Transgenic Pulse Project and a few minor corrections. The version on the website is the new one: **www.clima.uwa.edu.au**

Dr Hayley Norman to Lead CLIMA PL2 Sub-Program

Dr Hayley Norman

Dr Hayley Norman has replaced Dr Soressa Kitessa as the leader of the **Biotic Interactions Sub-program** of the Annual Pasture Legume Program at CLIMA. This is due to Dr Kitessa's recent changes in research direction at CSIRO.

Hayley works as a Postdoctoral Research Scientist for CSIRO Livestock Industries in Perth. She manages the field-based research component of the Sustainable Grazing of Saline Land project. The aim of this work is to improve sheep productivity and sustainability of saltbush-based farming systems. Legumes will play a key role in making saltbush-based system profitable for farmers.

Hayley's involvement with pasture science started in 1994 when she began spending her university summer breaks working for Mr Brad Nutt (CLIMA associate). Although she spent weeks at a time pulling thousands of serradella seeds out of pods with tweezers, she developed a keen interest in pastures. After completing an honours project with Brad and Prof. Phil Cocks (UWA), she spent a year working with the pasture groups from CLIMA and DAWA. From 1996-2000 she completed her Ph.D. thesis examining the reproductive ecology of annual legumes. She now works across the fields of plant ecology and the plant/animal interface.

Chairman of CLIMA Governing Board Awarded

Mr Mick Poole, Chairman CSIRO Centre for Environment and Life Sciences and Chairman of CLIMA's Governing Board, recently received two important awards. On 19th November, Mick was elected as a **Fellow of the Australian Institute of Agricultural Science and Technology (FAIAST)**. Shortly afterwards on 28th November Mick was the recipient of the prestigious **Urrbrae Memorial Award** for 2003 for his outstanding contribution to Australian Agriculture. The award is conferred biennially and is made in recognition of outstanding contributions to the science or practice of Australian agriculture. Presenting the award, GRDC Managing Director, John Lovett, said the Corporation was delighted its nominee was recognized for his long term contribution to grains industry research and development and transferring Australian farming systems technology to developing countries. "During 38 years as an active and successful research scientist, leader, manager and administrator, he also played significant roles in the discovery and development of new technology in cropping, pastures and farming systems," Professor Lovett said. We congratulate Mick on these achievements and are proud to have him as our Chairman. CLIMA Director Professor Kadambot Siddique was the previous recipient of the Urrbrae Memorial Award in 2001

Photo credit: Brendon Cant and Assoc.

From The Director

Professor
Kadambot Siddique
ksiddiqu@agric.uwa.edu.au

Following a number of below average seasons, WA farmers have commenced a record harvest this season. It is expected that total grain production will exceed 14 million tonnes. This is due to a combination of above average seasonal rainfall and the adoption of improved technology (varieties and modern agronomic practices) by our farmers. During spring I participated in several field days and observed a number of well-managed grain legume crops and annual pasture legumes throughout the grain belt of WA.

CLIMA was selected as a University Centre for the Australian Universities Quality Agency (AUQA) audit conducted at UWA on August 11, 12 and 13. CLIMA's Director, selected members of the Program Team, Industry Advisory Group (IAG) and Governing Board and post-graduate students participated in the audit. Feedback was excellent and I am grateful to all those who participated.

CLIMA IAG met on October 2nd and reviewed the progress of CLIMA, especially the new varieties likely to be released within the next two years. The IAG was very pleased to see CLIMA grain and pasture legume research at the Department of Agriculture's Medina Research station. The IAG interacted with CLIMA Program/Sub Program leaders and researchers during the visit. A number of potential new grain and pasture legume breeding lines and selections were displayed at the site.

A CLIMA forum for invited members of the **annual pasture legume industry**, convened by Mr Neil Ballard (IAG member), was held at University House, UWA on 19 August. There were 48 participants with formal presentations and several discussion sessions. A summary of the major outcomes is presented elsewhere in the Newsletter.

On 10th December, the **CLIMA Governing Board** will meet to discuss the progress of the Centre. A major agenda item for the meeting will be CLIMA's role in relation to the proposed Integrated Institute of Agriculture in Western Australia.

CLIMA IAG members inspect CLIMA work on Lupinus mutabilis at Medina Research Station (l-r Prof. Mike Jones, Mr Merv McDougall, Mr Dale Baker, Mr Chris Gillam, Mr Neil Young, Dr Debbie Thackray, Mr Cameron Beeck, Dr Jon Clements and Mr Peter Skinner)

For the past couple of months, a number of us have been busy developing and submitting potential projects to **GRDC** for their consideration. This includes Expressions of Interest (EOI) on pulse breeding and Responses to Tenders on various projects. CLIMA's future depends upon attracting good projects relevant to the Centre and value-adding basic research opportunities with CSIRO and University partners. The integration of basic research with applied research (e.g. legume breeding) is an integral part of CLIMA's focus.

Dr Hayley Norman, CSIRO Mediterranean Livestock Systems, Perth, has recently joined **CLIMA's Program Management Team**. Dr Norman will replace Dr Soressa Kitessa as the leader of the Biotic Interactions Sub-program of the Annual Pasture Legume Program at CLIMA. This is due to Dr Kitessa's recent changes in research direction at CSIRO. I am grateful to Dr Kitessa for his contribution to CLIMA during the past two years. I would like to welcome Hayley to the team and also all new research staff who have recently joined CLIMA research projects (see details in this newsletter).

We had 19 interstate and overseas visitors to CLIMA during the period July - December. Overseas **visitors** included our collaborators from ICARDA (Syria), ICRISAT (India), Italy, Chile, USA, Canada and Russia. These visitors were very pleased with CLIMA's collaboration on various projects with their respective institutes. During my recent visit to Washington State University, (Pullman, Washington) and the University of Saskatchewan (Saskatoon, Canada) several potential collaborative projects were identified.

Directors Repont cont. Recently CLIMA approved a total of $180,000 **core funds** to project activities in 2003-04. This is the second year we have made these allocations. Lists of successful projects are presented in this newsletter. Congratulations to all successful applicants.

This year **Dr Janine Croser** has elegantly organised 31 presentations for our fortnightly **CLIMA seminars**. I have had considerable positive feedback on the CLIMA seminar series, which commenced two and a half years ago. The series will recommence in early February 2004, with a new organiser, CLIMA's Communications Manager Dr Debbie Thackray.

During the year we produced a number of major **press releases**, with excellent assistance and promotion from Brendon Cant and Associates. These are available on the CLIMA website **www.clima.uwa.edu.au.** Please contact Dr Debbie Thackray or myself if you would like your work considered for a press release through CLIMA.

The **CLIMA Research Alliance** has now completed **three and a half years** since its CRC phase of funding. CLIMA is the only centre in Australia still thriving after its CRC phase. We are rapidly approaching the end of another successful year. The ability to cultivate enthusiasm is very important to our success. We need to appreciate the good things going on around us and at our workplace. We need to think positively about the future, which will lead to positive outcomes. I would like to thank you all for your valuable support and friendship throughout the year. Best wishes to you and your family for the festive season and I look forward to another positive and rewarding year.

Prof. Kadambot Siddique, Dr Janine Croser, Dr Monica Lülsdorf (collaborator from University of Saskatchewan), Ms Julia Wilson, Dr Heather Clarke and Dr Nalini Mallikarjuna (collaborator from ICRISAT) inspecting chickpea germplasm. (Picture courtesy of Eammon Conaghan, Brendon Cant and Associates)

Feature Articles

CLIMA/DAWA Pasture Species Promoted in South Africa

by Mr Neil Ballard

Neil Ballard is a member of the CLIMA **Industry Advisory Group**. This group meets formally twice a year and throughout the year provides CLIMA with the industry interaction, advice and feedback needed to ensure our research and development work support the ongoing development of the grain and pasture legume industries in Australia.

Neil and Val Ballard of **Ballard Seeds**, grow and market annual pasture legume seed. Here Neil describes for us a recent trip to South Africa:

Val and I were invited by consultant John Fair of Harrismith in South Africa to speak at two **Farmer Forums** he was arranging. John was, prior to setting up his own business, the Pasture Advisor to the Sheep and Wool Council of South Africa for many years.

The first two-day forum was at Vanderbilj Park, about 150km's south of Johannesburg and was attended by 200 farmers and consultants. One Queenslander, accompanied by 3 of his staff, travelled 1260 kms from Botswana. The second forum was at Stellenbosch near Cape Town and was attended by 185 farmers and consultants. The keynote speaker was Gary Zimmer, a biological consultant from Wisconsin USA. He was an excellent presenter with a vast knowledge of soils and soil micro flora. Both forums also featured local farmers giving presentations about their own experiences and two University Professors talking on soil micro flora. My role was to talk about the new pasture species developed by CLIMA and DAWA over the past 8 years. There was great interest in these from the participants at both forums.

Whilst in South Africa last year, I identified a number of the new species that I thought would be very useful in their system namely Yellow serradella, Biserrula, Gland clover, Crimson clover and Orion Medic. They have many of the same problems as we do here, such as sandy low fertility soils, soil acidity, and redlegged earth mites.

South Africa cont. Between the forums we were taken to the Thornybush Game Reserve near Kruger National Park. What an experience. We saw four of the Big Five! Lions, Buffaloes, Elephants and Rhinos walking around us, only missing the Leopard, but we saw Cheetahs as compensation.

Mrs Val Ballard in a medic trial near Caledon

We spent the last four days with Agricol, one of South Africa's biggest seed companies and saw a number of trials and pasture stands on farms. The visit has resulted in good seed orders from them and I hope we can cultivate the interest shown by the farmers and extend the trade in annual pasture legumes between both countries. I strongly believe there is very good potential for healthy export trade in the new pasture species to South Africa.

Chickpea Takeover in Queensland

by Dr Tanveer Khan

CLIMA and DAWA chickpea varieties are set to dominate the Central Queensland (CQ) chickpea industry. In September 2003, chickpea breeder Dr Tanveer Khan launched the new DAWA-bred desi chickpea variety 'Moti' in CQ. Moti, meaning Pearl, is an early flowering, tall and lodging resistant variety that has out-yielded the currently grown varieties in all trials conducted in the CQ region. It is expected to increase yields by 10-20% and offer more flexibility of sowing date to growers. The CQ Agronomist, Mr Kevin McCosker, believes that CQ has the potential to produce up to of 100,000 t of chickpea with the availability of suitable varieties such as Moti.

In the meantime, CLIMA kabuli lines IG-9337 and GCN 133-2, developed by Professor Kadambot Siddique and Ms Kerry Regan, are making a big impression in yield trials. Their release is being eagerly awaited to replace Macarena, which is lower yielding and prone to lodging. IG-9337 is particularly impressive in the CQ trials. It is expected that one of these two lines will be released early next year making the CQ chickpea industry dominated by the WA bred lines.

The CQ industry has many common breeding objectives with WA including a need for early flowering, cold tolerance and lodging resistance. However, CQ is free of ascochyta blight and even if it did occur it is not likely to be a significant disease due to warmer, shorter growing season sub-tropical climatic conditions. The WA bred chickpea lines are now favourites in the quest for further improvements in CQ. CQ also provides an outlet for those breeding lines that ergonomically fulfil the breeding program's criteria from an agronomic viewpoint but lack ascochyta resistance. Excellent cooperation developed between CQ and WA counterparts promises a great future for the Australian chickpea industry.

Dr Tanveer Khan in a plot of new desi variety Moti

Lucerne growers awarded for managing salinity

by Ms Sharon Dawson

Western Australian Lucerne Growers (WALG) was recognised for its achievements and impact at the recent **State Landcare Awards** with the Natural Resource Management Council's **"Salinity Management Award"**. Coordinated by CLIMA staff member Sharon Dawson in Katanning, the group is a state-wide farmer network promoting research into sustainable farming systems, and supporting new growers to adopt lucerne.

Formed in 1996, WALG is managed by a Committee of 'champion' growers and research partners located across the wheatbelt between Calingiri and Jerramungup. WALG has been a focal point for innovative research into the performance of lucerne-based 'high water-use' farming systems. WALG also supports regional grower groups and over 500 individual producers have participated in the unique on-farm 'Assistance Package' training program in lucerne establishment and management. Concurrently, the area of lucerne in the State has grown from 5000 ha to 150 000 ha (1% of the agricultural area).

In his acceptance speech, WALG Chairman and Dumbleyung farmer Jeff Patterson paid tribute to funding bodies, the Grains Research & Development Corporation (GRDC) and Natural Heritage Trust (NHT), and research partners and staff with the Department of Agriculture, CLIMA, CSIRO and South Australian Research & Development Institute.

*State Landcare Award Winners associated with WALG and lucerne growing were (left to right): lucerne growers **Diana & John Pickford** and **Ron Watkins; Elizabeth Tierney**, Shire of Victoria Plains where WALG has assisted growers with incentive grants to establish lucerne; WALG Chairman **Jeff Patterson** stands beside **Carolyn Daniel** who has long promoted lucerne in the Jerramungup region; lucerne grower **Peter Coffey; Laurie Walter** of the Fitzgerald River Catchment Group (Landcare Catchment Award) who also received WALG grants to establish lucerne. (Picture courtesy of Peter Maloney, DAWA)*

CLIMA Extension

CLIMA Forum for the Annual Pasture Legume Industry

by Dr Debbie Thackray

On 19th August 2003, **CLIMA** on behalf of its **Industry Advisory Group** (IAG) hosted a Forum for the Annual Pasture Legume Industry. The meeting was convened by IAG member **Mr Neil Ballard** and was attended by 48 invited industry members and research staff. There were a number of presentations by industry representatives and research scientists and the meeting had ample opportunity for discussion and networking.

Aims of the forum:

- identify issues facing the annual pasture legume industry over the short to medium term.
- discuss limitations to the current products/ production system and devise strategies to overcome such limitations.
- inform industry members on current CLIMA/ DAWA annual pasture legume research.

Summary of outcomes of forum:

- This is an exciting industry! The developments in new species and varieties over the last 8 years or so have been excellent despite some poor seasons. We can expect some enormous productivity from the newer pasture cultivars in the next few years. We need a lot more growers and we need to see diversification into new species promoted.
- Research funds are needed to determine the increase in **productivity** from good quality pasture containing new species, over that from traditional sub-clover or natural pastures.
- Research on the contribution of deep rooting annual pasture legumes, such as biserulla, to the reduction of ground-water **recharge** and **salinity,** should be done in collaboration with the CRC for Plant Based Solutions to Dryland Salinity.

Pasture Forum cont.

- Research is needed on utilisation of pastures for **grazing** and as **fodder** by animals, and in addressing any issues arising, such as **photosensitivity** in sheep.
- There is a great need for skilled specialised **Pasture Legume Agronomists** to advise new and experienced growers on producing the best from the great diversity of species and cultivars available. Investment in variety development must be complemented by promotion of good management packages for maximum adoption.
- The workshop group has a strong preference to continue the current distribution system of **multiple licences** for new varieties. We wish to encourage the widest distribution possible of new varieties. This should be recorded and passed on to CLIMA's stakeholders and others.

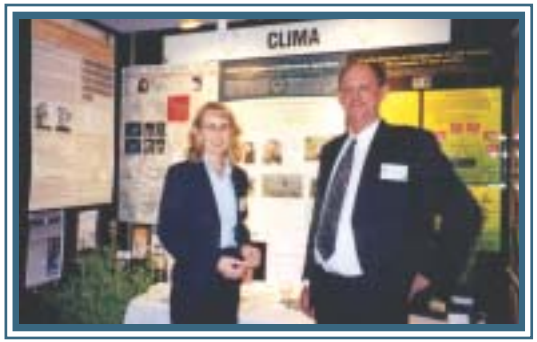
Dr Angelo Loi, Cunderdin grower Mr Rodney Rogers and Kondinin grower Mr Graeme Young inspecting Casbah biserulla at the CLIMA Pasture Forum.
(Picture courtesy of Eammon Conaghan, Brendon Cant and Associates

CLIMA 'EXPO'ses Itself

by Dr Debbie Thackray

Grains West Expo

In July, CLIMA's R&D was on show at Grains West Expo - The Inaugural West Australian Grain, Stock Feed and Oilseeds Industry Expo held at Hotel Rendezvous Observation City. All aspects of the **grain supply chain**, from farm to table were discussed in themed sessions over the 2-day event. On our stand in the display room we exhibited a range of CLIMA work including a beautiful Pearl Lupin (Lupinus mutabilis) plant with a sample of seed, examples of wild and domesticated Cicer species, pasture and pulse variety leaflets, various CLIMA publications, and posters describing CLIMA's role and function, work on cold tolerance, ascochyta resistance and genetic diversity in chickpea, gene transfer in lupin, and modifying lupin pod wall. There were plenty of enquiries about our work and we were able to put a number of participants in touch with researchers in areas of interest to them.



Mr Dale Baker (Chairman GRDCWR Panel and CLIMA IAG member) and Mrs Marie Scobie (SABC, Murdoch) by the CLIMA display at the Grains West Expo

UWA Expo

The University of Western Australia held its **annual open** day on Sunday the 31st August and CLIMA contributed to the Faculty of Natural and Agricultural Sciences exhibition. We had a varied range of CLIMA research displayed on our stand, including lupin tissue cultures, pearl lupin plants and seed, pea plants (wild and cultivated), pea weevils in a cage, wild and cultivated pea plants being assessed for pea weevil and disease resistance, wild and cultivated chickpea plants and seed, lupin seedlings with and without tolerance to herbicides effects, a range of oils from alternative oilseeds, a selection of new annual pasture legume plants, and a range of CLIMA publications and products. Of the whole exhibit, the pea weevils generated the most interest and were a good lead in to talking to people about screening for resistance, breeding methodology etc. The jelly beans went down quite well too! Thanks to Ping, Oonagh, Cameron, Susan, Teguh, Natalie, Jon and Lieve for all their help before and on the day.

Dr Debbie Thackray and Dr Lieve Bultynck on duty at the CLIMA display for the UWA Expo

AusBiotech Careers Evening

The Western Australian branch of AusBiotech held a "Careers in Biotechnology" evening for WA University students in October. Over 300 people attended, informally mixing with business and university exhibitors. This was the second year that CLIMA has displayed at this event, with Prof. Kadambot Siddique and Drs Susan Barker, Steve Wylie and Fucheng Shan in attendance.

Clima Research Publications

The following refereed journal papers and other articles have been published since the last newslettter in July, by CLIMA researchers and associates.

Abbo, S., Berger, J. and Turner, N.C. (2003). Evolution of cultivated chickpea: four bottlenecks limit diversity and constrain adaptation. *Functional Plant Biology,* **30**: 1081-1087.

Bennett, S. (2003). (Ed) New Perennial Legumes for Sustainable Agriculture. University of Western Australia Press. pp 224.

Clarke, H. and Siddique, K.H.M. (2003). Chilling tolerance in chickpea – Novel methods for crop improvement. In: 'Chickpea Research for the Millennium. Proceedings of the International Chickpea Conference 2003'. (eds. R.N. Sharma., G.K. Srivastava, A.L. Rathore., M.L. Sharma. and M.A. Khan) Indira Gandhi Agricultural University. pp. 5-13.

Diggle, A.J., Neve, P.B. and Smith, F.P. (2003). Herbicides used in combination can reduce the probability of herbicide resistance in finite weed populations. *Weed Research*, **43:** 371-382.

Edwards, O.R., Ridsdill-Smith, T.J. and Berlandier, F.A. (2003). Aphids do not avoid resistance in Australian lupin (*Lupinus angustifolius, L. luteus*) varieties. *Bulletin of Entomological Research*, **93:** 403-411.

Galloway, J. and MacLeod, W.J. (2003). *Didymella rabiei*, the teleomorph of *Ascochyta rabiei*, found on chickpea stubble in Western Australia. *Australasian Plant Pathology,* **32:** 127-128.

Galwey, N.W., Adhikari, K., Dracup, M. and Thomson, R. (2003). Agronomic potential of genetically diverse narrow-leafed lupins (*Lupinus angustifolius L.*) with restricted branching. *Australian Journal of Agricultural Research,* **54:** 649-661.

Jones, R.A.C., Coutts, B.A. and Cheng, Y. (2003). Yield limiting potential of necrotic and non-necrotic strains of *Bean yellow mosaic virus* in narrow-leafed lupin (*Lupinus angustifolius*). *Australian Journal of Agricultural Research*, **54:** 849-859.

Palta, J.A. , Turner, N.C., French, R.J. and Buirchell, B.J. (2003). Towards the improvement of drought resistance in lupin - a crop for acid sandy soils. In: Water-saving Agriculture and Sustainable Use of Water and Land Resources. (Eds). S. Kang; B. Davies; L. Shan and H. Cai. Shaanxi. Science and Technology Press pp: 93 - 102

Siddique, K.H.M. (2004). Water Deficits: Development. *Encyclopedia of Plant and Crop Science* (in press).

Wylie, S.J., Tjokrokusumo, D. and McComb, J.A. (2003). Transformation of *Petunia hybrida* by the *Agrobacterium* Suspension Drop Method. In: 'Genetic Transformation of Plants'. (eds. J.F. Jackson and H.F. Linskens) Springer-Verlag

We encourage all CLIMA staff and associates to forward **2 hard copies** of your publications to Professor Kadambot Siddique. Refereed and published journal papers, conference papers and book chapters are all of interest and will attract research income payment to CLIMA from its University partners

SEMINAR SERIES 2004

Dr Debbie Thackray is coordinating the CLIMA 2004 seminar series. Please contact her **dthackra@agric.uwa.edu.au** if you would like to volunteer yourself or nominate someone else for a 20 or 40 minute presentation.

Please remember to notify CLIMA as soon as possible if you are expecting visitors who can present in our seminar series. Your visitor is likely to be rewarded with a larger audience if their presentation is planned early enough to be incorporated into our usual fortnightly program, than if we have to arrange a special seminar at another time with only short notice.

Travel News

From Russia to the USA - Molecular Interactions in *Medicago truncatula*.

by Dr John Klingler

With the help of a Travel Top-up Award of $1,000 from **CLIMA**, I made a trip to St. Petersburg, Russia, to attend a scientific meeting, 17-25 July 2003, and then to the USA to visit two major research institutions in plant biology: the University of California at Davis, California, and the Samuel Roberts Noble Foundation in Ardmore, Oklahoma.

The XIth International Congress on Molecular Plant-Microbe Interactions

The Congress in St. Petersburg was attended by over 800 international scientists with the majority of research presentations involving legume-microbe associations. Many of these had relevance to our work on *Medicago truncatula* in Perth. I presented both a poster and a talk about our work on **aphid resistance**, entitled "Defence against phloem feeding in *Medicago truncatula*". The chance to present in both formats greatly increased our work's exposure, and the interest it generated fostered many interactions with other participants. Two posters from the Netherlands and one from France also presented work on defence against insect pests. Networking opportunities were excellent and attending a conference in a beautiful "living museum" of a city was an added bonus.

Highlights for me included a talk from Valerie Williamson, whose lab at the University of California, Davis, USA, cloned the first **aphid resistance gene** (*Mi*), in tomato, on new insights into this aphid resistance mechanism. Catherine Dogimont (INRA, France) had a poster reporting on a gene in melon, called *Vat*, believed to condition resistance to cotton-melon aphid. This is only the second aphid resistance gene to be isolated. *Vat*, like *Mi* of tomato, is a member of the CC-NBS-LRR class of plant resistance genes.

Laboratory visits in the USA

My two-day visit to the **University of California**, Davis, was with **Prof. Doug Cook** (Dept. of Plant Pathology) and **Prof. Valerie Williamson** (Dept. of Nematology). I spent a couple of hours with each, and also met several research scientists and postdoctoral fellows in each of their laboratories. I gave a research talk at a combined meeting of both groups, which generated stimulating feedback and discussion.

My visit to the **Noble Foundation** was extremely informative and worthwhile, particularly my interactions with scientists **Richard Dixon, Lloyd Sumner** and **Greg May**. This institution is a world leader in *M. truncatula* research, with an endowment of over US$700 million. I was very impressed by the scale and sophistication of their research facilities, which they are currently expanding to accommodate a major growth of their forage biotechnology group. After giving my talk, it was clear that the research interests of several people attending overlap considerably with our own in CSIRO. I felt that the information I gave on aphid resistance might have helped them as much as the visit helped our group in Perth. In addition to alerting me to the specific research areas of the scientists I met, the trip was important in that it allowed me to make personal contact with people whose previous work has made an enormous impact on *Medicago* research, and who are potential collaborators.

CLIMA Allocates $180,000 Internal Funds

by Professor Kadambot Siddique

A total of $180,000 core funds were allocated to CLIMA project activities in 2003-04 (see table on following page). This is the second year CLIMA has made such allocations to its programs. We received a large number of innovative proposals and those that were successful are listed below. The projects were judged by the Program Management Team, based on value to CLIMA research alliance, quality of science and value to the industry. Congratulations from the CLIMA Program Management Team to the successful applicants. Please remember to complete the final reports on your project and travel, using CLIMA project final report templates, when the activity is complete.

Allocation of CLIMA Internal Funds 2003-2004

GRAIN LEGUME PROGRAM	Chief Investigator	Sub-Program	Funding ($)
International collaboration to establish in vitro methods for biotechnology based chickpea breeding. Major theme : Dr Nalini Mallikarjuna's (ICRISAT) visit to CLIMA	Prof K Siddique (UWA)	GL1/GL3	4,000
Travel-International conference on water – China - October 2003	Dr J Palta (CSIRO)	GL3	1,500
Support for Dr Monika Lulsdorf (CDC, Canada) - collaborative pulse doubled haploid research at CLIMA	Dr J Croser (UWA)	GL1	7,130
Fast track seed increase of nominated species in the alternative oilseeds	Ms M Campbell (UWA)	GL4	5,000
Development of molecular markers tagging disease resistant genes in lupins using RGA	Dr Mingpei You (DAWA)	GL1	12,000
Travel - 5th European Conf/2nd Int Conf Dijon France - June 2004	Dr Ping Si (UWA)	GL1	1,000
Can improved transpiration efficiency of lupins lead to high yields?	Dr J Palta (CSIRO)	GL3	10,000
Screening of *L. mutabilis* germplasm for sources of resistance to brown spot	Mr G Thomas (DAWA)	GL2	3,725
Travel-Dijon for grain legume and *Medicago* meetings Dijon, France - June 2004	Dr G Dwyer (Murdoch)	GL1/GL2	1,000
Molecular dissection of virus resistance using *Medicago truncatula*	Prof M Jones (Murdoch)	GL2	11,930
Development of particle bombardment for improved legume transformation	Dr S Wylie (Murdoch)	GL2	4,570
Support to purchase micro satellite primers for chickpea research	Prof M Jones (Murdoch)	GL2	7,500
Vernalisation, photoperiod, and temperature in the genus *Cicer*. How far have we travelled for the wild type?	Dr J Berger (UWA)	GL3	9,000
Travel - 5th European Conf/2nd Int Conf Dijon France - June 2004	Ms Hui Phing Loo (Murdoch)	GL2	1,000
Salary top-up for writing up seven outstanding refereed research papers arising from two recent CLIMA research projects	Dr R Jones (DAWA)	GL2	8,000
Defining the influence of lupin alkaloids on the growth, feed intake and histopathology of rainbow trout	Dr B Glencross (Dept of Fisheries WA)	GL4	11,351

Allocation of CLIMA Internal Funds 2003-2004 continued

ANNUAL PASTURE LEGUME PROGRAM	Chief Investigator	Sub-Program	Funding ($)
Invitation to Dr Claudio Porqueddu at CNR, Sassari. Sept - Oct 2003	Dr A Loi (UWA)	PL1	3,100
Travel - Conference Morocco (M Bounjemate Memorial) March 2004	Prof C Francis (UWA)	PL1/PL3	2,300
Travel - 6th European Conference - Toulouse France	Mr R Yates (Murdoch)	PL1	1,350
Travel - Microarrays workshop - Sydney UNSW. Dec/Jan 2004	Mr K Ghamkhar (UWA)	PL1	1,500
Travel - 11th Asian symposium on medicinal plants. China - October 2003	Dr S Wang (CCWA)	PL4	1,640
Analysis of fodder quality and nutrient fluxes in support of the RIRDC project	Dr A Liu (DAWA)	PL2	8,000
Seed production limits sulla and purple clover as fodders	Mr P Skinner (DAWA)	PL3	10,000
Identify anti-cancer activity compounds from legumes	Dr S Wang (CCWA)	PL4	10,000
Support for germplasm collection of short season annual legume species	Mr R Snowball (DAWA)	PL1	9,500
Comparative soil water use and water extraction of recently developed annual pasture legume species	Mr D McClements (DAWA)	PL3	7,000
Near Infrared Reflectance Spectroscopy: potential for assessment of the nutritive value of legume pastures	Dr H Norman (CSIRO)	PL2	8,000
Agronomics benefits of redlegged earth mite seedling resistance in pasture legumes	Mr P Nichols (DAWA)	PL2	4,000

AN INFLUX OF CLIMA VISITORS

by Mr Bill MacLeod

The spring season is clearly the best time to visit crops/pastures and experiments in the field, whether you are visiting from across the fence or around the world. So in mid-September, CLIMA hosted visits by overseas and interstate scientists collaborating on various projects with CLIMA funded by Australian Centre for International Agricultural Research (**ACIAR**), **GRDC** and others. The international scientists, **Dr Bassam Bayaa** from ICARDA in Syria, **Drs Suresh Pande** and **Pooran Gaur** from ICRISAT in India, and **Mr Ramikrishna** Neupane from National Agricultural Research Council (NARC) in Nepal, were joined by interstate visitors **Dr Trevor Bretag** from the Victorian Department of Agriculture, and **Dr Joop van Luer** from NSW Agriculture. In addition to visiting field sites, all visitors met with collaborators from the CLIMA Research Alliance. As their visits coincided with the Field Pea Focus event (organised by Pulse Australia and DAWA), some of them took the opportunity to meet with growers and WA pulse industry groups.

The visitors collaborate in several separate ACIAR-funded projects, which aim to improve integrated management of diseases and abiotic stresses in the various pulses species, through an improved understanding of disease and also through improved resistance in new pulse varieties. Consequently, the visitors were shown trials evaluating disease management strategies and also germplasm evaluation being conducted at Medina Research Station and at various sites throughout the grainbelt.

Visitor Dr Bassam Bayaa with Bill MacLeod in narrow-leafed lupins near Mingenew.

Other visitors:

In mid-October, **Prof. Clive Francis**, Deputy Director of **CLIMA**, hosted visits from **Dr Anna Yakasheva**, of the All Russian Lupin Research Institute in Bryansk, and **Mr Sergey Shuvalov**, of the Vavilov Institute in St Petersburg. The Russian scientists visited to discuss a joint lupin project, and lupin breeding and pathology discussions with **Dr Mark Sweetingham** and **Dr Bevan Buirchell** were a major focus of their visit. Germplasm exchange with the Vavilov Institute and Bryansk has been a major benefit to the participants of the collaborative project funded both by GRDC and ACIAR.

CLIMA collaborator Dr Ken Street (ICARDA) on a plant exploration in the Pamir Mountains, Tadjkistan

CLIMA Visitors (July-December 2003)

Visitor Name	Visiting	Institution	Main Purpose of visit	Contact details & host
Ms Emilia Lorenzo	Mid-Sept '03	Florence University	Forage cover crp work	Richard Snowball, DAWA
Dr Bassam Bayaa	Mid-Sept '03	ICARDA, Syria	Visiting ACIAR projects	Bill MacLeod, Kambot Siddique, CLIMA/DAWA
Dr Joop Van Leur	14 -16 Sept '03	NSW Agriculture	Visiting ACIAR projects	Bill MacLeod, CLIMA/DAWA
Dr Suresh Pande	14 -16 Sept '03	ICRISAT India	Visiting ACIAR projects	Bill MacLeod Kambot Siddique, CLIMA/DAWA
Dr Pooran Gaur	14 -19 Sept '03	ICRISAT India	Visit chickpea breeding activities	Bill MacLeod, Kambot Siddique, CLIMA/DAWA
Dr Trevor Bretag	14 -19 Sept '03	VIDA, Victoria	Field Pea Focus and discussion with researchers	Bill MacLeod, CLIMA/DAWA
Mr Tony Leonforte	Sept '03	VIDA, Victoria	Field Pea Focus and discuss pulse breeding	Tanveer Khan, Bill MacLeod, CLIMA/DAWA
Mr Neapane	3 Oct '03	Nepal	Discussions	Clive Francis, CLIMA
Mr Michael Materne	13 - 20 Oct '03	Victoria VIDA	Visit Lentil and Chickpea trials	Kerry Regan, DAWA
Mr Sergey Shuvalov	13 - 20 Oct '03	Vavilov Institute, St Petersburg	Lupin Research Collaboration	Clive Francis, CLIMA
Dr Anna Yakusheva	3 Oct '03	All Russian Lupin Research Institute,	Lupin Research Collaboration	Clive Francis, CLIMA
Kristy Hobson	17 Oct - 7 Nov '03	Victoria VIDA	Check Lentil and Chickpea trials	Kerry Regan, DAWA
Dr Nalini Mallikarjuna	21 Oct - 21 Dec '03	ICRISAT, India	Discussions with collaborators	Heather Clarke, Kambot Siddique, CLIMA
Dr Monika Lülsdorf	24 Oct '03	University of Saskatchewan, Canada	Work with Double Haploid pulse program	Janine Croser, CLIMA
Dr Maqbool Ahmad	24 Oct '03	SARDI	Inspect pea breeding trials	Tanveer Khan, DAWA
Rebecca Ford	20 - 21 Nov '03	Uni Melbourne, Vic	Seminar and discussion with researchers	Susan Barker UWA , Janine Croser CLIMA
Dr Phil Davies	27 - 29 Oct '03	SARDI	Discussions with collaborators	Janine Croser, CLIMA
Dr Archana Sachdev	12 Oct '03 - 10 Jan '04	Indian Agricultural Res. Institute, New Delhi	Training in tissue culture (chickpea transformation), and molecular biology	Craig Atkins and Kadambot Siddique, UWA/CLIMA

New Appointments

A CLIMA GRDC-funded project (UWA 00038) "Genetic dissection of fungal disease resistance in legumes using Medicago truncatula", supervised by Dr Karam Singh and Prof. Richard Oliver has seen 4 appointments since November 2002:

Ms Stephanie Whitehand

Stephanie joined CLIMA in November 2002 and is a Technician based at CSIRO. Stephanie has a BSc in horticulture from UWA as well as 16 months experience working with Biosciences. Stephanie has solid molecular biology skills and excellent knowledge and experience in plant preparation and maintenance as well as with plant tissue culture, which will help with the generation of transgenic M.truncatula.

Mr Jonathan Anderson

In February 2003, Jonathan commenced with CLIMA as a Post Doctoral Fellow, based at CSIRO. Jonathan did his PhD in Dr John Manner's group at the University of Queensland and his thesis is entitled 'Genes regulating systemic signalling of defence in Arabidopsis'. Jonathan has broad knowledge of and experience in necrotrophic fungal/plant interactions and has been involved in the isolation of genes induced in Arabidopsis following fungal infection using microarrays and the subsequent characterization of some of these genes.

Mr Theo Pfaff

Theo has been appointed at Murdoch University as a Postdoctoral Fellow. Theo did his Ph.D. on "Development of molecular markers for genome and plant-pathogen analysis in chickpea (Cicer arietinum L.)" with Professor Dr. Guenter Kahl at the Johann Wolfgang Goethe University of Frankfurt/Main, Germany.

Ms Judith Lichtenzveig

Judith joined CLIMA in July as a Research Associate based at Murdoch University. Judith did her PhD research with Dr. Shahal Abbo and Prof. Dan Shtienberg at the Hebrew University of Jerusalem, Israel, on "Genetic and epidemiological aspects of the chickpea (Cicer arietinum) resistance to Didymella rabiei".

Other New Appointments

Mr Max Karopoulos

Max joined CLIMA in August as a Research Assistant with Dr Ping Si. Max is working part time on a GRDC-funded project (UWA 00042) to improve lupin tolerance to Metribuzin and to develop germplasm with tolerance to the new herbicides Balance and Affinity. Max obtained his BSc Hons Degree at Murdoch University in 1999 and has since then been working for the Department of Agriculture as a technical officer in the cereal quality laboratory.

Ms Julia Wilson

Julia started at CLIMA in September, as a Research Assistant working with Dr Janine Croser on a GRDC-funded project (UWA 00035) dealing with doubled haploid research in chickpea and field pea. Julia is nearing completion of her Ph.D. thesis on "In Vitro Propagation of Australian Seagrasses for Restoration" through Edith Cowan University.

You can read a little more about all these appointments in our "New Faces" occasional announcements available from
Debbie Thackray
dthackra@agric.uwa.edu.au.

Baby News

We now have a photo of Susan Barker and Ben's latest addition to the family - Tamsyn (at 4 months old), born 13 May 2003.

What's new on the CLIMA Website

- **Press releases since last newsletter** (go to "news" page and then "press releases" in left-hand margin): Muscling up legumes; Finding family friends among wild relatives; South American and West Australians not Poles apart; Researchers call for animal support; Importing resistance; Biotech breakthrough to boost bucks.
- **Updated Seminar list** (go to "news" page and then "seminar series" in left-hand margin).
- **CLIMA Biennial Report:** updated with a report on the Transgenic Pulse Project (pages 31-32) and minor revisions (go to "home" page).
- **New links to:**

  Pulse Australia
  http://www.pulseaus.com.au

  CRC for Plant-Based Management of Dryland Salinity -
  http://www.crcsalinity.com.au

Newsletter Credits

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Volume 4, Number 3 - December 2003

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