INDUSTRY GEARS UP FOR FIELD PEA BOOM

by Mr Ian Pritchard

Western Australia is on the verge of a dramatic increase in the production of field peas, mainly due to grower enthusiasm, robust management packages and new higher yielding varieties.

One variety, Kaspa, has attracted the most attention from growers (see “Now is the time for peas” article in CLIMA Newsletter August 2004). A dun type, semi-leafless, upright field pea it has improved standing ability for harvest compared to the trailing types such as Dundale. It can be harvested above ground level even where it has lodged. This is because most pods are formed near the top of the plant.

It is anticipated that Kaspa will account for 25 per cent of the State’s field pea crop in 2005 and cover a production area of 25,000 hectares. In 2006, Kaspa could be growing on well over 200,000 hectares. Much of this increase is expected to occur in the central and southern regions of Western Australia.

Industry support is also backing the increase in field pea production. This year saw the Grain Pool of WA’s first bulk shipment of field peas from the Albany port, which led to the removal of the price differential between the Albany and Fremantle port zones. The Cooperative Bulk Handling (CBH) board recently approved a $100 million dollar proposal to upgrade the Albany port terminal. This will include the construction of ten 6,000 tonne storage cells to allow the accumulation of grain such as field peas by CBH receival services for shipping.

With the potential domination of Kaspa in the WA field pea crop by 2006, Kaspa’s quality and splitting results obtained by DAWA and Premium Grain Handlers would be used with micro-samples of the current harvest by AgroCorp, to gauge the market’s response to Kaspa.

Dr Peter White (DAWA) and Mr John Orr (Premium Grain Handlers) discuss the results of splitting trials
FROM THE DIRECTOR

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

We are approaching the end of another busy and rewarding year for CLIMA. Recently Mr Geoff Smith (CEO, COGGO), Dr Mark Sweetingham (DAWA) and I travelled to ICRISAT, India and signed a major research agreement between CLIMA, ICRISAT and COGGO on a joint project entitled “Accelerated genetic improvement of desi chickpea”. The project is funded by COGGO with significant support from DAWA and UWA (see details in this newsletter). CLIMA’s international reputation has helped us to successfully reach the agreement with ICRISAT.

In November Prof. Clive Francis, CLIMA’s Deputy Director travelled to ICARDA participated in a planning meeting between ICARDA, Iraq and Australia regarding an ACIAR funded project. CLIMA will be a significant player in this project on legume research and training of Iraqi scientists in Australia.

CLIMA’s Industry Advisory Group (IAG) met on 22 October and provided significant input in identifying grain and pasture legume industry needs and future R&D drivers. At the meeting, the Chairman Mr Trevor Flugge stressed the importance of innovation in research and researchers focusing on industry needs. Mr Flugge and the other IAG members conveyed their appreciation and strong support of CLIMA research during their visit to UWA research facilities and interaction with CLIMA researchers after the meeting.

CLIMA Governing Board will meet on 3 December and a major item for discussion will be strategic issues for Lupin R&D and funding. The Board will also discuss future directions for CLIMA biotechnology research and CLIMA’s position in relation to the proposed Integrated Agricultural Research Institute in WA.

Dr Tanveer Khan, Principal Pulse Breeder (DAWA) has recently joined CLIMA’s Program Management Team. Dr Khan replaced Dr Bevan Buirchell as leader of the Germplasm Development Sub-program of CLIMA’s Grain Legume Program. Dr Buirchell will continue research activities and leadership on a number of lupin projects at CLIMA. I am grateful to Dr Buirchell for his support and sub-program leadership over the past three and half years at CLIMA.

Recently, CLIMA’s Program Management Team allocated a total of $120,000 core funds towards small projects and travel support (2004-05) to successful applicants from the CLIMA Research Alliance.

In November, CLIMA researchers responded to GRDC with three tenders for legume research priorities (2005-06). GRDC has also invited us to directly negotiate several current projects for potential funding. We have also submitted a large ARC Linkage grant application with industry support from COGGO and DAWA. We hope that a number of projects will be funded in the New Year as a result of these applications. ARC has just announced their second round of funding and we were successful with our ARC-Linkage project on “Predictive Models & Decision Support Systems for Virus Diseases and Aphid Vectors of Lupin and Canola”.

Several of our scientists participated and presented papers at the International Symposium on Plant Adaptation to Water Stress in Perth and at the 4th International Crop Science Congress in Brisbane during September-October 2004. CLIMA researchers also presented their work at various field days including the Chickpea Update at Dongara and at the Dowerin Field Day, both in September.

We had several national and international visitors to the Centre during the September – October period (see details in the newsletter). Dr Debbie Thackray successfully organised the CLIMA seminar series for 2004 and a total of 44 presentations will have been made by the end of the year. We are now planning the 2005 seminar series and I request you to contact Dr Debbie Thackray (dthackra@agric.uwa.edu.au) with your ideas and suggestions.

CLIMA’s research outcomes and news items were communicated throughout 2004 to the public and the industry through a series of press releases with excellent support from Brendon Cant and Associates.

I would like to thank you all for the outstanding support and friendship throughout the year. Best wishes for the festive season and I look forward to another challenging and productive year ahead.
FEATURE ARTICLES

HOMECOMING FOR ALBUS LUPIN  by Mr Mike Perry

The new Albus variety growing at Avondale

Albus lupin has ‘come home’ to Mingenew after seven years in the wilderness. The once promising albus lupin industry came to an end in 1996 when an outbreak of anthracnose disease devastated lupin crops.

Resistance in narrow-leafed lupin varieties proved relatively easy to find and varieties such as Kalya and Tanjil have allowed this industry to escape the effects of the disease. But the albus industry was based on only one variety - Kiev Mutant – and this proved highly susceptible to the anthracnose disease.

Now, through a joint investment by COGGO (Council of Grain Grower Organisations) and DAWA, the first resistant albus lupin variety is about to be released. The line, identified as WALAB2000 is a selection from a cross made in 1997 by DAWA/CLIMA lupin breeder Dr Bevan Buirchell between an anthracnose resistant line from Ethiopia P27175 and the well adapted, but highly susceptible line 89B104A-14, derived from Kiev Mutant.

The line was selected by lupin breeders Drs Bevan Buirchell and Kedar Adhikari through a combination of glasshouse and field screening under severe disease pressure, and seed has been increased through both summer and winter plantings.

WALAB2000 is slightly later in maturity, but otherwise similar to Kiev except for its resistance to anthracnose, which is equivalent to that of Kalya narrow-leafed lupin. This should allow successful large-scale albus lupin production to re-start in the medium to low rainfall areas east of a line from Nabawa to Mingenew to Carnamah.

Higher levels of resistance – present in breeding lines further back in the breeding program – will be required if albus lupin is to be grown in wetter coastal areas and the Chapman Valley.

COGGO Chief Executive Officer Mr Geoff Smith said that under the agreement with DAWA, COGGO members were being used to produce pedigree seed. A final decision to name and release the line will be made following harvest in 2004.

Pulse researchers Dr Moin Salam, Ms Jean Galloway and Mr Mark Seymour and grower group members for PASE (Pulse Association of the South East) were recently awarded the Northam District Award for Excellence in recognition of the work they have done in the development of the blackspot disease Models: “Blackspot Appraisal” and “Blackspot Manager”.

These models predict the onset of the maturation process for Mycosphaerella pinodes and the peak ascospore shower period in different regions. This information is then used to run the “Blackspot Manager” model that shows spore dispersal over the farming area around Scaddan and predicts how severe the disease will be by the end of the growing season. This model has been validated in conjunction with the PASE group in the Scaddan area for the past 3 seasons by sampling the actual disease present and comparing it with the predicted levels of disease.

This work was funded by GRDC.

Ms Jean Galloway and Dr Moin Salam validating the “Blackspot Manager” model at Scaddan.
LEGUME ROTATIONS DETER NEMATODES

by Dr Vivien Vanstone

Coinciding with the release of the new field pea variety Kaspa, growers and advisers are being reminded of the additional rotational benefit of pulses in managing Root Lesion Nematodes (RLN).

Pratylenchus neglectus is the predominant species of RLN in WA, occurring in at least 40% of cropping paddocks, where it causes annual yield losses to cereals of around 10-15%. However, these losses often go unrecognised, as RLN do not cause distinctive above-ground crop symptoms. The damage can only be seen upon careful examination of the root systems, and even then, laboratory diagnosis of the RLN species and levels present is required.

Field pea is resistant to P. neglectus, and can play an important role in lowering soil nematode populations, thereby reducing damage to future cereal crops. Rotations are the key to management of RLN. No chemical treatments are available or economic for broadacre use.

In addition to field pea, faba bean, lentil and lupin are resistant to P. neglectus. Many varieties of wheat, chickpea and canola are susceptible, while barley and oats are moderate hosts.

The resistance of field pea to P. neglectus was demonstrated in DAWA trials sampled at Muresk, Scaddan, Borden and Lake King in 2003. P. neglectus did not multiply on any of the varieties tested. The RLN levels actually decreased during the growing season. Although nematode levels were initially high at sowing (up to 10/g dry soil), growing field pea resulted in less than one nematode per gram of soil by September. The trials at Muresk and Borden have been over-sown in 2004 with wheat and barley varieties to monitor changes in nematode levels due to cereal cropping following the resistant field pea phase.

RLN (stained pink) feed and lay eggs in the roots of susceptible crop plant.

Although rotation with resistant crops is the principal means of managing RLN, resistance to one RLN species does not necessarily confer resistance to all. In a trial sampled at Mt Barker in 2003, the RLN species P. penetrans was identified. Although field pea is resistant to P. neglectus, P. penetrans was able to multiply on the eight field pea varieties assessed, indicating that they were at least moderately susceptible. P. penetrans is detected infrequently in cropping areas, but severe root damage has been observed on cereals at several locations. Field pea may be a less suitable RLN break crop where P. penetrans occurs at moderate to high levels. Further investigations are underway into the host range for this RLN species so that appropriate rotational crops can be determined.

Pulse crops also play a vital role in the management of Cereal Cyst Nematode (CCN). Unlike RLN, CCN can only multiply on grasses (cereals and grassy weeds, particularly wild oat). Non-cereal crops with good grass-weed control therefore act as an effective disease break. However, in cases of severe CCN infestation, a break of at least two years is required to reduce nematode levels enough to protect a susceptible cereal crop.

This work is funded by GRDC.

NEW DESI CHICKPEAS RELEASED

by Dr Tanveer Khan

The Hon. Minister for Agriculture, Forestry and Fisheries Kim Chance released two new desi chickpea varieties Sonali and Rupali at the Chickpea Update held at Dongara on 10th September 2004.

The varieties were jointly bred by Dr Tanveer Khan of DAWA and Dr Heather Clarke of UWA. They are chilling tolerant and partially resistant to ascochyta. Sonali is a high yielding variety under short season environment of the grainbelt whereas Rupali with its attractive seed coat colour will be a much sought after product in the market place.

The names chosen are in Hindi, the most widely understood language in the Subcontinent, to appeal to the target markets. Sonali means “fair maiden” and Rupali “beautiful maiden”.

Ascochyta blight devastated the chickpea industry of Western Australia and release of these partially resistant and chilling tolerant varieties is eagerly awaited by growers where desi chickpea traditionally grew and where there are few grain legume options. New varieties requiring fewer fungicide sprays are expected to kick start the chickpea industry again with promise of more resistant and higher yielding varieties to be released from the DAWA/CLIMA chickpea breeding program in the not too distant future.
NEW COLLABORATIVE CHICKPEA PROJECT FINALISED

by Dr Mark Sweetingham and Prof. Kadambot Siddique

The University of Western Australia (UWA) and the Department of Agriculture Western Australia (DAWA) through the CLIMA alliance have developed a new desi chickpea breeding project for Western Australia. This is in collaboration with the International Crops Research Institute for the Semi Arid Tropics (ICRISAT), with significant funding from the Council of Grain Grower Organisations (COGGO).

ICRISAT is the most important genetic enhancement centre for desi chickpea in the world. Germplasm from ICRISAT and other institutions in India have played a key role in chickpea variety development in Australia. Heera and Sona were direct selections from ICRISAT material and many other varieties such as Barwon, Norwin, Jimbour and Moti have ICRISAT lines in their pedigree.

In early October Mr Geoff Smith (COGGO), Dr Mark Sweetingham (DAWA/CLIMA) and Prof. Kadambot Siddique (UWA/CLIMA) visited ICRISAT to finalise the desi chickpea improvement project specifications. They also met with ICRISAT staff and examined the facilities with a view to leveraging further research collaboration.

A five year project specification was signed in which most pre-breeding will take place at ICRISAT - allowing accelerated selection of adapted, high yielding and disease resistant varieties for the WA grain-belt. The project will also make use of the elite ICRISAT breeding lines and germplasm that pyramids multiple sources of resistance to ascochyta and other fungal diseases. ICRISAT will benefit from access to a pollen selection technique developed at CLIMA to generate breeding material for chilling tolerance and earliness. The project activities will commence in January 2005.

Other potential collaborative opportunities discussed included:

- development of budworm resistant chickpea using the BT gene or sources from wild relatives of chickpea;
- the use of pigeon pea as a vigorous summer growing forage legume to reduce water tables;
- novel biological control approaches which elicit natural defence mechanisms in chickpea against fungal pathogens;
- involvement of commercial skills at DAWA to enhance large scale seed multiplication of ICRISAT germplasm for global distribution.

It was also agreed that CLIMA and ICRISAT will work to develop a postgraduate / post doctoral Fellowship exchange program, particularly in the areas of plant pathology, crop physiology, breeding and biotechnology.

2ND AUSTRALIAN MODEL LEGUME WORKSHOP

“Application to Crop and Pasture Improvement”

5th-8th April 2005 at Rottnest Island, Perth, Western Australia

This workshop will bring together leading legume researchers from around the world, who are developing tools and knowledge using the models Medicago truncatula and Lotus japonicus, and plant breeders, pathologists and agronomists who focus on the many legume crops and pastures important in agriculture. Sessions will include: comparative genomics, bioinformatics, symbioses and biotic/abiotic stresses.

Contact:

**Anthea Solomon**, ACNFP, Murdoch University, WA 6150.
**Tel** +61 8 9360 7239/7404; **Fax** +618 9 9360 6303;
**E-mail** medicago@murdoch.edu.au

**Early Bird Registration** ......................... 1st December 2004
**Final Registration** .......................... 15th January 2005

Full delegate (late) ................................ $450 ($600)
Student delegate (late) .......................... $280 ($300)
Day Registration ................................. $150
**ANTHRACNOSE RESISTANCE IN YELLOW LUPIN**

by Dr Kedar Adhikari

Anthracnose occurred in epidemic form in 1995/96 and severely affected the lupin industry in Western Australia. Subsequent studies led to the identification of a good source of resistance to the disease in albus and narrow-leafed lupins, but the information on resistance was sketchy in yellow lupins.

Preliminary studies in New Zealand co-ordinated by CLIMA indicated a few lines of yellow lupin with some resistance to the disease. Crosses were made with the putative resistant lines in 1997 and the quest for other sources of resistance continued with GRDC funding.

Finally a moderate level of resistance to the disease has been detected in our breeding program. Lines derived from crosses made in 1997 involving a Hungarian parent Gyulatanyai have shown resistance to the disease when tested in an anthracnose nursery at Medina. This level of resistance should allow the production of yellow lupin in low to medium rainfall areas.

Another source of resistance has also been found in recently introduced germplasm from the Russian Lupin Research Institute, Bryansk, Russia. Prior to that, some level of resistance was detected in a Portuguese landrace introduced from USDA.

With the discovery of three putative sources of resistance, the development of anthracnose resistant yellow lupin should not be far away. Given that yellow lupins tolerate transient water logging conditions, this should pave the way for developing anthracnose-resistant yellow lupin varieties for transient water logged areas of the south coast, which do not currently have a suitable legume choice.

**PULSE AND ANNUAL PASTURE VIRUSES FOUND LURKING IN LUCERNE**

by Adj Prof Roger Jones

Widespread sowing of lucerne to combat dryland salinity will provide a continuous ‘green bridge’ for legume pests and diseases to survive in over summer. Some may not previously have been found at damaging levels in the Western Australian grainbelt because they are not seed-borne and therefore need herbaceous plant material to survive the dry summer conditions. These pests and diseases not only cause losses in production of lucerne itself but also can spread from it to nearby crops of edible pulses and lupins, and to annual pastures.

In a GRDC funded survey of three-year-old lucerne pastures in the WA grainbelt in 2001, 30/31 pastures sampled were found infected with alfalfa mosaic virus, with more than 50% infection within 20 of them.

Infection with luteoviruses was also detected, in 11/31 pastures sampled. Of the three found, bean leaf roll, the most damaging for pulses, has not been detected before in WA, and its presence is cause for concern for pulse growers. Subterranean clover red leaf has previously only been found in the state in perennial white clover pastures in the Harvey irrigation area. Infection of lucerne with beet western yellows virus was not unexpected as it has a wide host range, and already commonly infects wild radish, and canola and pulse crops in the region.

Because they are persistently transmitted by aphids, spread of luteoviruses within pastures can be suppressed by application of pyrethroid insecticides, which have rapid knockdown and persistent anti-feeding properties. Pyrethroid insecticides are also effective at suppressing spread of non-persistently aphid-borne viruses like alfalfa mosaic within pasture swards but not in crops.

Sowing of untested lucerne seed also risks inadvertently introducing seed-borne diseases. Initial tests have revealed that seed-borne virus contamination is high in lucerne seed stocks. Testing of lucerne seed to be sown on farm is therefore recommended to ensure that healthy seed with < 0.1% infection is sown. This can be done through AGWEST Plant Laboratories agwestplantlabs@agric.wa.gov.au
CLIMA EXTENSION

EXCITING DEVELOPMENTS IN CHICKPEAS SHOWCASED AT DONGARA

by Mr Marty Harries

On the 10th of September at the Chickpea Update at Dongara, two new varieties of desi chickpea were released with increased resistance to Ascochyta. Growers were also updated on the latest progress with the Ascochyta resistant kabuli lines set for release next year.

The day started with the official release by Agriculture Minister Kim Chance of the desi lines WACPEA2075 and WACPE2095 as Sonali and Rupali respectively. These new varieties offer the first opportunity to re-enter production for those growers who had given up chickpea due to Ascochyta disease problems in 1999. Progress on kabuli chickpea was also a focus with a very positive update on the performance of lines nearing release, matched by fantastic looking seed production crops.

Key growers including Ivan Wilton, Chris Gillam and Kim Maddock all emphatically supported the research, voicing concerns about the lack of rotational options on heavy soils as a major production constraint. Industry representatives from AWB Ltd and the Council of Grain Growers Organisation (COGGO) were also on hand to lead discussions on seed production issues, while marketing specialist John Orr from Premium Grain Handlers provided information on end-use and marketing opportunities.

A field tour in the afternoon looked at a wide range of crops and trials. COGGO bulk production of the kabuli lines CLIMAS FLIP97-537D and 530 was impressive, with plants podding profusely. A DAWA trial site north of Dongara included disease management of both chickpea and faba beans. At this site, less disease was evident than anticipated, a good sign that the new kabuli germplasm is able to withstand Ascochyta well, with only one or two fungicide applications necessary per year. At Chris Gillam’s farm, a chickpea variety trial showed the true differences between varieties such as Kaniva and new lines. Kaniva was heavily diseased, but germplasm alongside showed little if any disease symptoms.

The day wound down with a few drinks and positive discussion on the rapid advances towards the development of robust legumes for heavy soils. The forum, jointly organised by CLIMA and DAWA, was a great success and an opportunity to increase awareness amongst growers and industry partners of the rapid developments in varieties and management that are being made.

GRAIN LEGUME CROP UPDATE BOOK 2005

You are invited to contribute to a booklet summarising the results of any grain legume research and development conducted in Western Australia during 2004. The Grain Legume Productivity Project at DAWA is producing it. Ideally, the book will summarise all the major research and extension work carried out in this area in WA, including work done by DAWA, Universities, other institutes and private companies. This will be distributed at the 2004 Agribusiness Crop Updates being held at the Sheraton Hotel in Perth on Wednesday 16 and Thursday 17 February 2005.

If you would like to contribute, please send a brief summary (not exceeding 2 pages) of your work to Ms Amelia McLarty (e-mail: amclarty@agric.wa.gov.au) before Friday 21 January 2005.

Further details:
Ms Amelia McLarty, Phone: 9671 1322
Ms Kerry Regan, Phone: 9368 3515
CLIMA’s Industry Advisory Group (IAG) met at the University of Western Australia (UWA) on 22nd October, to review grain and pasture legume industry needs and discuss CLIMA’s input into present and future grain and annual pasture legume R&D. After the meeting, members took a tour of some of UWA’s research facilities where a number of CLIMA researchers described project work being done there. Future meetings, which occur twice a year, will follow a similar format, but will be held in turn at CLIMA’s other alliance partner organizations, Murdoch University, CSIRO and DAWA.

The topics discussed during the UWA visit were:

- The Transgenic Pulse Development Project. (GRDC Project: UWA 309)
- Genetic dissection of fungal disease resistance in legumes using Medicago truncatula. (GRDC Project: UWA 00038)
- Incorporation of pea weevil resistance from wild pea into cultivar field pea. (GRDC Project: UWA 314)
- Improving lupin tolerance to herbicides. (GRDC Project: UWA 00042)
- Improving the utilisation of germplasm of Trifolium spumosum L. by the development of a core collection using ecogeographical and molecular data. (GRDC Project: UWA 00005)
- Chickpea improvement: two new desi varieties with chilling tolerance and a new international collaboration to cross chickpea with its wild relatives. (GRDC Projects: UWA 354 and 00036)
- Characterization and evaluation of wild Cicer genetic resources to accelerate chickpea improvement in Australia. (GRDC PDF 38)
- An international collaboration to develop robust protocols for doubled haploid development in chickpea and field pea. (GRDC Project: UWA 00035)
- Selection and pre-breeding for lower seed coat and pod wall proportion in narrow-leafed lupin. (GRDC Project: UWA 0009)
- Preliminary breeding and selection of pearl lupin, a new crop for Australian agriculture. (GRDC Project: UWA 0043)

WHAT’S NEW ON THE CLIMA WEB SITE

www.clima.uwa.edu.au

- A new look! Our website has been moved onto a new server and has a new home page and layout. We hope you find it easier to navigate and to find what you want. During 2005, we will be reviewing each section and updating where necessary. Meanwhile, any feedback is welcomed.
- Press releases since the last newsletter (click on “news” and then “press releases” in left-hand margin):
  - “CLIMA and ICARDA dream team” (August)
  - “Rocky Times for Genetic Cradle” (September)
  - “Full of Beans” (October)
  - “Give Peas a Chance” (November)

MEETINGS DIARY

2004 Agribusiness Crop Updates, Perth, Western Australia
16-17 February 2005

2nd Australian Medicago Model Legume Workshop, Rottnest, Western Australia
5-8th April 2005
e-mail: Medicago@murdoch.edu.au

International Edible Legume Conference, Durban, South Africa
17-21 April, 2005
http://www.up.ac.za/conferences/ielc

11th International Lupin Conference, Guadalajara, Mexico
4-9 May, 2005
http://www.cucba.udg.mx/eventos/lupinus/lupinus.html

Plant Tissue Culture, Perth, WA
A meeting of the Australian Branch of the International Plant Tissue Culture Association
21 - 24 September, 2005
e-mail: hclarke@cyllene.uwa.edu.au
RECENT CLIMA RESEARCH PUBLICATIONS

Since the August newsletter, we have been notified of the following publications by CLIMA researchers and associates. The 2003 publications list is on the CLIMA website: www.clima.uwa.edu.au

We encourage all CLIMA staff and associates to forward 2 hard copies of your publications to Prof. Kadambot Siddique. Journal papers, refereed conference papers and book chapters attract considerable research income payment to CLIMA from its University partners.

Scientific Journals


Galloway, J., MacLeod, W.J. and Lindbeck, K.D. (2004). Disease Notes or New Records: Formation of Didymella lentis, the teleomorph of Ascochyta lentis, on lentil stubble in the field in Victoria and Western Australia. Australasian Plant Pathology, **33**: 449-450.


Review Articles, Books and Book Chapters


Conference papers


It’s Dr Ghamkar!

Congratulations to CLIMA researcher Dr Kioumars Ghamkar who received his PhD on 8th October 2004 at a ceremony at the University of New England, Botanic Gardens Trust in Sydney. Kioumars was supervised by Associate Prof. Jeremy Bruhl (UNE), Adjunct Prof. Karen Wilson (BGT) and Dr Adam Marchant (BGT) and his thesis title was Phylogenetic relationships of Abildgaardieae (Cyperaceae) inferred from chloroplast and nuclear DNA sequences and pollen data.

Kioumars joined CLIMA in June 2003, as a Research Associate on a GRDC - funded project (UWA 00005) with Dr Sarita Bennett and Mr Richard Snowball. He is developing a core collection of bladder clover (T. spumosum) using ecogeographical and molecular techniques, with the aim of increasing the utilisation of pasture germplasm through the development of core collections which represent the wide-spectrum of larger collections.

Stop-press

HARD WORK REWARDED

Dr Ping Si, a CLIMA researcher based at UWA, has recently been promoted from her current position as Research Associate to Research Fellow.

Congratulations to Ping on her promotion and best wishes for her continued success.

VISITORS AND TRAVEL NEWS

ACIAR COLLABORATORS VISIT FROM BANGLADESH by Mr Bill MacLeod

CLIMA recently hosted two visiting scientists from Bangladesh Agricultural Research Institute (BARI) as part of the scientific exchange supported by the ACIAR funded project “Integrated management of Botrytis grey mould in Bangladesh and Australia”. This project is a collaborative project run by CLIMA which involves scientists from BARI, ICRISAT in India, New South Wales Agriculture, University of Melbourne and Department of Primary Industries Victoria.

Mr Nur Alam Mondal arrived in late August and spent 3 weeks with CLIMA and DAWA staff to gain an understanding of the role played by pulses in farming systems in WA and the potential for pulse production. He also attended the launch of the new desi chickpea varieties, Sonali and Rupali, at Dongara and the associated field day. Mr Mondal is a senior scientist with BARI in the On Farm Research Division at Faridpur and has particular interests in agronomy and extension activities.

Dr Abu Bakr is the Program Leader of the Pulses Research Centre within BARI. He is a Principal Scientific Officer with an extensive research background in integrated management of diseases of pulses. Dr Bakr met with project staff in WA and also visited pulse trial sites in the central agricultural region.

Dr Bakr and Mr Mondal travelled with CLIMA associates Mr Bill MacLeod and Ms Jean Galloway to meet with ACIAR project collaborators in eastern Australia, including Dr Paul Taylor’s group at the University of Melbourne, Dr Trevor Bretag and co-workers at DPI Vic. at Horsham and Mr Ted Knights and colleagues at NSW Agriculture at Tamworth. While at Horsham the BARI scientists participated in a workshop on Botrytis diseases of pulses which was attended by pulse pathologists from WA, SA, Victoria, NSW and Queensland.

In the final week of their visit to Australia, Dr Bakr and Mr Mondal, in company with the Project Leader, Prof. Kadambot Siddique, attended the International Crop Science Congress in Brisbane, at which they presented a poster paper outlining the progress made by the project.
THE ITALIAN CONNECTION

Associate Professor Andrea Pardini
is a Visiting Scientist at CLIMA and the CRC for Plant-Based Management of Dryland Salinity from September 2004 to February 2005. Assoc. Prof. Pardini is with the Department of Agronomy and Land Management at the University of Florence in Italy and a frequent visitor to CLIMA. On this occasion he is on sabbatical leave from the University.

Assoc. Prof. Pardini’s primary interests are in pastures and pasture management and the majority of his time will be spent working with the Salinity CRC, but there is growing interest in Italy in traditional crops, of which chickpea is one. During his time with CLIMA, He will work with the chickpea team at CSIRO, Adj. Prof. Neil Turner, Dr Jens Berger and Dr Patrizia Gremigni and will conduct an experiment to determine the role of pod photosynthesis during seed development on seed filling and seed size.

Assoc. Prof. Pardini has sent two students, Miss Alessio Maoggi in 2003 and Miss Valentina Pratesi in 2004, to gain research experience with Adj. Prof. Neil Turner and Dr Patrizia Gremigni for 3 months as part of their ‘honours’ year.

Miss Valentina Pratesi is visiting CSIRO Plant Industry until the end of November 2004. She is doing experimental and lab training under the supervision of Assoc. Prof. Pardini and Dr Patrizia Gremigni and also writing her Laurea thesis (equivalent to the Honours project). She has been measuring leaf water potential and testing selected chickpea lines over-expressing sucrose synthase (SuSy) for seed size and SuSy activity during seed development, within the Grain Pool and CSIRO funded project “Genetic manipulation of seed size in chickpea”.

Associate Prof. Pardini is accompanied by his wife, Dr Francesca Longhi, and two children. He can be contacted at CSIRO on 9333 6679 or by e-mail: andrea.pardini@csiro.au.

VISITING SCIENTIST ADVISES ON CHICKPEA IMPROVEMENT

Dr Shahal Abbo
from The Hebrew University of Jerusalem in Rehovot, Israel, was a Visiting Scientist at CSIRO Plant Industry for 2 weeks in September 2004. Shahal had spent 10 months in Perth on sabbatical leave in 2000-2001 primarily working on the adaptation of chickpeas in water-limited environments with Adj. Prof. Neil Turner and Dr Jens Berger and is a consultant to the GRDC project “Improving the yield and drought resistance of chickpea and lupin”.

During his visit in September, Dr Abbo worked with Adj. Prof. Neil Turner, Dr Jens Berger, Dr Patrizia Gremigni and Dr Jairo Palta analyzing data and providing advice on breeding protocols for determining the heritability of osmotic adjustment and sucrose synthase in chickpea and pod growth in lupin. He also visited the site at the Merredin Research Station where F7 and F8 recombinant inbred lines of chickpea are being grown for evaluation of the heritability and benefits of osmotic adjustment and sucrose synthase activity on their yield and seed size, respectively, under water-limited conditions.

Dr Abbo presented a CLIMA seminar on ‘Cicer judaicum in Israel: collection, eco-geographic associations and possible implications for adaptation of domesticated chickpea’, gave a paper on ‘Comparative eco-physiology of Cicer species’ at the International Conference on Adaptation of Plants to Water-limited Mediterranean Environments held in Perth from 20-24 September and attended the 4th International Crop Science Congress in Brisbane from 26 September to 1 October.

Dr Shahal Abbo and Dr P.S. Basu (Indian Institute of Pulses Research in Kanpur) at Merredin Research Station on an earlier visit to WA.
<table>
<thead>
<tr>
<th>NAME</th>
<th>DATES</th>
<th>INSTITUTION</th>
<th>MAIN PURPOSE OF VISIT</th>
<th>WA CONTACT</th>
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</thead>
<tbody>
<tr>
<td>Miss Valentina Pratesi</td>
<td>23 Aug. - 15 Dec.</td>
<td>University of Florence, Faculty of Agriculture, Italy</td>
<td>Experimental work, mainly on transgenic chickpeas over-expressing key enzymes of sucrose metabolism</td>
<td>Dr Patrizia Gremigni, CSIRO Plant Industry</td>
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<tr>
<td>Dr Yantai Gan</td>
<td>6 Sept. – 10 Nov</td>
<td>Agriculture and Agri-Food Canada, Swift Current, SK</td>
<td>Agronomy of chickpea with emphasis on ascochyta resistance and management.</td>
<td>Dr Kadambot Siddique, CLIMA</td>
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<tr>
<td>Mr Dale Baker, Mr John Harvey and Mr John Cullen</td>
<td>16 Sept</td>
<td>GRDC</td>
<td>To discuss GRDC strategies on Pulse Breeding initiatives and potential GRDC support for projects at CLIMA</td>
<td>Professor Kadambot Siddique, CLIMA</td>
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<tr>
<td>Dr J-N Aubertot</td>
<td>17 - 26 Sept</td>
<td>UMR d’Agronomie INRA/INA-PG</td>
<td>To collaborate on development of disease models in field pea and canola</td>
<td>Drs Moin Salam &amp; Art Diggle, CLIMA and DAWA</td>
</tr>
<tr>
<td>Dr Mohammad Aftab</td>
<td>14 - 15 Oct.</td>
<td>AgVIC - Horsham</td>
<td>Seed-borne pathogens of pulses</td>
<td>Adj. Prof. Roger Jones and Mr Bill McLeod, CLIMA and DAWA</td>
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<tr>
<td>Dr Elias Ghantous</td>
<td>5 Nov.</td>
<td>Sec. General of Chambers of Commerce, Industry and Agriculture for Arab Countries</td>
<td>To discuss research and teaching collaboration between Arab and Middle East Countries and UWA/CLIMA</td>
<td>Prof. Kadambot Siddique, CLIMA and Prof.Alistar Robertson, UWA</td>
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<tr>
<td>Dr Ralph King</td>
<td>10 Nov.</td>
<td>Ambassador to Kuwait, Department of Foreign Affairs, Australia</td>
<td>To discuss potential collaboration between Kuwait and UWA/CLIMA on research and teaching</td>
<td>Prof. Kadambot Siddique, CLIMA and Prof.Alistar Robertson, UWA</td>
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<tr>
<td>Mr Ian Briggs</td>
<td>13 Dec.</td>
<td>Australian Ambassador Designate to The Kingdom of Saudi Arabia</td>
<td>To discuss research and postgraduate training opportunities between Saudi Arabia and CLIMA/FNAS</td>
<td>Prof. Kadambot Siddique, CLIMA</td>
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</table>
IN SEARCH OF NEW ANNUAL PASTURE LEGUME GENETIC RESOURCES

by Mr Richard Snowball

Morocco was chosen for a mission to collect pasture germplasm earlier this year because it has a Mediterranean climate similar to that in southern Australia and because records indicate the presence of pasture species that are considered to have potential in our wheat belt environments.

Mr Richard Snowball and Mr Kris Gajda, Curator and Deputy Curator of the Perth pasture seed collection undertook the Grains Research and Development Corporation (GRDC) supported mission. A total of 326 seed collections or accessions from 56 species and 17 genera were collected from 45 collection sites. The most significant discoveries included accessions from a range of different sites of Biserrula pelecinus, Lotus ornithopodioides, Ornithopus raseos (syn. O. sativus), Trifolium isthmocarpum and Trifolium spumosum.

However, many species with potential for Australia are on the verge of extinction, while some may have already been lost from the native Moroccan environment. Reduced rainfall in recent decades, consequent heavy grazing, and intensive cropping of native pasture land have all contributed to this serious situation.

With the co-operation of the Institut National de la Recherche Agronomique (INRA) and Moroccan authorities, germplasm was identified expressing greater variability than anything previously found. For example, a CLIMA research project examining genetic diversity of bladder clover using molecular and ecogeographic data, should benefit from the 2004 mission’s success. CLIMA research associate, Dr Kioumars Ghamkhar said the new germplasm extends the geographic range of the species and will be important to include in the study.

The germplasm this mission gathered has great potential to benefit the pasture industry in southern Australia. A new Material Transfer Agreement (MTA) and Memorandum of Understanding (MOU) developed between INRA and CLIMA will allow for further collaboration and germplasm exchange between the two countries and support for sustainable conservation of genetic resources in Morocco.