Sirex Update – What is being done?

The devastation seen in some pine stands in the KwaZulu-Natal (KZN) Midlands is a clear indication of the potentially serious damage that the woodwasp (*Sirex noctilio*) can cause to pine plantations in southern Africa. So what are we doing to counter this threat?

In 2004, the forest industry embarked on a national *Sirex* Control Programme to manage and slow the spread of the pest through the pine growing estate. This united approach involves the forest industry in partnership with government and technical experts at FABI and the ICFR. Although observations confirm that the levels of infestation are higher in 2005 than last year, the spread of *Sirex* appears to be confined to the KZN Midlands.

The Control Programme is focusing on the release of an imported nematode (*Beddingia siricidicola*) that renders the female woodwasp sterile, and in this way controls the population. In 2004, over 1500 trees were inoculated with nematodes, both at the “Sirex front” in KZN and in the southern Cape. A number of technical problems hampered the success of these inoculations. Technical experts from FABI, the ICFR and the newly established operations task team in KZN have analysed these, and measures have been put in place to ensure the success of the 2005 inoculation programme. It is planned that more than 5000 trees will be inoculated this year.

In parallel to the Control Programme, scientists at FABI are researching the life-cycle of the woodwasp in the summer-rainfall areas. Almost all of the *Sirex* infestations around the world have been in cooler, winter-rainfall areas and very little is known about how the woodwasp behaves under warmer climate regimes. This knowledge will assist in improving the effectiveness of the control programme.

Similar control programmes implemented in other countries have been very effective. However, these are exclusively in well-managed saw-timber regimes where stressed trees are removed during thinning operations. In KZN, the majority of stands are grown under closely spaced pulp regimes. For this reason, we will be investigating the effect of thinning on *Sirex* infestation over the next year.

A further major concern is the uncontrolled movement of untreated pine timber (packaging, pallets, roundwood) between areas of known *Sirex* infestation, and those that the woodwasp has not yet reached (Zululand and Mpumalanga). We suspect that the natural movement of the woodwasp is being unwittingly assisted by timber transport.

**TIMBER GROWERS ARE URGED TO BE AWARE OF THE SERIOUS THREATS POSED BY TRANSPORTING UNTREATED PINE TIMBER BETWEEN FORESTRY AREAS. IT IS VITAL THAT EVERYTHING POSSIBLE BE DONE TO SLOW THE SPREAD OF SIREX INTO MPUMALANGA, SWAZILAND AND LIMPOPO.**

Contact: Brett Hurley (brett.hurley@fabi.up.ac.za) or Colin Dyer (colind@icfr.unp.ac.za)
ICFR News – May 2005

Staff News & Achievements

ICFR secures an Ergonomist...

Genevieve James recently joined the newly established Forest Engineering Programme at the ICFR. A KZN girl, Gen grew up in Underberg, and matriculated from St John’s Diocesan College in Pietermaritzburg, before going on to Rhodes University in Grahamstown to study further. She has undergraduate, Honours and Masters degrees in the field of ergonomics. Within the Forest Engineering Programme, Gen will be working with Francois Oberholzer, concentrating on coordinating ergonomics and nutrition studies for forestry workers on an industry level.

Contact: gen@icfr.unp.ac.za

...and a Geneticist,

Jonathan de Guisti joined the Acacia Improvement Programme in May this year. Jon recently completed a Masters degree in Genetics with distinction at the University of Natal, Pietermaritzburg in 2003. He will be involved in Acacia Breeding research, primarily with the genetics and statistics generated from the current trials in the ground and the interpretation thereof. He will also be assisting with new trial designs and establishment. In addition Jon will be involved with Eucalyptus tree improvement, focussing on decision-making and interpretation of the genetic data from that project.

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..but loses a Forest Nutritionist.

After 11 years service to the ICFR and the forest industry, Ben du Toit left the ICFR at the end of March to take up a senior lectureship at the University of Stellenbosch. Ben joined the ICFR in 1994 from the CSIR’s Foretek Division. While at the ICFR he worked in the field of forest nutrition and obtained his MSc in Soil Science from the (then) University of Natal. He is currently completing his PhD at the University of the Witwatersrand. Ben leaves a huge legacy behind, the most important being the world famous Karkloof trial at Shafton, part of the international CIFOR network. His efforts have ensured that ICFR has a firm foundation on which to build the next generation of knowledge in the field of tree nutrition. He will no doubt play a key role in rejuvenating the forestry department at Stellenbosch, and the students will benefit enormously from the expertise and experience that he takes with him from his time at the ICFR. From all at the ICFR, we wish Ben and his family well in his new career.

Excellence in the Academic Arena...

The ICFR is proud to report on a number of our staff who have recently successfully completed their tertiary studies. STEVEN DOWIE, researcher in the Forest Nutrition Programme was awarded his MSc at the graduation ceremony of the Faculty of Science & Agriculture, University of KwaZulu-Natal. Steven’s MSc focussed on studies of the aboveground allometry, biomass and nutrient content of Acacia mearnsii trials from three sites around KwaZulu-Natal.

SHADRACK NACKER, Forest Productivity research technician, received his National Forestry Diploma from the Nelson Mandela Metropolitan University (former PE Technikon), one of only four of the original class of 36 to complete the course.

GEN JAMES, who has recently joined the ICFR Forestry Engineering programme graduated with a MSc cum laude on “The effect of personalised adjustments to computer workstations on the efficiency and physical comfort of computer operators”. Gen was also Rhodes University’s top Masters student, receiving the S2A3 Bronze Medal, a prestigious scientific award in recognition of perseverance and dedication in the application of scientific principles, and the presentation of a written dissertation.

The ICFR also supports students from various institutions by providing research facilities and co-supervising projects. SADHNA MATHURA recently completed her MSc cum laude in Genetics at the University of KwaZulu-Natal, Pietermaritzburg, and attributed much of her success to her co-supervisor Sascha Beck, Acting Programme Manager for the Acacia Research programme, as well as to ICFR laboratory, admin and support staff.

...and on the Sporting Field

ICFR’s Sascha Beck recently took part in the S.A. Ironman held in Port Elizabeth (PE). The event comprises a 3.8 km sea swim / 180 km road cycle / 42.2 km road run. With a cutoff time of 17 hours Sascha put in many months of serious training. Her race went extremely well, she completed the two laps of 1.9 km swim in 1 hr 41 min without the embarrassment of being dumped by the waves! The cycle component was on a very scenic route involving three laps of 60 km, especially challenging under the traditionally windy PE conditions. Then came the run (3 laps of 14 km), which Sascha completed in an excellent time of 4 hrs 20 min. With a overall time of 13 hrs 43 min Sascha pronounced the experience “fantastic” and has already committed herself to going back next year, along with her current seconder and boyfriend, Steve. Well done Sascha!
In January, 2005 ICFR Laboratory Manager, Mike Chetty, joined delegates attending the 9th International Symposium on Soil and Plant Analysis. The theme chosen for this Symposium centred around Quality Analytical Tools for an Era of Ecological Awareness - the role of Soil, Plant and Water analysis.

Delegates from more than 30 countries attended the workshops, plenary sessions and poster sessions to learn the latest in methodologies and interpretation. Invited speakers from six continents provided information on international technologies and interpretation of soil, plant and water analysis. Mike’s abstract entitled “The validation of a reference material using a NIST standard” co-authored with B. Eigenraam (WEPAL) and Y. Kalra (Forestry, Canada) was accepted for publication with the Symposium proceedings.

As part of the symposium Mike attended a workshop on the “Near and Mid Infra red Reflectance Spectroscopy of Soils – Quantitative Analysis through Chemometrics”. Presented by James Reeve III of the US Department of Agriculture, the workshop highlighted innovative work on the stable relationships (Calibrations) between spectral data and other analytical data (Analyte values) allowing the determination of the analyte of new and future samples from the spectra alone, reducing the need for standard analytical methods. The Symposium also provided a number of leading laboratory instrumentation manufacturers with the opportunity to showcase their latest equipment.

While attending the Symposium, Mike was able to go on a technical tour into Yucatan Peninsula to view the different soils and vegetation prevalent in this area. In addition, during his stay, he established useful contacts working in the following areas of soil and plant analysis: The use of anionic membranes to assess the N availability of soils in situ; the impact of grinding on soil extraction processes; and the homogeneity and stability of reference material for soil and plant analysis.

On route to Mexico, Mike took up an invitation to visit Dr Rao (Director) and Ms Elizabeth Kennelley (Laboratory Manager) at the Institute for Food and Agricultural Sciences (IFAS) based at the University of Florida, USA. The Analytical Research Laboratory (ARL) provides a high quality analytical service to IFAS researchers across the state of Florida, analysing approximately 100 000 samples per annum under the auspices of their National Environmental Laboratory Accreditation system.

While in Florida, Mike had the opportunity to discuss quality control procedures and analytical demands on the laboratory services with the laboratory manager. Opportunities of this nature are useful in establishing personal contact with acknowledged leaders in the area of soil and plant analysis while learning different methodologies as well as changes and trends at an international level.

Mike’s visit to the USA concluded with a trip to the IFAS laboratories based at Lake Alfred, headed by an ex staff member of the ICFR, Dr Arnold Schumann. The laboratory is actively involved in the use of remote sensing imagery to monitor growth patterns of citrus trees, mapping ground water and the use of Infra Red (IR) sensors to automate tree height measurements and assess mortality within the compartment. Further projects involve the use of GIS technology to produce productivity and yield maps for the various compartments harvested. The impressive use of modern technology highlighted the labour intensive nature of our system of taking field measurements. Staff and management at IFAS were enthusiastic and supportive to explore possible avenues for future collaboration, and Mike is confident that the learning and experience gained from this visit will be invaluable in providing a value-added laboratory service to ICFR sponsors.

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Focus on... ICFR in the Field

The first field day of year for the Central Region began with a visit to the promising ICFR Eucalyptus badjensis and E. benthamii trials situated on Geluk Farm, on CTC’s Commondale Estate. Tammy Swain presented an update on the growth and pulping properties of these two cold tolerant eucalypt (CTE) species. Both are considered alternatives to E. macarthurii and E. nitens on temperate sites, E. benthamii being more frost tolerant while E. badjensis has a higher snow tolerance and very favourable pulping properties. Provenance differences exist for both species, suggesting tree improvement is worth exploring. The next field stop was to a E. macarthurii cut stump control trial on CTC’s Vryegunst Farm. Keith Kittle, Manager of the Re-establishment Research Programme at the ICFR presented results from experiments using a combination of herbicide and residue management methods. It was then time to head indoors to the Augsburg Church Hall near Paulpietersburg for the in-house talks. Sascha Beck, Acting Programme Manager for Acacia Research at the ICFR provided a useful overview of wattle breeding at the ICFR highlighting results from both classical breeding and vegetative propagation trials. In addition results from various species testing trials as well as work into sterile wattle induction were presented (see pg 7).

Solomon Gebeyehu from FABI provided a useful talk on the life cycle of Cossid moth, indicating methods for identifying this pest recently found on Eucalyptus nitens in the region. Ben du Toit, Programme Manager of ICFR’s Forest Nutrition Programme followed with a comprehensive presentation summarising fertiliser recommendations for short rotation hardwoods, looking at response mechanisms, fertiliser sources, formulations and application methods. The last paper of the day was presented by Paul Viero, on preliminary results from a trial looking at potential problems associated with E. smithii re-establishment on NCT’s Enon plantation. The second field day for this group will be held on 16th November.

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Managing fire, hail and pests in Mpumalanga

Recently the Mpumalanga Interest Group held a field day at Bambi, near Machadodorp, focussing on various problems associated with forestry management. Talks were of a very practical nature providing information on managing fire, hail and pests. Setting the scene and providing a broad perspective, Wits University’s Prof. Mary Scholes presented research on global climate change and its impact on forestry in the region. Mary also gave a talk on the atmospheric impacts of fire management, looking at the effects of vegetation fire gas emissions on tropospheric ozone. This was followed by a talk on integrated fire management in South Africa by Louis Venter of the Forest Fire Association (FFA), highlighting the need for fire awareness as well as discussing some of the tools and systems in place for fire prevention and detection. Factors which contribute to successful fire management include systems integration, risk assessment, resource planning, evaluation and training as well as working with relevant groups (FPA’s) and national programmes like Working on Fire (WOF) and the FFA. Duncan Ballantyne (Sappi) then gave a very practical talk on successful rehabilitation following fire, and this was followed later in the day by visits to some of the sites where these methods have been employed.

Of most importance is the need to act quickly in assessing the damage situation and taking appropriate decisions. Hail is an equally devastating natural phenomenon for forest managers, and Sappi Usutu’s Lee Cunningham discussed operational considerations following a hail event in a pine plantation. The programme ended with a talk by FABI’s Brett Hurley on identifying one of the most recent pests found on Eucalyptus, the Cossid moth. The Mpumalanga Regional Interest Group will hold a second field day, in conjunction with the ICFR, later in the year, on 12th October.

Contact: Tammy Swain (tammy@icfr.unp.ac.za)
The first field day of 2005 for the KZN Midlands Interest Group, held at the Karkloof Country Club, was attended by approximately 120 people from around the region. ICFR’s Paul Viero gave the first talk of the day looking at the effect of different re-establishment practices on initial eucalypt survival and growth across three sites, in Kwambonambi, Eston and Piet Retief. The study considered various planting options using water, fertiliser and stockosorb (Aquasoll). Keith Little then presented a repeat of his paper at the recent Central Region Field Day, on an integrated approach to managing first rotation E. macarthurii cut stump control. The trial comprises various treatments of herbicide application and residue management, and results show that both herbicide treatments used, irrespective of the application method, were equally effective in killing stumps. In addition, none of the residue management treatments used (burnt, moved away from the stump or place on top of the stump) had a large impact on suppressing coppice regrowth. The next talk by Ben du Toit provided fertiliser recommendations for short-rotation hardwoods, looking at stand response mechanisms, fertiliser sources, formulations and application methods.

Sappi’s Doug Macfarlane then gave a well-illustrated talk on the company’s State of the Environment (SOE) Assessment and Reporting system. This is a global initiative which aims to improve reporting on the state of natural resources in order to aid decision making, increase public awareness and enhance understanding of environmental issues. Next to speak was Sascha Beck on Acacia breeding research at the ICFR, which includes both classical breeding and vegetation propagation approaches. She also provided an overview of the sterile wattle project using both gamma irradiation and triploid induction mechanisms (see pg 7). Last from the ICFR to speak was Carol Rolando, who presented results from assessment of the various factors affecting the initial survival and growth of pines. These included species, site physiographic features, harvesting residue management, blanking and seedling quality at planting.

The threat of Sirex continues to be a serious concern in the region (see pg 1), and FABI’s Hardus Hatting provided an important overview of FABI’s current efforts in this area. This was followed by a practical presentation by Andre de Wet from SAPPi, who is involved in the operations team monitoring the severity of the spread of the pest and evaluating the success of the biological control programme. The group then moved in-field to Shafton, where Colin Smith provided an overview of ICFR’s Plantation Forestry Sustainability Initiative. Diana Rietz then illustrated the importance of this research on the long-term site productivity of plantations, presenting results from soil quality and tree growth assessments following harvesting operations. The day ended with lunch at Shafton dam hosted by SAPPi. The next KZN Midlands Field day is planned for 27th October.

Contact: Keith Little (keith@icfr.unp.ac.za) or Charl de Villiers (cdevilliers@masonite.co.za)

Over the past 3 to 4 years the Re-establishment Programme at the ICFR has implemented trials larger than were currently the norm in the past. These trials, incorporating issues related to coppice management, vegetation management and pine and eucalypt re-generation research, were structured to either:

- test current recommendations emanating from smaller research trials, but on a larger commercial/operational scale;
- test the impacts of intra-specific competition, which could only be tested in plots of a large size; or
- obtain multivariate data sets from different “operationally applied treatments” on a compartment level.

Some of the benefits of these large trials are already becoming apparent, including the ability to link variability in data sets to changes across sites, and getting data more closely related to that obtained under operational conditions. Unfortunately, the implementation of these large “trials” (up to 12 ha in size), has also meant an increase in the number of trees that need to be measured, without an increase in the number of staff to achieve this. Within the Programme, it was decided to pool all resources into one region at a time. The first to be tackled was Zululand, and recently ICFR staff from Zululand, Sabie and Pietermaritzburg combined their efforts achieving a staggering 25 280 measurements in 14 trials over a period of 4 days.

Contact: Keith Little (keith@icfr.unp.ac.za)
Gerbera aurantiaca (Hilton daisy) is a rare and endangered perennial herb endemic to the KwaZulu-Natal (KZN) mistbelt grasslands (Hilliard 1977, Scott-Shaw 1999). Extremely eye-catching in flower, with its bright orange to crimson “daisy-like” flowers and erect, glossy-green leaves, the species is under threat from progressive fragmentation and degradation of its natural habitat, mainly due to agricultural and urban expansion (Scott-Shaw 1999). Other detrimental factors include flower and plant collecting, selective grazing by domestic livestock and inappropriate fire management. In addition the species has proved extremely difficult to propagate or transplant (Scott-Shaw 1999, Johnson 2003).

ICFR’s Robin Gardner has encountered a number of timber growers actively trying to conserve colonies of G. aurantiaca on the grassland portions of their estates in KZN. Difficulty in propagating the species has posed a significant stumbling block to these efforts. For this reason, Robin set out to find a mechanism whereby landowners could bulk up numbers of the plants of their particular populations in situations where the population sizes had been seriously threatened. Literature revealed that G. aurantiaca has previously been successfully propagated via “tissue culture” using micro-shoots and buds excised from in vitro produced seedlings (Meyer and Van Staden 1988), although this method required fairly specialised equipment and controlled conditions.

In mid-November 2000, with the permission of the KZN NCS, Robin took seed from a wild population of G. aurantiaca at Queen Elizabeth Park, Pietermaritzburg. Some of the seeds were treated with a surface sterilant while others were left untreated. Seeds were then either pre-germinated in petri dishes under controlled temperature and moisture conditions, prior to planting out in seedling trays, or sown directly into the trays containing dolerite-derived, humic topsoil collected from a virgin grassland site in the KZN Midlands. The seed trays were covered with a plate of transparent glass following production of seedlings.

From these initial trials, it appears that G. aurantiaca has very specific environmental needs, favouring an altitudinal niche of 950 – 1500 m in KwaZulu-Natal (Scott-Shaw 1999), and dolerite-derived, well drained soils high in organic carbon. This may be why most propagation and/or transplanting attempts have had a low success rate. It appears the species can be propagated fairly easily sexually, although this method required fairly specialised equipment and controlled conditions.

In mid-November 2000, with the permission of the KZN NCS, Robin took seed from a wild population of G. aurantiaca at Queen Elizabeth Park, Pietermaritzburg. Some of the seeds were treated with a surface sterilant while others were left untreated. Seeds were then either pre-germinated in petri dishes under controlled temperature and moisture conditions, prior to planting out in seedling trays, or sown directly into the trays containing dolerite-derived, humic topsoil collected from a virgin grassland site in the KZN Midlands. The seed trays were covered with a plate of transparent glass following production of seedlings.

Byrne area (near Richmond) confirmed similarly high germination rates using the above described pre-germination method, but a far higher (100 %) out-planting success rate if the germinants were pricked directly into the plant plots. Therefore, this method is preferred over sowing or pricking into seedtrays. The use of pine-bark for a growing medium should be avoided at all costs. With proper care, macro-vegetative propagation by division of underground stems appears to offer a viable method of cloning G. aurantiaca plants if necessary.


Contact: Robin Gardner (rawg@icfr.unp.ac.za)

References:
Producing sterile wattle – the role of flowering

Black wattle is not considered a “shy flowering” species, and consequently little research into its flowering mechanisms has occurred. ICFR’s Acacia Improvement Programme uses open-pollination for the breeding of the species, as the seed produced from such methods has provided sufficient genetic gain over the years to satisfy the wattle industry, and also because black wattle is not easily propagated vegetatively.

The Programme’s sterility project was initiated in 2000 to try and improve the status of black wattle among conservation circles, by reducing the spread of wattle seed outside of plantation boundaries, and the contribution of seed to the existing seedbank. One of the approaches undertaken was to produce a triploid variety, i.e. an individual with three sets of its basic chromosome number, unable to undergo successful sexual reproduction. This then inhibits seed set or ensures that any seed produced is aborted due to incompatibility. Triploids are produced by treating normal (diploid) seeds with colchicine to induce doubling of the chromosome number to produce a tetraploid. When these tetraploids start to flower, they are backcrossed with diploid material to produce triploid seed. These trees would then need to be propagated vegetatively prior to commercial deployment.

Before controlled pollinations could be conducted it was important to understand the flowering mechanisms of Acacia mearnsii. In general the species flowers from August to October, when the trees are about four to five years old. However reports indicate that black wattle is capable of flowering as early as one to two years of age. Eight to ten weeks prior to actual flowering, the racemes comprising numerous globular heads are produced, and these heads later become defined as individual flowers. Within each flower there is a distinct female stage when the pistil is receptive, lasting approximately 24 hours. This is then followed by a longer male stage of four to five days. An individual tree can take from 7 to 32 days to complete flowering. Many flowers only act as males, as the ovary fails to develop. This is critical in determining the amount of seed that is set per tree, and is an important factor on pollen transfer. Pod set in general is very low considering the number of flowers produced per tree. This could be due to the flowers only being male flowers, or to environmental factors, insect predation and/or physiological limitations with respect to space on the branch.

Currently there is no problem in inducing flowering in black wattle, nor is there a shortage of seed production. However, this may not always be the case, and such variability in seed set warrants further investigation.

The ICFR tetraploid trials planted in 2002 have been continually monitored to check for the onset of flowering, and last season it was noted that some of the trees had flowered in 2003, as there was seed on the trees. During the recent flowering season (September to October 2004) controlled pollinations were conducted using selected diploid trees from one of the breeding seed orchards. It was decided to use the diploid pollen to pollinate the tetraploids and vice versa in a “forward” and “backward” pollination to check for male sterility in the pollen, incompatibility and to see which “direction” of pollination method would yield viable triploids. As the racemes appeared on the selected trees, they were bagged using clear breathable cellophane bags. The racemes were then allowed to open in the bags and the pollinations conducted. Once the flowers had died the bags were removed. The seed has a long ripening period of 14 to 18 months, and thereafter the ploidy status and viability of the seed produced will be examined.

The new breeding strategy recently implemented for black wattle has an option of using controlled pollinations, provided the vegetative propagation can be improved. Understanding the flowering mechanisms and variation within the breeding population of black wattle is therefore imperative to both the main breeding programme as well as the sterility project.

Contact: Sascha Beck (sascha@icfr.unp.ac.za)
SAIF – NATIONAL
The National SAIF Annual General Meeting will be held on Thursday 23rd June at 16.45 for 17.00 on the Pietermaritzburg campus of the University of KwaZulu-Natal. For more information please contact Corine Viljoen (012) 348 1745 or forestry@mweb.co.za.

SAIF – KZN
The Branch held its Annual General Meeting on Monday 11th April at 17.30 at the ICFR. At the meeting, a new Committee comprising the following people was elected: Trevor Morley (ICFR), Flic Blakeway (CSIR), Cathy Ford (Sappi), Arnulf Kanzler (Sappi), Yvonne Fletcher (Sappi), Mark Norris-Rogers (MondiBP), Charli de Villiers (Masonite), Trevor Marcovich (CTC), Craig Schutte (NCT), Sascha Beck (ICFR) and Sally Upfold (ICFR). The Committee will be reviewing and planning events for 2005, looking at venues and times. Upcoming events include a talk by Des Armstrong (MondiBP) on Central Tyre Inflation in July. The Branch is also planning to hold a Symposium later in the year.

SAIF – MPU
Events for 2005 are well underway with the Symposium entitled “The SA Forestry Industry... are we heading for disaster?” happening on Thursday 5th May in Nelspruit. Tentative topics for upcoming meetings include Ergonomics, Indigenous Gardening, and Harvesting Soils as well as the FPCI.

For more information please contact the events co-ordinator Nikki McCartney (nee Meinesz) on 0836361060 or nikki@hotorange.co.za.

Millenium
SAIF – NATIONAL
SAIF – KZN
SAIF – MPU

MMRC becomes part of the ICFR
The Mensuration and Modelling Research Consortium (MMRC) was established in 1997 to create an industry forum for sharing growth and yield knowledge and expertise. The success of the MMRC has been the development of mensuration standards and a database of growth and yield information across its members. Growth and yield models at both regional and national levels have been developed from the data shared by MMRC members. In addition, the MMRC engaged numerous international experts, whose expertise added value to the development of these models.

The MMRC disbanded as a separate entity and transferred its growth and yield database functions to the ICFR with effect from 1 May 2005. The ICFR will continue to manage this industry database, being a central repository for all growth and yield data, for the MMRC members and facilitate a forum for regular growth and yield data updates and modelling exercises. In addition, the ICFR will strengthen its growth and yield project portfolio and its research capacity to provide services in this area to all its members. The MMRC growth and yield functions within ICFR will form an integral component of the Forest Productivity Programme, managed by Dr Colin Smith, addressing site classification and forest sustainability issues.

The MMRC members are thanked for their foresight in establishing this important research foundation onto which the next generation of knowledge and expertise for the entire industry can be built. Special thanks are due to past chairpersons of the MMRC Steering and Technical committees; Peter Gardiner (Mondi), Nico Hattingh (Sappi), Horst Kassier (SAPFOL), Nico Mönnig (GFP), Bruce Hulett (Mondi), Heyns Katze (KLF) and Yvonne Fletcher (Sappi) as well as to ICFR’s Trevor Morley for their excellent efforts in co-ordinating the activities of the MMRC over the past eight years.

Contact: Trevor Morley (trevor@icfr.unp.ac.za)

Diary of Events

JUNE
6th  SAIF KZN
Topic: tbc
Contact: Trevor Morley, ICFR (trevor@icfr.unp.ac.za)
23rd  SAIF National AGM
Venue: UKZN, Pmb
Contact: Corine Viljoen (012) 3481745/forestry@mweb.co.za
23rd - 24th  ICFR RESEARCH SYMPOSIUM
Venue: UKZN & ICFR, Pmb
Cost: R250 pp
Contact: Sally Upfold, ICFR

JULY
11th  SAIF KZN
Topic: Central Tyre Inflation
Speaker: Des Armstrong, MondiBP
Contact: Trevor Morley, ICFR (trevor@icfr.unp.ac.za)

AUGUST
8th  SAIF KZN
Topic: tbc
Contact: Trevor Morley, ICFR (trevor@icfr.unp.ac.za)
8-13 IUFRO World Congress
Venue: Brisbane, Australia
Visit: www.iufro2005.com

ICFR Research Symposium
Thursday 23rd – Friday 24th June 2005
at the ICFR & University of KwaZulu-Natal, Pietermaritzburg

Bring together the forestry research community, facilitating interaction, and creating an awareness of the work being carried out by others.

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