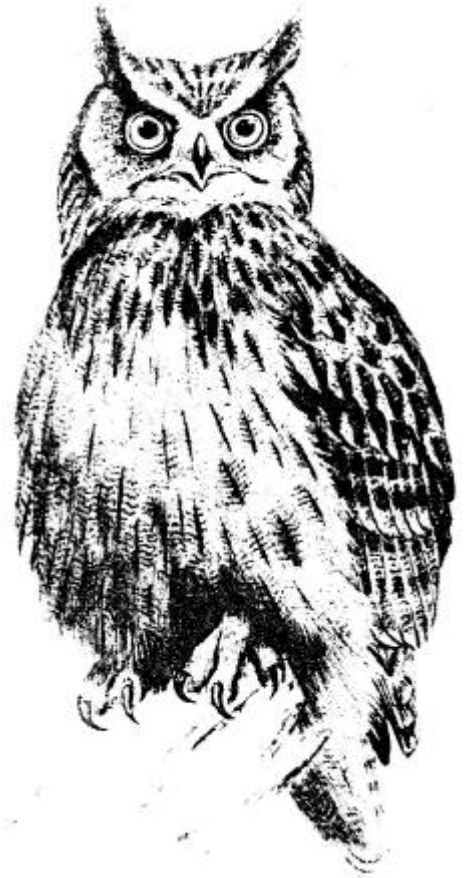


ALAM

Newsletter

Autumn 2004



**The Association of
Lecturers in Agricultural Machinery**

Contents

- ALAM Newsletter Autumn 2004..... 1
 - 2004 Conference..... 1
 - 2005 Conference..... 1
 - Two-day Seminar 1
 - Membership 1
 - Treasurer's New Address 1
- ALAM Committee 2004-05..... 2
- The Italian Job 3
- Classified Advertisements 4
- Claas UK..... 5
- Land-Rover Semi-Anechoic Chamber..... 7
- Advances in Pesticides Application 8
- Land Rover Vehicle Workshops, Gaydon. 11

ALAM Newsletter Autumn 2004

2004 Conference

Thanks to Pete Walley for putting together the 2004 conference at Warwickshire College; as usual there was a lot to see, a lot of information to take in, a couple of beers, and plenty of great conversation about all things mechanical! The first reports are in this newsletter.

2005 Conference

I know we've only just had the 2004 conference, but please starting thinking ahead about the 2005 conference. Plans are underway for a tour of **Northern Italy**, in Easter (This timing seemed to work well for the Denmark trip). To get the best possible early-booking prices, **we need bookings as soon as possible** - full details are in the newsletter.

Two-day Seminar

Some of you will know John Palmer, formerly of Duchy College, and now Training Manager at Claas UK. Through this contact, we can now offer you a 2-day event organised at Claas, at the end of October. See the pages enclosed for full details, and get on the 'phone to Brian ASAP!

Membership

Thanks to everyone who has confirmed their addresses and details. If you haven't done so, please let me have your correct and current details by filling in a membership form and send it the treasurer, so we can update or confirm our records. If you already pay by standing order, then put a line through the lower half of the form, but please fill in the top and return it anyway.

Treasurer's New Address

On an administrative note, please note that the treasurer has moved house. Could you please ensure that any correspondence and payments are sent to his new home address. In particular, could you make sure that **College Finance departments update their records**. The new address is:

David Heminsley, ALAM Treasurer, The Old Byre, Lower Street, Doveridge, Ashbourne, DE6 5NS

ALAM Committee 2004-05

Any changes since the last Newsletter are in **bold type**.

| Position | Name | Work | | | Home | |
|---------------------------------|------------------|-------------------------|-----------------|---------------------------------|-----------------|--|
| | | Place | Tel | Email | Tel | Email |
| Chairman | Graham Higginson | Walford College | 01939 262164 | g.higginson @wnsc.ac.uk | 01691 671461 | graham.higginson @ntlworld.com |
| Secretary | Peter Walley | Warwickshire College | 01926 318269 | pwalley @warkscol.ac.uk | 01926 640883 | |
| Treasurer | David Heminsley | JCB Training | 01889 591300 | david.heminsley @jcb.com | 01889 566882 | |
| Conference Organiser 2005 | John Gough | tbc | tbc | tbc | 01630 685942 | gough.j @btinternet.com |
| Committee | Nigel Macpherson | Sparsholt College | 01962 776441 | nmacpherson @sparsholt.ac.uk | 01980 862102 | |
| | Duncan Wilson | Duchy College | 01209 722100 | duncanw @duchycollege.ac.uk | 01326 376710 | |
| | Brian Kessell | Duchy College | 01209 722100 | briank @duchycollege.ac.uk | | |
| | Ryan Roberts | Retired | | | | mail@ ariel1965.freereserve.co.uk |
| | | | | | | |

The Italian Job

Monday 29th March to Tuesday 6th April 2005

Dear Member

Here is the outline programme for the 2005 conference.

The full cost will be £350 for members (£370 for others), to include all accommodation and travel. This price is being heavily subsidised by ALAM, and is therefore a real bargain for such a full programme.

This is obviously a big undertaking for ALAM, and so we must have firm **bookings and payment by December 10th**, in order that we can secure the flights and accommodation at the best rates to keep the overall costs at a reasonable level.

Bookings will be taken on a first come, first served basis, so contact John Gough to reserve a place, and your staff development officer to secure the funding.

Contact John by email at gough.j@btinternet.com - **note this is a new email address**

Phone - 01630 685 942 - evenings 7 to 10pm, please.

Home address - Flat 2, 55 Station Road, Hodnet, Nr Market Drayton, Shropshire, TF9 3JF.

Programme

- Fly out to Cuneo, in the north west of Italy
- Coach transport for duration of conference
- Merlo materials handlers – Technical update and developments
- Grazziano Transmissions - Transmission and gear manufacturing
- B C S Group – Horticultural tractor and machinery manufacturer
- Same Tractors – Developments, testing and electronic control systems
- Ducati Motorcycles - Valve gear operation and control
- Ferrari Automobiles - Engine design and technology
- Case New Holland – Tractors up to 100hp
- Return flights from Ancona in the north east of Italy

As you are probably aware, the Italians have a reputation for innovative design and ingenious manufacturing technology. This is your opportunity to experience at first hand the thinking behind the machines they produce.

BOOK NOW TO AVOID DISAPPOINTMENT!

***There isn't a piece of paper for you to tear off -
we thought you'd prefer a more modern, faster means of
communication to ensure your place on this conference!***

Classified Advertisements

FOR SALE

SECONDHAND FROMENT 75KVA DYNAMOMETER
STATIC TYPE WITH LOAD BANKS.

PRICE £4000 ono.

Contact Nick Cartwright,
Email n.cartwright@oaklands.ac.uk
Tel. 01727 737735

Oaklands College,
Hatfield Road,
St. Albans,
Herts,
AL4 0JA



WANTED

Have you seen this bird?

We are again trying to track down a regular supply of ALAM owls. We could cast our own, if only we knew exactly what they are made from (some kind of resin), and where to get it. We also need a mould. If anyone spots anything which might help us, (craft fairs and shops are likely sources), please let us know. We can probably think of a suitable reward for your efforts!

Parts Offer

John Gough has a range of warranty return items sourced from JCB, which are available for colleges to use for teaching.

For full info about what is available, contact John by email at:

gough.j@btinternet.com - **note this is a new email address**

Phone - **01630 685 942** - evenings 7 to 10pm, please.

ALAM TWO-DAY SEMINAR

Claas UK

Tuesday 26th and Wednesday 27th October

at the

Claas Training Centre at Saxham

Claas Jaguar Forage Harvesters

and

Other Claas updates

Other updates to be confirmed, depending on machine and personnel availability.

This may be the new Cougar self-propelled mower, if resources are available.

Book your place on this course by contacting **Brian Kessell**,

Duchy College, Rosewarne Campus, Cambourne, Cornwall,

Tel No: **01209 722100**

Email: **brian.kessell@duchy.ac.uk**

Course cost £65.00 Member

£75.00 Non member

Accommodation not included.

Accommodation can be arranged by contacting **John Palmer** at **Claas** who will book your requirements - a list of options is over the page.

Tel No: **01284 777646**

Email: **j.palmer@claas.com**

Claas UK Ltd.

Saxham Business Park,

Saxham,

Bury St. Edmunds,

Suffolk,

IP28 6QZ

Tel 01284 763100

Website www.claas.co.uk

Accommodation for Claas course

Butterfly Hotel

Moreton Hall

Bury St Edmunds

Suffolk

£70 per night bed & breakfast

Tel: 01284 760884

Fax: 01284 755476

Dunston Guest House

8 Springfield Road

Bury St Edmunds

Suffolk

Prices between £25.00 & £35.00

Tel: 01284 767981

Cannon Brewery

Cannon Street

Bury St Edmunds

Suffolk

£49.00 per night

Tel: 01284 768769

Fax: 01284 701137

Regency Hotel

3 Looms Lane

Bury St Edmunds

Suffolk

£49.00 Single; Double £65.00

Tel: 01284 764676

Fax: 01284 725444

Chantry Hotel

Sparhawk Street

Bury St Edmunds

Suffolk

£49.50 single, Double £61.00

Tel: 01284 767427

Fax: 01284 760946

Swallow Golf & Country Club

Fornham St Genevieve

Bury St Edmunds

Suffolk

IP28 6JQ

£49 per night

Tel: 01284 706777

Fax: 01284 706721

Land-Rover Semi-Anechoic Chamber

I have not been to an ALAM conference for years and then, trust me, I get 'chosen' to do a report (thanks Peter, I know you were behind this). Not only that, I couldn't even pronounce what I was supposed to do the report on!

First look in the Oxford Dictionary – android, anecdote, anemometer – no not here!

Try my super duper Dictionary of Science! - No joy.

Ah well, I will just have to use my intellect!!

Semi = Partly

'An' before a word = To be free from

Echo = Sound bouncing back from a boundary.

So there you have it, we were visiting a big box that doesn't reflect a lot of noise.

This was a big box (around 17m x 20m), one of the biggest in Europe with 9000 wedges to absorb the radiated sound and stop it reflecting back.

The chamber is used to check noise levels from the engine, air induction system and exhaust. Noise levels are normally tested outside on the track past two microphones one on the left of the car and one on the right. You then have to accelerate through these microphones in second and third gear at 50 kph. This has to be done 10 times; the track must be dry, with an air temperature above 5oC and a wind speed of less than 11kph. As you can imagine this all takes time and conditions are not always favourable, hence the use of the Semi Anechoic Chamber.

Inside the chamber microphones are placed down the walls 7.5 metres away from vehicle (11 microphones on either side). The vehicle is set in gear and on full throttle. The microphones are set to come on in sequence at 2.5 second intervals to simulate a drive by (you are in effect driving the microphone past the car at 50 kph). There are also microphones inside the car and vibration can also be measured.

Exhaust and intake noise can be ducted away to isolate them depending on what part of the car is being measured. Slick tyres are used to take away the hiss created by treaded tyres on rollers (another rig was used to measure tyre noise) and the vehicle was well strapped down, cooled by a huge fan and exhaust gasses ducted away. The decibel level in the chamber needs to be 3dB lower than for the track (74dB).

Colin England

Advances in Pesticides Application

Bill Taylor, Hardi International

ALAM Conference Thursday 15th July 2004

'Earliest products cannot be compared to those used today.'

Bill commenced the session by outlining the enormous advances that have been made in Plant Protection Products in terms of their chemistry, formulation, selectivity, safety and environmental impact. He then posed the question 'But have sprayers changed'? After all, they are still the same shape and have the same recognisable components. As we found out during his talk, the developments have been very extensive.

So what has caused these changes? In essence, they can be split into two major categories: User and Regulatory Demands.

Changes driven by the User:

- Farms getting bigger
- Speed of fieldwork increasing
- Timing of application critical
- Lower Volume Rates
- Lower drift
- Minimising non-productive time e. g. increasing road speeds.

Changes driven by Regulations:

- International and country specific Specifications (ISO, DIN, ASAE)
- Buyer specifications (e. g. FAO)
- Sprayer Testing
- LERAP, Green Code (which is unique to the UK)

So how have sprayers improved over the years? Bill split the improvements into the following categories:

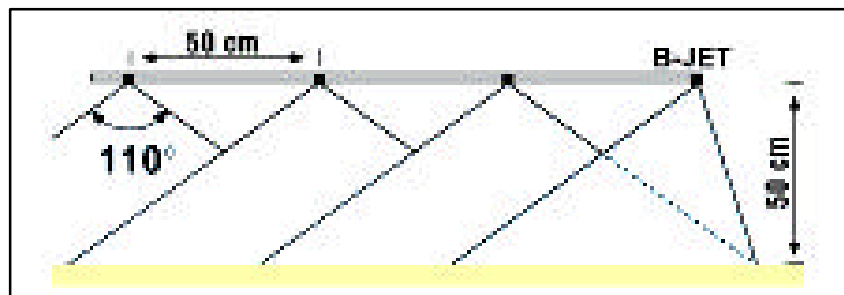
Product Loading

1. Improved labels. Labels are becoming more user friendly whilst still retaining the required information. There is a trend towards pictograms which can be used for all languages.
2. Improved containers. Large standard size (45mm) openings, Closed off handles. 'Non-stick' surfaces to improve cleaning.
3. Induction bowls. Introduced to improve safety and also speed of loading.

4. Container rinsing. Although there may be a demand for higher rinsing pressures to improve the speed of cleaning, the pressure is limited due to the higher dangers of splashing.
5. Recirculation for priming the spray lines.
6. Introduction of Rinsing Water containers / outlets over the Induction Hopper. This simple change ensures that the contaminated rinsing water end up in the tank not on the ground.

Application Techniques

1. More efficient nozzles to regulate, distribute and atomise the liquid.
2. Trend towards lower volume rates and the use of coarser droplet sizes. Low volume rates do not always require fine droplets.
3. Introduction of Very Coarse into spray quality categories.
4. Use of end nozzles (B-Jet Border Nozzle) to ensure even and consistent spray application right up to sensitive boundaries (driven by the Dutch market where crops are grown right up to dykes).



In-Field Cleaning

Research work from Germany indicates that 95% of water contamination comes from cleaning and not from drift. The move towards in-field cleaning of the interior and exterior now means that the cleaning water tank needs to be larger (10% of main tank capacity in Germany). There is also a requirement for more efficient cleaning systems such as

- Sprinklers in main tank
- More complicated internal flushing pipework
- Automatic electronic flushing procedures.

Swath Stability

Bill then explained the difficulties with maintaining an even application rate at higher speeds due to air turbulence at the boom. At low speeds with minimal air turbulence, the application rate is even across the width of the sprayer but as the forward speed increases, the aerodynamics of the power unit / sprayer combination causes air turbulence and vortices to occur which results in an increasingly uneven application distribution. A solution is the use of air assistance.

Knapsack Sprayers

Knapsacks have also seen developments occurring. The new International Standard will include requirements for stability, limited leakage (One way valves in lids), minimal internal / external residues and adequate filling rates.

Bill concluded his presentation by looking to the future of spraying. He suggested that there will be systems developed to:

- Improve monitoring and control
- Reduce operator dependence
- Define optimal application methods
- Relate crop residues with application methods

These systems will include automatic load monitors, twin air speed sprayers which will be adjusted to wind and cropping needs, spray accounting technology and swath control.

Bill then showed us some high speed photography of spray sheets from various nozzles and the impact of spray droplets on the leaves of various crops. Perhaps the most notable sequence demonstrated the proportion of the spray droplets that totally missed the leaf and the devastating effect of a another droplet impacting on a droplet already adhering to the leaf.

Throughout the entertaining and informative session, Bill fielded some testing questions in a very professional and pleasant manner and freely offered the support of Hardi International ([www. Hardi-International.com](http://www.Hardi-International.com)). In addition, he provided a list of publications and CDs which are available through him (wat@hardi.demon.co.uk):

- TWIN booklet
- Mistblower technique
- Spray technique
- CD-ROM -Technical update
- CD-ROM -Presentation -library
- CD-ROM-ATC-PP
- Appetiser
- ISO survey - memo
- ISO standards - memo
- CD-ROM- Agro binder
- CD-ROM- Mistblower binder
- Golden rules
- CD-ROM- MKJ's photo series
- DVD/CD-ROM -Nozzle video
- E-learning
- PDA –calibration
- CD-ROM ALPHA video
- Knapsack sprayer information
- IT information
- CD-ROM -LERAP
- CD-ROM Cleaning
- CD-ROM -AAB
- SPISE information
- HARDI, Nr. Alslev, test
- List with TWIN articles
- CD-ROM -HARDI INTERNATIONAL
- Input information
- Yellow binder
- Check list for sprayers
- Check list for knapsack sprayers
- CD-ROM QSN Information

Nigel Fox

Land Rover Vehicle Workshops, Gaydon.

Technical guide - Chris Bailey.

15 July 04

The main purpose of this workshop is to support and enable product development to take place on both new and existing vehicles in the range. The workshops are accessible to the various teams working on different projects and workshop work is organised and coordinated through the normal management and allocation of staff to the different tasks using their specialist skills and knowledge to best effect.

The workshop was capable of handling about twelve vehicles at one time and was obviously well equipped for its purpose

Examples of the type of work were explained as we went around and saw the vehicles being worked on;

- Steering alignment and geometry, this was done with infra red test equipment and is considered to be critical to the setup and handling of the vehicle.
- Tyre testing, different tyre sets were being assessed, looking at compounds, tread, grip and noise.
- Instrumentation, a number of vehicles were in the process of being fitted up with various test and sensor equipment which was all wired into some fairly serious instrument panels in the passenger compartments together with a data log to record results for further analysis.
- One vehicle was being prepared for engine temperature testing in all conditions and it was estimated that the time involved in fitting the monitoring equipment to the vehicle in preparation for the test was about a week!
- Ford Explorer bodies were being used as a "mule" vehicle to build new suspension parts for the Land Rover range onto and then load them up and rigorously test them.
- Major update of older vehicles, one of the early current Discovery range had its rear axle removed and was having different bushes and differential fitted to bring it up to the latest spec.
- Another vehicle with an engine at an early prototype stage was being fitted up for engine temperature testing and included in that test schedule would be a height and climb test.....towing a 3.5 ton loaded trailer!

It was estimated that it now takes 3 to 4 years from first design to vehicle launch.....with a lot of thorough testing in between.

This snapshot of some of what goes on in product development was fascinating and reassuring because the people involved in this area of work do not believe in leaving anything to chance. Our thanks to Chris Bailey for this eye opener!

John Gough.