

Harvestimes

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THE JOURNAL FOR AGRICULTURAL PROFESSIONALS



30,000th
JAGUAR

GPS
Steering

Bioenergy
Special

Precision
Benefits



Product news

30,000th JAGUAR and ETRION concept.....	3
PROFI CAM.....	4

Financial

Record financial results.....	4
-------------------------------	---

News

Apprentice graduates.....	5
Busy LAMMA.....	5
Farmers Weekly Farm Manager of the Year Award 2012.....	6
50 Years at Morris Corfield.....	6
CLAAS at Harper Adams.....	7
GPS steering options.....	8
CLAAS go TONI.....	9

International News

Expansion in China and Hungary.....	9
-------------------------------------	---

Renewable Energy Special

Bioenergy symposium report.....	10
New plant goes online.....	12
Foraging in Cumbria.....	13

CLAAS in the field

Dynamic Power JAGUAR 980.....	14
Auto Fill simplicity.....	15
Five DISCO combinations cover the ground.....	16
DISCO 9100 Autoswather appeals in Northern Ireland.....	17
New LINER 3100 slows forager.....	18
LINER 420 impresses.....	19
ROLLANT 374 passes Irish test.....	19
QUADRANT 3300 produces loads.....	20
Silver AXION steers a course for Scotland.....	21
Scorpion.....	22

CLAAS Kids

CLAAS shop on the road.....	23
-----------------------------	----

Dealers

CLAAS UK Dealers in UK and Ireland.....	23
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Welcome

CLAAS reported another record year not only in the British Isles but also Worldwide, and our commitment to Research and Development remains as strong as ever, with over £100 million invested last year alone.

As the world's largest family-owned agricultural machinery business, we are pleased to remain your specialist supplier with a personal, professional and profitable approach to business.

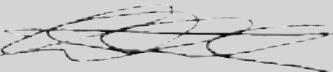
In this issue of HarveSTimes, we are delighted to bring you reports on our most recent shows and events, in addition to customer testimonials on the latest CLAAS products, news of our continued global expansion and our local investment in people, training and dealerships.

And our younger readers will find a Kids Club section for their enjoyment, and thank you for all the appreciation shown for the annual CLAAS Advent Calendars which we understand went down a storm with the little ones before Christmas!

With commodity prices remaining strong, our markets are extremely positive and we would like to thank all our customers for your continued support.

There will be many new (and old) challenges in 2012, from animal disease to drought, but nothing will get in the way of CLAAS and our Customers "getting the job done", as you can see from all the exceptional stories in this magazine.

Thank you



Trevor Tyrrell
CEO, CLAAS UK



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All the latest images and videos of CLAAS machinery can be found on the official CLAAS YouTube channel at YourCLAAS



Scan the QR code with your smart phone to connect to the CLAAS UK website
www.claas.co.uk

Product news

30,000 JAGUARS

November last year saw the 30,000th JAGUAR self-propelled forage harvester roll off the production line at Harsewinkel. Following tradition in CLAAS, the moment was recorded in the CLAAS history book with the machine having special black paintwork.

The JAGUAR story starts in 1972/1973 when CLAAS manufactured its first self-propelled forage harvester, the SF60. This was soon joined by the SF70 and SF80, which had a 267hp engine, and within two years 500 machines had been sold.

In 1983, the well known JAGUAR 600 range was introduced, which stayed in production until 1994 when it was replaced by the JAGUAR 800.

1994 also saw the production of the 10,000th JAGUAR and such was the increased demand for the JAGUAR, that just four years later in 1998 the 15,000th was manufactured.

The 20,000th JAGUAR was built in 2004 followed by the 25,000th in 2008, soon after the current JAGUAR 900 series was introduced in 2007.

Key production statistics:

- Production line length
 - 170 metres
- Assembly team
 - 150 people
- 16 assembly stations
- Annual production
 - 1,500 machines



Celebratory JAGUARS –

*Above - from top to bottom the 25,000th; 20,000th and 15,000th
Below - the 30,000th JAGUAR*



A tractor of the future?

In addition to looking at the development of the current tractor range, CLAAS took the opportunity at last year's Agritechnica Show to display a concept for an agricultural vehicle of the future.

The 1:2 scale concept was inspired by Merlyn Grey, a young designer from London, who worked with a team of design engineers from the CLAAS tractor division.

The concept vehicle has been named ETRION, where the E stands for 'electromobility', T for 'Trac' (track) and R for 'RAD' (wheel) followed by the ION word ending used with CLAAS tractors.

Whilst it is unlikely to ever reach the farm yard, the intention of the ETRION concept was more to stimulate conversation and raise questions as to the role of tractors in the future, and how they will meet farmers needs within a sustainable agricultural system.

One question looked at was how will it be possible to further reduce ground compaction, whilst also being extremely manoeuvrable but also maintaining full roadworthiness.

The ETRION solves this by using a combination of two steerable axles with an additional traction track. On the road, the track unit is raised out of the way, but having reached the field, the tracks can then be lowered to carry 50% of the machine's weight, but also extended horizontally so as to run on fresh ground and reduce compaction.

Alternative energy for powering machinery is also another topic raised by the ETRION concept. It is perceived this could be powered either by a gas generator, electricity or even fuel cells, which would be used to electrically power the wheel hubs.

Smile – you're on camera

Camera systems are becoming an indispensable tool for monitoring operations and processes on farm machinery – whether on combine harvesters, foragers, tractors or balers. Foraging, combining and transport are complex processes where good visibility is crucial.

To aid drivers keep an eye out as to what is happening around them, CLAAS now offers a camera system for farm machinery that delivers impressive quality in colour and high resolution. Up to four camera images can be displayed on the monitor in the driver's cab, simultaneously or picture-in-picture.



The new PROFI CAM 3 camera has a modular design and transfers images by cable, while the PROFI CAM PLUS transmits images wirelessly. In addition to the three main elements (camera, LCD monitor and switchbox), the camera system offers a variety of mounting fixtures.

The PROFI CAM Colour Camera delivers crystal-clear images even in poor light conditions. A built-in heater heats the lens and thus prevents misting or icing of the optics.

The dustproof and splashproof 7 inch LCD monitor has a high resolution and outstanding luminosity. Perfect image quality is assured, even in strong sunlight. The switchbox provides connectivity for up to four image sources and is protected by a rugged polyamide housing. All components outside the cab are also suitable for cleaning by power washer.

Financial

CLAAS goes from strength to strength

The latest financial results for the CLAAS Group show that the family owned company, which is headed by Cathrina Claas-Mühlhäuser who is President of the CLAAS KGaA Supervisory Board, had its most successful year ever in the financial year 2010/2011.

CLAAS recorded its highest ever sales which, at €3.304 billion, were up 33.5% on the previous year, mainly the result of strong sales in Western Europe, combined with continued market growth in Central and Eastern Europe and a high level of sales in both Northern and Southern America, India and China.

Contributing to this increase in sales, JAGUAR forager sales continued to grow and further strengthened CLAAS' position as world market leader. However, one of the largest growth areas was with tractors, with sales growing by 20% in Western Europe alone, against an overall market increase of 13%.

As a result of the overall increase in sales, income before tax

more than tripled to around €255 million. This strong financial position will enable CLAAS to consolidate and further expand, and to ensure that it can continue to remain a leader in agricultural technology, CLAAS last year invested €149 million in R&D, its highest ever figure.



CLAAS Group Executive Board members (from left): Jan-Hendrick Mohr; Dr Henry Puhl; Lothar Kriszun; Dr Theo Freye and Dr Hermann Garbers.

Congratulations!

A further 10 students from CLAAS dealerships throughout England received their CLAAS Apprenticeship awards at a Graduation Ceremony held at the CLAAS UK headquarters at Saxham at the end of last year.

The 10 students are some of the first to be awarded the new National Diploma in Land Based Technology, which many of them passed with Distinctions, in addition to qualifying for LTA2 status. Their graduation certificates were presented by Clive Last, Chairman of CLAAS UK.

The successful students are:

Daniel Cracknell and Chris White (both from Manns, Saxham); Jamie Leach (Manns, Thurnsford); Ryan Thomas (Southern Harvesters, Petworth); Daniel Barnes (Vaughan Agri, Dorchester); Ross Morse (Vaughan Agri, Frome); George Dyke (Mill Engineers, Pewsey); Nick Boughton (Mill Engineers, Bibury); Andrew Smith (Seward, Wilberfoss) and Richard Thompson (Seward, Sinderby).

During the four-year course based at Reaseheath College in Cheshire, the students had the opportunity to train at both the CLAAS Group headquarters at Harsewinkel in Germany and at the CLAAS UK headquarters at Saxham. During their final year they worked towards gaining additional industry certificates.

Having completed this first stage in their agricultural engineering education, the graduate students will have the opportunity to take their training a stage further by aiming for CLAAS Master Mechanic status for specific products, before potentially progressing to the higher Master Technician level.

On achieving these higher levels, this will also accord the technicians the relevant higher LTA3 and LTA4 accreditations.

CLAAS has been at the forefront of the development of the Landbased Technician Accreditation (LTA) in the UK, which aims to set a universal standard by which the skill of a technician can be benchmarked, assessed and validated. CLAAS currently has 390 technicians registered, including 32 at the highest LTA4 level.

The latest group of CLAAS apprentices recently received their certificates at a graduation ceremony held at the CLAAS UK headquarters at Saxham, Suffolk.



Busy LAMMA

The LAMMA Show continues to go from strength to strength, and this was certainly evident in the number of people that visited the CLAAS stand.

For CLAAS, this has now become one of the most important shows attended during the year. This is due to the fact that it is no longer just an 'eastern counties' show, but that we can meet and talk with customers not only from the length and breadth of the UK, but also increasingly Ireland as well. As a result, this year's LAMMA was the first outing for CLAAS UK's new larger marquee which hopefully provided everybody with a bit more space.

Centre stage on the stand was the new AXION 900 tractor, which was making its first public appearance in the UK and attracted a lot of attention. Also on display was the new XERION 5000/4500, which has now been fully launched.

LAMMA is the start of a busy show and event season for CLAAS in the UK and Ireland. During the year we will also be attending:

**Grassland UK, Bath & West Showground - 10th May
FTMTA Grass & Muck, Gurteen Agricultural College - May 17th
Cereals, Boothby Graffoe, Lincolnshire - 13th & 14th June
Royal Highland Show, Edinburgh - 21st to 24th June
Royal Welsh Show, Builth Wells - 23rd to 26th July
Tillage Live, Haddington, East Lothian - October 3rd**

The benefits of winning

Looking back on the 18 months since he was named the 'Farm Manager of the Year' in the 2010 Farmers Weekly Awards, sponsored by CLAAS UK, Alastair Brooks says that the benefits, both professionally and personally, have been enormous, and he would actively encourage anyone to enter.

Alastair is the first to admit that having heard he had been nominated, he was extremely reluctant to enter, but he says that it was probably one of the best things he has done.

"Firstly it has brought me a massive amount of personal satisfaction and given a huge boost in confidence. It is definitely a career highpoint," says Alastair, who manages the 1800ha Waddesdon Estate in Buckinghamshire, which is owned by Lord Rothschild.

"I only agreed to enter if Lord Rothschild approved, which unfortunately he did! But I have to say he was so supportive and encouraging, it gives me great pride that he obviously had faith in me and what I was doing."

From a professional point of view, Alastair says that the biggest benefit of winning the title has been the opportunities it has provided and the doors it has opened, which otherwise would have been far harder to achieve.

"It has enabled me to get involved in organisations and to meet people that I would not otherwise have done. It has also benefitted the business in so many ways and helped raise the profile of Waddesdon Farms and what we are doing here. As a result we have been able to expand the business into other areas, plus it has given my team here a tremendous boost."

Having grown linseed for a number of years, one new enterprise is to supply and source additional linseed straw for Hemp Technology, who use the fibre within the automotive and paper industries, as well as the manufacture of equine bedding.

Alastair has also been approached and is hosting experiments conducted by the Centre for Ecology and Hydrology on behalf of the Environment Agency, Natural England and the RPA to look at the financial viability and practical and scientific reality of the next range of environmental schemes.

Aside from being a judge for the 2011 Awards, where winner Charlie Russell was also named 'Farmer of the Year', Alastair is also regularly contacted to give talks and presentations. He works closely with the British Institute of Agricultural Consultants and through the Institute of Agricultural Management, he hosted the 2011 'Farm Planner of the Year' competition.



Alastair Brooks, 2010 Farm Manager of the Year

In addition, as a trustee of the Addington Fund which provides help and assistance to farming families facing hardship due to circumstances beyond their control, Alastair says that the award has also helped raise his profile as a trustee and opened doors for charitable funds and public perception.

Looking back on the benefits that winning has brought, Alastair says he would definitely encourage managers to enter the competition. "Deal with the butterflies you will have in your stomach, have the facts and figures at your fingertips, be prepared for a serious grilling but to also stand up for yourself and argue with the judges if necessary," he says. "Above all, have confidence in yourself and your ability, because it is a tremendous feeling when you succeed."

The Farm Manager of the Year award is sponsored by CLAAS UK. To enter or nominate someone for the award, please either visit the Awards website at www.farmersweeklyawards.co.uk or email linda.kimberley@rbi.co.uk

Fifty years service

Congratulations to Ray Turner who recently celebrated 50 years at Morris Corfield.

Ray's work began 50 years ago moving combines using a Series One Land Rover and collecting items such as electric fences, Lely Cock Pheasants, mowers and other small items which were delivered by train to Shrewsbury or Wellington railway stations.



More recently Roy has worked as caretaker of the Bentham premises and continues to help part time assembling new CLAAS liners and rakes.

Local farmer and photographer Sue Morgan presents Ray Turner with a copy of her book 'Combines in camera'. With them are company directors (left) Norman Duppia and Oliver Morris.

IPad Winner

George Apter is the proud owner of a new IPad 2 thanks to entering a Prize Draw organised by COMBINE WORLD at this year's LAMMA Show.

George, with his brother Charlie, recently came to Saxham where he was presented with his prize by Manns Field Sales Manager Mike Chinnery.

The Apters farm 320ha of arable at Great Cornard near Sudbury, Suffolk, where they run a LEXION 470 that they bought two years ago through COMBINE WORLD, "to provide us with extra backup and support during harvest, and the LEXION is the best combine on the market for us."

Charlie Apter (left) with George (centre) who was presented with his prize IPad 2 by Manns Field Sales Manager Mike Chinnery.



Harper Adams presentation day

CLAAS UK held a special Presentation Day recently at Harper Adams so that students could learn more about careers available to them with the family owned company.

CLAAS organised a programme of speakers for the event from their graduate and placement schemes, as well as bringing a selection of their machines to the soil hall on campus. Students from across all courses were invited to meet the team and learn more about opportunities available within the CLAAS Group and the CLAAS UK dealer network.

Jane Broomhall, Personnel Manager for CLAAS UK, said: "We take pride in supporting colleagues to develop new found skills, train to be the very best, and most of all, to grow their future into something special."

CLAAS has a long established relationship with Harper Adams University College in Shropshire, offering sandwich placements and scholarship programmes. The winner of the sixth CLAAS scholarship for Agricultural Engineering was recently announced as Yale Brewer. He can now look forward to his

second and fourth year fees being covered, a one-year sandwich placement at the CLAAS Group headquarters at Harsewinkel, and a summer placement with CLAAS UK.

Jeremy Wiggins, CLAAS UK National Sales Manager and ex Harper Adams graduate in Agricultural Engineering with Management and Marketing (1992-1996), said: "My time at Harper gave me a great foundation for a career with CLAAS. Many of my colleagues have a similar background."

"CLAAS is focussed on staying at the front of their field and it's clear that in this respect, Harper and CLAAS have mutual aspirations."

Also speaking at the event were Harper Adams graduates Dean Cottet (BEng Hons Agricultural Engineering 2005-2009), Dave Martin (BSc Hons Agricultural Engineering with Management and Marketing 2007-2011), John Bell (BSc Hons Agricultural Engineering with Management and Marketing 2004-2008) and current Harper Adams placement students Kathryn Shepherd (BSc Hons Business Management and Marketing) and Dan Smail (Bsc Hons Off Road Vehicle Design).

2010 CLAAS placement student Michael Ives (left), current CLAAS Scholar Miles Metcalfe (2nd left) and current CLAAS placement students Phil Watson (centre), Kathryn Shepherd and Dan Smail (right)



What do YOU say

In addition to these print versions of HarveTimes, CLAAS UK has also entered the digital publishing age with the launch of a dedicated electronic magazine 'What do YOU say' which covers customers thoughts and use of CLAAS tractors throughout the UK.

This can be accessed via the CLAAS UK homepage at www.claas.co.uk. One of the benefits of electronic publishing is that it is extremely easy to update publications, so you will find that this will be regularly updated with new customer stories from around the UK during the year.

What do YOU say?



Find out what all these people say about CLAAS tractors. Visit us at www.claas.co.uk/tractorbook

www.claas.co.uk/tractorbook

CLAAS



GPS steering options

CLAAS was one of the first to recognise the benefits that automated steering would have on operator efficiency and output, and currently offers a comprehensive range of cost effective and advanced steering systems.

CLAAS developed its first automated steering system over 30 years ago, when the AUTO PILOT automated row following system for maize harvesting was launched. This was followed in 1999 with LASER PILOT, with the first GPS steering system introduced in 2003.

CLAAS is now able to offer three different terminals for use with GPS steering and machine management systems: COPILOT TS; GPS PILOT S3 and CEBIS MOBILE.

COPILOT TS

The CLAAS COPILOT TS steering terminal provides a cost effective option for those looking to start making use of GPS steering and is designed for use with tractors. It shares many features of the more advanced S3 control unit and uses an EGNOS correction signal giving a level of accuracy of $\pm 15\text{-}30\text{cm}$. COPILOT TS is capable of following a straight or curved path and can be used for either steering guidance or can be upgraded for use with an automatic steering system.



The COPILOT TS unit incorporates a large touch screen display and aside from providing track management, the terminal can be used to calculate and store information, such as the area covered, and has a USB connection to download information for further use.

A new feature for 2011 is compatibility with CLAAS AGRO-MAP mapping software. Having saved yield mapping data from the combine, using COPILOT TS information from the tractor, such as A-B lines, drill or tramline settings, etc. can be saved in the same folder.

GPS PILOT S3 terminal

The latest CLAAS GPS PILOT S3 terminal provides a more comprehensive range of information and incorporates an 8.4 inch touch screen display. In addition to A-B line set-up and following, other functions include internal job-management, area calculation, markers and data exchange with AGRO-NET and AGRO-MAP software.



This new version of the terminal is not only faster to respond than previous units, but is more positive and uses a 6-axes gyro so that not only can side-to-side movement be compensated for, but also pitch and yaw.

CEBIS MOBILE

CEBIS MOBILE is a multi-functional terminal which aside from setting-up and controlling GPS steering, can be used to set-up and operate ISOBUS compatible machinery or for variable rate application. It is also the operator interface for the new CEMOS combine optimisation system.

Information is displayed on a 6.4 inch colour display and the terminal incorporates the standard ISOBUS layout with 15 keys and one rotary switch for easy navigation.



GPS PILOT II

The new GPS PILOT II system is the first system to be designed and built by CLAAS and can be used in conjunction with EGNOS, OmniSTAR HP, BASELINE HD and RTK signals.

Controlled using CEBIS MOBILE, GPS PILOT II is designed for use with LEXION 620 to 770 combines and XERION 5000/4500/3800 models.

GPS PILOT II is designed so that it can be quickly and easily moved from one GPS ready machine to another, with all the main components contained in a simple tray that slots into a mounting beside the driver's seat.

When used for GPS steering, in addition to straight A-B line and parallel contour following, there is also the ability to set a curved A-B Contour path that allows bout skipping, plus there is the ability to set an A-B path that can be shared by two machines, such as a combine and accompanying chaser bin.



CAM PILOT

In addition to the GPS-based steering systems above, CLAAS is also able to offer the unique CAM PILOT steering system. The latest version of CAM PILOT can be used with either the CLAAS COMMUNICATOR or the new CEBIS MOBILE terminals and can be used at forward speeds as low as 50 metres per hour, making it ideal for use in vegetable or similar crops.

CAM PILOT uses a 3D digital camera to scan the area in front of the tractor. By using a 3D image, the camera can identify field structures, so is able to accurately identify and follow not only plant rows, but swaths, tramlines or ridges in the soil or crop, and use these to steer the tractor to an accuracy of $\pm 2\text{-}3\text{cm}$.



TELEMATICS on Implement (TONI)

The unique CLAAS TELEMATICS output monitoring and information system is unprecedented in the amount of management data it is able to provide.

Until now the system has only been able to provide operational information on the individual tractor, but CLAAS has now taken TELEMATICS a stage further with the development of TELEMATICS on IMPLEMENT (TONI) which is able to also gather data from the implement being used behind the tractor.

Currently undergoing final pre-series trials, TONI will be fully available next autumn, but has already been awarded a Silver Medal at last year's Agritechnica show.

In an era where farming businesses are having to record and store an increasing amount of agronomic and field data for regulatory purposes, TONI will be invaluable in helping gather all the field data necessary. In addition, it will also help simplify invoicing and provide greater real time information.

However, one of the most useful features will be the ease with which information such as spray, fertiliser or slurry application data can be gathered, stored and retrieved in order to meet regulatory requirements.

Using TONI, the need for manual record keeping is eliminated. As the tractor enters the field, if the field is already recorded on the TELEMATICS system, for instance from yield mapping, then the system will automatically recognise the field and will start to upload the latest application data to that field file. If there is no previous field record, the field boundary and application data will still be gathered, and this can then be subsequently allocated a field name or identity for future use.

To access this information, TONI uses an Open System to communicate and gather data from the implement via ISOBUS. This data is then uploaded every 15 minutes via the GPRS mobile phone network to the server along with the tractor output data. This can then be accessed from the office PC or hand held web enabled device, where both sets of information are displayed as one working unit and if required can be used to create spray records, application maps, etc.

Whilst in the future TONI will be able to gather data from any ISOBUS compatible machine, in the first instance TONI will be available for QUADRANT 3200, 3300 and 3400 balers, plus implements from OEM partners Amazone, Horsch, Lemkin, SGT, Kaweco and Zunhammer.

International news

Expansion in China

CLAAS is significantly increasing its activity in the Chinese agricultural machinery market. Until now, CLAAS has been active in China with its own representative, supplying the huge market through local sales organisations, but in early 2012, a new sales and service subsidiary will commence operations in Beijing.

The headquarters of the new Chinese CLAAS company will be located in the business district of Chao Yang in the capital and an additional branch is currently under construction outside Beijing that will house the central parts store, as well as for training and service.

CLAAS has been active in the modernisation of Chinese agriculture for a long time, supplying in particular forage harvesting machinery. CLAAS has also been involved as a partner in a research and demonstration farm in the north of China, and when compared to locally produced agricultural machinery, CLAAS machinery is considered to be state-of-the-art agricultural technology.

CLAAS Sales Managing Director Jan-Hendrik Mohr justifies the company's expansion into the Chinese market with the growing importance of agricultural technology in the country. "It can only be possible to ensure the supply of sufficient food for a growing population by means of the latest technology. Furthermore, for a

long time we have observed an increasing migration of people from the countryside to the big cities. Consequently, due to a lack of manpower in agriculture, the work must be performed by machines".

... and in Hungary

CLAAS is expanding its plant in Hungary which, based in Törökszentmiklós, south-east of Budapest, develops and manufactures almost all front attachments for the company's combine harvesters worldwide.

Currently the plant employs over 500 staff and €3.6 million is to be invested in a new research and development centre and to connect the plant directly to the rail network, which accounts for 65% of the plant's transport requirements.

CLAAS has been active in Hungary since the 1970's and took over the plant in Törökszentmiklós in the east of the country in 1997. Originally a team of about 300 staff pre-assembled drum mowers for the CLAAS plant in Saulgau. In 1998, production of the first combine harvester cutterbar was transferred from Harsewinkel to Hungary and today all cutterbars and cutterbar trolleys for CLAAS combine harvesters come from Törökszentmiklós, and are supplied to customers throughout the world.

Other plans for Hungary in 2012 include a significant increase in the number of staff and a further increase in production. The current range of products manufactured by CLAAS Hungária Kft. also includes maize harvesting attachments, disc mowers and chaff spreaders for combine harvesters.



RENEWABLE ENERGY SPECIAL

Energy Fields 2012

January 2012 saw the CLAAS Group hosting its second International Biogas Symposium at the Technoparc at Harsewinkel, which was attended by about 500 delegates from 17 countries, including farmers and contractors from the UK and Ireland.

Whilst biogas production using anaerobic digestion is still a comparatively young industry in the UK, it is rapidly growing, and CLAAS is acknowledged as a leader when it comes to the harvesting and handling of crops for use in AD plants. This is based on its extensive experience in Germany, where currently there are 7,000 AD plants in Germany, producing 2,300Mw of electricity, which results in the employment of 45,000 people.

Food v fuel

One of the key themes of this year's Symposium was looking at how operational efficiency can be improved and land use for fuel maximised, in order to accommodate the increased amount of land that will be needed in future to feed the expanding world population.

Opening the event, Dr Gerd Müller, Parliamentary State Secretary of the German Federal Ministry of Food, Agriculture and Consumer Protection put this in perspective.

In 1950, he said, the world population amounted to 2.5 billion, whilst currently it stands at 7 billion and by 2050 will have grown to 9 billion. To feed this increasing world population will require a 90% increase in food production, yet the available area for agricultural production shrunk by 7 million hectares last year alone.

In addition to needing to feed this increase, they will also consume more power, and to achieve this balance will require research, innovation and development. Germany is a world leader in alternative energy production.

Currently 800,000 hectares of land in Germany is used to grow plants for energy, but this will rise as whilst currently 13% of electricity is from renewable sources, supplying 3.5 million homes, the aim is that by 2050 this will account for 60% of final energy production. One of the drivers for this rise, is the decision that following the Fukushima nuclear power plant disaster in Japan, by 2022 Germany will have closed all of its nuclear power plants.

Maize isn't everything

One of the keys to meeting the increased demand from both food and fuel is to ensure maximum output per hectare, and in the case of crops for bioenergy this means looking at which crops will achieve the maximum gas yield.

According to Dr Armin Vetter of the Thuringian State Institute of Agriculture, whilst maize as an energy plant is unbeatable, it is important to look at alternative plant and crop rotations.

Eight years ago, 20 institutes throughout Europe established the EVA project to study crop rotation, the efficiency and profitability of individual crops. For bioenergy production, five crops have been compared, and at all times maize and sorghum have consistently been the most profitable.

However, when considering the relationship between crop groups and overall biodiversity, monoculture can have a considerable negative impact, so incorporating a rotation is important if flora and fauna numbers are to be maintained and increased. Incorporating alternative crops can also be beneficial when it comes to reducing growing cost, and trials have shown that whole crop provides the opportunity to reduce pesticide costs whilst still maintaining gas yield.



Grass for biogas

For many in northern Europe, maize and other arable based crops are not a realistic option due to climate, but this does not rule out the option of still being able to run an AD plant on grass alone, as Matthias Brandner showed in his presentation.

He runs a 105ha farms on Germany's Baltic coast, which supports an 80 cow dairy herd and a 185kW AD plant that is run on grass and slurry.

To meet the demands of both aspects of the farm, in all up to five cuts of silage are taken each year, with the first two higher quality cuts used for milk production and the remainder clamped for AD. Chop length is kept to between 8-10mm using a half set of knives in the forager.

Whilst the plant runs perfectly well on grass, it is important to realise that not only will the dwell time be longer, but wear and tear on the plant will be considerably higher compared to using maize. As a result, heavier duty paddle mixers are used in the digester but records show that faults can be up to 20 times higher, often just due to faulty sensors, and even after four years, they are still recording 500 disturbances/year. The most common problem was in the feeding in of grass, followed by problems



with the sensor system. This can have a considerable impact on energy production as it has been noticeable that the grass based substrate is more sensitive to disturbances.

Substrate quality

As with a cow, the higher the quality of the raw material you feed into the plant, the more yield you get back, according to Dr Eberhard Hartung of the University of Kiel.

The systems used and the efficiency of the harvesting and clamping of the substrate is therefore key to ensuring that nutrients are available for optimum gas yield, and in practice gas yield losses of up to 30% can be caused by losses at the harvesting, transport and clamping stages.

One of the key factors that determines biogas yield is the dry matter yield, so harvesting date can have a considerable impact on methane yield. Chop length is also another major consideration as a shorter chop will result in greater compaction in the clamp, whilst the greater surface area will result in higher nutrient availability and a faster drop in pH value. Alcohol from the sugar yeast is also higher which results in a higher methane content.

Once in the digester, the shorter chop will provide a greater contact area for bacteria, so reducing the dwell time and greater gas production.

Digestates as a resource

Based on a 300kW AD plant, for every 100ha of maize and 30ha of whole crop used in the plant, this will result in 8,700m³ of fermentation residue, which typically will have available 34,000kg of nitrogen, 14,000kg of phosphorus and 36,000kg of potash.

If digestate use is to be maximised, Dr Matthias Wendland of the Bavarian Regional Office for Farming pointed out that nutrient content will not only vary considerably, but that a high ammonium content combined with a Ph value of around 8 means that loss-free application is essential.

Also the time of year that the digestate is spread can also affect nitrogen availability. Rapid crop growth in the spring can result in up to 75% of available N being used, whilst come the autumn, because the crop does not take up as many nutrients, this can drop to nearer 30% in cereals, whilst on grassland take-up will be nearer 60-80% between February and November. So whilst storing the digestate may not be an option, one option could be to use it on different crops through the year.





Integral AD

After three years of researching and planning, the new 1.4Mw Anaerobic Digester at Symonds Farm next to CLAAS UK at Saxham went live on January 26th 2012.

The development of the new AD plant, which is a joint venture between Geo Gittus & Sons and Material Change AD Ltd, is seen by George Gittus and fellow director Mark Wells as being very much an integral part of the farming operation, and to an extent a return to a more mixed farming system, but with a 'concrete cow' providing the livestock element.

"To our mind having the AD plant will provide a more balanced rotation and in effect return us to a mixed farming system but with a modern twist. It's not been without its teething problems, however it's been a good learning curve, extremely interesting and invigorating, and a challenge because it is totally different," states George.

"It sits very comfortably with me. It's not something I have done simply for environmental reasons. Doing anything like this should not only be a perfect fit with the rest of the farming system but must also make good business sense. With regards the food v fuel debate, it was not that long ago that we were growing crops to put aside for feeding horses that pulled ploughs."

"We have had a lot of local interest from the village, and I certainly intend to have an open day, maybe along the lines of Open Farm Sunday, and to arrange visits for the local school."

Built on the site of a redundant pig unit, the 1.4Mw plant was supplied by Agrafarm Technologies AG and in the first instance will be run on 100% maize, at a rate of 60-70 tonnes/day depending on quality and gas production achieved, with a retention time of 38 days. After this the digestate is passed through a screw press, with the solid element spread back onto the land and the liquid element being pumped through the existing irrigation network for spreading through a boom irrigator.

"There will be a strong synergy across the whole farm and links in well with the arable side. Apart from the value from the P&K in the digestate to spread back onto the land, maize will provide

a good break and give us the ability to culturally control our serious blackgrass problem, and we have already had some extremely good results," says Mark.

The aim is to establish a rotation putting half the farm down to first wheat, with the remainder split evenly between oilseed rape and maize. In addition to growing maize on their own land, there has been a lot of interest from other local farmers, and another 11 farmers are now growing maize for the plant, either in place of spring crops after sugar beet or as part of their rotation.

"The key is to have a completely open mind; every day is a school day," comments Mark. "We are extremely lucky in that we have a very versatile workforce, who are also positive and enthused by the new challenge that the AD plant brings. There is one person specifically in charge on a day-to-day basis, but George, myself and two other staff are also involved so that there is complete cover."

"We are also lucky in that the foraging contractor, Ollie Neil, is very good, and that is critical to the operation, but so far we have had two easy harvests and have been able to establish some good wheat crops which is key."



Mark Wells





Confidence for the future

Stephen Little's foraging operation has come a long way since the Littles bought their first self-propelled forage harvester in 1981.

Then, the forager was bought principally to harvest silage for their dairy herd at Kirkbride, near Carlisle, which currently numbers 225 cows that are housed all-year round.

However, having bought the forager, it was not long before neighbours started to ask the Littles to harvest their silage and the forage contracting business grew from there. The business now operates two JAGUAR 950s and a JAGUAR 890 which each harvest around 2,000ha of grass silage a year, including some 800ha of maize and whole crop, for around 50 customers in north-west Cumbria.

"We bought our first CLAAS forager, a JAGUAR 680, 25 years ago," says Stephen Little, who runs the business in a family partnership with his brother Michael. "The success of the business and the ability to expand our foraging operation has been due to the confidence that we have had in JAGUAR itself, the support we have received from both CLAAS and **Rickerby** in Carlisle, and good staff at Kirkbride."

"We have been extremely pleased with the JAGUAR 950 and its performance. We are now on our third 950 machine having bought one of the first produced in 2008. The major plus points for us are its ease of maintenance and operation."

"Access to the chopping cylinder especially is so much easier now. It is also very simple to change the blades and they no longer have to be re-bevelled. Instead, the blades stay at the right angle until the end of their life. Also the new design of pick-up reel with its five tine bars is a great benefit."

The silaging season gets under way in mid-May with the first-cut peak period running through until early June. Being in one of the wettest regions in the UK, weather is the biggest issue. Nevertheless, the aim is that each machine will clear up to 60ha per day on average.

"We have tried other makes of forage harvester in the past and have found it is not just the machine that you have to consider,



Stephen Little

but instead the support from the manufacturer and dealer. This support is crucial in enabling you to provide a good service to your customers. Rickerby's staff in particular are keen to make sure everything goes well during the season."

Whilst harvesting grass for cows will continue to account for the bulk of the Littles' workload, Stephen sees that there will also be an increasing demand for harvesting crops for biogas, starting with their own plant which is due to be constructed this summer in a joint venture with a neighbour.

"The plant will have a 500kW electrical output which will be fed into the national grid. It will run on a diet of cow slurry from the two herds, FYM and grass silage, plus whole crop and maize. There is also potential to utilise the heat energy and develop a local heating scheme for houses in the village."

Up until now in the UK, there has been a strong focus on larger plants of 1000kW and above. However, in Germany and mainland Europe there are many plants with a much smaller output of, for example, just 150kW. Stephen thinks there is great potential for livestock farms to utilise waste and generate extra income from these smaller plants, whilst maintaining their core business and taking further advantage in using the digestate as a fertiliser.

He adds, "I am looking forward to seeing what the future holds and how these opportunities develop."

Definitely the right way to go

With a fleet of 27 JAGUAR's, it's fair to say that Harry Wilson knows a thing or two about CLAAS foragers, and in his opinion the development of the DYNAMIC POWER system is just what he has been waiting for.

The new DYNAMIC POWER system for JAGUAR 970 and 980 forage harvesters was launched at last year's Agritechnica.

The development of the new DYNAMIC POWER system is as a result of the move to a single engine in these models, instead of two, in order to meet the latest emissions regulations.

DYNAMIC POWER is unique in that it enables the engine to automatically change between 11 different power output levels depending on load, which will ensure greater efficiency and reduced fuel consumption by maintaining an optimum engine load at 1800rpm.

Both JAGUARS are powered by MAN V12 engines which, using DYNAMIC POWER and as the load on the engine varies, will alter power output over a 10-step range from 272hp to 884hp on the JAGUAR 980 and 272hp to 775hp on the JAGUAR 970.

CLAAS DYNAMIC POWER steps

	10	9	8	7	6	5	4	3	2	1	Min.
JAGUAR 980	884	823	762	700	639	578	517	456	394	333	272
JAGUAR 970	775	725	674	624	574	524	473	423	376	322	272

ECE R120 @1800rpm

"I think it is definitely the right way to go because fuel use is a major issue, so anything that helps reduce consumption has to be a benefit," says Harry, who ran a pre-series JAGUAR 980 for part of last season.

"Whilst we have not yet done any fuel use comparisons, we can

presume that with the DYNAMIC POWER system, reduced fuel consumption should be a big advantage. Whilst in maize there will be no great benefit because the machine is under a constant load, in grass there is far more variation in the swath – and you could hear and feel the engine adapting to the change in the swath and altering the power accordingly, whilst keeping to 1800rpm."

"With the twin engine JAGUAR, we tried running it on one engine in whole crop, but with a 6.0m DIRECT DISC header it was never quite powerful enough, so you then had to go back to full power, plus there was the extra weight of the second 1.5 tonne engine that was having to be carried."

"Compared to the concept of just having two power levels, DYNAMIC POWER is far more of an advantage because it is correcting itself all the time and adapting the power level required to the crop," says Harry who ran the pre-series JAGUAR 980 for part of last year's grass and maize harvest.

"The driver certainly found it a pleasure to drive. Whilst the crops were not the best, it was running at about 8kph and he was impressed with the way it reacted to what was going into it."

Whilst the majority of the forage harvesters owned by the Wilson Group are hired out, Wilson Contracting runs three foraging teams which form the core of a forage harvesting operation which, in addition to harvesting around 4,800ha of grass silage, are running nearly all year round. From January through to mid-April foragers are being used to harvest miscanthus for the International Energy Crops division of the company. The grass silage season then starts in mid-April, followed by whole crop, then 60ha of hemp prior to the maize harvest for bioenergy commencing in early-September.



Some of the 27 JAGUARS owned by Harry Wilson (above)



AUTO FILL simplicity

Paul Ecclestone has found that having the unique AUTO FILL system fitted to his JAGUAR 960 has made life so much easier, especially when working with tractor drivers who have little experience of working alongside a forager.

Paul's 623hp JAGUAR 960, which was bought last year from Morris Corfield to replace a JAGUAR 950, is the latest in a very long line of CLAAS JAGUAR foragers. Paul ran trailed JAGUAR 40, 65 and 75 foragers for many years prior to purchasing his first self-propelled, a JAGUAR 690, being bought in 1991.

"Everyone thought I was mad," says Paul. "I was one of the first to run a self-propelled in the area. Back then I was annually harvesting about 480ha of grass silage, and the main reason for changing to a self-propelled was when a couple of customers started growing maize and I thought this was a crop that could expand rapidly."

Based near Oswestry in the Welsh Borders, Paul now annually harvests around 2,400ha of silage crops of which 480ha is maize and a small area of whole crop, mainly for dairy farmers within a 10 mile radius.

In addition to AUTO FILL, the new JAGUAR has been specified with virtually every option, including TELEMATICS, QUANTIMETER yield mapping, adjustable accelerator and variable tyre pressure adjustment.

"A system for automatically controlling the spout is something I have wanted for years, and the AUTO FILL is fantastic. It's extremely useful and makes life so much easier for the tractor drivers and the forage harvester operator. With AUTO FILL, as soon as you pull into a row or the trailer comes alongside, once the camera has locked onto the trailer there is no escaping."

With the largest fields Paul works in only being about 16ha, and the average field size nearer 4.0ha, by enabling him to just concentrate on what's ahead rather than having to also look at

the spout, AUTO FILL helps ensure that high daily outputs can be maintained.

"It takes all the stress out of the operation and allows me to just concentrate on where I am going, especially at night or when going round a tree or obstacle as the spout will just follow and look after itself. I tend to set it so that it fills from the back of the trailer forwards (there are three settings – normal, front and rear) and then just manually top the trailer up to finish."

Paul specified yield mapping and moisture content recording in order to meet the requirements of customers who were interested in gathering this information, so that they could link this into their fertiliser programmes. Having TELEMATICS on the forager will also provide him with additional information such as fuel consumption and provide an accurate work area and whole field size measurement, which Paul may ultimately utilise for automatic billing or for charging on a tonnage harvested basis.

"The JAGUAR is a very reliable forager and that is the reason I have stayed with them, in addition the service from **Morris Corfield** is excellent. My previous JAGUAR 950 was one of the first and very little trouble, and the new 960 has gone extremely well."

"The variable tyre pressure system has to be one of the best features, because it automatically adjusts to the pre-set pressures between field-work and road - it's fantastic. Apart from reducing ground damage, by reducing the pressure on rough fields for more cushioning, this makes the ride far smoother and reduces the vibration and wear on the spout."



Paul Ecclestone

AUTO FILL, which was awarded a Gold Medal at Agritechnica 2009, uses a 3D camera on the spout to automatically measure the trailer and having locked onto it, to then follow and fill the trailer automatically whilst looking for empty space and moving the chute accordingly.





Co-ordinated foraging

The last few years have seen Dumfriesshire contractor Graham Rae gradually increase the amount of CLAAS green harvest machinery operated within his extensive foraging operation, mainly due to build quality and dealer service.

Central to the company's foraging service is a team of four JAGUAR self-propelled foragers – two 950s and two 870s. Since the first JAGUAR forager was bought in 2002, 10 have now passed through the yard at Kirkpatrick Fleming which, like all the other CLAAS machinery, were supplied by **Rickerby** at Carlisle.

Between them, the three main JAGUARS will each harvest around 1900ha of grass silage, with the fourth coming into action at peak periods. Following grass, the two JAGUAR 950s then go on to clear another 800ha of whole crop and 300ha of maize.

Supporting each of these foraging teams is an extensive range of CLAAS green harvest machinery. Working ahead of the foragers is a fleet of five DISCO 3100F and 3100C CONTOUR front and rear mower combinations. Where needed the crop is spread using two VOLTO tedders, then raked up using either two LINER 3500 4-rotor or a LINER 2900 twin-rotor rakes.



In addition the company also runs two LEXION 530 combine harvesters, one of which will be replaced with a new LEXION 630 for this coming harvest season, plus two ARION tractors - a 640 CEBIS and a 630C.

"Basically each of the three main foraging teams has a mower combination working ahead of it, with the two extra mowing teams fitting in around them as needed," explains Andy Rae. "The DISCO is an excellent mower and makes a really good job. They are easy and quick to hitch on and off and the CONTOUR system works very well."

"Due to the nature of the farms in this area, the whole system is aimed at each foraging team having a daily output of around 60 to 80ha. We have a complete cross section of farms running from the Solway Firth into the hills, ranging from dairy farms with anything from 60 to 830 cows, through to hill beef and sheep units. And whilst there are a few big, go-ahead farms with large open pits, there are still quite a few with clamps in smaller sheds."

"Buck raking is the most important part of the operation, and it is important that each foraging team is able to work on any farm. We would therefore rather run more smaller foragers, such as the JAGUAR 950 and 870, which are ideal, rather than something larger. It also enables us to satisfy four customers when a gap in the weather occurs, which is more useful to us than having fewer-larger machines which can choke things up at the clamp."

Since changing over to the DISCO mower combinations, the Rae's have also found that rather than needing to change the mowers every other year as previously, they have been able to extend replacement to every three years.

"The mowers are going hell for leather during the season, but they are wearing very well. The ability to change the ground pressure is definitely an advantage as the ground can be soft and helps reduce wear and tear."

New for last year's foraging season were the two LINER 3500 4-rotor rakes which work ahead of the JAGUAR 950s, with which the Rae's have been very pleased. "This was a big change for us as we had previously only run 2-rotor rakes," says Andy. "It's had a positive benefit for customers as we are using less of their fuel, and being able to sometimes take in five 3.0m swaths in a single pass results in fewer wheelings, so reducing compaction."

"The bigger rakes are more difficult to use and need a good driver, but by creating a larger swath that is big enough to hold the forager back, we have been able to increase output but at a slower forward speed, which has resulted in a more even chop and is less tiring for the drivers."

"However key to all of this has been the service and support that we receive from Rickerby. We have had no problems that have physically stopped us chopping, and we have the benefit that some of the technicians at Rickerby live nearby, so are able to quickly drop in and sort any problem that does occur."



Andy Rae

Autoswather flexibility

The new DISCO 9100 C Autoswather has already proven a popular addition to the CLAAS DISCO mower range due to the flexibility it provides by enabling up to 18m of grass to be placed in a single swath.

With a working width of 9.10m, the Autoswather units mounted on the two outer mower units provide the operator with a wide range of choices, from lifting the swather units completely out of the way so that the crop can be spread across the full mower width, to engaging either one or both units. Working in conjunction with the 12.2m LINER 3500, this enables 18m of grass to be placed in a single swath.

The launch of the new DISCO 9100C Autoswather follows an extensive testing programme, including in heavy crops in Northern Ireland where contractor John O'Hare ran a pre-series machine for the last silaging season, having also had a trial machine for a month in 2010.

Based near Banbridge in County Down, the O'Hare's run four foraging teams including a JAGUAR 960 and 890 bought through **Erwins**. They have been running DISCO triple mowers since 2001, when they bought a DISCO 8550 that was run on a JAGUAR power unit. This was replaced by a XERION fitted with another set of triples and currently in addition to the new DISCO 9100C Autoswather, they also have a DISCO 8400 and a self-propelled mower also with groupers.

"The new DISCO has been great, it follows the ground well and does a good job," says John. "The majority of the time we are wanting to put the grass into a single swath for the foragers, and having the groupers means we save a man and machine raking and the risk of picking up stones and soil. Also being able to use it to move the headland swath in is a great advantage."

"It's mainly the beef and sheep farmers who take a single heavy cut that want it grouped. The dairy farmers tend to prefer to have their crops left to wilt for at least 24 hours, after which we will rake it in, for which we run two LINER 2900s plus a 3500 and 880 rakes."



From left: Davy, John and Joe O'Hare, Raymond Truesdale and Mark O'Hare

"The DISCO has worked well in the heavy crops and due to its extra width, full width conditioners and the new (ACTIVE-FLOAT hydro-pneumatic) suspension system, it is not too power hungry."

By the end of the foraging season the new DISCO 9100C Autoswather, which was run on a 220hp tractor, had mown 2,600ha and in good conditions was comfortably clearing up to 80ha a day at a rate of around 6.0ha/hour in fields that range from 12ha down to just 1.0ha.

Depending on stones, blades were typically needing to be changed after about 320ha, but thanks to the Quick Blade Change system this only takes about 30 minutes according to operator Raymond Truesdale.

"The new hydro-pneumatic floatation system is the biggest improvement. It's easy to adjust on the move and results in a really good, clean finish, that is a definite improvement on our old mower," he says. "Even though the new mower is wider, it doesn't take any more power to drive, and the groupers work really well, leaving a good, well formed swath for the forager. For transport it's very steady on the road and having the locking hooks is also a good safety addition."

"I have been well impressed with the new DISCO 9100, and it could be a consideration when we come to replace the self-propelled mower" adds John. "Also the new DISCO 8400, which replaced a set of front and rear DISCO mowers, has also gone extremely well."



Wide working 2-rotor

One of the biggest benefits of the new 2-rotor LINER 3100 for two contractors who ran pre-series machines last year, was that it offers a working width previously only achieved with a 4-rotor rake.

For both Drew Watson, who is based at Mouswald near Dumfries and Anthony Parker from Audlem in Cheshire, the LINER 3100 has all the advantages of a 2-rotor, in that it is easier to transport and get through gateways, whilst also being less costly. Being able to pull in three 3.0m mower swaths has had the benefit of allowing them to maintain output and at the same time slowing the forager forward speed.

Drew operates two forage harvesting teams based around a JAGUAR 890 and a JAGUAR 870 which clear around 2,800ha of grass silage with the aim that the JAGUAR 890 will clear around 40 to 48ha a day in good going, plus some maize and whole crop. Supporting these are two sets of DISCO front and rear mower combinations and another LINER 770 rake all of which is bought through **Gordons**.



Anthony Parker

"I wanted a rake that would match the capacity of the JAGUAR 890 forager and put more into the swath, but that was not too big, so would be easy to transport around narrow roads and gates," explains Drew. "I ran a second LINER 770 previously, but it didn't put enough into the swath, so the forager was having to go faster to keep it full. In most crops we operate the LINER 3100 at its full 10m working width, it's only when working on beef farms where they take just one heavy crop that we will bring it in about half way to suit the chopper."

Virtually all of Anthony Parker's work is on dairy farms, which on average run around 300 cows and will be clamping on average 72ha of first cut, after which most will take another two cuts.

Anthony also runs two foraging teams based around JAGUAR 900 and 870 Speedstar foragers. Working ahead of these are a new DISCO 9100C triple mower and a front and rear combination with full width conditioners. With a 4-rotor LINER 3000 for the JAGUAR 900 the new LINER 3100, which replaced a LINER 2900, is used ahead of the JAGUAR 870 and also alongside a LINER 880 with his four QUADRANT 3200 and 2100 balers.

"Compared to the LINER 2900 that it replaced, the greatest benefit of the LINER 3100 is its wider working width, and, when using it at its widest, due to the extra tine arms and wider rotors it leaves a tighter 2.7m wide swath, which is easier to pick-up and leaves a tidier finish," says Anthony.

"In all the LINER 3100 covered about 800ha as CLAAS borrowed it a few times during the season, but it was extremely easy to operate, very quick to fold or lower for use and far easier to operate in smaller fields than a 4-rotor rake. I also particularly like the positive transport locking system, and the



Drew Watson

latch is placed well above the pivot point so that there is no flexing of the arms during transport."

For both Drew and Anthony, the ability to put a larger swath in front of the forager has helped reduce forager speed.

"By putting more into the swath, this has brought the forager's forward speed down, but we are still getting the same output. The other benefit is that by going slower, we are getting a cleaner lift with the pick-up and the whole operation goes at a far more sensible pace. As a result there is less stress on both the men and the machinery," states Drew.

"Where the crop has been tedded out, we can get 9.0m into each swath, or 12m of crop if straight behind the mower, so by bringing in more, apart from bringing the forager speed down, this also has the benefit that it reduces wheelings and compaction, probably by around 25%," adds Anthony. "Also in lighter crops we found that because we were going slower, we got a far more consistent chop, which results in improved consolidation in the clamp and ultimately higher quality silage."

Both contractors have to contend with country lanes, small fields and narrow gates, so the reduced size of the LINER 3100 compared to a larger 4-rotor rake is a great benefit.

"Transport is not a problem, it has wheel weights which makes it very stable on the road and we are able to get to most farms without having to take any tines off," says Drew.

"It's very good on the road," agrees Anthony, "and another great feature is that it is very rare that you have to remove any tines, which saves a lot of time. I also like the fact that the rotors can freewheel when raised, so will just turn when you catch a branch and avoid doing any damage."



The perfect rake

A pre-series LINER 420 was put through its paces last summer by the Dodd Mill Foraging Group, who annually make about 200ha of silage and bought it in order to increase forager output.

The group comprises of four livestock farmers around Lauder in the Scottish Borders, and was set-up around 25 years ago in order to pool key foraging machinery, such as a trailed forager and the new LINER 420, with each member then also supplying drivers and trailers.



Gregor Barr

"We each have an equal share in the machinery, with repair and maintenance costs then allocated according to acreage," explains Gregor Barr, who harvests 120ha of silage for the farm's 270 sucklers and sheep flock. In addition, the Barr's also bale Red Clover silage to provide protein for youngstock.

The new LINER 420, which was bought from **Rickerby**, has a

working width of 4.2m which enables it to put two 3.0m mower swaths into one. The single rotor is fitted with 11 heavy duty PRO FIX tine arms, that can be easily removed for transport, each fitted with four double tines.

The rotor features a cast cam track with a sealed and life-time lubricated rotor hub and is mounted on a tandem axle for accurate contour following. To further prevent grounding, the LINER is fitted with the CLAAS Power Drawbar (CKL), which reduces strain during transport and an additional guide wheel is also available as an option, as is hydraulic rotor adjustment.

"In the past we picked up straight from the swath," explains Gregor. "But having put a more powerful tractor on the forager we wanted to increase output from 14ha to 20ha a day, but also save on fuel and time whilst also reducing the forager forward speed."

When it came to choosing a machine, the shortlist came down to the CLAAS LINER and one other, but having worked in New Zealand and seen how well CLAAS machinery stands up to conditions there, this made the LINER Gregor's favoured option.

"Looking at the LINER you can see how well built it is and I liked the fact that the camtrack is sealed. I also looked at used prices on the web and the LINER certainly seems to hold its value well."

"It's a very easy rake to operate, which is important so anyone can use it. Once the LINER was set up properly it was perfect, and the tandem axle meant it also followed the ground well, which is important because there is a lot of undulating ground and it was working on anything from leys on good arable land to steep hillsides at 1000ft."

ROLLANT 374 passes Irish test

Thomas Carew Snr and Thomas Carew Jnr run a dairy and beef farming enterprise near the famous Rock of Cashel, located in Co. Tipperary in central Ireland. They also provide a silage mowing, baling and wrapping service for other farmers.

The Carews are no strangers to CLAAS balers having run fixed chamber ROLLANT round balers for over two decades. Baling between 8000 and 10,000 bales every year, ahead of the 2011 silage season, they changed their 2008 ROLLANT 354, for a new pre-series ROLLANT 374RC Pro which was supplied by **Breen's Farm Machinery**. Supporting this is a ROLLANT 255 which they bought in 2005.

With the vast majority of bales made by the Carew's being silage, the new ROLLANT 374RC Pro with its heavy duty drive line and drop floor promised to be the ideal replacement for the 354.

With over 8,000 bales on the clock in its first season, the ROLLANT 374RC Pro did not disappoint. "We've never actually managed to block the rotor and use the drop floor. We have even driven across rows of grass and it has never actually blocked at the floor stage," Thomas Carew Jnr states, adding "The Roller Press makes sure the grass is fed into the pick-up nice and even; they smooth out any big lumps before they ever get to the rotor."

"On the drop floor, two hydraulic accumulators act like cushions and let any lumps that get past the crop rollers through without blocking the rotor. Depending on the size of the lump the digi box might give a quick beep to warn you about it."

Despite the floor moving to allow the smaller lumps through, Thomas states, "It doesn't affect the chop quality. Farmers have even commented this year that the silage in the bale is chopped better and some of them wanted to know what was different about the new baler. It wasn't chopped shorter but it was just chopped more 'thoroughly'."

The Carews have had no reliability issues with the new baler and Thomas Jnr says, "It has a heavier chamber, with heavier chain and sprocket system and rollers. So down the road in terms of maintenance and users down time you're looking at less time lost to repairs."



Thomas Carew Jnr

Thomas Jnr states they are very happy with their new ROLLANT 374RC Pro and their customers are happy too, "Farmers commented that the ROLLANT is making a bigger and denser packed bale, so they have less bales in the field and this cuts down on the plastic used to wrap them. Overall, it's cheaper for the farmer."



Max'ing on load size

Sheridan Huntley has been extremely pleased both with the performance from his new pre-series QUADRANT 3300 and the positive reaction he has had back from hauliers.

Whilst it was not the best of seasons in which to assess a new baler, Sheridan was impressed with the baler's high throughput, its clean pick-up and the shape and density of the bale.

The new QUADRANT 3300 produces a 120cmx90cm section bale and is equipped with a 2.35m wide pick-up with Double Roller Crop Press, and has a 500mm diameter ROTO FEED rotor behind the pick-up, which revolves at 160rpm. This features a new tine arrangement to further improve crop feed into the pre-chamber. The pre-chamber can be controlled in either manual, which gives the operator the choice of three different settings, or automatic mode in which the plunger makes two feeder cycles prior to each full stroke into the chamber.

Based at Great Wishford near Salisbury Sheridan, in partnership with his brothers Jim and Ian and father Ryland, farms 960ha of arable crops, but contract bales around 6,000ha of cereals a season.

In addition to the new QUADRANT 3300, the Huntleys run another four QUADRANTS – a 3200, two 2200s and a 2100. Supporting the baling teams are five telescopic handlers, four of which are hired SCORPION 7040's, and completing the field clearance teams are some home-built stacker lorries. In addition the Huntleys also run LEXION 580TT and 570C combines, plus a XERION 3800, an ATLES 946 and LINER 2900 and 390 rakes.

"We started baling in 1994 and have been running QUADRANT balers since 2001. A QUADRANT producing a 120cmx90cm bale is something we have been wanting, because it enables hauliers to max out on load height and weight," explains Sheridan.

"That was one of the main reasons we wanted to try the baler, plus we knew from experience that the support both from CLAAS and **Vaughan Agri** would be excellent. Also I like the fact that the QUADRANT only uses a single knot rather than a double knot like most other balers, which makes it so much easier to get the string off."

Whilst the overall number of bales produced was down on past years due to the conditions, never the less by the end of the season the QUADRANT 3300 had produced 9,800 bales, totalling around 4,500 tonnes which, says Sheridan, equates to about 19,000 QUADRANT 2100 bales.



"Bale weights from the QUADRANT 3300 averaged 460kg across all crops baled. As we were getting to know the baler we were being careful not to overload it, but we reckon we should be able to get bale weights up to 500kg with the right string," he adds.

"Having sensors in both the top and bottom of the pre-chamber worked really well and the feed into the pre-chamber is extremely positive. Because of the hills we ran it on a 250hp tractor, but even though it was a



difficult year to assess throughput, it's a very fast baler and would easily cover 100ha a day in good crops, mainly working behind 9.0m cutterbars, but also some 12m machines. In addition to wheat, we also put barley and peas through it, plus some silage which was absolutely fine and it produced a nice square ended bale for wrapping."

"We have certainly not had any negatives about the bales from either our farmer customers or the hauliers, who have both been very impressed. In addition to maximising loads, the larger bale size means there are fewer bales, so loading time is reduced."

"In the last three years each baler has averaged over 3,000 tonnes and we aim to keep balers about eight years, by which time they will have done a substantial amount of work. I would expect that we will certainly get another QUADRANT 3300 because it has been so popular," concludes Sheridan.

Sheridan Huntley





Gordon Cairns

Precision benefits

A complete assessment and re-organisation of the mainline machinery fleet operated by the Stracathro & Careston Estate has resulted in two CLAAS high horsepower tractors replacing four tractors.

Prior to manager Gordon Cairns joining the estate near Brechin in Angus in 2005, contractors were used for all the machinery work over the 1000ha of arable. Since then he has gradually taken all the main operations back-in house.

Leading the tractor fleet is a 340hp XERION 3300 that was bought in 2009, which was joined last autumn by a limited edition 268hp silver AXION 850, one of only five sold in the UK. Supporting these two main tractors is a smaller ARES 577 and SCORPION 7040, whilst the Estate's current LEXION 580+ is due to be replaced by a new LEXION 760 for this harvest.

By standardising on CLAAS machinery, Gordon explains that this has led to greater efficiency and symbiosis, especially with the increased use of precision farming systems.

"It was not a planned strategy to go all CLAAS, but they just happened to have the right machinery for our needs," explains Gordon. "Also we have an extremely good relationship with **Sellars** and we would certainly not have gone down this route without confidence in the support from both them and CLAAS UK."

"This is especially important as we increasingly use GPS steering, yield mapping and TELEMATICS to help improve efficiency, and have received a lot of assistance from Edward Miller at CLAAS. The benefit for us is that now that we are all CLAAS, everything is interchangeable and runs off the same systems."

Having started yield mapping in 2004, Gordon has now taken that a stage further by using the information gained for variable rate fertiliser application. Alongside that, the Estate has two BASELINE mobile base stations to provide an RTK signal for GPS steering on both the XERION and AXION, plus the LEXION combine which is also fitted with TELEMATICS.

The XERION 3300 was bought in 2009 to handle heavy cultivations and is mainly used to pull a 9-furrow Kverneland plough and press, or a Simba SL with following press that is used to establish oilseed rape.

"I was initially not too sure about the XERION," admits Gordon. "I was looking for a 300hp tractor

and Sellars suggested I try the XERION. I was a bit dubious whether we could justify one, but had a demonstration after which we realised just how much more flexible the XERION is compared to a conventional tractor."

"The XERION is something you need to spend time with to get the best out of it, but when ballasted properly the pulling power is phenomenal and it's not only far more manoeuvrable than the 250hp tractor, but also more fuel efficient."

"The new AXION, which has built-in steering and CEBIS, is an ideal size and weight for drilling and complements the XERION extremely well. Between them they can work as a team on cultivations and in wet weather, because the AXION is drilling right behind the XERION ploughing, they can cover up to 28ha a day and not leave any ground exposed."



Gordon receives the keys for the silver AXION from Trevor Tyrrell at last year's Highland Show.

Using both TELEMATICS and GPS steering on the LEXION 580+ has also helped increase efficiency and output. "Having TELEMATICS and GPS steering on the combine works really well," explains Gordon. "During harvest I refer to the TELEMATICS on a day to day basis, but it has also shown us areas where we can improve efficiency. For instance in larger fields, using the GPS we can now accurately cut through the middle of the field to split it in two, knowing that it will evenly match up, which is a great advantage, and by generally being able to accurately match up bounts this has helped increase output by about 10%."

"Adopting precision farming and steering has been quite a learning curve for everybody, because you are no longer just driving a tractor. But the benefits for us of having complimentary machinery and GPS steering are enormous because it provides better timeliness and enabled us to better hit optimum drilling dates," concludes Gordon.



Comfort a priority

With 550 cattle to feed every day, reliability in the machinery he operates is an important consideration for Robert Agnew.

Robert Agnew farms in partnership with his wife and father, running two farms of 198ha at Leswalt near Stranraer. On one of the farms they run a 70 cow suckler herd whilst the second supports a 160 cow Holstein dairy herd, averaging 8,100 litres.

All the day-to-day handling and loading work on the farms is carried out using a 3-year old SCORPION 7030 telescopic handler, whilst a 2-year old ARION 610CIS is responsible for all the tractor work.

"We originally ran a CLAAS TARGO a few years ago and then changed to another make, prior to buying the SCORPION. Whilst I did look at other makes, the dealerships were not close and we certainly have no regrets buying it."

"The SCORPION is extremely manoeuvrable for getting in and out of buildings. Aside from general handling, we also have a front-mounted scraper that goes on it, plus it is used to load the straw bedder, so will do about 800 hours a year," says Robert. "It's a size bigger than we actually need, but it has the same footprint, and is very stable. The all-round visibility is superb and it has more than ample hydraulic power and 'umph' for everything we need it to do."

When it came to looking at new tractors a couple of years ago, having had a Renault in the past and then changed to another make, Robert says that the one thing he really missed was the suspended cab.

"The Renault was a tremendous tractor and I really liked the sprung cab. Changing back to a conventional cab there was a definite difference, and if you had spent all day carting slurry,

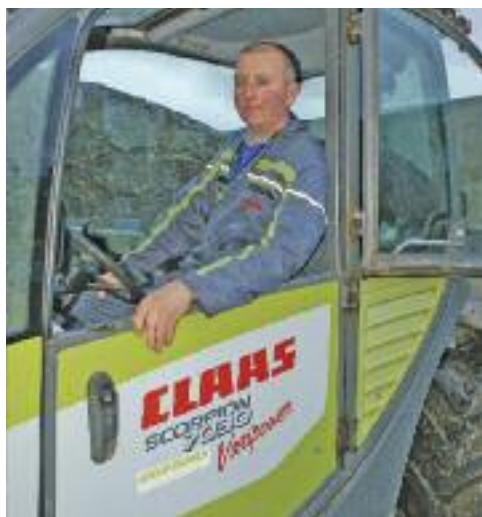
you certainly knew about it that evening. I really missed the cab suspension and was keen to get back to a sprung cab again."

During the winter, the ARION 610, which has a maximum boosted power output of 130hp, is kept busy powering

the farm's Keenan diet mixer, which does up to seven mixes a day and pumping slurry. Come the spring and summer, the tractor is then used for a wide range of tasks, from mowing, through to ploughing, reseeding, land levelling and carting and spreading slurry, resulting in it clocking up over 1,000 hours a year.

"When it came to buying the ARION, the price was an important factor, but the support we receive from **Gordon's** at Castle Kennedy was also important. The mechanics there are very good."

"The comfort is excellent – I've no complaints whatsoever, but I also particularly like the gearbox as it is simple to use and very responsive. Being the two main machines on the farm reliability is important, but so far both the ARION and the SCORPION have been extremely good, we have had no breakdowns at all, and I know that if we do have a problem Gordon's will provide a good, prompt response."



Robert Agnew





FUNWORLD

FunWorld on www.claas.com

In addition to the online Colouring Book and other fun activities on the FunWorld section of the CLAAS website, you will also find a new feature – the CLAAS Speed Camera.

Simply upload a photograph of yourself to create a personalised speeding ticket showing you at the wheel of a high speed CLAAS combine.



JAGUAR 980 forage harvester



Kid's Baseball Cap
with green tractor



Kid's overalls
(Sizes 104, 116,
128, 140, 152,
164, 176)



XERION 5000 tractor



T-shirts to paint
(Sizes 104/110, 116/122, 128/134)



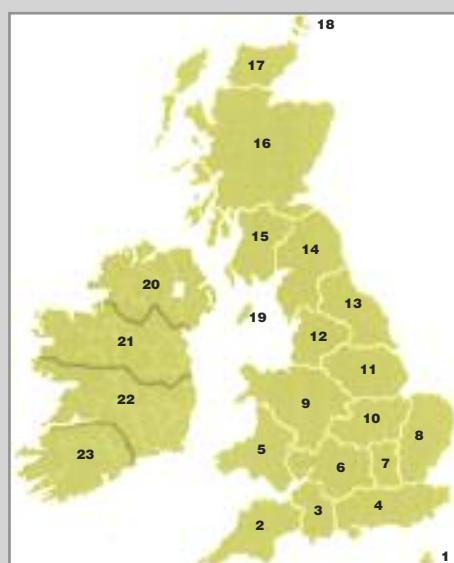
Boy's T-shirt
(Sizes 116/112,
128/134, 140/146)

CLAAS Shop

The latest CLAAS casual and work clothing, plus an extensive range of CLAAS models and toys are all available either through your local dealer or via the CLAAS website – www.claas.co.uk

A selection of clothing, toys and models are also available from the mobile CLAAS Shop, which will be attending shows and dealer events throughout the UK and Ireland this summer.

CLAAS UK Dealers



1. Channel Islands
L C Pallot & Sons Ltd - Jersey

2. The South West
Hamblys (www.hamblys.com) - Taunton, Honiton, Whitstone, Launceston, Penzance

3. Wessex
Vaughan Agri (www.vaughanagri.com) - Frome, Dorchester

4. The South East
Southern Harvesters (www.southernharvesters.com) - Headcorn, Petworth, Micheldever, Reading

5. Mid South Wales
Riverlea (www.riverlea.co.uk) - Cowbridge, Whitland, Crymych
Rees Agri Equipment - Brecon
Harold R Johns - Chepstow

6. Midlands
Ellis Dawe & Son Ltd (www.ellisdawe.co.uk) - Malvern
Mill Engineers (www.millengineers.co.uk) - Bibury, Evesham, Pewsey

7. Home Counties
Olivers (www.atoliver.co.uk) - Luton, King's Langley, Bicester

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B W Mack - Downham Market

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Morris Corfield (www.morriscorfield.co.uk) - Broseley, Craven Arms, Tarvin, Leominster
R & G Williams - Pwllheli
P R Thomas - Dolgellau

10. The Shires
Kirby (www.kirbyag.co.uk) - Market Harborough, Spaldwick, Sharnford Tractors - Lutterworth

11. East Midlands
Marsh (www.rwmarsh.co.uk) - Sleaford, Marham Moor, Ulceby Cross, Brigg

12. North West
Rickerby (www.rickerby.net) - Carnforth

13. Yorkshire
Seward (www.sewardag.co.uk) - Wilberfoss, Sinderby, Catfoss

14. The Borders
Rickerby (www.rickerby.net) - Carlisle, Penrith, Bowburn, Hexham, Alnwick, Cornhill-on-Tweed, Dunbar

15. South West Scotland
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16. North East Scotland
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Bruce Farm Machinery (www.brucefarmmachinery.co.uk) - Banff

17. Caithness
W & A Geddes - Wick

18. Orkney
J & W Tait (www.taitorkney.co.uk) - Kirkwall

19. Isle of Man
Isle of Man Farmers - Douglas

20. Ireland Region 1
Erwin Agricare (www.ewinagricare.co.uk) - Crumlin
W J O'Brien & Son - Londonderry
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21. Ireland Region 2
Leinster Farm Machines - Duleek
Colemans Tractors - Castleblayney
Alan Douglas Machinery - Enfield
McNamees Garage - Kells

22. Ireland Region 3
Kellys of Boris (www.kob.ie) - Boris
Breen Farm Machinery - Cashel
D H Machinery - Gort
Quigleys Garage - Ballinasloe

23. Ireland Region 4
McCarthy Plant & Agri Sales (www.mcsales.ie) - Carrigtwohill
Nolans Garage (www.nolansgarage.ie) - Tralee

For full contact details please see the dealer page on the CLAAS UK website www.claas.co.uk

Call your local dealer for more information,
or call the CLAAS Hotline on 01284 777666.

CLAAS – Committed to Growth.

claas.co.uk

*Based on 80% of RRP or balance to fund, whichever is lower. Terms and conditions apply. Offer ends April 30, 2012. Offer applies to UK, excluding ROI. Finance offer is an illustration only. Participating dealers only. Finance schemes offered through GFS.

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Saxham, Bury St Edmunds, Suffolk IP28 6QZ Tel: 01284 763100 www.claas.co.uk

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