

THE AG-TECHNICIAN OF THE FUTURE

YOU cannot assess the role of the ag-technician of the future – without considering the ag dealership of the future.

It is 100 years since Harry Ferguson's 'eureka' moment when he spotted the weakness in a tractor and plough as separate units. No matter that his original prototype three-point linkage hitched a plough to a Ford T car, the seed was sown. Early versions in 1921 were mechanically operated, but Ferguson was soon to develop a hydraulic system which was to revolutionise the farm tractor. After flirting with Ford and incorporating the system into a Ford-Ferguson tractor in 1939, Ferguson struck out on his own when the joint relationship broke down. The former Standard Motor Company factory at Banner Lane, used as an armaments factory was refitted and production of the iconic Ferguson TE20 'Grey Fergie' commenced in 1946.

So why the history lesson?

It is arguable that despite the addition of many 'bells and whistles', and of course the ever increasing size of tractors, that today's farm work-horse is essentially a scaled-up version of Harry Ferguson's creation.

So whilst the challenge of growing more food from finite resources has exercised the minds and skills of plant breeders, biotechnology and chemical 'boffins' – mechanical solutions and systems to meet the demands of food production in the future just haven't kept pace.

Certainly that is the view of

The dealership of the future will be a different model, employing specialist skills and selling services rather than products says CHRIS BIDDLE. Our industry evolves, but the revolution in new agri-technology has only just begun.

Professor Simon Blackmore who heads the robotic farming unit at Harper Adams University.

"We know that the public at large doesn't like chemicals being used on our crops. There is an increasing drive by environmental lobbies to reduce or ban active chemicals. But it often is not the chemical itself, but the machines used to apply them. When farmers are spraying a whole field, and only 10% goes on the crop, there is huge wastage and potential damage caused by the chemical going into the ground water. So the issue is with the machine not with the chemical"

Higher and higher yields are being squeezed from cropping fields but bigger, better and faster machinery is no longer enough. Smart farming is the watchword, and that is changing the portfolio of machinery and equipment appearing on farms today – and will shape the future direction of suppliers and dealers in the years ahead.

DEALER DEVELOPMENT

If we trace the development of farm machinery dealers post-war, they have been a recognisable stereo-type. Tractor manufacturers urging dealers to increase 'the park' of their product in their area. Market share the key indicator of success. All the discount allowed on a new tractor was invariably given away to a farmer because the profitability, in theory, was gained from parts and service. Salesmen toured their patch in Cortinas or Mondeos, drumming up business from farmers, often developing personal relationships to gain business. A constant battle raged between the sales department and the service department on the cost of PDI's, or who paid for what in the grey area between genuine warranty and policy repairs. On the fringes, the parts department – the 'piggy-in-the-middle' – the poor relation rarely unable to please everyone.

But we have moved on. Market



ABOVE: Professor Simon Blackmore



ABOVE: Left David Sturges and right Luke Alexander of Burden Bros Agri

share is no longer the holy-grail. Warranty is slicker, faster and more realistically operated – and even the beleaguered parts department are now following their counterparts in the automotive trade and using sophisticated methods to reduce the huge stockholding of parts they used to stock – just in case. Slick logistics and computer modelling have made the parts operation into a significant contributor to dealership profits.

Recent years have seen enormous technological advances in tractors and machinery in order to improve operating efficiencies through the rise and rise of connected equipment. Precision agriculture enabling the application of precise and correct amount of inputs like water, fertiliser, and pesticides, increasing productivity and maximizing its yields.

All the major manufacturers are developing systems to meet advancements in precision farming which really only emerged in the latter part of the 1980's.

The introduction of 'intelligent' tractors and machinery only marked the start of a technological revolution that is already shaping the dealer of the future – and by definition the quality of staff required to act as the efficient support between the manufacturer and the farmer.

To see the changing impact on a dealers' 'modus-operandi', I recently visited Burden Bros, a John Deere dealership in the south-east of England (*not to be confused with Burden Group, the Lincolnshire-based ag dealership*)

What a fascinating set up and a pointer perhaps to future farmer, dealer, manufacturer relationships.

The Burden family are farmers based on the Isle of Sheppey. Starting in 1968 with 540 acres of arable land the operation has grown to farming in excess of 4,000 acres of arable and 5,000 acres of grazing and large dairy unit.

Burden also operate a large

machinery division, buying, selling, and exporting second hand machines and spares, and a contracting division employing more than 25 people offering specialised services to farmers across the south-east.

In 2007, Burden Bros added the John Deere dealership which currently operates from three branches, Stockbury near Sittingbourne, Framfield in East Sussex and Ashford in Kent.

Finally, the Burden Bros portfolio includes a pub! The Ferry House Inn on the Isle of Sheppey is a 16th century country public house with restaurant, accommodation and popular wedding venue.

Following the sudden death of Peter Burden whilst out shooting in Devon in 2015, the divisions are run by his four sons, John (Farms and Contracting), Guy (Machinery), Dale (John Deere dealership) and Alex (Ferry House Inn).

The undoubted advantage of establishing a new 21st century dealership, such as Burden Bros, is that the support services required for the new age of tractors and machinery can be incorporated into the fabric of the business right from the start.

Deere are in the software business rather than in the machinery business

Luke Alexander, Group Operations Manager illustrates the huge sea-change that has taken place in recent years. "It is interesting that John Deere CEO, Samuel Allen now says that Deere are in the software business rather than in the machinery business" he says. "That is the way we are developing our business".

So the big question is "Are you selling machinery – or service today?" "Both, of course" says Luke "but our role is to work closely with the farmer to provide solutions that will increase his productivity whether it be GPS steered tractors (over 60% of tractors sold by Burden incorporate Deere's automatic steering system), intelligent controls or remote maintenance checks on combines or sprayers"

No longer does the farmer have to plough a lonely furrow, nor is the dealer pure salesman, nor order-taker. They are forming partnerships in which the dealer plays an absolutely critical role in advising the customer on bespoke solutions for his farming operation. The dealership acts as the technical nerve-centre, most remotely, to ensure that down-time is kept to an absolute minimum and has the tools to know when a machine will develop a fault.

All of which is shaping a new breed of dealer, where support staff are well trained and disciplined in IT systems, software analysis and advance communications. And that means a gradual breaking down of the traditional dealer structure – and creates the need to recruit high calibre staff.

Being a relatively new dealership, Burden has been able to build a highly qualified team. A few months ago, David Sturges, joined as Head of Strategy and Business Development. The move has been a return to his roots, and although his high-profile career had included spells as sales



ABOVE: A John Deere FarmSite department



LEFT: John Deere concept SESAM electronic tractor

and marketing director of Hayter, managing director of Countax and more recently CEO of John Deere turf dealer Godfreys, David came from a farming background and gained a BSc in Agricultural Technology at Silsoe and an MBA from Cranfield University.

"I cannot think of a more exciting time for agriculture" says David "Just like the development of mobile phones, a new piece of technology or upgrade is being added almost daily and we have to ensure that we can embrace and react to constant change"

He joined a Burden team well-staffed with university graduates. Luke Alexander has a BA from Lancaster University, whilst the FarmSight precision farming division at Burdens is run by Kris Romney and Chris Cormac-Walsh, both from farming backgrounds and both have studied to degree level at University.

There are growing pains however, says Luke Alexander. "The traditional dealership – sales department, parts and service departments – still lie at the heart of the business, and there can be issues in integrating the FarmSight operation from time to time".

However, what is clear from the Burdens model is that the traditional role of the farm machinery salesman, and of dealer service teams is changing rapidly. No longer are there 'all-rounders'. They are being replaced by product specialists, highly versed in selling sprayers, or forage equipment or combines. The FarmSight team are Consultants, their role is to act as business advisors to farmers, helping them optimise the performance of expensive machinery and maximise the return on their investment.

No longer do dealers necessarily need to 'mug-up' on a tractor's technical specifications - horsepower, torque, turning circle, payloads, fuel

capacity and the like. What counts are the 'embedded economics', according to Professor Blackmore.

"A good example is Autosteer on tractors, which can cost around £15,000 - £20,000 but allows farmers a positioning accuracy of 2 cm, thus providing farmers with precise data on

where their tractors have been and minimises the skip and overlap of applied treatments. Usual savings of employing this technology are between 10-15% on chemical expenditure, so many farmers can gain pay-back for it within just a few years and are quite happy to invest".

"However" says Blackmore "new technology needs to make the farmer's life simpler. Agricultural technology has to be developed like any other piece of high-tech equipment, like your smartphone. It has to be developed to a level of sophistication on the inside that makes it revolutionary but has to remain simplistic on the surface

What counts are the 'embedded economics'.

We are facing a cultural as well as technological change.

so people can just pick it up and use it without having to have a PhD and an engineering degree to be able to understand it"

"New technology has got to make the farmer's life simpler, and do what it says on the tin, and then they will start to invest in it"

At the World Agri-Tech Investment Summit in London last November, Joachim Stiegemann of Claas warned about the danger of a disconnect between the farmer and the over-production of data. "We are producing more and more data and reports, and I fear that more data in the end will result in us selling less machines. We are facing a cultural as well as technological change"

ROBOTICS

On the horizon for dealers are many new technologies that they are sure to have to embrace in the coming years. Robotics in particular. We see robotic milking parlours increasingly used and a plethora of robotic equipment for harvesting crops, picking fruit, even shepherding sheep. Many are still in the embryonic stage, but leading farm machinery suppliers will wait until they see the economic case before buying the developer or commissioning the research.

Then there are drones. Who would have forecast their inclusion in the farming package even 10 years ago?

And what about the growing alternatives to the diesel powered tractor? What is the future for a Tesla-style tractor? In the US, the

Autonomous Tractor Corporation has been one of the first to develop a robotic system for its Spirit tracked vehicle using a local guidance system based upon laser/radio navigation.

At the SIMA Paris show this year, John Deere showed off a battery-



ABOVE: Thorvald robotic field assistant

electric tractor. However, battery capacity will limit it to around 4 hours work with a three-hour recharge leaving many unresolved issues. Kraig Schultz, CEO of the Autonomous Tractor Corporation said recently "Teslas today carry about 100 kilowatt hours of batteries, but even just a 200 horsepower electric tractor would need about 1,500 to work for a full day. Batteries alone would cost farmers about \$350,000 (£275,000) for such an electric tractor and would weigh more than the tractor!"

Biofuel and part-biogas powered tractors are also on the horizon. Valtra's range includes dual-fuel options, running on diesel alone or a mix of diesel and 90% biogas, whilst New Holland have adapted a T6 prototype which runs on 100% biomethane, a technology already used by commercial road vehicles – and have also produced an experimental renewable hydrogen-powered concept tractor working out of a futuristic energy-independent farm.

In a recent report, the National Farmers Union anticipates that both diesel-electric hybrid and battery electric tractors will be widely available from 2020 onwards.



MILLENNIALS

However, technological advances alone may not be enough: there will also be a need for agronomists, farmers and dealers to understand how to use data and advanced control systems to enable improved agricultural production. Dealers themselves will probably be recruiting agronomists, crop specialists and others to work as part of their team.

So dealers, such as Burdens, have a vital role to play in the future as an important cog in enabling efficient, timely and profitable food production.

Innovative machinery solutions need to be coupled with hard-headed business advice to ensure a return on investment for farmers. The machine itself is no longer the key driver – it's what it will achieve in terms of quantifiable benefits for the farmer, particularly at a time when farm incomes and labour availability are under pressure.

There already problems emerging with the compatibility of software systems, particularly between machines of different origins. Issues which dealers regularly have to resolve.

Hence the need for highly-qualified staff. It could be said, that if the industry managed to get its recruiting act together, then those often referred to as 'millennials' or Generation Y, already have the IT skills to make a success of a career in agricultural machinery. The word 'fitter' has thankfully been consigned to the bin, 'mechanic' is even old-hat, 'technician' the current preferred nomenclature.

But visualise a future where farming

is conducted via an Uber-style system, where machines are hired via an app for a specific time-scale or task. We will certainly see the rise of specialist precision farming companies, such as Precision Decisions, where farmers can just buy a farming solution off-the-shelf via a service company rather than buying a tractor and having to develop the expertise needed to run that tractor.

In the meanwhile, dealers must ensure that they have the expertise in-house to react to change. As Luke Alexander says "Technology doesn't

stay still, but wherever it goes, we will be ready"

The skill sets of dealer staff will evolve, electronics will come into greater play

– but repairing a robot is likely to involve the replacement of a CPU and reprogramming via a laptop, much the same as with today's machinery.

The Burden Bros model is fascinating.

Here you have a farming company, linked to a contracting business, linked to a sales route for used equipment – with a John Deere dealership tacked on to supply new machinery along with ongoing upgrades and improvements.

One thing is for sure. Looking twenty years ahead might seem a stretch. And yet, it is only 25 years since the internet came into full use. Young recruits joining now will only be in their late 30s in 2037, with a long career ahead of them.

Ours is an industry based on evolution, yet from where we stand today, the revolution has only just started.

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