

THE SCANNING ENIGMA – VETS' EXPERIENCE IS KEY TO FUTURE

WHAT does the future hold for bovine ultrasound scanning? Will vets be scanning cows in the not-too-distant future or will the lay scanner proliferate?

Having been involved with bovine ultrasound since its inception 24 years ago, it has been fascinating to see the development and how it is being used to great benefit, and the resulting knowledge base utilised. As the knowledge base has increased, the ultrasound scanning machine has become an integral part of the bovine reproductive examination.

Early in its use, pregnancy diagnosis became common and remains one of the most important features of the scanner. Advances in diagnosis include the viability of the foetus, twin diagnosis, abnormality identification and enhanced accurate determination of the stage of pregnancy. The development of the machine itself has also allowed for increased versatility, accuracy and speed during bovine examinations – greatly enhancing the armoury for specific diagnosis and treatment.

Farmers are always looking for the most cost effective route. When it comes to ultrasound scanning, especially pregnancy diagnosis, the lay scanner is often understood to be the cheaper alternative, but this is not necessarily the case. The veterinary surgeon can easily compete with a lay

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ponders the future of scanning, the differences between lay and veterinary personnel, and how new vets must be given the chances to learn on the job

scanner's charges. In addition, pregnancy scanning is the only official interpretation a lay scanner can make – all problems and empty cows need to be referred to the vet. However, cost perception means lay scanners are often employed, especially in beef herds where only pregnancy diagnosis is required.

The will

Another factor is the experience of the operator – we must ensure all our veterinarians have the experience to compete.

I believe many practices lack the will to fully commit to bovine ultrasound scanning. If they were fully committed, they would ensure their new veterinary surgeons obtained good training and the chance to rapidly gain experience by providing each with a machine. In many practices, the main obstacle to the experience equation is the lack of access to an ultrasound machine. Machines are often shared, but this usually means it spends most time in the experienced vet's car. I don't know any veterinary surgeon without a stethoscope, so why

send a new vet out to do large animal work without an ultrasound machine?

Knowledge base and experience

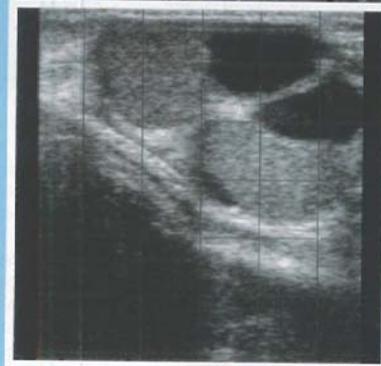
One critical element of the ultrasound enigma is experience. The lack of experience of the operator is a major hurdle for quality and speedy scanning. Once the knowledge base is attained at a workshop, it needs reinforcing with plenty of examinations. Every new veterinarian requires the opportunity to become proficient and this can only be attained if each veterinary surgeon performing cattle reproductive scanning has the opportunity to use it as often as possible.

In my view, the experience and, therefore, the accuracy and quality of the diagnosis, is extremely variable in the lay scanning personnel. They have the same issue obtaining numbers to gain experience but have the added disadvantage of not having every day support.

Our new veterinary surgeons have continuous support delivered in several ways. Firstly, most ultrasound machines can take a picture and this can be shown to colleagues. Secondly, it can be arranged for the animal to be rescanned with an experienced colleague for his or her opinion. Thirdly, the new veterinarian can attend regular sessions with the experienced colleague to scan alongside



Above: the herringbone race is a very fast and effective cow handling facility. This type of handling facility allows very high cow flow rates.



Left: this image has double Corpora lutea and follicles. The linear machine allows excellent clarity and definition of the ovarian structures.

Below: the Aloka 200. The first ultrasound machine used for bovine work.



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and discuss cases. It takes a minimum of six months intensive scanning to become confident and competent enough to

perform proficient examinations. In contrast, the lay scanner is usually working alone with no immediate support.

Handling facilities

An efficient handling facility allows large numbers of cows to be examined quickly and

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effectively. If a high cow flow rate can be achieved, the usual veterinary hourly rate charged can equate to the "per cow" charge from the lay scanner. This is the flow-dependent charging structure most large animal practitioners try to adopt – an hourly rate requiring adequate flow rate to achieve the "per cow" rate charges used by the lay scanner. The flow is greatest when groups are presented for pregnancy scanning only – in a good handling facility, 50 cows per hour is an acceptable rate. When converted to a "per cow" basis, it would equate very favourably with lay scanner charges. An alternative may be to offer a "per cow" charge and help the flow rate by providing crushes and handling facilities.

The competitive charging between the lay scanner and the veterinary surgeon is most intense when dealing with beef herds, where the non-pregnant cow is usually culled rather than treated. When dealing with dairy herds, the cost variation is easily eroded due to the combination of an efficient handling facility and the advantage of being able to treat the non-pregnant cows.

The machine

There is a myriad of veterinary toys on offer, profess-

ing to aid our diagnosis and practice income. I believe an ultrasound machine that safeguards the longevity of a young graduate's presence on farm is an absolute must.

Machine costs

The financial outlay for a suitable scanning machine to perform bovine fertility scanning is much less than 24 years ago. The Aloka-200 was the first machine on the market and cost £8,500 in 1989. In today's prices, the machine would cost approximately £18,000. The machines on the market today cost approximately £6,500 to £2,000 less than in 1989; in real terms, it is nearly three times cheaper. Each vet doing farm work should have a suitable scanning machine in his or her car.

Machine care

The ultrasound machines are very robust, but this doesn't mean they are indestructible and the working end, the probe, is the most delicate. The problems occur when it is knocked against a hard structure. It is worthwhile looking after it, as repair costs can be considerable. The highest care of the machine is seen when the vet has the responsibility him or herself. Repair costs are reduced and, if problems occur, the culprit can be identified.

Machine advances

The robustness, convenience and comfort aspects of the machine allow its easy use in a very non-intrusive way. It becomes part of your arm during examination; an automatic action. The picture quality of the best portable machines on the market allow detailed interpretation of the follicles, cystic structures and the pregnancy. Twins, viability and very early pregnancy diagnosis can be performed quickly and accurately.

The machines now have the portability (integral battery, low weight) and durability to perform under exceptional circumstances on the rugged farm environment. The picture quality is superb, allowing detailed examinations of the structures.

Sector versus linear

The machines used vary between the lay scanner and the vet. The sector scanner used by the lay scanner has the advantage of deeper penetration and a wider field of vision, which allows later pregnancies that have dropped into the abdomen to be diagnosed more quickly. The linear scanner has the advantage of diagnosing pregnancy earlier, which gives a more accurate and precise day of pregnancy. When the diagnosis is made between 30 and 100 days, the predicted stage of pregnancy will be within days of the age of pregnancy. If performed by the sector scanner at this stage, the early 30 to 35-day pregnancies are very easily missed and the accuracy is within a wider range.

The linear option is the only one to be able to determine some potential pregnancy problems and the only option when performing detailed examination of the reproductive tract and ovaries.

Both the experienced veterinary surgeon and the experienced lay scanner perform very accurate pregnancy diagnosis. They have equal abilities with pregnancy diagnosis, but the veterinary surgeon is the only one qualified to examine and treat the non-pregnant, problem breeder cows.

The veterinary surgeon has the depth of scientific knowledge to diagnose and treat the cow safely and effectively. Misuse of drugs cannot be underestimated and careful and proper use is required for both the safety and efficacy of

JOHN DAWSON graduated from the University of Glasgow. After a short time in a large animal practice, he settled in the Willows Veterinary Group, Cheshire, where he is one of the senior partners and was responsible for setting up EMbrionics, specialising in bovine embryo transfer and training for veterinary surgeons and farmers. John has an interest in cattle ultrasound having delivered workshops for many years in different countries.



the animal and safety of the human. We need to ensure our new colleagues have the experience for the future.



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References: 1. Boehringer Ingelheim. Feel the difference promotion 2013, feedback from 170 vets. Buscopan 20mg/ml solution for injection contains hyoscine butylbromide. UK: POM-V. Further information available from Boehringer Ingelheim Limited, Vetmedica Division, Bracknell, Berkshire, RG12 8YS, UK. Tel: +44 (0)1344 746959. E-mail: vetmedica.uk@boehringer-ingelheim.com. Date of preparation: Jan 2014, AHD 7963a. Use Medicines Responsibly (www.noah.co.uk/responsible).

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Advantages of vets versus lay scanners

	Veterinarian	Lay scanner
Accurate early pregnancy diagnosis 28 to 35 days	Yes	No
Accurate late pregnancy diagnosis	Yes	Yes
Viability of the pregnancy	Accurate from 30 days	Less accurate only from 42 days
Twin diagnosis	Accurate 35 to 65 days	Accurate 65 to 130 days
Accurate ovarian structural examination	Yes	No
Treatment of the non-pregnant	Yes	No
Cost per animal	Same with good facilities	Possible advantage if poor facilities.
Back up/consulting others	Yes – all the time	Sometimes
Depth of pharmacology knowledge	Yes	No

Letters to the editor
Read the hot topics on readers' minds – find them on page 31. Send replies to paulimrie@vbd.uk.com