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SOLUTIONS

‘Stable’ insight for equine health

For the University of Ghent’s Faculty of Veterinary Medicine (Belgium), Agfa Radiology Solutions’ advanced imaging technologies deliver critical insights into equine health, enabling swift, optimal diagnoses and supporting horse owners with reliable, high-quality results.

Case study – Ghent University’s Faculty of Veterinary Medicine, Belgium

AGFA

Case study

Interview with:
Professor Dr. Katrien Vanderperren,
DVM, PhD, Dipl. ECVDI, Head of the Diagnostic Imaging Large Animals Hospital
Dr. Louis Vandekerckhove,
DVM, PhD, Dipl. ECVDI, Post-doctoral researcher and clinician, Diagnostic Imaging Large Animals

Incredible athletes, affectionate companions, and economically valuable investments: horses are the 'whole package.' Ensuring they remain in top condition is a high priority for both owners and veterinarians. Diagnostic imaging has become an invaluable tool, but it's a complex process when your patient is large, powerful and often restless. Ghent University's Faculty of Veterinary Medicine's Diagnostic Imaging department is making full use of the benefits of Agfa Radiology Solutions' direct radiography (DR) and innovative imaging technologies to give faculty clinicians, referring veterinarians and owners the insights they need, and to keep the horses performing and healthy.

Innovations in animal imaging

Each year, the Diagnostic Imaging Department for Large Animals performs approximately 2,000 radiographic examinations on large animals using Agfa's DR systems. The department also has ultrasound, CT, MRI and even DECT (dual-energy CT) at its disposal – which is quite unique for veterinary imaging.

"The majority of the large animals we image are horses – from Shetland ponies to elite sport horses. But we also have sheep, goats, bovines, alpacas and more as our patients," describes Professor Katrien Vanderperren of the Medical Imaging Large Animals section of the faculty.

"We perform a wide variety of imaging examinations for various conditions, ranging from orthopedic to neurological cases, covering areas such as limbs, cervical and thoracolumbal spine, head, teeth, thorax and abdomen," adds Dr. Louis Vandekerckhove, who is a post-doctoral researcher and clinician in the Medical Imaging Large Animals section of the faculty.

Streamlining workflow with DR

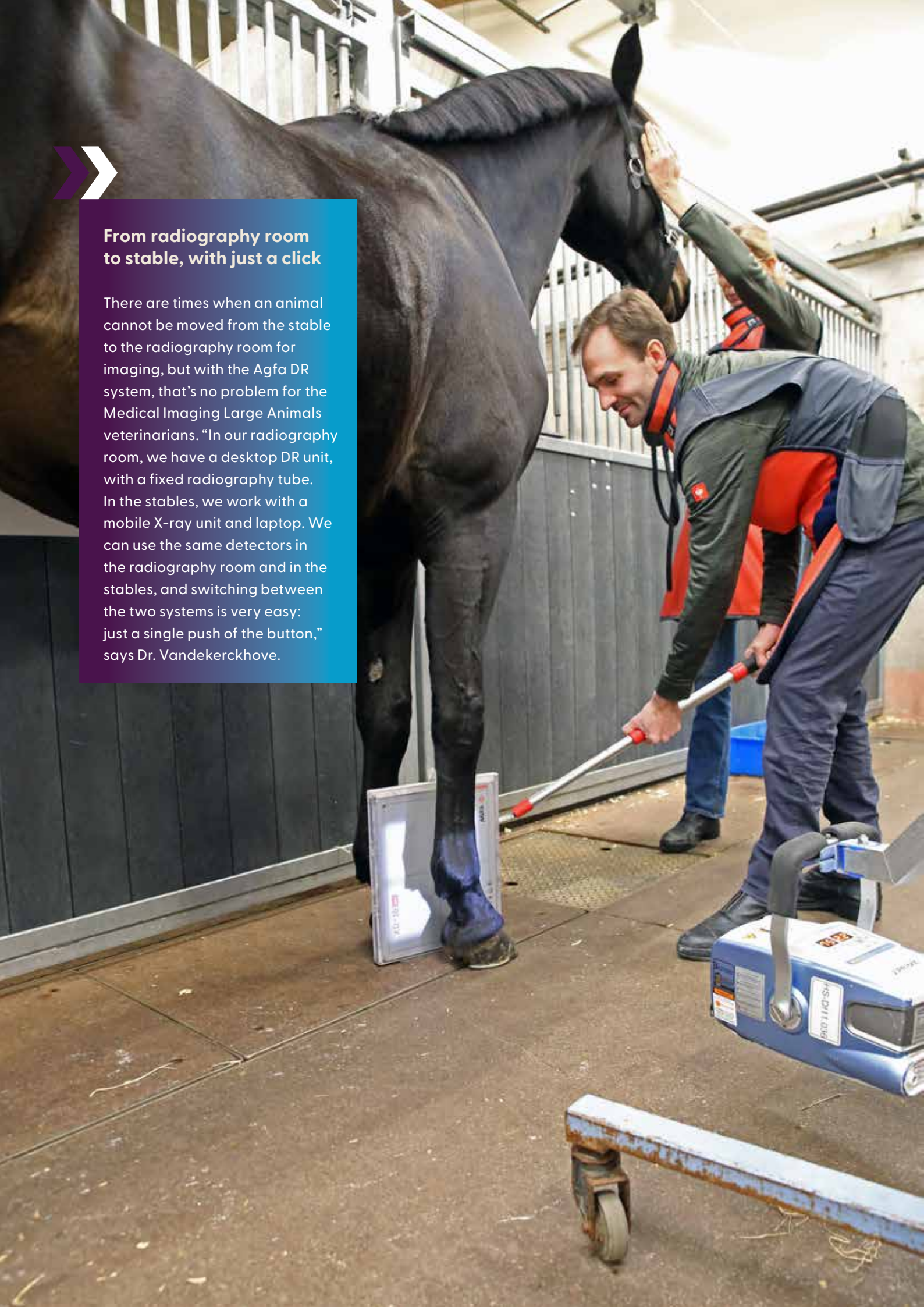
Equine pre-purchase exams and stallion screenings are demanding exams for both equipment and staff as each exam can include 20 to 60 images per animal, the veterinarians explain. DR imaging is critical in keeping the workflow fast and smooth.

"Switching from Agfa computed radiography (CR) to Agfa DR significantly improved our workflow. With DR, images are generated much more quickly and are automatically cropped, streamlining the process. In contrast, CR requires replacing the imaging plate for each exposure. As the DR plate remains in the holder between images, a retake can be made immediately," explains Prof. Vanderperren. "For us, the efficient workflow is one of the key benefits of Agfa's DR systems. We can directly move from one image to the next, which is a significant advantage during screenings and pre-purchase exams, where numerous images are required."

Dr. Vandekerckhove adds: "We now use DR for almost all our radiography exams. However, we do have to keep in mind that it is expensive to replace broken DR detectors compared to CR plates, so in certain cases – very young and agitated horses, emergency imaging, for example – CR does still have a place in our imaging."

"Considering the advantages, we use DR for almost all our radiography exams."

Dr. Louis Vandekerckhove
Dipl. ECVDI, Post-doctoral researcher and clinician, Medical Imaging Large Animals



From radiography room to stable, with just a click

There are times when an animal cannot be moved from the stable to the radiography room for imaging, but with the Agfa DR system, that's no problem for the Medical Imaging Large Animals veterinarians. "In our radiography room, we have a desktop DR unit, with a fixed radiography tube. In the stables, we work with a mobile X-ray unit and laptop. We can use the same detectors in the radiography room and in the stables, and switching between the two systems is very easy: just a single push of the button," says Dr. Vandekerckhove.

“Switching from Agfa computed radiography (CR) to Agfa DR significantly improved our workflow. With DR, images are generated much more quickly and are automatically cropped, streamlining the process. For us, the efficient workflow is one of the main advantages of working with Agfa’s DR systems.”

Professor Katrien Vanderperren
Dipl. ECVDI, Medical Imaging Large Animals

Enhanced image quality, lower radiation dose

DR also allows the radiographers to obtain high-quality diagnostic images while using lower radiation dose. Prof. Vanderperren explains: “We work according to the ALARA principles, which aim to keep radiation exposure ‘as low as reasonably achievable’ for both the animal and the people in the room. With DR, you can use a lower mAs (milliampere-seconds), reducing the number of X-ray photons generated, which in turn decreases the amount of radiation reaching the patient and the scatter radiation resulting in exposure for staff.”

“Image quality is extremely important for us, and we put a lot of effort into optimizing it for all our imaging modalities. This comprises both image resolution and contrast. The image quality we get with Agfa DR is very good. I can’t see how it could be further optimized, considering the limitations of human sight!”

Staying connected with owners

All images taken on the Agfa systems are automatically transferred both to the PACS system and the online PACSonWEB solution, which enables the horse’s owner to view the images. “Image quality is always a priority in our department, but it is especially important for international horse purchases/sales. We check every image before forwarding it to the PACS,” says Prof. Vanderperren.

Dr. Vandekerckhove adds: “We are often the last piece of the puzzle for a purchase, then the deal is closed, and the horse goes to a new owner. It’s a big responsibility, with considerable financial implications. The same applies to stallion assessments. Therefore, we make sure that directly after the imaging the owner knows whether their animal has been radiographically approved or not.”

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Dr. Louis Vandekerckhove

MUSICA® image processing

The MUSICA® image processing software is another key component of a fast and smooth workflow. "With MUSICA®, the image processing is automatic, requiring almost no human intervention. The MUSICA® workstation is intuitive and easy to use: you select the region you want to view, and as the images are made, they appear on the screen in the correct orientation. New interns, for example, can learn to use the system very quickly, with minimal training," says Prof. Vanderperren.

Close clinical connections

Prof. Vanderperren and Dr. Vandekerckhove find there are both similarities and differences in the Diagnostic Imaging department's workflow compared to human diagnostic imaging clinics. "Just like a human imaging facility, in our veterinary clinic we have a PACS, an information system with hospitalization and treatment data for our patients, and a radiology information system (RIS) that distributes the image requests to the right modality," Prof. Vanderperren describes.

"We also maintain very close contact and collaboration with the clinicians, enabling them to treat our patients as efficiently as possible. This strong connection with surgeons, orthopedists, neurologists, referring veterinarians, etc., ensures that we provide clinically relevant radiological input. We strive to offer tangible, clinical added value for our colleagues, as well as for our patients and their owners," highlights Dr. Vandekerckhove.

Agfa's comprehensive range of DR solutions enhance diagnostic capabilities and operation efficiency for veterinary facilities, with:

- Excellent image quality
- Dedicated veterinary MUSICA® image processing software
- Workflow efficiency
- Versatility across a wide range of applications
- The potential for radiation dose reduction
- Robust and reliable detectors

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Professor Katrien Vanderperren

Testing the newest technologies

Committed to constant improvement of diagnostic image quality, the department works closely with Agfa Radiology Solutions, including helping test some of Agfa's innovative technologies. "We have a very close collaboration with Agfa, which gives us the opportunity to work with the newest systems and tools. As a teaching and research facility, this helps us stay ahead in the field of radiography. From our side, we provide Agfa with valuable insights that enable them to finetune their solutions and develop new tools to address specific issues in veterinary imaging," says Prof. Vanderperren.

The clinic is currently testing glass-free Dura-line™ DR detectors, and two specialized tools for equine imaging: SmartRotate™ for Equine and OrthoGon Vet.

Dura-line™ DR detectors

"We already used a number of different detectors, including the Dura-line™ XD+ and the glass-free Dura-line™ XF+. The XF+ is both more robust and lighter in weight. The large detector in particular delivers images with a remarkably higher resolution, not only for head and neck radiographs, but also for back, thorax and dental imaging," Dr. Vandekerckhove highlights.

SmartRotate™ for Equine

Powered by artificial intelligence, SmartRotate™ for Equine automatically presents each image in the correct orientation, enhancing workflow efficiency. "Even if your detector is upside down when making an image, your image is rotated immediately in the right direction, which saves clicks and time. We can also use it with our CR, where there is even more risk of a cassette being positioned in the wrong direction," says Prof. Vanderperren.

OrthoGon Vet

She continues, "We are also testing OrthoGon Vet for equines[1]. I've already used it for several measurements, including for laminitis cases and a varus/valgus case in a foal."

Integrated in the MUSICA® Workstation, and available for both equines and small animals, OrthoGon Vet is a specialized tool that assists with complex orthopedic veterinary measurements. Both Prof. Vanderperren and Dr. Vandekerckhove see important potential for its use, especially in veterinary clinics with smaller staffs or with no PACS. "OrthoGon Vet enables veterinarians to do the measurements immediately, without having to export the images," Prof. Vanderperren specifies.

"From my research on canine hip dysplasia, as well, I have found that it is very helpful for veterinarians to be able to perform these laxity measurements right in their practice. This is the case not only for diagnosis and treatment of an affected dog, but also for breeding purposes, which has the potential to decrease the incidence of hip dysplasia," describes Dr. Vandekerckhove.

[1] Contact your local sales representative for availability in your region

Co-creation and partnership

"When we have a question, Agfa addresses it immediately, and gives us tips and tricks to improve our workflow. But their support goes beyond that. For example, for stallion assessments, a dedicated DR sequence workflow was created, based on our input. Previously, we had to check a large number of different images and views, but now we just select the workflow itself, and that's all included. This considerably reduces clicks," explains Prof. Vanderperren

"We have conducted numerous studies comparing the image quality of the different detector types and performed mAs studies to enable dose reduction. By collaborating closely with Agfa, we both benefit from new and innovative ideas, and further ongoing improvements," she concludes.

Did you know?

- Ghent University's Faculty of Veterinary Medicine topped the Shanghai Ranking for veterinary sciences for 6 years in a row.
- In addition to running the largest animal hospital of Belgium, the faculty continues to perform cutting-edge research.
- The Diagnostic Imaging department cares for both large and small animals. A staff of seven veterinarians is dedicated to imaging for the large animals: three radiologists (Diplomate ECVDI), two residents, a veterinary assistant and an intern. Another staff of 10 is responsible for small animal imaging.

Agfa's newest veterinary solutions

Dura-line™ XF+ DR detectors
Glass-free Dura-line™ DR detectors deliver superior durability and ultra-high resolution:

- **They come in 3 sizes: 10x12, 14x17 and 17x17 inches.**
- **They combine glass-free technology with high image quality at ultra-high resolution of 99-micron pixel pitch.**
- **With a robust drop resistance and protection against water and dust ingress, they withstand the toughest conditions.**

OrthoGon Vet[2]
With this guided measurement tool embedded in the MUSICA® Workstation, veterinarians can quickly perform standard measurements, compare them to prior measurements, and benchmark them against normative values. The dedicated OrthoGon Vet for equines includes measurements of:

- **Hoof distances (lateromedial)**
- **Hoof angles (lateromedial)**
- **Dorsopalmar distances & angles**

SmartRotate™ for Equine
This intelligent tool automatically rotates equine images to their correct, standard orientation, instantly and effortlessly. Images are available for immediate review, giving veterinarians more time to focus on the animal and the owner. It covers:

- **Abdomen**
- **Carpus**
- **Cervical spine**
- **Elbow**
- **Femur**
- **Fetlock**
- **Foot**
- **Head**
- **Metatarsus**
- **Shoulder**
- **Spine (Lumbar and thoracic)**
- **Stifle**
- **Tarsus**
- **Thorax**

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