ULTRASOUND SCANNING TECHNIQUE
for EARLY PREGNANCY DETECTION

For all veterinarian applications on all species
Practice for bovine ultrasound scanning is essentially made with linear rectal probes, but it is also possible to diagnose reproduction with sector rectal probes.

There are 2 schools
Importance of Early Pregnancy Diagnosis by ULTRASOUND

• 100% accurate about 27 to 28 compare to 35/40 days with rectal palpation.

• advanced evaluation of ovarian structure.

• determination of fetal viability(heartbeats) & fetal sexing.

• early pregnancy detection is very important with open cows as farmers can take propriate measures to get cows bred more quickly.

• in case of early embryonic death (10 to 16% cases between 28 and 56 days) cows often retain their corpus luteum and therefore delays return to estrus (luteolytic drugs allowing expel of the dead embryo and heat return 2 to 7 days later).
Importance of Early Pregnancy Diagnosis By ULTRASOUND

• use of ultrasound allows also to move faster pregnant cows out of confinement and therefore decrease feed costs; a 1,000 cows farm pays for a new ultrasound system with the savings on feed cost after 2 months.
• failed estrus detection alone accounts for losses of 300 millions US dollars/year in the US dairy industry !!
• Open day costs between 2,50 to 4,00 US dollars for a cow which is opn past 100 days in milk.
• use of ultrasound reduces need for manual manipulation of the uterus and therefore risk of inducing embryonic mortality.
Possible applications

With linear rectal probe

Early pregnancy diagnosis: 30 days and less with experience
Twin pregnancy
Fœtal sexing from 55 to 90 days
Non-pregnancy diagnosis
  Ovary and corpus luteum examination
  Cyst, Follicles control
  Metritis
  Piometria
  Early embryonic death…
Back fat measurement (At the level of the back triangle)
Bladder diagnosis
Teats lesion control
Genital bull tract diagnosis
Umbilical cord control on calves
Pregnancy control
  Detection of empty cows
  Confirmation of pregnant cows
Twins pregnancy control
Non pregnancy control
  Visualization of uterine horn
Metritis
Embryonic death
Pregnancy 26 days

Pregnancy 27 days
Only 6mm length
Pregnancy 32 days - about 1cm

Pregnancy 34 days
Pregnancy 40 days

Twins pregnancy – 38d

2 foetuses
Empty uterus
Uterus in heat
Corpus luteum
Corpus luteum

Pro oestrus 19 days

Metaestrus 36 hours
Embryonic Death

Metritis
Fœtal sexing

Male 67 days

Female 57 days

scrotum

Future lips

Male 67 days

Female 57 days
Teat Lesions control
Bull Tracts Exam

(Testicle Ipoplasia)
BACK FAT MEASUREMENT
<table>
<thead>
<tr>
<th>Emaciated</th>
<th>Body condition scoring (BCS)</th>
<th>Back fat (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Poor</td>
<td>1.0</td>
<td>&lt; 5</td>
</tr>
<tr>
<td>Poor</td>
<td>1.5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Moderate</td>
<td>2.5</td>
<td>15</td>
</tr>
<tr>
<td>Good</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Very Good</td>
<td>3.5</td>
<td>25</td>
</tr>
<tr>
<td>Fat</td>
<td>4</td>
<td>30</td>
</tr>
<tr>
<td>Adipose</td>
<td>4.5</td>
<td>35</td>
</tr>
<tr>
<td>Obese</td>
<td>5</td>
<td>&gt; 35</td>
</tr>
</tbody>
</table>
Pregnancy

65 days

85 days
Empty horns

Cotyledons – 4 months
Why should you use ultrasound scanning on cows?

- Reduce number of empty cows
- Confirm pregnant cows from 30 days
- Reduce gap between 2 calvings
- Manage dry-off period
- Reduce feeding expenses
- Know calving dates
- Make surveillance of heats easier and handle reproduction better
- Scrap empty cows at the right time
- Determine foetal gender
- Check twin pregnancies and pay more attention during calving
- Sell animals guaranteed pregnant
- Act rapidly on cows with problems (cyst – metritis – embrionic death…)
- Date pregnancy and make calving batches
OVINE/CAPRINE MARKET

Ultrasound scanning on ovine and caprine was essentially made with linear abdominal probes. A convex probe of 3.5 MHz that allows a diagnosis from 15 to 18 cm depth is the most adapted. However, it is possible to make pregnancy controls with sector probes (IMAGO.S).
Scanning on ewes/goats

Pregnancy diagnosis
Non pregnancy diagnosis (Cyst, follicle, Metritis)
Detection of twins, triplets
Detection of pseudo pregnancies (on goats)
Back fat measurement
Early pregnancy diagnosis:
  - 30 days
Determination of pregnancy stage
Bladder diagnosis
Multiple (fetal counting):between 40 and 80 days
Back fat measurement
Pregnancy 35 days

Twins 60 days
Pregnancy 75 days

Pseudo pregnancy
Why should you use an ultrasound scanner?

- Reduce the number of empty ewes or goats
- Distribute food better according to the number of foetuses
- Lower death rate at birth
- Make supervision and reproduction control easier
- Have a better renewal policy and scrap at right time
- Sell animals guarantied pregnant
- Make birth batches more easily
- Increase the general productivity of the herd
Ultrasound scanning is used for long time and not only for reproduction purpose, but also for orthopedics (tendons) trouble and even abdominal diagnosis.
CLIP HAIRS
USE ALCOHOL
And GEL PAD
11 days pregnancy

26 days
SPLEEN + BLADDER
ASIVE LUMBARS (dual mode)
SPLEEN diagnosis
FETLOCK (longitudinal cut)
PASTEL at DISTAL THIRD (transversal cut)
CYST in UTERUS
STALLION TESTICLE
CAMEL: very similar to equine

REPRODUCTION EXAMS
TENDONS DIAGNOSIS
ABDOMINAL EXAMS
BLADDER
TENDON (longitudinal cut)
OVARY
The use of ultrasound scanner is not used a lot for pregnancy control and detect the number of puppies. The main applications are abdominal controls and more and more about cardiology aspects.
ASCITIS (fluid in abdomen)
Spleen
HOW TO CREATE AN ULTRASOUND IMAGE

The probe or transducer contains 1 or several cristals
This or these cristal(s) emit ultrasound waves that spread into explored organism
When tissues, liquids or bones are crossed this will produce an echo that will be returned to the screen as an image
Ultrasound principle

- Liquid
  - BLACK

- Tissue
  - GREY

- Bones
  - WHITE

256 tones of grey
Frequency

- Better penetration
- Higher resolution

3.5 MHz  5 MHz  7.5 MHz  10 MHz
CONCLUSION

Ultrasound scanning is of a great interest in pregnancy control for bovine and equine gynecology, also camels and small ruminants.

It’s a great help in herd management, it allows to make early pregnancy diagnosis. It is also possible to use it for uterus and ovary exams, foetal gender on bovine and equine. And numbering on ovine.

The technician (Veterinarian, breeder, or service provider) can be precise in his diagnosis and adapt his treatment to the problem.

He will then be more efficient, and if this is a vet or a service provider) he will be able to advise his customer better.

ECM’s goal is to provide the best answer when it’s about ultrasound scanning. There is always a portable system and one or several probes adapted to your request.

THANKS
Range of products