

Current Reproductive Examinations in Dairy Cow

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Parturition

Including transition period problems
(3 week before through 3 week after parturition)

Clean test (1st)

(Recheck problem cows)

Clean test (2nd)

(Recheck problem cows)

May be another check for resumption of ovarian activity and preparing for AI

Pregnancy diagnosis

(At about Day 30)

Pregnancy recheck

(At about Day 60/120)

Pregnancy recheck before drying off

(210-215 days of gestation)

**Non-pregnant cows
and cows ready to
service**

**Repeat breeder and
“problem cows”**

Cows with abnormal delivery time
(delayed or premature parturition)

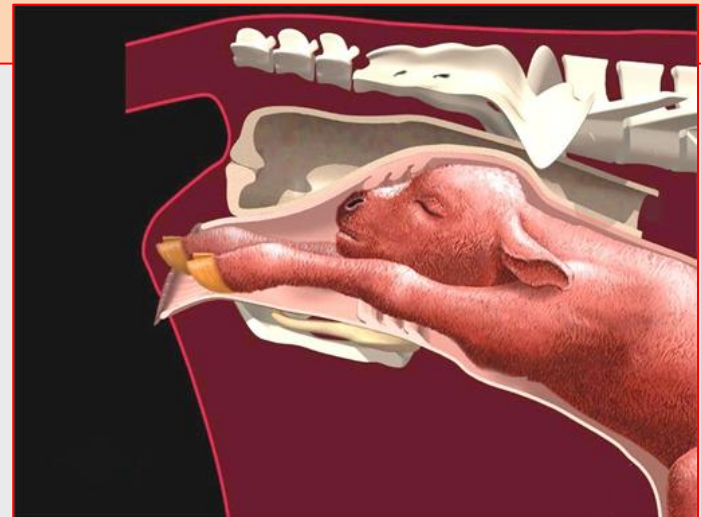
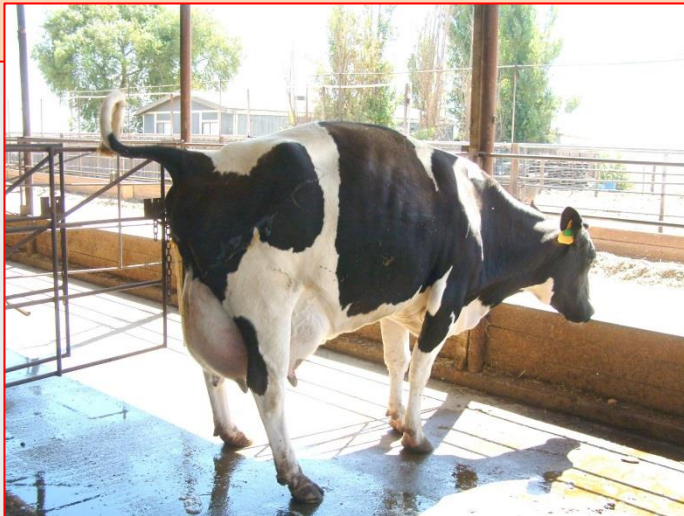
Abortion, Mummification, ...
(Fetus/Embryo losses)
Pregnant cows that are “in heat”

Monitor parturition process

If after **12 hours** of restlessness there is no straining veterinary examination should be made to exclude primary uterine inertia, failure of the cervix dilation and uterine torsion.

After **60 min.** of straining in cows (and 70 min. in heifers) the birth canal should be checked for obstructive birth.

In case of **sudden cease** in straining (second stage of labour) check the cow!



Transition Period events have direct and indirect effects on fertility ...

Periparturient paresis (milk fever)
Hepatic lipidosis (fatty liver syndrome)
Ketosis
Displaced abomasum

**Nutrition and
BCS
management**

**Reduced
immune system
function**

**Calving area:
unsanitary and
stressful**

Dystocia
Injuries of reproductive tract (birth canal)
Retained fetal membranes (retained placenta)
Metritis (may be acute/septic)

Clean Test (1st)

- 1- Cows reaction to rectal palpation
- 2- Involution lines and firmness of the uterus
- 3- Consistency of discharge (normal lochia)
- 4- Body condition scoring (>3.75 at risk o metabolic disorders)
- 5- Injuries are important (minor or major)
- 6- Edema (udder, perineum and in some cases vulva)
- 7- Check the body temperature
- 8- Ask about general health and appetite

Do it within 10 days of calving
(Preferred time between D5 and D12)

No need to ultrasonography

In most cases the
ovaries are out of reach

In case of retained fetal membranes

Lose or firm?

How is the discharge odor?

How is body temperature?

Metritis is an urgent situation

... recheck the problem cows after intervention

Clean Test (2st)

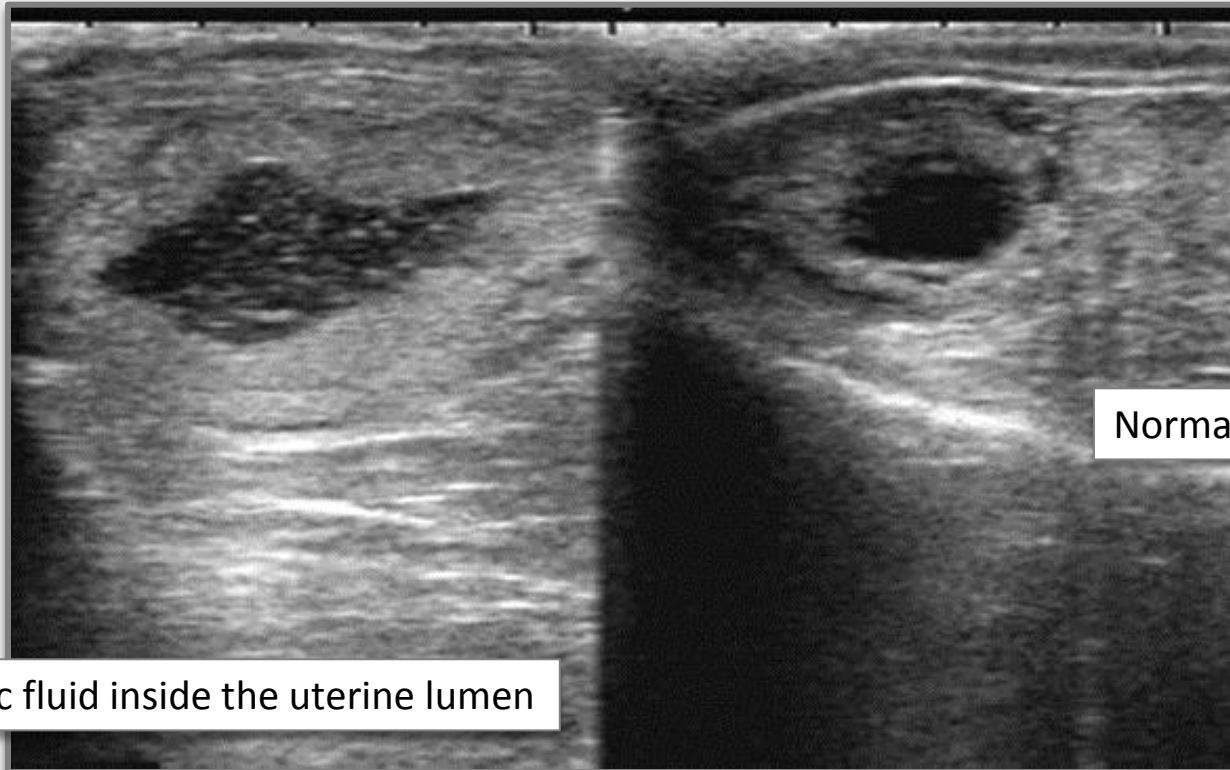
Do it at the fifth week of calving

(Preferred time between D28 and D35
and ultrasonography is valuable)

- 1- Check the normal size of the uterus (uterine involution) considering parity.
- 2- Use ultrasonography to search the uterus for free hyperechoic fluids (pus), exudate and debris.
- 3- Are there any adhesions and abscesses in pelvic cavity (ovaries, uterus, oviducts, ovarian bursa and ligaments)?
- 4- Ovarian activity should be checked. Intervention needs in cases of ovarian cysts or inactive ovaries.
- 5- If everything is ok, let the cow enjoy her voluntary waiting period (VWP)!
- 6- Recheck the problem cows after intervention.

If you have scheduled Timed Breeding Programs for first service, then the next examination is pregnancy diagnosis.

Endometritis

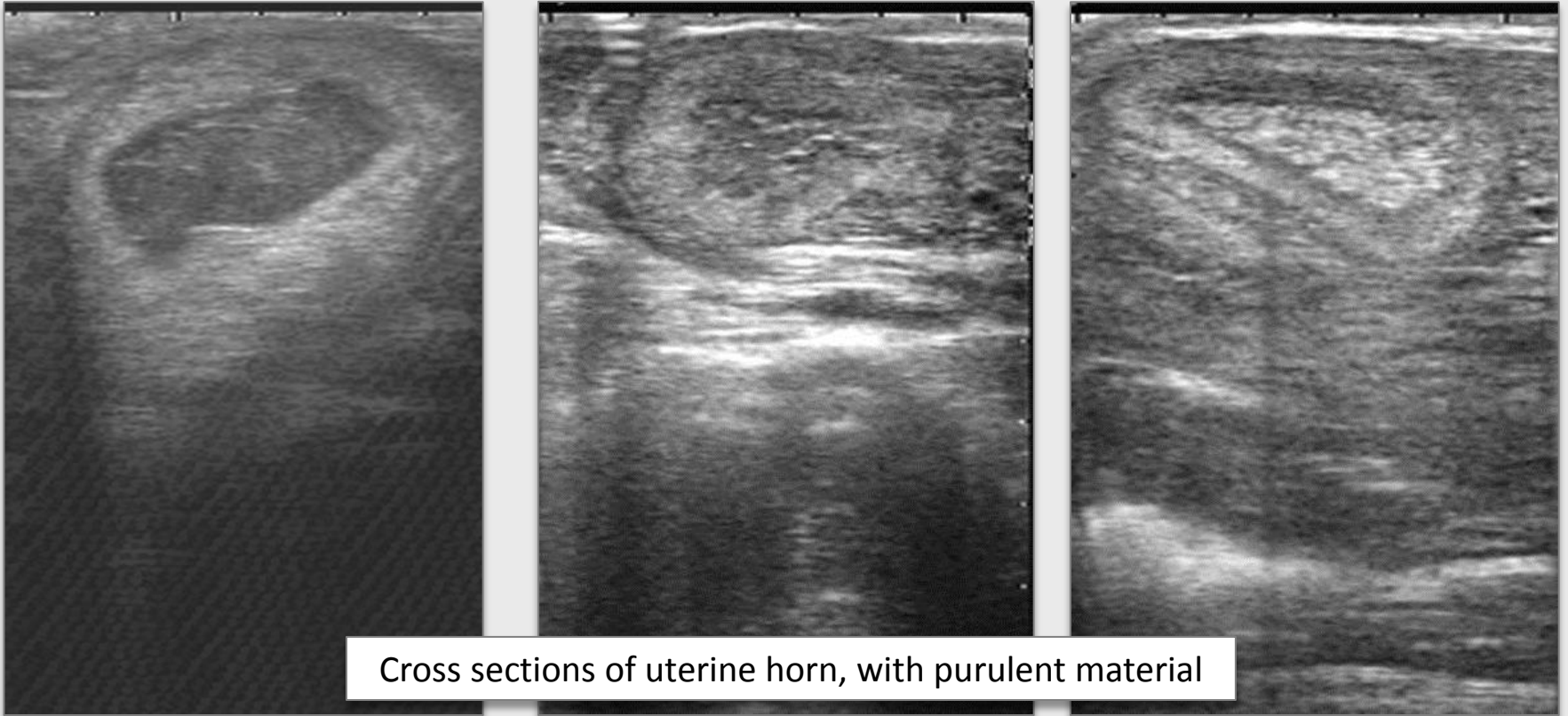


Normal follicle

Echogenic fluid inside the uterine lumen

This cow is in heat but look at the flocculation in the lumen of the uterus.

Abnormal Uterine Fluid



Cross sections of uterine horn, with purulent material

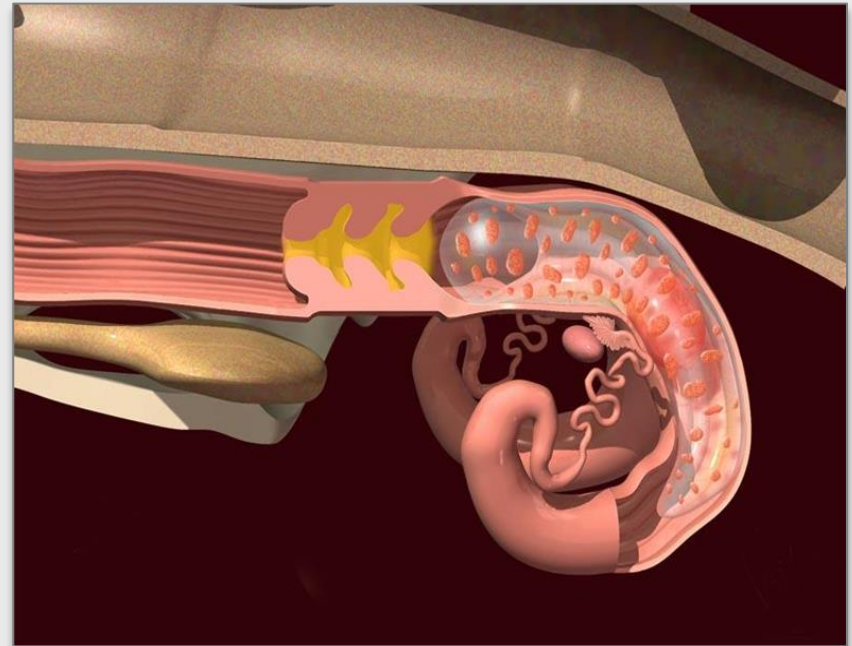
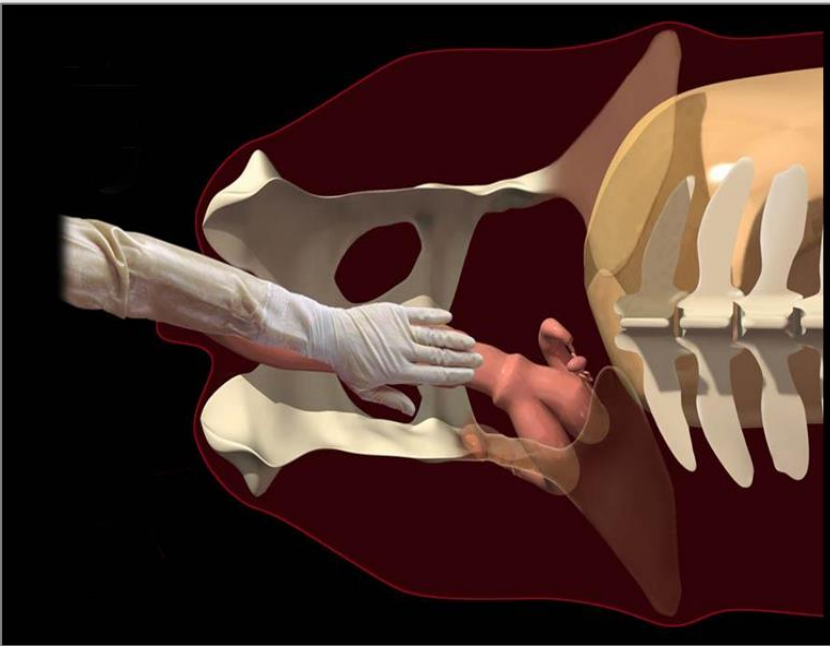
Purulent material can appear as any shade of light gray to nearly white depending on its density.

Abnormal uterine fluid is easily differentiated from the normal fluid of pregnancy.

Pregnancy diagnosis

Currently there are three reliable methods of diagnosing the pregnancy status of a cow:

- 1- Transrectal palpation
- 2- Transrectal ultrasound examination
- 3- Endocrine testing (PAGs, P4,...)



Pregnancy diagnosis 5th week (Days 28-35)

Rectal palpation:

- 1- The amniotic vesicle
- 2- Mild enlargement and asymmetry of the uterine horn - especially in heifers
- 3- Presence of CL on ipsilateral enlarged horn
- 4- Chorioallantoic (membrane) slip – gently after Day 30

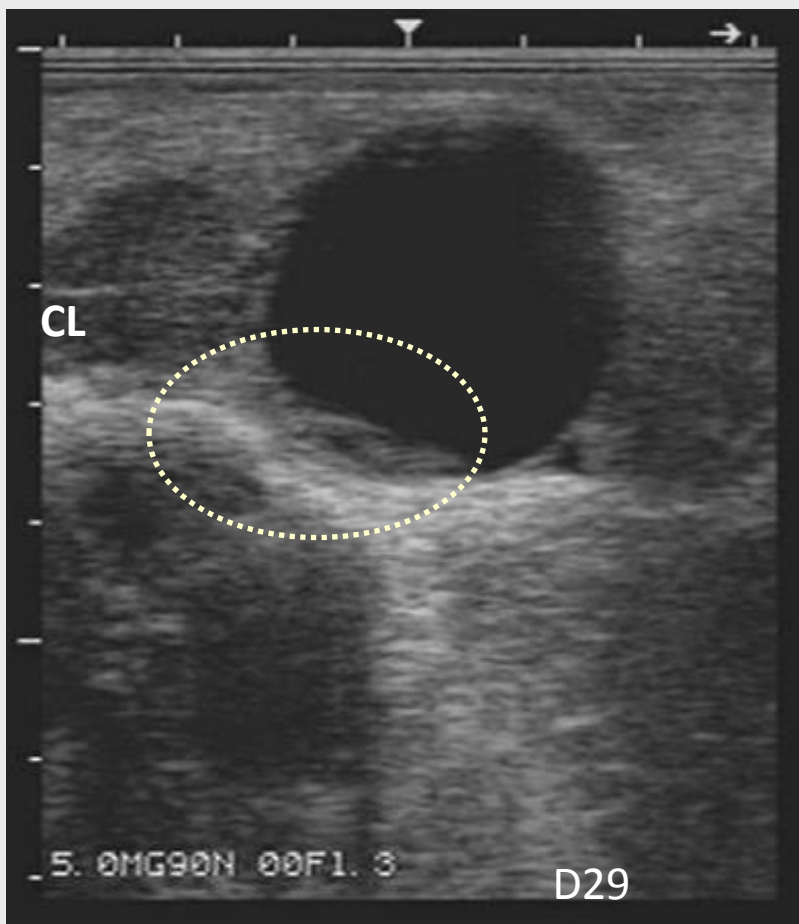


Transrectal ultrasound examination:

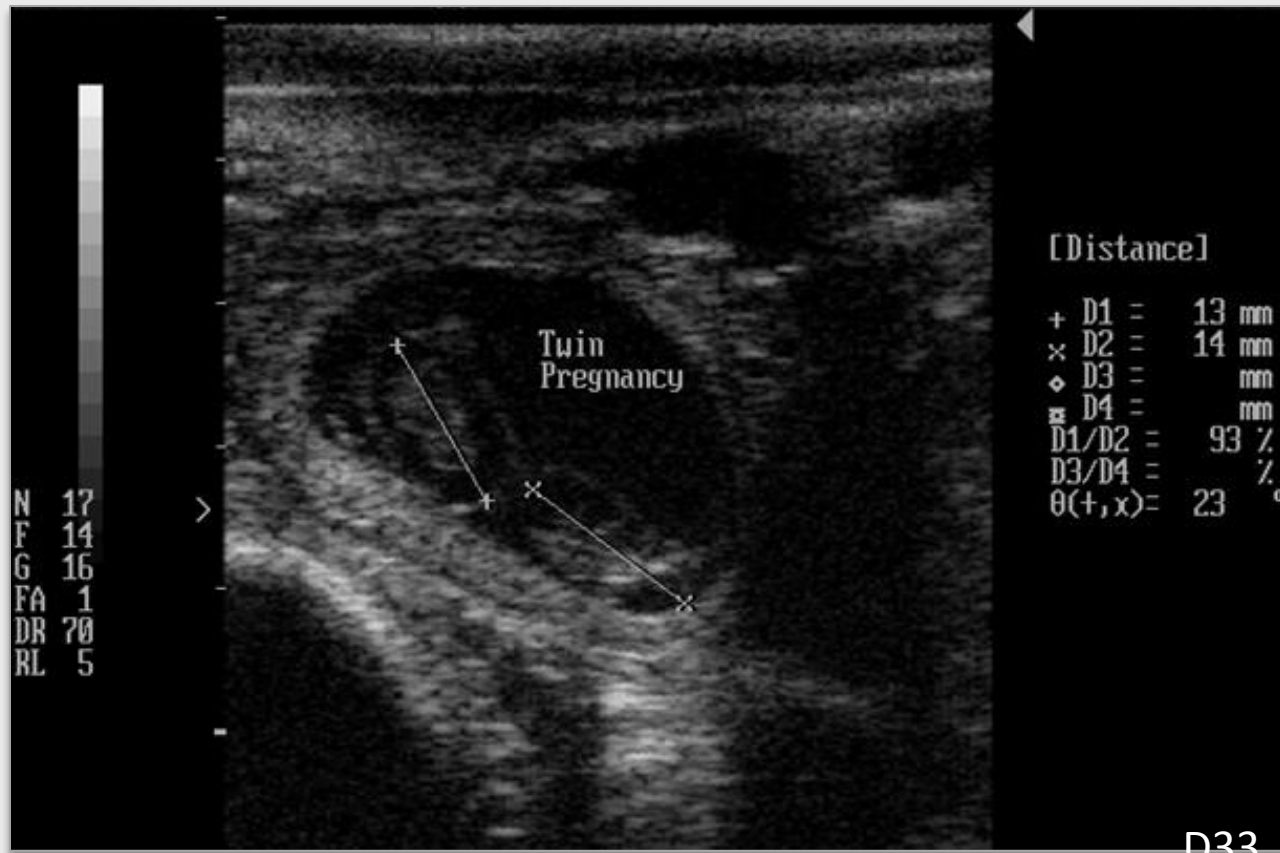
- 1- Embryo floating in amniotic fluid
- 2- Identify pathologic conditions of reproductive tract - recheck
- 3- Precise detection of Day







Twin Pregnancy



Pregnancy diagnosis 9th week (Days 56-63)

Rectal palpation:

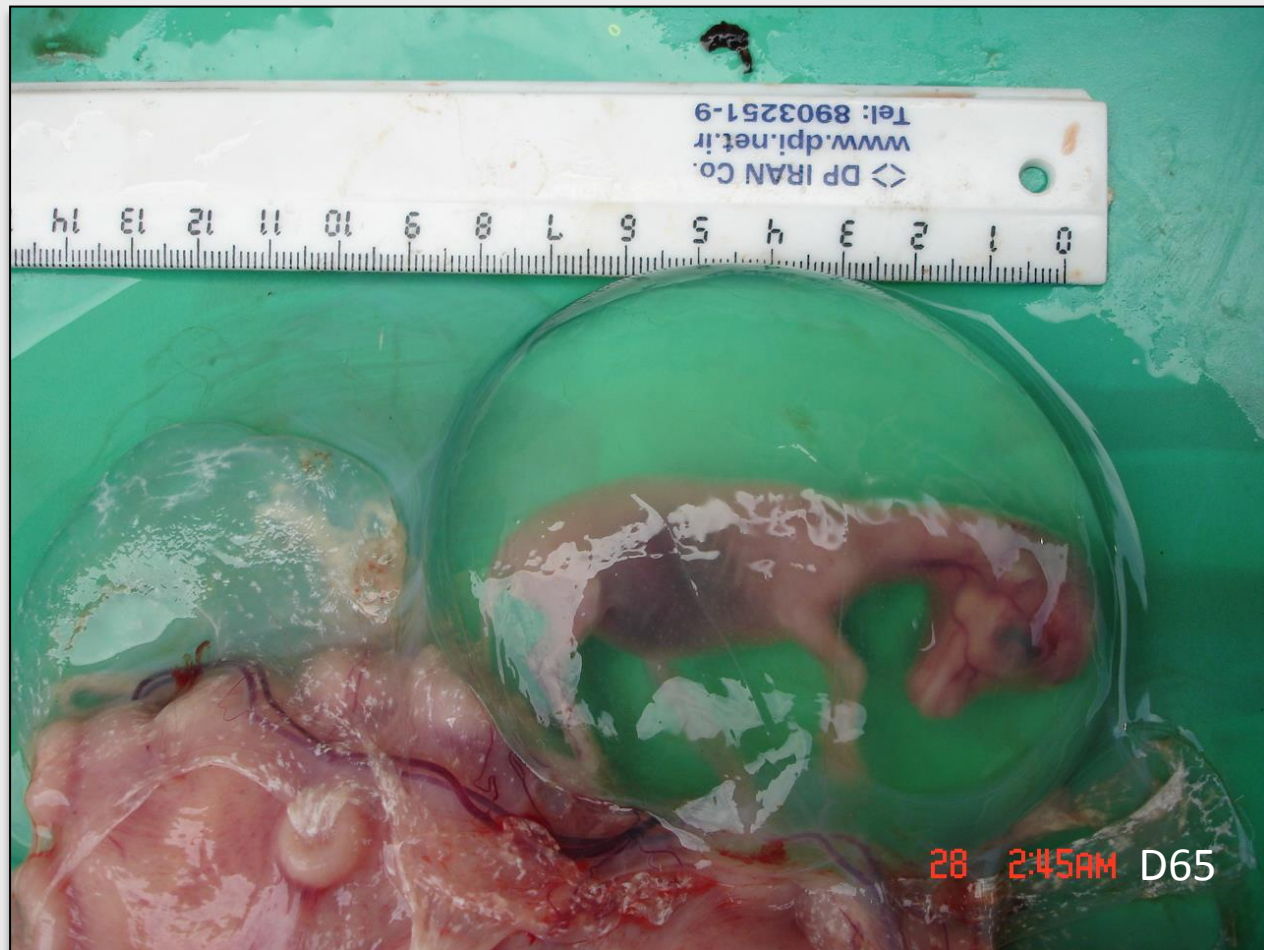
- 1- The amniotic sac loses its turgidity, allowing palpation of the fetus
- 2- Marked enlargement of the gravid uterine horn – not in case of twins
- 3- Presence of CL on ipsilateral enlarged horn
- 4- Chorioallantoic (membrane) slip – in both horns
- 5- Placenta



Transrectal ultrasound examination:

- 1- Embryo floating in amniotic fluid
- 2- Identify pathologic conditions of reproductive tract - recheck
- 3- Precise detection of Day
- 4- Placenta (cotyledon-caruncle complex)





Twin Pregnancy



Both dead



One dead

Pregnancy recheck before drying off (210-215 days of gestation)

- 1- Palpation of *placenta* and fetal sac; cotyledon-caruncle complex
- 2- Palpation of the enlarged middle uterine artery (*fremitus*); >4 M
- 3- *Fetus* (If accessible); check the reactions
- 4- Inability to retract the *cervix*
- 5- Use Ultrasonography if necessary



8 months



7 months



6 months

Abortion (Fetus/Embryo losses)

- 1- Check pregnant cows that are “*in heat*” but no observed abortion
- 2- Abortion *report* by farm staff; embryo and/or fetal membranes
- 3- Abnormal *discharges* of reproductive tract
- 4- Search for the another fetus – twin possibility
- 5- Recheck the aborted cow two week later (more or less) for the next reproductive plan
- 6- Evaluate the cow as she will stay or culled
- 7- Mummification and maceration can be the result of incomplete abortion

In last trimester there is a risk of
metritis and *birth canal injuries*

Cows with abnormal delivery time

1- Delayed parturition

- Confirm the pregnancy
- Be confident of *AI date*
- Check the *fetus* live/dead
- Induce* parturition if indicated

2- Premature parturition

Inspect for managerial factors if it is a problem in the herd (nutrition, housing, heat stress, ...)

Non-pregnant cows

- 1- Cows ready to service (after VWP)**
- 2- Cows that are negative in pregnancy test**
- 3- “Problem cows” that already had an intervention and repose**
- 4- Repeat Breeder cows**

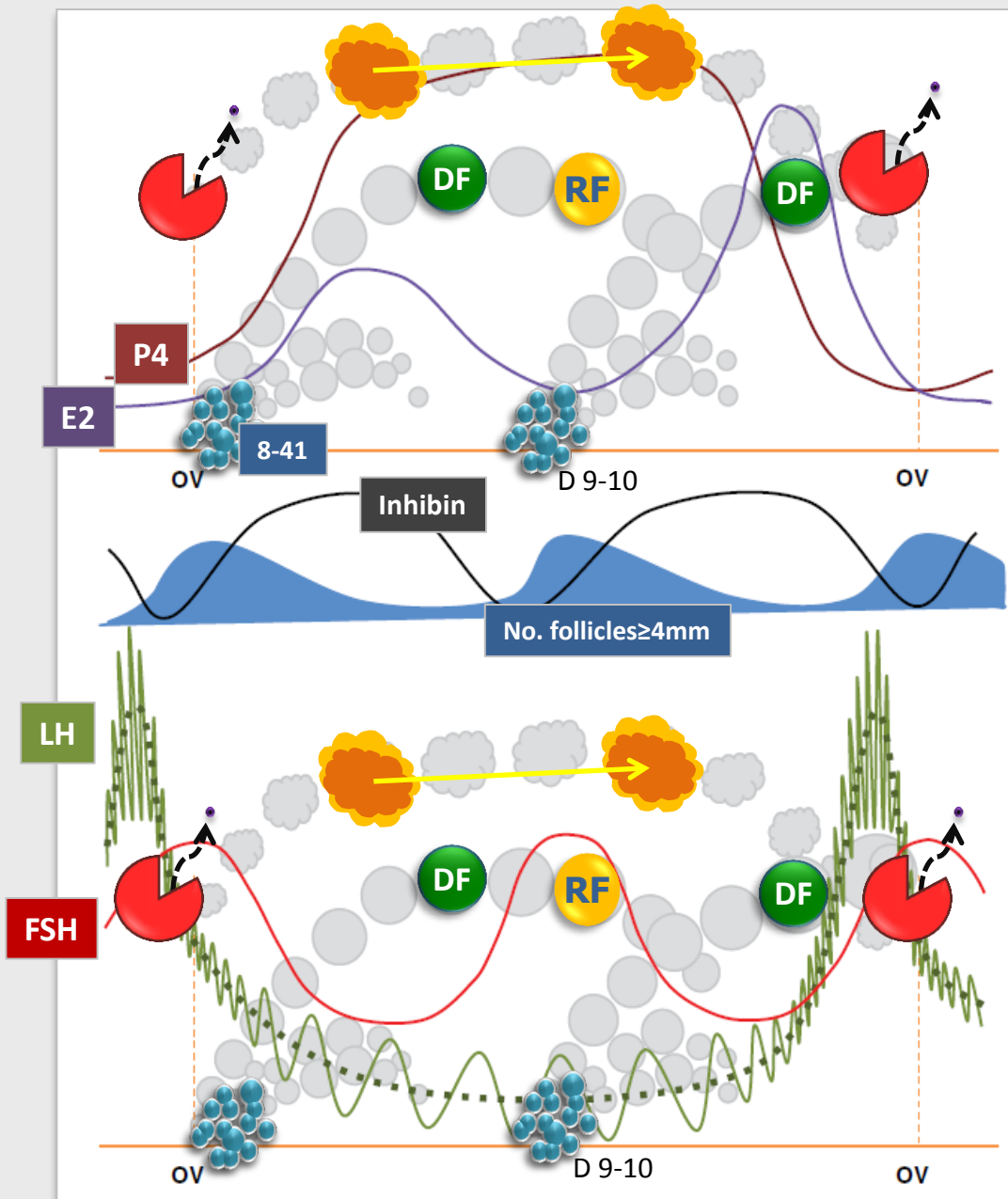
Economic importance

For repeat breeder and problem cows:

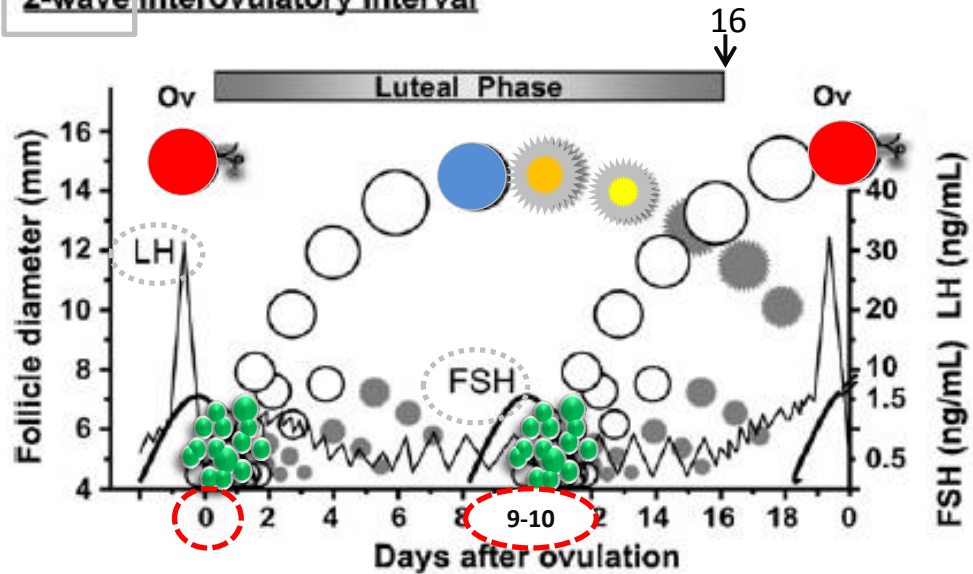
- 1- Search uterine lumen for any *hyper-echogenic fluid*
- 2- Check ovaries for cysts, ovarian-bursal adhesions
- 3- Reproductive tract must be intact (no abscesses/adhesions)
- 4- Inflammation of *oviducts* and/or any fluid inside the oviduct lumen
- 5- Check the vaginal discharge, is there any tenesmus at the time of rectal palpation (*Vaginitis*)
- 6- Vulvar sinking/deformity, urovagina, pneomovagina, ...
- 7- Any other concurrent harmful situation or diseases (management, nutrition, heat stress ...)

Ovarian dynamics cattle

Hormonal interplay controlling follicular wave dynamics during a *two-wave interovulatory interval*

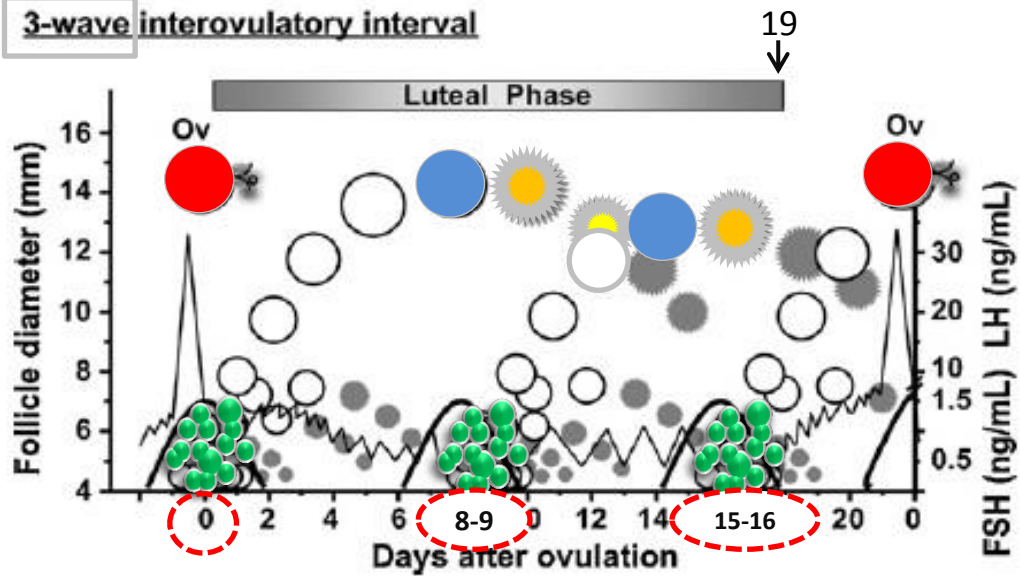


2-wave interovulatory interval



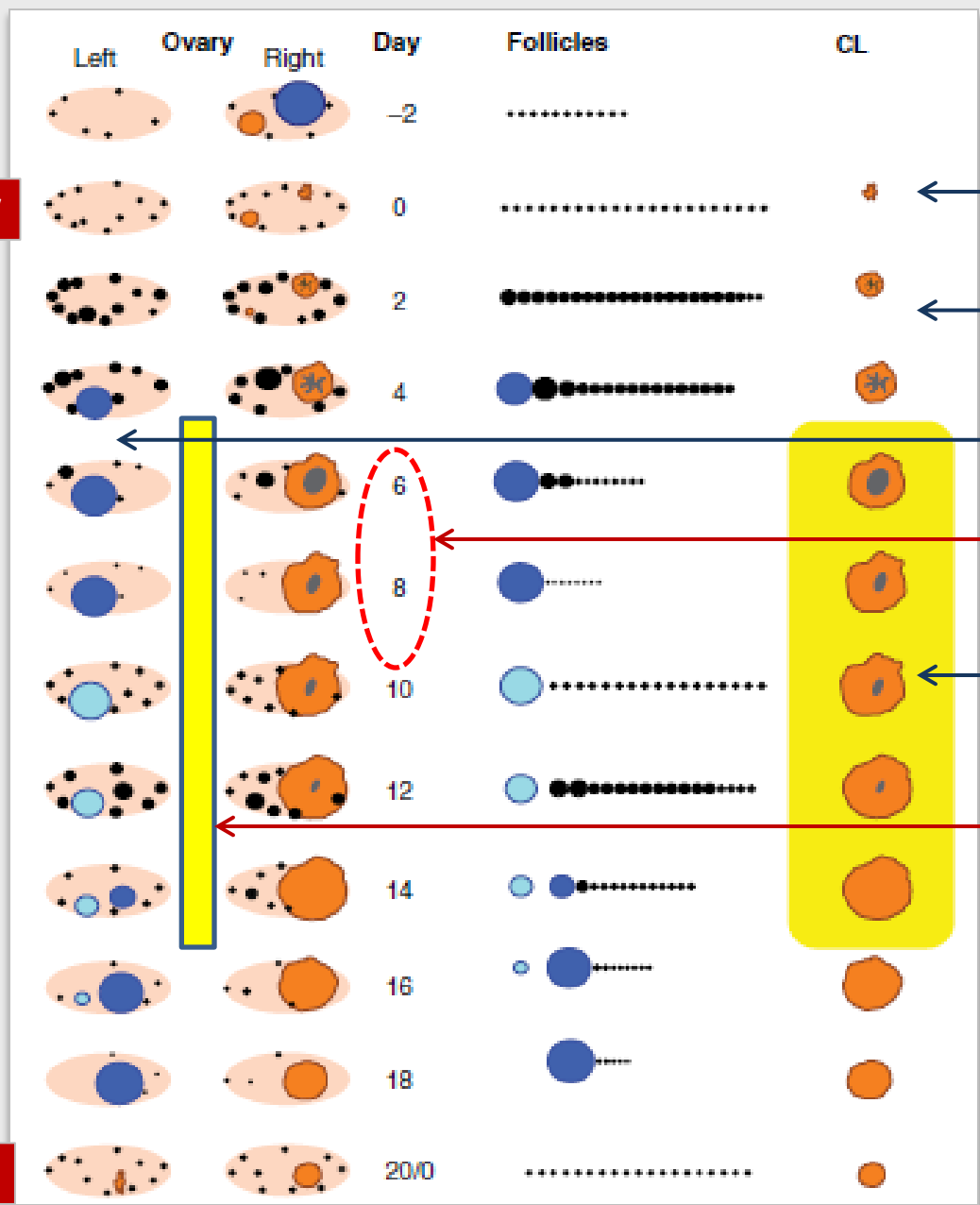
Two – wave
20 days

3-wave interovulatory interval



Three – wave
23 days

OV



Emergence D 0

Selection and Divergence
D 2.5, Size 8.5 mm

Domination

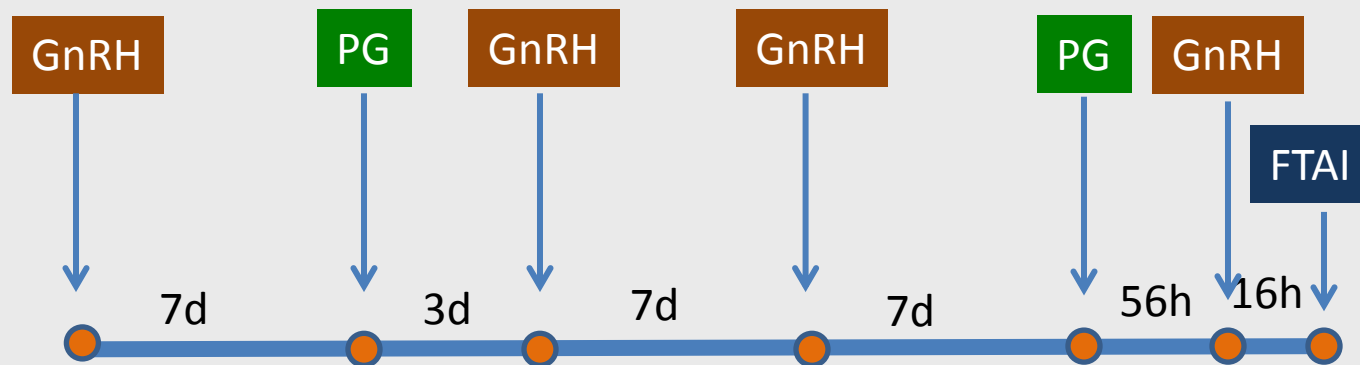
6 - 9 (Critical days for start of FTAI)

Emergence D 9-10

5 - 15 (Responsive CL)

OV

Use Fixed Time AI for the first service

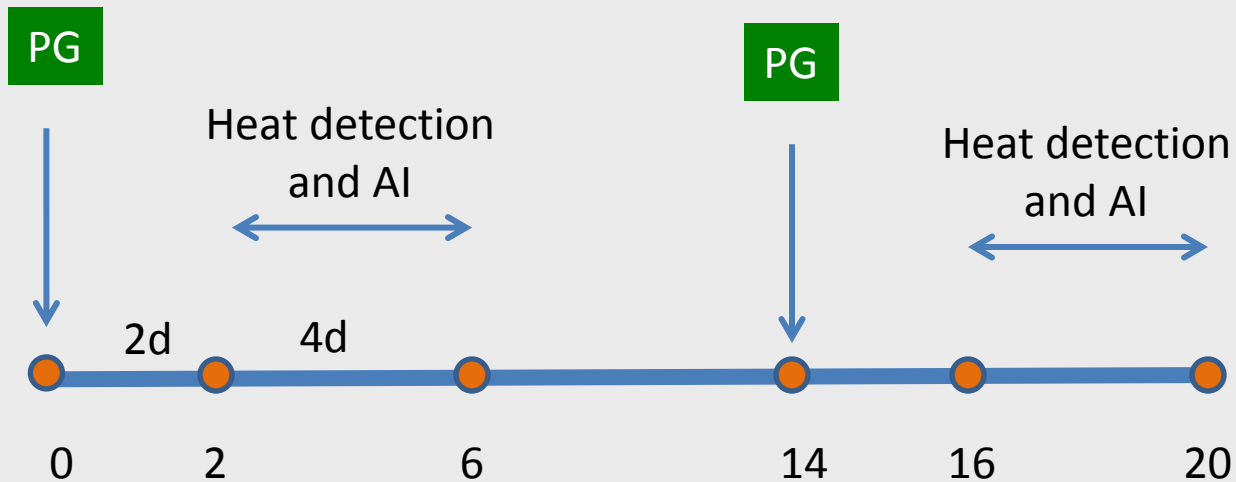


Double ov-synch

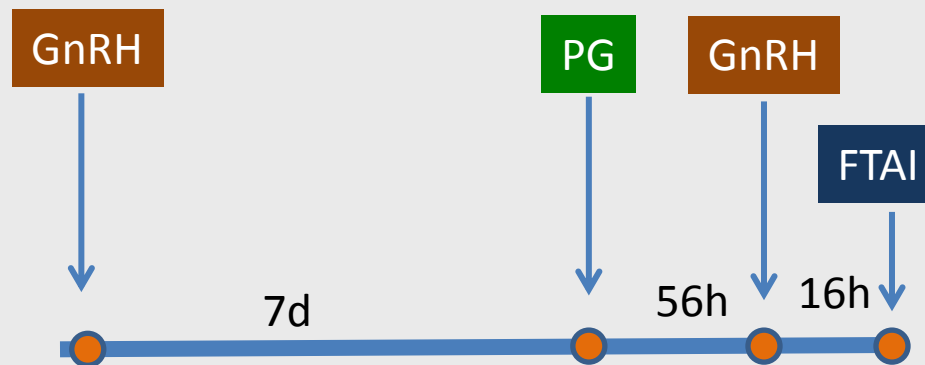
PG 3 G

G6G

Use PGf2 α and AI if estrus detection rate is good



Use brief programs to save the time

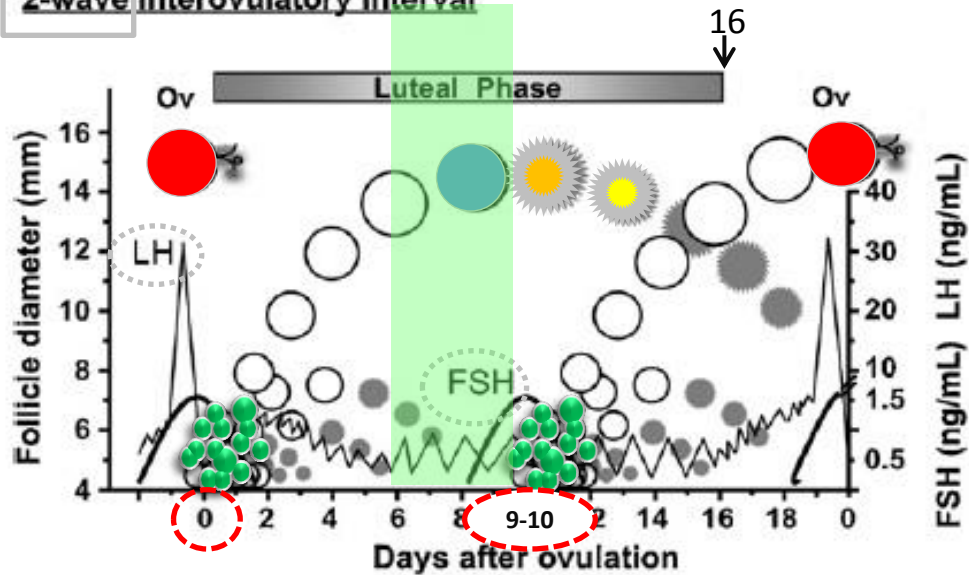


ov-synch

Heat-synch

PG+E2

2-wave interovulatory interval

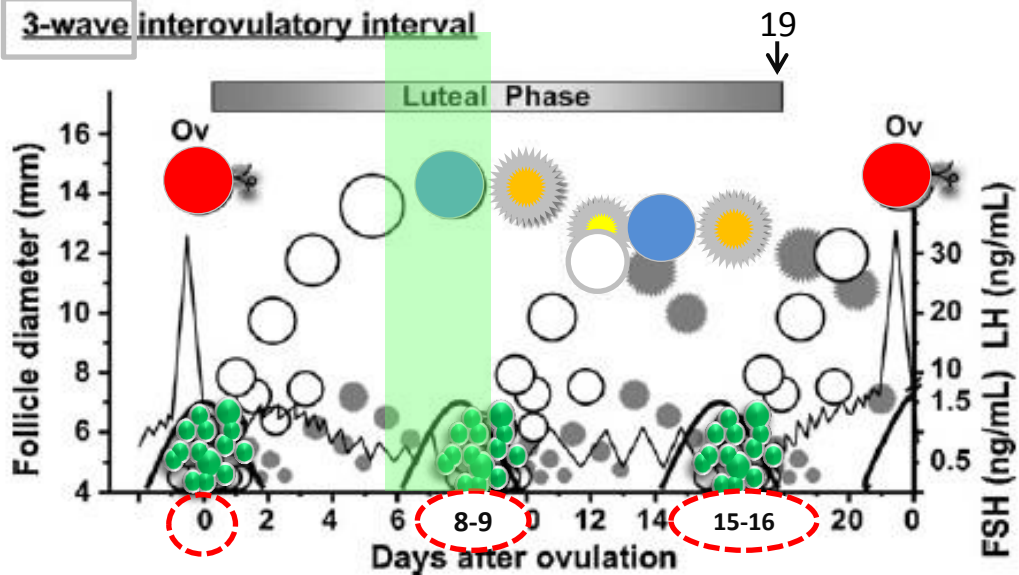


Presence of CL

Follicle >10mm

Minor number of follicle
(no emergence)

3-wave interovulatory interval



GnRH

PG

GnRH

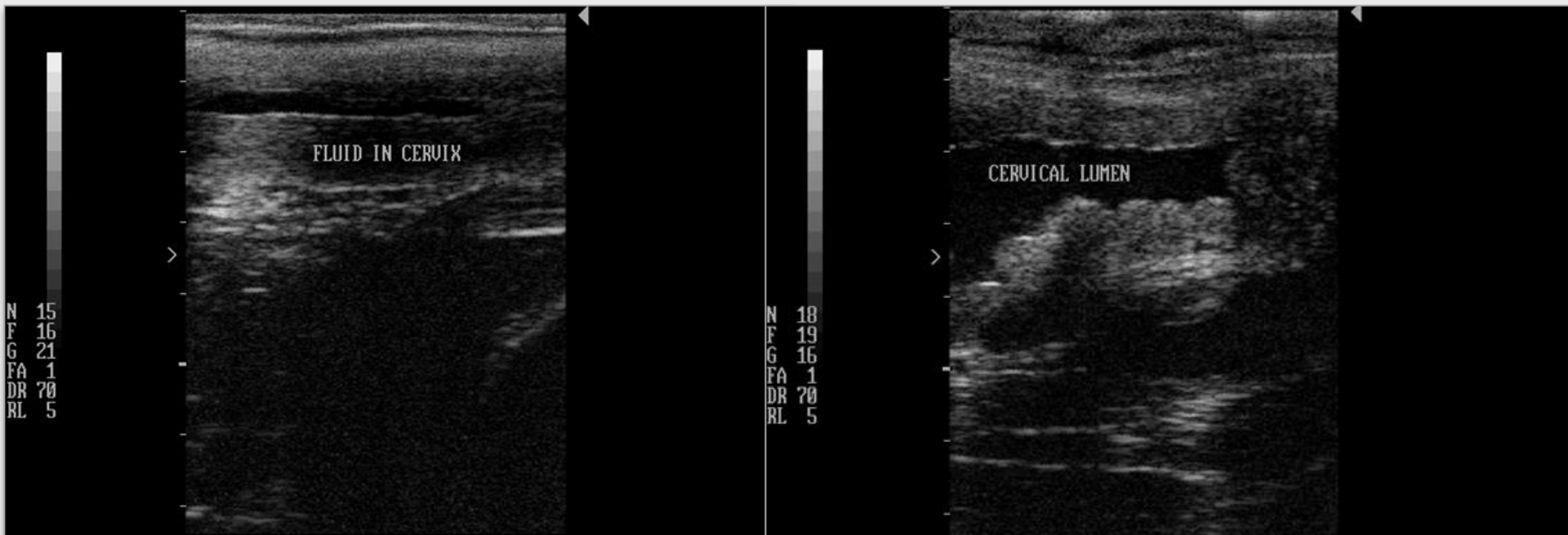
FTAI

7d

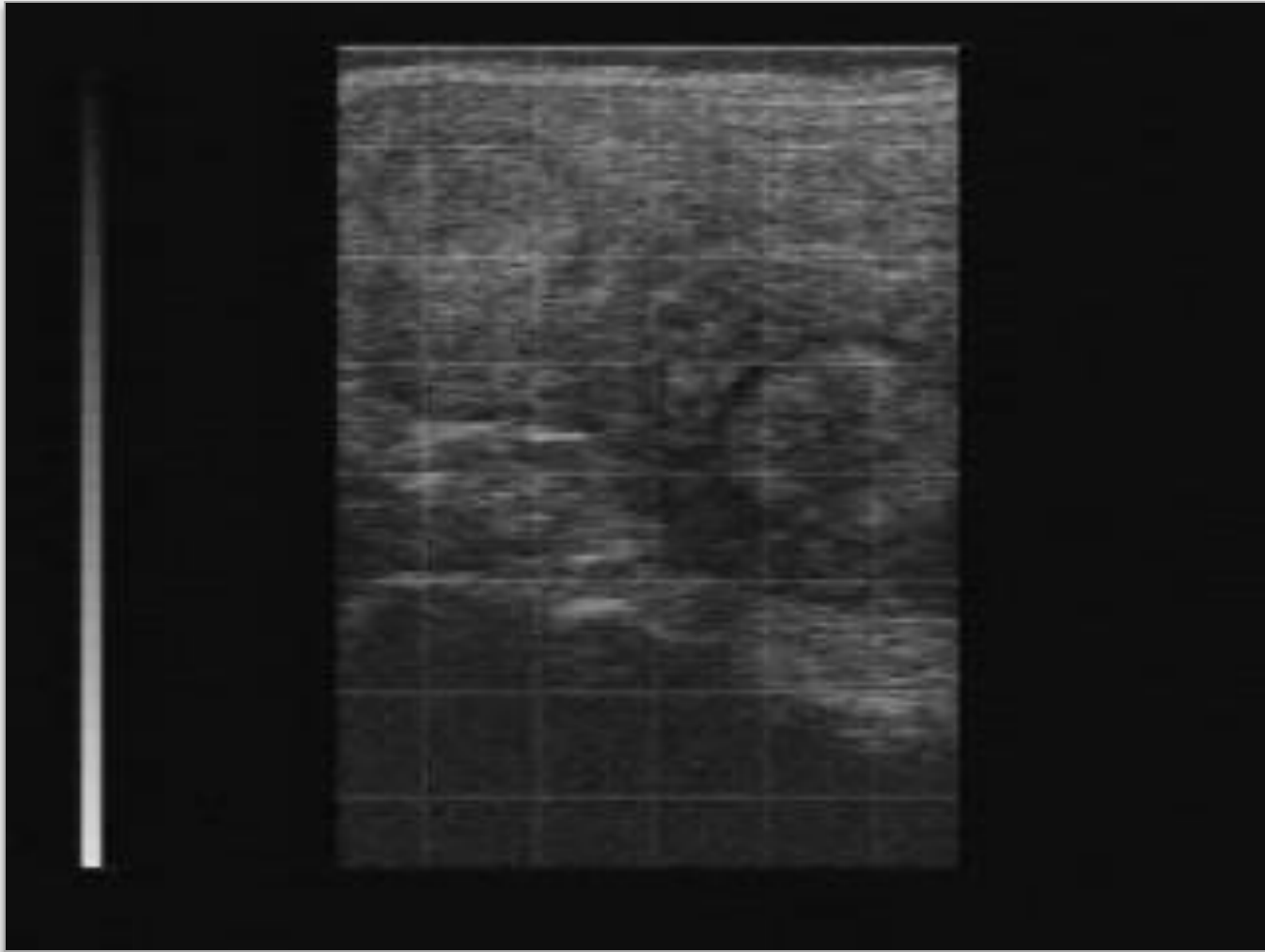
56h

16h

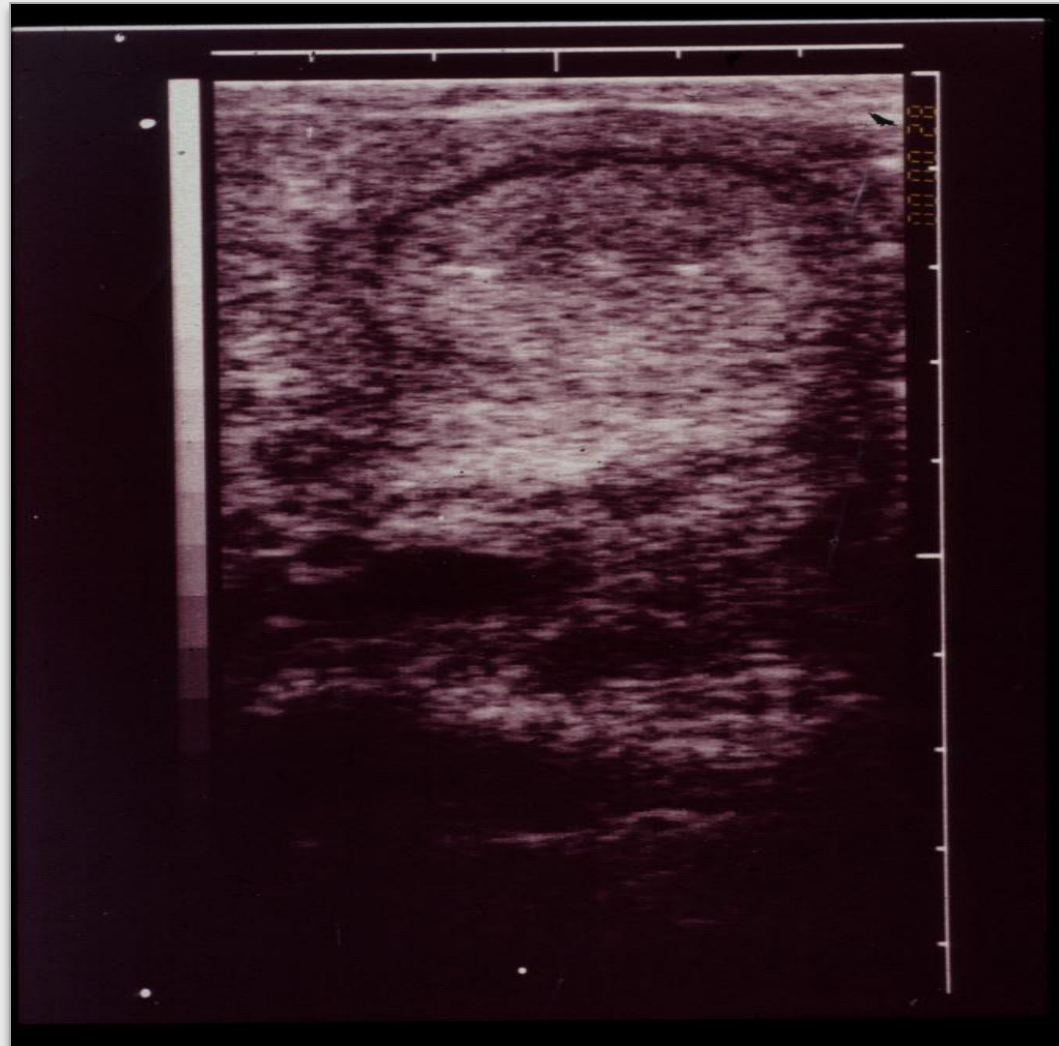
Cervix of proestrus and oestrus Cow



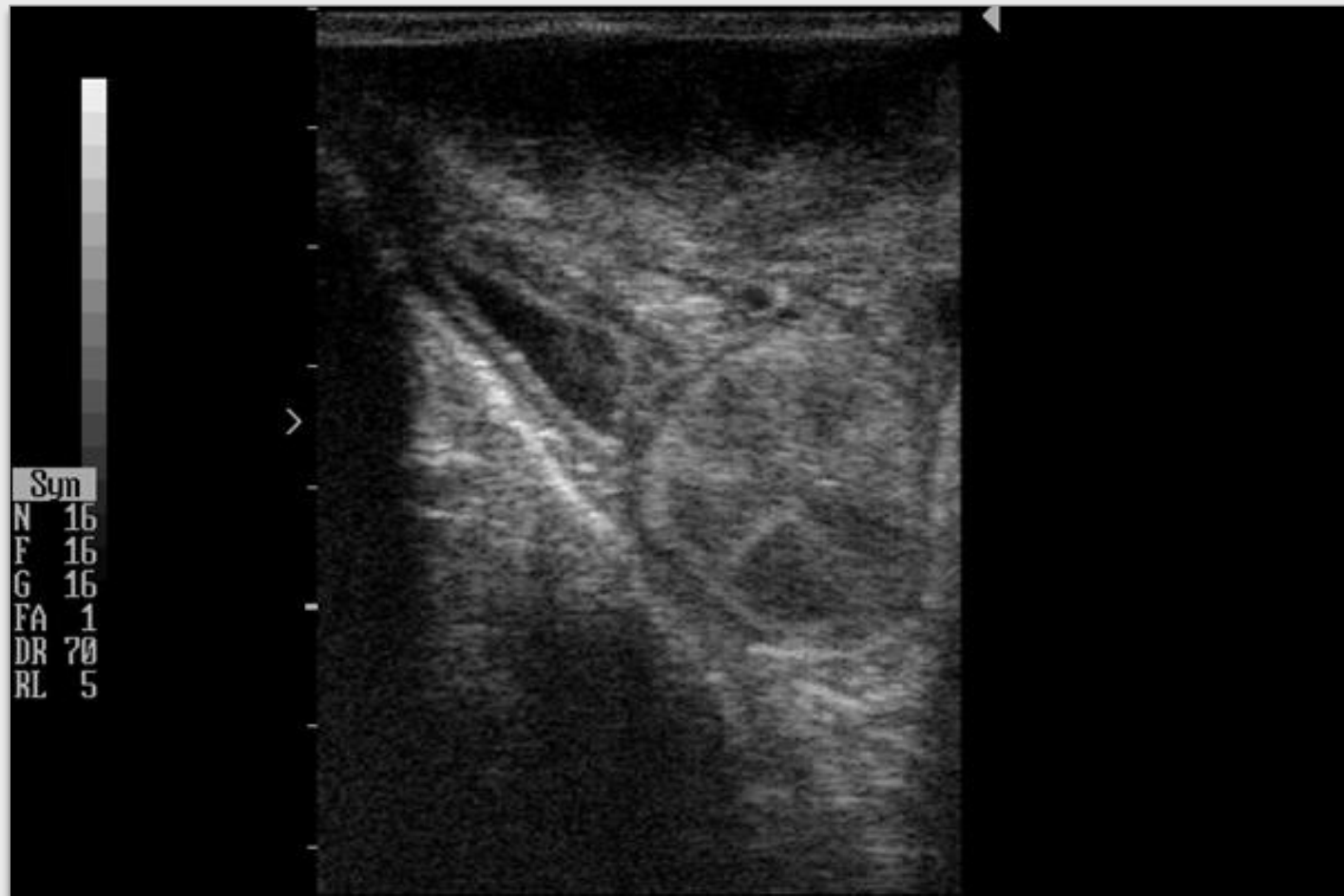
Uterus Of Diestrus Cow



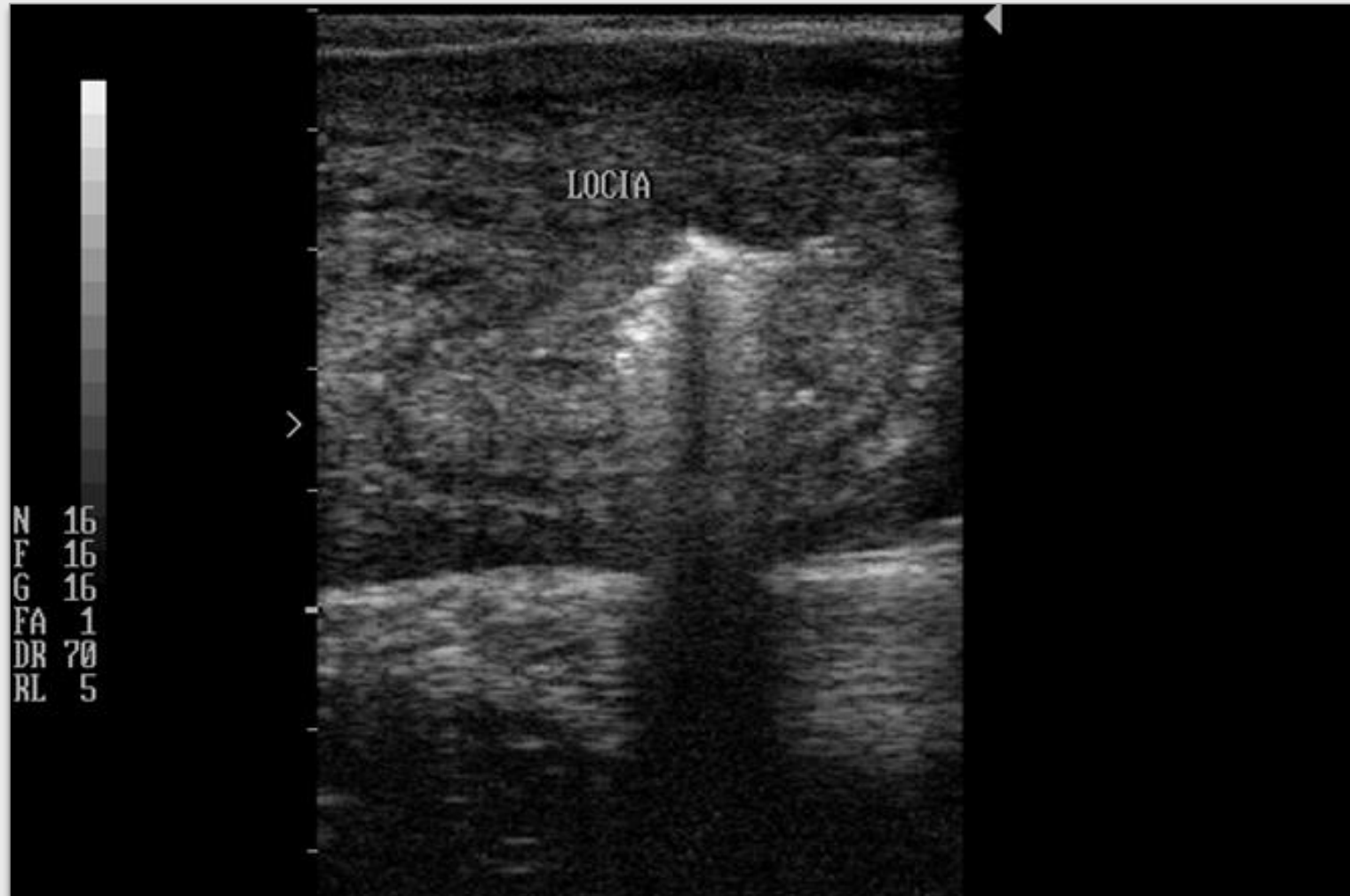
Uterus Of Oestrus Cow



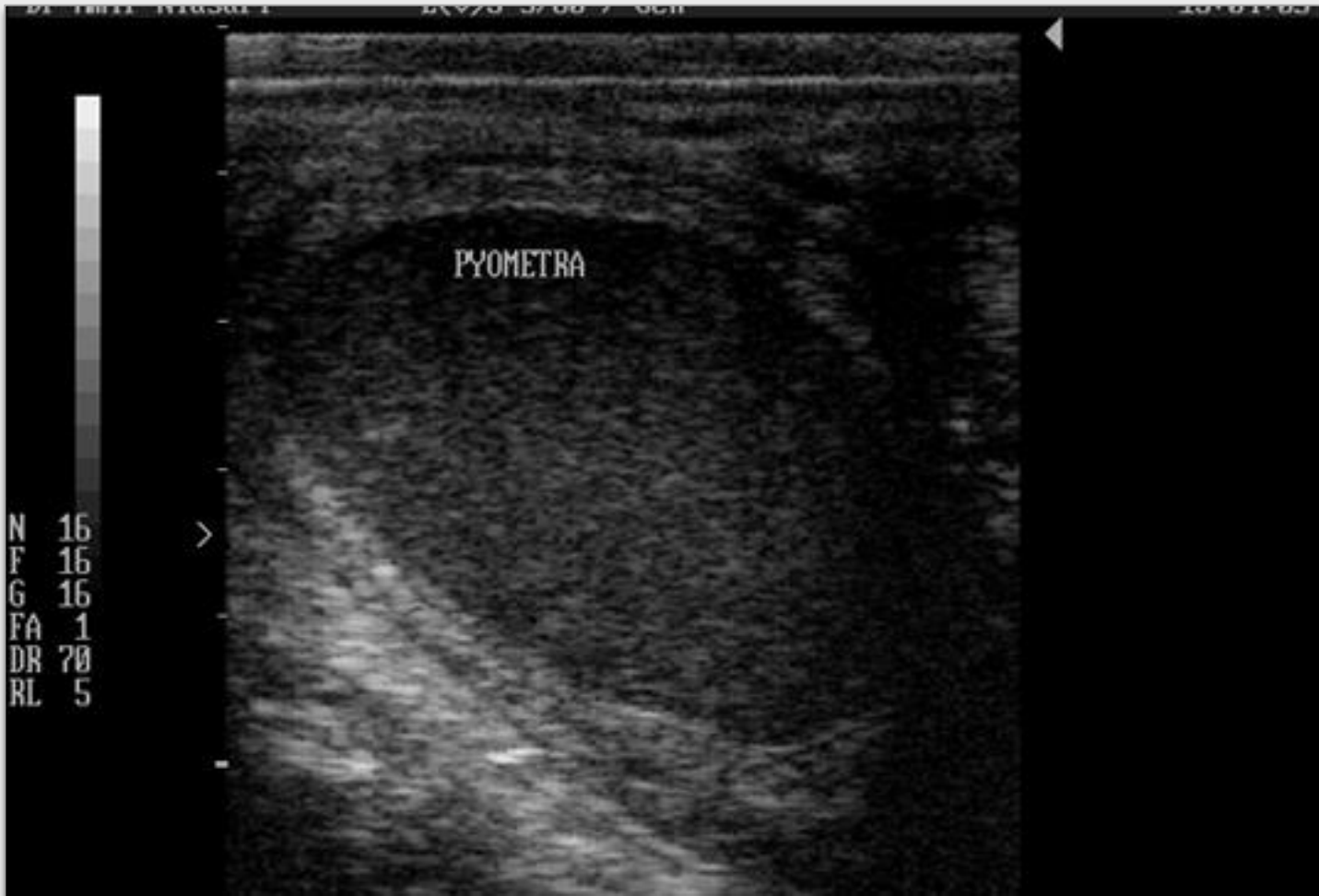
Oedema in the uterus of Oestrus Cow



15 days after parturition



Pyometra

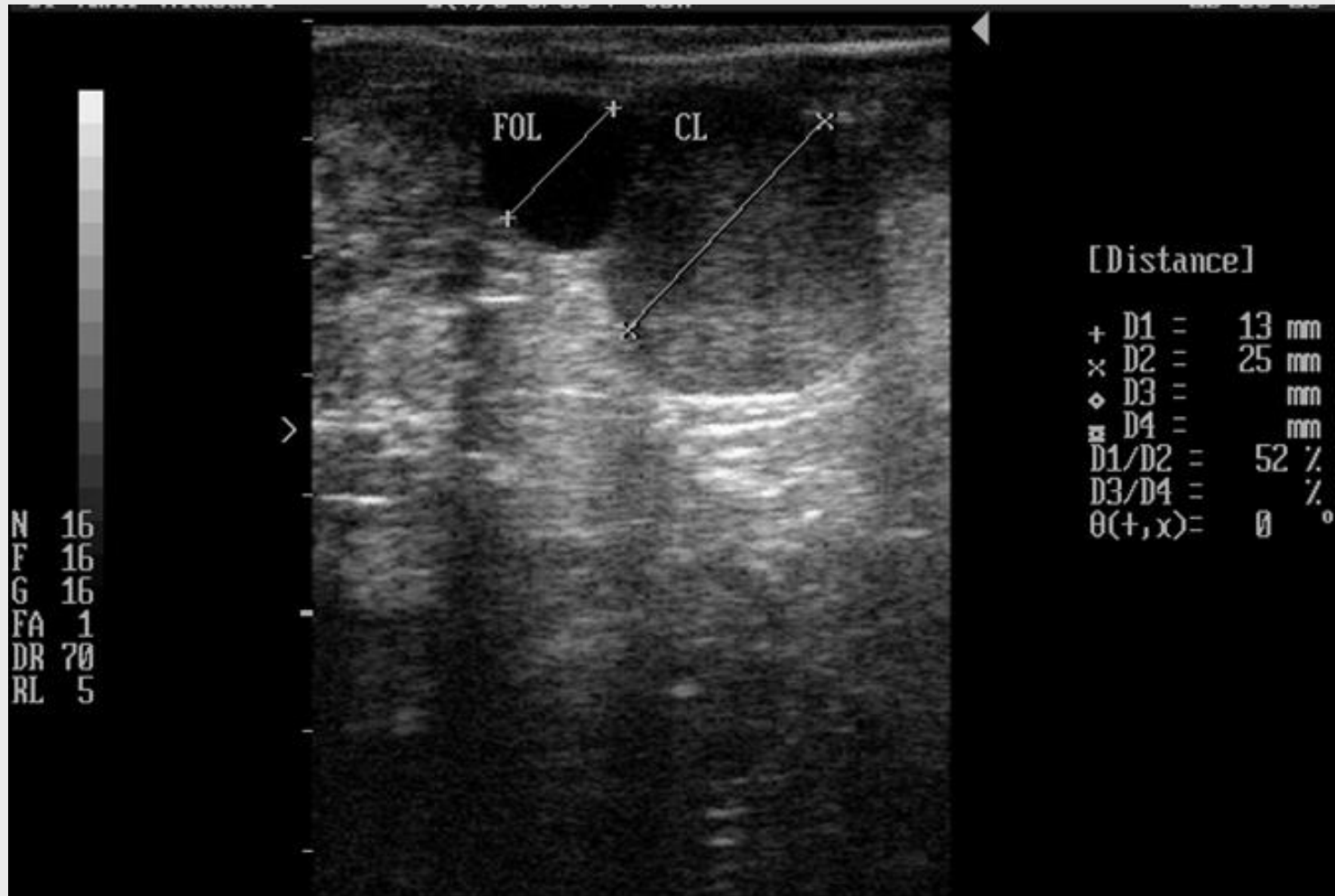


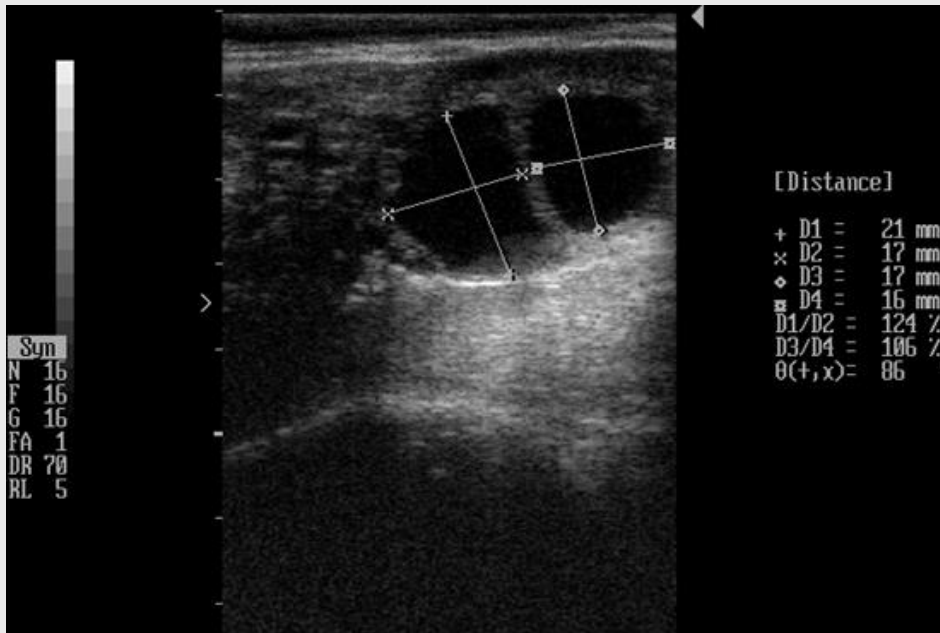


Mid cycle follicle

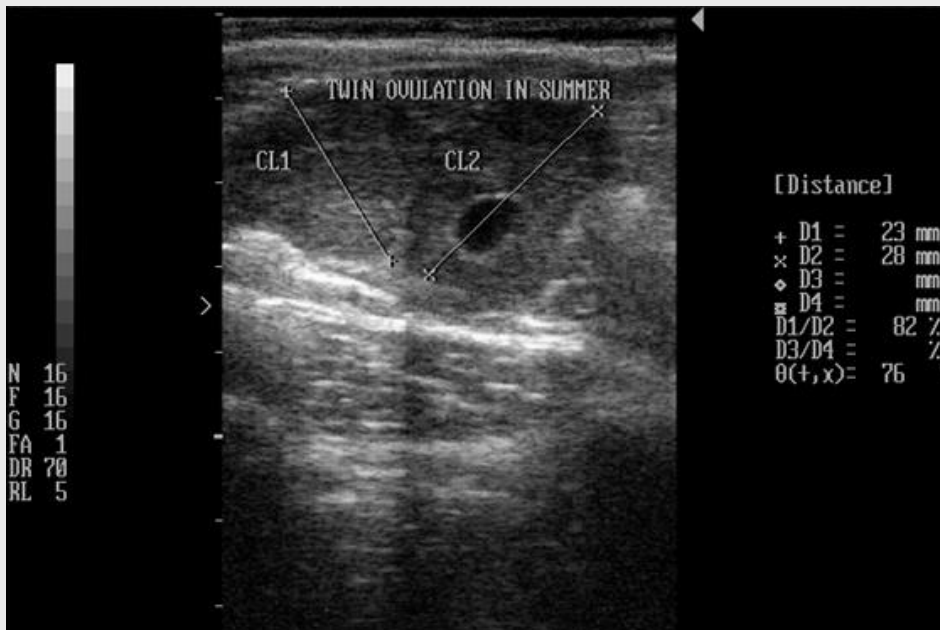


Mid cycle follicle





Twin Ovulatory Follicles



Twin Ovulation

Thanks

