Heat Detection in the Dairy Herd

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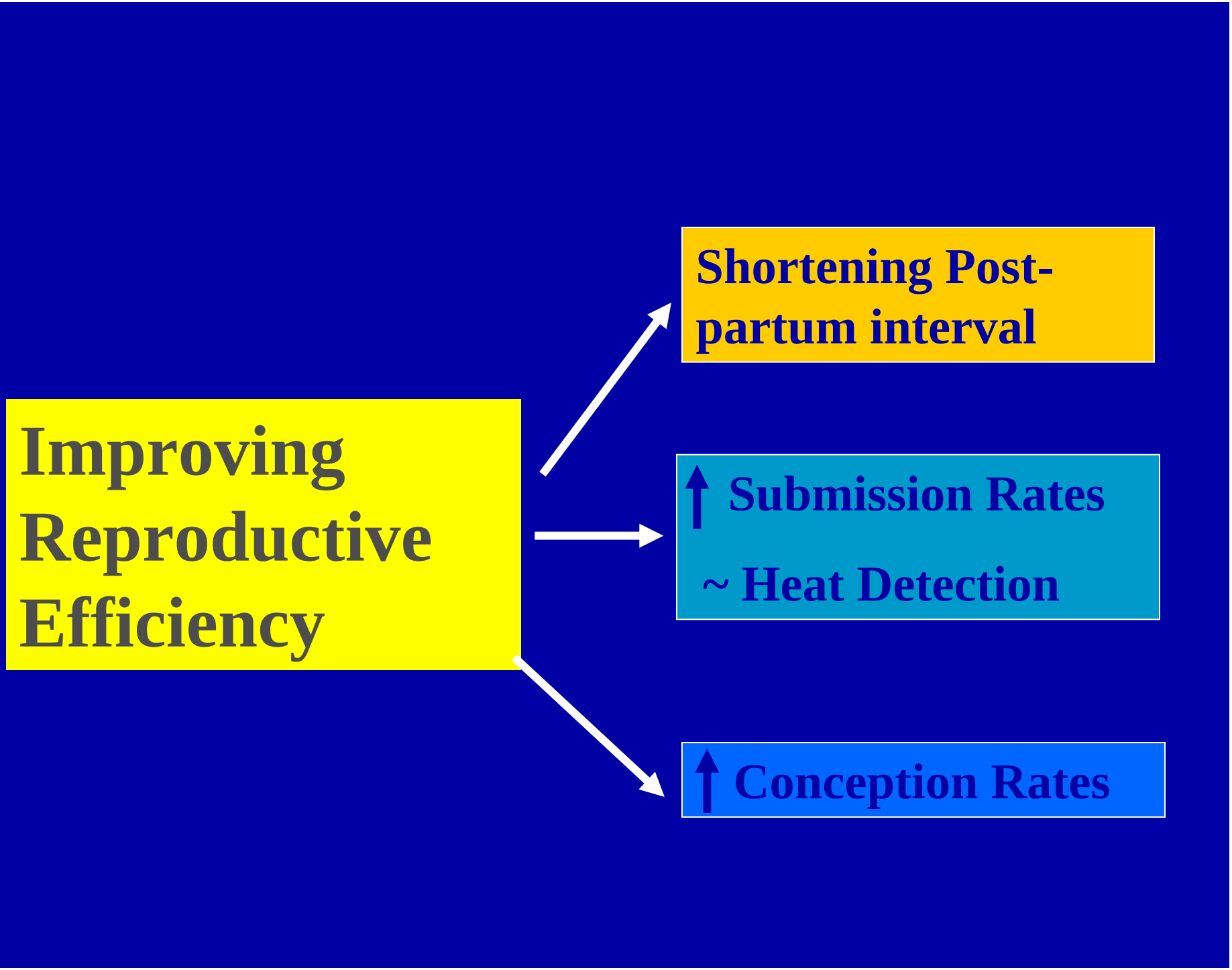
December 2007


Improving Reproductive Efficiency
Shortening Post-partum interval
↑ Submission Rates
~ Heat Detection
↑ Conception Rates

The Effect of Different Heat Detection and Conception Rate on % of Herd Pregnant at 90 Days After Onset of Breeding Season

		Conception rate			
		60	50	40	30
Heat Detection Rate %	90	96	91	83	71
	70	91	82	73	61
	50	76	68	59	48
	40	67	59	50	40

How much AI should I use in my herd ?

- Culling rates
- Expansion plans
- The % of heifer calves that makes it through to completion of 1st lactation (75-80%).
- Herd conception rate.
- Vagaries in the proportion of heifer calves born – particularly important in small herds.

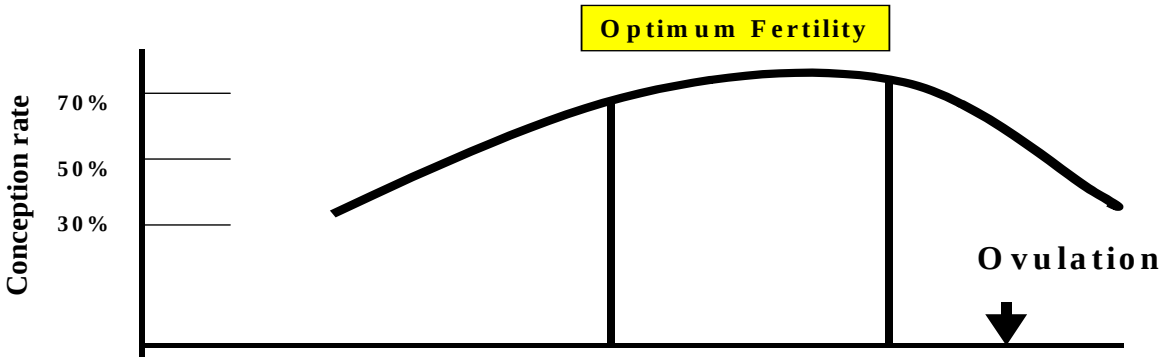
No of straws required to produce a lactating heifer replacement

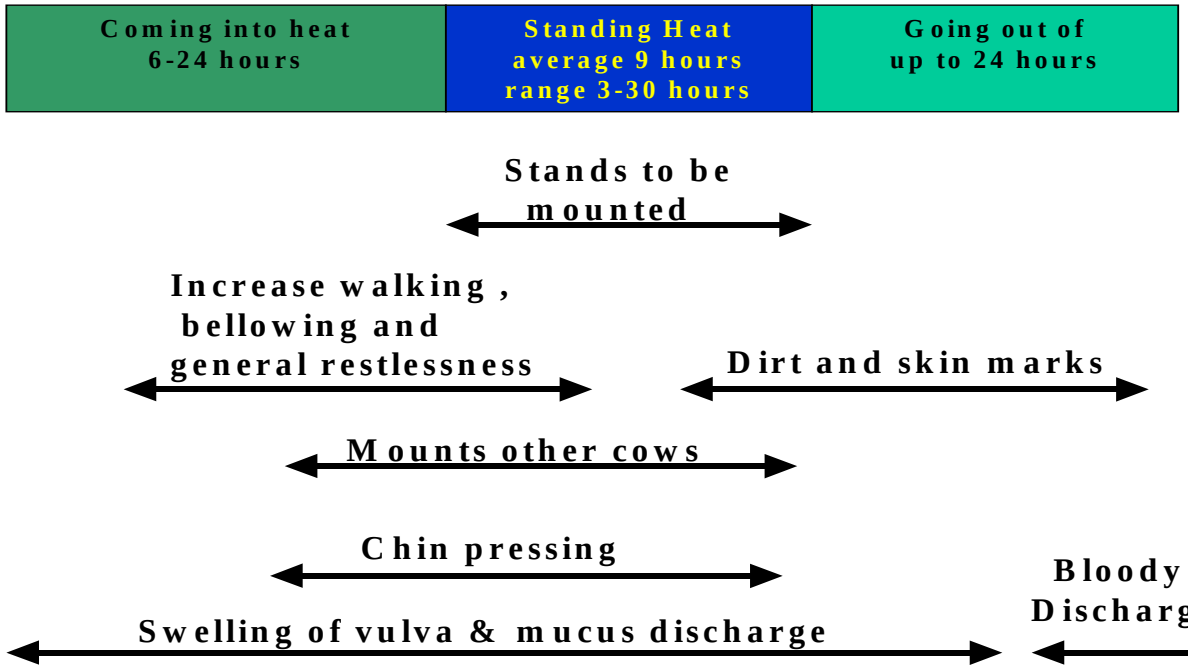
Herd CR	No Straws	20 Replacements
40%	6.22	140
50%	4.98	110
60%	4.15	96
70%	3.55	80


Primary Sign of Heat

Secondary Signs of Heat

- Sliming
- Restlessness
- Mounting activity
- Trailing other cows
- Bellowing
- Mounting or dirt marks
- Skin Marks
- Met-oestrous bleeding





Fertile Life of Sperm up to 36 hours


Mucous vaginal
discharge


Chin resting

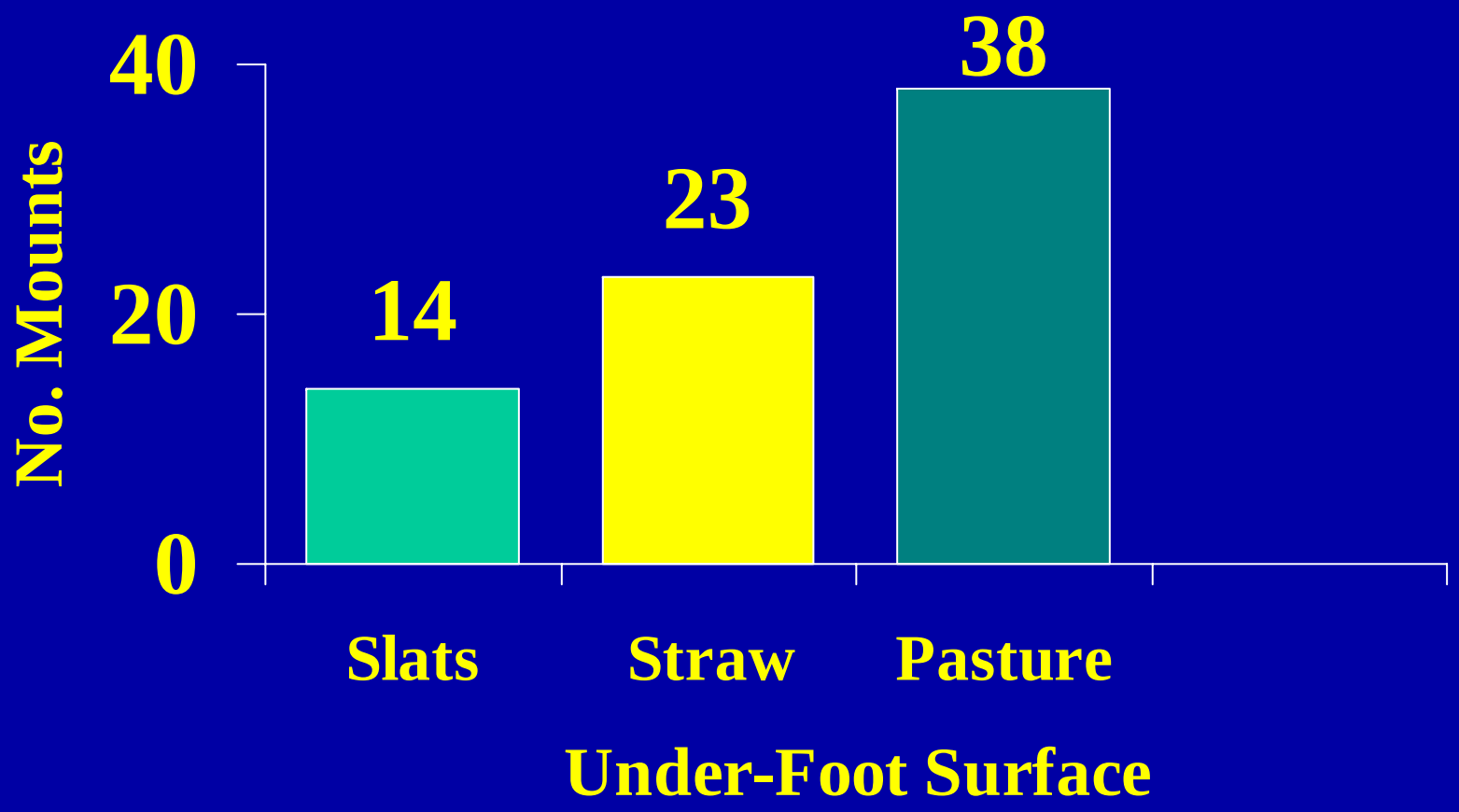
Factors Affecting Expression of Heat

- Hormonal: Oestradiol & Progesterone
- Milk Production: Less in High-Producing Cows
- Environment & size of Sexually Active Group.
- Lameness

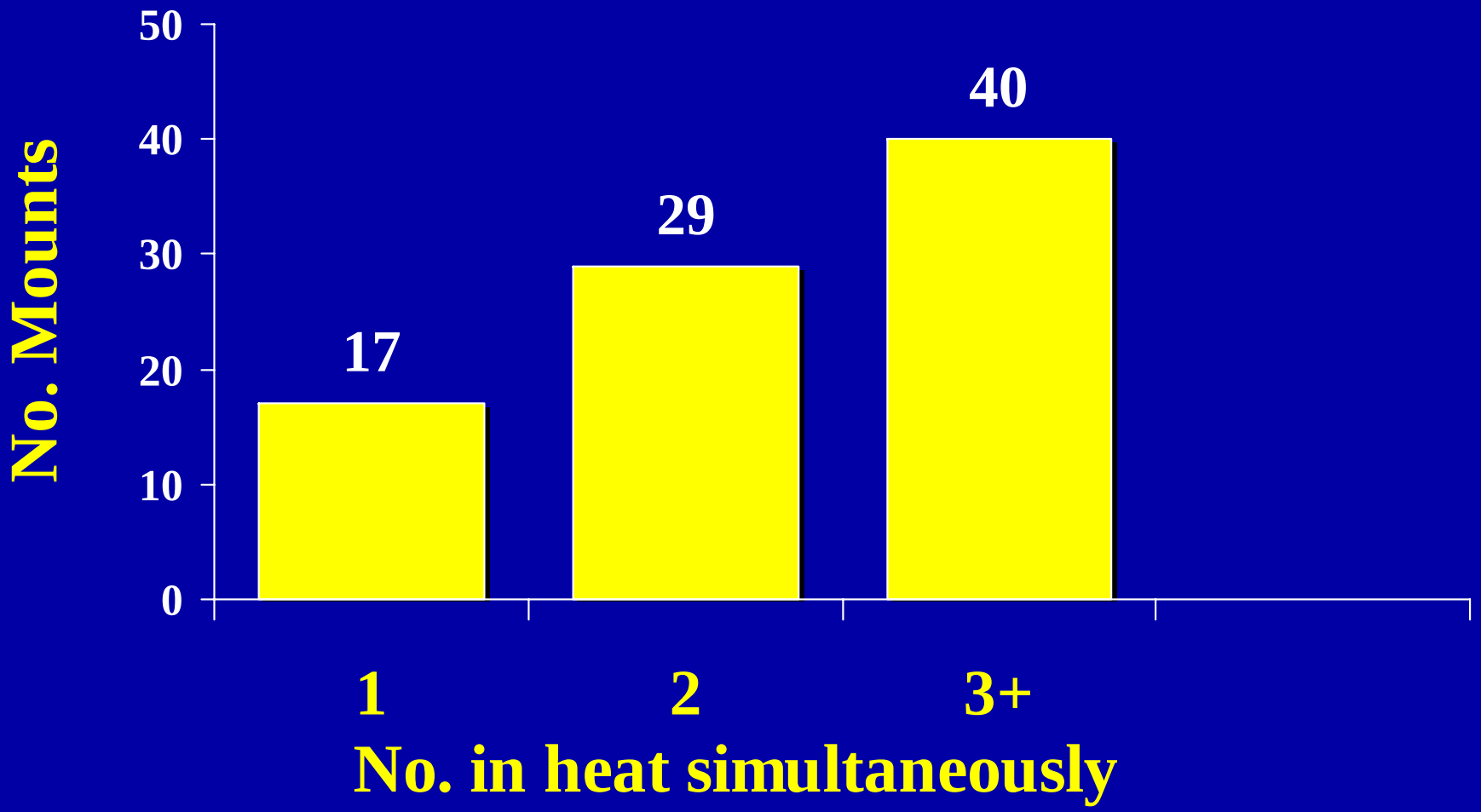
Lame Cows

- Reduced Expression of Heat
- Delayed Ovulation or Ovulation Failure

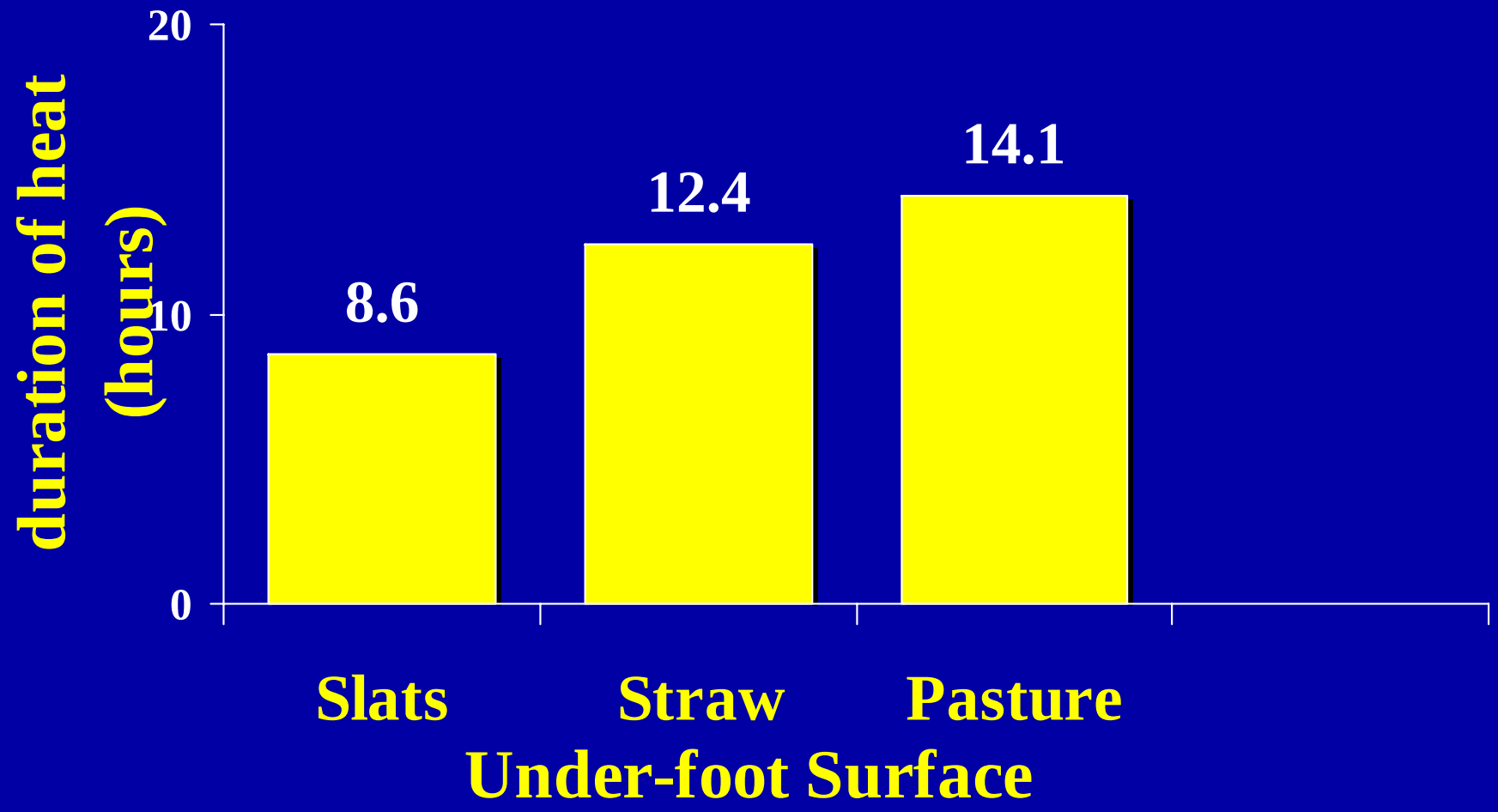
Underfoot surface on no mounts received during heat



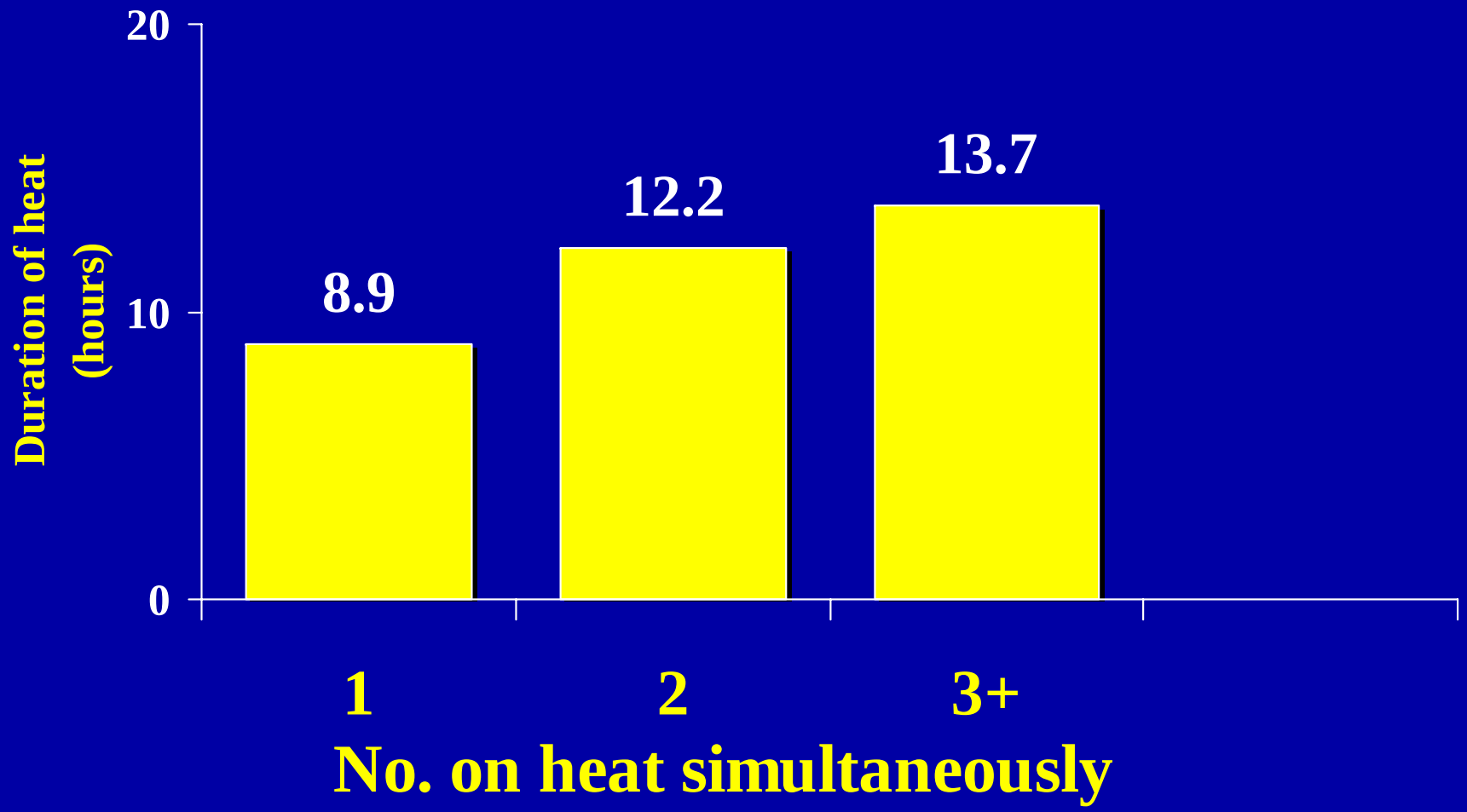
No of animals in heat simultaneously on number of mounts received during heat



Effect of underfoot surface on duration of heat



Effect of no. of animals in heat simultaneously on duration of heat



Pattern of heat Onset

% of cows first observed at				
7:00	10:00	13:00	16:00	23:00
47%	5%	5%	20%	20%

Aids to improve heat detection rate

- Tail paint
- Teaser Bull
- Synchronisation (Heifers)
- ***New technological aids***
- Oestrus Alert patches
- Kamars
- Pedometers

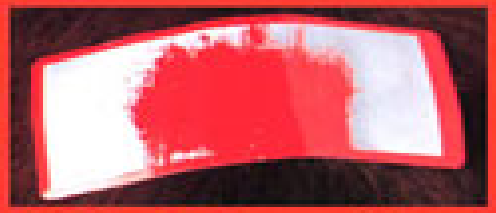
Teaser Bulls

- Use yearling bull
- Vasectomise at least 6 weeks before intended use **(do it now)**
- Fit with chin-ball 2-3 weeks before introduction to herd
- Castrate or sell at end of breeding season


E-STRUS ALERT™
"Exceptional Timing"
Patents Pending

Self-Adhesive, Highly Visible

A single mounting.



After 3-5 mountings.

More than 5 mountings.

Components of a Good Heat Detection Plan

- Commitment
- Understanding signs of heat
- Good recording and constant monitoring
- Use at least one Aid to Heat Detection
- Breed replacement heifers to dairy AI sires
- Judicious use of synchonisation treatments ~ heifers, “problem” & late calving cows

New Heat Detection Technologies

- Kamars (some good reports)

Integrated systems: Pedometers and inline sensors

Oestrous /Ovulation Control regimens

Oestradiol Benzoate (ODB) no longer available

Prostaglandin (PG) -based systems

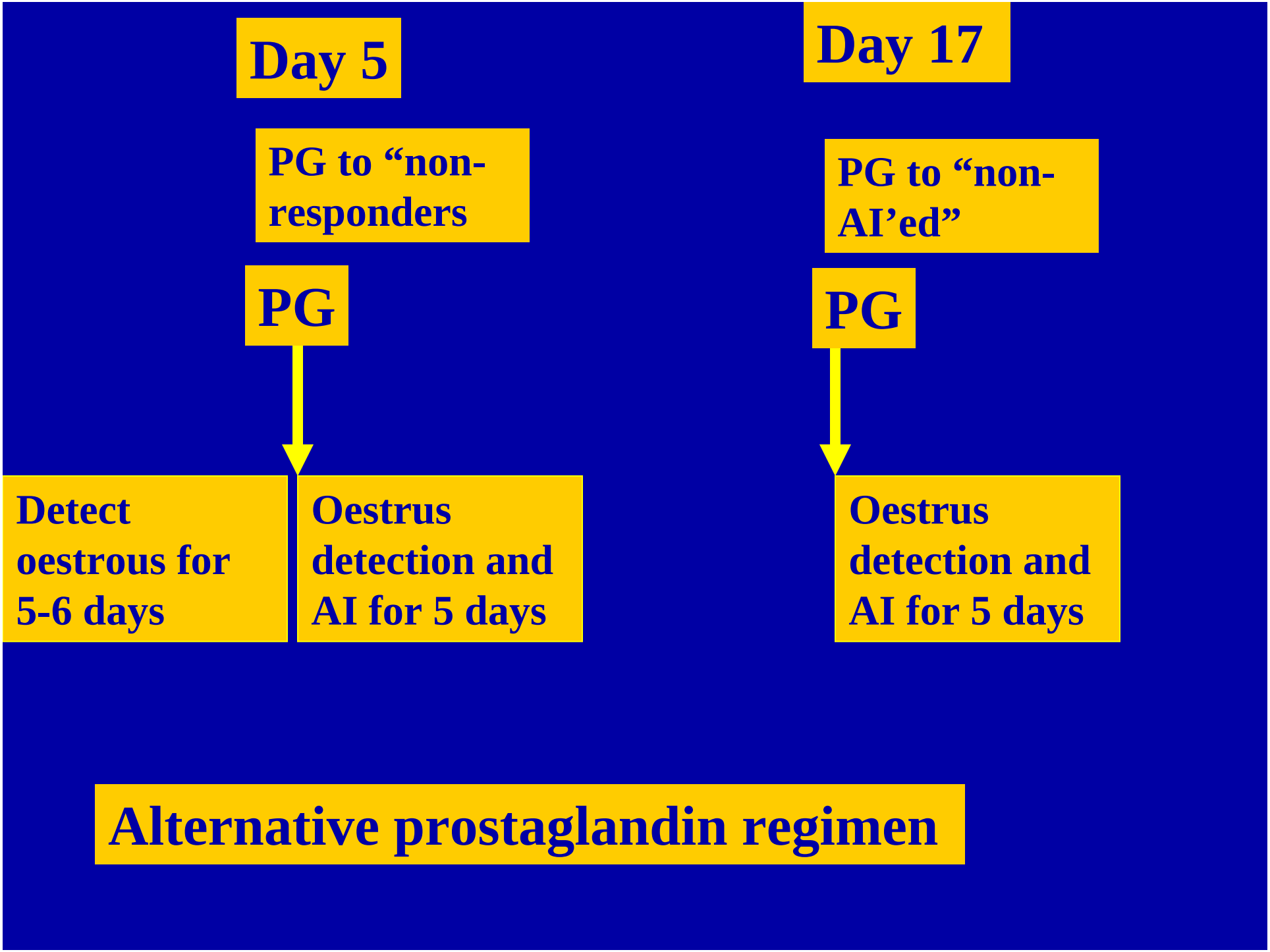
- **~ Heifers**
- **Fertility: Normal 60-70%)**

Progesterone + GnRH + PG (PRIDs & CIDRs)

- **~ individual cows + anoestrous cows**
- **Fertility: Variable but generally low**

Ovsynch or modified Ovsynch

- **Herd or individual cow application**
- **Fertility: 10% below breeding at spontaneous heat**


Day 5
Day 17
PG to “non-responders
PG to “non-AI’ed”
PG
PG
Detect oestrous for 5-6 days
Oestrus detection and AI for 5 days
Oestrus detection and AI for 5 days
Alternative prostaglandin regimen

Costs and Projected utcome

	2PG + Fixed Time AI @48 & 72 hours	HD for 6 days & PG and HD
No Heifers	**20**	**20**
Vet costs	**120**	**60**
Drug costs	**160**	**56**
Semen (10)	**400**	**180**
AI	**400 (€1080)**	**360 (€656)**
no calves	**12**	**12**
No Heifer calves	**6**	**6**
Cost per heifer Calf	**180**	**109**
Repeat AI		
Semen	**60**	**60**
No calves	**4**	**4**
No Heifer Calves	**2**	**2**
Cost per heifer calf	**143**	**90**

Summary

- 90% of heifers bred in 10-11 days
- Good fertility, calving rates of 60-70%.
- Minimizes drug usage
- Minimizes semen usage
- Minimizes veterinary visits

Heat Detection Plan

- Day - 42: Prepare Teaser bull(s)
- Day - 42: Calculate number of dairy AI straws required & order
- Day -21: Tail paint all cows & heifers and commence twice daily heat detection & recording
- Re-paint cows & heifers once weekly
- Day 0: Commence Trice daily (30 minutes each time) heat detection of cows and replacement heifers. (Place teaser bull with heifers ?)
- AI all cows and heifers observed in heat or with clear evidence of tail paint removed. Re-paint cows once weekly
- Only use dairy AI straws

Note : “Heat Detection patches” or “Kamars” can be used instead Tail paint

Heat Detection Plan – Cont.

- Review list of cows calved 42 days and not recorded in heat during 3 weeks pre-breeding. Treat if necessary.
- Day 6: Administer PG to heifers not yet AI'ed
- Day 21: Calculate 21-day submission rate. Identify cows & heifers calved 42+ days and not yet AI'ed. Treat as necessary
- Day 28: Place Teaser bull(s) with cows.
- Day 42: Review heat detection/submission rates to date. Identify cows & heifers calved 42+ days and not yet AI'ed. Treat as necessary
- Continue using dairy AI until required number of dairy AI straws is used.

Note : "Heat Detection patches" or "Kamars" can be used instead Tail paint