



# Methods to Improve Aseasonal Lamb Production

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TAKING US LAMB QUALITY TO NEW HEIGHTS



# Optimizing aseasonal production:

- Nutrition
- Genetics
- Environment-Lighting protocols
- Hormone therapies
- Ram effect and libido



# Nutrition:

- Flushing has a big impact of lambing percentage regardless of breeding season
  - MSU studies indicate increases of 30-40% when ewes are well fed for 3 weeks before ram turn-in
    - ✓ 200% of NRC energy intake
    - ✓ Ewes fed at NRC Flushing recommendations of 160% did not respond
- Prolonged undernutrition is detrimental to conception in Spring mating







**Rape x Kale hybrid at 90 days post emergence**

# Genetics:

## Common US breeds used for aseasonal lamb production

- Horned or Polled Dorset\*
- Rambouillet
- Romanov
- Finn
- Hair breeds of West African decent
- White or Black Dorper
- Ile de France

*Cross breeding (heterosis) may enhance aseasonal fertility*



# Genetics: How can you select sheep for aseasonal reproduction?

- Heritability of fertility during Spring estimated at 0.09 to 0.16
- No EBVs exist for aseasonality on NSIP, difficult to measure this trait as the seasonal challenge is often not uniform
- Producers select for aseasonality by selecting breeding stock from ewes that express the trait
- Molecular markers may offer promise for selection for aseasonal conception



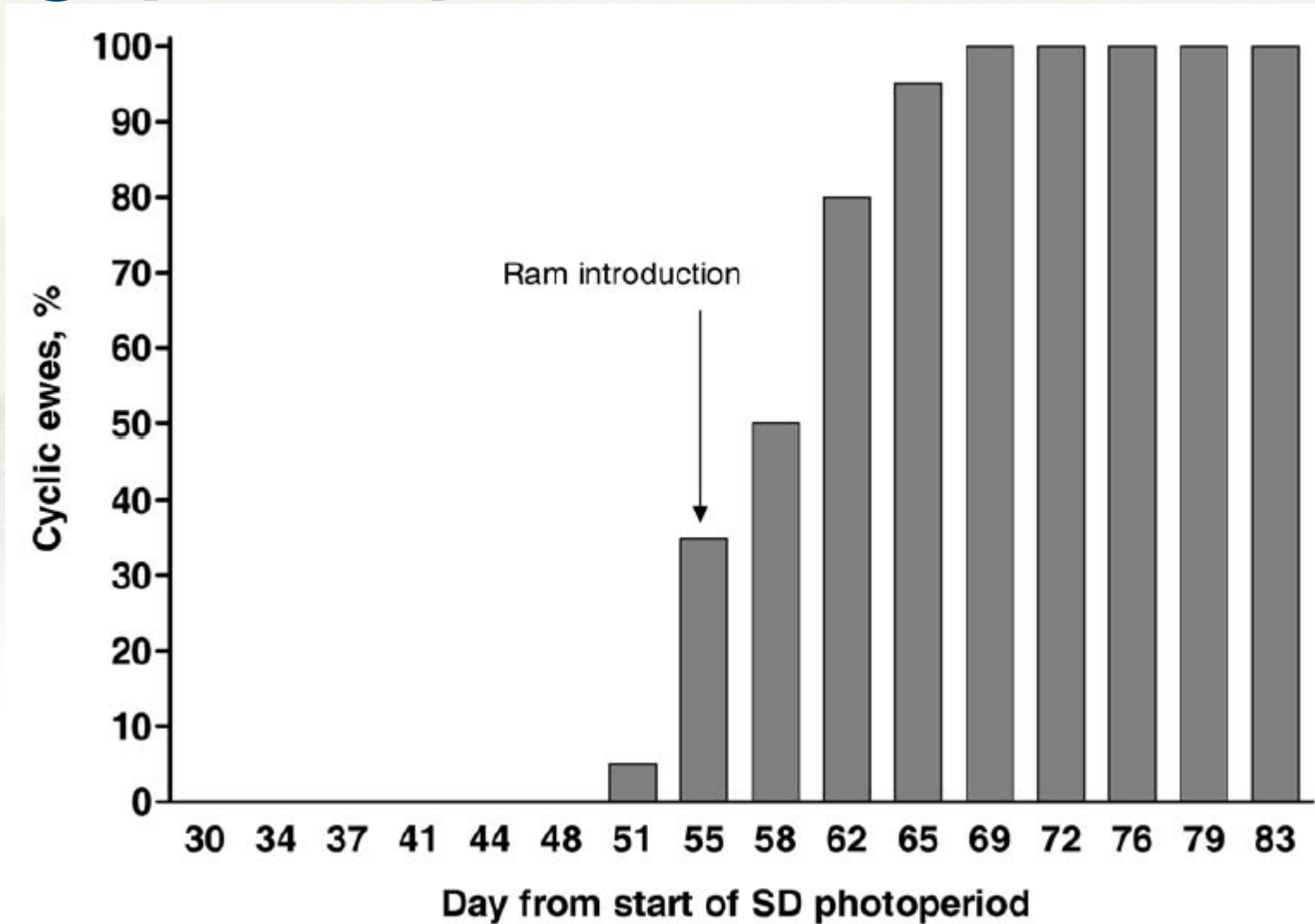
# Lighting/photoperiod control:

- Complete photoperiod control (alternating 4 mo. intervals of 8:16 h light/dark cycles) is a proven method of optimizing ovulation and conception rate
  - ✓ Requires indoor housing and dark barn to achieve
  - ✓ Can truly optimize ovulation rate and conception for any breed of sheep (3 quality lambs/ewe/yr). *Cameron et al. 2010; Journal of Animal Science 88: 3280-3290*
- Extended day lighting is a more feasible method that may have benefit
  - ✓ 50-60 days of 24 h light followed by 50-60 days of ambient light





# Lighting/photoperiod control:



Cameron et al. 2010, Journal of Animal Science 88: 3280-90



American Lamb Summit 2019



# Hormone Therapies:

- Progesterone CIDRs
  - ✓ FDA approved for use in sheep
  - ✓ 40-85% conception in Spring
  - ✓ Very helpful in synchronizing estrus
  - ✓ Results obtained are similar to that found using teaser rams



# Ram Effect and Libido:

- Increasing evidence indicates that many ewes capable of breeding in the Spring do not cycle unless they are in the presence of rams
  - ✓ Use of intact, yet non-fertile rams (vasectomized teaser rams) in Spring mating are useful for inducing and synchronizing ewes
  - ✓ Ewes cycle 16-21 days following exposure to rams
- Ram mating activity (libido) is likely a critical/limiting factor in Spring mating success:
  - ✓ 3-5% fertile ram coverage suggested in Spring





*Have a  
Question?*

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