

You have 100 commercial cow operation and are planning to use CIDR's as a synchronization technique for two rounds of AI followed by a cleanup bull.

1. If you expect 60% conception rate for each round of AI, what is your expected AI conception rate? 84%

2. How many cleanup bulls should you use? 1

3. If your cleanup program settled 50% of the open cows, what is your total conception rate? 92%

4. If you can purchase a cleanup bull for \$3000 and plan to salvage him for \$1200 after 3 breeding seasons what is the annual depreciation cost of the bull? \$600

5. If the annual maintenance cost of the bull is \$600, what is total bull cost per bull-sired calf? \$150

6. You estimate that you need 140 straws of semen that costs \$ 20 each and that labor and other drugs cost a total of \$2408. What is the cost per AI-sired pregnancy? \$62
$$140 \times 20 = 2800 + 2408 = \$5208 / 84$$

7. The synchronized breeding takes 25 days and the cleanup program lasts 25 days, what is the expected length of the calving season (assume a constant gestation length)? 50 days

8. The AI sires used have a 20 lb advantage for weaning weight over the cleanup sire(s). If you value the additional weight at \$160/cwt, what is the gross income advantage of the AI program on a per calf basis? \$32/calf
$$0.2 \times 160$$

9. The AI program allows you the option to crossbreed without purchasing bulls of another breed. Your average weaning weight average has been 500lbs. If you maintain the 20lb advantage in your AI sires and assume that you will receive a 4% boost as a result of heterosis; what is the total weaning weight advantage for the AI calves on a per head basis (round to the nearest lb). 41lbs
$$20 + (520 \times .04) = 41\text{lbs}$$

10. Crossbred calves receive a 5% premium in sale price (use \$160/cwt as your base price). What is the expected gross value difference between AI and natural sired calves on a per head basis? \$109/hd
normal 500lb x \$160 = \$800
$$\text{Xbred } 541 \times 168 = \$908.88$$