Veterinary Technician Program

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Implementing Your Veterinarian's Synchronization and AI Protocols

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Abstract

As the saying goes, "change is good…you go first." We all fall into the trap of doing things the way they've always been done. After all, doesn't the bull do a pretty good job? Almost any bull can breed a cow, but not every bull will improve the herd. By adding artificial insemination (AI) to your management tool belt you will have access to genetics that would otherwise be cost prohibitive. Artificial insemination has been around for over 65 years, but for many of those years it was labor intensive. Heat checking twice a day is very time consuming; however, great strides have been made in the area of estrus synchronization. Synchronization is the key to having a successful AI program – both for your clinic and the producer. With the improvement in synchronization protocols it is a tool your clinic can offer not only to seed stock and club calf producers, but commercial producers as well. With heightened awareness and education of the estrous cycle, access to an AI technician and clarity of protocol administration, this is sure to be a service your clients will appreciate.

Résumé

Comme dit le proverbe : « Il est toujours bon d'évoluer… alors vas-y d'abord! » Nous tombons tous dans le piège de la routine, qui nous pousse à refaire les choses comme elles ont toujours été faites. Après tout, le taureau ne fait-il pas déjà un excellent travail? N'importe quel taureau ou presque peut saillir une vache, mais n'améliorera pas nécessairement le troupeau. En ajoutant l'insémination artificielle (IA) à votre coffre à outils, vous aurez accès à de la génétique qui autrement serait hors de prix. L'insémination artificielle est utilisée depuis déjà plus de 65 ans, mais durant la plupart de ces années, elle s'est avérée exigeante en main-d'œuvre. La détection des chaleurs deux fois par jour prend beaucoup de temps. Toutefois, nous avons fait des pas de géant dans le domaine de la synchronisation de l'oestrus. Et la synchronisation est la clé de la réussite d'un programme d'IA, à la fois pour votre clinique et pour votre client-producteur. Les progrès des protocoles de synchronisation font de l'IA un outil que vous pouvez offrir non seulement aux éleveurs de sujets reproducteurs ou de veaux d'exposition, mais aussi aux éleveurs commerciaux. En s'assurant de bien sensibiliser et de bien informer le client au sujet du cycle oestral, d'avoir accès à un bon technicien d'IA et en clarifiant au maximum le protocole d'administration, ce service sera certainement très apprécié de vos clients.

Introduction

According to the most recent National Animal Health Monitoring System survey, only around 7% of beef producers in the United States currently utilize artificial insemination. Although that survey was done nearly ten years ago, I would gamble to say that when the new statistics come out next year beef producers will still be lagging far behind the dairy and swine industries. You might say, "with these statistics how or why would a clinic choose to offer this as a service to their clients?" Artificial insemination (AI) has many well documented advantages including a more predictable calf crop, superior replacement females, increased weaning weights and superior carcass characteristics. Recently, DNA tenderness test results have been included in the sire summaries. This information will aid the beef producers looking to improve carcass tenderness. Packaging these benefits into a manageable program offered by your clinic will be a rewarding experience for both parties.

Artificial insemination has many advantages; one is selecting specific genetics for your herd. It may not be feasible to purchase a natural service bull with all the traits you desire, but purchasing semen at $15-$25/straw is very economical. Many producers buy a calving-ease bull to use on both cows and heifers. However,

in most situations the mature cow herd is capable of handling a higher BW EPD without increasing dystocias. This bull will likely produce calves with increased growth. By adding AI to your management tool belt, you can select AI sires specifically for heifers and buy a natural-service growth bull for the cow herd. In most cases heifers are already managed separately, implementing the program and this is a good place to start with AI in a herd.

You may be asking, if this is such a great idea why isn't everyone already doing it? Artificial insemination has been around for over 65 years, but for many of those years it was labor intensive. Heat checking twice a day is very time consuming; however, great strides have been made in the area of estrus synchronization. I believe synchronization is the key to having a successful AI program – both for your clinic and the producer. We will only discuss heifer synchronization, since that is the logical place to start. The two programs I have used most frequently are the MGA®/Prostaglandin (heat detection and AI) and the CIDR® Co-synch program (timed AI), with each having an approximate pregnancy percentage of 60 and 53%, respectively.[1] Table 1 shows a comparison of heifer synchronization protocols and their associated costs, labor and pregnancy rates.

It is important for the technician implementing the AI program to have a good understanding of the estrous cycle. When utilizing synchronization, there are more steps involved; this usually results in more questions from the producer. It becomes a little more complex than just following the AM/PM rule of heat checking and breeding 12 hours later. The Iowa Beef Center has a program called the "Estrus Synchronization Planner" that is a handy tool for comparing synchronization protocols and their associated costs. This planner provides a calendar for the clients to know exactly what needs to be done on a particular day within their chosen program. After all, synchronized estrus and subsequent pregnancies are very dependent on proper administration and timing of treatments.[1]

Making it Work in Your Practice

How can you make AI work for your practice? Prior to the start of breeding season, the veterinary team and herd owner should sit down together and discuss synchronization protocols and sires. First, choose clients that you know can be successful. Things to consider are cow body condition score (ideally 5.5-6.5), time since calving, percentage of cycling females, facilities, and management's willingness to implement change and keep records. Some clients will want to choose (or help choose) the sires for their herd. Other clients might not necessarily want to be involved in this process. For these clients, our clinic maintains a semen tank with a few bulls that are in the top 10% for multiple traits. Sec-

Table 1.[1] Beef heifers.

					Pregnancy Rate[c]	
Heat detection	Cost	Labor	Reports[a]	No. of heifers[b]	Range	Ave.
1 Shot PG	Low	High	1(18 herds)	2700		45
CIDR® - PG	Medium	Medium	1	147	41-59	51
CIDR® - PG (3 days of heat detection)			2	745	33-61	46
MGA® - PG	Low	Low/Medium	6	2746	40-71	60
Heat Detect & TAI						
Select Synch + CIDR®	High	Medium	2	748	31-67	56
MGA® - PG	Medium	Medium	4	1826	48-64	56
Fixed-time AI						
CO-Synch + CIDR®	High	Medium	4	735	24-68	53
MGA® - PG	Medium	Medium	2	246	47-49	48
CIDR®- Select	High	Medium/High	-	853[c]	26-78	61

[1] Beef Reproduction Task Force, *Protocols for Synchronization of Estrus and Ovulation*, http://www.anslab.iastate.edu/Class/AnS426/RecSync.pdf (sept 2006)
CIDR is a registered trademark of InterAg, Hamilton, New Zealand.
MGA is a registered trademark of Pharmacia & Upjohn, a division of Pfizer Inc.
[a] Number of reports in published literature
[b] Number pregnant to AI / total number treated
[c] Field data from 13 herds in Missouri

ondly, are the clients willing and capable of heat checking twice a day? This will help you determine which synchronization protocol will be most successful. Once you determine your clients, sires and synchronization protocols it will be necessary to chart a calendar of scheduled matings. This will help the clinic maximize labor and mileage without over-committing your resources.

Conclusions

Artificial insemination is not new, but its utilization by beef producers is relatively low. With the improvement in synchronization protocols, it is a tool your clinic can offer not only to seed stock and club calf producers, but commercial producers as well. This is a service your clinic can provide for clients looking to take their herd to the next level. With heightened awareness and education, access to an AI technician, and clarity of protocol administration, this is sure to be a service your clients will appreciate.

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Unfortunately, the warning signs aren't this obvious.

Parasite resistance is now being documented in cow/calf and stocker operations in the United States.[1,2] Resistance occurs when a small number of parasites survive a deworming treatment and pass on their genes to the next generation. As repeated treatments kill off susceptible worms, resistant worms eventually come to dominate in the animal's digestive system. Signs of parasite resistance include:

- **Lower than expected weight gain**
- **Diarrhea**
- **Rough hair coat**
- **Delayed conception**
- **Increased incidence of disease**

Take steps now to reduce the risk.

- Choose a dewormer with proven effectiveness. A fecal egg count reduction test (FECRT) can be used 14 days post-treatment to determine if resistance is present.
- Use the most potent active ingredient within a chemical family.
- Select the best spectrum of activity for the parasites that need to be controlled.
- Follow label directions to prevent underdosing.
- Use other strategic control measures such as good hygiene and rotation of pastures and animal species to reduce parasite larvae contamination.
- Quarantine and deworm new arrivals.
- Consider periodic rotation of chemical families, i.e., CYDECTIN® (moxidectin) and SYNANTHIC® (oxfendazole).
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1. Bliss, D.H., W.G. Kvasnicka. Failure of Avermectins to Control an Outbreak of Parasitic Gastro-enteritis in a Cow/Calf Herd. *Proceedings of the American Association of Veterinary Parasitologists.*, Philadelphia, PA, Abstract 42, p. 53, 2004.
2. Smith, L.L., L.C. Gasbarre. The Development of Cattle Nematode Parasites Resistant to Multiple Classes of Anthelmintics in a Commercial Cattle Population in the U.S. *Proceedings of the American Association of Veterinary Parasitologists.*, Philadelphia, PA, Abstract 43, p. 54, 2004.

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