

Questions Submitted to Speakers

1. How do you get LH pulses? What stimulates their production?

Answer (CL): LH pulses always occur during the cycle, but the LH surge (which causes ovulation) is a result of an increase in estrogen and a decrease in progesterone. As estrogen continues to increase, a positive feedback occurs with LH resulting in a spike or surge of LH.

Answer (SJ): LH pulse frequency and amplitude vary with the amount of negative feedback from progesterone. At the end of the cycle when progesterone is decreasing as a result of luteolysis, LH pulse amplitude and frequency increases stimulating estrogen production from the preovulatory follicle and the LH surge. During the luteal phase, LH pulses are less frequent and at lower amplitude. This pattern of LH pulse frequency allows follicular wave patterns to continue normally. In the case where there is no CL and an exogenous source of progesterone is provided such as with MGA, the MGA is sufficient to prevent an LH surge and the rather low levels of progestin allow LH pulses to increase similar to what happens at the end of the cycle. This creates the situation of the persistent follicle, where there is sufficient LH to stimulate the follicle to grow to preovulatory size and beyond with high estrogen production, but enough progesterone to block the LH surge.

2. Is there any data to suggest or physiologic reason to suggest that dairy cows would have a decreased pregnancy rate on the second or third lactation that the OVSYNCH protocol was used to synchronize estrus?

Answer (CL): The data is conflicting - in some experiments first lactation cows have a better fertility response than multi-lactation cows, but in general the feeling is that there does not seem to be a net difference between the two groups of females. We need more data. In addition, much of the data is somewhat confounding because many females are presynchronized with PGF at various stages, so it is difficult to verify whether Ovsynch is the influencing factor.

3. What determines the female's follicular wave pattern; whether it is a two-wave or three-wave follicular pattern?

Answer (CL): It generally tends to be nutritionally and age related, but there may be other factors involved too. Cows in better condition tend to have more follicular waves than cows in poorer condition. Therefore, beef and dairy heifers usually tend to be 3 or 4 wave animals, whereas beef cows tend to be 3 wave and dairy cows are predominantly 2 wave cows. Experiments manipulating diets have altered the number of follicular waves.

4. What can we do with the superovulated donor (GnRH?) to maximize the number of follicles to ovulate? And also, to decrease the number of hours over which ovulation occurs?

5. Is there any evidence that GnRH at the start of estrus on a super ovulated [cow] will increase ovulations? (↑ovums released)

Answer (CL): Timing ovulation in superovulated cattle is an issue; however, one way to ensure the maximum number of follicles ovulates is to inject GnRH at the time of first insemination (onset of estrus). Although results from studies using GnRH in a superovulation protocol are mixed, GnRH may be an insurance policy to ensure an adequate LH surge is induced.

6. Your position is that small follicles yield small CLs and therefore lower P₄ compared to larger follicles yielding larger CLs. Is this in contrast to ET recipient studies in the 80's wherein CL size did not significantly influence P₄ levels? And if so, what is YOUR position on the influence of CL size on ET recipient pregnancy rate?

Answer (CL): In large studies where we have taken blood samples (to determine concentrations of progesterone) at the same time as embryo transfer and determined the amount of CL tissue (with ultrasound) we have seen a correlation between luteal tissue volume and circulating progesterone. However, regardless of the size or volume of the CL as long as there is luteal tissue present, pregnancy rates appear to be similar. In other words, CL size does not seem to affect pregnancy rates.

7. What pelvis growth rate do you use?

Answer (RR): I typically use 0.25 cm/day for pelvic growth rate from yearling age to calving. Producers wishing to adjust pelvic areas to a standard can use this growth factor.

8. When you pelvic measure - palpate heifers & find an elevated symphysis but the pelvic score is greater than 150 - 160 cm², do you discriminate vs. that heifer? What elevation in inches or cm do you find acceptable?

Answer (RR): I do discriminate on both size and shape of the pelvis. I know of no work to show how much elevation is acceptable, but on pelvises where it is severe and gives a "keyhole effect" shape, I specifically make note of that and inform the client.

9. Is there a correlation between birth weight (calving ease bulls) and pelvic measurement? Are calving ease bulls giving us small pelvic measurement daughters?

Answer (CL): Yes, smaller birth weight bulls tend to have smaller pelvic areas. Pelvic area is directly related to frame and selecting for smaller or lighter calves you generally select for smaller frame animals resulting in a selection for smaller pelvic areas.

Answer (SJ): Research has shown a moderate negative correlation (-.22 to -.25) between pelvic area and calving ease. So as pelvic area in females goes up the problems calving are reduced. Remember that calf birth weight is an indicator trait for calving ease, there is not a 1:1 correlation. Birth weight does have a strong positive correlation with mature weight, but there are individuals with low birth weights and good growth traits after birth. If a producer used calving ease bulls with good weaning and yearling weights and culled yearling heifers with small

pelvic sizes there shouldn't be a problem. However, selecting calving ease bulls without regard to other growth traits could result in smaller framed, smaller mature weight daughters that in turn had smaller pelvic areas as a result of the smaller frame. The moral of the story: Single trait selection usually creates problems in other areas.

10. Have you suggested marketing RTS 1 & 2's as feeders? With the number of animals that get pregnant @ 3 + cycle could there be a nutritional affect? (i. e. micro-minerals?? Or endophyte)

Answer (CL): Depending on the operation we can often move RTS 2 or 3 heifers to 4 and 5 given sufficient time. In many cases we will eliminate heifers with a RTS of 1 and feed them as feeders. Many factors play a role as to why those females do not have developed reproductive tracts. The primary factor is definitely nutrition related.

Answer (RR): Typically, heifers with an RTS of 1 are considered non-breeders and are culled. Heifers with an RTS of 2 could be a result of age and/or nutrition. Heifers with an RTS of 2 may simply be too young to fit in the current breeding season. The producer has the option of culling RTS 2's or possibly moving them to a fall breeding herd if he has both as many of our producers in Missouri do. If it is a result of nutrition, we can often change this in a relatively short period of time (2 weeks to a month). That is why we suggest doing the pre-breeding exams 30 to 60 days before the planned breeding season so there would be time to correct nutritional problems

11. How long after breeding should you wait to give a killed vaccine?

Answer (RR): No work has been done to specifically answer this question, but as a rule of thumb, most veterinarians would recommend waiting a minimum of 30 days after breeding before giving any vaccines.

12. When do you vaccinate cows - late term for calf immunity to avoid breeding implications?

Answer (RR): Vaccinating any time in the 3rd trimester (last 90 days) is probably effective at providing good colostral antibody levels. Certain vaccines such as the scours vaccines need to be given closer to calving (within 30 days) to get effective antibody levels in colostrum. Producers should consult with their veterinarians regarding their herd health program to determine the most appropriate vaccines and timing based on the health history of their herd.

13. Is there an economic basis to suggest not giving vaccines during synch? (i. e. why give vaccines 30 days prior to synch - is there research?)

Answer (SJ): If the vaccination reduces the synchronized pregnancy rate that would certainly have an economic impact (money invested in synchronization wasted). There are published reports that indicate conception rates are lower in heifers vaccinated just prior to AI than controls and other indications of that happening in the field. The problem is likely to be greatest in animals that have not developed immunity from previous vaccinations.

Answer (RR): Placing an exact economic value to any vaccination given at a specific time is difficult to access. Remember that vaccinations are more like an insurance policy. If a heifer is staying in a herd as a replacement, then vaccinations given are both providing protection to that heifer and also establishing the basis for long term immunity as that heifer enters the herd and reaches adulthood. If adequately immunized as a heifer, then annual booster vaccinations will provide better protection for that animal and help to maintain adequate herd immunity.

14. Any risk/concern for increased incidence of twins when giving GnRH at timed breeding? Is there higher incidence of double ovulation when giving GnRH at that time?

Answer (CL): In beef cattle – if anything twinning rates seem to have declined slightly to the average. Because GnRH only ovulates follicles after deviation (greater than 10mm) it should not alter ovulation rates.

15. Can pregnancy % be increased by giving GnRH to an animal that is heat detected & AI'd?

Answer (CL): Yes, potentially GnRH can alter pregnancy rates, but only marginally (at best). Therefore, the potential benefit does not warrant the expense giving GnRH at AI for a marginal pregnancy rate increase.

16. How far out can you go in hours before giving GnRH and TAI on a hybrid synch program? 96 hours?

Answer (CL): Certainly the further out from the PGF injection the more cows you will detect in estrus and reduce the number of cows you inseminate at a fixed-time. However, if you plan on waiting for 96 hours before timed AI you are probably better off not inseminating those cows. A rule of thumb would be to wait a maximum of 80 hours after PGF to use timed AI in Hybrid Synch.

17. What is optimum time for timed AI in OVSYNCH, CO Synch and Hybrid Synch programs? Values (??) from 48-80 hours

Answer (CL): For Ovsynch the GnRH should occur 48 hours after PGF and AI 10 to 16 hours later. For CO-Synch the research has been inconclusive to this point, but the ideal timing may be for timed AI and GnRH between 54 and 60 hours after PGF. For Hybrid Synch the amount of time between PGF and Timed AI/GnRH can vary depending on the management system and time (days) that a producer wants to detect estrus – Use Time AI before 80 hours after PGF or do not use time AI, it probably will be less effective.

Answer (SJ): We have compared CO-Synch at 48 and 60 hours after PGF and found no difference in pregnancy rates to the single timed AI. There are several indications in the literature that cows categorized as non-cycling prior to the start of synchronization come in heat sooner after PGF than cycling cows. This implies that the best timing for a timed AI would depend on the proportion of cycling and non-cycling cows. In the study mentioned previously, there was no interaction of time of insemination with cycling status.

18. Is there any difference in effectiveness between different “brands” of PGF₂ or GnRH?

19. Which is better - Lutalyse or Estrumate?

20. Lutalyse - Prostamate - Estrumate B which product will cause the most recipients to cycle and in the tightest, closest time frame?

21. I understand a prostaglandin analog is more effective, and the analog prostaglandin has a much longer half-life. So, is there any practical or economic advantage in using an analog product like Estrumate?

22. Is there a difference in efficacy between Lutalyse and generic? I.E. Cystorelin vs. generic.

Answer (CL): Side-by-side studies are limited. For GnRH, the few comparisons have been inconclusive or shown no difference in synchronization efficacy. Only one study has indicated an increased LH surge, but practically neither product appears to have an advantage for estrus synchronization. For PGF, side-by-side studies indicate no difference between Lutalyse and Estrumate for synchronizing cows. Other PGF products have not been compared, but at the current doses little difference would be expected to occur.

23. Is there any harm with reshooting heifers with either of these products - Lutalyse or Estrumate - after 10 days when you either missed the cycle or no heat was seen? (Using multiple doses.)

Answer (CL): No, there is not harm - a common practice is to reinject females with PGF (any product works just as well) between 11 and 14 days after the previous PGF injection if they were not previously detected in estrus.

24. Is it necessary to give the full dose (2 ml) of GnRH in synchronization protocols that utilize GnRH in any way? If not, which protocols can one get by on, say 2 dose? Or, more importantly, will the money saved in decreased drug costs be lost in decreased reproductive performance?

25. Any work with 1/2 ds GnRH in a Co-Synch program?

Answer (CL): In dairy cows decreasing the dose from 2cc to 1cc has shown little change in pregnancy rates. In beef cattle, data appears to be inconclusive. However, reducing the dose is a risk and the cost of a single GnRH injection should not be a reason to reduce pregnancy rates. I recommend a full dose.

26. Does the dose of PGF need to change with cow body weight?

Answer (SJ): A higher dose in dairy cows did not improve response, so I would use the same dose on all cows.

27. Why do cows come in heat before PGF₂ with Select Synch programs?

Answer (CL): For two reasons: 1) some cows were anestrous prior to the GnRH and are having their first postpartum estrus, and 2) at the time of GnRH, many cows are at day 15, 16, 17 of the estrous cycle and either the dominant follicle is not large enough to respond to GnRH or did not respond to GnRH, allowing the cow to come into estrus spontaneously.

28. What level of progesterone needs to be reached to suppress estrus? How long will a CIDR maintain that level?

Answer (CL): Generally if circulating progesterone is above 0.5ng/mL then we are fairly sure there is luteal tissue present. This should be sufficient to suppress estrus in most cases. Data presented by Dr. Kesler shows P₄ above 2.5 ng/mL after the CIDR has been in place for 7 days. I'm not aware of data showing the P₄ levels beyond that time frame with the 1.38 g CIDR, however the expectation would be that there would be sufficient P₄ to suppress estrus for 10 to 16 days.

29. The New Zealand protocol was to use an estrogen “capsule” @ CIDR insertion. Why not use in the U.S.?

Answer (SJ): The capsule was not included in the US product for two reasons. 1) There has been some question about how effective the capsule was as a delivery system for estrogen and 2) no one believed they could get approval through FDA for a combination treatment of progesterone, prostaglandin and estradiol all at one time.

30. How many hours, post CIDR removal, will you find the highest percent of estrous response?

Answer (SJ): The peak estrous response in a CIDR/PGF system is usually at 48 hours after CIDR removal. If PGF is given at the same time as CIDR removal, the peak will be flatter and later.

31. What happens if CIDR is left in longer than 7 days due to scheduling changes?

Answer (SJ): The result would depend on how much longer it is left in place. If the CIDR was in place for one additional day there would be little concern. Longer than 8 days I would not want to attempt a timed AI but rather just AI after detected estrus. In general, if the CIDR is left in place longer than 7 to 8 days, synchrony of follicular growth would likely be diminished.

32. Is there significant similarity between CIDR technology and human birth control skin patch that the “skin” delivery system should/could or is being pursued in cattle?

Answer (CL): I am unsure of the exact progestin used in the skin patch delivery system, but there is no effort to find an additional method of supplying progesterone to cattle. Several systems have been tried in the past, but retention rates were poor – trying to keep the product from being rubbed off.

33. Do you have any data on pregnancy rates on E. T. recipient cows synchronized by using CIDRs?

Answer (CL): Pregnancy rates after timed E.T. using the CIDR in the CO-Synch system have been excellent as long as a CL has been present we have achieved about a 60% pregnancy in direct transferred frozen embryos

34. What is your recommendation for a cow that loses the CIDR? Drop her from group? How long to wait before re-starting?

Answer (SJ): If the fact that a cow has lost a CIDR is first discovered at the time of CIDR removal, I would continue as planned despite the loss. The cow may have a CL anyway, respond to PGF and come in heat with the rest of the herd. There is no way of knowing when she lost the CIDR and the loss may have occurred a few hours ago. If the cow does not show heat within 5 d after PGF you could “re-start” after that if desired.

35. When feeding MGA, how will it affect young bull calves still on the cow?

Answer (SJ): MGA will not hurt young bull calves eating with their mothers at the time of synchronization or as the bulls obtain reproductive maturity. If these calves are large enough that they consume a significant amount of feed, the total amount fed may need to be increased to account for their consumption.

36. What would be the effect of excess MGA on synchronization results? Miscalculation of dose?

Answer (SJ): Excess consumption of MGA can have negative affects. A single day's consumption of 2 mg/hd/day of MGA can leave enough MGA in fatty tissues that the animal stops cycling for a month after MGA withdrawal. Some producers are currently using .7 mg/hd/day to prevent breakthroughs during MGA feeding with similar results as those using .5 mg. As you get up to 1 mg/hd/day, the interval to estrus after withdrawal would increase. So depending on where and how you were using MGA in a synchronization system it could change the timing of things especially if timed AI were involved immediately after MGA feeding stopped. Problems with over consumption are most likely to occur when MGA is delivered in a small amount of feed (< 2 lbs per head). Increasing the delivery system to 4-5 lbs will increase the chances for uniform consumption. As intake of MGA goes below .4 mg/hd/day, the number of animals that will break through and come into heat increases. Errors can occur in mixing and diluting MGA so having someone double check your math is a good idea. Having a record of how the dilution/mixing was done can be helpful if a question comes up later about animal response.

37. MGA Select program - with or without calf removal? Movement after AI to pasture - how long after AI should cattle be given before being moved?

Answer (SJ): In a study conducted this spring, calf removal resulted in a 7% improvement in pregnancy rates to timed AI with a modified MGA-CO-Synch system. The additional advantages to the calf removal were only sorting calves off once and not much work to gather cows for AI (cows were in a 600 + acre pasture).

The limited data that are available on the impact of transportation after AI would indicate animals should be moved sooner rather than later. When heifers were hauled about 6 hours or 300 miles, synchronized pregnancy rate was higher for those moved within 4 days after AI compared to those moved 8 to 33 days after AI. Information is lacking on variability due to distance of haul and other time periods after AI.

38. Does change in diet from TMR to grass affect conception? Effects of inclement weather at time of AI.

Answer (SJ): Depending on the energy in the TMR diet and the amount and growth of pasture, the change in diet may be detrimental if there is an extreme change. This question is often raised when heifers are AI'ed one round and then taken to grass. Keep in mind that diet change is just one of the things going on at this time. In addition to diet change, some heifers have just reached puberty, moving is a stress and can reduce conception rates and heifers may be mixed with unfamiliar cattle.

The impact of inclement weather at AI probably depends on a variety of factors. I have had heifers show strong heat in some pretty nasty weather that I really didn't want to be out heat checking in. If a front comes through and several days of weather change are involved, a problem is more likely. Good nutrition, good drainage and windbreaks would lessen any effects. If the weather is less than pleasant it could be the heat detection is not as effective as it should be (ie, watching from a pickup vs in the pen; less time spent because of cold or wet) and could explain fewer animals observed in heat.

39. Have you seen any other reasons for cystic ovaries in heifers than prolonged MGA use?

Answer (CL): Outside of MGA induced cystic ovaries we have identified very few cases of cysts. Because the nutritional, lactational, and nursing stress tend to be reasons for causing cysts you generally will not find a high incidence of cystic ovaries in heifers.

40. Could you please discuss the practical and economic advantages of Re-Synch? (i.e. labor, costs, drugs)

Answer (SJ): The advantage to a Re-Synch system would be to pick up additional AI calves without an extended period of heat detection. For most commercial operations using an \$8 CIDR that would be placed in all cows (pregnant or open) in a resynch program as just part of the cost to produce perhaps 20% more pregnancies would not be economically justified. But if

you have a purebred herd where the market value of bull calves may change by several hundred dollars per AI pregnancy, then the systems shown may be a good tool to get those additional pregnancies. Comparatively speaking, very little work has been done in this area so hopefully over time we can improve these systems by decreasing costs and improving responses.

41. Best time for body condition scoring to have a positive effect on conception date. Pelvic measurement relationship to frame size and weight.

Answer (SJ): We really need to be monitoring body condition score (BCS) year round. It is certainly useful to record BCS at preg checking in the fall to estimate adjustments needed to ensure a BCS of 5 at calving. Adequate BCS at calving is the most important target we should try to hit and then to ensure cows have enough nutrition to be in a positive energy balance prior to breeding. If we miss our target of 5 for mature cows and 6 for first calf heifers at calving, we can try to catch up after calving but usually cows will produce more milk rather than increase condition. So trying to score cows at so many days prior to breeding is generally too late to really change cow condition if that is needed. A better approach would be to score cows 30-60 days prior to calving which would allow time for cows to gain weight if needed.

Pelvic area has a high positive correlation with frame size and weight. Any selection for pelvic area should be done within a frame size. A good way to use pelvic area information is cull those with the smallest pelvic areas, rather than selecting for large pelvic area. Combined with selection of bulls with low birth weights, any calving difficulties should be minimal.

42. Economic thoughts on estrus detection vs. TAI in a large dairy herd?

Answer (CL): Estrus detection in dairy cows is very poor and is probably the single biggest reason for failing to get a cow pregnant by about 90 days after calving. If you consider that the average dairy cow is mounted about 6 times every estrus for about 2 to 3 seconds per mount the chance of a producer detecting an estrus is not likely. Therefore, TAI may in fact be more economical in the long run. In addition, the cost of labor for heat detection can be eliminated and cows present for TAI can be set up to be inseminated on the same day every week or two weeks. These are advantages of TAI that seem to be over-looked in a dairy setting. Understandably, less initial drug costs are seen with heat detection, but ultimately a pregnant female is worth more.

Answer (SJ): One of the problems that large dairies have with TAI is that all the injections must be given at the appropriate time and sometimes the labor situation is such that either the injections don't all get given or perhaps not at the correct time. In that case the cows don't become pregnant. So as with any AI program, overall management impacts the ability to implement a successful program.

43. We have used several estrus synchronization schemes and have experience delayed conception with clean-up bulls after AI - usually 60 days. What are some reasons for this delay? BCS of these females is 5 & 6. Cows were \geq 50 days post-partum & calf removal was used.

Answer (CL): Good question, in many cases the majority of delayed conception could be that you established a pregnancy initially, the pregnancy was lost during the time the clean-up bulls were present and the cow was bull-bred late during the breeding season. Generally producers who use estrus synchronization now never used it in the past and have become more aware of their calving intervals and are better at recording breeding information. The last point also is a factor. Cows that are cycling have an excellent chance of becoming pregnant to the synchronization, but if you consider that even in well conditioned herds less than 60% of the females are cycling at the initiation of the breeding season. These could easily be the cattle that only initiate their estrous cycles later in the breeding season.

44. BCS - how high is too high - do BCS 8's or 9 settle as well as BCS 5.5 - 7.0?

Comment on the importance of proper equipment and facilities - and how the cattle are handled. Ex. 'Cowboying' vs Temple Grandin's philosophy of livestock husbandry. Effect of cortisol levels and body temperature in relation to conception, etc.

Answer (CL): Anything greater than a BCS 7 is too high. Pregnancy rates begin to drop off after reaching a peak when females are at a BCS of 5.5 to 6.

No question handling facilities and methods of handling make a difference to fertility. We generally find cattle that have been handled poorly in poor facilities tend to have poorer pregnancy rates. However, this could be confounded because of poorer total management, so this is tough to say from herd to herd. Nonetheless, cattle under stress release endorphins, cortisol, etc. that may play a role in decreased fertility (i.e., activating the "fight or flight" mechanism will decrease pregnancy rates). We do, however, know that transporting cattle is more effective during the first seven days of gestation than during days 7 to 14 of gestation.

45. What is the preferred heat detection methods preferred for synchronization systems? Most efficient? Heat Watch? Most economical?

Answer (SJ): When detecting heat in a synchronized group of animals, visual detection is my preferred method. There is no question if the animal is in heat or not. Most other aids end up requiring some interpretation along the line and cannot be expected to accurately identify all animals in heat without some visual detection as well. Heat Watch is the only system that has been shown to be equal to visual detection in accuracy. I find heat detection aids most useful for non-synchronized animals. What is the most efficient or economical would vary with operation and facilities, value of AI calves, labor availability, and size of operation. For a small purebred herd that did not synchronize and owned no bulls, Heat Watch may be a very sound investment. For many of the large heifer development operations that I know, visual detection is used. In that case the same labor that detects heat also helps sort off animals that need to be bred. When the help isn't sorting, they are checking heat, resulting in efficient use of labor for the entire day.

46. When using synchronization systems in a cowherd, is there any long term detrimental biological effects of hormone use in cows? Any long term effects on their repro tract? Production of oocytes? Increase incidence of reproductive diseases or structural abnormalities? (This is after repeated synchronizations.)

Answer (SJ): No there does not seem to be long term problems. Used according to label, most of the products used for synchronization are metabolized fairly quickly so there would be no residues to cause long-term effects. Many of the products are identical to what is produced naturally and we just give it at a time of our choice. Even if MGA is fed for a long period of time, as soon as it is cleared from the system, the animal resumes normal estrous cycles. Some ET donor cows seem to have problems if they are in the collection process for a long time. The problems usually relate to the fact the cow is not lactating and becomes rather fat and in some cases adhesions can develop on ovaries that had extensive response to superovulation.

47. What breeds respond most favorably to fat supplementation besides the Limousin x Piedmontese combination?

Answer (RF): The heifers were from cross-bred cows sired by either Hereford, Limousin or Piedmontese. Other breed differences related to fat supplementation have not been studied.

In this case, there was a diet X sire breed interaction on percentage of heifers pubertal at beginning of breeding.

Sire	low fat	high fat
Hereford	74.4	76.3
Limousin	69.8	60.5
Pied	76.2	97.6

Backfat was greatest for Hereford > Limousin > Piedmontese

So, there appears to be more going on than just a fatness issue. There may be inherent breed differences for fat requirements, similar to findings that there are breed differences for mineral requirements, but the relationship is not well understood, nor has it been tested appropriately.

48. Has PMSG been considered for use: 1.) At time of removal of CIDR, 2) at day of taking off MGA, 3) at day 7, 4) as a consideration to inc. levels in non-cycling cows GPS, 5) on repeat AI synchronization at time of CIDR removal. Has PMSG been considered as a source of LH, Estradiol?

Answer (CL): Yes, some consideration has been made for using PMSG and at least one laboratory is using PMSG as a possibility for synchronization – research results may be available within the next year or two. However, I am not familiar with the preliminary results yet.

49. CIDRs - do you see the same increase in P₄ levels with used vs. new CIDRs and timing/overall success? Are these detrimental effects of early pregnancy check 28-30 days to pregnancy rate, i.e. working stress, etc?

Answer (SJ): The CIDR approved in the US was designed with 1.38 g of P₄ to reduce residual P₄ in the insert because of environmental concerns. I have had producers tell me that the CIDR can be reused multiple times, which could be based on things they have heard from those using the 1.9 g CIDR in other countries. Whether or not a used CIDR may impact timing and or success of a synchronization program will partly depend on if the animal has a CL or not. A

used CIDR placed in a cow in late diestrus or proestrus may prevent ovulation but not deliver enough P₄ so that follicle turnover occurs. More animals at this stage of the cycle might make the difference more noticeable. So results would depend on how the “used” CIDR was incorporated in a synchronization scheme (and how many prior uses) and if follicle control was incorporated. Situations are conceivable in which a used CIDR may not produce the same results as a new CIDR. This is particularly true if the number of uses was not accurately recorded or the cleaning process used resulted in significant P₄ loss from the insert. A new CIDR will provide a consistent response without exposing the cow to new pathogens or other problems from an unsanitary used CIDR.

The second part of the question must relate to reports of embryonic loss that were noted as a result of early pregnancy diagnosis at 30 days after AI. While I don't think anyone has compared term pregnancy rates in animals that did or did not undergo early ultrasound, we have not noticed a corresponding drop in term pregnancy rates as this technology has been utilized. With skilled technicians and good facilities, there is very minimal stress involved in early diagnosis. That does not mean that stress can not cause pregnancy loss, but I don't believe that stress is responsible for the embryonic loss reported in studies at this meeting.

50. Ralgro vs Synovex C effect on heifers.

Answer (SJ): If implants are used in potential replacement heifers, the choice of implants (Ralgro vs Synovex-C) is not as important as the fact that the animal only be implanted once and that they should not be implanted before one month of age for Ralgro or 45 days of age for Synovex-C. Ralgro implants given at birth will significantly decrease pregnancy rates of yearling heifers. When given once at 2-3 months of age, Synovex-C has been shown to increase weaning and yearling weights, not change age at puberty, increase yearling pelvic area but not precalving pelvic area, slightly delay average calving date (indication of first service conception rate) and have no effect on pregnancy rates compared to unimplanted controls.

51. Do you use same MGA dose (0.5 mg/hd/day) for cows and heifers?

Answer (SJ): Yes, the same dose of MGA (0.5 mg/hd/day) is used for both cows and heifers.

52. Are there any practical options for synch range beef heifers?

Answer (RF): I suspect practical relates to the number of times animals have to be handled and the ability to feed MGA. There are several options as outlined in the next question.

53. What synch can be used successfully on heifers?

Answer (RF): The best system for synchronizing heifers is the MGA/PGF system, with MGA fed for 14 d and the PGF injection given 19 d after the last MGA feeding. If heifers are cycling well, the two shot PGF system (given 14 d apart) can provide satisfactory results. The CIDR program has been shown to be successful in heifers. The Select Synch program has not been recommended for heifers, but more data is emerging that indicates it can be an option provided you are prepared to heat detect and breed animals that come in heat before the PGF injection.

These early heats can be avoided if a CIDR is inserted the day of GnRH and removed at PGF injection, or if MGA is fed from the day after GnRH until the day before PGF. Also, addition of a progestin may increase pregnancy rates in the Select Synch protocol.

54. Has anyone followed the impact on the calves that are/have been removed for synch purposes? (i.e. weaning, post-weaning, or feedlot/carcass performance?)

Answer (RF): There is limited information on this, but what there is indicates no adverse effects on calf health or weaning weights provided calves are given some care during this time. (See question 55.)

55. Is it worth a 10% increase in pregnancy rates, utilizing calf removal, if the detrimental effects on weight gain and stress induced illnesses in the calves leads to greater economic losses to the producer?

Answer (CL): At this stage of age calves tend to be in a high immune status (more than at weaning!) and will recover from any gain lost during the synchronization period. A more important question is: “Is it worth the time, effort, and strain on facilities to separate cows and calves for 48 hours?” Perhaps, perhaps not!! I feel this is an individual producer’s question to answer depending on their goals from synchronization.

Answer (RF) There does not appear to be a negative effect on calf health or weaning weights, some additional care may be required for the calves such as fresh, clean water and good quality grass hay, also some have recommended feeding a “sweet feed” to calves during the separation period.