



Here a Holstein bull with an injured right front knee is placed in a pen with 60 open heifers. Poor libitum, plus wrong bull to heifer ratio equals not many pregnancies at the end of a breeding period.

Herds using NS are more likely to have lower pregnancy results in summer months – double problem with heat stress. It is obvious that on top of having lower fertility during hot summer months in the lactating cows, herds using NS may face reduced fertility due to lower semen quality and poor libitum in bulls exposed to higher temperatures. Lower libitum might also cause lower service rates (or heat detection efficiency), which will decrease even more the number of pregnancies generated per month during hot summer months – and this must be taken into account. Bulls in A.I. studs have adequate ventilation and cooling, which accounts for good semen quality even in summer months.

Important fact in herd health: farms using NS tend to have longer and more variable dry period lengths (either too long or too short) – this has great impact on postpartum herd health. Because herds using NS most of the time don't know the exact date of conception, and they tend to have more errors when deciding the right moment to dry cows compared to herds using artificial insemination.

In practice, longer dry period lengths have two effects in the herd: more metabolic problems postpartum and ~ 10 fewer days in milk for each cow in the herd. In other words, farmers lose the opportunity to milk each cow for 10 more days during each lactation period. In contrast, dry periods shorter than 40 days may be related with lower milk production in the next lactation, particularly in primiparous cows – costs of longer/variable dry period length and its impact in herd health should also be considered when comparing A.I. and NS breeding.

Besides all these hidden costs, when healthy bulls are used in a correct proportion of bull

to cow, we have to take into account that each bull is replacing one potential milking cow in the herd – thus, this evident loss in milk production must be considered when comparing costs of NS and A.I.

Actually, some recent studies (Overton, 2005; Lima et al., 2009) described that most of the costs related with NS is associated with market bull price, feeding costs of bulls, and lower genetic gain in NS bulls compared with A.I. sires. Overton (2005) actually found that a good NS program is, on average, \$10 dollars/cow/year more expensive than A.I. Thus, to maintain a well designed reproductive program based on NS is not as cheap as you may think!

Herds using A.I. have the opportunity to reduce rate of dystocia cases (particularly in heifers), by using proper sires. For example, heifers can be mated with adequate calving ease sires, which will reduce problems at calving time. Not only this, producers need to remember that heifers are the best genetics on the farm.

Also, heifers have pretty good heat expression and conception results. Therefore, it is very simple to set up an effective reproductive program using A.I. in heifers. For example, a simple prostaglandin shot to cycling/open heifers every other week, plus heat detection or tail chalking should do it. Also, because of the relative high conception performance in heifers, it is probably a good strategy to use higher quality proven A.I. sires in these animals. Don't waste the opportunity of fast genetic gain on your heifers.

By using A.I., producers can easily avoid inbreeding and improve some traits in the herd with the assistance of mating programs such as GEMpc from Accelerated Genetics. Controlling inbreeding in your herd is very critical since inbreeding has been reported to cause increased age at puberty, greater calving difficulty, greater



Problems at calving can be reduced when A.I. calving ease sires are used in heifers.

SSC and mastitis problems, greater culling rate, lower milk production, lower percent fat and protein, lower embryo quality, and ultimately lower pregnancy rates (Gonzalez-Recio et al., 2007).

Taken together, the advantages of A.I. over NS are pretty clear, and there is plenty of economical and scientific evidence supporting this concept.

REFERENCES:

Scrotal/testicular thermoregulation in bulls. J.P. Kastelic, R.B. Cook, and G.H. Coulter. In Topics in Bull Fertility. P.J. Chenoweth, ed. Int. Veterinary Information Service, Ithaca, NY (2000).

Comparison of reproductive performance by artificial insemination versus natural service sires in California dairies. M.W. Overton, W.M. Sischo. *Theriogenology* 64 (2005) 603-613.

Cost comparison of natural service sires and artificial insemination for dairy cattle reproductive management. M.W. Overton. *Theriogenology* 64 (2005) 589-602.

Inbreeding depression on female fertility and calving ease in Spanish dairy cattle. O. Gonzalez-Recio, E. Lopez de Maturana, and J.P. Gutierrez. *J. Dairy Sci.* 90 (2007) 5744-5752.

Comparison of artificial insemination and natural service cost effectiveness in dairy cattle. G.E. Valergakis, G. Arsenos, and G. Banos. *Animal* 1 (2007) 293-300.

Hidden expenses and problems with natural service bulls. Fricke, P. http://www.wisc.edu/dysci/lowex/rep_phys/pubs/bulls.pdf.

Comparison of reproductive performance in lactating dairy cows bred by natural service or timed artificial insemination. F.S. Lima, C.A. Risco, M.J. Thatcher, M.E. Benzaquen, L.F. Archbald, J.E.P. Santos, and W.W. Thatcher. *J. Dairy Sci.* 92 (2009) 5456-5466.

SCHOLARSHIP DEADLINE FEBRUARY 15TH

YOUTH SCHOLARSHIP:

Accelerated Genetics awards four - \$500 scholarships to high school seniors planning to major in agriculture at a short course, vocational technical college or a four-year university. To obtain a Youth Scholarship application, download it and/or fill it out online from the Accelerated Genetics website at www.accelgen.com, call 1.800.451.9275 or email kstanek@accelgen.com.

COLLEGIATE SCHOLARSHIP:

Two - \$1,000 scholarships are awarded to students currently enrolled in a short course, vocational technical college or a four-year university degree program. The National FFA Foundation organizes this scholarship program. The Collegiate Scholarship application can only be completed online at www.ffa.org and click on Scholarships 2010 link.

Applicants or their parents must be currently active customers of Accelerated Genetics to be eligible for both types of scholarships. The Application Deadline for both is: **February 15, 2010!**