

Livestock Notes

Two New Motor Vehicle Regulations Take Effect

Two important safety regulations now apply to our motor vehicle use habits. It is mandatory that anybody in the front seat of a motor vehicle (car or truck) be wearing the safety belts provided by the manufacturer. This has been true for many years, but under the new law an officer of the law may stop and arrest a person for that reason only. Previously there had to be a primary reason (stop sign violations, speeding, etc.) for the "traffic stop."

Also under a totally NEW regulation, in Maryland, one is required to turn on the low beam headlights whenever it is necessary to use the windshield wipers, regardless of the time of day. That means turn on the headlights, not the parking lights, whenever it is raining, snowing, or the road surface is wet causing need to wipe the windshield.

Both of the rules are based on well known statistics - wearing safety belts saves lives and using headlights reduces accidents. Wear your safety belts, use your headlights, and stay alive!

Lee P. Grant, Specialist, Agricultural Engineering, U. of Md.

National 4-H Engineering, Science, And Leadership Program

Drs Lee Grant and David Ross, Department of Biological Resources Engineering, University of Maryland, accompanied the Maryland team to the National 4-H Engineering, Science and Leadership program in Lafayette, Ind.

The Maryland team placed well in the events they entered with team members taking first and second places in the automotive care and safety contest, third in the bicycle safety contest, fourth in the computer contest, second place in the Learn-to-Earn lawn tractor contest, sixth in the small engines contest, and eighth in the safe tractor operators contest. In addition, the team won the Engineering Bowl.

Grand chaired the Learn-to-

Earn lawn tractor event and David Ross chaired the bicycle safety event for the National 4-H Engineering, Science, and Leadership Program. Both are also members of the event management committee.

Marketing And Shipping Live Aquatic Products: A Conference Proceedings

Marketing and shipping of live aquatic animals is an expanding industry. Information on strategies for marketing and shipping is needed by growers, harvesters, processors, and shippers. "Marketing and Shipping Live Aquatic Products, NRAES 107, is the proceedings of an October 1996 conference addressing these needs.

The 288-page proceedings includes 49 papers that discuss animal welfare, environmental issues, shellfish, finfish, ornamentals, holding and transport, and marketing and regulatory issues. Information in this proceedings will help improve harvesting, handling, packaging, and shipping technology; identify new business opportunities; provide broader selections for consumers; develop humane handling strategies; and ensure food safety. Specific information is provided on shrimp, abalone, clams, crabs, lobsters, oysters, mollusks, finfish, sole, ornamentals, exotics, and other species.

The proceedings was edited by Brian Faust, Alaska Marine Advisory Program and John Peters, Nor' Westerly Food Technology Services, to create a cohesive and consistent proceedings while preserving each author's intent. It includes more than 50 quality illustrations and photos. The authors include industry leaders, equipment suppliers, shippers, regulators, and university professors. They represent more than ten countries, twelve states, and three provinces.

The conference was sponsored by Alaska Marine Advisory Board; Aqua Logic, Inc.; Enviro-tainer; Nor' Westerly Food Technology Services; Novalek, Inc.; and Tech-Pak, Inc.

"Marketing and Shipping Live Aquatic Products," NRAES-107, is available for \$65 per copy

plus shipping and handling) from NRAES, Cooperative Extension, 152 Riley-Robb Hall, Ithaca, NY 14853-5701. Shipping and handling is \$7 for a single copy within the continental United States. All major credit cards are accepted, and checks should be made payable to NRAES. For more information or a free publication catalog, contact NRAES by phone at (607) 255-7654, by fax at (607) 254-8770, or by E-mail at nraes@cornell.edu.

Milk Composition

The differences in milk composition and yield found between mammals is remarkable. These differences may be affected by many factors including genetics, diet, stage of lactation, and other factors.

One clear example of milk composition varying in swine breeds is in the comparison of a U.S. breed (Yorkshire) and the Chinese Meishan breed. The Chinese Meishan breed is well known for its ability to bear and raise large litters. In addition, Meishan piglets are reported to have a faster rate of maturity than piglets of the U.S. breeds.

The lactation function of the sow and the composition of her milk are important, as well as the number of pigs born. In a study at the University of Illinois (Zou et al. 1992), colostrum and milk composition of primiparous purebred Yorkshire gilts and Chinese Meishan gilts were compared. Gilts were managed the same among groups and were fed the same diets. Samples of mammary secretions were collected on the day of farrowing (collected within 8 hours of birth of the first piglet) and on days 1, 7 and 21 after the day of farrowing.

Milk lactose, fat, and total protein were determined in the samples. At the time of farrowing, lactose content was about 50 percent lower in colostrum from Meishan gilts compared with Yorkshire gilts. By 24 hours after farrowing, lactose in mammary secretions from Meishan gilts was 20 percent lower than in the Yorkshire gilts. Lactose content was not different between these breeds on day 7 of lactation or on day 21 of lactation.

Typically lactose is lowest in colostrum immediately after farrowing and then increases over the next few days postpartum. Lactose is readily digested by the suckling pig to provide a source of glucose for energy.

Total protein in colostrum

(within 8 hours of birth of the first pig) was slightly higher in the Meishan gilts than in the Yorkshire gilts. On day 7 and 21 of lactation, the total protein content of the milk from Meishan gilts was lower than in the Yorkshire gilts.

Fat content in colostrum and milk of Meishan gilts was significantly higher than the Yorkshire gilts throughout the lactation period. The greatest difference was on day 1 where Meishan gilts had 10.9 percent milkfat vs. Yorkshire gilts with 6.6 percent milkfat.

Reaching the goal of increased litter must be matched by the ability of the sow to provide sufficient nutrients for the larger litter. Breed differences in colostrum and milk composition may enter into considerations for increasing litter size. In this example, the highly prolific Meishan gilts produced milk with higher fat content, but lower colostrum lactose content. These differences may be eliminated in the availability of these components as energy sources to the newborn piglet.

Alternative Methods of Estrous Synchronization

Several systems are being used for estrous synchronization of dairy cattle. Many herds have been using a two injection prostaglandin (PG) program with a 14-day interval between injections and inseminating cows as they come into heat after the injections. Several years ago the Ovsynch program was introduced. This system involves administering Gonadotropin-Releasing Hormone (GnRH) followed seven days later with an injection of prostaglandin (PG) and then 36 to 48 hours the cows receive a second injection of GnRH. All cows are inseminated at a fixed time 16 to 20 hours after this second GnRH injection. Now a third system has been developed. As you might expect this is hybrid between the other two systems. Previously several research groups had shown that when GnRH was given on days 11 to 13 of the estrous cycle the dominant follicle either luteinized or formed a secondary corpus luteum. If these cows received a PG injection seven days later approximately 80 percent had a synchronized heat compared to only 50-60 percent of the cows that did not receive the GnRH. These results suggest that follicular development was more tightly synchronized with his approach. This new system compares

Before comparing the systems it is important to realize the difference between conception rate and

pregnancy rate. Conception rate is defined as the number of pregnancies divided by the number of cows observed in heat and inseminated. Pregnancy rate is number of pregnancies obtained divided by the number of cows treated with the respective system (conception rate x heat detection rate). Recently researchers at Kansas State compared the heat detection rate, conception rate and pregnancy rate using the standard two injection PG system (14-day interval) with the newer system administering GnRH seven days before the second injection of PG. The heat detection and pregnancy rates were similar for both systems. For some unexplained reason the conception rate was lower for the system using GnRH seven days before the second PG injection. Overall there was no improvement in fertility with the GnRH treatment.

A multi-university study compared the traditional two injection PG system with the Ovsynch program for heifers and cows. Pregnancy rates for cows that were confirmed pregnant after a single insemination were similar for both programs. However, there was a distinct advantage of using the PG system for heifers. The advantage of the Ovsynch system is that all cows are inseminated at a fixed time without estrous detection. Thus when one compares the percentage of cows pregnant by a set number of days in lactation after several inseminations, for example 120 days, there will likely be an advantage to this system. However, there is the additional cost of drugs and handling cows four times, three for injections and once for AI. The Ovsynch program is especially useful in herds where cattle are not turn-out for heat detection on a routine basis or in herds where heat detection efficiency is low. Research from Florida suggests that Ovsynch timed-AI may be more beneficial during periods of low fertility such as during heat stress. This system should not be used for heifers.

In summary, the use of GnRH as part of the traditional PG program is probably not warranted. The choice between the two injection PG program with heat detection and Ovsynch system with timed-AI depends upon the cost of GnRH, time spent handling cows, the efficiency of heat detection and the cost of routine heat detection.

Michael O'Connor, Dairy & Animal Science Extension



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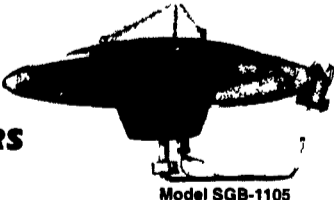
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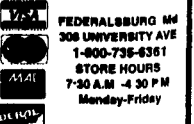
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