Symposium: ADSA Southern Section Symposium: Responding to Hot Topics in Dairy Management

142 Biosecurity: Dealing with problem diseases. K. E. Olson*, *KEO Consulting*, *Schaumburg, IL*.

Biosecurity has always been important for the dairy industry, but it is a term that has expanded in meaning and come into the national consciousness in recent years. The reemergence of bovine tuberculosis and economic impact that a limited number of cases of bovine spongiform encephalopathy (BSE) has had in the U.S. and Canada, as well as the devastation that BSE and foot and mouth disease inflicted on the livestock industry in the United Kingdom, coupled with concerns over potential terrorist actions have been major drivers. There are national as well as individual farm components to biosecurity that need to be considered, but the ultimate goal regardless of the implementation level is to adopt practices that will prevent the introduction of disease causing agents. The primary producer focus must be on the farm level application of a biosecurity program that will help to address diseases of potential concern to their operation such as Leukosis, BVD, bovine tuberculosis and Johne′s disease. Expanding operations and changing management practices increase the need for planning in this area. While some components are common to most biosecurity plans and are effective against multiple diseases, it is important to work with a veterinarian to develop a program suited to the individual operation. The presentation will explore trends in adoption of various practices commonly used. Factors to be considered in developing individual plans include diseases currently present on the operation and their prevalence, the risk of introducing other diseases, practices that are effective in limiting the potential of introducing or spreading the diseases of concern. Plans must be reviewed periodically to assess their effectiveness, with modifications made as needed. Properly implemented, farm level biosecurity plans will assist the operation in addressing their concerns while also complementing national plans that help to limit risk for all producers.

Key Words: Biosecurity, Farm Plan

143 Defending against mycoplasma mastitis. J. C. Beagley and M. W. Overton*, *University of Georgia*, *Athens*.

Mycoplasma is a unique class of pathogenic and nonpathogenic bacteria which lack a cell wall. Bovine mycoplasma diseases include mastitis, pneumonia, arthritis, otitis, genital infections, and keratoconjunctivitis. A variety of mycoplasmas have been isolated from infected mammary glands including *M. californicum*, *M. bovigenitalium*, *M. canadense*, and *M. alkalescens*, but *Mycoplasma bovis* is considered to be the most common and pathogenic species and its isolation from dairy herds has increased in recent years. Generally considered a contagious mastitis pathogen, differences between mycoplasma and other contagious pathogens have raised questions regarding the epidemiology of this disease. Introduction of infected animals into a herd is believed to be the most common source of new infections, but other clinically important sources include hematogenous spread from other body sites such as the respiratory or urogenital tract. These sites may serve as sources for other herdmates or for autoinfection in the mammary gland. Once established, mycoplasma mastitis can be highly contagious and rapidly spread through a herd when inadequate control measures are utilized. Strict milking hygiene should be employed to reduce transmission risk and all herd additions should be properly screened. On-going herd surveillance including regular monitoring by bulk tank and individual milk cultures is important. Sensitivity of bulk tank cultures will depend upon how many cows are infected, degree of shedding, and method of culture. Multiple, repeated cultures should be taken before declaring an animal or a herd as negative. Positive cultures should be speciated in order to differentiate pathogenic from non-pathogenic mycoplasmas and acholeplasma. Once identified in a previously uninfected herd, string and individual sampling should be done to identify positive animals. Infected animals should be culled or segregated from uninfected herdmates to prevent further spread. The appropriate management approach utilized will depend upon how many animals are affected, the risk tolerance of the herd owner, and economics at the time of diagnosis.

Key Words: Mycoplasma, Mastitis

144 The use of distillers grains in dairy cattle diets. D. J. Schingoethe*, *South Dakota State University*, *Brookings*.

Distillers grains with solubles (DGS) is the major coproduct of ethanol production, usually made from corn, which is fed to dairy cattle. Distillers grains is a very good protein source (>30% CP) high in ruminally undegradable protein (~55% of CP), and is a very good energy source (NEL ~2.25 Mcal/kg of DM) for lactating cows. The modest fat concentration (10% of DM) and readily digestible fiber (~39% NDF) contribute to the high energy in DGS. Animal performance was usually similar when fed wet or dried products, although some research results tended to favor the wet products. Diets fed to dairy cattle can contain DGS as replacements for portions of both concentrates and forages, but usually replace concentrates. If replacing forages in lactating cow diets, adequate effective forage fiber is needed to avoid milk fat depression. With adequate forage fiber, milk fat content is not affected by any level of DGS feeding. Nutritionally balanced diets can be formulated that contain 20% or more of the diet dry matter as DGS. Such diets supported similar or higher milk production than when cows were fed traditional feeds. There is usually no advantage of feeding more than 20% DGS because the diet may contain excess protein and phosphorus, although production performance was very high even with more than 30% dried DGS in the diet. With more than 20% wet DGS in diets containing other moist feeds, gut fill may limit DM intake and production. While DGS can be fed with all forages, milk production may be slightly higher with alfalfa rather than corn silage, possibly due to an improved amino acid balance. The fiber in DGS, which often replaces high starch feeds, does not eliminate acidosis but minimizes its problems. Distillers solubles, which are often blended with distillers grains to provide DGS, can be fed separately such as “condensed corn distillers solubles”. Additional distillers coproducts besides DGS are resulting from innovations in processing technology. Besides condensed distillers solubles, other products will include high protein DG, low fat DG, corn germ, and other products that can be utilized in dairy cattle diets.

Key Words: Distillers Grains, Dairy Cattle

145 Challenges of improving dairy cow fertility during summer heat stress: An ovum's perspective. J. L. Edwards*, *University of Tennessee*, *Knoxville*.

Since pregnancy is requisite for milk production, infertility in cows experiencing summer heat stress is an important economic problem facing the dairy industry. In spite of the widely accepted magnitude of this problem, progress towards developing a solution has been greatly hampered due to the multitude of factors and physiological processes altered by heat stress. This may explain in large part why a single strategy like modifying cow environment and/or use of other management protocols such as timed AI are not entirely beneficial for restoring fertility. Heat-induced reductions in fertility are pronounced when cows experience heat stress at or near the time of estrus and are due in large part to direct effects of elevated temperature to compromise the maturing ovum and early embryo. While dependent on severity and duration, negative effects of heat stress on the maturing oocyte are concerning as the ovum contributes half of the genetic material and >99% of cytoplasm to the resulting embryo. In this presentation, data will be presented for providing new insight as to the specific processes within the maturing ovum that are altered by heat stress, consequences thereof and possible strategies for increasing dairy cow fertility. In addition, thermolability of the few embryos that do develop after fertilization of heat-stressed ova will be discussed.

Key Words: Heat Stress, Oocyte, Dairy Cow