UCD VET VIEWS
CALIFORNIA CATTLEMAN, DECEMBER 1994

BODY CONDITION SCORES

For herds that will calve in the Spring of the year (January to May-depending on the circumstances), the last one-third of pregnancy (the third trimester) is now here and it is a critical time for both calf survival and for breeding performance of the females after calving.

Two primary considerations are (1) adequate and appropriate nutrition of the pregnant cows and heifers, and (2) appropriate vaccination programs to prevent abortions and to provide the calf with protection via antibodies in the colostrum or first milk. Other considerations such as parasite control, are also important and will be discussed in future columns; however, good nutrition and appropriate vaccines can combine to prevent problems or if managed incorrectly, can cause health problems.

Nutrition of the pregnant cow/heifer determines (1) the general health and vigor of the calf, (2) the quantity and quality of the colostrum for the calf, and (3) the chances of the cow/heifer to become pregnant early in the breeding season and therefore, to have another calf within 12 months. One practical way to judge nutrition of pregnant cows/heifers is via Body Condition Scores (BCS). The standard method is to rate cows from 1 to 9, with a BCS of 1 being very emaciated and BCS of 9 being very obese. Body Condition Scores of 5 through 7 are considered optimum (Table 1). It is important to remember that BCS is mainly an estimation of fat covering, so don't count long hair or a big belly (pregnancy or "hay belly") as contributing to BCS. The weight gain of the fetus, fluids, and membranes over the last 90 days of pregnancy is about 100 pounds. Therefore, cows in optimum condition (BCS 5-7) should gain this amount, that is about 1 pound/day. Also, cows that are fat (BCS 8 & 9) should not be put on a weight loss program as this can seriously affect the health of both the cow and the calf. Allow fat cows to gain about one pound/day and accomplish the weight loss later, during lactation. Cows or heifers that are too thin, BCS of 4 or less, need special attention and should be fed separately. For example, a cow with a BCS of 3 should gain about 260 pounds over the last 130 days of pregnancy, or about 2 pounds per day. This would require a ration with an average TDN of about 65% (for example: This would be a diet that is 30% barley and 70% alfalfa hay). Feeding high energy diets to these thin cows may not be economically palatable; however, attempts to have them gain part of the optimum weight for the health and survivability of the calf will have positive economic rewards, even though the cow may not breed back readily after calving.

Another practical way to assess nutrition of cows being fed hay as most or all of their winter diet is estimating intake as a measure of feed quality and nutrition. Low quality feeds which do not supply adequate nutrition, limit consumption to 1.5% of body weight per day or less. That is, a 1000 pound cow could consume only 15 pounds of a low quality forage on a dry matter basis or about 17 pounds on an as fed basis. On the other hand, with medium or high quality forages (grass hay or alfalfa hay) consumption will be 2.0-2.5% body weight. That is 20 to 25 pounds dry matter or 22 to 28 pounds as fed for 1000 pound cattle. These higher quality hays will easily support adequate weight gains in pregnant cattle as long as their BCS are 4 or above.

The necessary energy and protein fed to these pregnant cows allows for the calf to develop normally and for the formation of adequate colostrum of high quality. Cows and heifers that are nutritionally deficient in protein and energy during the last trimester do not produce adequate colostrum to protect the calf during the first 2 to 3 months of life. Therefore, problems with sick or dying calves can be caused by the lack of adequate nutrition during the last trimester of pregnancy.

The question of supplementing pregnant cows in the winter is always a difficult one and most generalities are not useful for individual production units. However, it is important to supplement only what is lacking in the diet. For example, if average to good quality forage is being fed with a crude protein content of 9-11% (grass hay) or 15-17% (medium quality alfalfa hay) it would be a mistake to feed expensive protein supplements. Ten percent crude protein in the diet is usually sufficient. If the cows in the above situation are thin it would make sense to feed additional energy; however, again additional protein (cottonseed meal, soybean meal, or urea) would not be needed. Occasionally, minerals, trace minerals, and/or vitamins may be necessary as supplements. The need for these types of supplements will best be known by experience on the operation in question. Advice from your nutritionist, livestock farm advisor, and veterinarian will be important in guiding your decision on which nutrients and how much of each to supplement the cattle.

With a good feeding program, many health and reproductive problems never occur. However, a number of infectious diseases can affect the cow/heifer, the fetus, and/or the newborn calf. Thus, some vaccinations may be very important for the pregnant cow or heifer. Vaccination of young heifers against Brucellosis continues to be important both from a regulatory standpoint as well as from a herd health standpoint. However, during the third trimester, it may be necessary to consider vaccination or boosters for certain diseases. Some of these include conditions that might harm the fetus such as, IBR (Infectious Bovine Rhinotracheitis), BVD (Bovine Virus Diarrhea), Leptospirosis, and several other agents. Usually, your veterinarian will recommend "killed vaccines" at this time to decrease any possible risk of harm to the cow and fetus. Also, vaccines given in the last trimester can cause high levels of antibodies to be present in the colostrum which then protect the calf during those first few weeks of life. Examples of these vaccines would include, Corona virus, Rota virus, and the K-99 antigens of E. coli. All of these types of vaccines would help protect the calf after ingestion of colostrum. Some vaccines if given during the third trimester can cause disease, one example of this would be the anaplasmosis vaccines which can cause the cows/heifers to become ill (modified live anaplasmosis vaccines) or cause the calves to become very ill soon after birth (killed anaplasmosis vaccines). Any decisions regarding vaccines given during the third trimester should be carefully discussed with your veterinarian. Poor decisions in this regard can result in animal health problems and/or the waste of time and money. Remember, if the nutritional status of the animals is not good their immune system will not function properly

and even good vaccines could be result in not benefit. It is very important that cows/heifers not lose weight or BCS during the last trimester of pregnancy.

Table 1. Optimum Body Condition Scores for Beef Cows

BCS 5.	Moderate.	Cow has generally good overall appearance. Upon palpation, fat cover over the ribs feels spongy, and areas on either side of the tail head have obvious fat cover.
BCS 6.	High Moderate	Firm pressure is needed to feel the bones of the spine and the rib bones where they originate. A large amount of fat is present over the ribs (side of chest and abdomen) and around the tail head.
BCS 7.	Good	Cow appears fleshy and obviously carries considerable fat. Very spongy fat covers the ribs and over and around the tail head. "Rounds" or "pones" are beginning to show around the vulva.

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