



Cattle Producer's Handbook

Supplemental Fat in Heifer and Cow Rations

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Background

To optimize reproductive performance and longevity, beef heifers and cows must be developed and managed efficiently. It is important to follow the general guidelines for developing and breeding heifers (745), and for managing for reproductive success in young (413) and mature (330) cows.

Current research has shown that lipid supplementation may be a useful management tool to optimize reproductive performance. Lipids can be solid (fat) or liquid (oil) at room temperature. The word "fat" is used in this fact sheet as a general term for "lipids." Consider the following information on supplementation with fat as a means to achieve reproductive goals more efficiently.

Why Use Fat?

The dairy and feedlot industries were the first groups to supplement livestock rations with fat. The purpose was to increase energy density of the ration to increase milk and meat production. However, improvement in cow reproductive performance was sometimes noted with dairy cows. Since then, researchers in beef nutrition and reproduction have been studying the effects of fat supplementation on reproductive performance in beef cows and heifers.

Fat can also be a cost effective source of energy for cattle. On a per gram basis, fat contains 2.25 times the energy as cereal grains, thus producers will need to feed less, which results in a possible decrease in feed costs (see Economics at end of this paper). Fat (in the form of oils) is sometimes applied to dusty hay and feed to improve palatability and to total mixed rations, which will increase binder qualities.

Sources and Considerations

Not all fats are created equal. Fats typically used in cattle rations come from many sources, including those of plant (corn, cottonseed, safflower, soybean, sunflower, and soybeans) and animal (tallow and fishmeal) origin. The fats from these sources are chemically and biologically different. They have different properties that dictate not only handling and use, but also differences that may affect animal response.

Vegetable oils, some which contain relatively high amounts of essential fatty acids, appear to have the greatest impact on beef cattle reproductive performance. It should be noted that researchers believe that feeding ruminant fat to ruminant animals does not pose a risk of disease (BSE) transfer.

To understand the affects of fat in livestock rations, it helps to look at this supplement in two ways. One is simply to use fat as a means to meet the energy requirements. The other is to feed fat to cause specific changes in the physiology of the cow over and above the increased energy in the ration. These specific changes are presumably because of the biochemical makeup of fats that affect the reproductive system of animals.

Production and Reproductive Responses

Research with supplemental fat has been conducted on cows that have had one or more calves, as well as replacement heifers. Fats have been fed before and during the breeding season, and also just before and immediately after calving. Responses examined include direct measurements, such as body weight and body condition score, age at puberty, calf birth weight, interval from calving to return to estrus (postpartum interval), first