

(Continued from Page 69)

auction or centralized distribution point. Calves purchased under these circumstances should be started on a diet that is relatively high in fiber and gradually adjusted to a higher energy finishing ration.

#### The Immune System

The immune system helps animals resist disease by preparing them for the stresses they are sure to encounter. A general understanding of how the immune system functions is important in developing an effective animal health program.

An extensive network of small vessels constantly monitors the animal for the presence of foreign agents or materials that may penetrate protective body coverings. This network, called the lymphatic system, funnels the foreign disease-producing agents to the lymphoid system, which recognizes them as abnormal and begins to neutralize their destructive potential.

The neutralizing activity establishes groups of cells capable of creating antibodies that specifically attack the disease-producing agents. Antibodies normally attack two to three weeks after the foreign agent enters the animal's body. However, cells that also have a memory function can produce antibodies much more quickly—in about three days—if the same agent attacks the animal a second time.

The blood circulatory system delivers the highly specific antibodies to the site(s) of irritation. The functioning of the animal's immune system is called active immunity because the animal actively participates in the production of antibodies.

#### Vaccination And Age Increase Immunity

Two of the most effective aids in maintaining animal health are vaccination and natural or age-related immunity.

Vaccination intentionally exposes the immune system of animals to a specific agent, permitting it to respond quickly to a subsequent infection. A second intentional exposure is known as a booster vaccination. Vaccination can substantially reduce severe disease problems, especially those caused by viruses, if the times of peak stress and the usual disease-producing agents are known.

In the absence of vaccination, viruses often achieve their full destructive potential. Antibiotics are not effective against viral infections, but they are often used to reduce the severity of secondary infections caused by environmental bacteria.

Natural immunity is acquired in the course of normal aging. As animals age, they are constantly exposed to infectious agents; during periods of minimal stress this exposure generally stimulates immunity without disease symptoms. As a result of increasing immunity and improving ability to handle stress, older animals are usually more resistant to disease than younger animals are. Thus, purchasing more mature cattle can help reduce the incidence of disease.

#### Preshipment Conditioning

Recommendations can be made for minimizing stress in feeder calves. Since the change from the maternal to the feedlot environment involves tremendous stress, preparation for this period—preconditioning—has been the focus of attention. The buyer of feeder cattle should be aware of rec-

(Turn to Page 72)

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