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Dairy cattle are constantly exposed to many stressful situations activate changes in the functioning of the entire body of cows. Heat stress has been a major challenge for veterinarians and cattle producers in recent years. It is the result of external forces associated with high air temperature, causing changes in the body from the subcellular level to the whole body. These changes are part of adaptation to new environmental conditions and occur to avoid physiological dysfunctions caused by stress. The Holstein-Friesian breed is considered to be sensitive to high air temperature. Management of dairy cattle under heat stress conditions should consider animal welfare, which is a state of harmony between the animal and the environment, expressed in high quality of life. Environmental factors such as air temperature, relative humidity, wind speed, and the intensity of solar radiation impact the functioning of dairy cows. Elevated temperatures and relative air humidity prevent the removal of excess heat from the cow's body. Heat is accumulating in animal organisms and growing body temperature, which in turn disturbs thermoregulation. Physiological methods of coping with heat stress include increased respiratory rate, panting, increased heart rate, sweating, decreased milk, and reproductive performance. Behavioral responses also appear, for example, increased thirst, reduced food intake or feed consumption in cooler parts of the day, looking for shade, and reduced physical activity. The reproduction of high-yielding cows is exposed to negative changes caused by high temperatures. Dairy cows are more likely to lose their pregnancies in summer than in winter. The improvement of fertility in the summer period can be obtained using the available knowledge about the influence of heat stress on the reproductive process. Heat stress can cause physiological changes in the ovaries, fallopian tubes, uterus, and embryos. Alteration of the fallopian tube or uterus environment may be due to disturbances in circulating hormones caused by heat stress, which affects embryonic development. Maintaining proper fertility of cows in a situation where the temperature and air humidity exceed the values specified for cows is very important for

maintaining the profitability of the farm. The most important thing is to recognize heat stress conditions as early as possible in order to implement strategies to prevent its further development as soon as possible. Presentation will provide the current updates of heat stress problems in cattle reproduction.

Key words: heat stress, cattle, reproduction

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