

## **STRESS AND THE CRITERIA FOR ANIMAL WELL-BEING**

Stress has been defined as any environmental situation – and a stressor as any environmental factor – that produces an adaptive response (Curtis, 1983). This definition might also be expanded to include the presence of physical agents, such as pathogenic bacteria, or chemical agents as stressors. Not all stresses result in harm, and the adaptive response may result in a situation in which the stressor no longer causes a response. Such a situation might occur when a guardian dog is introduced to a flock for the first time. There is initial anxiety or fright on the part of the sheep, but eventually the sheep accept the dog as part of their normal environment. In the context of livestock production, an animal generally is considered to be stressed when it is required to make extreme adjustments to cope with the physical or environmental situation (Curtis, 1983).

Measuring stress or characterizing management and housing systems as stressful environments can be difficult. Plasma concentrations of cortisol, resistance to virus-induced disease, depressed performance, feather loss (in birds), and behavioral criteria have all been used to measure or describe stressful conditions in domestic animals. Assessing stress or, conversely, the state of well-being, is an active area of research. Presently, production traits, health, and reproductive variables continue to be the most readily measurable and practical indicators of well-being (Curtis, 1983; Fraser and Broom, 1990).

In sheep, some indicators of stress might include:

- panting or increased respiratory rate,
- tooth grinding,
- restlessness or nervousness,
- reduced feed consumption or grazing activity,
- poor growth rates,
- poor reproductive performance.

Their presence indicates a need to evaluate the animals and their environment. Common management-related procedures, such as gathering animals for deworming, sheltering, shearing, and lambing, may cause temporary expressions of stress but are not considered serious stress-related situations if conducted according to recognized guidelines.