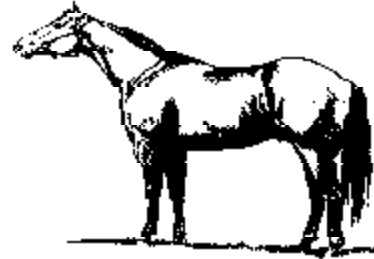


## **Animal Science Horse Information Series**

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### **HEAT, HUMIDITY and HORSES**

**Dr. Frederick Harper  
Extension Horse Specialist  
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**What do horses and humans have in common in hot, humid weather?**

**Both perspire to cool their bodies. So when you are hot, so is your horse. But how much does hot, humid weather affect the performance of your horse?**

**In hot, humid weather it is difficult not to perspire especially if one is working.**

**Do you know that sweating also aids in regulating the horse's body temperature?**

**Several research groups have studied the effect of high temperature and humidity on horses in laboratories where the climate could be controlled. So, what about the effects of hot weather on performance horses in the field?**

**Virginia Tech researchers addressed this question using 10 mature horses fed a typical hay (alfalfa/timothy) and grain ration. The horses were stabled but turned-out for an hour of**

exercise daily. They were kept in a fit condition for hunters/jumpers competition during the study and were acclimated to the climate conditions they performed in.

The horses were exercised for three weeks prior to being tested. The same test procedure was used to insure that the horses performed at the correct speed.

Horses were tested in July in hot, humid conditions and again in mid-September in cooler, drier conditions. The horses were ridden in a ring for three minutes at a walk, trotted for four minutes (3.5 m/sec), slow-cantered for four minutes (4.5 m/sec) and fast-cantered for four minutes (7.0 m/sec). A 10-minute recovery period followed the exercise.

Horses were tested at 88 F with a relative humidity of 67 percent and again at 64 F with a relative humidity of 47 percent.

The horses were in good health and at the same level of physical fitness in both exercise periods.

Heart rate increased with exercise intensity and decreased in the 10-minute recovery period. Heart rate was higher at all speeds in the high heat, humidity group than the cooler, drier group. Heart rate was higher at the end of the recovery period in the high heat, humidity group than it was at rest before the test. The respiratory rate tended to be higher in high heat, humidity horses vs. cooler, drier horses. Respiratory rate was greater in the high, humidity horses during exercise and recovery. Rectal temperature was also higher in the high heat, humidity horses and remained relative high in the recovery period.

Total plasma protein increased with exercise and decreased in recovery. Packed cell volume was higher in the high, heat than in cooler, drier horses.

**What does this tell us about performance horses in hot weather?**

**These data prove that high temperatures and humidities are a thermal burden on performance horses, since these horses were at the same level of fitness and acclimated to the different weather conditions of July and September.**

**The effects of hot weather can be even more severe on horses that are not adjusted to the heat.**

**Horses must also be properly fit to perform and be acclimated to the weather. Or, the effects of hot, humid weather could be more severe.**

**Research from Texas A & M University has recently shown that horses not acclimated to hot, humid weather do not perform well. And they do not get rid of the heat produced during performance as well as horses acclimated to hot, humid conditions.**

**Fat horses do not perform as well either, especially in hot, humid weather. They also have more difficulty in cooling there bodies.**

**###**