

ACBA: Husbandry

Game Plan For Healthy Cavies

By David Hardesty

The Cavy as a Product of Evolution

All too often, breeders and exhibitors of cavies, in the endeavor to produce the perfect specimen of their breed and variety, will lose sight of the fact that the cavy is the product of millions of years of evolution. The habitat, in which the cavies' ancestor originally evolved, has "coded" into the cavies' physical makeup the environmental conditions under which the cavy will prosper and reproduce. Today, as much as we would strive to manipulate the color, shape, or coat, through selective breeding, we will never succeed in significantly altering this set of physical tolerances inherited from the evolutionary process. These inbred, inherited tolerances to climatic conditions are referred to as limiting factors.

All species of animals have a clearly defined list of limiting factors. These limiting factors clearly delineate those ideal conditions under which an animal will prosper in the wild. They are dictated by all the physical variables of optimal climatic conditions. Annual temperature range, the difference between the coldest and warmest temperature that breeding adults can endure, can still impact the ability of adults to produce viable young to a limited breeding season. Seasonal variances, in the number of hours of available sunlight and available moisture, will dramatically affect the flora on which grazing animals might browse. Some of these limiting factors are shared with all other mammals. All mammals must drink water. This is a physical requirement. The availability of potable water in a habitat could then be a limiting factor to many, but not all species of animal life. The camel or the Mongolian gerbil have both evolved in very hot and arid environments. From an evolutionary standpoint, the ability to endure very hot and dry conditions, while very efficiently retaining bodily fluids, would enable these animals to expand their populations into habitats where other species couldn't possibly survive. Camels can endure without water for periods of time which would surely kill a cavy. The availability of water and tolerance to very hot temperatures would then be very rigid and unforgiving limiting factors for the cavy, which in large part, determines why wild cavies didn't evolve in the Sahara Desert. To gain a better insight on the limiting factors of the cavy, a closer examination of the environment in which the ancestors of the domestic cavy evolved would be necessary.

The environment in which the ancestors of the domestic cavy evolved is thought to be the middle altitudes of the Andes Mountains in South America, near the Equator. There are more than a dozen species in the genus *Cavia* which inhabit South America, and although these species are found in Argentina, Uruguay and Brazil, they are not thought to be native to these regions prior to the influx of the Portuguese and Spaniards. Wier,(1970) reports that wild guinea pigs have a habitat of open grasslands, where they seek refuge along paths in the higher grasses, and venture forth to feed during the early morning and evening.

Due to a close proximity to the equator this ancestral habitat of the cavy doesn't really experience seasons as we know them. Varying from a annual "winter" low of 58° to a "summer" high of 70°, the annual temperature range is only about twelve degrees. This is due in large part to a nearly constant length of daylight hours, as the sun is almost always directly overhead, regardless of which continent may be experiencing winter.

This mountainous habitat then, with its nearly constant, slowly moderating temperatures, would result in low relative humidity which remains constantly below 50%. This is because most of the available moisture will have dropped to earth as rain at much lower altitudes as the moisture laden clouds would ascend the mountain sides.

Optimal Conditions for Raising Cavies

Because the cavy evolved within such a narrow range of temperature, it is known as a stenothermal (steno = narrow, thermal = temperature) organism. For optimal conditions for raising cavies the temperature should be kept in the range of 65° to 75°, a low relative humidity below 50% relative, and a complete change of air within the caviary 15 to 16 times per hour. Because the minimum, optimum, and maximum temperatures are all so close together for a stenothermal organism, a temperature variance, which might have little effect on other more temperate organisms, like the rabbit for instance, is often critical to the cavy. This would explain why cavies do not thrive well when exposed to extreme temperatures, rapid temperature fluctuations, or drafts in combination with high relative humidity.

Temperature Extremes

Research has indicated that, due to the compact build of the cavy, the animal's body tends to conserve heat and to dissipate it slowly. Heat is one of these severely limiting tolerances and any wide variance of this narrow temperature range can quickly become life threatening to the cavy. If temperatures are allowed to exceed 90° F, heat prostration is not uncommon in the cavy, and if rapid steps are not taken to bring body temperature back down to normal, death will occur. Young (1927) reported sterile matings of boars exposed to high temperatures. If deprived of water, pregnant sows can develop toxemia in a matter of hours during periods of hot weather. Cavies housed on wire bottom cages will dissipate heat more rapidly, than cavies housed on shavings, and will prove more tolerant of high temperatures. Conversely they will be more susceptible to colder temperatures. Factors such as cage population can have an affect on total body heat produced per hour. Cavies housed singly will experience a higher heat dissipation rate, than cavies housed communally. Cavies housed communally will better tolerate the cold during winter months. During hot summer months, care must be taken to ensure adequate ventilation to draw off heat, especially if the animals are housed in large breeding pens holding higher population densities. Thin out cage populations from cages which exhibit poor ventilation properties. Clean wet, dirty shavings so as to reduce the relative humidity within the cage. Ensure copious amounts of clean, fresh water.

Transportation Cavies to Shows

Care must be taken when transporting stock to and from shows. Learn to think in terms of what direction the sun will be shining from both when traveling to and from the show. Keep in mind that you may need to shade certain cavies to prevent too long an exposure to direct sunlight. Remember a cavy in a carrying case may not be able to move into the shade to avoid the hot rays of a bright sun. If animals are crated too many to a carrier compartment or carriers are stacked too deep so as to impeded proper air circulation to the carrier on the bottom of the stacks, you will undoubtedly have the unpleasant experience of taking a sweat soaked cavy from its carrying case. It will protest only feebly, and offer little resistance. It will exhibit the body condition of hot, wilted lettuce, and may well die in spite of all efforts. A lukewarm bath, administered immediately, may help cool the animal sufficiently to reverse critical signs. Don't be tempted to use water which is too cold as it may only serve to worsen the problem by causing shock. A supply of Gaterade may be good to keep on hand for such emergencies. Gaterade contains glucose, which will be readily be absorbed, plus soluble potassium and sodium to help restore electrolyte balance. Reasonable care when transporting cavies to shows during the hot time of the year, will render the summer as agreeable a time to show as any other.

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