

### Summary of Multispecies Education and Promotion Strategies—S.A. Ewing

Well-managed multispecies grazing allows more efficient use of land and feed resources than does single-species grazing. It thus improves the competitive position of enterprises dedicated to using ruminants for food and fiber products. This approach to land use may enhance the environment for wildlife and offers an effective means of biological control of many undesirable plant species.

Guidelines for developing programs to improve awareness of opportunities, benefits, and technology associated with multispecies grazing are:

(1) Prepare a document described as a prospectus on multi-

ple-animal species management in improved resource use in agriculture.

(2) Prepare multispecies factsheets that amplify the major points in the prospectus.

(3) Make existing and additional management documents available for interested users.

(4) Develop educational materials for:

4-H, FFA, and other youth groups.

Any interested audiences.

(5) Each state is encouraged to identify producers who have successfully adopted multispecies grazing, research, and demonstration locations, and other possibilities for 'on-site' observations, field days, and shortcourses.

## Deer Management on the Bonnie Hills Ranch

### Cuatro Patterson

For many years, my forefathers have managed their own livestock to make sure the ranch was run well and the herds were always improved on. They personally made sure that any inferior or nonproducing females were culled, and they would also select the finest males they could find to sire the herds.

After a considerable amount of soil erosion (which resulted in the depletion of the better grasses) occurred on our ranch, my forefathers decided to embark upon range management. With the combination of livestock and range management, they felt that they were doing their utmost as far as range economics was concerned. One of the latest management practices they have embarked upon is that of deer management.

To the generation of my great-grandfather and grandfather, deer management was an unheard of practice. When they were young men, deer management was not anticipated because there were so few deer then that the deer herd was not considered an economic factor to the livelihood of ranching.

**I would like to explain how and why** we are trying to have a good deer management program on our Bonnie Hills Ranch, which is located in the hill country of the Edwards Plateau in South Central Texas. Our ranch, which we acquired in 1976, has been in the family for approximately one hundred years. The ranch had been under the ownership and management of my great uncle for many years, and during this time there was virtually no deer management on the ranch. The only established hunting guidelines were to allow the killing of bucks of eight points or more, and to disallow the killing of does and spikes.

After one year on the ranch we realized that the deer herd had been neglected. This was the first step in beginning the deer management program. However, before we could solve

the problem we had to analyze it and determine the correct actions to take.

With the help of our county agent and the Texas Agricultural Extension Service, we learned that three tasks must be carried out to have an effective program. First, our herd should be within or below the carrying capacity of our range. If the herd exceeded the carrying capacity, we needed to reduce it to a proper level during the next hunting season or there would be too much competition among the bucks in the herd, resulting in poor development of antlers. Secondly, we needed to maintain a ratio of one buck to one or two does. This ratio has no magical properties; it simply allows you to carry the maximum number of deer and maintain the quality at the same time. Thirdly, the bucks taken should be only the very small and the very large. The middle age bucks should be left to grow, age, and develop massive antlers.

We began our program by making a spotlight census count each fall to determine how many deer were on the ranch and what the ratio of bucks to does was. After we had done this, we reviewed these findings with our hunters and entered into a five-year contract based on the apparent needs of our deer program.

Our census revealed that we had far too many deer for our carrying capacity. This meant that our hunters needed to kill a large number of does and inferior bucks. This was something we had never done before. In this contract with the hunters, we chose to limit the bucks killed the first two years to seven points or less. This plan would work in two ways. We would be eliminating many of the inferior bucks while leaving the larger ones to grow and serve as the herd sires. We promoted the killing of does by requiring each hunter to kill at least one doe before they could kill a buck.

**A very important part of our deer management program** was maintaining accurate records. We aged, weighed, and

measured all deer that were killed. These measurements included the spread, beam circumference, and the length of the main beam on all the bucks.

When we had collected all the data on each hunt, we would review this information with each group of hunters. Because of the records we kept, we could tell each individual about his kill.

Our hunters became so involved in our progress, they elected to continue the practice over the remaining three years of their contract. We continued our census and the collection of the data. The program began paying off sooner than we anticipated. By the fourth year, we were permitting the hunter to kill a trophy buck along with a doe and an inferior buck. They were most pleased with the results.

After five years of the deer management program, everyone associated with it feels that the original objective has been met and that the entire effort was totally worthwhile for both the hunters and the landowner. Our herds are improved

along with the availability of forbs and browse. The ranch is now manageable and our hunters are involved. All of this allows us to deduce that our deer management program has been a success.

Saying the program had paid off sooner than we expected by no means implies that our job was finished. A deer management program is and will have to be continuing practice. It is a very rewarding project when you can see the remarkable improvement in your herd. Although an effective deer management program may be somewhat of a sacrifice for a period of time, the profits are high.

An effective deer management program now will not only generate benefits for our generation, but for the generations to come.

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*Editor's Note: The preceding paper by Cuatro Patterson received Third Place in the 1985 High School Youth Forum paper competition held at Salt Lake City, Utah. He is from Hunt, Texas.*

## Scientists Look For Speed In Quarter Horse Muscle

A clue to whether a horse should be on a race track or on a ranch is in the muscle, a New Mexico State University study is showing.

Drs. Tim Ross and Joe Armstrong, along with graduate student Craig Wood, are studying muscle fibers in racing Quarter Horses to find out whether successful horses have a different muscle fiber type than do horses that are not successful at the track.

"One of the ideas behind this research is to find a tool that can be used to determine whether a horse should be put in a certain training program—whether a horse would be a better sprinter than long-distance runner, for example," Wood said. "It also could give a breeder something to look at in addition to pedigree and conformation when he has to decide whether to sell or keep a yearling."

Samples taken from hip muscles indicate successfully raced Quarter Horses, those with a track speed index of more than 80, do have a different type of muscle fiber than unsuccessful Quarter Horses.

Scientists have identified three important muscle fibers. These are slow-twitch fibers which contract slowly and have the greatest oxygen supply; fast-twitch, low oxidative fiber which contract quickly due to their enzymatic makeup; and fast-twitch, high oxidative fibers which contract quickly and have high oxygen delivery.

Their research shows that successfully raced Quarter Horses have more fast-twitch, high oxidative muscle fibers than fast twitch, low oxidative fibers and a low percentage of slow-twitch muscles.

In contrast, unsuccessfully raced Quarter Horses have more fast-twitch, low oxidative muscle fibers than fast-twitch, high oxidative fibers. They also have more slow-twitch muscle fibers than do successfully raced horses.

The procedure used to take muscle samples for the study was not harmful to the horses and was reviewed by a veterinarian before being used, Ross noted.

Researchers inserted a biopsy needle into the same area of the middle gluteal muscle of each horse and took a sample about one-quarter of an inch long and one-eighth of an inch in diameter. A horse uses the middle gluteal muscle during running to push or propel himself through a stride.

Although each muscle sample was small, the samples were large enough to use in several lab analyses. Paper-thin strips were cut from each sample and stained so that muscle fiber types could be identified under microscopes.

While the scientists are confident this sampling procedure will not affect the racing performance of a horse, they chose retired racing Quarter Horses for this study. Horses from New Mexico horse ranches, including the Jones Ranch at Tatum, the T & R Racing Stables and NMSU Horse Center at Las Cruces, and My Rocking R Horse Farm at Berino, were sampled.

"Some of these horses had very good speed records; one had a speed index of 104," Ross said "We feel we had a very good distribution for this study."

Future studies will focus on whether samples from different locations of the middle gluteal muscle exhibit the same muscle fiber distribution.

Researchers also would like to sample yearlings and carry the research through training periods. The effect of training on muscle fibers is unknown, but might change the muscle fibers, Wood said.

"This sampling procedure has potential to be used as a guideline for what fibers to look for, but there's a lot of work to be done before it could be used to predict a runner," Ross said. —*Tina Prow*