Range Management in Turkey[1]

JACK R. HARLAN

Senior Geneticist, Forage Crops and Diseases Section, and Professor of Agronomy, Oklahoma A. and M. College, Stillwater, Oklahoma

SOMEWHERE in the heart of Asia there appears to be a human spring that from time to time wells up and spews forth a tide of humanity that washes over into the sub-continents of Europe, India or China. The causes are obscure, and central Asia has little recorded history. The first evidence the civilized world may receive of an internal convulsion is the arrival of armies on the march. Sometimes they come in waves, the weaker and less successful tribes first, being pushed from behind by larger and more warlike tribes until the final cause of the upheaval becomes apparent. In the course of recorded history the Avars, the Huns, the Turks, the Moguls, the Tartars and the Mongols are but some examples. Even to this day, in the twentieth century, we find a despotic empire holding sway from the Pacific to the middle of Germany. This is an area not yet so vast as that ruled at one time by Jenghis Khan and his sons, but it threatens the outer world in as terrible a way.

Turkish History

Early in the 13th century, when Jenghis Khan was on the march, and the smaller peoples and tribes scurried like quail before his cavalry, a small group of Turkish stock fled to Asia Minor. Tradition has it that the band consisted of but 300 tents or a total of perhaps 3 to 4 thousand individuals. It was the year 1227 when Jenghis turned his attention to China, and the band of Turks decided it was safe to return to their homeland, when their leader was drowned while crossing the Euphrates. This was considered an ill omen and the Turks, organized under a new chieftain, Erturuğl, decided to remain. This was a decisive date in Turkish history.

The land was then occupied by a loose confederation of Seljukian Turks who were having trouble with the Christians of Constantinople. When Erturuğl asked for grazing lands, the Seljuks welcomed him with open arms. He was given land with headquarters in a mountain pass in western Anatolia through which the Christians had to come on any military expedition.

So Erturuğl and his followers plugged the pass, but the Seljuks lived to regret the agreement. The son of Erturuğl was Osman who founded the Osmanli (Ottoman) dynasty and his descendants built the Turkish Empire which lasted until the early part of this century. Osman not only handled the Christians, but treated his Seljukian cousins roughly too. The son of Osman named Orhan Ghazi (the fighter) took the Seljuk capital of Bursa after a seige. Tradition has it that the fight was so vicious that blood flowed in a stream. On the evening of victory Orhan saw the evening star and the thin sliver of the new moon reflected in the river of blood and so was born the Turkish flag—a star and crescent on a blood-red background.

In a hundred years the flag fluttered on the battlements of Constantinople. The trade routes to the east were closed and Spain and Portugal began their voyages of exploration that discovered the New World. In two hundred years the flag was planted in Vienna, the Turks had landed on the coasts of Italy, and the whole of North Africa, Egypt, Arabia, Syria and part of Persia owed allegiance to the Sultan at Istanbul.

Having reached the high water mark at the borders of Poland, Spain and Tabriz, the Empire slowly began to recede. Turkey became the sick man of Europe and finally suffered complete disaster with the defeat of the Central Powers in World War I. This was followed by revolution, reorganization and resurgence as a modern, westernized, democratic nation, one of the most stable and respected countries of the Near East.

I have presented this brief, aborted history of the Turkish peoples because their livestock operations, their way of life, their range and pasture management practices are so intimately tied up with their history. This is just as true of ourselves. We have borrowed many of our ranching practices from the Mexicans, and the Spaniards before them, who were ranching long before we were. The influence of Western Europe is also strong, and we have added to this background our own inventions and methods to make ranching what it is today in America. Operations in Turkey are very different because their background and their history is very different.

The Livestock Industry

The Turks coming from Central Asia brought with them their flocks, their tents and their nomadic tribal organization. The violent upheavals since their arrival have disrupted and obliterated the tribal organization in detail, but the basic pattern remains. The largest livestock operators are still nomads. They winter their flocks in the valleys and drive them to the high mountain pastures in the summer. The flocks are invariably mixed: some cattle, some

[1] *Contribution of the Section of Forage Crops and Diseases, Field Crops Branch, Agricultural Research Service, U. S. Dept. of Agriculture.*

sheep, some goats and often water buffalo, horses, asses and camels thrown in. Livestock are marketed on the hoof and animal products are harvested whenever produced. Ewes, goats, cows, mares and female buffalo are all milked. Most of the milk is produced while stock are on summer pasture in the high mountains. The milk is processed into cheese, butter and yoğurt for the long haul to market. Fresh milk is hardly known except at specialty shops in the larger towns.

Most of the remaining livestock are owned by sedentary farming people who live in villages. These flocks are predominately of cattle and water buffalo. They are triple-purpose beasts being used for work, meat and milk. The principal breeds of cattle are indigenous and are named according to the coat color that predominates in the breed. Grey cattle are grown primarily in Thrace near the Greek and Bulgarian borders. They are fine large beasts somewhat resembling the Brown Swiss. The black breed is raised in Central Anatolia. They are for the most part very small, rather refined cattle somewhat like the Jersey, but even smaller. The reds and the yellows are grown in Southern Turkey; both are tall, slim and long legged resembling if anything very thin Guernseys. Rather good milk-producing specimens have been selected out of all four breeds, but little selection is practiced in most village herds.

Management Practices

There is little planned management in raising livestock. The nomadic herds migrate seasonally to utilize forage as it is produced in both the mountains and the lowlands. The village herds eat whatever is in season—weeds in the spring, grain stubble in summer and fall, straw in the winter. Many work animals are wintered at such a low level that they cannot pull a plow early in the spring. Early tillage is sometimes impossible because the draught power is too low. Spring pasture consists largely of weeds, but weeds in Asia Minor are mostly legumes and body weight lost in previous months is quickly regained.

Fundamentally Turkish problems in range management are the same as ours, but in general more acute. Overgrazing, shrub and weed invasion, fire, heavy concentration of stock in the foothills in spring and fall, browsing in forested areas are all problems common to both our countries. In Turkey there is little control over livestock numbers even in National Forest areas. A national law prohibiting the grazing of goats in forested areas is not enforced and very little reproduction of forest trees is evident. Fires are sometimes deliberately set to improve the quality of the forage in the year following. In the high mountains where snow cover is deep, this is usually done in late August or September. Spring burning seems to be out of the question since the livestock follow the snow line rather closely at that season. Just as in this country there is a continuous and lively argument over the advisability of burning, but the graziers burn anyway.

Brush encroachment is particularly severe in areas with a chaparral climax or sub-climax. Certain species of thorny and heavily armed shrubs are increasing despite a tremendously heavy browsing load of both goats and camels. In some semi-arid regions the brush is kept fairly well in check by the villagers who gather it for firewood. On many of the higher mountains, timberline is receding due to the demands for firewood by the nomadic dairymen who prepare their yoğurt and cheese on the site while on summer pasture above timberline.

The heavy concentration of stock in the foothills is perhaps less acute in the spring than in our Intermountain country. The lowland pastures in Turkey are at their peak in March and April and carry over well into May. The native forages are largely winter annual legumes such as bur, button, barrel, snail, turban and other medic clovers and hop, crimson, sub, Persian, rose and similar true clovers as well as many species of vetch and grass pea. The grasses include orchard grass and many rather weedy annuals. As the slopes are ascended, many of the annual types give way to perennials such as white clover, red clover, alfalfa, sainfoin, birdsfoot trefoil, orchard, brome and crested wheatgrass. These excellent pasture plants are able to survive on mountain ranges despite tremendous grazing pressure and abuse.

When the snows come in the fall, the livestock are driven down to lower elevations and are subjected to a very critical period nutritionally. In many areas nearly naked grainfields are about all that is available. The hillsides, denuded by heavy grazing in the spring have not recovered since there is little or no summer rain. Herds of livestock can be seen at great distances because of the trails of dust that float over them whenever they move. Even a flock of sheep grazing in grain stubble will raise a cloud of dust that hangs over them for weeks on end.

Finally with the coming of winter rains the annual legumes and grasses begin to make some growth in the warm lowland valleys. This provides no relief, however, for the village stock at higher elevations. They must get by on grain straw and sometimes a little hay. In some remote sections of eastern Turkey, the number of resident livestock is strictly limited by the amount of hay that can be put up with a scythe and fork. In these areas the ranges are not so badly abused since livestock numbers are kept within bounds.

Table 1. Livestock Numbers in the United States (× 0.1) and Turkey in 1951

Class	Number of Livestock		No. animal grazing units	
	Turkey	U.S. × 0.1	Turkey	U.S. × 0.1
	(thousands)		*(thousands)*	
Cattle and buffalos	11,136	8,202	11,135	8,207
Sheep	23,083	3,063	4,616	612
Goats	12,300	400	2,460	80
Horses	725	435	725	435
Mules	70	207	70	207
Donkeys	1,225	—	735	—
Camels	90	—	135	—
Total grazing units			19,877	9,541

Production

Production methods are primitive in the extreme, but primitive methods do not necessarily mean low production. A comparison of the United States and Turkey is made in the following tables. Turkey is almost exactly 1/10th the size of the U. S. Therefore U. S. figures are multiplied by 0.1 for comparison. Table 1 shows livestock numbers both actual and expressed as animal grazing units so that they can be totaled. There are no good figures for meat production, but some other animal products are shown in table 2.

While livestock numbers are not the best measure of production, it is clear that Turkey is carrying twice as many animal grazing units per section as we are and is outproducing us in most classes of animal products. Nor does this apply to animal products alone. Turkey produces twice as much wheat per area of country, many times as much barley, rye, tree fruits, figs and raisins and holds her own in tobacco and sugar. Turkey produces about half as much cotton and rice and much less corn, sorghum, oats and swine. Although agricultural methods are primitive in the extreme and although Turkey is a very mountainous country with no resources approaching our own corn belt and has a climate on the average less favorable than ours, the total agricultural output compares rather favorably with that of the U. S. Turkey is feeding a population considerably larger in proportion to her size than ours and at the same time exports significant amounts of grain, vegetable oil, tobacco, fruit and livestock products.

With this kind of a record the question naturally arises as to what sort of help we can provide in our agricultural advisory programs. I think that we have much to offer them in certain fields but we need a better answer for range management

Table 2. Some Animal Products of the United States (× 0.1) and Turkey in 1951

Commodity	Turkey	U.S. × 0.1
	(thousands of pounds)	
Wool	73,000	25,040
Cheese and Yoğurt	58,034	115,800
Butter	203,705	146,400
Mohair	12,000	1,288

problems than the stock advice that "Your range is overgrazed. You should reduce your livestock numbers." I have seen much badly abused rangeland in Turkey. A lighter load would no doubt be highly beneficial, but it does not solve their problem.

The Director of a government Stud Farm asked me in all sincerity how to increase his carrying capacity. It was in an area of about 14 inches of rainfall, fairly high evaporation and rough terrain. We would allot at least 20 acres per animal unit. He was doing a good job with 4 acres per head. I told him I was in no position to give advice but would be glad to see how he did it. Such high carrying capacities are reached partly at the expense of quality, partly by very efficient utilization of all feed stuffs, partly by growing some cereal and at least feeding the straw. Cattle are not permitted to get fat. Fat cattle are a luxury. Stock seldom get as much food as they could or would eat. It is also quite possible that the breeds used are more efficient in the utilization of forage and feed consumed. Furthermore we have no real figures on actual production of meat which is undoubtedly much lower than the number of animals would indicate. With all due allowances for the unreliability of the type of statistical comparison made here, we still can and should learn something from the Turks concerning *efficiency* of livestock production.

The situation as outlined for Turkey is not unique. Many so-called backward countries are doing an efficient job of production even though the methods are primitive. To increase production we need something better to offer than the suggestion that they cut the stocking rate. Fortunately there are other alternatives. The Turkish livestock industry could profit tremendously by more irrigated pastures, feeding protein supplements to go with the cereal straw, more temporary pastures, better use of wheat pasture in some areas, the harvest and preservation of legume forage in the spring, parasite control, more efficient transportation of both animals and forages, better marketing and similar measures. Little can be done in a practical way to improve present range management practices without greater production and utilization of supplemental feeds, both concentrates and roughages. The Turkish needs are for more forage rather than for fewer livestock.