

New Grasses for Old Ranges

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THE organization of the American Society of Range Management is but one expression of the concern experienced by those interested in our national agricultural resources for the present condition of our grasslands. The millions of acres of abandoned farmland throughout the West added to the still more millions of acres of brush infested and badly depleted range land attest to an immense deterioration of our range resources. The problems presented are of staggering magnitude and can be solved only through diligent cooperation of all people interested in range management. One of the keys to the whole situation is the discovery, selection, or production of grasses suitable for range reseeding. Lack of research on the problem and little understanding of the fundamentals involved have led us to many blind alleys and misconceptions. Range management specialists are not yet generally aware of the great differences which may be found between varieties of a species of grass. Many instances of unsatisfactory attempts at reseeding can be ascribed to a failure to recognize varietal differences in both introduced and native grasses.

There is no question that some species of grasses are better suited to reseeding our rangelands than others. A few seem to be especially suited to broadcast seeding which means they can be used in airplane seedings on a large scale. The splendid results so far obtained from King Ranch bluestem (a strain of *Andropogon ischaemum*) in parts of Texas and

the similar performance of caucasian bluestem (*A. intermedius caucasicus*) in Kansas and other states indicate that we may have found grasses suitable for our southern ranges which can be used as readily as crested wheatgrass in the northern ranges.

King Ranch bluestem was introduced to this country by accident and was not discovered nor exploited for many years after its chance establishment in southern Texas. If such grasses can be found accidentally, "what could we do on purpose?" It would be coincidence indeed if this strain should be the very best of all the great number of forms and types of the Eurasian complex to which it belongs. It seems absurd to suppose that of all the thousands of strains in this complex we have already come upon the types best suited to our purposes. If we are not so lucky, then strains and varieties of even greater value await us somewhere on the continent of Asia.

SYSTEMATIC FORAGE INTRODUCTION NEEDED

Introductions, particularly of forage plants, have been brought to this country in a haphazard, unsystematic way. Most of the introductions consist of one small packet of seed which cannot even represent the local variation of the species. This would be equivalent to sending a small packet of side-oats grama seed to Australia to represent that species. Side-oats grama is native from Maine to Southern California and the number of

variant forms is legion. The difference in adaptation between strains of side-oats grama greatly exceeds the difference in adaptation between many species of lesser distribution. Thus a single packet introduction—or even a dozen packets—is a pitifully inadequate sampling of a species. The Eurasian bluestems are native from Hungary to China. The handful of accessions so far grown in this country cannot represent a reasonable sampling of the material.

Other introductions of value have reached us in the same way. Weeping lovegrass (*Eragrostis curvula*) has at least a limited place in some portions of the southern plains. The standard strain now being used is low in palatability and returns low gains per head. This does not mean that other and superior strains might not be found were we to search for them. A number of strains of the species have been tested, most of which are not nearly so resistant to cold as the standard strain and have winterkilled at Woodward, Oklahoma. Two other species of lovegrass have shown much promise in the Southwest. Lehmann's lovegrass (*E. lehmanniana*) and Boer lovegrass (*E. chloromelas*) are both very cold sensitive. Many accessions have winterkilled regularly at Woodward, yet a lot was received in 1948 which overwintered under severe conditions without injury. Of several accessions of *Andropogon intermedius* tested, only the *var. caucasicus* type has proved winterhardy.

Among these occasional and chance introductions we have found, and may find in the future, material of immense value. But such introductions are a poor substitute indeed for a thorough and systematic survey of the world's grass resources. As the writer can testify from personal experience, an adequate sampling of the genetic material of a geo-

graphic region is not easily obtained. A systematic collection program for forage plants over the world would need to be well organized and adequately financed. The results would certainly justify the effort.

SUPERIOR NATIVE STRAINS

Many of our native species offer the same challenge and opportunity. The difference between strains is sometimes extraordinary. This seems particularly true of the warm season grasses. The striking differences in behavior and performance between northern and southern sources of native species have long been recognized by range management specialists. More recent, detailed inquiry into the problem has shown that differences nearly as great may be found between varieties from similar latitudes. One example of special interest here can be cited of the behavior of a complex of blue-grama strains in the Capitan mountains of New Mexico. Here we find types indicating mediocre performance intermingled with types showing excellent vigor and marked superiority. Collections made only one half mile apart show striking differences although the blue grama stand is nearly pure and continuous between the sources. A similar behavior is demonstrable in side-oats grama and further study will no doubt reveal an analogous situation in other native grass species.

It is evident, therefore, that even to obtain an adequate sampling of some of our own native species we must go through some areas with a fine toothed comb. How much more difficult it would be to obtain a good sampling of foreign species about which we know even less!

Another problem of prime importance to the range management specialist is brought out by our study of varietal dif-

ferences. How can we determine which species is the best for our conditions? The comparison of two species by accepted research techniques becomes a virtual impossibility. We can compare one strain of one species with one strain of another species. We may compare the best known strain of one species with the best known strain of another, but we have not the physical resources to compare one species with another. *The difference in*

performance between strains of one species is in many cases a far greater variable than the difference between species.

Grass breeding, although much neglected in our national forage crop picture can play a vital and important role in our range reseeding problems. By the discovery or production of new and superior strains, the grass breeding program is a key to the utilization of a number of species in range reseeding.



DOES THE HORSE HAVE AN I. Q.?

The horse rates near the bottom among animals in intelligence, even lower than a pig, according to scientists of the animal-behavior section of the American Museum of Natural History, who have been giving I. Q. tests to various animals. We would like to hear, at a safe distance, the reaction of some old-time ranch hand to that statement.—*in Country Gentleman*, August, 1949.