out of an aggregate of over 8000 in 4 different varieties that annually head the list as to yield in their variety. Each year, of necessity, decreases the number of strains left in the race and increases the amount of seed produced by the remaining strains. We devote some 350 acres to multiplying plats, on which 80 different strains are being propagated and about 9000 acres to the production of pedigree seed. All of these strains must be kept in such a way that their identification can be readily made.

HISTORY OF POLLED HEREFORDS.

By W. W. GUTHRIE, *Atchison, Kansas.*

In England the original home of the Herefords, their long horns were a source of pride, and in the early days of the breed in this country were considered of great value as a protection against marauding animals. As the country became more settled, and the danger from wild animals became less, Hereford breeders began to consider long horns objectionable and their efforts turned toward decreasing the size. Until about 1889, no one seemed to consider as a possibility the breeding off of their horns altogether.

In the fall of 1889, W. W. Guthrie, Sr., of Atchison, Kansas, now deceased, discovered among the calves that had been weaned at his ranch in Chase County, Kansas, one with Hereford markings which was perfectly polled. In his herd were purebred Shorthorn as well as purebred Hereford cows. Two purebred Hereford bulls were at the head of the herd. This calf was the product of a three-quarter Hereford and one-quarter Shorthorn cow by one of the two purebred Hereford bulls, Grateful 3d, No. 8001 and Treasurer, No. 10585. Discovery, as the calf was subsequently named, was a well formed animal, with a good loin, and well developed hindquarters, and had the Hereford color and markings, with body more on the type of the Shorthorn. At three years of age he weighed, without special feeding, 1986 lbs.

It then occurred to Mr. Guthrie that by using this animal he might in time establish a herd of polled Herefords, and that the experiment was at least worth trying. Shortly afterwards, he happened to meet on the train, Chancellor Snow, of the Kansas State University, on his way to lecture before the Atchison High School on evolution, and during their several hours conversation discussed with him the proposition of animal architecture. The Chancellor agreed that the proposition of establishing a polled Hereford herd was one worth considering, and Mr. Guthrie determined to carry out his ideas along this line.

When Discovery matured it was found that his calves from horned cows were all hornless. In 1893, a two-year-old bull and six heifers were selected and brought to Atchison County, where the experiment was carried on under the personal supervision of Mr. Guthrie and with very encouraging results.

On October 31, 1898, Mr. Guthrie purchased at the Kansas City Scott & Whitmann sale four purebred Hereford heifers. The calves from these horned heifers by a descendent of Discovery were found to be in every instance polled, only two showing scurs, scarcely noticeable, and loose in the skin. A number of purebred Hereford heifers were later obtained from the Funkhouser herd, and still later others from the Armour herd, and equally good results were obtained.

Eight head of polled Herefords were exhibited by Mr. Guthrie at the Omaha Exposition, and, while these animals did not present the finished appearance of modern show cattle, not having been forced from date of birth, they attracted such attention that articles on the herd were published in the newspapers and periodicals throughout this country, and even in such far-away lands as Australia and New Zealand.

The desirability of Herefords without horns, the one objection which Hereford breeders had been willing to admit, becoming apparent, other Hereford breeders began to take notice of an occasional polled calf, freaks of nature as they were considered, appearing in their herds, and soon a brisk demand for polled bulls developed, animals being shipped as far north as South Dakota, and Wisconsin, and as far south as Texas. Breeders in many instances have reported that in their horned herds, after several years breeding, not a single calf had come with horns, and only occasionally would slight scurs, loose in the skin, appear.

During the International Live Stock Show in Chicago, in December, 1902, the National Polled Hereford Breeders' Association was organized, with its President from Kansas, Vice-President from West Virginia, Secretary from Illinois, and Treasurer from Missouri, and a Record Book was started which now contains a large number of animals. Under the rules governing registration in this Record the produce of any bull in the National Polled Hereford Record, from any cow in the American Hereford Record, and the produce of any cow in the National Polled Hereford Record by a bull in the American Hereford Record is eligible to registration in the National Polled Hereford Record, if such produce has not developed horns when it has reached the age of two years.

In December, 1904, 4 head of polled Herefords from West Virginia were exhibited at the International Live Stock Show at Chicago in connection with horned Herefords, and during the past season a larger number from the same State were exhibited throughout the eastern circuit of fairs. At the American Royal Cattle Show at Kansas City, last October, 7 head from the original herd were exhibited. As a result of these exhibits, many horned Hereford breeders are now turning their attention to the subject of breeding Herefords without horns, and so great has become the demand for animals with which to start polled herds that at the last meeting of the National Polled Hereford Breeders' Association it was found that the members were unable to supply enough young bulls to meet the demand.

Quite a number of purebred Hereford calves, termed "freaks" or "sports," have been dropped in this country, and some have been

kept. The President of the National Polled Hereford Breeders' Association has a perfectly polled cow, the produce of one of his purebred horned Hereford cows by a purebred horned Hereford bull, and has lately purchased a purebred polled Hereford bull. The original herd now contains two polled males and a number of polled females, descended direct from purebred Herefords. The above animals are registered in the American Hereford Record.

During a trip through England several years ago, Mr. Guthrie made inquiry among Hereford breeders and found that, while an occasional polled animal had been calved, they were considered as freaks of nature by the owners and butchered.

The breeding of polled Herefords has so far been confined to the United States, but it is confidently expected that in other countries the attention of Hereford breeders will soon be earnestly directed to the breeding of Herefords without horns. Professor Robert Wallace of the University of Edinburgh, Scotland, has recently written for pictures of polled Herefords to illustrate the new edition of his work on "The Farm Livestock of Great Britain;" and very recently a prominent Hereford breeder in Canada has sent in a request for information on the subject of these cattle.

Considering the cruel practice of dehorning, the greater value from a commercial standpoint of a polled animal as compared with a horned animal, and the greater safety in handling, is it not reasonable to believe that in time horned Herefords will be the exceptions and polled Herefords the rule?

BREEDING TIMOTHY.

By A. D. HOPKINS, *U. S. Department of Agriculture, Washington, D. C.*

The writer's early experience as a grazer and breeder of cattle and sheep led to a special interest in the common farm grasses, and, later to a study of varieties of timothy, with a view of making improvement along certain lines.

Some records of progress and results of these studies have been published in the Proceedings of the Society for the Promotion of Agricultural Science for 1895, 1896, 1898, and 1899, and the annual reports of the West Virginia Agricultural Experiment Station for 1897, 1898 and 1899.

OBJECTS.

The principal object of the study was to develop varieties having certain desirable qualities, such as (1) prolific early varieties to mature with common red clover and the other early species of grasses, and produce a second crop; (2) prolific medium varieties to succeed the early ones and mature with other species; (3) prolific late varieties to succeed the medium ones and produce a large yield of hay of uniform quality; (4) prolific deep-rooting varieties for mixture with pasture