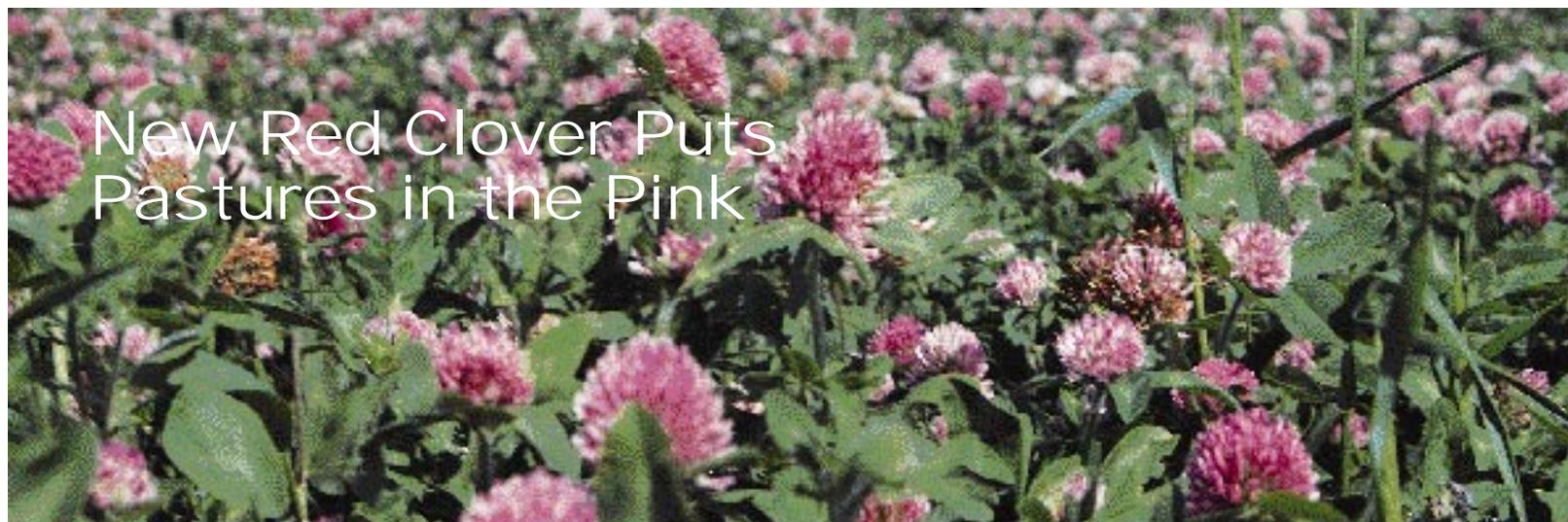


New Red Clover Puts Pastures in the Pink



RICHARD SMITH

A picture is said to be worth a thousand words.

The picture of red clover here is priceless to ARS plant geneticist Richard R. Smith in Madison, Wisconsin, because it represents his 30-year career as a plant breeder.

Thirty years ago, Smith was assigned to work with and breed red clover. His success is evident in the breeding he performed to make red clover plants resistant to root rots such as *Fusarium* and to foliar diseases such as anthracnose.

In 1973, Smith introduced farmers to Arlington, a red clover variety that soon became popular because of its resistance to northern anthracnose—a disease that causes plants to lose their leaves, weaken, and die.

Over the years, in both greenhouse and field work, Smith has developed red clover germplasm with even greater resistance to *Fusarium*. Another bonus is that the

newer generations of red clover live longer than common strains.

In the spring of 1992, Smith planted red clover seeds that were used by farmers in the 1950's, 1960's, 1970's, 1980's, and currently. After 4 years, he took a photo. It shows that, as the years progressed, the clover got greener.

Today, because of Smith's selections and breeding, Midwestern farmers can obtain red clover varieties capable of surviving 3 to 4 years, instead of only 2.

One such red clover variety is Marathon, released in 1987 by ARS and the Wisconsin Agricultural Experiment Station.

"By planting Marathon instead of common strains of red clover, farmers could save over \$140 a year per acre," says Smith. He points out that common strains will grow for about 2 years, while Marathon lasts for 4. Per year, Marathon can yield up to 3.5 tons of dry matter per acre, in contrast to about 2 tons per acre for the common red varieties.

Because it doesn't need to be planted as often as the common reds, Marathon has become so popular that it makes up 50 percent of the red clover seed sales in the Midwest.

"Today we have developed new experimental strains that exceed Marathon in yield and persistence. But it will be another 2 years before these strains are developed into commercial varieties available to farmers," says Smith.

In the future, breeders like Smith may experiment with transferring underground stems, or rhizomes, from wild clover species now found in Eastern Europe. The rhizomes will help the plants spread, as well as resist root diseases. But Smith says that before rhizomes can be transferred, much work has to be done.

For centuries, red clover has been an important forage crop used as silage, hay, and pasture to feed livestock throughout the midwestern United States. Not native to the United States, however, red clover originated in Europe and most likely came to us via the New World settlers in the 1500's.

Compared to other legumes, red clover varieties are easier for farmers to establish in pastures when planted with grass.

Red clover usage as a livestock feed declined when newer alfalfa varieties, such as Vernal, came into existence in the 1950's. But the popularity of red clover picked up in the mid-1980's when farmers again began using it as a legume in pastures. As silage for animals, red clover is equal nutritionally to alfalfa but is less difficult to grow, thanks to Smith's improvements.—By **Linda Cooke**, ARS.

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Compared with common red clover in left test plot, newer varieties show progressively higher forage yields.