

COVER CROPS FOR CONSERVATION TILLAGE



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Donald Surrency
Charles M. Owsley

Introduction

Farmers have used legumes in crop rotations for many decades to improve soil fertility in the southeastern United States. Availability of relatively inexpensive chemical fertilizers contributed to a decline in their use as a nitrogen (N) source.

Legumes can contribute to agricultural sustainability by substituting biologically fixed nitrogen. Hargrove and Frye suggested important roles for legumes in modern systems: soil, water, and energy conservation; soil improvement; and enhanced productivity.

Methodology

In 1983 and 84, an assembly of cool season annual legumes was conducted at the Jimmy Carter Plant Materials Center (GA) for initial cover crop studies for conservation tillage. Approximately 1,000 cool-season annual legume accessions were evaluated for use as cover crops. These legumes have included germplasm from several genera, including *Lathyrus*, *Trifolium*, *Vicia*, and *Medicago*.

Results and Discussion

In 1983 the NRCS Jimmy Carter Plant Materials Center began to develop cool season legume plants for cover crop and conservation tillage use. These plants not only provide excellent winter cover protection they also contribute valuable nitrogen to the soil.

'Americus' Hairy Vetch

In 1993 a late maturing hairy vetch called "Americus" Hairy vetch was released by Jimmy Carter PMC and the University of Georgia. Americus hairy vetch produces an abundance of dry matter for soil enrichment and protection.

'AU Ground Cover' Caley Pea

During the same year the Jimmy Carter PMC and Auburn University released another legume cover crop called "AU Ground Cover" Caley pea. This plant is especially adapted to heavy calcareous clays.

'AU Early Cover' Hairy Vetch

In 1994 an early maturing hairy vetch called 'AU Early Cover' Hairy vetch was released by the PMC and Auburn University. Early developing cover crops such as this add flexibility to conservation cropping systems.

'AU Sunrise' Crimson Clover

An early blooming crimson clover was released by Jimmy Carter PMC and Auburn University in 1997. This latest release is called 'AU Sunrise' Crimson clover. AU Sunrise blooms earlier than any other crimson clover on the market. Results from two years of testing have shown 'AU Sunrise' is a cultivar that flowers 5 to 18 days earlier than 'AU Robin' and 12 to 28 days earlier than "AU Robin" and 12 to 28 days earlier than 'Tibbee' crimson clover. It should fit into several green manure and conservation tillage systems. It should be adapted in suitable sites in the Southeast where 'Tibbee', 'Dixie', and 'AU Robin' crimson clovers are grown.

Seed should be commercially available for Fall plantings in 2000.