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I. Breeding Program

- A. Objectives: To develop productive and persistent strains of birdsfoot trefoil for the Appalachian Highlands and Middle Atlantic regions; to determine optimum management practices and companion species for the regions.
- B. Approaches: Initially the polycross test was used to identify superior clones. At present the phenotypic recurrent selection method is favored with some use of the polycross progeny test especially for elite clones.
- C. Results: Ten synthetics have been constituted to date. Five groups of clones numbering about 400 are being tested from the phenotypic recurrent selection program and regular selection program. Certain aspects of plot technique and management have also been studied with publications prepared.

II. Genetics Program

- A. Objectives: To study inheritance of various characters especially by use of quantitative genetic techniques.
- B. Approaches: Mainly statistical.
- C. Results: Two diallel crosses have been grown with results of one published. An eight-clone diallel is being prepared for possible publication. This study was concerned with inheritance

of vigor and disease score, survival, forage yield and in vitro digestibility and some of the interrelation of these characters. In general significant differences were found among crosses and for general combining ability. Specific combining ability was noted at times. Earlier studies have been on cross-compatibility and use of bees for pollination of trefoil in the greenhouse.

### III. Other Species

- A. Narrowleaf trefoil (L. tenuis) was studied earlier but did not appear productive and was dropped. It is found wild in some parts of the state.
- B. Big trefoil (L. pedunculatus) was studied earlier in eastern Virginia. Disease susceptibility (especially Rhizoclonia solani) and poor mid-season production lead to dropping most work on the species. A fairly large area of species grows wild in the Hampton Roads area (especially at Fort Eustis, Virginia). The origin has eluded us.