

to gain advantage on the perennials in competition for light and soil resources. For Aster pilosus Keever indicated that annual shade and competition (for water) retarded its growth on first year fields, although she did not prove this. Furthermore, she found no evidence "to indicate that products of living dominants influence the general trend of succession in old fields of the Piedmont."

This study tends strongly to confirm these findings. Somewhat conclusive proof of shade and competition as inhibitory agents has been given, while at the same time no allelopathic influences were uncovered. Limitations of the treatment applications, as noted, undoubtedly significantly reduced the extent of the demonstrated effects. Although the shade was not shown to be annual-plant shade, these findings strongly implicate this shade as an inhibitory candidate.

Summary

1. Annual plants in dense stands on first year fields inhibit the growth and numbers of some perennials growing among them.
2. Artificial shade resembling that under an annual cover and competition inhibit the growth and number of some perennials.
3. Annual litter contains no stable, non-volatile inhibitory compound.

4. Limitations of the treatment applications seriously reduced the effectiveness of the experimental design. These limitations included high variability among sampling units, the induction of unnatural micro-climatic conditions, erosion of the center of the shaded treatment sections, the unrealistic simulation of the presence of living annual-plant tissues, the death of clipped annuals under the shade, ignorance of the light climate of artificial shade, and lateness in sampling the perennials.