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Breeding Tobacco Varieties

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Legg, Paul D., "Breeding Tobacco Varieties" (1967). *Agronomy Notes*. 221.
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AGRONOMY NOTES

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Prepared by Department of Agronomy, College of Agriculture, University of Kentucky

No. 61

December 1967

RECEIVED
DEC 20 1967

BREEDING TOBACCO VARIETIES

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The principal objectives in breeding tobacco are yield, field and handling characteristics, disease resistance, and quality. Of these objectives, major emphasis has been placed on breeding disease-resistant varieties. Resistant varieties have provided one of the most effective means of combating many of the pathogens that attack the tobacco plant. However, the transfer of genes for disease resistance into susceptible varieties has been accompanied in many cases by other characteristics which are undesirable. It is often a difficult task to combine acceptable type, yield, and quality with desired factors for disease resistance into a single variety.

In general, the objectives of the breeders in regard to field and handling characteristics and quality have been to retain the features that are found in commercially acceptable varieties throughout the development of disease-resistant lines. One important handling trait that breeders have been able to incorporate into new varieties is the stand-up feature. Some selection for improved yield has been practiced in segregating generations where the main objective was the incorporation of disease resistance. However, the restriction that all varieties possess similar quality characteristics has limited the progress of breeding for increased yield.

Disease resistance, yield, and handling characteristics will continue to receive attention, but in the future major emphasis in tobacco breeding programs will be given to chemical properties. Recent reports that link the use of tobacco with human health problems have placed added responsibilities upon tobacco breeders. The development of varieties which produce none, or at least reduced amounts, of the compounds that are suspected to be hazardous to health will be an important factor in safeguarding the future of the tobacco industry.

Much of the present research in the University of Kentucky tobacco breeding program involves the evaluation of existing varieties and sources of germ plasm for chemical composition. The information and lines developed will serve as the basis for breeding new varieties once medical and physiological research identifies more fully the hazardous compounds in tobacco and their role in the metabolism of the plant.

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1M-12-67

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