

**ATKINSON**

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**A NEW ROOTKNOT  
AND  
WILT RESISTANT**

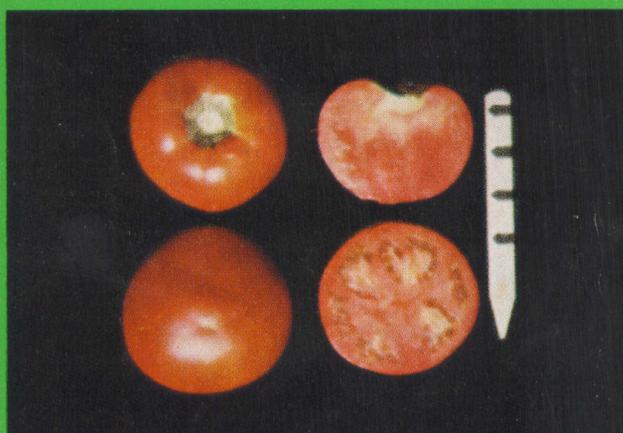
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**TOMATO VARIETY**



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Agricultural Experiment Station  
**AUBURN UNIVERSITY**

E. V. Smith  
*Director*

Auburn  
Alabama

# ATKINSON A New Rootknot and Wilt Resistant Tomato Variety

W. H. GREENLEAF, *Department of Horticulture*

## INTRODUCTION

Atkinson, a new rootknot nematode and Fusarium wilt resistant tomato, probably the first of the Rutgers class to be released to the public, has been developed in the Department of Horticulture of Auburn University. The new variety is named in honor of George F. Atkinson who first described the life cycle of the rootknot nematode at Alabama Agricultural and Mechanical College in 1889.

## BREEDING METHOD

The basic concept in the breeding of Atkinson was that a high quality tomato of the Rutgers type, resistant to rootknot, Fusarium wilt and certain leaf diseases was needed for the fresh market, for the green wrap trade, and for home gardeners.

Both old established varieties and breeders' lines of the Rutgers type were selected from the Southern Tomato Exchange Program trials at Auburn for

crossing to develop Atkinson. The STEP program is a cooperative tomato testing and exchange program among the agricultural experiment stations of the Southeast, Hawaii, and Puerto Rico, coordinated by the United State Department of Agriculture Vegetable Breeding Laboratory, Charleston, South Carolina.

## DESCRIPTION

The Atkinson variety, formerly AU22, has a vigorous indeterminate vine with heavy stems and foliage of average density.

The fruit is larger than that of most varieties, weighing up to 1.1 pounds, averaging three-tenths to five-tenths pound. The shape is deep oblate, the flesh firm and meaty and the core small. The immature color is green with a yellow cast, the shoulder is a darker green but colors evenly on ripening. The internal color is better than that of Homestead 24 with little or no light colored

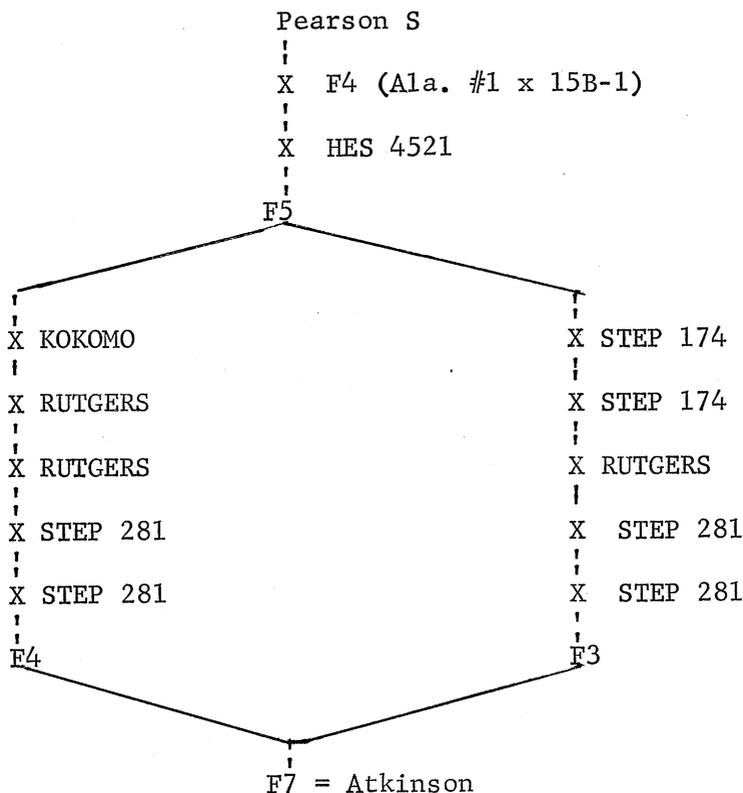
COMPARISON OF SEVEN FRUIT QUALITY FACTORS OF ATKINSON AND OF HOMESTEAD 24<sup>1</sup>

Variety	Total solids	Soluble solids	Total acidity (citric)	Ascorbic acid (mg/100g)	Flavor	Color	
	%	%	pH	%			
Homestead 24 .....	6.8	5.9	4.3	.56	22.5	7.2	7.6
Atkinson .....	7.4	6.2	4.6	.51	21.0	8.0	8.3

<sup>1</sup> Flavor and color were rated on 1 (poorest) to 10 (best) scale. Each figure is an average of four ratings.

Data were furnished by Hubert Harris, Kenneth S. Rymal, and J. G. Kaffezakis, Department of Horticulture, Auburn University.

## PEDIGREE OF ATKINSON



fibers around the seeds. The eating quality of Atkinson is very good. It tastes less acid than Homestead 24.

Atkinson is several days earlier than Rutgers and almost as early as Homestead 24. The yield is usually better than that of Rutgers, approaching that of Homestead 24 when unstaked, but probably superior when staked. Atkinson is especially superior in heavily nematode infested soil.

### RESISTANCE

Atkinson is resistant to the southern rootknot nematode *Meloidogyne incognita* and to the cotton rootknot nematode *M. incognita* race *acrita*. It is also resistant to race 1 of *Fusarium oxysporum* f. *ly-*

*copersici*. The foliage of Atkinson is moderately resistant to early blight caused by *Alternaria solani*. It is probably also resistant to gray leaf spot caused by *Stemphylium solani* and to Septoria leaf spot caused by *Septoria lycopersici* on the basis of field observations. Foliage retention of Atkinson in the field is better than on either Homestead 24 or Rutgers.

### WEAKNESSES

Atkinson is moderately susceptible to fruit cracking and catfacing.

### SUMMARY

Atkinson resembles the variety Marion. It was reported among the best tomatoes in the 1966 STEP observational trial at Charleston (STEP 500). It also rated

high when grown for the fresh market and for green wraps in the Dothan area of Alabama in both the spring of 1965 and 1966.

#### AVAILABILITY OF SEED

Seed of Atkinson tomato is available from the Corneli Seed Company, 101 Chouteau Avenue, St. Louis, Missouri 63102.

#### ACKNOWLEDGMENTS

The author wishes to acknowledge participants in the STEP testing program for their assistance in the breeding of Atkinson. STEP 174 was developed by C. F. Andrus, Horticulturist, U.S. Vegetable Breeding Laboratory, Charleston, and STEP 281, by Dr. W. M. Epps, formerly Plant Pathologist at the South Carolina Experiment Station, Charleston, now Department of Botany and Bacteriology, Clemson University. HES 4521, a Hawaii Experiment Station line, true breeding resistant to rootknot nematodes,

was contributed by Dr. W. A. Frazier, now Department of Horticulture, Oregon State University, Corvallis. This line was the product of successive cooperative efforts to transfer the rootknot resistance of the wild Peruvian tomato, *Lycopersicon peruvianum* P.I. 128657, to the cultivated tomato, *L. esculentum*, by Dr. P. G. Smith, Department of Vegetable Crops, University of California, Davis, by Dr. V. M. Watts, Department of Horticulture, University of Arkansas, Fayetteville, and by Dr. W. A. Frazier in what is now known as the famous Smith-Watts-Frazier triangle.

Alabama No. 1 and No. 15B-1 were breeding lines of Dr. F. E. Johnstone, formerly Department of Horticulture, Auburn University, now Department of Horticulture, University of Georgia, Athens, and of C. F. Andrus, respectively.

The valuable assistance of C. C. Carlton, Superintendent, Chilton Area Substation, Clanton, Alabama, in conducting tomato yield trials is also acknowledged.