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Sierra, a New Pinto Bean for Michigan
Michigan State University Extension Service
J.D.Kelly, L.O. Copeland, Crop and Soil Sciences
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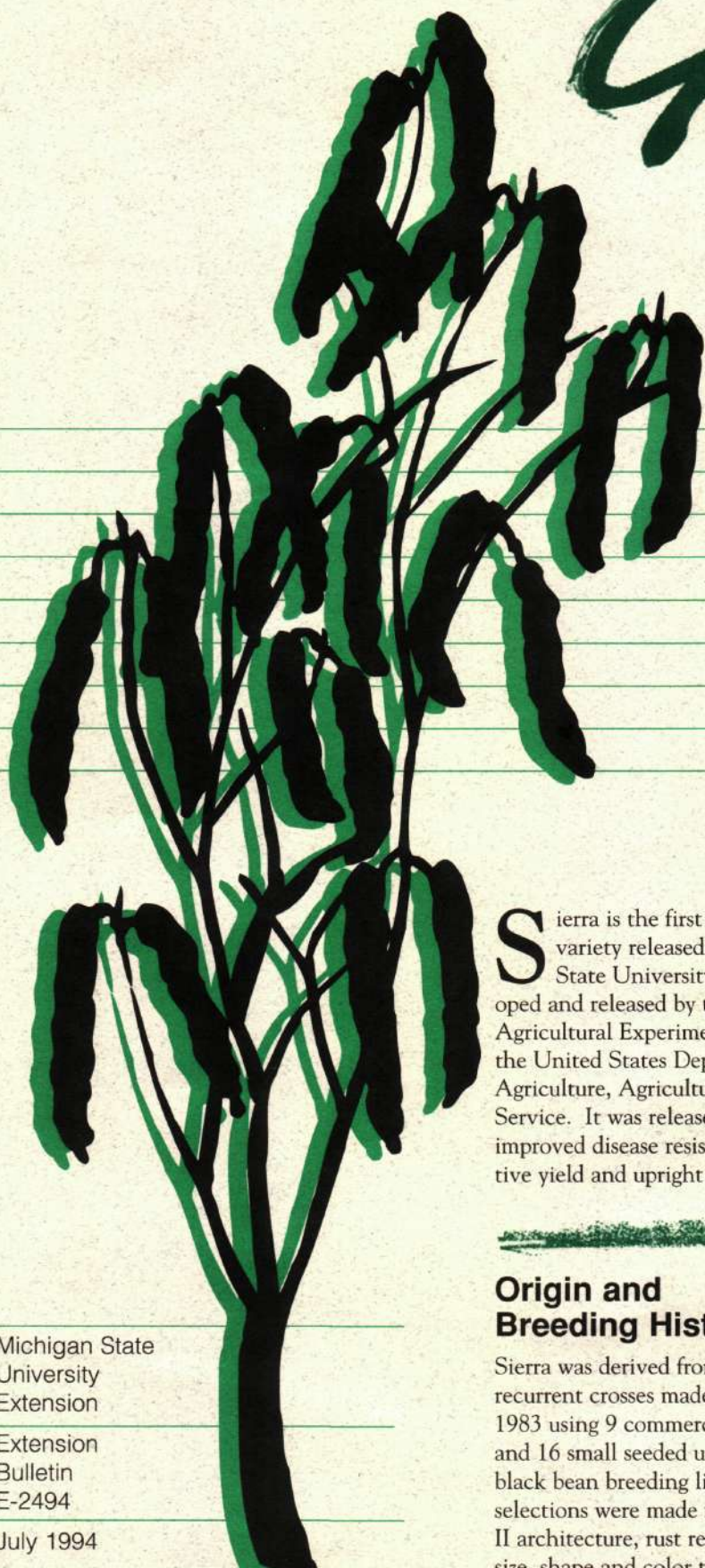
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**NEW from
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Sierra

A NEW PINTO BEAN

for Michigan



- Outyields standard varieties
- Upright, type II growth habit
- Improved lodging resistance
- Higher pod placement
- Resistant to rust
- Shows tolerance to white mold
- Matures in 99 days

Sierra is the first pinto bean variety released from Michigan State University. It was developed and released by the Michigan Agricultural Experiment Station and the United States Department of Agriculture, Agricultural Research Service. It was released because of its improved disease resistance, competitive yield and upright growth habit.

Origin and Breeding History

Sierra was derived from a series of recurrent crosses made in 1980 through 1983 using 9 commercial pinto varieties and 16 small seeded upright navy and black bean breeding lines. Progeny selections were made for upright, type-II architecture, rust resistance and seed size, shape and color traits of the com-

mercial pinto class. Additional single plant selections were made in the winter nursery program in Puerto Rico and were advanced to yield trials in Michigan with the code number P86299.

Yield Performance

Sierra has been tested for eight seasons (1986-93) over 49 locations and has yielded an average of 27 cwt/acre (Table 1). Its performance has been significantly better than the standard commercial pinto varieties. Sierra has out-yielded the commercial variety Othello by 5 percent over 34 locations and has outperformed Aztec by 10 percent. Sierra is the highest yielding dry bean variety developed by Michigan State University.

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Agronomic Features

Sierra is the first pinto variety with the upright, type II growth habit. It is 7 to 8 inches taller than commercial vine varieties and has improved lodging resistance. The upright growth, increased height and pod placement combined with improved lodging resistance make Sierra well suited for production in Michigan. Under certain growing conditions of higher plant populations, it tends to have a single-stem growth habit. This, in addition to the higher pod location gives an overall tunnel appearance as plants lean on adjacent rows. Sierra matures 99 days after planting and is approximately 10 days later maturing than other commercial varieties.

Disease Resistance

Sierra is resistant to all races of rust present in Michigan and many of the races present in other production areas. It has field tolerance to white mold which attacks other commercial varieties. Sierra shows resistance to soil borne Fusarium wilt. However, like Aztec, it is susceptible to bean common mosaic virus.

Quality Characteristics

Sierra has a seed size of 39 g per 100 seeds and is smaller in size than Aztec and Othello. The seed is rounder in shape and not as flat as the other commercial varieties, and the background color and mottle is slightly darker than Aztec and Othello. Sierra produces a satisfactory canned product, with hydration, drained weight ratios and canning texture equivalent to other commercial varieties. Sierra has been rated as acceptable by the canning industry and scored 2.4 or equivalent to other commercial pinto bean varieties on a 5-point scale where 3 is average.

Table 1. Sierra Pinto Bean — Comparison of Agronomic, Disease, Yield Performance and Canning Characteristics.

Traits	Sierra	Aztec	Othello
Characteristics			
Growth habit	upright	upright	vine
Flower color	white	white	white
Days to flower	50	44	42
Days to maturity	99	90	86
Height (inches)	20	18	14
Lodging score (1-5)	2.0	1.5	3.5
Selection index (1-9)	5.0	5.5	3.5
100 seed weight (g)	38	41	40
Yield percent	100	90	95
Disease Resistance			
Bean common mosaic virus	S	S	R
Michigan rust races	R	S	S
Alpha anthracnose	I	R	S
Common blight	S	S	S
Canning Quality			
Taste panel rating (1-5)	2.4	2.8	3.3

Lodging: 1=erect, 5=prostrate

Selection: 1=worst, 9=best, based on adaptation

Anthracnose: R=resistant, I=intermediate, S=susceptible

Blight: T=tolerance

Taste panel rating: 1=worst, 3=satisfactory, 5=excellent

Release and Research Assessment

Sierra is jointly released by Michigan Agricultural Experiment Station and the Agricultural Research Service as a public, nonexclusive variety. Sierra has been granted U.S. Plant Variety Protection Certificate No. 9000108. A research fee is assessed on each unit (hundredweight) of certified seed sold.

By J.D. Kelly and L.O. Copeland,

Department of Crop and Soil Sciences.



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