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Isles a New Dark Red Kidney Bean for Michigan
Michigan State University Extension Service
J.D. Kelly, L.O. Copeland, Crop and Soil Sciences
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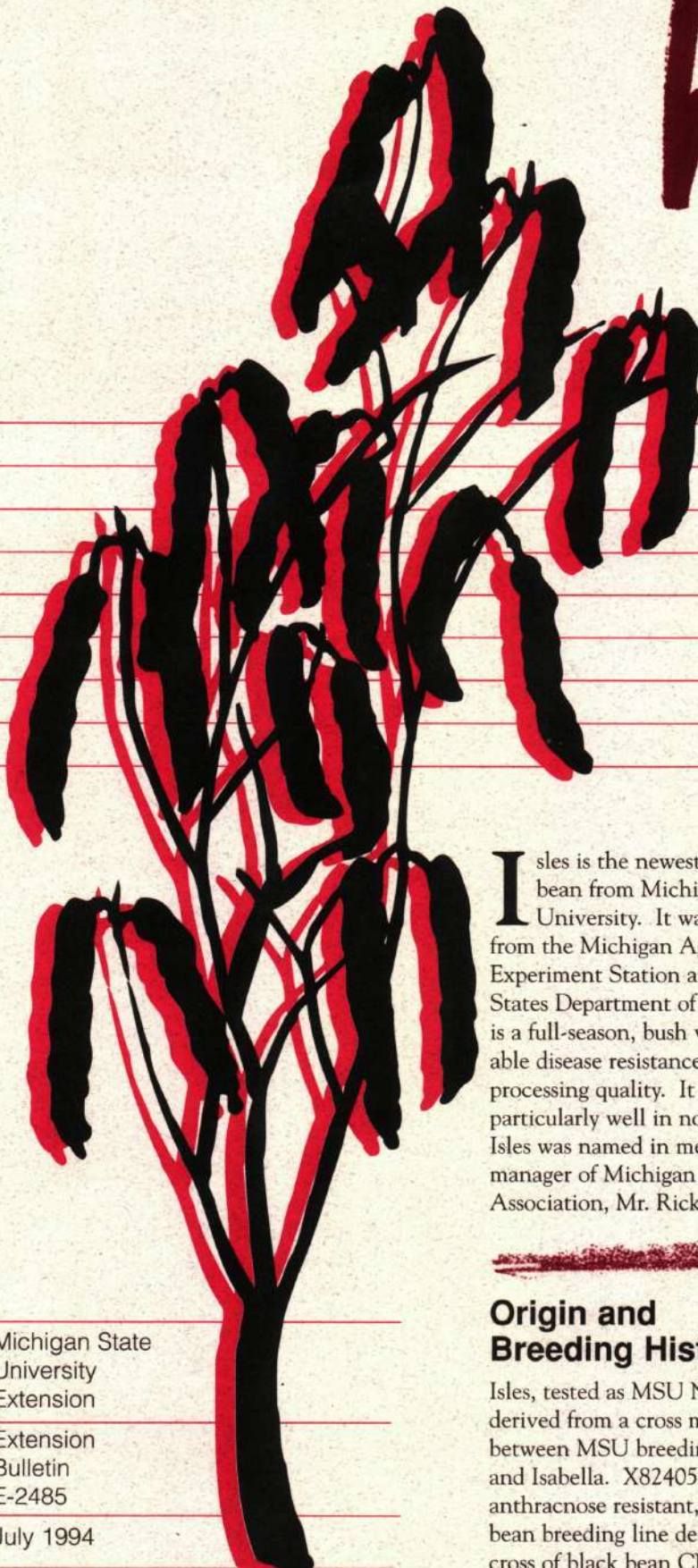
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**NEW from
MSU**

Isles

A NEW DARK RED
KIDNEY BEAN

for Michigan



- Mid- to full-season bush variety
- Favorable disease resistance
- Averages 18 inches tall
- Good uniform maturity
- Pink flower
- Performs well in northern Michigan
- Excellent processing quality

Isles is the newest dark red kidney bean from Michigan State University. It was released jointly from the Michigan Agricultural Experiment Station and the United States Department of Agriculture. Isles is a full-season, bush variety with favorable disease resistance and excellent processing quality. It has performed particularly well in northern Michigan. Isles was named in memory of the late manager of Michigan Foundation Seed Association, Mr. Rick Isles.

Origin and Breeding History

Isles, tested as MSU No. K86012, was derived from a cross made in 1981 between MSU breeding line X82405 and Isabella. X82405 is a full-season, anthracnose resistant, dark red kidney bean breeding line derived from the cross of black bean CN49242 with two

dark red kidney bean varieties, Montcalm and Charlevoix. Isabella is an early season light red kidney variety with desirable agronomic traits and high yield. The cross was designed to incorporate earliness and anthracnose resistance into the dark red kidney type. The cross was advanced over five years in Michigan, and an F6 generation disease resistant breeding line was identified and entered into yield trials in 1986 with the code number K86012.

Yield Performance

Isles was extensively tested for yield and agronomic traits for seven seasons (1987-93) over 37 locations (Table 1). It averaged 22 cwt/acre and was equal (+2 percent) in yield to the standard dark red kidney variety, Montcalm, across all locations but outyielded Montcalm by 14 percent in the northern Michigan trials (Presque Isle County) over six years of testing.

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Agronomic Features

Isles exhibits the type I determinate bush growth habit with plants averaging 18 inches tall and is equivalent to Montcalm in growth habit, height, rooting system and lodging resistance. Isles is a mid- to full-season variety maturing 95-99 days after planting and is 2 to 3 days earlier than Montcalm. It exhibits more uniform maturity and better dry-down than Montcalm, dropping its leaves more quickly and exhibiting less tendency of a

green stem at maturity which was a major agronomic fault of the Montcalm variety. Isles differs from Montcalm with a pink flower.

Disease Resistance

Isles carries the single dominant hypersensitive I gene resistance to bean common mosaic virus (BCMV) and is sensitive to the temperature-insensitive necrosis-inducing strains of BCMV which induce the black root reaction. Isles possesses the A and Are genes which provide resistance to

all known North American races of anthracnose and is the first dark red kidney variety with this complete resistance pattern. Isles is immune to the indigenous rust races prevalent in Michigan and is equivalent to Montcalm in tolerance to Michigan isolates of halo blight, but is susceptible to Michigan isolates of root rot (primarily Fusarium). Isles is equivalent to Montcalm in its tolerance to common blight.

Quality Characteristics

Isles has a large dark red kidney seed averaging 64 g per 100 seeds, compared with Montcalm at 58 g per 100 seeds. Isles had a lower percent pick (fewer culls) after milling, compared to Montcalm. The dry seed color is slightly darker than Montcalm, while the cooked color retains a more desirable vivid red color. In canning trials, Isles has been subjectively rated by a team of panelists as equivalent to Montcalm in cooking quality. It scored 3.5 vs. 3.6 for Montcalm on a 5-point scale where 3 is average. Data on cooked color, texture, hydration and drained weight ratios exhibited no differences between Isles and Montcalm. Canning tests conducted independently by two commercial companies for three years on both hand and machine harvested seed rated Isles as highly acceptable, comparable to Montcalm.

Release and Research Assessment

Isles dark red kidney bean was released as a public, nonexclusive variety by the Michigan Agricultural Experiment Station and the Agricultural Research Service. A research fee will be assessed on each unit (hundredweight) of certified seed sold.

By J.D. Kelly and L.O. Copeland,
Department of Crop and Soil Sciences,
and R.A. Long,
MSUE, Presque Isle County.

Table 1. Isles Dark Red Kidney Bean — Comparison of Agronomic, Disease, Yield Performance and Canning Characteristics

Traits	Isles	Montcalm
Agronomic Traits		
Growth habit	Bush	Bush
Flower color	Pink	White
Days to flower	42	42
Days to maturity	96	98
Lodging (1-5)	2.0	2.0
Height (cm)	45	45
Selection index (1-9)	5.0	4.0
Seed size (g/100 seeds)	64	58
Disease Resistance		
Bean common mosaic virus*	I gene	I gene
Anthracnose**	A and Are genes	A gene
Common blight	Tolerant	Tolerant
Halo blight	Tolerant	Tolerant
Michigan rust races	Resistant	Resistant
Yield (cwt/a)		
1988-1993 (Presque Isle Co.)	18.5	16.2
1987-1993 (37 trials)	22.4	22.0
Canning Quality		
Processed color L-scale	15.9	15.9
Hydration ratio	1.8	1.8
Washed drained ratio	1.4	1.4
Texture (kg/100g)	41	39
Organoleptic rating (1-5)	3.5	3.6

*I gene conditions hypersensitive resistance to all BCMV strains.

**A gene offers resistance to alpha race of anthracnose and the Are gene offers resistance to alpha, beta, gamma and delta races of anthracnose.

Lodging: 1=erect, 5=prostrate

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

Organoleptic rating: 1=worst, 5=best on general cooked appearance



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