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Chinook 2000, a New Light Red Kidney Bean for Michigan  
Michigan State University Extension Service  
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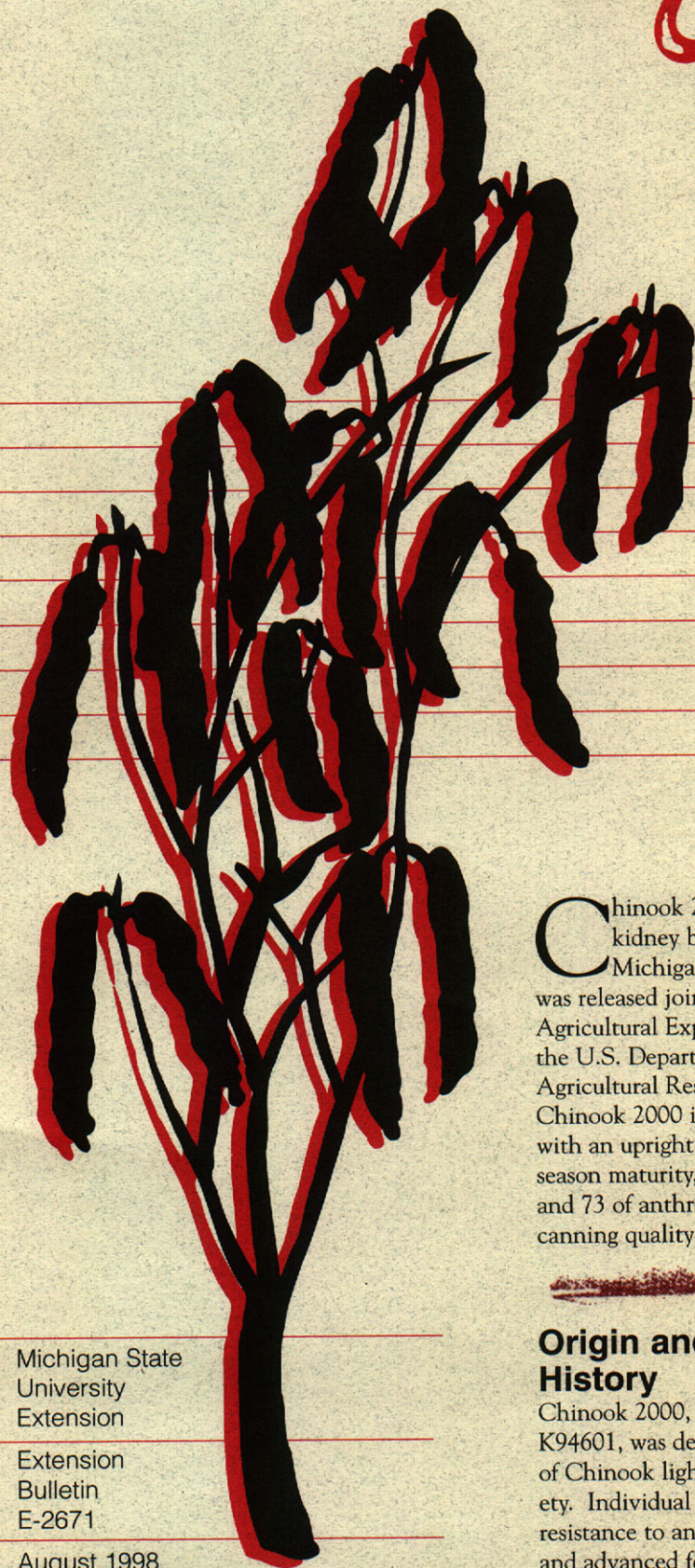
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**NEW from  
MSU**

# Chinook 2000

A NEW LIGHT RED  
KIDNEY BEAN

for Michigan



- Erect bush habit similar to Chinook light red kidney bean.
- Similar in height, maturity and flower color to Chinook.
- Three days earlier in maturity than Chinook.
- Outyielded Chinook by 5% over 16 locations in four years.
- Resistant to mosaic virus, rust, and races 7 and 73 of anthracnose.
- Excellent canning quality similar to that of Chinook.

**C**hinook 2000 is a new light red kidney bean variety from Michigan State University. It was released jointly by the Michigan Agricultural Experiment Station and the U.S. Department of Agriculture Agricultural Research Service. Chinook 2000 is a high-yielding variety with an upright bush growth habit, full-season maturity, resistance to races 7 and 73 of anthracnose, and excellent canning quality

ease and canning evaluation. The new resistance gene responsible for the additional anthracnose resistance is the Co-2 gene, which conditions resistance to race 7 prevalent in Montcalm County and to which all current commercial light red kidney bean varieties are susceptible. A single plant selection, K94601, fixed for resistance to anthracnose, entered yield trials in Montcalm County in 1994.

## Origin and Breeding History

Chinook 2000, tested as MSU No. K94601, was developed from a selection of Chinook light red kidney bean variety. Individual plants of Chinook with resistance to anthracnose were selected and advanced for agronomic, yield, dis-

## Yield Performance

Chinook 2000 was tested extensively for yield and agronomic traits for four seasons (1994-97) over 18 locations (Table 1). It averaged 23 cwt/acre and outyielded the Chinook parent by 5 percent over 16 locations. In the absence of disease such as blight and white mold, Chinook 2000 has produced yields in excess of 30 cwt/acre

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and has been competitive with other commercial light red kidney varieties.

## Agronomic Features

Chinook 2000 exhibits an erect bush growth habit, averaging 22 inches in height, with improved resistance to lodging compared with Chinook, with a score of 1.5 vs. 2.5 for Chinook on a 1 to 5 scale where 1 is the most erect. It has a white flower similar to that of Chinook with a faint pink blush on the wings of the blossom; other commercial light red kidney varieties such as Sacramento and CELRK have pink flowers.

Chinook 2000 is a full-season variety, maturing 99 days after planting with a range in maturity from 95 to 102 days, depending on season and location. It matures three days earlier than Chinook, seven days later than CELRK and nine days later than Sacramento. Chinook 2000 has demonstrated uniform maturity and excellent dry-down across a broad range of environments and fits a niche for an erect, high-quality, full-season light red kidney bean variety in Michigan.

## Disease Resistance

Chinook 2000 carries the single dominant hypersensitive I gene resistance to bean

common mosaic virus (BCMV) but is sensitive to the temperature-insensitive necrosis-inducing strains of BCMV that cause the black root reaction. Chinook 2000 carries the combination of the Co-1 and Co-2 genes for resistance to all known races of anthracnose in North America, including races 7, 65 and 73, which are present in Michigan. Red Hawk and Isles dark red kidneys possess similar levels of resistance to anthracnose, whereas the original Chinook parent was susceptible to race 7. Chinook 2000 is immune to the rust races prevalent in Michigan. Chinook 2000 is susceptible to Michigan isolates of halo blight, common blight and Fusarium root rot. All light red kidney varieties show similar intermediate levels of tolerance to white mold.

Table 1. Chinook 2000 light red kidney bean — comparison of agronomic, disease, yield performance and canning characteristics.

Traits	Chinook 2000	Chinook	CELRK	Sacramento
<b>Agronomic traits</b>				
Days to flower	40	41	39	38
Days to mature	99	102	92	90
Height (cm)	54	51	47	49
Lodging score (1-5)	1.5	2.5	2.0	1.5
Selection index (1-9)	5.5	5.0	5.0	5.0
Seed size (g/100 seeds)	58	58	65	65
Yield (percent)	100	95	104	106
<b>Disease resistance</b>				
BCMV	R	R	R	S
Anthracnose race 7	R	S	S	S
Anthracnose race 73	R	R	R	R
Race rust 53	R	R	R	R
Common blight	S	S	S	S
Halo blight	S	S	S	S
White mold	T	T	T	T
<b>Canning quality</b>				
Color L-scale	25	23	24	23
Texture (kg/100 g)	80	76	71	75
Washed drained ratio	1.6	1.4	1.7	1.7
Hydration ratio	1.5	1.6	1.6	1.5
Organoleptic rating (1-5)	3.4	3.5	3.2	2.0

Lodging: 1 = erect, 5 = prostrate

Selection index: 1 = worst, 5 = average, 9 = best, based on adaptation

Diseases: R = resistant, T = tolerant S = susceptible

White mold: 1 = resistant, 5 = susceptible

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

## Quality Characteristics

Chinook 2000 has a typical light red kidney bean seed, averaging 58 g per 100 seeds, and is equivalent in size, shape and color to Chinook. In canning trials, Chinook 2000 has been rated by a team of panelists as excellent with a score of 3.4; Chinook scored 3.5, CELRK scored 3.2 and Sacramento had a score of 2.0 on a 5-point scale where 3 is average. Data on cooked color, texture hydration and drained weight ratios showed no differences between Chinook 2000 and other commercial light red kidney bean varieties.

## Release and Research Assessment

Chinook 2000 is released as a public, non-exclusive variety by the Michigan Agricultural Experiment Station and the Agricultural Research Service. A research fee will be assessed on each unit (hundred-weight) of either foundation or certified seed sold.

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