

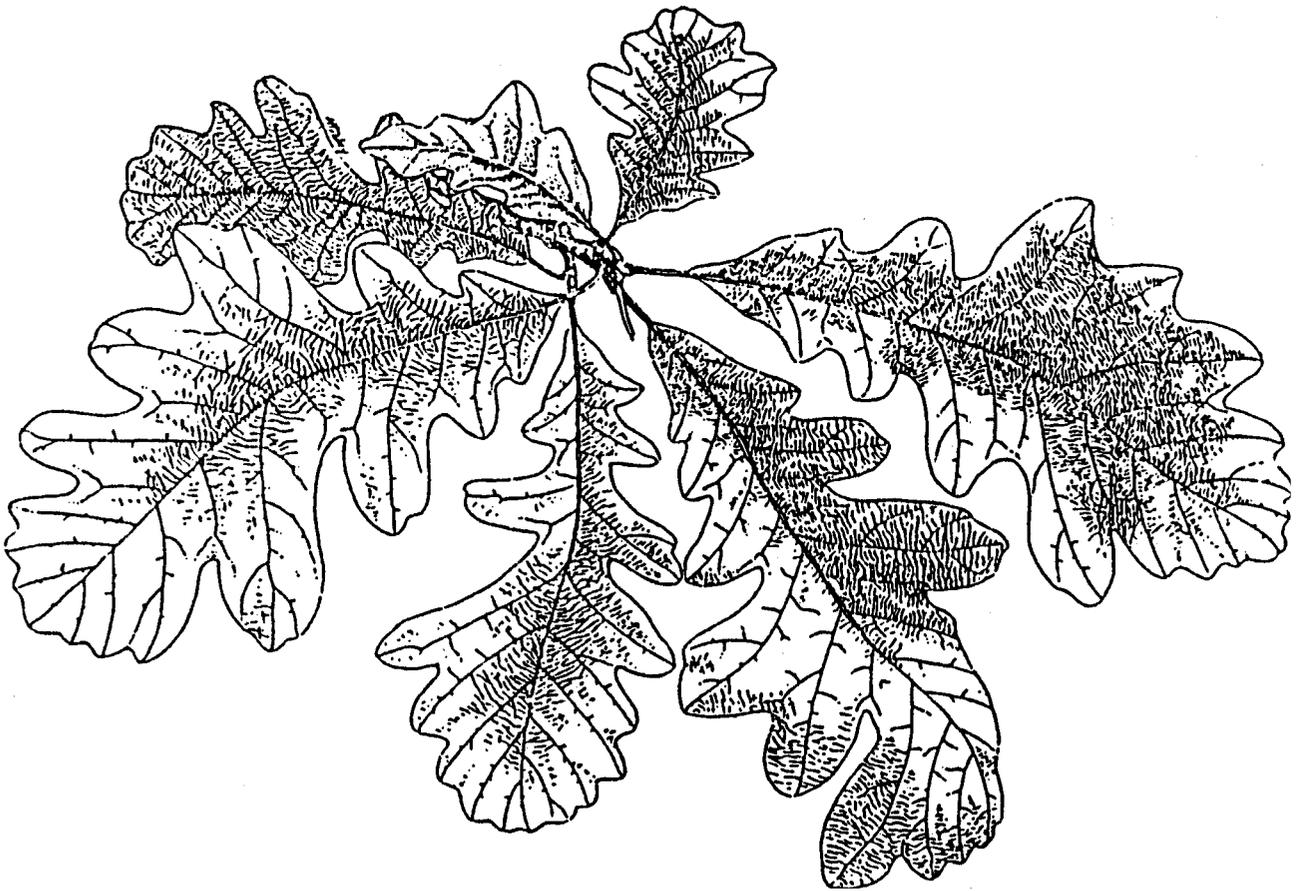


Public Release Documentation

United States
Department of
Agriculture

Natural Resources
Conservation
Service

'Lippert' bur oak



Manhattan
Plant Materials
Center

Manhattan,
Kansas

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ECOLOGICAL SCIENCE
WASHINGTON, D.C.

and

KANSAS STATE AND EXTENSION FORESTRY
KANSAS STATE UNIVERSITY
MANHATTAN, KANSAS

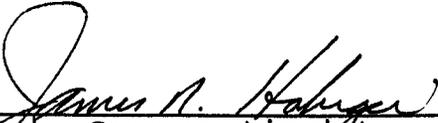
NOTICE OF THE RELEASE OF 'LIPPERT' BUR OAK

The United States Department of Agriculture, Soil Conservation Service, and Kansas State and Extension Forestry announce the naming and release of 'Lippert' bur oak [*Quercus macrocarpa* (Michx.)]. It was selected by the USDA-Soil conservation Service and released in cooperation with Kansas State and Extension Forestry, Kansas State University, Manhattan, Kansas.

Acorns were collected by Robert D. Lippert, Plant Materials Specialist, in the Stillwater City Park, Payne County, Oklahoma. It was assigned the accession number 9004392 and established in a bur oak assembly on the Manhattan Plant Materials Center in 1972.

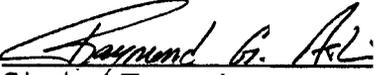
'Lippert' has been compared with three other accessions of bur oak in a non replicated planting at Manhattan for the past 21 years. 'Lippert' has also been compared with six additional accessions of bur oak in three conservation field trials in northwest Texas for the past 11 years. There are no known cultivars of bur oak available for conservation use in the market place. Advantages of 'Lippert' over currently available common stock are (1) superior growth rate, (2) plant vigor, (3) excellent form, (4) seedling vigor, and (5) known seed source. The full range of adaptability of 'Lippert' is currently under investigation. Survival and adaptation range from the Panhandle of Texas, to central Oklahoma, and north to Manhattan, Kansas.

Foundation and certified class seed of 'Lippert' bur oak will be recognized. Foundation seed will be produced and maintained by the Soil Conservation Service, Manhattan Plant Materials Center, Manhattan, Kansas, under the supervision of the Kansas Crop Improvement Association.



State Conservationist
Soil Conservation Service, Kansas

12/3/93
Date



State Forester
Kansas State and Extension Forestry

12/23/93
Date

Draft National Brochure

'Lippert' bur oak

Lippert bur oak, *Quercus macrocarpa* (Michx.), is a seed propagated cultivar recommended for conservation use in multi-row-windbreaks, reforestation for watershed protection, and wildlife habitat plantings. Lippert's deeply furrowed bark and bright green foliage make it an attractive tree for farmsteads. Its acorns provide valuable food for deer, wood ducks, squirrels, and other animal species.

Lippert was released in 1994 by the USDA Soil Conservation Service (SCS) in cooperation with Kansas State and Extension Forestry.

Description

Bur oak is a broad leaf, deciduous, medium-to-tall tree reaching a mature height of 100 feet. It is characterized by a broad, round, open crown, corky twigs; and thick, ridged, deeply furrowed bark. Leaves are bright green above, pale beneath with a close, fine, stellate pubescence, five to nine rounded lobes, deeply incised in the middle, almost in two; oblong, the terminal half broader than the basal portion. The staminate flowers are small, in clustered, pendant catkins, while pistillate flowers are solitary to few in leaf axils. The fruit is an acorn up to 2 inches long, 1/2 to entirely enclosed in a distinctive fringed cup.

Accession 9004392, was collected by Robert D. Lippert, Soil Conservation Service, Manhattan, Kansas, in the Stillwater City Park, Payne Co., Oklahoma in 1970 and 1972.

Adaptation

While the full area of adaptation of Lippert is unknown, survival and adaptation range from the Panhandle of Texas, to central Oklahoma, and north to Manhattan, Kansas. The potential area of adaptation includes most of Oklahoma, eastern Kansas and eastern Nebraska.

Establishment

Fallow the site for at least 1 year before planting seedlings of Lippert bur oak. Plant dormant stock in spring after the ground thaws and while soil moisture is high. Space trees 20 feet apart for maximum acorn production. Control weeds until the trees are well established. Watering and mulching at planting time are essential for good seedling survival. Cultural practices vary according to factors such as site, soil type, and precipitation zone. Contact your local district conservationist, state forester, or county extension agent for site specific information. Your local conservation district office maintains a

current Field Office Technical Guide with site specific information on planting and establishment.

Propagation

Seedlings of Lippert bur oak are easy to propagate from seed collected from certified stock. The average germination rate exceeds 90 percent. Plant the seed by conventional nursery procedures at a depth of 3/4 to 1 inch in the fall to ensure excellent germination. One-year-old seedlings average 12 to 20 inches tall.

Availability

Seedlings of Lippert bur oak are available from commercial and state nurseries. Foundation stock for establishing seed orchards is available from the USDA-SCS Plant Materials Center, 3800 South 20th Street, Manhattan, KS 66502.

For more information on availability and use of Lippert bur oak, contact your local SCS office or district forester.

Draft Registration Article for American Nurseryman

'Lippert' bur oak
by John M. Row

'Lippert' bur oak, *Quercus macrocarpa*, has been released for conservation use by the US Department of Agriculture's Plant Materials Center at Manhattan, Kansas, following 22 years of evaluation. The cultivar was selected on the basis of plant vigor, rate of growth, form, and seedling vigor.

This tall tree reaches a mature height of 100 feet and has a broad, round, open crown. The bark is thick, ridged, and deeply furrowed.

'Lippert' has leaves bright green above, pale beneath with a close, fine, stellate pubescence, five to nine rounded lobes, deeply incised in the middle, almost in two; oblong-obovate to obovate, cuneate at the base.

Flowering occurs in the spring shortly after the leaves appear. The fruit is an acorn up to 2 inches long, 1/2 to entirely enclosed in a distinctive fringed cup.

'Lippert' is a multiple use species, including, multi-row-windbreaks, watershed protection, plantings for farmsteads and parks. 'Lippert' bur oak is also a valuable wildlife species. Its acorns are consumed by white-tail deer, squirrels, wood ducks, and other animals.

The species is tolerant of a broad spectrum of physical and chemical soil properties. The species prefers moist, deep bottomland soils, but occurs on shallow uplands in coarse soils derived of limestone and sedimentaries to bluffs and at the edge of dry prairies.

While the full area of adaptation of 'Lippert' is unknown, survival and adaptation range from the Panhandle of Texas, to central Oklahoma, and north to Manhattan, Kansas. The potential area of adaptation includes most of Oklahoma, eastern Kansas and eastern Nebraska.

'Lippert' seedlings are easy to start from acorns planted in the fall or cold-moist stratified for several months before starting in the greenhouse.

Seedlings of 'Lippert' bur oak are available from commercial and state nurseries. Foundation stock for establishing seed orchards is available in limited quantities from the USDA-SCS Plant Materials Center, 3800 South 20th Street, Manhattan, KS 66502.

John M. Row is assistant manager of Manhattan Plant Materials Center, US Department of Agriculture, Soil Conservation Service, Manhattan, KS

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
MANHATTAN PLANT MATERIALS CENTER
MANHATTAN, KANSAS

Documentation of a Plant Accession Selected For Advanced Testing

Species: *Quercus macrocarpa* Michx.,

Common Name: bur oak

Plant Symbol: QUMA2

Accession Number: 9004392, (PM-K-1407, PMT-3060)

Origin: Collected by Robert D. Lippert and W. C. Young in Payne County, Oklahoma (MLRA 80A).

Method of Selection: Selected from a collection of 4 bur oak accessions assembled and evaluated at the Manhattan Plant Materials Center from 1972-1989, 9004392 was selected as a superior strain on the basis of plant vigor, rate of growth, form, and seedling vigor.

Description: *Quercus macrocarpa* is a medium-to-tall tree to 31 m; broad, round, open crown, corky twigs; and thick, ridged, deeply furrowed bark. Leaves bright green above, five to nine rounded lobes, deeply incised in the middle, almost in two; oblong-obovate to obovate, cuneate at the base, pale beneath with a close, fine, stellate pubescence; staminate flowers small, in clustered, pendant catkins; pistillate solitary to few in leaf axils. Fruit an acorn up to 5 cm long, 1/2 to entirely enclosed in a distinctive fringed cup.

Anticipated Conservation Use: The anticipated use of 9004392 is in reforestation for watershed protection, multi-row windbreaks, and landscape plantings for farmsteads and parks.

Provides valuable food and cover for wildlife. Acorns are consumed by deer, wood ducks, squirrels, and other rodents.

Potential Area of Adaptation: Southeastern Nebraska, eastern Kansas, central and eastern Oklahoma.

Potential Soil Adaptation: The species is tolerant of a broad spectrum of physical and chemical soil properties. The species prefers moist, deep bottomland soils, but occurs on shallow uplands in coarse soils derived of limestone and sedimentaries to bluffs and at the edge of dry prairies.

Where Seed Will Be Maintained: Manhattan Plant Materials Center
Manhattan, Kansas

Prepared By: John M. Row, Manhattan, Kansas
Plant Materials Center

Table 1. Evaluation of *Quercus macrocarpa* Under Project 20I010K at the Manhattan Plant Materials Center, Manhattan, Kansas.

Accession : Number	Location : Fld Row Plot	YR : PLT	:NUM:PCT: :PLT: SUR:	HT : cm	WD : cm	DBH : cm	:NUM:UNF: :FRT:	VIG: :	EVAL: :YEAR:
9004392	F-3 22 6-10	72	5	:100:	125 :	82 :	: 0 :	: 3 :	73 :
				:100:	184 :	76 :	: 0 :	: 3 :	74 :
				:100:	300 :	160 :	: 0 : 5 :	: 3 :	75 :
				:100:	365 :	246 :	: 0 : 5 :	: 3 :	76 :
				:100:	512 :	330 :	:	: 3 :	78 :
				:100:	600 :	425 :	: 4 :	: 1 :	79 :
				:100:	670 :	550 :	:	: 1 :	80 :
				:100:	670 :	:	18 : 2 :	: 1 :	81 :
				:100:	850 :	680 :	25 : 2 :	: 1 :	82 :
				:100:	840 :	800 :	25 : 2 :	: 1 :	83 :
				:100:	980 :	:	29 :	: 1 :	89 :
:100:	1021 :	:	32 :	: 1 :	93 :				
9004392	G-3 18 1-8	76	8	:100:	80 :	15 :	: 5 :	: 3 :	76 :
				:100:	140 :	80 :	: 5 :	: 3 :	77 :
				:100:	180 :	100 :	:	: 3 :	78 :
				:100:	300 :	260 :	:	: 3 :	79 :
				:100:	380 :	225 :	:	: 3 :	80 :
				:100:	425 :	:	9 : 3 :	: 3 :	81 :
				:100:	540 :	470 :	11 :	: 2 :	82 :
				:100:	575 :	560 :	13 : 4 :	: 3 :	83 :
				:100:	600 :	549 :	:	:	86 :
				:100:	:	:	22 :	:	89 :
				:100:	853 :	:	27 :	: 2 :	93 :
9004393	F-3 22 1-5	72	5	:100:	44 :	32 :	:	: 5 :	73 :
				:100:	79 :	59 :	:	: 3 :	74 :
				:100:	150 :	75 :	: 0 : 5 :	: 5 :	75 :
				:100:	210 :	120 :	: 5 :	: 5 :	76 :
				:100:	350 :	180 :	:	: 5 :	78 :
				:100:	400 :	200 :	:	: 5 :	79 :
				:100:	450 :	290 :	:	: 5 :	80 :
				:100:	530 :	:	10 :	: 5 :	81 :
				:100:	575 :	400 :	12 : 4 :	: 5 :	82 :
				:100:	630 :	420 :	12 : 4 :	: 4 :	83 :
				:100:	739 :	:	14 :	: 9 :	89 :
:100:	763 :	:	16 :	: 9 :	93 :				
9004394	F-2 9 1-2	75	2	:100:	12 :	3 :	: 3 :	: 5 :	75 :
				:100:	10 :	2 :	: 5 :	: 5 :	76 :
				:100:	15 :	3 :	:	: 5 :	77 :
				:100:	25 :	6 :	:	: 5 :	78 :
				:100:	95 :	55 :	:	: 5 :	79 :
				:100:	130 :	75 :	:	: 3 :	80 :
				:100:	240 :	:	:	: 5 :	81 :
				:100:	290 :	170 :	2 :	: 5 :	82 :
				:100:	649 :	:	9 :	: 7 :	89 :
				:100:	748 :	:	16 :	: 7 :	93 :

Accession : Number	Location : Fld Row Plot	YR : PLT	NUM : PLT	PCT : SUR	HT : cm	WD : cm	DBH : cm	NUM : FRT	UNF :	VIG :	EVAL : DATE
9004395	F-2 9 3-4	76	2	100	140	30			5	5	76
				50	45	45				5	78
				50	130	90				3	79
				50	200	140				3	80
				50	320					3	81
				50	340	220		1		5	82
				50	600	400				4	87
				50	660		18			3	89
				50	810		28			3	93

Legend for evaluation of *Quercus macrocarpa*.

Location: The field number (Fld), Row number, and Plot (numbered spaces in the row).

YR PLT: Year planted.

NUM PLT: Number of trees planted.

PCT SUR: Percent survival, number of trees surviving.

HT: Total plant height as measured in centimeters.

WD: Crown width or ground cover as measured in centimeters.

DBH: Diameter at breast height in centimeters measured at 137 cm above the ground.

NUM FRT: Number of trees bearing fruit.

UNF: Degree to which plants exhibit similar characteristics, 1-excellent, 3-good, 5-medium, 7-poor, 9-very poor.

VIG: Plant Vigor, 1-excellent, 3-good, 5-medium, 7-poor, 9-very poor.

EVAL YEAR: Year that evaluations were taken.

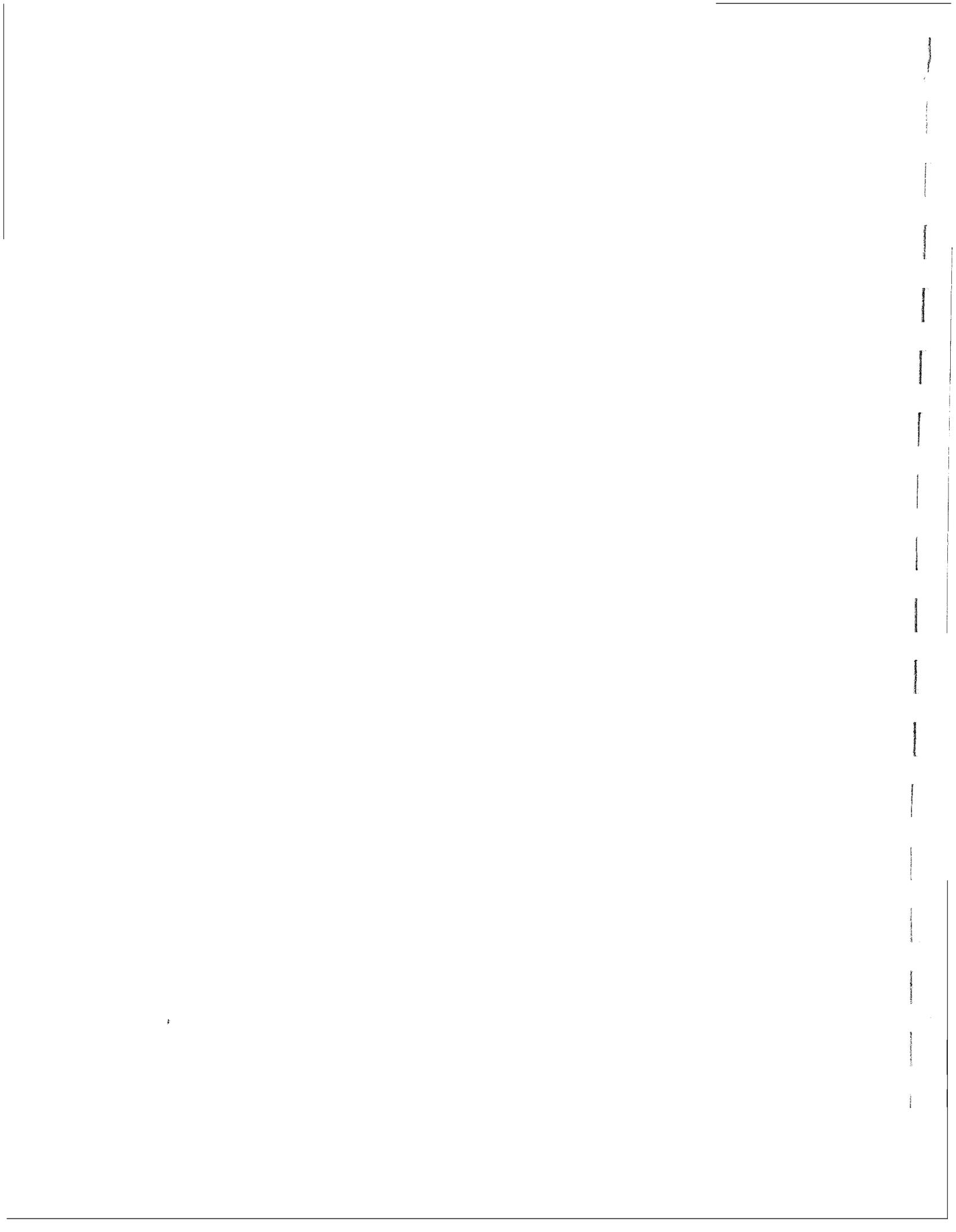


Table 2. Evaluation of Accession 9004392, *Quercus macrocarpa*, in Field Plantings in Kansas and Nebraska.

Field Planting Number	Field Office	MLRA	soil Series	Tex	HT cm	ADAPT	PCT SUR	EVAL YEAR
KS90001	Hays	73	Roxbury	Sil	33	7	70	90
KS92011	Minneapolis	74	Geary	SiCl	76	3	95	92
KS92011	Minneapolis	74	Geary	SiCl	76	1	95	93
KS92012A	Marysville	75	Pawnee	Cl	72	3	100	92
KS92012A	Marysville	75	Pawnee	Cl	110	5	100	93
KS92012B	Marysville	75	Pawnee/Tully	Cl	91		100	92
KS92013	Westmoreland	76	Kennebec-Chase	Sil	33	7	80	92
KS92013	Westmoreland	76	Kennebec-Chase	Sil	107	5	80	93
KS92014	Holton	106	Pawnee	Cl	43	5	80	92
KS92020	Dodge City	73	Dale-humbarger	Cl	113	3	100	92
KS92020	Dodge City	73	Dale-humbarger	Cl	125	5	80	93
NE90001	Scottsbluff	72	Alliance	Sl	46	3	75	91
NE90001	Scottsbluff	72	Alliance	Sl	64	3	70	92
NE90001	Scottsbluff	72	Alliance	Sl	79	3	70	93
NE90002	Pierce	102			30	9	30	92
NE90006	Lincoln	106	Sharpsburg	Sil		3	80	90
NE90006	Lincoln	106	Sharpsburg	Sil	30	1	50	91

Legend: Field Planting No.=State/Year planted/Planting number
 Example: KS90001 = KS 90 001

MLRA - Major Land Resource Area

Tex - Soil Texture Modifier

HT - Plant height in centimeters

ADAPT - Site and climatic adaptation (numerical rating: 1=excellant, 5=fair, 9=very poor)

PCT SUR - Percent Survival

EVAL YEAR - Evaluation Year

Table 3. Evaluation of Accession 9004392, *Quercus macrocarpa*, in the Panhandle area of Texas.

Plot Location	MLRA	Soil Type	Basal Area*	* Height	Percent Survival	Evaluation Date			
Levelland <u>2/</u>	77C	fsl	10	32	100	12/83			
			16	46	100	12/84			
			29	102	100	12/85			
			45	156	100	12/86			
			53	235	100	12/87			
			72	267	100	12/88			
				311	100	10/89			
				314	100	12/90			
				359	100	12/91			
				411	100	12/92			
				442	100	10/93			
			Pampa <u>2/</u>	78C	cl	7	23	100	12/83
						8	38	100	12/84
11	61	100				12/85			
12	72	100				12/86			
--	--	100				12/87			
29	133	100				12/88			
	138	100				10/89			
	148	100				12/90			
	164	100				12/91			
	175	100				12/92			
	192	100	10/93						

* (cm)

Plantings at all three locations were made 3/83.

1/ 5 trees per plot

2/ 3 trees per plot

Table 4. Field Evaluations of Accession 9004392, *Quercus macrocarpa*, in North Dakota, South Dakota, and Minnesota.

Location	: YR	: NUM	: PCT	: HT	: WD	: DBH	: NUM	: UNF	: VIG	: EVAL
	: PLT	: PLT	: SUR	: cm	: cm	: cm	: FRT	:	: YEAR	:
McKenzie, ND	: 90	: 5	: 20	: 15	: 10	:	:	:	: 91	:
			: 20	: 40	: 10	:	:	: 5	: 92	:
Lake Andes, SD	: 90	: 10	: 70	: 60	: 39	:	:	: 3	: 91	:
			: 80	: 74	: 51	:	:	: 3	: 92	:
Highmore, SD	: 90	: 5	: 60	: 73	: 57	:	:	: 3	: 91	:
			: 60	: 98	: 107	:	:	: 3	: 92	:
Rochester, MN	: 90	: 10	: 30	: 38	: 17	:	:	: 4	: 91	:
			: 10	: 60	: 65	:	:	: 5	: 92	:

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Prepared by: The data to support the release of 'Lippert' bur oak was assembled by John M. Row, Assistant Manager, Manhattan Plant Materials Center, USDA-Natural Resources Conservation Service, Manhattan, Kansas.