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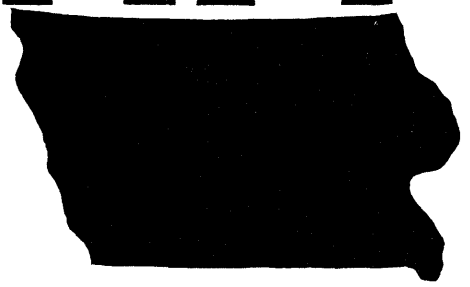
FOREST STATISTICS FOR IOWA 1974



THE SECOND FOREST INVENTORY OF IOWA SHOWS THAT 1.5 MILLION ACRES OF COMMERCIAL FOREST LAND SUPPORTED MORE THAN 1 BILLION CUBIC FEET OF GROWING STOCK IN 1974

1976

ARNOLD J. OSTROM

NORTH CENTRAL FOREST EXPERIMENT STATION
FOREST SERVICE
U.S. DEPARTMENT OF AGRICULTURE

North Central Forest Experiment Station
John H. Ohman, Director
Forest Service - U.S. Department of Agriculture
Folwell Avenue
St. Paul, Minnesota 55108

FOREWORD

Forest Resource Evaluation is a continuing endeavor as mandated by the McSweeney-McNary Forest Research Act of 1928. Its objective is to inventory periodically the Nation's forest land to determine its extent, condition, and volumes of timber, growth, and depletions. This kind of up-to-date information is essential to frame intelligent forest policies and programs. USDA Forest Service regional experiment stations are charged with the responsibility for conducting these inventories and publishing summary reports for individual States.

Fieldwork for the 1974 Iowa Forest Inventory was begun in May 1973 and completed in June 1974. This report presents some of the statistical highlights of that inventory.

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FOREST STATISTICS FOR IOWA, 1974

Arnold J. Ostrom

HIGHLIGHTS

Area

Four percent of the land area in Iowa is forested.

Commercial forest land totaled 1,458,700 acres in 1974.

Most of the commercial forest land is in the eastern part of the State along the Mississippi River, and in a band along the eastern half of the Iowa-Missouri border.

Farmers own two-thirds of the commercial forest land.

The oak forest types account for 56 percent of the commercial area and are broken down into the white oak-red oak-hickory type (515,000 acres), white oak type (150,000 acres), and bur oak type (149,000 acres).

Sawtimber stands account for more than half the commercial forest area.

Volume

The State's commercial forest land supports 1,055 million cubic feet of growing stock. Included in the total volume of growing stock are 3,486 million board feet of sawtimber.

Hardwoods make up 99 percent of the growing-stock inventory.

Oaks, soft maple, elm, and cottonwood are the leading species and make up two-thirds of the hardwood growing-stock volume.

Volume in rough and rotten trees (non-growing-stock trees) is 308 million cubic feet.

Volume of growing-stock timber averages 723 cubic feet per acre of commercial forest land.

Growth and Mortality

Net annual growth of growing-stock trees totaled 48 million cubic feet. The growth rate was 4.6 percent of inventory volume.

Mortality of growing-stock trees in 1973 amounted to 6.9 million cubic feet. Elm, hit hard by Dutch elm disease, accounted for almost two-thirds of this total.

Timber Products

Iowa loggers harvested 53.5 million board feet of saw logs in 1972 of which 80 percent was red oak, cottonwood, elm, white oak, and soft maple.

Iowa's 60 sawmills received 59.6 million board feet of saw logs in 1972; 15 percent came from other States.

Fifty-five thousand cords of pulpwood were produced in 1972, about twice the volume as in the early 1960's.

HOW THE FOREST INVENTORY IS MADE

The method of survey is essentially a sampling procedure designed to provide reliable statistics primarily for States and Survey Units. A total of 398,046, 1-acre points distributed systematically across aerial photos of the entire State were observed. A photo interpreter classified these points as either forest land (19,111), questionable (1,662), or nonforest land (377,273) in order to make a preliminary estimate of forest area. Next, 9,541 of the forest points and 831 of the questionable points were stereoclassifed as to

forest type, stand-size class, and density. Then, 636 points classed as forest, 55 points classed as questionable, and 11,940 points classed as nonforest were examined on the ground. This procedure provides a means for adjusting the initial estimates of area for change in land use since date of photography and for photo misclassifications.

Estimates of timber volume, growth, mortality, and forest classifications were based on tree measurements recorded at 531 ground sample locations distributed within the commercial forest land base. A 10-point cluster of plots (37.5 basal area factor) were systematically spaced on an acre at each of these sample locations.

Ownership information was collected by contacting local landowners and from public records.

All field data were sent to St. Paul where they were edited, punched on cards, and stored on magnetic tape for later electronic computer sorting, computing, and tabulating.

Industrial roundwood data for 1972 came from a complete canvass of primary wood-using firms using Iowa logs and bolts. All canvassing in Iowa (except pulpmills) was done by the Iowa Conservation Commission through personal contacts with the firms. The North Central Forest Experiment Station sent questionnaires to Iowa pulpmills and out-of-State mills using Iowa roundwood.

The Station also obtained by mail questionnaire the 1972 timber product output data for public forest land and forest land owned by primary wood-using firms. The portion of timber products output unaccounted for by public and private industrial owners was grouped under "farm and other owners."

Fuelwood, post, and farm timber production in 1972 from private land (other than industrial) was determined by a canvass of a sample of Iowa households. Households in the sample were contacted by Iowa Conservation Commission personnel.

RELIABILITY OF THE DATA

Statistical analysis of these data indicates the following sampling errors in terms of one standard error (two times out of three):

Item	*State totals*	*Sampling error* (Percent)
Commercial forest land	1,458.7 M acres	2.25
Growing-stock volume	1,055 MM cu. ft.	3.96
Sawtimber volume	3,486 MM bd. ft.	4.67
Per million acres of commercial forest land		2.72
Per billion cubic feet of growing stock		4.07
Per billion board feet of sawtimber		8.63

As survey data are broken down into units smaller than State totals, the sampling error increases. The percent error figure doubles as the area or volume is divided by four.

DEFINITION OF TERMS

Land-Use Classes

Gross area.--The entire area of land and water as determined by the Bureau of Census, 1970.

Land area.--The area of dry land and land temporarily or partially covered by water such as marshes, swamps, flood plains, streams, sloughs, and estuaries. Canals less than 1/8-mile wide and lakes, reservoirs, and ponds smaller than 40 acres are included as land area. These figures are from the Bureau of Census, 1970.

Forest land.--Land at least 16.7 percent stocked by forest trees of any size, or formerly having such tree cover, and not currently developed for nonforest use. Includes afforested areas. The minimum forest area classified was 1 acre. Roadside, streamside, and shelterbelt strips of timber must have a crown width of at least 120 feet to qualify as forest land. Unimproved roads and trails, streams, and clearings in forest areas were classed as forest if less than 120 feet wide.

Commercial forest land.--Forest land that is producing or is capable of producing crops of industrial wood and that is not withdrawn from timber utilization

by statute or administrative regulation. This includes areas suitable for management to grow crops of industrial wood generally of a site quality capable of producing in excess of 20 cubic feet per acre of annual growth. This includes both inaccessible and inoperable areas.

Noncommercial forest land.--(a) Unproductive--forest land incapable of yielding crops of industrial wood because of adverse site conditions. (b) Productive-reserved--forest land withdrawn from commercial timber use through statute or administrative regulation, or exclusively used for Christmas tree production.

Nonforest land.--Land that has never supported forests, and land formerly forested where forest use is precluded by development for nonforest uses, such as cropland, improved pasture, residential areas, and city parks. Also includes improved roads and adjoining rights-of-way, powerline clearings, and certain areas of water classified by the Bureau of Census as land. Unimproved roads, streams, canals, and nonforest strips in forest areas must be more than 120 feet wide, and clearings in forest areas must be more than 1 acre in size, to qualify as nonforest land.

Ownership Classes

Miscellaneous Federal.--Federal land other than national forest.

State, county, and municipal.--Land owned by States, counties, or local public agencies, or land leased by them for more than 50 years.

Forest industry.--Land owned by companies or individuals operating primary wood-using plants.

Farmer-owned.--Land owned by operators of farms. A farm must include 10 or more acres from which the sale of agricultural products totals $50 or more annually, or if less than 10 acres, the yield must be at least $250 annually.

Miscellaneous private.--Privately owned land other than forest industry or farmer-owned.

Tree Classes

All live trees.--Growing-stock, rough, and rotten trees 1 inch d.b.h. and larger.

Growing-stock trees.--All live trees of commercial species qualifying as desirable or acceptable trees. Excludes rough, rotten, and dead trees.

Desirable trees.--Growing-stock trees having no serious defects in quality limiting present or prospective use, and of relatively high vigor and containing no pathogens that may result in death or serious deterioration before rotation age. These trees would be favored by forest managers in silvicultural operations.

Acceptable trees.--Trees meeting the standards for growing stock but not qualifying as desirable trees.

Sawtimber trees.--Growing-stock trees of commercial species containing at least a 12-foot saw log or two noncontiguous saw logs, each 8 feet or longer. At least 33 percent of the gross volume of the tree must be sound wood. Softwoods must be at least 9.0 inches d.b.h. and hardwoods at least 11.0 inches.

Poletimber trees.--Growing-stock trees of commercial species at least 5.0 inches d.b.h. but smaller than sawtimber size, and of good form and vigor.

Saplings.--Live trees of commercial species 1.0 to 5.0 inches d.b.h. and of good form and vigor.

Seedlings.--Live trees of commercial species less than 1.0 inch d.b.h. that are expected to survive according to regional standards. (Examples of seedlings not expected to survive are those that are diseased or heavily damaged by logging, browsing, or fire.) Only softwood seedlings more than 6 inches tall and hardwood seedlings more than 1 foot tall are counted.

Rotten trees.--Live trees (any size) of commercial species that do not contain a merchantable 12-foot saw log or two noncontiguous 8-foot or longer saw logs, now or prospectively, because of rot (that is, when more than 50 percent of the cull volume of the tree is rotten).

Rough trees.--Live trees that do not contain at least one merchantable 12-foot saw log or two noncontiguous 8-foot or longer saw logs, now or prospectively, because of roughness and poor form, as well as all live noncommercial species.

Short-log (rough trees).--Sawtimber-sized trees of commercial species that contain at least one merchantable 8- to 11-foot saw log but not a 12-foot saw log.

Stand-Size Classes

Stand.--A minimum of 1 acre of forest land that is stocked by forest trees of any size.

Sawtimber stands.--Stands at least 16.7 percent stocked with growing-stock trees, with half or more of this stocking in sawtimber or poletimber trees and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.--Stands at least 16.7 percent stocked with growing-stock trees, and with half or more of this stocking in sawtimber and/or poletimber trees and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.--Stands at least 16.7 percent stocked with growing-stock trees and with saplings and/or seedlings comprising more than half of this stocking.

Nonstocked areas.--Commercial forest land on which stocking of growing-stock trees is less than 16.7 percent.

Stocking

The degree trees utilize land as measured in terms of basal area and/or the number of trees in a stand compared to the basal area and/or number of trees required to utilize fully the growth potential of the land.

A stocking percent of 100 indicates full utilization of the site and is equivalent to 80 square feet of basal area per acre in trees 5 inches d.b.h. and larger. In a stand of trees less than 5 inches d.b.h., a stocking percent of 100 would indicate that the present number of trees is sufficient to produce 80 square feet of basal area per acre when the trees do reach 5 inches d.b.h.

Forest Types

A classification of forest land based upon the species forming a plurality of live-tree stocking. Major forest types in Iowa are:

Eastern redcedar-hardwood.--Forests in which hardwoods (usually upland oaks) comprise a plurality of the stocking but in which eastern redcedar comprises 25 to 50 percent of the stocking.

White oak-red oak-hickory.--Forests in which white oak, northern red oak, black oak, northern pin oak, bur oak, shagbark or bitternut hickory, singly or in combination, comprises a plurality of the stocking. Common associates include white or green ash, sugar maple, and occasionally black cherry, butternut, bigtooth aspen, and black walnut. The type is often referred to by the generic term "oak-hickory."

White oak.--Forests in which white oak singly comprises more than 50 percent of the stocking of the primary typing species for the oak-hickory type. Associated species are black oak, northern red oak, bur oak, shagbark and bitternut hickories, white ash, and bigtooth aspen.

Bur oak.--Forests in which bur oak singly comprises more than 50 percent of the stocking of the primary typing species for the oak-hickory type. Associated species include northern pin oak, northern red oak, white oak, black oak, basswood, American elm, green ash, boxelder, hackberry, cottonwood, and hophornbeam.

Elm-ash-cottonwood.--Forests in which elm, ash, or cottonwood, singly or in combination, comprises a plurality of the stocking. Associates include black willow, sycamore, boxelder, silver maple, river birch, and other moist site hardwood species.

Cottonwood.--Forests in which cottonwood singly comprises a plurality of the stocking of the major typing species of the elm-ash-cottonwood type.

Hard maple-basswood.--Forests in which sugar maple or basswood, singly or in combination, comprises a plurality of the stocking. Associated species include American elm, green ash, yellow birch, white pine, and northern red oak.

Aspen.--Forests in which quaking aspen or bigtooth aspen, singly or in combination, comprises a plurality of the stocking. Associates include bur oak, green ash, American elm, paper birch, and boxelder.

Timber Volume

Volume of growing stock.--The volume of sound wood in the bole of growing-stock trees 5.0 inches d.b.h. and over, from a 1-foot stump to a minimum of 4.0-inch top diameter outside bark, or to the point where the central stem breaks into limbs. Growing-stock volumes are shown in cubic feet.

Volume of sawtimber.--Net volume of the saw log portion of live sawtimber trees in board feet, International 1/4-inch rule, from stump to a minimum 7 inches top diameter outside bark for softwoods and 9 inches for hardwoods.

Upper stem portion.--That part of the bole of sawtimber trees above the merchantable sawtimber top to a minimum top diameter of 4.0 inches outside bark or to the point where the central stem breaks into limbs.

Growth and Mortality

Net annual growth of growing stock.--The annual change in volume of sound wood in live growing-stock and sawtimber trees and the total volume of trees entering these classes through ingrowth, less volume losses resulting from natural causes.

Net annual growth of sawtimber.--The annual change in volume of live sawtimber trees and the total volume of trees reaching sawtimber size, less volume losses resulting from natural causes.

Mortality of growing stock.--The volume of sound wood in growing-stock trees dying annually from natural causes. Natural causes include fire, insects, disease, animal damage, weather, and suppression.

Mortality of sawtimber.--The net board-foot volume of sawtimber trees dying annually from natural causes.

Timber Products

Timber products output.--All timber products cut from roundwood, and byproducts of wood manufacturing plants. Roundwood products include logs, bolts, or other round sections cut from growing-stock trees, cull trees, salvable dead trees, trees on nonforest land, noncommercial species, sapling-size trees, and limbwood. Byproducts from primary manufacturing plants include slabs, edgings, trimmings, miscuts, sawdust, shavings, veneer cores and clippings, and screenings of pulpmills that are used as pulp chips or other products.

Primary wood-using plant residue.--Wood materials (coarse and fine) and bark not utilized for principal products at manufacturing plants using roundwood. These residues include wood products (byproducts) obtained incidental to production of principal products, and wood materials not utilized for some product.

Coarse plant residue.--Wood residue suitable for chipping such as slabs, edgings, and veneer cores.

Fine plant residue.--Wood residue not suitable for chipping, such as sawdust and veneer clippings.

PRINCIPAL TREE SPECIES IN IOWA

SOFTWOOD SPECIES

Balsam fir . . . . . *Abies balsamea*
Eastern redcedar . . . *Juniperus virginiana*
Eastern white pine . . . . . *Pinus strobus*

HARDWOOD SPECIES

Select white oaks:
- White oak. . . . . *Quercus alba*
- Swamp white oak. . . . . *Quercus bicolor*
- Bur oak. . . . . *Quercus macrocarpa*
- Chinkapin oak. . . . *Quercus muehlenbergii*

Other white oaks:
- Overcup oak. . . . . *Quercus lyrata*
- Post oak . *Quercus stellata* var. *stellata*

Select red oaks:
- Northern red oak . . . . . *Quercus rubra*

Other red oaks:
- Northern pin oak . . *Quercus ellipsoidalis*
- Shingle oak. . . . . *Quercus imbricaria*
- Pin oak. . . . . *Quercus palustris*
- Black oak. . . . . *Quercus velutina*

Hickory:
- Bitternut hickory. . . . *Carya cordiformis*
- Shellbark hickory. . . . . *Carya laciniosa*
- Shagbark hickory . . . . . *Carya ovata*
- Mockernut hickory. . . . . *Carya tomentosa*

Hard maple:
  Black maple. . . . . *Acer nigrum*
  Sugar maple. . . . . *Acer saccharum*

Soft maple:
  Silver maple . . . . . *Acer saccharinum*

Ashes:
  White ash. . . . . *Fraxinus americana*
  Black ash. . . . . *Fraxinus nigra*
  Green ash. . . . . *Fraxinus pennsylvanica*

Eastern cottonwood . . . . *Populus deltoides*

Aspens:
  Bigtooth aspen . . . *Populus grandidentata*
  Quaking aspen. . . . . *Populus tremuloides*

American basswood. . . . . *Tilia americana*

Elms:
  American elm . . . . . *Ulmus americana*
  Slippery elm . . . . . *Ulmus rubra*
  Rock elm . . . . . *Ulmus thomasii*

Black walnut . . . . . *Juglans nigra*
Black cherry . . . . . *Prunus serotina*
Hackberry. . . . . *Celtis occidentalis*

Willows:
  Black willow . . . . . *Salix nigra*

Birches:
  River birch. . . . . *Betula nigra*
  Paper birch. . . . . *Betula papyrifera*

Other hardwoods:
  Boxelder . . . . . *Acer negundo*
  Ohio buckeye . . . . . *Aesculus glabra*
  Honeylocust. . . . . *Gleditsia triacanthos*
  Kentucky coffeetree. . *Gymnocladus dioicus*
  Butternut. . . . . *Juglans cinerea*
  Osage-orange . . . . . *Maclura pomifera*
  Red mulberry . . . . . *Morus rubra*
  American sycamore *Platanus occidentalis*
  Black locust . . . . *Robinia pseudoacacia*

Noncommercial species

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1. Area of land, by land class and Forest Survey Unit.

2. Area of land and forest land, by county.

3. Area of commercial forest land, by ownership class and Forest Survey Unit.

4. Area of commercial forest land, by stand-size, ownership class, and Forest Survey Unit.

5. Area of commercial forest land, by forest type and ownership class.

6. Area of commercial forest land, by forest type, stand-size class, and Forest Survey Unit.

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7. Number of all live trees on commercial forest land, by species and diameter class.

8. Number of growing-stock trees on commercial forest land, by species and diameter class.

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9. Net volume of growing stock on commercial forest land, by species and diameter class.

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11. Net volume of growing stock on commercial forest land, by species and forest type.

12. Net volume of sawtimber on commercial forest land, by species and forest type.

13. Net volume of growing stock on commercial forest land, by species and Forest Survey Unit.

14. Net volume of sawtimber on commercial forest land, by species and Forest Survey Unit.

15. Net volume of growing stock, sawtimber, and rough and rotten trees on commercial forest land, by individual species.

16. Net volume of growing stock, sawtimber, and rough and rotten trees on commercial forest land, by county.

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17. Annual growth of growing stock on commercial forest land, by species and Forest Survey Unit.

18. Annual growth of sawtimber on commercial forest land, by species and Forest Survey Unit.

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19. Annual mortality of growing stock on commercial forest land, by species and Forest Survey Unit.

20. Annual mortality of sawtimber on commercial forest land, by species and Forest Survey Unit.

Utilization

21. Timber products output from roundwood, by species and Forest Survey Unit.

22. Output of timber products, by source of material and softwoods and hardwoods.

23. Volume of primary plant residue, by source industry, kind of material, and type of use.

24. Primary wood-using plants operating in 1972, by Forest Survey Unit.

Table 1.--*Area of land, by land class and Forest Survey Unit, Iowa, 1974*
(In thousand acres)

Land class	All units	Northeast	Southeast	Western
Forest land:				
Commercial	1,458.7	584.5	659.4	214.8
Productive reserved	75.9	23.1	43.4	9.4
Unproductive	26.7	6.9	5.5	14.3
Total forest	1,561.3	614.5	708.3	238.5
Nonforest land:				
Nonforest with trees				
Wooded pasture	189.3	101.8	68.1	19.4
Wooded strips	179.5	33.7	74.7	71.1
Improved pasture w/trees	314:4	86.6	161.8	66.0
Cropland with trees	160.8	48.4	27.6	84.8
Idle farmland with trees	13.8	--	13.8	—
Windbreaks	8.0	--	--	8.0
Total nonforest w/trees	865.8	270.5	346.0	249.3
Nonforest without trees				
Cropland without trees 1/	28,131.4	7,087.6	8,021.5	13,022.3
O. farmland without trees	3,606.1	719.6	1,568.4	1,318.1
Marsh	70.3	29.6	8.4	32.3
Urban and other	1,632.7	464.5	657.0	511.2
Total nonforest wo/trees	33,440.5	8,301.3	10,255.3	14,883.9
Total nonforest	34,306.3	8,571.8	10,601.3	15,133.2
Total land area 2/	35,867.6	9,186.3	11,309.6	15,371.7

1/ Source: 1969 Census of Agriculture.
2/ Source: United States Bureau of the Census, Land and Water Area of the United States, 1970.

Table 2.--*Area of land and forest land, by county, Iowa, 1974*

Survey unit and county	All land[1]	All forest	Forest land		Commercial forest as a percent of land area
			Commercial	Non-commercial	
	Thousand acres	*Thousand acres*	*Thousand acres*	*Thousand acres*	*Percent*
Northeastern					
Allamakee	406.8	101.8	100.3	1.5	25
Benton	459.3	15.3	14.7	.6	3
Black Hawk	363.5	12.9	9.8	3.1	3
Bremer	281.0	12.6	12.2	.4	4
Buchanan	363.6	11.2	10.3	.9	3
Butler	372.5	9.3	8.8	.5	3
Cedar	374.4	15.6	15.2	.4	4
Chickasaw	323.4	8.1	7.8	.3	2
Clayton	498.8	84.4	82.1	2.3	16
Clinton	443.8	24.0	23.6	.4	5
Delaware	365.8	19.4	17.1	2.3	5
Dubuque	391.8	38.2	36.7	1.5	9
Fayette	465.9	28.0	27.2	.8	6
Floyd	321.9	7.7	7.3	.4	2
Grundy	320.6	.7	.6	.1	--
Howard	301.4	6.5	6.2	.3	2
Jackson	412.0	57.6	56.3	1.3	14
Johnson	396.4	25.2	19.1	6.1	5
Jones	374.4	28.3	27.4	.9	7
Linn	458.8	32.3	28.3	4.0	6
Mitchell	298.8	5.0	4.8	.2	2
Scott	290.3	10.8	10.4	.4	4
Tama	460.8	19.8	19.2	.6	4
Winneshiek	440.3	39.8	39.1	.7	9
Total	9,186.3	614.5	584.5	30.0	6
Southeastern					
Appanoose	334.7	30.5	25.2	5.3	8
Boone	366.7	22.4	18.0	4.4	5
Clarke	274.5	22.5	22.2	.3	8
Dallas	382.0	19.2	17.4	1.8	5
Davis	325.9	26.8	25.9	.9	8
Decatur	339.2	29.2	28.0	1.2	8
Des Moines	261.2	26.0	25.0	1.0	10
Guthrie	381.4	25.5	24.4	1.1	6
Hamilton	369.5	6.2	6.0	.2	2
Hardin	367.2	9.5	8.9	.6	2
Henry	281.6	23.0	21.9	1.1	8
Iowa	373.6	18.2	18.0	.2	5
Jasper	470.0	12.0	11.3	.7	2
Jefferson	279.0	17.8	17.6	.2	6
Keokuk	370.5	16.0	15.8	.2	4
Lee	337.5	50.7	50.0	.7	15
Louisa	258.0	22.2	22.2	--	9
Lucas	277.6	31.7	29.4	2.3	11
Madison	361.0	26.0	25.4	.6	7
Mahaska	366.0	15.5	15.1	.4	4
Marion	362.9	26.7	17.4	9.3	5
Marshall	367.4	8.5	7.9	.6	2
Monroe	278.4	34.4	34.1	.3	12
Muscatine	283.2	19.2	18.7	.5	7
Polk	380.0	17.3	10.1	7.2	3
Poweshiek	377.0	7.6	7.3	.3	2
Story	363.5	5.5	5.2	.3	1
Van Buren	311.6	38.2	36.0	2.2	12
Wapello	279.4	23.3	23.0	.3	8
Warren	365.8	24.2	22.7	1.5	6
Washington	363.5	18.7	17.2	1.5	5
Wayne	340.3	15.9	14.8	1.1	4
Webster	459.5	17.9	17.3	.6	4
Total	11,309.6	708.3	659.4	48.9	6

(Table 2 cont. on next page)

(Table 2 cont.)

Survey unit and county	All land[1]	All forest	Forest land		Commercial forest as a percent of land area
			Commercial	Non-commercial	
	Thousand acres	*Thousand acres*	*Thousand acres*	*Thousand acres*	*Percent*
Western					
Adair	364.2	6.2	5.7	.5	2
Adams	272.6	7.6	7.1	.5	3
Audubon	286.7	1.3	1.1	.2	--
Buena Vista	366.3	2.4	2.1	.3	1
Calhoun	365.6	.6	0.5	.1	--
Carroll	367.3	1.0	.5	.5	--
Cass	357.8	2.7	2.5	.2	1
Cerro Gordo	368.1	.9	.6	.3	--
Cherokee	366.7	4.7	4.0	.7	1
Clay	364.9	3.9	3.4	.5	1
Crawford	458.2	4.6	4.2	.4	1
Dickinson	242.9	.6	.4	.2	--
Emmet	252.3	2.7	2.0	.7	1
Franklin	375.0	3.3	2.7	.6	1
Fremont	335.2	14.0	12.4	1.6	4
Greene	364.1	6.4	5.8	.6	2
Hancock	364.9	.9	.5	.4	--
Harrison	445.3	30.5	28.2	2.3	6
Humboldt	278.4	2.5	2.2	.3	1
Ida	275.8	.5	.3	.2	--
Kossuth	626.6	2.5	2.3	.2	--
Lyon	376.3	1.7	1.6	.1	--
Mills	285.8	12.7	11.9	.8	4
Monona	447.5	25.1	22.5	2.6	5
Montgomery	270.1	4.7	4.2	.5	2
O'Brien	367.9	1.3	1.1	.2	--
Osceola	254.6	.1	.1	--	--
Page	342.4	7.3	6.9	.4	2
Palo Alto	358.7	1.5	1.4	.1	--
Plymouth	552.3	5.2	4.8	.4	1
Pocahontas	371.6	.8	.8	--	--
Pottawattamie	616.4	13.9	12.9	1.0	2
Ringgold	344.1	15.2	14.1	1.1	4
Sac	370.0	1.7	1.4	.3	--
Shelby	375.7	1.8	1.6	.2	--
Sioux	490.3	1.0	.7	.3	--
Taylor	337.7	10.3	9.5	.8	3
Union	272.0	15.4	14.5	.9	5
Winnebago	256.7	.3	.2	.1	--
Woodbury	557.6	14.5	12.6	1.9	2
Worth	256.1	1.6	1.1	.5	--
Wright	369.0	2.6	2.4	.2	1
Total	15,371.7	238.5	214.8	23.7	1
STATE TOTAL	35,867.6	1,561.3	1,458.7	102.6	4

[1]1970 Bureau of the Census estimates.

Table 3.--*Area of commercial forest land, by ownership class and Forest Survey Unit, Iowa, 1974*
(In thousand acres)

Ownership class	All units	North-eastern	South-eastern	Western
Public	111.2	58.6	37.0	15.6
Forest industry	16.7	3.7	13.0	--
Farmer	987.0	384.7	443.6	158.7
Miscellaneous private	343.8	137.5	165.8	40.5
All ownerships	1458.7	584.5	659.4	214.8

Table 4.--*Area of commercial forest land, by stand-size, ownership class, and Forest Survey Unit, Iowa, 1974*
(In thousand acres)

Unit and stand-size class	All ownerships	Public	Forest industry	Farmer	Misc. private
Northeastern Unit					
Sawtimber	375.2	34.3	2.6	249.9	88.4
Poletimber	123.2	12.8	.7	86.4	23.3
Sapling and seedling	61.0	11.5	--	33.7	15.8
Nonstocked	25.1	--	.4	14.7	10.0
All classes	584.5	58.6	3.7	384.7	137.5
Southeastern Unit					
Sawtimber	316.8	31.8	6.0	192.9	86.1
Poletimber	179.4	5.2	3.7	126.1	44.4
Sapling and seedling	152.8	--	3.2	117.1	32.5
Nonstocked	10.4	--	.1	7.5	2.8
All classes	659.4	37.0	13.0	443.6	165.8
Western Unit					
Sawtimber	89.4	3.2	--	61.8	24.4
Poletimber	54.0	3.1	--	36.5	14.4
Sapling and seedling	64.5	5.7	--	58.1	.7
Nonstocked	6.9	3.6	--	2.3	1.0
All classes	214.8	15.6	--	158.7	40.5
All Units					
Sawtimber	781.4	69.3	8.6	504.6	198.9
Poletimber	356.6	21.1	4.4	249.0	82.1
Sapling and seedling	278.3	17.2	3.2	208.9	49.0
Nonstocked	42.4	3.6	.5	24.5	13.8
All classes	1458.7	111.2	16.7	987.0	343.8

Table 5.--*Area of commercial forest land, by forest type and ownership class, Iowa, 1974*

(In thousand acres)

Forest types	All ownerships	Public	Forest Industry	Farmer	Misc. Private
Eastern redcedar-hardwood	34.9	--	.2	34.7	--
White oak-red oak-hickory	514.8	18.0	7.1	384.9	104.8
White oak	150.1	10.9	2.4	104.4	32.4
Bur oak	148.7	4.7	1.6	83.3	59.1
Elm-ash-cottonwood	404.1	68.6	3.4	242.6	89.5
Cottonwood	12.3	3.1	--	6.2	3.0
Hard maple-basswood	143.6	2.4	1.5	98.5	41.2
Aspen	7.8	--	--	7.8	--
Nonstocked	42.4	3.5	.5	24.6	13.8
Total all forest types	1458.7	111.2	16.7	987.0	343.8

Table 6.--*Area of commercial forest land, by forest type, stand-size, class, and Forest Survey Unit, Iowa, 1974*

(In thousand acres)

Forest Survey Unit and forest type	All stands	Sawtimber stands	Poletimber stands	Sapling and seedling stands	Nonstocked areas
Northeastern Unit					
Eastern redcedar-hardwood	11.5			11.5	
White oak-red oak-hickory	198.4	121.6	61.2	15.6	
White oak	34.9	26.3	8.6		
Bur oak	41.9	31.9	5.3	4.7	
Elm-ash-cottonwood	155.1	103.7	35.6	15.8	
Hard maple-basswood	109.8	83.9	12.5	13.4	
Aspen	7.8	7.8			
Nonstocked	25.1				25.1
All forest types	584.5	375.2	123.2	61.0	25.1
Southwestern Unit					
Eastern redcedar-hardwood	10.6			10.6	
White oak-red oak-hickory	272.6	96.1	95.0	81.5	
White oak	107.1	67.5	39.6		
Bur oak	62.0	38.9	6.6	16.5	
Elm-ash-cottonwood	177.9	108.0	33.5	36.4	
Hard maple-basswood	18.8	6.3	4.7	7.8	
Nonstocked	10.4				10.4
All forest types	659.4	316.8	179.4	152.8	10.4
Western Unit					
Eastern redcedar-hardwood	12.8			12.8	
White oak-red oak-hickory	43.8	9.2	12.7	21.9	
White oak	8.1		8.1		
Bur oak	44.8	19.2	25.6		
Elm-ash-cottonwood	71.1	39.1	7.6	24.4	
Cottonwood	12.3	12.3			
Hard maple-basswood	15.0	9.6		5.4	
Nonstocked	6.9				6.9
All forest types	214.8	89.4	54.0	64.5	6.9
All Units					
Eastern redcedar-hardwood	34.9			34.9	
White oak-red oak-hickory	514.8	226.9	168.9	119.0	
White oak	150.1	93.8	56.3		
Bur oak	148.7	90.0	37.5	21.2	
Elm-ash-cottonwood	404.1	250.8	76.7	76.6	
Cottonwood	12.3	12.3			
Hard maple-basswood	143.6	99.8	17.2	26.6	
Aspen	7.8	7.8			
Nonstocked	42.4				42.4
All forest types	1458.7	781.4	356.6	278.3	42.4

Table 8.--*Number of growing-stock trees on commercial forest land, by species and diameter class, Iowa, 1974*
(In thousand trees)

Species	All classes	Diameter Class (inches at breast height)														
		1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-28.9	29.0-38.9	39.0+
Softwoods:																
Eastern redcedar	8,672	5,887	1,377	674	515	89	74	39	8	9	--	--	--	--	--
Other softwoods	99	--	64	35	--	--	--	--	--	--	--	--	--	--	--
Total softwoods	8,771	5,887	1,441	709	515	89	74	39	8	9	--	--	--	--	--
Hardwoods:																
Select white oaks	34,754	5,233	7,747	5,933	5,742	3,361	1,985	1,936	1,236	719	394	192	241	35	--
Select red oaks	12,879	1,858	2,565	1,437	2,039	1,334	1,122	964	568	421	248	150	145	27	1
Other white oaks	264	--	--	113	101	19	--	22	--	6	--	3	--	--	--
Other red oaks	9,602	2,680	2,089	1,608	1,068	866	617	342	108	127	40	20	24	11	2
Hickory	52,068	25,174	14,228	6,360	3,031	1,589	949	416	200	83	32	--	6	--	--
Hard maple	8,757	3,730	1,698	1,133	680	537	251	314	174	117	59	18	45	1	--
Soft maple	20,951	7,847	5,951	2,082	1,468	1,150	926	640	285	190	164	94	91	56	7
Ash	14,636	8,676	1,822	1,790	973	606	331	151	116	48	64	25	24	10	--
Cottonwood	3,336	203	465	439	251	344	392	273	242	158	171	109	194	75	20
Aspen	5,083	2,184	898	821	402	358	314	54	14	23	9	3	3	--	--
Basswood	15,256	6,815	3,247	1,578	1,015	1,026	442	487	352	163	54	42	29	6	--
Elm	49,443	25,745	12,065	5,280	2,898	1,551	689	483	304	202	84	62	67	12	1
Black walnut	6,736	869	1,925	1,284	1,148	612	354	309	146	46	32	11	--	--	--
Black cherry	6,071	2,816	1,508	819	495	145	183	87	14	--	4	--	--	--	--
Hackberry	12,115	6,119	3,951	987	423	341	109	54	39	27	16	14	33	2	--
Willow	8,679	3,305	1,784	1,368	802	619	358	202	130	69	23	7	12	--	--
Birch	1,929	636	73	356	220	252	138	148	54	22	18	4	8	--	--
Other hardwoods	7,365	1,786	2,939	864	832	568	109	107	80	40	18	8	11	3	--
Total hardwoods	269,924	105,676	64,955	34,252	23,588	15,278	9,269	6,989	4,062	2,461	1,430	762	933	238	31
Total all species	278,695	111,563	66,396	34,961	24,103	15,367	9,343	7,028	4,070	2,470	1,430	762	933	238	31

Table 9.--*Net volume of growing stock on commercial forest land, by species and diameter class, Iowa, 1974*
(In million cubic feet)

Species	All classes	Diameter Class (inches at breast height)											
		5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-28.9	29.0-38.9	39.0+
Softwoods													
Eastern redcedar	5.7	1.3	2.0	.7	.7	.6	.2	.2	--	--	--	--	--
Other softwoods	.1	.1	--	--	--	--	--	--	--	--	--	--	--
Total softwoods	5.8	1.4	2.0	.7	.7	.6	.2	.2	--	--	--	--	--
Hardwoods:													
Select white oaks	231.7	13.8	27.5	27.9	25.9	36.7	31.1	23.4	15.7	9.4	15.9	4.4	--
Select red oaks	126.3	4.0	10.7	12.2	15.3	18.7	15.7	15.4	11.2	8.3	11.1	3.1	.6
Other white oaks	1.6	.3	.4	.1	--	.4	--	.2	--	.2	--	--	--
Other red oaks	43.2	3.3	5.0	7.4	7.8	6.3	2.8	4.2	1.8	1.0	1.6	1.5	.5
Hickory	78.7	16.0	15.8	15.2	13.5	8.3	5.4	2.6	1.4	--	.5	--	--
Hard maple	38.3	3.3	3.8	5.0	3.6	6.4	4.8	4.2	2.5	1.2	3.3	.2	--
Soft maple	109.5	5.8	8.9	12.1	15.2	15.2	10.1	9.0	9.5	6.1	7.6	8.1	1.9
Ash	35.3	4.3	5.1	5.3	4.7	3.0	3.2	2.2	3.1	1.6	1.9	.9	--
Cottonwood	91.7	1.5	1.5	3.6	6.8	6.8	8.1	7.0	9.7	8.1	20.3	12.8	5.5
Aspen	17.4	2.2	3.0	3.7	5.0	1.2	.4	1.0	.4	.2	.3	--	--
Basswood	57.7	3.6	5.3	9.6	6.6	9.8	9.5	5.9	2.5	2.1	2.0	.8	--
Elm	95.4	12.8	16.9	14.2	10.1	9.8	8.4	8.0	4.0	4.0	5.3	1.6	.3
Black walnut	31.8	3.0	5.9	5.3	4.7	5.8	3.5	1.4	1.6	.6	--	--	--
Black cherry	11.5	2.1	2.6	1.5	2.8	1.9	.4	--	.2	--	--	--	--
Hackberry	15.9	2.1	2.1	2.7	1.6	1.2	1.0	.9	.8	.7	2.6	.2	--
Willow	31.0	3.3	4.4	5.8	5.1	4.3	3.3	2.7	1.0	.4	.7	--	--
Birch	14.1	.9	1.4	2.3	2.1	3.1	1.7	.9	.8	.2	.7	--	--
Other hardwoods	17.8	1.8	3.4	3.9	1.3	1.8	2.1	1.0	.8	.5	.9	.3	--
Total hardwoods	1,048.9	84.1	123.7	137.8	132.1	140.7	111.5	90.0	67.0	44.6	74.7	33.9	8.8
Total all species	1,054.7	85.5	125.7	138.5	132.8	141.3	111.7	90.2	67.0	44.6	74.7	33.9	8.8

Table 10.--*Net volume of sawtimber on commercial forest land, by species and diameter class, Iowa, 1974*
(In million board feet)[1]

Species	All classes	Diameter class (inches at breast height) 9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-28.9	29.0-38.9	39.0+
Softwoods:											
Eastern redcedar	11.5	3.8	2.9	2.3	1.1	1.4	--	--	--	--	--
Total softwoods	11.5	3.8	2.9	2.3	1.1	1.4	--	--	--	--	--
Hardwoods:											
Select white oaks	812.4	--	129.2	182.0	156.1	116.3	82.3	48.9	81.1	16.5	--
Select red oaks	511.2	--	79.1	99.6	80.4	75.0	60.8	42.6	56.4	15.6	1.7
Other white oaks	4.7	--	--	2.4	--	1.4	--	.9	--	--	--
Other red oaks	144.2	--	42.0	33.3	14.3	22.3	8.4	5.4	8.4	8.4	1.7
Hickory	164.5	--	71.3	42.4	27.3	14.8	6.8	--	1.9	--	--
Hard maple	137.0	--	21.9	36.1	24.0	23.0	11.9	5.0	14.6	.5	--
Soft maple	361.7	--	65.4	70.1	44.8	39.3	42.6	27.2	35.5	31.9	4.9
Ash	99.1	--	19.9	14.9	17.6	9.7	15.6	7.5	9.9	4.0	--
Cottonwood	436.4	--	31.9	35.3	40.7	36.9	53.3	42.4	105.2	63.9	26.8
Aspen	37.6	--	21.8	4.7	2.3	4.7	1.8	1.1	1.2	--	--
Basswood	199.4	--	32.7	52.9	48.8	30.6	10.9	10.5	9.7	3.3	--
Elm	243.2	--	48.7	46.9	42.0	36.6	19.0	18.6	24.7	5.9	.8
Black walnut	88.3	--	22.6	28.5	18.6	8.7	7.2	2.7	--	--	--
Black cherry	23.6	--	12.7	8.4	1.6	--	.9	--	--	--	--
Hackberry	43.2	--	9.4	6.0	4.9	4.5	3.7	2.9	11.2	.6	--
Willow	82.0	--	23.9	20.2	16.1	11.9	5.2	1.6	3.1	--	--
Birch	43.4	--	9.1	15.0	7.7	4.0	3.4	.9	3.3	--	--
Other hardwoods	43.1	--	6.5	8.9	10.9	5.6	3.8	1.6	4.4	1.4	--
Total hardwoods	3,475.0	--	648.1	707.6	558.1	445.3	337.6	219.8	370.6	152.0	35.9
Total all species	3,486.5	3.8	651.0	709.9	559.2	446.7	337.6	219.8	370.6	152.0	35.9

1/ International 1/4-inch rule.

Table 11.--*Net volume of growing stock on commercial forest land, by species and forest type, Iowa, 1974*
(In million cubic feet)

Species	All forest types	Eastern redcedar: hardwood	White oak: red oak-hickory	White oak	Bur oak	Elm-ash cottonwood	Cottonwood	Sugar maple: Basswood	Aspen
Softwoods:									
Eastern redcedar	5.7	3.8	.6	.4	.5	--	--	.4	--
Other softwoods	.1	--	.1	--	--	--	--	--	--
Total softwoods	5.8	3.8	.7	.4	.5	--	--	.4	--
Hardwoods:									
Select white oaks	231.7	1.2	63.4	91.0	56.5	11.3	--	8.1	.2
Select red oaks	126.3	--	93.6	12.2	2.7	3.1	--	14.5	.2
Other white oaks	1.6	--	.5	1.0	.1	--	--	--	--
Other red oaks	43.2	.5	27.6	10.2	3.6	1.2	--	.1	--
Hickory	78.7	.8	58.4	7.2	3.5	3.5	--	5.3	--
Hard maple	38.3	--	11.4	.6	--	2.2	--	24.1	--
Soft maple	109.5	--	.5	.7	1.7	106.4	--	.2	--
Ash	35.3	.4	8.4	2.8	.7	20.3	--	2.7	--
Cottonwood	91.7	.7	2.7	--	.8	60.5	26.8	.2	--
Aspen	17.4	--	7.0	1.1	.4	4.0	--	2.3	2.6
Basswood	57.7	.3	12.7	3.5	3.0	4.2	--	34.0	--
Elm	95.4	--	24.8	5.8	7.4	33.2	.2	23.8	.2
Black walnut	31.8	.6	8.9	3.0	2.1	13.0	.6	3.6	--
Black cherry	11.5	--	6.0	.8	.2	3.5	--	.8	.2
Hackberry	15.9	--	2.1	.2	1.4	11.3	.1	.8	--
Willow	31.0	--	--	--	.2	30.7	.1	--	--
Birch	14.1	.7	1.7	--	.2	10.9	--	.6	--
Other hardwoods	17.8	--	4.8	.4	1.0	9.0	.6	2.0	--
Total hardwoods	1,048.9	5.2	334.5	140.5	85.5	328.3	28.4	123.1	3.4
Total all species	1,054.7	9.0	335.2	140.9	86.0	328.3	28.4	123.5	3.4

Table 12.--*Net volume of sawtimber on commercial forest land, by species and forest type, Iowa, 1974*
(In million board feet)[1]

Species	All forest types	Forest types							
		Eastern redcedar hardwood	White oak-red oak-hickory	White oak	Bur oak	Elm-ash Cottonwood	Cottonwood	Sugar maple-Basswood	Aspen
Softwoods:									
Eastern redcedar	11.5	6.6	2.1	1.5	1.3	--	--	--	--
Total softwoods	11.5	6.6	2.1	1.5	1.3	--	--	--	--
Hardwoods:									
Select white oaks	812.4	4.3	202.8	322.5	202.6	47.5	--	31.5	1.2
Select red oaks	511.2	--	375.4	48.4	10.2	13.4	--	62.5	1.3
Other white oaks	4.7	--	1.4	2.6	.7	--	--	--	--
Other red oaks	144.2	--	90.1	36.8	12.6	4.7	--	--	--
Hickory	164.5	--	112.4	18.5	10.1	11.1	--	12.4	--
Hard maple	137.0	--	37.6	.7	--	9.6	--	89.1	--
Soft maple	361.7	--	.9	2.5	4.1	353.6	--	.6	--
Ash	99.1	.6	14.4	2.8	1.5	73.1	--	6.7	--
Cottonwood	436.4	1.8	12.4	--	3.4	284.3	133.3	1.2	--
Aspen	37.6	--	13.9	2.8	--	12.0	--	2.0	6.9
Basswood	199.4	--	39.0	6.7	8.3	16.1	--	129.3	--
Elm	243.2	--	62.3	8.8	17.8	81.7	--	71.4	1.2
Black walnut	88.3	2.4	27.4	4.2	5.0	34.4	.7	14.2	--
Black cherry	23.6	--	8.6	1.4	.8	9.5	--	2.3	1.0
Hackberry	43.2	--	4.8	--	3.9	33.3	--	1.2	--
Willow	82.0	--	--	--	.9	81.1	--	--	--
Birch	43.4	2.6	4.1	--	--	35.3	--	1.4	--
Other hardwoods	43.1	--	7.9	1.3	1.2	24.5	1.7	6.5	--
Total hardwoods	3,475.0	11.7	1,015.4	460.0	283.1	1,125.2	135.7	432.3	11.6
Total all species	3,486.5	18.3	1,017.5	461.5	284.4	1,125.2	135.7	432.3	11.6

1/ International 1/4-inch rule.

Table 13.--*Net volume of growing stock on commercial forest land, by species and Forest Survey Unit, Iowa, 1974*
(In million cubic feet)

Species	All units	North-eastern unit	South-eastern unit	Western unit
Softwoods:				
Eastern redcedar	5.7	1.1	2.7	1.9
Other softwoods	.1	.1	--	--
Total softwoods	5.8	1.2	2.7	1.9
Hardwoods:				
Select white oaks	231.7	71.0	129.0	31.7
Select red oaks	126.3	64.5	57.8	4.0
Other white oaks	1.6	.3	1.3	--
Other red oaks	43.2	16.4	26.5	.3
Hickory	78.7	27.5	42.1	9.1
Hard maple	38.3	34.1	4.2	--
Soft maple	109.5	33.4	66.5	9.6
Ash	35.3	16.9	11.1	7.3
Cottonwood	91.7	22.2	34.1	35.4
Aspen	17.4	15.5	1.9	--
Basswood	57.7	36.7	16.9	4.1
Elm	95.4	66.5	16.3	12.6
Black walnut	31.8	16.5	10.8	4.5
Black cherry	11.5	8.5	2.6	.4
Hackberry	15.9	2.7	10.5	2.7
Willow	31.0	10.8	12.0	8.2
Birch	14.1	10.8	3.3	--
Other hardwoods	17.8	4.5	12.1	1.2
Total hardwoods	1,048.9	458.8	459.0	131.1
Total all species	1,054.7	460.0	461.7	133.0

Table 14.--*Net volume of sawtimber on commercial forest land, by species and Forest Survey Unit, Iowa, 1974*
(In million board feet)[1]

Species	All units	North-eastern unit	South-eastern unit	Western unit
Softwoods:				
Eastern redcedar	11.5	1.3	6.8	3.4
Total softwoods	11.5	1.3	6.8	3.4
Hardwoods:				
Select white oaks	812.4	275.8	442.3	94.3
Select red oaks	511.2	275.3	220.2	15.7
Other white oaks	4.7	1.4	3.3	--
Other red oaks	144.2	61.2	83.0	--
Hickory	164.5	67.3	79.6	17.6
Hard maple	137.0	121.9	15.1	--
Soft maple	361.7	101.6	224.1	36.0
Ash	99.1	50.8	26.1	22.2
Cottonwood	436.4	102.8	162.9	170.7
Aspen	37.6	29.7	7.9	--
Basswood	199.4	132.8	46.9	19.7
Elm	243.2	170.4	34.0	38.8
Black walnut	88.3	47.4	29.8	11.1
Black cherry	23.6	19.7	3.9	--
Hackberry	43.2	5.4	32.5	5.3
Willow	82.0	34.6	36.2	11.2
Birch	43.4	31.9	11.5	--
Other hardwoods	43.1	8.9	31.5	2.7
Total hardwoods	3,475.0	1,538.9	1,490.8	445.3
Total all species	3,486.5	1,540.2	1,497.6	448.7

1/ International 1/4-inch rule.

Table 15.--*Net volume of growing stock, sawtimber, and rough and rotten trees on commercial forest land, by individual species, Iowa, 1974*

Species	Growing stock	Rough and rotten trees	Sawtimber
	Million cubic feet	Million cubic feet	Million board feet[1]
Softwoods:			
Balsam fir	.1	3.9	11.5
Eastern redcedar	5.7	--	--
Total softwoods	5.8	3.9	11.5
Hardwoods:			
Select white oak group			
White oak	148.3	29.8	515.6
Swamp white oak	4.7	1.0	15.6
Bur oak	77.8	44.9	278.4
Chinkapin oak	.9	.4	2.8
Select red oak group			
Northern red oak	126.3	23.9	511.2
Other white oak group			
Overcup oak	.4	--	2.1
Post oak	1.2	.2	2.6
Other red oak group			
Northern pin oak	6.0	2.3	26.4
Shingle oak	3.2	2.0	5.2
Pin oak	4.8	1.4	15.6
Black oak	29.2	11.0	97.0
Hickory			
Bitternut hickory	18.1	3.3	37.9
Shellbark hickory	.4	--	.7
Shagbark hickory	59.0	7.3	121.3
Mockernut hickory	1.2	--	4.6
Hard maple group			
Black maple	13.0	2.6	36.9
Sugar maple	25.3	6.9	100.1
Soft maple group			
Silver maple	109.5	29.1	361.7
Ash group			
White ash	10.1	2.6	15.5
Black ash	1.5	--	3.7
Green ash	23.7	6.3	79.9
Cottonwood group			
Eastern cottonwood	91.7	6.1	436.4
Aspen group			
Bigtooth aspen	7.9	.8	14.8
Quaking aspen	9.5	1.6	22.8
Basswood group			
American basswood	57.7	11.9	199.4
Elm group			
American elm	58.5	32.7	145.9
Slippery elm	36.7	8.6	96.6
Rock elm	.2	.1	.7
Black walnut	31.8	6.3	88.3
Black cherry	11.5	8.1	23.6
Hackberry	15.9	4.7	43.2
Willow group			
Black willow	31.0	8.1	82.0
Birch group			
River birch	12.1	1.8	40.4
Paper birch	2.0	1.0	3.0
Other hardwoods			
Boxelder	5.0	17.0	7.9
Ohio buckeye	1.5	.3	4.0
Honeylocust	5.0	8.3	14.2
Kentucky coffeetree	.4	.4	.9
Butternut	2.6	1.3	7.1
Osage-orange	.3	.8	--
Red mulberry	.2	1.6	--
American sycamore	2.2	.4	9.0
Black locust	.6	1.1	--
Noncommercial species	--	6.0	--
Total hardwoods	1,048.9	304.0	3,475.0
Total all species	1,054.7	307.9	3,486.5

1/ International 1/4-inch rule.

Table 16.--*Net volume of growing stock, sawtimber, and rough and rotten trees on commercial forest land, by county, Iowa, 1974*

Survey Unit and county	Growing stock : Thousand cubic feet	Sawtimber : Thousand board feet	Rough and rotten : Thousand cubic feet
Northeastern:			
Allamakee	85,128	283,378	28,269
Benton	11,170	37,602	4,268
Black Hawk	6,589	21,055	3,263
Bremer	10,695	37,506	3,778
Buchanan	7,383	23,745	2,990
Butler	5,683	19,557	2,642
Cedar	11,046	36,787	4,237
Chickasaw	6,083	20,654	2,117
Clayton	67,421	230,933	23,129
Clinton	17,187	56,678	7,467
Delaware	13,548	45,508	4,616
Dubuque	27,861	91,541	9,932
Fayette	21,968	74,766	7,245
Floyd	4,799	16,081	1,906
Grundy	379	1,169	188
Howard	5,094	17,285	1,676
Jackson	42,770	141,002	15,737
Johnson	15,075	51,854	5,582
Jones	20,337	66,261	7,745
Linn	21,343	69,850	8,379
Mitchell	3,821	13,692	1,288
Scott	7,292	24,284	3,136
Tama	14,875	50,692	5,579
Winneshiek	32,460	108,284	10,715
Total	460,007	1,540,164	165,884
Southeastern:			
Appanoose	16,092	50,925	4,219
Boone	13,170	44,573	2,940
Clarke	12,793	37,171	3,651
Dallas	13,277	44,109	2,926
Davis	16,707	52,222	4,390
Decatur	16,664	50,691	4,814
Des Moines	18,156	59,100	4,301
Guthrie	17,990	59,823	4,013
Hamilton	4,344	14,578	1,050
Hardin	6,412	20,846	1,464
Henry	13,606	41,337	3,519
Iowa	14,799	50,811	3,146
Jasper	8,819	30,483	1,936
Jefferson	12,166	39,385	2,917
Keokuk	12,227	40,642	2,628
Lee	32,950	101,413	8,127
Louisa	19,984	70,708	4,052
Lucas	19,873	62,011	4,883
Madison	16,529	52,500	4,314
Mahaska	12,637	43,064	2,648
Marion	10,945	34,993	2,992
Marshall	6,739	23,790	1,326
Monroe	22,009	68,379	5,579
Muscatine	14,633	49,747	3,164
Polk	7,525	26,300	1,849
Poweshiek	5,346	18,060	1,197
Story	4,151	14,058	874
Van Buren	22,760	71,624	6,036
Wapello	16,327	53,133	3,789
Warren	15,597	51,645	3,828
Washington	13,760	45,317	3,040
Wayne	9,830	31,234	2,436
Webster	12,920	42,888	2,845
Total	461,737	1,497,560	110,893

(Table 16 continued on next page)

(Table 16 continued)

Western:			
Adair	3,304	10,242	844
Adams	4,975	17,765	1,072
Audubon	541	1,601	165
Buena Vista	1,103	3,220	258
Calhoun	640	3,020	77
Carroll	634	2,770	81
Cass	1,636	6,039	393
Cerro Gordo	602	2,368	60
Cherokee	2,342	7,789	593
Clay	2,521	9,176	527
Crawford	2,445	7,381	601
Dickinson	111	211	66
Emmet	1,441	5,443	339
Franklin	2,320	9,224	403
Fremont	7,231	23,025	1,838
Greene	4,619	17,756	887
Hancock	211	542	86
Harrison	15,936	50,579	3,982
Humboldt	1,607	5,742	307
Ida	531	2,470	42
Kossuth	2,480	10,403	372
Lyon	1,118	4,017	224
Mills	7,331	24,308	1,773
Monona	12,006	37,022	3,170
Montgomery	3,007	10,970	620
O'Brien	911	3,776	168
Osceola	89	327	23
Page	4,438	14,591	1,005
Palo Alto	1,159	4,236	215
Plymouth	3,150	10,935	716
Pocahontas	436	1,035	105
Potawattamie	7,716	25,554	1,849
Ringgold	8,180	26,588	2,023
Sac	1,025	4,117	219
Shelby	1,231	4,806	254
Sioux	723	3,149	102
Taylor	5,718	19,164	1,381
Union	7,304	23,263	1,782
Winnebago	67	120	23
Woodbury	7,690	25,277	1,857
Worth	593	1,858	175
Wright	1,804	6,813	384
Total	132,926	448,692	31,061
State total	1,054,670	3,486,416	307,838

Table 17.--*Annual growth of growing stock on commercial forest land, by species and Forest Survey Unit, Iowa, 1973*

(In thousand cubic feet)

Species	All	North-eastern	South-eastern	Western
Softwoods:				
Eastern redcedar	287	84	113	90
Other softwoods	8	8	--	--
Total softwoods	295	92	113	90
Hardwoods:				
Select white oaks	6,859	1,976	4,010	873
Select red oaks	4,150	2,004	1,950	196
Other white oaks	53	7	46	--
Other red oaks	2,156	621	1,522	13
Hickory	3,610	874	2,419	317
Hard maple	1,407	1,270	137	--
Soft maple	6,232	2,212	3,785	235
Ash	2,292	1,009	918	365
Cottonwood	4,518	1,227	1,525	1,766
Aspen	1,000	956	44	--
Basswood	2,386	1,736	572	78
Elm	5,631	3,920	1,103	608
Black walnut	1,291	633	498	160
Black cherry	615	356	230	29
Hackberry	1,045	174	638	233
Willow	2,497	813	917	767
Birch	1,306	1,128	178	--
Other hardwoods	868	211	590	67
Total hardwoods	47,916	21,127	21,082	5,707
Total all species	48,211	21,219	21,195	5,797

Table 18.--*Annual growth of sawtimber on commercial forest land, by species and Forest Survey Unit, Iowa, 1973*

(In thousand board feet)[1]

Species	All units	North-eastern	South-eastern	Western
Softwoods:				
Eastern redcedar	208	41	154	13
Total softwoods	208	41	154	13
Hardwoods:				
Select white oaks	18,502	6,217	10,529	1,756
Select red oaks	12,437	6,848	5,236	353
Other white oaks	117	37	80	--
Other red oaks	4,600	1,930	2,670	--
Hickory	3,024	1,287	1,496	241
Hard maple	3,387	3,054	333	--
Soft maple	16,681	5,112	10,763	806
Ash	2,912	1,801	798	313
Cottonwood	18,246	4,805	6,638	6,803
Aspen	1,152	989	163	--
Basswood	5,767	4,807	648	312
Elm	7,732	5,581	1,138	1,013
Black walnut	1,603	910	498	195
Black cherry	684	513	171	--
Hackberry	1,050	171	753	126
Willow	4,050	1,749	1,741	560
Birch	2,450	1,966	484	--
Other hardwoods	1,181	262	797	122
Total hardwoods	105,575	48,039	44,936	12,600
Total all species	105,783	48,080	45,090	12,613

1/ International 1/4-inch rule.

Table 19.--*Annual mortality of growing stock on commercial forest land, by species and Forest Survey Unit, Iowa, 1973*

(In thousand cubic feet)

Species	All units	North-eastern	South-eastern	Western
Softwoods:				
Eastern redcedar	50	50	--	--
Total softwoods	50	50	--	--
Hardwoods:				
Select white oaks	225	119	106	--
Select red oaks	801	505	296	--
Other red oaks	729	586	143	--
Hickory	133	133	--	--
Ash	121	121	--	--
Aspen	45	45	--	--
Basswood	79	79	--	--
Elm	4,261	1,605	1,912	744
Black walnut	37	37	--	--
Willow	241	241	--	--
Birch	73	73	--	--
Other hardwoods	112	112	--	--
Total hardwoods	6,857	3,656	2,457	744
Total, all species	6,907	3,706	2,457	744

Table 20.--*Annual mortality of sawtimber on commercial forest land, by species and Forest Survey Unit, Iowa, 1973.*

(Thousand board feet)[1/]

Species	All units	North-eastern	South--eastern	Western
Softwoods:				
Eastern redcedar	99	99	--	--
Total softwoods	99	99	--	--
Hardwoods:				
Select white oaks	290	--	290	--
Select red oaks	3,242	2,410	832	--
Other red oaks	3,179	2,152	1,027	--
Hickory	575	575	--	--
Ash	548	548	--	--
Basswood	391	391	--	--
Elm	16,017	5,966	6,497	3,554
Willow	986	986	--	--
Birch	348	348	--	--
Total hardwoods	25,576	13,376	8,646	3,554
Total all species	25,675	13,475	8,646	3,554

1/ International 1/4-inch rule.

Table 21.--*Timber products output from roundwood, by species and Forest Survey Unit, Iowa, 1972*
(In thousand cubic feet)

Species	All units	North-eastern	South-eastern	Western
Softwoods:				
White and red pine	37	16	--	21
Eastern redcedar	19	--	--	19
Total softwoods	56	16	--	40
Hardwoods:				
Select white oaks	2,121	1,296	787	38
Select red oaks	2,398	1,802	587	9
Other white oaks	13	5	8	--
Other red oaks	728	458	269	1
Hickory	721	435	285	1
Hard maple	348	343	--	5
Soft maple	1,573	363	969	241
Ash	3,720	395	121	3,204
Cottonwood	1,884	355	820	709
Aspen	198	100	93	5
Basswood	674	625	40	9
Elm	6,532	2,318	683	3,531
Black walnut	1,155	703	328	124
Black cherry	23	21	2	--
Hackberry	132	52	73	7
Willow	252	220	27	5
Birch	192	59	133	--
Other hardwoods	197	107	66	24
Total hardwoods	22,861	9,657	5,291	7,913
Total all species	22,917	9,673	5,291	7,953

Table 22.--*Output of timber products, by source of material and softwoods and hardwoods, all Units, Iowa, 1972*

Products and species group	Standard unit 1/	Total		Output from roundwood				Output from plant byproducts	
				Growing stock		Nongrowing stock			
		No. of units	M cu. ft.	No. of units	M cu. ft.	No. of units	M cu. ft.	No. of units	M cu. ft.
Saw logs and bolts:	M bd. ft.								
Softwoods		105	17	105	17	--	--	--	--
Hardwood		53,389	8,987	43,021	7,145	10,368	1,842	--	--
Total		53,494	9,004	43,126	7,162	10,368	1,842	--	--
Veneer logs and bolts:	M bd. ft.								
Softwood		--	--	--	--	--	--	--	--
Hardwood		5,187	1,157	3,877	865	1,310	292	--	--
Total		5,187	1,157	3,877	865	1,310	292	--	--
Cooperage logs:	M bd. ft.								
Softwood		--	--	--	--	--	--	--	--
Hardwood		626	102	570	93	56	9	--	--
Total		626	102	570	93	56	9	--	--
Pulpwood	Std. cords								
Softwood		--	--	--	--	--	--	--	--
Hardwood		43,427	3,431	20,367	1,609	10,532	832	12,528	990
Total		43,427	3,431	20,367	1,609	10,532	832	12,528	990
Poles:	M pieces								
Softwood		--	--	--	--	--	--	--	--
Hardwood		--	--	--	--	--	--	--	--
Total		--	--	--	--	--	--	--	--
Mine timbers	M cu. ft.								
Softwood		--	--	--	--	--	--	--	--
Hardwood		10	10	8	8	2	2	--	--
Total		10	10	8	8	2	2	--	--
Posts:	M pieces								
Softwood		1	*	1	*	--	--	--	--
Hardwood		325	185	223	126	102	59	--	--
Total		326	185	224	126	102	59	--	--
Charcoal wood:	Std. cords								
Softwood		--	--	--	--	--	--	--	--
Hardwood		--	--	--	--	--	--	--	--
Total		--	--	--	--	--	--	--	--
Other 2/:	Std. cords								
Softwood		3	3	--	--	--	--	3	3
Hardwood		1,377	1,377	222	222	--	--	1,155	1,155
Total		1,380	1,380	222	222	--	--	1,158	1,158
Fuelwood:	Std. cords								
Softwood		600	39	185	12	415	27	--	--
Hardwood		156,299	10,160	47,597	3,094	102,502	6,663	6,200	403
Total		156,899	10,199	47,782	3,106	102,917	6,690	6,200	403
All products	M. cu. ft.								
Softwood		59	59	29	29	27	27	3	3
Hardwood		25,409	25,409	13,162	13,162	9,699	9,699	2,548	2,548
Total		25,468	25,468	13,191	13,191	9,726	9,726	2,551	2,551

1/ M (meaning thousand) board feet by International 1/4-inch rule. Cords are on a roughwood, 128 cubic foot basis.

2/ Includes farm timbers, mulch, livestock bedding, poultry litter, etc.

* Less than 500 cubic feet.

Table 23.--*Volume of primary plant residue, by source industry, kind of material, and type of use, Iowa, 1972*
(In thousand cubic feet)

Source industry and kind of residue	Volume by type of use							
	Fiber 1/	Fuel 2/			Other 3/		Not used 4/	
	Hard-wood	Industrial: Hardwood	Domestic: Softwood	Domestic: Hardwood	Soft-wood	Hard-wood	Soft-wood	Hard-wood
Lumber:								
Coarse 5/	987.2	0.5	0.1	324.3	--	239.7	4.7	1,305.0
Fine 6/	--	0.1	--	9.8	2.8	847.3	--	809.5
Bark	129.4	--	0.1	225.1	--	79.0	3.0	1,411.6
Total	1,116.6	0.6	0.2	559.2	2.8	1,166.0	7.7	3,526.1
All other:								
Coarse 5/	2.5	--	--	--	--	50.0	--	27.7
Fine 6/	--	68.3	--	--	--	18.3	--	42.7
Bark	365.8	55.4	--	--	--	42.8	--	415.0
Total	368.3	123.7	--	--	--	111.1	--	485.4
All industries:								
Coarse 5/	989.7	0.5	0.1	324.3	--	289.7	4.7	1,332.7
Fine 6/	--	68.4	--	9.8	2.8	865.6	--	852.2
Bark	495.2	55.4	0.1	225.1	--	121.8	3.0	1,826.6
Total	1,484.9	124.3	0.2	559.2	2.8	1,277.1	7.7	4,011.5

1/ For manufacture of pulp, hardboard, or roofing felt.
2/ Includes fuel given away.
3/ Includes uses such as livestock bedding, mulch, small dimension, and speciality items.
4/ Includes residue burned as waste.
5/ Residue suitable for chipping.
6/ Residue not suitable for chipping.

Table 24.--*Primary wood-using plants operating in 1972, by Forest Survey Unit, Iowa*
(In number of plants)

Kind of mill 1/	All units	North-eastern unit	South-eastern unit	Western unit
Sawmills:				
Large 2/	21	13	6	2
Medium 3/	27	12	12	3
Small 4/	12	1	4	7
Total	60	26	22	12
Veneer mills	2	1	--	1
Cooperage mills	1	1	--	--
Pulpmills	2	1	1	--
Total	65	29	23	13

1/ Excludes idle mills.
2/ Annual output of more than 1 million board feet.
3/ Annual output of from 0.101 to 1.000 million board feet.
4/ Annual output of less than 0.101 million board feet.

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Ostrom, Arnold J.
1976. Forest statistics for Iowa, 1974. USDA For. Serv. Resour. Bull. NC-33, 25 p. North Cent. For. Exp. Stn., St. Paul, Minn.

Presents statistics of Iowa's forest area, timber volume, growth, mortality, ownership, and use in 1974.

OXFORD: 524.61(777). KEY WORDS: forest areas, timber volume, growth, timber products.

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