United States Department of Agriculture
Bureau of Biological Survey

Wildlife Research and Management Leaflet BS-43

Washington, D. C. * April 1936

FRUITS ATTRACTIVE TO BIRDS - NORTHERN PLAINS STATES REGION No. 3

[North Dakota, South Dakota, Nebraska, and Kansas]

By W. L. McATEE, Principal Biologist and Technical Adviser
Office of the Chief

Contents

REGIONS FOR WHICH LEAFLETS ON FRUITS ATTRACTIVE TO BIRDS ARE AVAILABLE

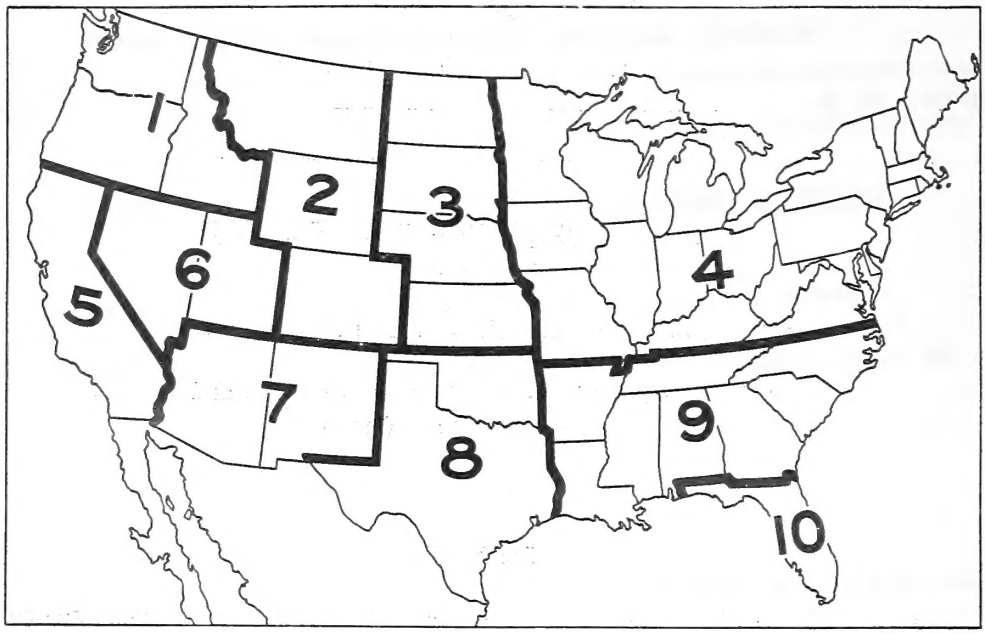

FIGURE 1.--Map of the United States, showing the 10 regions used in presenting information on fruits attractive to birds.

As an aid in requesting leaflets, it should be noted that No. BS-41 is for region 1; BS-42, for region 2, etc., with BS-50 for region 10.

INTRODUCTION

The Northern Plains States are traversed by the dividing line between the more humid eastern and the less humid western portions of the United States. This line variably placed a little east or a little west of the 100th meridian divides the Dakotas and Nebraska about in halves but runs considerably nearer to the western than to the eastern boundary of Kansas. Disparity in conditions for plant growth has suggested as desirable the indication in the lists of fruits of species better suited to the western and eastern districts, respectively. Conditions for trees and shrubs are so trying in the Northern Plains States that planters should largely be guided by the results obtained from plantations of the Agricultural Experiment Stations. These institutions in Region 3 have given special attention to the planting and care of trees and shrubs. See list of literature on page 12.

Table 1 shows groups of fleshy fruits most attractive to birds throughout the United States and lists desirable kinds of birds most fond of the fruit. No barberries, currants, or buckthorns are listed, because they harbor rusts destructive to plants of economic importance. Junipers are in almost the same category, as they serve as alternate hosts for apple rust, but there is no reason why they cannot be used in districts where apples are not commercially grown, as they are among the most valuable plants for wildlife. Omitted also are plants poisonous to man on contact, as poison ivy and poison sumac, as well as various kinds dangerously poisonous to domestic animals, as yews, wild cherries, and nightshades, in spite of the fact that wild cherries are greatly relished by birds. Browsing animals are known to have been killed by feeding on the leaves of wild cherries but do not seem to be so seriously affected by those of plums. Certain plants included among fleshy fruit bearers in previous publications have been transferred to the list of seed producers, hence do not appear in the present series of leaflets. These include magnolia (Magnolia), bittersweet (Celastrus), and burningbush (Euonymus).

It should be noted that the fruit-bearing seasons recorded, being collected from varied sources, tend to be maxima. As a rule they are not likely to be realized or even approached in a single locality unless numerous specimens of a given species are present and so distributed in sun and shade as to favor both early and late fruiting.

The word "extralimital" as here used in certain table headings covers plants from other States or regions of the United States as well as wholly introduced, exotic, or foreign plants.

TABLE 1. - Groups of fleshy fruits[1] most attractive to birds throughout the United States

Name of fruit		Species of birds known to eat the fruit	
Common	Generic	Number[2]	Desirable kinds most fond of the fruit
Juniper; redcedar[3]	Juniperus	50	Flicker, mockingbird, robin, eastern bluebird, cedar waxwing, myrtle warbler, evening and pine grosbeaks, purple finch.
Greenbrier	Smilax	43	Mockingbird, catbird, brown thrasher, robin, hermit thrush, cardinal.
Bayberry	Myrica	85	Bobwhite, flicker, downy woodpecker, eastern phoebe, tree swallow, black-capped chickadee, Carolina wren, catbird, brown thrasher, hermit thrush, eastern bluebird, white-eyed vireo, myrtle warbler, meadowlark, towhee.
Hackberry	Celtis	47	Flicker, yellow-bellied sapsucker, mockingbird, brown thrasher, robin, eastern bluebird, cedar waxwing, cardinal.
Mulberry	Morus	59	Yellow-billed cuckoo, red-bellied, red-headed, and downy woodpeckers, eastern kingbird, mockingbird, catbird, robin, wood thrush, cedar waxwing, red-eyed vireo, yellow warbler, orchard and Baltimore orioles, scarlet tanager, cardinal, purple finch.
Pokeberry	Phytolacca ...	52	Mourning dove, flicker, eastern kingbird, mockingbird, catbird, robin, hermit, olive-backed, and gray-cheeked thrushes, eastern bluebird, cardinal.
Spicebush	Benzoin	17	Eastern kingbird, wood thrush, veery, red-eyed vireo.
Sassafras	Sassafras	18	Bobwhite, eastern kingbird, catbird, robin, veery, red-eyed vireo.
Strawberry	Fragaria	52	Catbird, brown thrasher, robin, wood thrush, towhee.

TABLE 1. - Groups of fleshy fruits most attractive to birds throughout the United States--Continued

Name of fruit		Species of birds known to eat the fruit	
Common	Generic	Number	Desirable kinds most fond of the fruit
Raspberry, blackberry	Rubus	146	Ruffed grouse, bobwhite, flicker, red-headed woodpecker, eastern kingbird, tufted titmouse, wren tit, mockingbird, catbird, brown thrasher, robin, wood and olive-backed thrushes, eastern bluebird, cedar waxwing, red-eyed vireo, orchard and Baltimore orioles, cardinal, rose-breasted, black-headed, and pine grosbeaks, red-eyed, spurred, and California towhees, white-throated, fox, and song sparrows.
Rose	Rosa	38	Ruffed and sharp-tailed grouse, prairie chicken, bobwhite.
Mountain-ash	Sorbus	13	Red-headed woodpecker, catbird, brown thrasher, robin, Bohemian and cedar waxwings, Baltimore oriole, evening and pine grosbeaks.
Chokeberry	Aronia	21	Brown thrasher, meadowlark.
Hawthorn	Crataegus ...	39	Ruffed grouse, robin, purple finch, pine grosbeak.
Apple	Malus	43	Ruffed grouse, ring-necked pheasant, mockingbird, robin, cedar waxwing, purple finch, pine grosbeak, red crossbill.
Juneberry	Amelanchier .	42	Flicker, catbird, robin, hermit thrush, veery, cedar waxwing, Baltimore oriole.
Sumac[4/]	Rhus	97	Ruffed grouse, bobwhite, valley quail, northern and red-shafted flickers, red-bellied and downy woodpeckers, phoebe, black-capped and Carolina chickadees, wren tit, Carolina wren, mockingbird, catbird, brown and California thrashers, robin, hermit thrush, eastern bluebird, white-eyed vireo, towhee, Audubon's warbler, goldfinch, golden-crowned sparrow.
Pepperberry	Schinus	12	Robin, varied and hermit thrushes, cedar waxwing, phainopepla.

TABLE 1. - Groups of fleshy fruits most attractive to birds throughout the United States--Continued

Name of fruit		Species of birds known to eat the fruit	
Common	Generic	Number	Desirable kinds most fond of the fruit
Holly	Ilex	48	Ruffed grouse, bobwhite, valley quail, flicker, yellow-bellied sapsucker, mockingbird, catbird, brown thrasher, robin, hermit thrush, eastern bluebird, cedar waxwing.
Supplejack	Berchemia	15	Mockingbird, robin.
Grape	Vitis	87	Ruffed grouse, bobwhite, northern and red-shafted flickers, pileated and red-bellied woodpeckers, eastern kingbird, mockingbird, catbird, brown thrasher, robin, wood thrush, veery, eastern and western bluebirds, cedar waxwing, cardinal.
Virginia creeper	Ampelopsis	38	Flicker, red-bellied and red-headed woodpeckers, yellow-bellied sapsucker, tufted titmouse, mockingbird, brown thrasher, robin, hermit, olive-backed, and gray-cheeked thrushes, eastern bluebird, red-eyed vireo, scarlet tanager, evening grosbeak, purple finch.
Buffaloberry	Shepherdia	18	Sharp-tailed grouse, pine grosbeak.
Silverberry, Russian olive, etc.	Elaeagnus	5/	Prairie chicken, sharp-tailed grouse, catbird, robin, cedar waxwing.
Wild-sarsaparilla	Aralia	16	Bobwhite, robin.
Dogwood	Cornus	93	Ruffed grouse, bobwhite, northern and red-shafted flickers, downy woodpecker, eastern kingbird, catbird, brown thrasher, robin, wood, hermit, olive-backed, and gray-cheeked thrushes, eastern bluebird, cedar waxwing, red-eyed and warbling vireos, cardinal, evening and pine grosbeaks, purple finch, white-throated and song sparrows.
Sourgum, tupelo	Nyssa	39	Flicker, robin, olive-backed and gray-cheeked thrushes, cedar waxwing, purple finch.
Crowberry	Empetrum	40	Pine grosbeak, snow bunting.
Bearberry, manzanita	Arctostaphylos	34	Dusky and ruffed grouse, valley and mountain quail, wren tit, fox sparrow.

TABLE 1. - Groups of fleshy fruits most attractive to birds throughout the United States--Continued

Name of fruit		Species of birds known to eat the fruit	
Common	Generic	Number	Desirable kinds most fond of the fruit
Wintergreen	Gaultheria ..	10	Ruffed grouse, wren tit.
Huckleberry	Gaylussacia .	46	Robin, pine grosbeak, towhee.
Blueberry	Vaccinium ...	93	Ruffed grouse, valley quail, eastern kingbird, black-capped chickadee, tufted titmouse, catbird, brown thrasher, robin, hermit thrush, eastern bluebird, cedar waxwing, orchard oriole, pine grosbeak, towhee.
Beautyberry	Callicarpa .	11	Mockingbird, brown thrasher.
Partridgeberry ...	Mitchella ...	10	Ruffed grouse.
Elderberry	Sambucus	118	Valley quail, flicker, red-headed woodpecker, eastern and Arkansas kingbirds, black phoebe, wren tit, mockingbird, catbird, brown and California thrashers, robin, olive-backed thrush, eastern and western bluebirds, phainopepla, red-eyed vireo, rose-breasted and black-headed grosbeaks, California towhee, white-crowned sparrow.
Snowberry, coralberry	Symphoricarpos	33	Sharp-tailed grouse, varied thrush, evening and pine grosbeaks.
Blackhaw, cranberrybush	Viburnum	35	Ruffed grouse, yellow-billed cuckoo, flicker, catbird, brown thrasher, robin, eastern bluebird, cedar waxwing, rose-breasted grosbeak, purple finch.
Honeysuckle	Lonicera	18	Bobwhite, catbird, brown thrasher, robin, hermit thrush, pine grosbeak, white-throated sparrow.

1/ Barberries (Berberis), buckthorns (Rhamnus), and currants (Ribes) are omitted because they serve as alternate hosts of rusts, attacking wheat, oats, and white pine, respectively. Yews (Taxus), wild cherries (Prunus), and nightshades (Solanum) also are omitted as being dangerous stock poisoning plants.

2/ When 10 or more.

3/ Carries apple rust; should not be planted near valuable orchards.

4/ Only nonpoisonous species of sumac are considered.

5/ Data given are based entirely on field observations; total number of birds eating the various species of Elaeagnus unknown.

TABLE 2.--Native fruits of the Northern Plains States for which satisfactory data on fruiting seasons are available

(Numbers indicate suitability of the plants for: 1, North Dakota; 2, South Dakota; 3, Nebraska; and 4, Kansas. Letters denote sections to which the plants are best adapted: E, eastern or more humid section and W, western or more arid section)

Common name	Scientific name	Remarks
Common juniper....	Juniperus communis.....	1,2,3, W. All year.
Redcedar.....	Juniperus virginiana....	1,2,3,4, E. All year.
Carrionflower.....	Smilax herbacea	1,2,3,4, E. Early July to mid-September.
Bristly greenbrier	Smilax hispida.....	1,2,3,4, E. Early July to mid-March.
Hackberry.....	Celtis occidentalis.....	1,2,3,4. Mid-July to mid-April.
Red mulberry.....	Morus rubra.....	1,2,3,4, E. Mid-April to mid-August.
Pokeberry.....	Phytolacca americana....	3,4, E. Mid-July to mid-November.
Strawberry.....	Fragaria virginiana.....	1,2,3,4, E. Early May to early July.
Do.....	Fragaria americana.....	1,2,3,4. Late June to early September.
Black raspberry...	Rubus occidentalis.....	1,2,3,4. Late June to mid-September.
Wild rose.....	Rosa arkansana.....	1,2,3,4. Mid-July to early December.
Do.....	Rosa woodsii.....	1,2,3,4. Mid-June to late August.
Serviceberry.....	Amelanchier canadensis..	1,2,3,4, E. Mid-May to late August.
Downy hawthorn....	Crataegus mollis.....	1,2,3,4, E. Mid-August to mid-October.
Wild plum.....	Prunus americana.....	1,2,3,4. Mid-June to late August.
Smooth sumac.....	Rhus glabra.....	1,2,3,4. All year.
Skunkbush.....	Rhus trilobata.....	1,2,3,4. W. Early May to late August.
Riverbank grape...	Vitis vulpina.....	1,2,3,4. Mid-July to late October.
Virginia creeper..	Ampelopsis quinquefolia.	1,2,3,4. Early June to late March.
Thicket " ..	Ampelopsis vitacea	1,2,3,4.
Silver buffaloberry	Shepherdia argentea.....	1,2,3,gen.,4, W. Early July to late September.
Red-osier.....	Cornus stolonifera.....	1,2,3. Late June to late December.
Bearberry.....	Arctostaphylos uva-ursi.	1,2,3, W. All year.
Elderberry.....	Sambucus canadensis.....	1,2,3,4. Early June to mid-August.
Nannyberry.....	Viburnum lentago.....	1,2,gen.,3,4, E. Mid-July to mid-April.
Snowberry.....	Symphoricarpos occidentalis.	1,2,3,gen.,4. E. Mid-July to late December.
Honeysuckle.....	Lonicera glaucescens....	1,2,3, W. Late May to early October.

TABLE 3.--Native fruits of the Northern Plains States for most of which less satisfactory data on fruiting seasons are available

(For explanation of numbers and letters see headnote to Table 2)

Common name	Scientific name	Remarks
Creeping juniper..	Juniperus horizontalis	1,2.
Colorado juniper..	Juniperus scopulorum....	1,2,3, W. All year.
Moonseed.....	Menispermum canadense...	1,2,3,4, E. June to September.
Red raspberry.....	Rubus strigosus.....	1,2,3.
Salmonberry.....	Rubus parviflorus.....	2, S.W.
Blackberry.....	Rubus allegheniensis....	3,4, E.

TABLE 3.--Native fruits of the Northern Plains States for most of which less satisfactory data on fruiting seasons are available--Continued

Common name	Scientific name	Remarks
Wild rose.....	Rosa acicularis.....	1,2,3, W. All year.
Do.....	Rosa setigera.....	3,4, E. From mid-July very persistent.
Mountain-ash.....	Sorbus scopulina.....	2, S.W. Fruit long persistent.
Serviceberry.....	Amelanchier alnifolia.....	1,2,3, W. June to August.
Hawthorn.....	Crataegus chrysocarpa.....	1,2,3.
Do.....	Crataegus coccinea.....	3,4, E.
Prairie crab.....	Malus ioensis.....	1,2,3,4, E.
Dwarf sumac.....	Rhus copallina.....	3,4, E. All the year.
Winter grape.....	Vitis cinerea.....	3, 4. E.
Southern creeper..	Ampelopsis cordata.....	Do.
Silverberry.....	Elaeagnus argentea.....	1,2, S.W.
Russet buffaloberry	Shepherdia canadensis.....	Do.
Wild sarsaparilla.	Aralia nudicaulis.....	1,2.
American spikenard	Aralia racemosa.....	1,2,3,4, E.
Bunchberry.....	Cornus canadensis.....	1,2, W.
Silky dogwood.....	Cornus amomum.....	1,2,3,4, E. June to September.
Prairie dogwood...	Cornus baileyi.....	1,2,3. July to August.
Gray dogwood.....	Cornus paniculata.....	1,2,3, E.
Roughleaf dogwood.	Cornus asperifolia.....	2,3,4, E. July to September.
Big whortleberry..	Vaccinium membranaceum....	2, S.W.
Red whortleberry..	Vaccinium scoparium.....	Do.
Persimmon.....	Diospyros virginiana.....	4, E.
Red elderberry....	Sambucus microbotrys.....	2, S.W.
Cranberrybush.....	Viburnum americanum.....	1,2. From July - long persistent.
Blackhaw.....	Viburnum prunifolium.....	4, E.
Snowberry.....	Symphoricarpos racemosus..	1,2. From August - long persistent.
Honeysuckle.....	Lonicera dioica.....	3,4, E.
Do.....	Lonicera sempervirens.....	Do.
Do.....	Lonicera hirsuta.....	1,2,3, E.

TABLE 4.--Extralimital fruits that have been recommended for North Dakota

Common name	Scientific name
Dogbrier.....	Rosa canina.
Mountain-ash.....	Sorbus aucuparia.
Do.....	Sorbus americana.
Peking cotoneaster.....	Cotoneaster acutifolia.
Cockspur thorn.....	Crataegus crusgalli.
Washington hawthorn.....	Crataegus phaenopyrum.
Chinese hawthorn.....	Crataegus pinnatifida.
Siberian crab.....	Malus baccata.
Japanese creeper.....	Ampelopsis tricuspidata.
Russian olive.....	Elaeagnus angustifolia.
Bloodtwig dogwood.....	Cornus sanguinea.
European elderberry.....	Sambucus nigra.
Red elderberry.....	Sambucus pubens.

TABLE 4.--Extralimital fruits that have been recommended for North Dakota--Continued

Common name	Scientific name
Morrow honeysuckle.....	Lonicera morrowi.
Tatarian honeysuckle.....	Lonicera tatarica.

TABLE 5.--Extralimital fruits that have been recommended for South Dakota

Common name	Scientific name
Chinese juniper.....	Juniperus chinensis and vars.
Spiky Greek juniper.....	Juniperus excelsis var. stricta.
Japanese juniper.....	Juniperus japonica.
Tamarix savin	Juniperus sabina var. tamariscifolia,
Russian mulberry.....	Morus alba var. tatarica.
Asiatic moonseed.....	Menispermum dauricum.
Red chokeberry.....	Aronia arbutifolia.
Mountain-ash.....	Sorbus alnifolia.
Do.....	Sorbus americana.
Do.....	Sorbus aucuparia.
Do.....	Sorbus quercifolia.
Peking cotoneaster.....	Cotoneaster acutifolia.
Rock cotoneaster.....	Cotoneaster horizontalis.
Flowering cotoneaster.....	Cotoneaster multiflora.
Chinese photinia.....	Photinia villosa.
Chinese hawthorn.....	Crataegus pinnatifida.
Amur hawthorn.....	Crataegus sanguinea.
Siberian crab.....	Malus baccata.
Cherry crab.....	Malus robusta.
Cherry prinsepia.....	Prinsepia sinensis.
Amur grape.....	Vitis amurensis.
Rose daphne.....	Daphne cneorum.
Sea buckthorn.....	Hippophaë rhamnoides.
Russian olive.....	Elaeagnus angustifolia.
Coral dogwood.....	Cornus alba sibirica.
Redtwig dogwood.....	Cornus sanguinea.
Fringetree.....	Chionanthus virginica.
Amur privet.....	Ligustrum amurense.
Matrimony-vine.....	Lycium chinense.
Do.....	Lycium halimifolium.
Golden elder.....	Sambucus nigra aurea.
Fragrant viburnum.....	Viburnum carlesi.
Wayfaring-tree.....	Viburnum lantana.
European cranberrybush....	Viburnum opulus.
Honeysuckle.....	Lonicera albida & vars.
Do.....	Lonicera coerulea & vars.
Do.....	Lonicera canadensis.
Do.....	Lonicera chrysantha.
Do.....	Lonicera korolkowi.

TABLE 5.--Extralimital fruits that have been recommended for South Dakota--Continued

Common name	Scientific name
Honeysuckle.....	Lonicera morrowi
Do.....	Lonicera notha & vars.
Do.....	Lonicera periclymeum.
Do.....	Lonicera salicifolia.
Do.....	Lonicera segreziensis.
Do.....	Lonicera spinosa.
Do.....	Lonicera tatarica & vars.
Do.....	Lonicera japonica.
Do.....	Lonicera sempervirens.

TABLE 6.--Extralimital fruits that have been recommended for Nebraska

Common name	Scientific name
Russian mulberry.....	Morus alba tatarica.
Mountain-ash.....	Sorbus americana.
Do.....	Sorbus aucuparia.
Siberian crab.....	Malus baccata.
Parkman crab.....	Malus parkmani.
Rugosa rose.....	Rosa rugosa.
Wichurian rose.....	Rosa wichuriana.
Flowering plum.....	Prunus triloba.
Russian olive.....	Elaeagnus angustifolia.
Russet buffaloberry.....	Shepherdia canadensis.
Japanese creeper.....	Ampelopsis tricuspidata.
Cornelian cherry.....	Cornus mas.
Bloodtwig dogwood.....	Cornus sanguinea.
Coral dogwood.....	Cornus sibirica alba.
Amur privet.....	Ligustrum amurense.
Regel privet.....	Ligustrum ibota var. regelianum.
European privet.....	Ligustrum vulgare.
Matrimony-vine.....	Lycium chinense.
Do.....	Lycium halimifolium.
Red elderberry.....	Sambucus racemosa.
Golden elderberry.....	Sambucus nigra aurea.
Wayfaring-tree.....	Viburnum lantana.
American cranberrybush....	Viburnum americanum.
European cranberrybush....	Viburnum opulus.
White belle honeysuckle...	Lonicera bella albida.
Winter honeysuckle.....	Lonicera fragrantissima.
Tatarian honeysuckle.....	Lonicera tatarica.
Morrow honeysuckle.....	Lonicera morrowi.
Hall Japanese honeysuckle.	Lonicera japonica var. halliana.

TABLE 7.--Extralimital fruits that have been recommended for Kansas

Common name	Scientific name
Common juniper	Juniperus communis
Pfitzer juniper	Juniperus chinensis var. pfitzeriana.
Savin	Juniperus sabina.
Colorado juniper	Juniperus scopulorum.
Russian mulberry	Morus alba tatarica.
Peking cotoneaster	Cotoneaster acutifolia.
Cockspur thorn	Crataegus crusgalli.
Purpleleaf plum	Prunus pissardi.
Russian olive	Elaeagnus angustifolia.
Silverberry	Elaeagnus argentea.
Coral dogwood	Cornus alba sibirica.
Amur privet	Ligustrum amurense.
Ibota privet	Ligustrum ibota & var. regelianum.
European privet	Ligustrum vulgare.
Lilac chaste-tree	Vitex agnus-castus.
Cutleaf chaste-tree	Vitex incisa.
European cranberrybush	Viburnum opulus.
Snowberry	Symphoricarpos racemosus.
Tatarian honeysuckle	Lonicera tatarica and vars.
Morrow honeysuckle	Lonicera morrowi.
Amur honeysuckle	Lonicera maacki.

LITERATURE

Publications of interest in connection with fruits for the Northern Plains States include:

Region

Flora of the prairies and plains of central North America, by P. A. Rydberg, vii+969 pp., illus., 1932. Inquire as to price from the Botanic Garden, New York, N. Y.

Possibilities of shelterbelt planting in the Plains Region, by a number of authors. 201 pp., illus., 1935. Superintendent of Documents, Washington, D. C. 75 cents a copy.

North Dakota

Flora of North Dakota, by Herbert F. Bergman. Sixth Biennial Report N. Dak. Soil and Geol. Survey, pp. [4]+151-372+19, 1912. Published by the State Soil and Geol. Survey, Bismarck, N. Dak.

Trees, shrubs and plants for North Dakota farmsteads, by C. B. Waldron. Agr. Ext. Circ. 67, 39 pp., illus., January 1933. Inquire as to conditions governing distribution from the North Dakota Agricultural College., Fargo, N. Dak.

The native fruits of North Dakota and their use, by A. F. Yeager, Esther Latzke, and Dorothy Berrigan. Agr. Expt. Sta. Bull. 281, 26 pp., illus., April 1935. Inquire as to conditions governing distribution from the North Dakota Agricultural College, Fargo, N. Dak.

South Dakota

Flora of South Dakota, by William H. Over, 161 pp., 34 pls., 1932. Inquire as to conditions governing distribution from the University of South Dakota, Vermillion, S. Dak.

Inquire as to conditions governing distribution of the following bulletins concerning South Dakota from the South Dakota College of Agriculture and Mechanic Arts, Brookings, S. Dak.

The shade, windbreak, and timber trees of South Dakota, by N. E. Hansen. Agr. Expt. Sta. Bull. 246, 48 pp., illus., March 1930.

Evergreens in South Dakota, by N. E. Hansen. Agr. Expt. Sta. Bull. 254, 33 pp., illus., October, 1930.

Home propagation of ornamentals, by A. L. Ford. Agr. Ext. Circ. 305, 11 pp., illus., January 1931.

The ornamental trees of South Dakota, by N. E. Hansen. Agr. Expt. Sta. Bull. 260, 63 pp., April, 1931.

The shrubs and climbing vines of South Dakota, by N. E. Hansen. Agr. Expt. Sta. Bull. 263, 135 pp., illus., August 1931.

Kansas

Hardy trees and shrubs for western Kansas, by E. W. Johnson. Agr. Expt. Sta. Bull. 270, 32 pp., illus., September 1934. Inquire as to conditions governing distribution from the State College of Agriculture and Applied Science, Manhattan, Kans.