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N. E. Hansen

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**Fruits,  
Old and New  
and  
Northern Plant  
Novelties**

**By  
N. E. Hansen**

**Department of Horticulture  
Agricultural Experiment Station  
South Dakota State College of Agriculture  
and Mechanic Arts  
Brookings, S. D.**

## 1937 Hardy Fruit List for South Dakota

By N. E. Hansen, Horticulturist

This list of fruits recommended for planting will vary because of local conditions. Planters in the extreme southern and southeastern edge of the state will be interested in the fruit lists of northern Nebraska and northern Iowa. For the eastern and northeastern counties, across the state, the North Dakota list should be studied. The Black Hills region is more sheltered and can grow many varieties not hardy on the open prairies further east.

The following summarizes the South Dakota experience and quotes some of the experience of adjoining states east and north.

### Apples

**Old Standard Varieties.**—Hardy in all parts of the state: Duchess, Wealthy, Charlamoff, Patten Greening, Anisim, Yellow Transparent, Hibernial.

**Some Old Apples in the Southern Part of South Dakota**—Many old apple varieties still are found in the southern two or three tiers of counties in South Dakota. The list includes Wolf River, Malinda, Okabena, McIntosh, Salome, Tolman Sweet, McMahan, Plumb Cider and many more. The local experience will be a guide to planters. The recommended list summarizes the general experience.

**New Varieties for Trial.**—**Haralson:** In Minnesota listed as a leading commercial winter apple for most of the state.

**Anoka:** Remarkable for extremely early bearing. In Minnesota listed for house, orchard or garden in the northern district.

**Goldo:** A good cross of Duchess and Grimes Golden. Very productive. Bears early and abundantly. Fruit large and of good quality.

**Maga:** Late fall; of large size and excellent quality.

Besides the Anoka, Goldo and Maga, there are a number of other good apples recently originated at the South Dakota Experiment Station which are on trial, but not yet obtainable for general planting.

**Red Duchess:** A red-fruited sport of Duchess, is now in the trial list for all parts of Minnesota.

**Northwestern Greening:** Still favored in many orchards, especially southward as a large winter apple. Not fully hardy northward. In Minnesota now listed only for the south and southeastern one-third of the state. The following apples are listed for trial in all parts of Minnesota: Early McIntosh, Melba, Beacon (Minnesota), Wedge.

**Crabapples, Old and New.**—Of the old varieties, Whitney and Florence are still on the favored list in South Dakota, Minnesota and North Dakota. **Dolgo** is the most popular of the new varieties because of the red color of the fruit, sauce and jelly; jells very easily; tree bears early and abundantly. The North Dakota list recommends Florence, Dolgo, Whitney, and Virginia (pickling); and for trial: Sugar, Trail, Ivan and Amur.

**Topworking Apples on Hardy Stocks.**—In South Dakota, Minnesota and Iowa two extra varieties are recommended as a stock upon which to topwork, by grafts or buds, the less hardy varieties. The Hibernial apple and Virginia crab are two of the best for topworking because of the strong forks which are not subject to sunscald. In recent Iowa experience

reported at the November, 1936 meeting of the Iowa State Horticultural Society, the Hiberna was found superior to the Virginia.

In Hot Springs, South Dakota, John Robertson finds the Izo crab an excellent stock for apples to prevent root-killing. Trees on common apple stocks need mulching over winter to prevent root-killing in winters when severe cold comes with no snow on the ground.

### Pears

There are a number of good hardy pears resistant to fire blight, and with fruit of good size and quality, among the pear seedlings at the South Dakota Experiment Station. The main problem now is hardy stocks for nursery propagation.

### Plums

**Hybrids.**—In Minnesota, Underwood, Red Wing, Superior, Kaga, Mendota, Monitor, and Elliott are on the commercial list; and LaCrescent and Tonka for home use; Ember for trial in all or nearly all parts of the state. As pollinizers for other plums Surprise, Wolf, Wyant, Rollings-tone, DeSoto, Hanska, Kaga or Toka are recommended. The first five are native plums. Hanska, Kaga and Toka originated at the South Dakota Experiment and are hybrids of the native plum with the Chinese apricot plum *Prunus Simoni*.

In South Dakota the many hybrid plums originated at the South Dakota Experiment Station are much planted. (See South Dakota Bulletin No. 224). The favorite is Waneta, full two inches in diameter, the largest of all the hybrids of native plum with Japanese plums. Two full sisters of Waneta are Kahinta and Tawena. The Tecumseh is found valuable by John Robertson at 4200 feet elevation at Hot Springs.

The list of desirable hybrid plums is being reduced to the best few. It is best always, however, to have several varieties to insure pollination.

**Cherry Plums.**—The cherry plums are a hybrid of a bush and a tree, and intermediate in habit between the two. They fruit in nursery from the ground up on one-year old trees, and are best when kept in bush form. After several years the older shoots can be cut back to promote the growth of young shoots upon which the best fruit is borne.

The Hansen Bushcherry is the result of extensive selection for size and quality since 1895 at the South Dakota Experiment Station of the native South Dakota Sandcherry *Prunus Besseyi*. The Sioux is the best of the earlier selections and nine more varieties were named in the Spring List of 1937. These nine varieties are Keyapaha, Oahe, Okreek, Tepee, Wampum, Wasta, Watauga, Weta, Wewela.

**Native Plums.**—Soon after the large hybrids were introduced beginning with the Waneta, introduced 1913, the native plums lost in popularity because the hybrids were larger in size and superior in quality. However, the pure select native plums should not be neglected as they are hardy and some are needed as pollinators for the hybrids.

The northern native plum is *Prunus nigra*. The largest and best of this species is the Assiniboine now popular in Manitoba and Saskatchewan. The native plum of South Dakota is *Prunus Americana*. The largest of these is probably the Teton, with fruit  $1\frac{3}{8}$  inches in diameter, found by N. E. Hansen in Campbell county, South Dakota, and introduced in 1912. Other good native plums are Wastesa, Yuteca, Huya, Topa and

Zekanta, originated by N. E. Hansen. These and other native plums, such as DeSoto, should not be neglected but the work of improvement should go on. At least the pure select native plums are useful as pollinators.

### Cherries

No sweet cherries and no sour cherries are on the recommended list for South Dakota and Minnesota. The North Dakota cherry list is as follows: Recommended for trial—Vladimir, Bessarabia, Wragg, Nanking Sweet Cherry (*Prunus tomentosa*).

For South Dakota the old standard sour cherry Early Richmond bears fruit in the southern counties of the state. At Brookings neither Vladimir nor Bessarabia withstood the test. However, some of the Cherry-plums are to a considerable extent a good substitute for cherries for the prairies.

### Apricots

Twelve varieties of apricots from 50 degrees below zero territory, all grown from seed brought by N. E. Hansen from the Harbin region, North China, were named in 1936 and trees sent out in the spring, 1937, for trial. These 12 varieties are Manchu, Mandarin, Chow, Sing, Ninguta, Tola, Anda, Zun, Sino, Lalin, Hulan and Sansin.

## Other Fruits from the South Dakota Experiment Station

The hardy pears, grapes, raspberries and gooseberries originated at the South Dakota Experiment Station are in propagation but were not available for the spring (1937) planting except Ohta and Sunbeam red raspberries. The Starlight red raspberry has found favor in Manitoba and other parts of Canada as the hardiest of all raspberries.

### Gooseberries in South Dakota

Of the old gooseberries, Carrie and Houghton are still planted. The Carrie is less thorny than the other varieties. The remainder of the fruit list recommended by the North Dakota State Horticultural Society at the 1935 meeting at Mandan follows:

### Currants

**Standard**—Perfection, Long Bunch Holland, Red Lake, London Market and White Grape.

**Recommended for Trial**—Fleming (black), and Minnesota 70.

### Gooseberries

**First Degree Hardiness**—Pixwell and Carrie.

**Recommended for Trial**—Abundance, Perry, Como, and Clark.

### Grapes

**Recommended for Trial**—Patten, Mendel, and Tait No. 2.

### Raspberries

**Hardest**—Latham, Sunbeam and Chief.

**Blacks Recommended for Trial**—Heath and Cumberland.

## Strawberries

**June Bearing**—Dunlap and Premier.

**For Trial**—Minnehaha, Easypicker, Bellmar, Blakemore, and Dorsett.

**Everbearing**—Progressive.

**For Trial**—Dry Weather and Wayzata.

## Valuable Native Fruits

Saskatoon (Juneberry), Missouri Currant, Sandcherry, Chokecherry, Buffaloberry, and Pembina (Highbush Cranberry).

## Nuts Worth Growing

Black Walnut, Butternut and Hazelnut.

## Fruit Varieties Recommended for Planting By The South Dakota State Horticultural Society

W. A. Simmons, Secretary, Sioux Falls, South Dakota

**Apples**.—Hardy anywhere in state—Duchess, Red Duchess, Beacon, Hibernial, Anoka, Wealthy, Haralson, Yellow Transparent, Longfield, Patten Greening. For southern half of state—Melba, Goldo, Sasha, Cortland. For topworking—McIntosh, Golden Delicious, Lobo, Milton, Northwestern Greening. Stock trees for topworking—Virginia crab, Hibernial, Izo crab.

**Crabapples**.—Dolgo, Florence, Whitney, Virginia.

**Cherries**.—Homer, Early Richmond, Wragg, Nanking Sweet Cherry (*Prunus tomentosa*).

**Currants**.—Wilder, Diploma, Red Lake, Perfection, Long Bunch Holland.

**Gooseberries**.—Pixwell, Abundance, Josselyn, Carrie, Poorman.

**Grapes**.—Alpha, Beta, Lucile, Emana.

**Pears**.—Patten, Mendel, Tait No. 2, Parker.

**Plums**.—American varieties—Wastesa, DeSoto, Wyant, Terry, Cheney. Hybrid Plums—Waneta, Tecumseh, Pembina, Kaga, Tokata, Red Wing.

**Sandcherry Hybrids**.—Opata, Sapa, Oka, Compass, Champa, Mordena, Cooper.

**Improved Sandcherries**.—Sioux, Brooks, Hansen's Bush Cherry.

**Raspberries, red**.—Latham, Chief, Duncom.

**Raspberries, black**.—Robertson, and N. D. P. 117, purple.

**Strawberries**.—Dunlap, Premier, Dorsett, Fairfax. Everbearing—Progressive, Dry Weather, Wayzata.

**Valuable Native Fruits**.—Saskatoon (Juneberry), Buffaloberry, Pembina, (Highbush Cranberry).

**Nuts Worth Growing**.—Black Walnut, Carpathian English Walnut, Butternut, Hazelnut.

## Northern Plant Novelties

New fruits originating in the fruit-breeding experiments at the South Dakota Experiment Station are all candidates for positions on the recommended fruit list. They have all done well at Brookings and have been sent out for limited trial elsewhere. The recent series of dry seasons has delayed the work of propagation. Only trial in many places can determine their ultimate value. They were bred for the most extreme northwestern prairie regions, and are not necessarily varieties that will supercede the present standard list in milder regions farther south.

Many requests are received for a set of the annual spring lists to supplement South Dakota Bulletin 224, "Plant Introductions, May 1927." The following descriptions are from the annual lists "Northern Plant Novelties" of this Department, issued since the publication of Bulletin 224.

### Apples

**Anoka Apple, Spring, 1929.**—The Anoka apple is probably the earliest and heaviest bearing apple in the world at the present time. Trees of the Anoka apple were recently ordered by the government of New South Wales, Australia, and trees have been sent to other foreign countries as well as all over the United States. The Anoka apple is attracting world-wide attention because it bears freely on one-year old wood, beginning the second year after planting a one-year old tree, and annually thereafter.

**Kazan Apple, Introduced 1934.**—A seedling of Anisim. Fruit round, conical, regular, brilliant red with crimson stripes, a beautiful fruit. Flesh white, juicy, subacid, flesh often red next to the skin. The enormous crops make the size medium or below. It may sell as a large crab or as a small apple.

**Lina Apple, Introduced 1933.**—A seedling of Malinda and much like it in conical shape with blush, but with no knobs. Remarkable for its perfectly conical shape with no corrugations. The flesh is mild subacid and cooks up easily into light yellow sauce of good quality. It is much better than the Malinda itself which does not cook up easily. Name derived from Malinda.

**Maga Apple, Spring, 1933.**—The Maga crabapple first introduced in 1922 as a crabapple, a seedling of McIntosh apple top-grafted on Virginia crabapple, must now be called an apple. Under orchard conditions in cultivated soil, the fruit attains full commercial apple size and combines the high quality of the McIntosh apple with Siberian hardiness, the Virginia being a hybrid Siberian crab.

**Tolmo Apple, Spring, 1933.**—Introduced 1932 as Otto, but this name is now canceled because the name had already been used for a Canadian seedling. Tolmo is condensed from the names of the parent varieties. Seedling of Russian Sweet top-grafted on Duchess of Oldenburg apple. Fruit good size,  $2\frac{3}{4}$  inches in diameter; Duchess coloring, with white flesh, pleasant subacid; quality very good. Season fall.

**Volga Apple, Introduced 1933.**—A seedling of the Russian apple Anisim topworked on Virginia crab. Fruit  $2\frac{3}{8}$  inches in diameter on much crowded trees, round, conical, brightest red all over with deeper red stripes and splashes. Basin very shallow, narrow, smooth, not corrugated

as in Anisim. Flesh fine, juicy, pleasant subacid. Remarkable for the light red tint of the flesh outside the core outline. Season, late fall.

**Wakpala Apple, Introduced 1928.**—Pedigree: Mercer crab x Tolman Sweet apple pollen. Fruit  $2\frac{3}{8}$  inches in diameter, yellow striped with red, flavor subacid with spicy sweet fragrance. Cooks up quickly into excellent sauce. Season, winter.

**International Apples, Spring, 1933.**—Hybridization of over 600 native wild crab and other hybrids is now progressing. The International Series appear to have the most promise; the American wild apple contributes long winter-keeping; the Siberian apple, extreme winter hardiness; and the European cultivated apple, large size and high quality of fruit.

## Crabapples

**Alexis Crabapple, Spring, 1934.**—The original tree of the Dolgo crab and the original tree of the Alexis crab grow near each other on the grounds of this department, but it is very difficult if not impossible to distinguish the two by the fruit. The Dolgo is now famous in many states east and west and north into Canada. Both Alexis and Dolgo make the finest jelly sauce and preserves. Both are highly profitable to plant for market. The fruit is brilliant dark solid red with a trace of blue bloom. Both trees are highly attractive in bloom as well as in fruit. It would be well to have both Alexis and Dolgo in the same plantation to insure pollination of both varieties.

**Amsib Crabapple, Introduced 1932.**—Female parent: Wild Red, a form of *Pyrus ioensis* from Iowa. Male parent: a *Pyrus baccata* brought from Moscow, Russia, in 1906. The name "Amsib" is condensed from the names America and Siberia. A good sized crab, about  $1\frac{3}{4}$  inches in diameter, green and yellow, keeps all winter, with fragrant wild crab flesh but neutral rather than bitter. It is only an ornamental tree at present, but is it the first hybrid of the indigenous American apple with the Siberian crab and has possibilities for the future.

**Bison Crabapple, Introduced 1933.**—Large, red, of excellent quality. Pedigree: Jonathan apple x Sylvia crab, making it one-half Jonathan apple, one-fourth Siberian crab, *Pyrus baccata*, and one-fourth Yellow Transparent apple. The tree is a very heavy bearer. Under orchard conditions this may turn out to be almost an apple in size.

**Caputa Crabapple, Introduced 1933.**—Pedigree: Ivan crab x Kentucky Mammoth wild crab. A large, red, juicy, sweet, subacid crab,  $1\frac{1}{4}$  inches in diameter. Tree productive. This is another of the International Series, combining the apples of North America, Europe and Siberia.

**Chinook Crabapple, Introduced 1924.**—Pedigree: Baldwin apple x Elk River wild crab. This has been attracting much attention recently because the fruit has been kept 18 months in an ordinary cellar. This is of interest to plant breeders. Described in Bulletin 224.

**Elk River wild crab.**—A dwarf ornamental lawn tree. Introduced 1930. Seedlings of *ioensis* from Elk River, about 40 miles north of Minneapolis, on the Mississippi river. Originally found by A. W. Keays. This makes a larger tree than the Nevis wild crab, yet begins to bloom very early. The beautiful pink flowers are decidedly ornamental.

**Izo Crab, Introduced 1919.**—Found by John Robertson, Hot Springs, South Dakota, to be of special value as a stock for top-grafting standard apples. The fruit is a good winter keeper. (Spring, 1933.)

**Kola Crabapple, Introduced 1922.**—Pedigree: Elk River wild crab x Duchess of Oldenburg apple. Recently this tree has become of great interest to cytologists and plant-breeders the world over, because it is the only known tetraploid among cultivated apples, having 68 chromosomes. This fact was determined by Dr. Bernhard Nebel, cytologist of the State Experiment Station at Geneva, New York.

**Nevis Wild Crab.**—A dwarf ornamental lawn tree. Introduced 1930. The wild American crabapple, *Pyrus Ioensis*, from the farthest northwestern point where it has been found native, Nevis, Minnesota, near the headwaters of the Mississippi river. Originally found by James Arrowwood. A beautiful ornamental bearing when only four feet high, rich pink flowers in great profusion.

**Redflesh Crabapple.**—Good for the lawn and for the orchard. Introduced 1928. A most remarkable novelty, this is probably destined to be world-wide in popularity wherever apples are grown. The tree is ornamental as well as useful, the beautiful red flowers and moderate growth making it a very desirable lawn tree. The original tree gives promise of being a good annual bearer and bore its first two crops in 1927 and 1928. The fruit in size is  $1\frac{1}{2}$  x  $1\frac{1}{8}$  inches in diameter, in color a brilliant solid polished dark red all over. The flesh is red throughout and makes excellent red preserves and red jelly which attracted favorable attention at the State college exhibit at the South Dakota State Fair, Huron, September, 1928. Season, fall. Pedigree: *Pyrus Malus Niedzwetzkyana* x Elk River, Minnesota, wild crab. The seed parent is from the Tian Shan Mountains that separate Russian Turkestan and western China. (Spring list, 1930.)

**Wakonda Crabapple, Introduced 1931.**—Another hybrid, native American apple with the standard apple. Pedigree, Nevis, Minnesota, wild crab x Northern Spy pollen. Fruit much larger than the original Nevis (*Pyrus Ioensis*), with considerable red color, indicates hybridity. These American wild crab hybrids are not to be considered as perfected varieties but as one step forward in the work of developing a race of apples of culinary type that will keep one year or more. The trees are early bearers, and as ornamental trees they are worthy on any lawn. Under orchard conditions and especially when top-grafted, the fruit will probably attain larger size.

**Wanblee Crabapple, Introduced 1933.**—Pedigree: Elk River, Minnesota, wild crab x Bismarck apple crossed with pollen of Wolf River apple. This makes the pedigree three-fourths tame apple and one-fourth native wild crab. The fruit oblate,  $2\frac{1}{8}$  inches in diameter, golden-yellow ground with brilliant red over most of surface which makes it very attractive in appearance. In flavor the wild crab is dominant. It has possibilities for the plant-breeder and as an ornamental tree.

**Waubay Crabapple, Introduced 1933.**—Pedigree: Grimes Golden apple x Mercer Unguarded wild crabapple. The first fruits  $1\frac{1}{4}$  inches in diameter, round conical, brilliant red, evidently a remarkable all winter keeper. The Waubay evidently combines the rich, spicy, subacid sweet of the Grimes Golden with the long keeping capacity and hardness of the seedling of the Mercer wild crab. Mercer Unguarded is an open-pollinated seedling of the Mercer crab from the Iowa Experiment Station. My recollection from student days at Ames, Iowa, is that the Mercer was planted near a Wolf River apple tree. This would explain the brilli-

ant red color. The Waubay has fruited on trees greatly crowded in the seedling plantation. My experience indicates that when given abundant room as orchard trees that the fruit becomes larger.

**Wecota and Wetonka.**—Winter crabs for the Far North. Wecota introduced 1929. Pedigree: Nevis wild crab x Northwestern Greening apple. Fruit two inches in diameter; round; skin oily; flavor acid; not very acerb. Cooks up softer than the others and with less wild crab flavor. Season, all winter. The Wecota and Wetonka are the first two hybrids of the wild crab from Nevis, Minnesota, the farthest northern point where this species has been found wild.

**Zita Crabapple, Introduced 1933.**—Pedigree: *Pyrus Malus Niedzwetzkyana* x Yellow Siberian crab. Flowers red, fruit red, regular, juicy, sweet, good quality, fully 1½ inches in diameter. Flesh red, especially inside core outline.

**Zaza Crabapple, Introduced 1933.**—Another crab with bright red flesh. Flowers red. Fruit red, exceeding 1½ inches in diameter. A complex hybrid of Duchess apple x *Pyrus Malus Niedzwetzkyana* with Siberian crab, *Pyrus baccata*.

**Zelma Crabapple, Introduced 1933.**—Another of my new series of crabapples with red flowers and red flesh. Fruit medium size, juicy, subacid, cooks into good red sauce. Both ornamental and useful. Pedigree: *Pyrus Malus Niedzwetzkyana* x Yellow Siberian crab.

## Pears

**Chang Pear, Introduced 1926.**—This seedling was grown from fruit grown on Experiment Station trees of *Pyrus Simoni*, a Chinese wild pear received many years ago from the Arnold Arboretum, Boston, Mass. The original tree bore fruit in 1923 and 1924. Fruit clear yellow, oblong pyriform; flesh white, firm, juicy. As described in South Dakota Bulletin 159, further investigations by Alfred Rehder at the Arnold Arboretum divide the species so that the tree is now called *Pyrus Ovoidea*. The bright red leaves in autumn are attractive. The first fruits of this select seedling pear, Chang, are 1¾ by 2¾ inches in diameter and of fair quality. Experience here at Brookings indicates that the ordinary commercial *Pyrus Ussuriensis* stocks winterkill readily, so these trees should be mulched carefully in winter to prevent root-killing. NOTE 1937: John Robertson of Hot Springs, South Dakota, grows the Chang pear and has exhibited it at various years, including 1936, at the State Fair at Huron. The fruit is of very good quality when canned.

**Finland Pear, Introduced 1933.**—A yellow pear, two inches in diameter and of excellent quality. Stem extra long. An open-pollinated seedling of the Yellow Early Finland pear planted next to row of Russian sand pear. This Finnish pear was imported by the writer from Russia in 1904. Judging by its superior hardiness and blight-resistance, the Finland must be a hybrid of the Yellow Early Finland and the Russian sand pear.

**Krylov Pear, Introduced 1933.**—A fine large early pear of good quality. Pedigree: Saponsky pear of eastern Siberia x Lincoln pear. Named in honor of a Russian poet.

**Ming Pear, Spring, 1934.**—The original tree still stands at this station, free from blight and very productive. Pedigree: *Pyrus Ovoidea* x Louise Bonne de Jersey, a choice French pear. The fruit is of good commercial size, flesh melting, of delicious flavor, a first class pear.

**Sadko Pear, Introduced 1933.**—A fine large red pear of good quality. Pedigree: Russian sand pear x Vermont pear. Strong tree with good forks. Sadko is the hero of a Russian legend.

**Sladky Pear, Introduced 1933.**—A large pear, 2½ inches in diameter; yellow, sweet, good flavor. Sladky is the Russian word for "sweet." Pedigree: Russian sand pear x Lincoln pear. Keeps well; season probably autumn.

**Harbin Pear Seedlings, Spring, 1929.**—My opinion is that successful pear culture for home and market use is now possible for all South Dakota and the prairie Northwest, also for southern Manitoba and Saskatchewan. In 1924, I thought it would save 50 years of time by going to North Manchuria in the mountains along the railroad. I found the western limit of this northern type of *Pyrus Ussuriensis* to be about 50 miles east of Harbin, where the minimum temperature ranges to about 47 degrees below zero. The fruit of this winter pear is about 2½ inches long and 2 inches across. The foliage is very ornamental in the fall due to the bright red and yellow color. I see no reason why it would not be a good shade tree for the lawn. It may be worth trying a few as a roadside or street tree.

The value of this type of pear is the strong resistance to the bacterial disease known as fire blight which kills the ordinary pear. From the seeds picked from the fresh fruit in 1924, I grew many thousands of trees in 1925. In 1926 most of them were transplanted in the State Orchard at Watertown. They have now grown three years and are ready for the final transplanting. The nurseryman should plant an orchard to provide hardy blight-resistant nursery stocks for the new hybrids now coming on. *Pyrus Ussuriensis* from the extreme southern part of Manchuria did not prove hardy at Brookings. The ordinary commercial *Pyrus Ussuriensis* seed is from sources much further south and such seedlings winter-kill at Brookings.

## Plums

**Teton, Spring, 1928.**—The best native plum is the Teton. The Hansen hybrid plums combine large size, choice quality and hardiness, and are grown in immense numbers in many western states from Texas north into Canada. The plums originated and introduced here by me in the past 33 years are described in Bulletin No. 224. However, I also believe in improving the pure native plum of South Dakota. The best I have been able to do so far is the Teton plum, introduced in 1912, which I found along the Missouri river in Campbell county, South Dakota. The fruit is 1¾ inches in diameter, the color red, flesh of good quality, practically freestone, skin thick but cooks up readily. The Teton is very productive. No matter how many hybrid plums are introduced, I believe that some of the pure native plums should be in every orchard to provide abundant pollination of the blossoms.

**Select Wild South Dakota Plums, 17 Numbers Introduced 1934.**—Many thousand seedlings of the native plum of South Dakota have been grown in the effort to obtain varieties with large fruit, larger at least than the common run of plums brought to market. In 1932, the main search was in the Bad River region, west of Chamberlain and Pierre. Seventeen seedlings, Wild South Dakota, Nos. 1-17, were selected. Several of these are yellow plums. None of these are recommended for propagation, but

they are one step on the way and can always be used for pollinating the hybrid plums that bloom in the same season. Many people like the stronger flavor of the native plum, especially for preserves and jams.

### Bush Cherries

**Hansen Bush Cherries, Spring, 1932**—In time this may become the name finally adopted for the select type developed from the bush cherries developed through 10 plant generations from 300,000 seedlings of the native sandcherry, *Prunus Besseyi*, a low shrub of western South Dakota. At least 300,000 seedlings are coming on. In late years seedlings from Manitoba have been added. The seedlings vary in size and quality of fruit, but all are good for sauce or preserves. By the time one million seedlings have been fruited I hope to have the large good quality type bred true to seed. The white flowers and glossy leaves make it desirable as a low shrub in front of taller shrubs on the lawn. See Bulletin 224.

**Nine Varieties of Hansen Bush Cherries, Spring, 1937**—The selection of the native South Dakota Sandcherry (*Prunus Besseyi*), which I began in 1895, has been carried through some twelve plant generations, and is now well along in the second million plants. The best selections are budded on native plum roots. The fruit from these budded plantations show rapid and continuous improvement in size and quality, because both parents are selected for size and quality. Many of the latest selections have very small pits. Some good yellow fruited seedlings have appeared.

Only three varieties have been named in earlier years: Sioux, Tomahawk and Champa. (See South Dakota Bulletin 224.) The Sioux has transmitted large size and good quality to many of its seedlings here and in Manitoba experiments. A few were distributed in the early years under number; and 177 varieties were offered in 1934 as budded plants on native plum stock. But I prefer names to numbers and believe that the large size and good quality will come 100 per cent true to seed. Plants of these sand cherries on their own roots can be obtained by layering. This will be slower than budding, but more certain in dry seasons.

Nine named varieties all with black fruit, are now offered, in one year buds on native plum roots. The names are all of Indian origin. This bush cherry is one of the favorite fruits of the Indians of South Dakota.

**Keyapaha**—Fruit very large, quality very good, sweet. Pit small. Fairly froststone.

**Oane**—Fruit good quality; very productive; low open habit. Pit oval, very small.

**Okreek**—Fruit large, round with minute prickle, sweet, quality excellent. Equal to Sioux in quality and of better habit. Good bearer.

**Tepee**—One of the Sioux seedlings. Heavy bearer. Very good quality. Medium large pit. Habit upright and spreading.

**Wampum**—Upright open habit, four feet. Excellent quality. Very heavy crop.

**Wasta**—Fruit medium sized, round; quality very good. Very heavy crop. Upright, open, spreading habit. Pit small, round.

**Watauga**—Fruit large. Quality good. Pit small. Heavy bearer. Habit upright spreading.

**Weta**—Fruit large and round, quality very good. Pit small.

**Wewela**—First medium size, good quality, very heavy crop. Pit small. Habit low, upright, spreading.

## Cherry Plums

**Ezaptan Sandcherry Hybrid, Spring, 1924**—I was the first to hybridize the sandcherry, *Prunus besseyi*, with the Japanese plum. Of this series, the Sapa and Opata, introduced in 1908, are perhaps the most widely grown. They are grown in all the western states from Texas north into Canada. The Sapa is popular because of the rich dark purple-black of the flesh and juice. The fruit cooks into a rich red sauce of high quality. At that time a number of seedlings were introduced of this same pedigree in the hope that general experience would soon determine which was best. The Ezaptan, introduced in 1911, I believe now has been overlooked. It is much like Sapa in every way, but of milder quality, really an excellent substitute for the black sweet cherries which are shipped in from milder climates.

**Mana Hybrid Sandcherry, Introduced 1933**—A hybrid of the native sandcherry of Dropmore, western Manitoba, with the Burbank, a Japanese plum. Fruit round, one inch in diameter. The green-yellow flesh of pleasant quality and cooks into rich, red, good flavored sauce. Pit of medium size with rounded edges and no sharp points. The round shape of this fruit will sell it as a cherry. The name is condensed from Manitoba. This new cherry for the prairies should be of interest at the North.

**Sanoba Hybrid Sandcherry, Introduced 1929**—Pedigrees: Sapa x Dropmore, Manitoba sandcherry. The name is made up from the two words, Sapa and Manitoba. The Sapa is my hybrid of the South Dakota sandcherry with the Japanese plum and is famous for its black-red flesh and choice quality. At Brookings, the Sanoba is a good plant; productive; of upright habit; fruit thirteen-sixteenth inches in diameter; flesh red; good quality; pit round and small. If the Sanoba inherits the extreme hardness of the Manitoba sandcherry, it will be harder than the Sapa and hence very popular in Manitoba and Saskatchewan.

**Hansen Select Sandcherries, Spring, 1929**—Selected from several hundred thousand seedlings through seven or eight plant generations of the native sandcherry, a low shrub of western South Dakota. They vary in size and quality of fruit. The largest is one inch in diameter. However, the fruit of all the seedlings makes good sauce and preserves. Also desirable as a low shrub in front of taller shrubs on the lawn; has white flowers and glossy leaves. Spring, 1931. Developed through nine plant generations from 300,000 seedlings of the native sandcherry, *Prunus Besseyi*, a low shrub of western South Dakota. In late years seedlings from Manitoba have been added. The seedlings vary in size and quality of fruit, but all are good for sauce or preserves. The white flowers and glossy leaves make it desirable as a shrub in front of taller shrubs on the lawn. See Bulletin 224.

**Select Sandcherries Budded on Native Plum Stock, 177 Numbers, Introduced 1934**—The sandcherry seedlings distributed from this department are mainly from budded plantations, which means that they are selected seedlings budded on plum roots so that both parents bear large fruit. I am trying to breed this large-fruited good quality type to come true to seed. One hundred and seventy-seven numbers are available this spring as one or two-year buds on native plum. They will be distributed under number and are intended as a basis for further experiments.

## Apricots

**Hardy Apricots, Spring 1937**—Apricots are a highly desirable fruit, either fresh or canned. But the apricots of commerce are mainly for the peach growing regions and are not hardy at the North. They are originally from the hot climate of South China.

The hardy apricots of the world are in North Manchuria, now called Manchukuo, and in East Siberia. In my 1924 tour to north Manchuria, home of the old Manchu conquerors of China, I became interested in the apricots native of the region between Harbin, on the Siberian railway, and the Amur River. This section of China comes up like a wedge into eastern Siberia and is cut through by the Siberian railway. The conditions are really those of east Siberia on either side with a minimum temperature of 50 degrees below zero Fahrenheit. I saved seed from many fruits and now have 45 seedlings. The size varies more or less and there is no good chance to determine the relative superiority as the seedlings were planted very closely in the row. The large flowers, white with distinct pink tinge, appear early before the leaves. The fruit is yellow, somewhat smaller than the apricots of commerce, and makes delicious preserves.

The Manchu apricots, Nos. 1-23, bore a heavy crop of good fruit in 1935 and a fair crop in 1936. This is surprising, considering that 1933, 1934 and 1936 were perhaps the driest and hottest years on record in this region. The trees are flourishing but are planted much too close for their best development. No. 1-23 were distributed in a small way as one-year-budded trees in 1934. In 1935 a careful study was made of these 45 seedlings, and I decided that the best 12 should be given a name, and the remainder held for further study.

It is important that these named varieties should be set out under orchard conditions with abundant room for full development. The names are all Chinese, and mostly geographical names from the Harbin region. The great advantage of these apricots is their early season, coming in here ahead of plums so that they find a ready market.

Of the Manchu apricots now under number, the following are named: Manchu No. 1 is Sing; No. 2 is Ninguta; No. 3 is Chow; No. 4 is Sino; No. 8 is Lalin; No. 11 is Sansin; No. 16 is Tola; No. 18 is Hulan; No. 19 is Anda; No. 22 is Manchu; No. 23 is Mandarin; No. 39 is Zun. (These names given first in Spring list 1936.)

### Twelve Named Varieties of the Manchu Apricots

**Manchu**—Large yellow fruit; heavy crop. Fresh fruit No. 1 in size and quality. Cooking test: cooks up into pale yellow good quality sauce. Apparently the largest fruit in this lot of seedlings. The name Manchu apricot is now reserved for it.

**Mandarin**—Fruit large, rich yellow color; one of the best in quality, fresh or when cooked.

**Chow**—Tree productive; fruit large, good eating. Cooking test: pale yellow sauce of good quality.

**Sing**—(Chinese for apricot.) Tree productive, fruit large. Cooking test: good rich orange yellow sauce, flavor stronger than some of the others.

**Ninguta**—Fruit large yellow with red blush. Crop very heavy. Season late, first week in August. Fresh fruit very mild, one of the mildest and best.

**Tola**—Large, freestone. Makes excellent quality sauce. 1935 crop very heavy. One of the best. Season early. August 1935.

**Anda**—Tree productive, freestone of good size. Season late. In cooking, stays firm and does not cook up. One of the very best in quality.

**Zun**—Quality of fruit, nearly excellent. Pit small, round, freestone.

**Sino**—Heavy crop, fruit small, on 8 foot crowded tree. Cooking test: excellent flavor.

**Lalin**—Fruit large, yellow with red bush. Fresh fruit good quality. Tree, a heavy crop. No cooking test. Season early.

**Hulan**—Very heavy crop of large fruit. Season early. Cooking test: makes good flavored sauce.

**Sansin**—Heavy crop of large fruit. Fresh fruit of excellent quality, making a rich orange-yellow sauce.

## Grapes

There is a great need for grapes of choice quality that will be hardy without winter protection in South Dakota. Concord and all its descendants will not help us, as they are too short-lived. The Beta and Alpha, which are large fruited selections of the wild grape of Minnesota, are hardy without winter protection, but we need something larger in size and better in quality. In the spring of 1925 I introduced 32 of my new grapes, mostly hybrids of the wild grape collected at Bismarck, North Dakota, and Fort Pierre, South Dakota, with choice eastern grapes, especially with Roger hybrids. The series of dry seasons has delayed the propagation of these new grapes, and the demand for cuttings has taken most of the crop each year.

My own opinion is that these new grapes and their successors along the same line of breeding will eventually revolutionize the grape culture of the prairie Northwest. Our prairie farmers will not lay down and give winter protection to any grape vine. But these new grapes are not intended to go into the milder regions where the Concord and its seedlings are hardy without winter protection. The problem now is to find the best few out of the 32 varieties. Also, there is a problem of whether the market prefers black grapes, white, or red grapes. Some of the choicest quality grapes are not the largest in size.

## Black Currants

**Siberian Black Currant, Spring, 1931**—Collected in the Tomsk province, Siberia, in 1897 by N. E. Hansen. By selection this stock is increasing each plant generation in size of fruit. "Solbaer" is the name of this species in the Scandinavian countries where the fruit is much used. Listed in South Dakota Bulletin 224. Fruit of good size and plant perfectly hardy when several varieties of Black Currant from England and Germany winter-killed. The ordinary black currant is a native of western Europe where the fruit is highly prized for jelly and jams, but it does not do well in the prairie Northwest. This Siberian black currant will be hardy far north into Northern Manitoba and Saskatchewan, Canada. However, since the coming of the White Pine blister rust, which the European Black Currant harbors, this species is outlawed wherever White Pine and other five-leaved pines are grown.

## Gooseberries

**Progress with Gooseberries, Spring, 1930**—By crossing the native gooseberry of eastern South Dakota with the giant gooseberries of England, the largest gooseberries in the world, eleven excellent varieties have been secured. These are described in bulletin 224. They have proven very productive under cultivation. Lack of suitable land has prevented more extensive propagation in recent years. **Note**—The work with raspberries, strawberries and other small fruits is being postponed for the same reason, no land.

## Siberian Dewberry

Introduced 1930. While sailing up the Irtysh River in Tomsk province, Siberia, in 1908, I noted with interest the many pailfuls of native dewberries brought to the steamer landings by the peasants. The fruit is roundish, small, black, with bluish bloom. Under cultivation on the open prairies here at Brookings the fruit, while of clear acid quality, has been too small to introduce as a market fruit. However, it may do better farther north. At any rate it is worthy of attention as the fruit can no doubt be increased in size by selection. The plant is hardy and productive. This is Seed and Plant Introduction No. 24377.

## Roses

**Alika Rose, Introduced 1930**—Obtained by N. E. Hansen in Russia in the fall of 1896. Described in Bulletin 240. The name is adapted from the botanical name *Rosa gallica grandiflora*.

**Progress with Hardy Roses, Spring, 1928**—At Sioux Falls and Brookings, some 20 acres are devoted to originating roses that will be hardy without winter protection. This work has been attracting national attention. The Rose Annual of the American Rose Society with 5,000 members, emphasized the fact that South Dakota is the first state in the union to have a State Rose garden. Upwards of 100,000 rose seedlings are coming on as a result of the work of last year and this year. Plants of 15 of my hardy roses introduced last year were sent to many places.

**Progress in Thornless Roses**—In clearing twenty acres of rose seedlings in 1932 in the State Rose Garden at Sioux Falls and at State College, a few 100 per cent thornless rose plants were selected for further work. Both leaves and wood are smooth. Some 5,000 plants with thornless wood have already been selected for the hardy thornless stocks, a project with federal aid.

**100 Per Cent Thornless Roses, Introduced 1936**—This rose has 100 per cent thornless stems, and the midrib of the leaf is entirely smooth. The flowers are single, pink, fragrant. The abundant red rose-hips in autumn and winter are noteworthy. Plant of sturdy upright habit. These plants are now being crossed with many large double-flowered varieties in other colors.

In its present condition it is a pleasing ornamental shrub that will endure 50 below zero Fahrenheit without protection, and which may be found useful by the rose-breeders in eliminating thorns.

**New Roses, Spring, 1937**—The progress in Hardy Rose seedlings at this Station was recognized June 29, 1936 at the annual meeting of the American Rose Society at Des Moines, Iowa, in awarding First Prize to N. E. Hansen for 41 new seedlings.

## Alfalfa

**The Sibturk Alfalfa, Spring, 1932**—This is a hybrid of the Siberian and Turkestan alfalfas. The female parent is the yellow flowered alfalfa (*Medicago falcata*), which I brought from Semipalatinsk, Siberia in 1913. The male parent is the Select Turkestan alfalfa, remarkable for its erect vigorous growth, and which I brought back from my 1906 tour. Sibturk is the name I chose for the Hansen Hybrid No. 1, described in Bulletin 224. This is a very hardy and productive variety, showing astonishing endurance in a field where it has been cut several years to use as a lawn. The seed is held tightly in the pod. Flowers variegated in many colors, with much yellow. Sibturk is an excellent combination of these two species. The name is condensed from the words Siberia and Turkestan.

## Crested Wheat Grass

Spring, 1934. One of the plants which I brought back from my seven tours of exploration is Crested Wheat Grass (*Agropyron cristatum*), which I brought first to the United States from Russia. I located this in many different places in eastern Russia and Siberia. Experience quoted in the Country Gentleman of February, 1933, and February, 1934, shows that it is now regarded the best grass for the drylands of the United States. It is worth many millions of dollars, and can be worth many millions more if government aid is given for propagation of this grass, also for getting more seed from its native home. If the western lands are to be put down to grass, it should be to the best kind obtainable, and in this Siberian species, we have a better grass than any of the native grasses of America. All this is noted to show that an agricultural explorer can sometimes help to change things for the better. If ever able to visit Siberia again, I would devote much time to obtaining many thousand pounds of this seed, stripped from the best plants in the most exposed situations. It would pay the prairie West to have this done.

## Iris

**Shilka, East Siberia, Iris, Spring, 1936 and 1934**—Plants from seed I gathered in 1934 upon steep stony hillsides in the Shilka region, East Siberian, upon the north fork of the Siberian railway. Should be hardy far North and into Canada. This is probably *Iris dichotoma*. Color mostly purple with markings.

## Perennial Wheat

Spring, 1936. It is easy to see that a good perennial wheat would change the entire wheat industry of the world. During my 1934 tour to East Siberia, success was announced with a perennial wheat. I went to Omsk, Siberia, the center of this work. In the March, 1935, "Country Gentleman," appeared my report. The Soviet government has appropriated a million rubles for these experiments.

When the perennial Russian grass, *Agropyron elongatum*, is hybridized with wheat the first generation is sterile, but when bred back to wheat the result is a good wheat of perennial habit. These hybrids are not yet ready for distribution. But I obtained a few seeds of original species, *Agropyron elongatum*, the mother of perennial wheat. Of the 41 plants raised from this seed, two were sent by request to the United States Department of Agriculture, and two to the University of Minnesota, two to the University of Indiana and two to the University of Texas. The rest will be propagated here as rapidly as possible for distribution to the wheat breeders.