RUBUS FRUITS IN KANSAS.

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Introduction.

Description of the group and the fruits included.

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Prominent wild species that have come into cultivation.

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(Same as for blackberries.)

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(Same as for blackberries.)

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The culture of the Rubus fruits in Kansas is an industry of considerable importance, although at present it is successful to a great degree only in the more favored and hence somewhat restricted localities.

My treatise of the subject here must necessarily be brief and will probably tend more to a historical aspect than to practical advice for future planters.

The term Rubus is the old Latin name for the brambles and was formerly derived from the Celtic root rub, meaning red.

The brambles are somewhat shrubby perennial plants, with biennial, and in a few species perennial woody stems (or canes), more or less thickly set with prickles. In some species, the canes are erect, in others, more or less trailing. Their leaves are simple or three to five foliolate; flowers white (rarely reddish); calyx five parted without braclets; petals five, deciduous and stamens and pistils numerous. Their fruits consist of a mass of druplets on a more or less elongated, succulant recepticle which is deciduous with the ripened drupes; or, of a mass of drupes developed on a spongy, hemispherical recepticle from which they readily part when ripe.

The Rubus fruits, as now commonly spoken of, include primarily the blackberries, raspberries and dewberries. These fruits have been known in their wild state and used to some extent since the time of the ancient Romans. It seems there was no thought or attempt at cultivating them for profit, however, till within the last sixty or seventy years when they began to be domesticated and improved by Americans.

Of the blackberries, we have six species that are native to the United States, viz, Rubus nigrobaccus, Rubus argutus, Rubus canaden-

sis, Rubus allegheniensis, Rubus cuneifoleus and Rubus setosus. Of these, however, the Rubus nigrobaccus and Rubus argutus are the ancestors of nearly all of our present well known varieties.

The Rebus nigrobaccus is the common wild high-bush blackberry found along woods and fence rows in the north-eastern part of the United States, extending as far south as North Carolina and as far west as Iowa and Kansas. It is distinguished by the canes being tall, usually somewhat recurved and furrowed and with strong hooked prickles. The leaflets are 3 - 5 ovate lanceolate and on distinct stocks. The flower clusters are long and showy.

The nativity of the Rubus argutus is of much wider range and extends over the whole eastern half of the United States. In this species, the plant is of comparatively stiff, straight growth and more dwarfed in appearance than the Rubus nigrobaccus. The leaflets are more rigid, the stems strong and prickly with short leafy flower clusters. It is especially prominent in the wild state in the southern states.

The cultivation of these fruits in Kansas, I presume, began with the earliest settlers but it is not till the year 1871, that we can find any statistics on the subject and this was merely a recommended list of the best varieties given in the report of the State Horticultural Society for that year. From this and successive reports we find that the prominent varieties have changed more or less with the progress of the horticultural industries.

In 1871, the Kittatinny blackberry was the only one recommended in the northern and central part of the state, while the Lawton (New Rochelle) was joined with it in the southern district. In 1872, the Lawton seems to have become more thoroughly disseminated throughout

the state and Wilson's Early and Western Triumph make their appearance in the voted list as worthy of trial; the former to succeed fairly well, the latter to be soon laid aside.

For the next six years, the voted list remains practically the same. In 1879, the Snyder and Dorchester are first recommended in the list and by 1883, the Snyder has gained first place among the late varieties. There is little change otherwise. In 1883, the Early Harvest comes in as third best of the early varieties with Wilson's Early as second, but in 1885, their order of precedence is reversed, especially in the northern and central districts. In 1887, Wilson's Early seems prominent only in the southern districts and there it still remains so, apparently being better adapted to that part of the state than in the Early Harvest. About 1893, the Taylor is given in the list as third of the early sorts for the northern and central districts but since then there has been but little change in the main "stand-by" varieties. Of course there have been numerous other varieties, early and late, introduced and tried with more or less success in different parts of the state but they have not become generally recommended.

The following list, then, (including a small statement as to origin of each) would probably comprise the varieties that would be recommended to select from, quality and hardiness considered, for a commercial plantation at the present time.

Early Varieties.

1. Early Harvest, belong to Rubus argutus species, was found growing wild in western Illnois and introduced probably about 1879 or 1880. It is very hardy, of upright growth and its fruit is one of the earliest on the market.

2. Kittatinny, belonging to Rubus nigrobaccus species, was found in the Kittatinny mountains near Hope, New Jersey by E. Williams and was introduced about 1865. Its fruit is one of the very best in size and flavor and it is very prolific but seems to be growing in disfavor of late years on accounts of its susceptibility to red rust.

3. Wilson's Early, usually classed under the Rubus nigrobaccus species, is probably a hybrid between the blackberry and dewberry and in some cases partakes of the nature of both. It was discovered by John Wilson of Burlington, New Jersey, about 1854 and introduced by him a few years later.

4. Taylor, belongs to Rubus nigrobaccus species, is more of a medium than an early variety. It was introduced by Mr. Taylor of Spiceland, Indiana, about 1876 and is considered very strong and hardy.

5. Early Cluster, also of the Rubus nigrobaccus species, was found on the farm of C. W. Starn, in southern New Jersey about 1872. It seems to be more of an eastern variety.

Late varieties.

1. Snyder, belonging to Rubus nigrobaccus species, is at present the best known of all varieties. It originated about 1851 as a chance seedling on the farm of H. Snyder, near La Port, Indiana, and since that time it has gradually grown in favor till it now heads the list in nearly all commercial plantations.

2. Lawton (or New Rochelle), belonging to Rubus nigrobac-

cus species, was found by L. A. Seacor of New Rochelle, New York and introduced by Wm. Lawton in 1848. It has ~~been~~ the distinction of being the second variety that was named and introduced and its introduction was the primary impetus to blackberry culture in this country. The bush is very hardy and branching and the fruit very large, soft and sweet when fully ripe; but when it is picked green enough to stand shipment, it is liable to be sour and acid.

3. Erie, belonging to Rubus nigrobaccus, is a seedling probably of the Lawton or Kittatinny. It was found growing in a vineyard by L. B. Pierce, of Tallmage, Ohio about 1876 and introduced ten years after, under the name of Uncle Tom by J. T. Lovett. The name was not satisfactory and was changed to Erie.

4. Stone Hardy, belonging to Rubus nigrobaccus species, is a native of Illonois that has been in cultivation there for a good many years. It is of spreading habit, with dense foliage and a very prolific bearer, though its fruit is somewhat small.

Considering next, the second group of these fruits, the raspberries, we find that, of the several known species, only three are represented by our most commonly cultivated varieties. These three consist of the Rubus occidentalis or common black-caps, the Rubus neglectus or purple cane sorts and the Rubus strigosus or American red varieties.

The Rubus occidentalis have long recuried stems armed with strong prickles and propagate almost exclusively by tip layering.

The leaflets are coarsely serrate, pointed and of a whitish or silvered appearance underneath.

The Rubus neglectus species have habits somewhat resembling both of the others. They propagate both by tip-layering and by suckers and their canes have a more purplish and glaucus appearance. The fruit also has a kind of a purple bloom.

The Rubus strigosus sorts have straighter stems, usually reddish or brown colored and more or less densely covered with straight weak bristles, especially near the base and in the wild state. This species propagates almost exclusively by suckers and root-cuttings and its fruiting season is considerable longer than in either of the others. The fruit is large, reddish colored and somewhat conical in shape.

There has been with the raspberries, as with the blackberries, considerable change in the list of recommended varieties as given by the State Horticultural Society within the last thirty years.

In 1871, the Purple Cane and the Philadelphia alone are the only ones recommended for trial. The next year, the list is compesed of Miami and Doolittle's Improved as first and second best with these two as third and fourth. In 1875 or 1876, the Mammoth Cluster comes in as fourth variety and the next year it is followed by the McCormick. By 1879, the Philadelphia seems to have lost its prominence and the Gregg Turner and Thwack are first recommended for trial. In 1882, the Souhegan; in 1884, the Cuthbert and Seneca; in 1885, the Kansas; in 1886, the Nemaha and Shaffers Collosal and about 1890, the Pride of the West and Queen of the West were respectively included in the voted list. Then about 1892 and 1893, the Tyler and Hansell are recommended for trial in the northern and central districts.

Since then and previous to that time there have been numerous other varieties continually tried but these are the more successful ones, the Kansas and Gregg having gradually grown in favor throughout the state since their introduction.

At the present time, a person would have the following as the more important and best tested varieties to select from for planting for commercial purposes.

Early varieties:-

1. Kansas,- a native of this state and especially adapted to our conditions. It belongs to Rubus occidentalis species and originated as a chance seedling on the farm of A. H. Griesa, of Lawrence, Kansas in 1884. At present it is one of the most extensively planted varieties.

2. Souhegan, black-cap variety, originated from seed of Doolittle, by J. A. Carlton of New Hampshire, and was introduced by Hale Brothers in 1881.

3. Queen of the West, also a black-cap and a Kansas seedling of great promise. It originated in Douglas County and was introduced about 1890.

4. Turner, of the Rubus strigosus species, had its origin en the farm of J. B. Turner, of Jacksonville, Illnois sometime between 1870 and 1879.

5. Cuthbert, another Rubus strigosus variety, originated as a chance seedling found by Thomas Cuthbert in his garden, near New York City, in 1865.

6. Hopkins, also a variety of Rubus strigosus, was found wild by G. W. Hopkins near Kansas City, Missouri about 1872 and introduced a little later by Frank Holsinger of Rosedale, Kansas.

7. Philadelphia, our only important early representative of the Rubus neglectus species was originally a chance seedling found wild, about 1835, near Philadelphia, Pennsylvania.

Late varieties:-

1. Gregg, of the Rubus occidentales species, is one of the older cultivated varieties. It was found growing wild on the Gregg farm in Indiana in 1866 and was introduced largely by N. Ohmer, of Dayton, Ohio.

2. McCormick, of the same species, appears to have originated in Indiana sometime between 1870 and 1875 from the Old Miami.

3. Shaffers Collosal, the most important and best known variety of the Rebus neglectus species that we have. It originated about 1871 in the garden of Geo. Shaffer, of Scotsville, New York, and was introduced by C. A. Green of Rochester, New York.

4. Thwack, - of the Rubus strigosus species, was introduced by F. W. Foster of Louisana, Missouri. It is claimed to be a cross seedling between the Hesterine and Brandywine and probably originated about 1876 or 1877.

5. Cardinal, of the Rebus neglectus species, originated apparently from seed of the Shaffer by A. H. Griesa, of Lawrence, Kansas, about 1888 and was introduced by him. It is a good variety but said to be more subject to injury by anthracnose than are many of the others.

The third great group of the Rubus fruits, the dewberries, are not nearly so much grown in this state as are the other two al-

though they promise well for more extensive cultivation in the future Dewberries are distinguished from blackberries chiefly by their trailing habit, early ripening, character of the flower cluster and method of propagation. Their period of ripening comes in principally between the raspberries and blackberries and so may yet prove valuable to "fill up the chink" and keep a steady market supply. Their mode of propagation is by tip-layering and root-cuttings.

They are represented in the United States by four species, viz Rubus villosus, Rubus vitifolius, Rubus trivalis and Rubus hispidus, but only the first one of these is represented by our Kansas cultivated varieties. Its representatives are the Mayes, which was found growing wild in Texas about 1880 and introduced by John Mayes, and the Lucretia which was found near Beaverly, West Virginia about 1861 or 1862 by a soldier in the Civil War and was introduced four or five years later by B. F. Albaugh, of Covington, Ohio.

The general management of these small fruits, i.e,selection of suitable site for plantation, culture, pruning, marketing of fruits and means of combating enemies can be had in concise form either from Baileys "Principles of Horticulture" or from Card's "Bush Fruits" and so I will not take the space to include them here.

As to the growth of this industry in Kansas, we find that in the more favored districts it has been slow and gradual but always upward, while in other parts of the state it has been impetuously pushed forward for a time and then nearly dropped. The total acreage of blackberries and raspberries in the state has fluctuated greatly in the last twenty years, or since we have any records concerning it. The following table gives these totals for consecutive years since 1881 as given in the Biennial Reports of the State Board of Agriculture.

Year.	1881-1882-1883-1884-1885-1886-1887-1888-1889
Blackberries (acres)	3136-2972-2936-2929-4232-6904-4539-3755-4277
Raspberries (acres)	3126-2638-2930-3132-2649-5636-5633-4009-4174

Year.	1890-1891-1892-1893-1894-1895-1896-1897-1898
Blackberries (acres)	4852-4140-3992-3224-3587-2876-1883-3593-3976
Raspberries (acres)	3420-3015-3451-3264-3535-3914-3045-1906-1912

Year.	1899-1900
Blackberries (acres)	3253-3833
Raspberries (acres)	1504-2655

From this we observe that the acreage as a whole gradually increased till 1886, then decreased till 1893, then increased in 1894, decreased in 1895 and 1896, and has increased slowly since that time. The causes of so great fluctuations has been, in all probability, very dry summers followed by severe winters which killed off a great part of the neglected plantations.

The following table, giving a comparison of the acerages in some of the leading counties in 1883 with the same in 1899, will show the gradual increase in the favored localities:-

Counties.	Blackberries.		Raspberries.	
	1883	1889	1883	1889
Bourbon.	76	100	24	25
Cherokee.	90	183	32	19
Cowley.	155	129	65	30
Doniphan.	52	344	79	98
Douglas.	45	161	50	144
Jewell.	16	99	160	69
Leavenworth.	53	114	215	200
Osage.	77	60	38	40
Reno.	37	263	11	63
Wyandotte.	53	416	122	1344

Although some varieties of the blackberry and of the black-cap raspberries are very hardy and will grow and produce some fruit in most any kind of soil, it is with these as with nearly all other fruits, the best results can be obtained only under proper conditions. The places where nature comes the nearest to giving the proper conditions in Kansas would practically all be included in the eastern third of the state and narrow strips extending up to the Arkansas River Valley and along the northern tier of counties, with possibly a few favored spots elsewhere. However, under artificial irrigation, proper culture and protection they can be made to produce good crops in nearly any part of the state.

Accurate figures on these fruits as to profits and cost of production are not to be had, but such would depend, of course, on the kind and amount of treatment necessarily given the plantation. Card estimates that under ordinary conditions raspberries should yield, above expense of picking and marketing, from $75.00 to $125.00 as rent

of land, cost of growing and profits. In blackberries, the yield, as a usual thing, is much greater and the profits therefrom a little larger. With exceptionally good seasons and markets, as high as $500.00 or $600.00 an acre, clear profit, has been made, but as a general thing, it is not safe to count on more then $150.00 to $200.00 profits per acre in prime bearing plantations and a ready market. Dewberries in this state do not generally yield heavy enough to leave very large profits, if any, after expenses are paid.

The prospects of the Rubus fruit grower in this state are very favorable. There is no reason why, with proper precaution, selection and management, he can not make it a profitable industry in any locality. Of course returns in some places would be much greater than in others.

The demand for evaporated raspberries and blackberries, especially the former, is constantly growing but as yet the market for fresh fruits is by no means over supplied in this state. For the fresh market, however, there is one thing that the successful grower must have and that is a good, close market or easy and quick access to one. This point is not essential to the selling of the evaporated product as it can be taken to market at any time and any distance.

With this, as with all other industries, patience, persistant toil, skill, and good judgment and business management are some of the prime factors for success.