

The Fruit Industry of Kansas.

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- I. The Resources.*
- II. Its History.*
- III. Its Position.*
- IV. Its Fruits.*
 - 1. Varieties, past and present.*
 - 2. Cultivation.*
 - 3. Marketing.*

The treatment of a subject of this kind in an essay of fifteen hundred or two thousand words must of necessity take up but few phases and give but little of what might be written on each phase.

The aim is to show as clearly as possible the resources of Kansas as a fruit growing state, the position of Horticulture among the industries, and its position horticulturally among the states; to give a short history of the growth of the fruit industry in the state, and to discuss, to a limited extent, the various kinds of fruits produced, the varieties best suited to the state, and the cultivation, protection, packing, and marketing of our fruits.

Resources.

Kansas has a soil that can hardly be equalled. It is among the richest in phosphoric acid, potash, lime, silica, humus, and all those elements most essential to fruit production. There is only a small portion of the state where under drainage is not naturally good.

Much of the soil is that known in Geology as the Champlain formation. We have

this soil in the eastern, southern, central, and western parts of the state.

Along the Arkansas river these Champlain soils are especially heavy and thick, occupying wide areas. This is the soil so noted in Missouri for its horticultural products.

W. S. Newton wrote in 1885: "The Missouri may have greater beds of this, but they do not have the warm sun and kind sky of the Arkansas valley. The wild plum, *Prunus chica* and *Prunus americana*, the wild grape and strawberry, and the half wild Indian orchards have grown luxuriantly on the Arkansas for ages. The hill forests and these show how valuable these valleys are for orchards and fruits - orchards healthy and fruit producing."

Located as the state is between 37° and 40° north latitude, and $17\frac{1}{2}^{\circ}$ and 25° west from Washington, ($94\frac{1}{3}^{\circ}$ to $102\frac{1}{2}^{\circ}$ W. from Greenwich) with the eastern part 748 to 1000 feet above sea level and the western part 3,436 to 4000 feet above the sea, with a gradual slope throughout the whole 400 miles from east to west; we have the latitude and elevation best suited throughout the world for fruit growing.

"We are in the midst of the great inclined plane, reaching from the Rocky mountains to the Mississippi river, giving a south eastern exposure. Our rains come from the rocky mountains and are most abundant during the growing season. Later the atmosphere becomes dry, and we have the conditions most favorable for ripening the fruit and bringing it to perfection in size, color, and flavor.

California can produce fruits as beautiful in appearance as any in the world, but in flavor they cannot compete with ours."

Dr. Staymansaid: "As a state we beat all others. Indiana and Illinois beat all east of them and our fruit takes the premium over both of these states. The only state we need fear is Missouri: and we beat that state, because our conditions of soil and climate are in all respects equal, and we have in addition a more open country which clears our fruit of every shade or tarnish of mildew and from every other blemish. Our genial atmosphere and seasonable showers in spring and summer, just at the period of fruit growth, give it a growth and expansion and symmetry

of shape unknown to the fruit of any other locality."

But we do have many drawbacks among the worst of which are the hot winds of summer, sudden extreme changes of temperature in fall and spring, drouth, and our full quota of insects.

History.

When the people of the eastern states began coming to Kansas in the fifties, they brought with them a few trees or some seeds with the hope that they might be able to raise their fruits and vegetables, as well as the cereals, in this state.

We know that the early years of the state were not such as would promote activity in these lines of work. The raids of the late fifties, the civil war, and later, when the state was beginning to recover from these, the grasshoppers came (1874); and nearly every growing thing was destroyed.

The next year followed a drouth which almost entirely destroyed the orchards. However, the people did not despair. They renewed their efforts and were rewarded with success.

Since 1875 there has been a gradual growth

in this industry. This fact is most easily shown by reports of the "State Horticultural Society" which was formed, first as a Pomological Society in 1867, and changed to the "Kansas State Horticultural Society" in 1869.

This society has held its meetings annually or semi-annually since its formation, and has published from time to time, with the aid of the state, reports of these meetings.

The following statistics gathered from these reports and those of the State Board of Agriculture are intended to show something of the growth of the orchards and orchard products.

Dates of the first plantings of some or all classes of fruits in counties widely distributed over the state:

Allen, 1855;	
Leavenworth, 1855;	Osage, 1863;
Jackson, 1855;	Dickinson, 1865;
Atchinson, 1857;	Labette, 1866;
Riley, 1857;	Greenwood, 1867;
Butler, 1858;	Crawford, 1868;
Franklin, 1858;	Onitche, 1870;
Davis, 1860;	Mr. Pherson, 1871;
Cloud, 1862;	Harvey, 1872;
Cherokee, 1863;	Ellis, 1873;
Chace, 1876;	Reno, 1873;

These figures taken from the reports of the State Board of Agriculture for the years noted to show the increase in the number of trees, acreage of nurseries and small fruits, and the value of horticultural products, exclusive of garden products, sold.

In 1875 there were 103,114 acres of orchards.

year.	Fruit trees in bearing:				
	Cherry.	Apple.	Pear.	Peach.	Plum.
1881	658,948	2,754,545	60,072	5,488,280	203,983
1885	797,366	4,195,486	116,271	5,511,629	400,118
1889	1,160,793	5,424,249	121,435	5,097,206	913,073
1895	1,451,716	7,529,915	186,827	3,790,692	883,874
1897	1,199,533	7,429,918	185,191	4,126,512	688,457

Fruit trees not yet in bearing:

1881	661,920	4,058,917	167,716	4,448,307	309,008
1885	849,636	5,220,985	194,607	5,050,604	444,857
1889	626,128	5,599,699	220,703	1,589,640	489,007
1895	484,057	4,440,673	204,634	1,183,510	333,686
1897	444,313	3,872,114	234,102	1,305,000	297,036

Acres of nurseries, Raspberries, Black-berry, Strawberries, Vineyards

1875	3,237.03	3,081			2,995.54
1881		4,232	3,121	1,353	4,199
1885	11,582	4,277	2,649	1,910	5,724
1889	22,991	2,876	4,174	2,895	13,404
1895	3,894	1,906	3,914	1,234	7,194
1897	2,532		3,593	1,898	7,121

Value of Orchard Products;

Year 1860, \$656;	1870, \$158,046;
1881, ;	1885, \$958,069;
1889, \$894,179;	1895, \$930,084.

The question as to whether this industry is now on the increase or decline is nicely answered by the circular letters sent to individual fruit growers in nearly every county in the state, last October by Professor Haville.

Of about one hundred and sixty of these letters examined, over one hundred reported fruit growing on the increase in their county.

Position.

The position of Kansas as a fruit growing state and the quality of her fruits may be shown by some of the awards of premiums for fruit exhibits in different states. In 1869 she was represented at the National Pomological Society's display of fruits by 216 varieties of apples, 27 varieties of pears, 5 varieties of grapes, and 1 variety of plums. This was in Philadelphia, and the State Society of Pennsylvania awarded Kansas her "Great Gold Medal" for the best display of the finest fruits on that occasion.

In 1873 the New Jersey Agricultural Society at its

fair, awarded us a silver medal for our fine display; and the American Institute awarded us a diploma for 190 varieties of apples exhibited, the largest, handsomest apples at the forty second annual exhibition of that society. We received the diploma for our exhibit at the Centennial. At the World's Fair that part of the State's exhibition in the Kansas building, (consisting of 88 varieties of apples, 15 varieties of pears, 16 varieties of peaches, 2 varieties of plums, and 73 varieties of grapes) was entered for competition and won two diplomas and medals on the "Collection of Grapes," "Collection of Apples and pears," and "Collection of stone fruits."

The United States Census of 1890 ranks Kansas 5th on the production of cherries, 6th on peaches, (rivaling California), 14th on apples, and 24th on pears.

With the increase in the knowledge of the needs of Horticulture in the State, the increase in the ease of transportation, the opening to us of foreign markets, due to cold storage processes, and methods of canning and preserving, we may expect to take and hold a leading place among the fruit producing states of America.

Its Fruits.

The varieties first brought to Kansas were those which the people knew at their homes in the East. Many of them were not suited to the soil and climate of Kansas, and hence made poor growth and produced a poor quality of fruit. The winter varieties of the East were found to be fall varieties here. Stunted plants of New England made luxuriant growth.

Varieties of small fruits and grapes of considerable value in the eastern states were found to be not well adapted to our conditions. The result has been a continual change in the choice of varieties to grow in this state.

During the last fifteen years there have been many hybrids, new varieties from sports, and new varieties introduced from foreign lands (especially Russia) which have been found valuable to us. These have come into prominence as their superior qualities asserted themselves; still, there are some of the old standard varieties which have not as yet been equalled for general orchard purposes.

The following lists will show the changes which have taken place in the varieties holding first place in favor of the people.

These lists are taken from the voted lists in the reports of the State Horticultural Society for the years 1880 - 1885 - 1891 - 1896.

(The classes are lettered. The numbers refer to the variety so numbered in the class denoted by the letter. First choice is at the left in each case.)

1880

- a) Apples, Summer Varieties. - (1) Early Harvest, (2) Carolina Red June, (3) Red Astrachan, (4) Early Pennock, (5) American Summer Pearmain.
- a') Apples, Autumn Varieties. - (1) Maiden's Blush, (2) Rambo, (3) Lowell, (4) Famuse, (5) Fall Wine.
- a'') Apples, Winter Varieties. - (1) Wine Sap, (2) Ben Davis, (3) Jonathan, (4) Rawley's Penett, (5) White Winter Pearmain, (6) Missouri Pippin, (7) Willow-twig, (8) Rome Beauty, (9) Gilpin, (10) Dominic.
- b) Peaches. - (1) Crawford's Early, (2) Hales Early, (3) Crawford's Late, (4) Heath's Cling, (5) Large Early York.
- c) Pears. - (1) Bartlett, (2) Flemish Beauty, (3) Duchesse-d'Angoulême, (4) Seckel, (5) Louise-Bonne-de-Jersey.
- d) Cherries. - (1) Early Richmond, (2) Common Morello, (3) English Morello, (4) May Duke, (5) Governor Wood.

f) Grapes. - (1) Concord, (2) Ives, (3) Dracont Amber,
(4) Clinton.

g) Strawberries. - Wilson's Albany, (2) Chas. Downing,
(3) Green's Prolific, (4) Kentucky, (5) Cal. Cheney.

h) Black-berries. - (1) Kittatinny, (2) Lawton, (3) Snyder,
(4) Dorchester.

i) Black Raspberries. - (1) Doolittle, (2) Mrs. Cormick (late)

i') Red Raspberries. - (1) Miami, (2) Philadelphia.

j) Goose-berries. - (1) Houghton, (2) Pale red, (3) Downing,
(4) Mountain.

k) Currants. - (1) Large-Red-Dutch, (2) White Grape,
(3) White Dutch, (4) Black Naples.

1885 (Central Districts vote.)

a) 1 - 3 - 2 - (6) Cooper's Early White, - (7) Hightop Sweet.

a') 1 - 2 - 3 - 4 - (6) Grimes's Golden.

a'') 3 - 1 - 2 - 4 - 7 - 9 - (11) Smith's Cider, - 6 - 5 - (12) Grimes's Golden

a''') Crab apples. - (1) Transcendent, (2) Hyslop, (3) Yellow
Siberian, (4) Red Siberian, (5) Whitney's No. 20.

Apricots. - (1) Russian, (2) Moorpark, (3) Golden Early

- 4) Breda, (5) Royal.
- b) (6) Amsden, (7) Alexander, - 1 - (8) Stamp-the-world,
(9) Old Nixon Cling, - 4 - 3.
- c) (6) Doyenne, (7) Osband's Summer, - 1 - 2 - (8) Vicar - 4.
- d) 1 - 2 - (6) Sand - 4 - 5.
- e) 1 - 4 - 5 - 3 - 2 - (6) Montmorency.
- f) 1 - (5) Martha, (6) Moore's Early, (7) Hartford,
(8) Delaware.
- f') Quince. - (1) Apple (1) Orange, (2) Champion, (3) Angers
(4) Mo. Mammoth.
- g) (6) Crescent - 1 - 2 - (7) Captain Jack, - 4.
- h) 1 - (5) Early Harvest - 3 - 2 - (6) Wilson Jr.
- i) 1 - (5) Souhegan - 3 - (6) Gregg.
- i') (3) Turner, (4) Philadelphia, (5) Cuthbert.
- j) 1 - 3 - (5) Smith's Improved - 4 - (6) Crown Bob.

k) 1-2-(5) Cherry - 3-(6) Fay's Prolific.
1891 - 3.

a) 1-3-2-6-7.

a') 1-2-3-4-6.

a'') 1-2-6-4-11-7-5-3-12-8.

a''') 1-2-3-4-5.

b) 6-7-2-8-(10) Old Nixon Tree - 4-3.

c) 6-7-1-2-8-4.

d) 1-2-6-4-5.

e) 1-4-5-3-2-6.

f) 1-6-5-7-8.

f') 1-2-3-4-(5) Rea (mammoth)

g) 6-1-2-7-(8) Sharpless, - 4.

h) 1-5-2-3-6.

i) 1-5-2-6-(7) Cumaha.

i') 3-4-5.

j) 1-3-5-4-6.

k) 1-2-5-3-6.

1896.

a) 1-2-(8) Early Transparent, - 6-(9) Duchess of Aldenberg.

a') 1-6-2-(7) Jonathan, (8) Chenango.

a'') 2-1-3-(6) - (13) Eano, (14) York Imperial - 4-11-12.

b) (11) Elberta, - (10) - (12) Salway, (13) Smock, (14) Champion.

7 - 8 - (15) Crosby - 4 - (16) Family Favorite.

c) 4 - (9) Kieffer - 1 - 3 - (10) Anyow - 2.

d) 1 - (7) Abundance, - 4 - (8) Burbank, (9) Miner,
(10) Botan - 5.

e) 1 - 3 - 6 - (7) Dyckhouse, (8) Astheim, (9) Wragg - 5.

f) 1 - (9) Worden - 6 - (10) Niagara, (11) Catawba.

g) (9) Warfield, - 7 - 6 - (10) Parker Earle, (11) Bederwood,
(12) Robison, (13) Gandy, (14) Buback.

h) 3 - 5 - (7) Taylor - 1 - 2.

i) (7) Kansas, - 6 - (8) Progress, (9) Palmer, (10) Egyptian.

i') 5 - 3 - (6) Twhack.

j' + k not revised.

Cultivation.

The most of our Kansas land is suitable for orchard growing, but the general consensus of opinion is that the second bottom or upland is best suited to it. At the State Horticultural

Society's meeting in 1877, a vote taken upon 'The most suitable location for an orchard' resulted in 39 votes for upland, 14 for second bottom. 24 expressed themselves in favor of a black soil. 40 preferred a north slope bearing east or west. Answers to the circular letter sent out by Professor Faville last fall show that a majority of the fruit trees of the state are on upland, though many report bottom land, especially for small fruits. The north and north east slope is the favorite one; the principal reasons for this being that there is less injury from sudden changes of temperature, there is a better circulation of air, and there is not so much damage from the hot south and south west winds.

All advocate thorough tillage of the ground before setting the trees, and afterward, from early spring to midsummer, for several years.

Some believe in sodding the orchard when it has come into good bearing condition; while others think it should be cultivated every year.

Nearly every orchardist in the state (according to the State Horticultural Society's Reports) recommends heading all trees low, not to exceed sixteen to thirty

inches from the ground. The objects of low heading are to prevent the winds blowing so much fruit from the trees, to protect the trunk from sun scald, to afford ease of spraying the trees, thinning and gathering the fruit.

Wind breaks are valuable on the south, southwest, and north of an orchard as a protection from the hot south winds and blizzards from the north. It saves the fruit from blowing off, prevents evaporation to some extent, holds the snow in winter, and partially prevents the destruction due to sudden extreme changes of temperature.

Spraying of the trees and small fruits is coming more and more into use throughout the state to prevent loss by disease and insects; though our fruits are more nearly free from fungus diseases than those of other states. Our most destructive insects, as reported by the circular letters above referred to and by the reports of the State Horticultural Society, are Codling moth (*Carpocapsa pomonella*), Round-headed Borer (*Saperda candida*), Flat-headed borer (*Chrysobothris femorata*), Canker worm (*Paleacrita vernata*), Plum curculio (*Conotrachelus nuphar*), Plum gouger (*Coccotorus scutellarius*),

Tent Caterpillar (*Disiocampa Americana*), Peach tree borer (*Sanmima exitiosa*), Leaf crumpler, Woolly Aphis and the Oyster-shell-bark-louse.

Marketing

It has been only within recent years that the subject of marketing fruit has been studied in Kansas. Before this nearly all the fruit was consumed at home, except apples a considerable quantity of which was shipped in barrels or car load lots to other markets.

But as the production increases and competition begins to affect prices, the fruit grower begins to study the best methods of packing and marketing his fruit.

One may get an idea of how fruit is marketed now over the state from the following answers to the question, "What are your methods of marketing?" (in the circular letter above referred to)

Sell in orchard to men hauling in wagons.

Pack apples in barrels and ship.

Pack peaches and pears in crates or baskets.

Haul to market in wagon. Sell in local market.

Sell small fruits in quart berry boxes.

Sell grapes in ten or twelve pound baskets.

Sell pears and peaches in third bushel boxes.

Sell peaches, apricots, plums, and cherries in

ten pound baskets, grapes in eight pound baskets. Market nothing but the best. Ship nicely packed.

My conclusion, after reading in various bulletins, papers, and horticultural reports, is that to be successful in the marketing of fruit one must study the market every year as to the kinds and sizes of packages to be used successfully. At present, the pint baskets in crates of twenty four or thirty six seems best for raspberries and currants; the (short) quart boxes for strawberries, blackberries, and cherries; the eight and ten pound baskets for grapes; fifth or third bushel boxes for plums, apricots, peaches and pears; bushel boxes for apples for local market, and barrels (28 inch stave, $17\frac{1}{2}$ inch head) for shipping. Within the past year, bushel boxes have been used in packing apples for shipping to foreign market with the hope that they might be kept thus tightly packed, which is almost impossible in barrels.

Kansas still has local markets for the larger part of her small fruits. Cold storage has opened foreign markets to us, and canning factories are becoming more common.

We think that Kansas' prospects as a fruit growing state are very bright.

"May 9 - '98"

J. W. Allison