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Agricultural Experiment Station


—OF THE—

AGRICULTURAL AND MECHANICAL COLLEGE,

AUBURN, : : ALABAMA.

APPLES, PEARS, PEACHES AND PLUMS.

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 The Bulletins of this Station will be sent free to any citizen of the State on application to the Agricultural Experiment Station, Auburn, Ala.

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APPLES.

In March, 1885, forty-five varieties of apples were planted, two trees of a kind, for the purpose of determining their adaptation to this soil and climate and to observe their susceptibility to or exemption from disease.

Observations have been made from time to time since 1886, the results of which are tabulated in condensed form for reference. It will be seen that the susceptibility of the same variety to disease varies in different seasons.

Of the list planted, the following have made the most satisfactory growth, viz: Winesap, Limber Twig, Horn, Simmons' Red, Astrachan Red, Elgin Pippin, Ben Davis, Carter's Blue and Kittageskee.

The following have done well but have not made so satisfactory growth as the list just named, viz: American Golden Russet, Cannon Pearmain, Early Harvest, Hewes' Virginia, Rawls' Jennet, Stevenson's Winter, Thornton Seedling and Romanite.

One of each of the following varieties has died, but the remaining one is very thrifty: Carolina Watson, Chattahoochee greening, Hiley's Eureka, Tuscaloosa seedling, Yellow English and Yopp's Favorite.

The following are pronounced failures on this soil, viz: Buncombe, Equinetelee, Family, Laurens Greening, May, Oconee Greening, Palmer, Pryor's Red and Rhodes' Orange.

The remaining list are not failures, but have not done well. Nineteen varieties bore fruit this year, ripening as follows:

NAME OF VARIETY.	Date of Ripening	NAME OF VARIETY.	Date of Ripening.
Astrachan Red.....	June 1st.	Romanite	Oct. 8th.
Ben Davis	Oct. 8th.	Simmons' Red	Aug. 18th.
Carter's Blue	Aug. 25th.	Stevenson's Winter.....	Oct. 15th.
Early Harvest.....	June 5th.	Shockley.....	Oct. 15th.
Horn	Oct. 1st.	Taunton	Oct. 1st.
Horse	July 20th.	Tuscaloosa Seedling....	Oct. 1st.
Hughes' Virginia	Oct. 8th.	Terry's Winter	Nov. 1st.
Kittageskee.....	Oct. 1st.	Winesap	Oct. 8th.
Limbertain.....	Oct. 8th.	Yellow English.....	Oct. 1st.
Red June.....	July 15th.	.....	.....

Neither the soil nor climate of this section is favorable for growing apples, and hence it is especially important to select proper varieties.

Most of the varieties which have proved successful here are Southern seedlings. Indeed all of the late ripening winter varieties are natives of the South and must of necessity be so, since those brought from the North will ripen a month earlier here than there.

The list of successful varieties given above affords ample field for selection to furnish a family supply throughout the entire year.

Apples need a fertile soil, annually manured and thoroughly cultivated in such manner as to leave the principal roots undisturbed. Small grain should not be sown in an orchard, since it makes its heaviest demands upon the soil just as the crop of fruit is being set and the trees need the exclusive occupancy of the soil.

VARIETIES OF APPLES PLANTED IN MARCH 1885.—SOIL SANDY. NORTHERN EXPOSURE.

No. Planted.	NAMES OF VARIETIES.	1886	1889	1890		1891	
		Cedar Rust	May 8th. Blight	May 31. Blight.	June 18. Cedar Rust.	June 18. Leaf Spot.	Blight.
2	American Golden Russet.....	free	medium.....	badly	free	badly	badly
2	Astrakan Red	free	slight	free	free	slight	very slight.
2	Ben Davis	free	free	slight	free	slight	free
2	Bradford's Best	medium.....	medium	badly	slight	slight	slight
2	Buncombe	medium.....	slight	very slight..	free	slight	badly
2	Cannon Pearmain	slight	free	very slight ..	slight	slight	free
2	Carolina Watson.....	slight.....	free	slight	free	slight	1 free, 1 dead
2	Carter's Blue.....	medium.....	free	slight	slight	slight	very slight.
2	Chattahoochee Greening.....	slight	badly	badly	free	badly	badly
2	Cook's Seedling	slight	free	slight	slight	slight	badly
2	Early Harvest.....	free	free	slight	free	slight	badly
2	Early Red Margaret	slight	free	badly	free	free	1b'dly, 1de'd
2	Elgin Rippin.....	free	slight	very slight..	slight	badly	slight
2	Equinetelee	slight	badly	badly cut back	slight	badly	free
2	Family.....	medium.....	slight	very slight..	slight	badly	1 free, 1 d'ad
2	Golden Pippin	badly	medium.....	b'dly. Cut b'ck	slight	slight	slight
2	Habersham Late.....	free	free	slight	free	slight	very slight
2	Hames'	medium.....	free	badly	slight	slight	slight
2	Hewes' Virginia.....	free	free	slight	free	slight	slight
2	Hiley's Eureka.....	medium.....	badly	badly	badly	slight	slight
2	Horn	medium.....	medium.....	badly	badly	badly	slight
2	Horse.....	medium.....	free	badly	slight	badly	badly
2	Junaluskee.....	.....	.....	.....	.....	.....	.....
2	Kittageskee	free	badly	badly	free	slight	slight
2	Limbertwig	medium.....	free	slight	free	slight	very slight
2	May	slight	free	very slight..	free	slight	1 d'd, 1 sl'ght

VARIETIES OF APPLES PLANTED IN MARCH 1885.--SOIL SANDY. NORTHERN EXPOSURE--CONTINUED.

No Planted.	NAMES OF VARIETIES.	1886	1889	1890		1891	
		Cedar Rust	May 8th. Blight.	May 31. Blight.	June 18. Cedar Rust.	June 18. Leaf Spot	Blight.
1	Oconee Greening	medium	free	very slight	free	badly	badly
2	Palmer or Pear	slight	free	badly, cut back		slight	very slight
3	Pryor's Red	badly	slight	slight	badly	slight	slight
4	Rawls' Jennet	free	free	free	free	slight	slight
5	Red June						
6	Rhodes' Orange	slight	medium	badly	badly	slight	very badly
7	Romanite	slight	medium	badly	slight	badly	badly
8	Shannon Pippin	free	free	slight	slight	slight	slight
9	Shockley	badly	free	badly	slight	badly	badly
10	Simmons' Red	free	free	very slight	slight	slight	very slight
11	Stevenson's Winter	medium	medium	badly	free	slight	slight
12	Summer Queen	free	free	badly	free	1 d'd. 1 slight	slight
13	Launton	slight	medium	badly	free	slight	slight
14	Terry's Winter	slight	slight	1 b'dly, 1 c't b'k	slight	slight	badly
15	Thornton's Seedling			free	free	slight	free
16	Tuscaloosa Seedling	slight	slight	very slight	free	very slight	slight
17	Winesap	free	free	slight	free	slight	slight
18	Yellow English	free	free	1 b'dly, 1 c't b'k	free	slight	slight
19	Yopp's Favorite	free	free	slight	free	badly	slight

VARIETIES OF APPLES PLANTED IN MARCH 1885 —SOIL SANDY. NORTHERN EXPOSURE.—CONTINUED.

No. Planted.	NAMES OF VARIETIES.	1891—October 20th.				Shape of Tree.	Remarks.
		Cedar Rust	Leaf Spot	Growth of Tree.	Size of Tree.		
2	American Golden Russet.....	free	badly	vigorous	large	Erect.	
2	Astrakan Red	free	very slight	very vigorous	large	Curved erect	
2	Ben Davis	free	slight	vigorous	large	Curved erect	
2	Bradford's Best	free	badly	not vigorous	small	Curved erect	} Planted too near shade trees.
2	Buncombe	free	slight	not vigorous	small	Erect.	
—	Cannon Pearmain	free	badly	vigorous	medium	Curved erect	
2	Carolina Watson	free	badly	very vigorous	large	Curved erect	
2	Carter's Blue	slight	badly	very vigorous	large	Erect.	
2	Chattahoochee Greening	free	badly	not vigorous	medium	Erect.	} Planted too near shade trees.
2	Cook's Seedling	free	slight	not vigorous	small	Erect.	
2	Early Harvest	free	slight	vigorous	medium	Curved erect	
2	Early Red Margaret	free	badly	not vigorous	medium	Erect.	
2	Elgin Pippin	free	badly	very vigorous	large	Curved erect	
2	Equinetelee	free	badly	cut back		Curved erect.	
2	Family	free	free	not vigorous	very small	Erect.	
2	Golden Pippin	free	badly	vigorous	medium	Curved erect	
2	Habbersham Late	free	slight	not vigorous	small	Erect.	
2	Hames'	free	slight	not vigorous		Erect	} Cut back.
2	Hewes' Virginia	free	slight	vigorous	large	Curved erect.	
2	Hiley's Eureka	free	badly	vigorous	large	Curved erect	
2	Horn	badly	slight	vigorous	medium	Horizontal.	
2	Horse	free	slight	vigorous	medium	Erect.	
2	Junaluskee						
2	Kittageskee	free	slight	vigorous	medium	Drooping.	
2	Limberville	free	slight	vigorous	large	Drooping.	
2	May	free	slight	not vigorous	small	Curved erect.	

VARIETIES OF APPLES PLANTED IN MARCH 1885—SOIL SANDY. NORTHERN EXPOSURE.—CONTINUED.

No. Planted.	NAMES OF VARIETIES.	1891—October 20th.				Remarks.	
		Cedar Rust.	Leaf Spot.	Growth of tree	Size of Tree.		Shape of Tree
2	Oconee Greening.....	free	badly	not vigorous..	small	Erect	} Planted too near shade trees. Planted 1889.
2	Palmer or Pear.....	free	slight	not vigorous..	small	Erect.	
2	Pryor's Red	slight	badly	not vigorous..	small	Erect	
2	Rawls' Jennet.....	free	badly	vigorous	large	Curved erect	
2	Red June						
2	Rhodes Orange	free	very badly	not vigorous..	small	Horizontal.	
2	Romanite	badly	slight	vigorous	medium	Horizontal	
2	Shannon Pippin	free	badly	vigorous	medium	Curved erect.	
2	Shockley	badly	badly	vigorous	medium	Erect	
2	Simmons' Red.....	free	badly	vigorous	large	Curved erect	
2	Stevenson's Winter.....	free	slight	vigorous	medium	Curved erect	
2	Summer Queen.....	free	badly	vigorous	medium	Horizontal	
2	Taunton	free	slight		small	Curved erect	
2	Terry's Winter.....	badly	badly	vigorous	medium	Curved erect	
2	Thornton's Seedling.....	free	free			Curved erect	
2	Tuscaloosa Seedling.....	free	badly	not vigorous..	small	Curved erect.	
2	Winesap.....	free	slight	vigorous	large	Curved erect.	
2	Yellow English	free	badly	vigorous	large	Curved erect	
2	Yopp's Favorite.....	free	badly	vigorous	medium	Erect.	

PEARS.

In 1885 thirty-four varieties of pears of the European type and six of the Oriental were planted under very favorable auspices as to the preparation and fertilization of the soil.

If the varieties were cultivated both as dwarfs and standards; two of each were planted, or four of the variety. If propagated only as dwarfs or only as standards, then but two of the variety were planted. There were at the same time six varieties of the Oriental type planted, six Lecontes and two of each of the others. The object of these plantings was to ascertain the varieties best suited to this soil and climate.

Until 1888, when many of the varieties blossomed for the first time, the trees were models of symmetry and beauty, having been used for class instruction in pruning. The open flowers afforded means of access to the germs of the disease known as "Pear blight," and the work of destruction was commenced. Each successive summer claimed its victims, until now only 26 of the 99 trees of the European type remain, and some of these have been mutilated by the removal of blighted limbs.

To what extent the disease was transmitted from tree to tree through the agency of the pruning shears, cannot be estimated, but it is more than probable that the spread and intensity of the disease was increased by this means.

The fact that healthy trees may be inoculated by the germs adhering to the knife, used in pruning diseased ones, has been clearly demonstrated at the New York Experiment Station.

That the spores are wafted from diseased to healthy trees and carried by insects from flower to flower seems to be also well established. One Smith's hybrid and one large Duchess of the Oriental varieties have been destroyed by blight, while the other specimens of these varieties have been entirely exempt. The two which died stood near the diseased trees of the European type, while the exempt trees were more remote from them.

The importance of promptly removing all diseased branches, by cutting far enough below the blighted part to be sure of leaving only healthy tissue, cannot be too strongly urged.

The branches should not only be cut off, but should be burned as soon as removed.

The diseased branches, if left, become fruitful nurseries from which the spores of the blight are wafted in the air and become the means of spreading the disease.

The pruning shears should be disinfected after being used upon blighted trees before using them upon healthy ones.

The column, in the tabulated statement, showing the number of trees of the different varieties living in 1891—six years after planting—indicates with sufficient clearness which of the varieties named are worthy of cultivation. Of these the Duchess de Angouleme, Seckel and winter Nelis are conspicuously the most blight-resisting varieties.

Of the Oriental varieties the Keiffer and Leconte are the most valuable. The Keiffer commences to bear at four years from planting, and bears annual crops of very large pears, which ripen late in September, when fruit is scarce. Though the fruit grades only "good," its reliability as to healthfulness of the trees and the size of the fruit render it especially desirable.

Another feature in its favor is the fact that it is late in flowering, and hence escapes spring frosts which destroy the fruit on the Leconte and others. The Leconte is a more vigorous grower than the Keiffer and when it escapes frost bears an immense crop of very attractive fruit, which sells well, though grading only "good."

The principal objection to this variety is its habit of very early blooming, which renders it quite unreliable as a crop producer.

The other Oriental varieties have nothing to recommend them except their vigorous growth and handsome appearance.

The tabulated statement which follows is a record of death, but a valuable guide to the pear grower.

VARIETIES OF PEARS, PLANTED MARCH, 1885.

No. of Trees.	EUROPEAN TYPE.	Observations 1889.		Observations 1890.		Observations 1891.		1891.	1891.
	NAMES OF VARIETIES.	May 8. Blight.	Oct. 15. No trees died.	May 31. Blight.	Oct. 18. No trees died.	June. Blight.	Oct. 20. No trees died.	Total No. trees dead.	Total No. trees living.
4	Bartlett.	2 free, 2 badly	2	badly	2			4	
3	Buerre d'Anjou	free		slight	1	badly	2	3	
4	B'Clairegeau	1 free, 3 badly	1	3 badly	3			4	
4	B'Deil	2 free, 2 badly		badly	3	slight		3	1
2	B'Easter	free		badly	2			2	
3	Belle Lucrative	1 free, 2 badly	1	badly	2			3	
4	Bloodgood	3 free, 1 badly	1	badly	3			4	
2	Brandywine	free		1 free, 1 slight	2			2	
2	B'Superfin	free		badly	2			2	
4	Buffum	free		2 slight, 2 free	2	free		2	* 2
2	Comet	free	1	free		free		1	† 1
4	Clapp's Favorite	2 free, 2 badly	2	free	2			4	
2	Columbia	badly	2					2	
4	Dearborn's Seedling	2 free, 2 badly	2	free	2			4	
4	Doyenne d'Ete.	1 free, 3 badly	1	free	3			4	
2	Duchess d'Angouleme	free		free		free			2
2	Duchess Pittmason	badly	2					2	
4	Flemish Beauty	free		2 free, 2 slight	2	slight	2	4	
3	B'Giffard	free		1 free, 2 badly	2	free		2	1
2	Glou Morceau	badly	2					2	
1	Howell	free		slight	1			1	
2	Kirtland Seckel	badly	1	badly	1			2	
2	Lawrence	free		1 free, 1 badly	1	free		1	1
3	Lawson	free		free		free			† 3
2	Louise Bonne d'Jersey	free		badly	2			2	
2	Lucy Duke	free		1 free, 1 badly	1	free		dwarf 1	st'd'rd 1
4	Mt. Vernon	free		slight	2	badly		2	2

VARIETIES OF PEARS, PLANTED MARCH, 1885—CONTINUED.

No. of Trees.	EUROPEAN TYPE. NAMES OF VARIETIES.	Observations 1889.		Observations 1890.		Observations 1891.		1891	1891.
		May 8. Blight.	Oct. 15. No trees died.	May 31. Blight.	Oct. 18. No trees died.	June. Blight.	Oct. 20. No trees died.	Total No. trees dead.	Total No. trees living.
3	Petite Marguerite.....	1 free, 2 badly	2	slight	.....	slight	.....	2	1
4	Seckel.....	free	.....	3 free, 1 slight	.....	3 free, 1 badly	1	1	3
4	Sterling.....	3 free, 1 badly	1	1 free, 2 slight	.....	2 free, 1 badly	.....	1	3
4	St. Michael Arch Angel.....	3 free, 1 badly	1	2 free, 1 slight	1	free	.....	2	2
4	Tyson.....	free	.....	2 badly, 2 slight	2	slight	.....	2	2
1	White Doyenne.....	free	.....	badly	1	.....	.....	1	.....
2	Winter Nelis.....	Slight.	.....	slight	.....	free	.....	.....	2
99	ORIENTAL TYPE.		21		47		5	73	26
2	Chinese Sand.....	free	.....	.....	2	free	.....	2	+
2	Garber's Hybrid.....	free	.....	free	.....	free	.....	.....	2
2	Keiffer's Hybrid.....	free	.....	free	.....	free	.....	.....	2
2	Large Duchess.....	free	.....	1 free, 1 badly	1	free	.....	1	1
6	LeConte.....	free	.....	free	.....	free	.....	.....	6
2	Smith's Hybrid.....	free	.....	1 free, 1 badly	1	free	.....	1	1

*1 Partly blighted. †1 Killed by rabbits in 1889. ‡ Planted 1889. §2 Partly blighted. || Killed by freeze March, 1890.

PEACHES.

The following list of 37 varieties, two trees of each were planted in 1885.

A careful examination, made November 1st, of each tree develops the fact that all are in vigorous, healthy condition. There are only *four*, out of *seventy-four* planted, missing, and two of these died when transplanted. For convenience of reference the names, class and time of ripening are tabulated.

This, taken in connection with the description of varieties given in Bulletin No. 11, February, 1890, will furnish a convenient guide to those contemplating planting an orchard.

The list furnishes varieties which will give a succession of delicious fruit from June 1st to November 1st.

NAMES, CLASS AND TIME OF RIPENING OF 37 VARIETIES
OF PEACHES.

No. trees planted.	NAMES OF VARIETIES.	CLASS.	TIME OF RIPENING.
2	Alexander	Semi-cling . .	June 6th to 25th.
2	Annie Wylie	Cling	Aug. 1st to 12th.
2	Bernard	Free	July 6th to 22nd.
2	Bustian's October	Cling	Sept. 16th to Oct. 14th.
2	Butler Cling		
2	Chinese Cling	Cling	July 20th to 30th.
2	Chinese Free.	Free.	July 10th to 25th.
2	Coggin's Early	Semi-cling . .	June 6th to 29th.
2	Columbia	Free	July 20th to Aug. 20th.
2	Connor's White	Cling	July 17th to 22nd.
2	Cora	Free.	Sept. 15th to 30th.
2	Crawford's Early	Free.	July 16th to 31st.
2	Crawford's Late	Free.	July 26th to Aug. 10th.
2	Deming's September	Free.	Aug. 20th to 30th.
2	Downing	Semi-cling . .	June 6th to July 5th.
2	Duff's Yellow	Cling	July 16th to 31st.
2	Duggar's Golden	Cling	July 17th to 31st.
2	Duggar's White		July 16th to 22nd.
2	Eaton's Golden	Cling	Aug. 18th to 27th.
2	Elberta	Free.	July 15th to Aug. 16th.
2	Foster	Free.	July 10th to 31st.
2	Gen'l Lee	Cling	July 1st to 10th.
2	Gen'l Taylor	Cling	June 29th to July 22nd
2	Hale	Semi-cling . .	June 22nd to July 15th
2	Hudson's November	Cling	Oct. 15th to 25th.
2	Indian Blood	Cling	Aug. 13th to 19th.
2	Lady Parham	Free.	Sept 10th to Oct. 10th
2	Lemon Cling	Cling	Aug. 1st to 20th.
2	Muscogee	Free	July 31st to Aug. 20th.
2	Mixon's White	Cling	Sept. 10th to 25th.
2	Rivers.	Semi-cling . .	June 17th to July 7th.
2	Royal George (Early)	Free.	June 26th to July 8th.
2	Stinson's October	Cling	Sept. 10th to Oct.
2	Stump the World	Free.	July 8th to 22nd.
2	Thurber	Free	July 13th to 25th.
2	Tillotson	Free.	June 28th to July 8th.
2	Tuskana	Cling	July 10th to 27th.

NOTE.

WILD GOOSE PLUMS ON DIFFERENT STOCKS.

For the purpose of comparing the effects of different stocks upon the longevity of the Wild Goose variety, there were planted in 1885:

- 12 Wild Goose trees on Peach stocks.
- 12 Wild Goose trees on Seedling Plum roots.
- 12 Wild Goose trees on Plum cuttings. ✓

An examination on the 23rd November, 1891, showed that there were living and in healthy condition:

- On peach roots, *eight* out of twelve planted.
- On seedling plum roots, *three* out of twelve planted.
- On plum cuttings, *one* out of twelve planted.

Several varieties of peaches budded upon cuttings of the Brill plum have proved very unsatisfactory. The scion in many cases is larger than the stock, and the growth dwarfed.

