

# TEXAS AGRICULTURAL EXPERIMENT STATIONS BULLETIN No. 88

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LENGTH OF LIFE OF VINES OF VARIOUS SPECIES AND VARIETIES  
OF GRAPES; PROFITABLENESS; AND BY WHAT  
DISEASES SERIOUSLY AFFECTED.

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By T. V. MUNSON, D. Sc.



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# TEXAS AGRICULTURAL EXPERIMENT STATIONS.

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## LETTER OF TRANSMITTAL.

*H. H. Harrington, President Texas Agricultural and Mechanical College of Texas.*

Sir: In compliance with the suggestion of E. J. Kyle, Professor of Horticulture in the A. & M. College of Texas, and your authorization for me to do so, I have prepared this paper to be made a bulletin of the Texas State Experiment Station, and now respectfully submit it for your consideration.

T. V. MUNSON.

Denison, Texas.

## LENGTH OF LIFE OF VINES OF VARIOUS SPECIES AND VARIETIES OF GRAPES, PROFITABLENESS, AND BY WHAT DISEASES SERIOUSLY AFFECTED.

In 1886 and 1887 the writer planted about eight acres of grapes on light sandy soil from six inches to three feet deep, resting on red and yellow clay subsoil near Denison, Texas, and this vineyard is still standing now 19 years old, and part of the vines are yet bearing well and are profitable. Some of the vines perished years ago and others are in a feeble condition, unprofitable and some dying every year. Careful critical record of all the vines in this vineyard has been kept from the time of the planting, notes on the same always have been taken in the presence of the vines. No Experiment Station is more carefully kept. From this record mostly the facts in the following pages have been tabulated to guide in propagation and my further experimental work so as to avoid mistakes in the future as far as possible.

The land occupied by the vineyard has had but one application of fertilizer during the 19 years, which was a heavy coating of cottonseed some twelve years ago, and is now suffering for nourishment.

The conditions and treatment of all the vines in this vineyard, mentioned in the tables, have been identical so far as the uniformity of the soil permitted and it is about as uniform as any equal area of sandy land in Texas.

Besides I have planted other vineyards on different soils, including black, limy soil, that agree in results shown in the tables.

As excess of lime in the soil greatly affects injuriously many varieties, causing the leaves to turn yellow (chlorose) and the vines to dwindle and die within a few years, it is important to designate those varieties injuriously affected by the excess of lime.

All species and varieties grow well in sandy soils where carbonate of lime does not exceed twenty-five per cent of the soil. Some varieties cannot well endure more than twenty-five or thirty per cent of lime while others will flourish in fifty and even sixty per cent of lime.

The vines of some species are nearly always found natively in limy soils, and varieties of such species generally succeed well in limy soils.

The species found naturally growing in limy soils are the following: Berlanderi,\* Blancoii, Bourquiniana, Candicans,\* Champini,\* Cinerea,\* Cordofolia,\* Coriacea, Doaniana, Moticola,\* Rubra, Rupestris,\* Vinifera.\* All other species named in table I are natively found growing in sandy soils. Those just named above followed by a \* can flourish in soils having 40 to 60 per cent of lime. Cultivated varieties of these also succeed well in limy soils if not subject to other maladies.

All very sticky soils, especially the "Black Waxy" are rich in lime. All soils immediately underlaid with limestone and especially with white chalky rock, as found in the black lands of the cretaceous soils of Texas are strong in lime. In Bell, Lampasas and adjacent counties the lime in places is in such large per cent that very few plants or trees will grow

in such places. The Red Cedar, Berlandieri, Mustang (Candicans) Champini and Monticola grapes I have found growing in such places without any appearance of chlorosis, while peach trees, Concord and Post Oak grape vines planted in such soils, quickly yellow and die. Hence, it is necessary, to success in long life in vines, to plant only those adapted to the soils.

I have not conducted any systematic test upon soils having a greater excess of lime than 40 per cent. hence have no tables of experience on such soils to present but have formed my conclusions on adaptability to such soils by extended observation over the State and from reports of careful experimenters in limy soils in Texas. The Berlandieri, Champini, Doaniana and Rupestris, natives of Texas, with Bourquiniana and Vini-fera, foreign, are giving best results in hybridization for very limy soils.

Varieties much subject to rot and mildew should not be planted in regions, such as the forest area of East Texas, unless thoroughly treated with spray of sulphate or carbonate of copper solution, but they may do well in Central and Western Texas, if set in proper soil and site, without spraying.

No grape will succeed in boggy or seapy soil, and a high location surrounded by lower grounds is preferable to the reverse location, on account of late frosts and fungus diseases prevailing much more in low than high localities.

A careful study of the following tables will pretty well guide one safely in choosing varieties for profit and long life in various soils and locations.

Those in table I, followed by the letter 1, are generally found natively growing in limy soils, all others in sandy soils. Those varieties in Table II, followed by the letter 1, have been found to succeed well in "Black Waxy" soils with clay subsoils; those followed by the letters 11 succeed in "Black Waxy" and "Adobe" soils underlaid with white rock as near as two feet of the surface.

The first table shows clearly the species having long lived vines, healthy vines, and vigorous vines; three prime essentials in the constitution of any valuable variety. Several of them besides Lincecumii are yielding excellent results, but it will require several generations with some to bring out valuable vineyard varieties.

The second table gives the names of each variety, its specific blood, the number of vines of each variety planted 19 years ago, and the number and per cent of vines now alive, degree of profitableness, diseases affecting and the present condition.

It will be noticed that a number of the varieties contain blood of the native Post-Oak Grape (*Vitis Lincecumii*). which I consider the most valuable of all American species in many respects for sandy soils, hence I have used it extensively in hybridizing, although I have made hybrid combinations with nearly every species named in the first table in order to discover the best in existence.

TABLE I.—RELATIVE LONGEVITY OF VINES OF VARIOUS SPECIES OF GRAPES IN SANDY SOIL AT DENISON, TEXAS.

(Condition is described as vigorous, winter kilns, etc. Hardiness is noted and sources from which the vines were obtained.)

Specific Name	Author	Common Name	Character	Number Planted in 1887	Number Alive in 1905	Per cent Alive in 1905
Vitis Aestivalis.....	Michaux.....	Summer Grape.....	Fairly vigorous; suffers from drouth and root-rot; New Jersey, Virginia and Georgia.....	50	24	41
Vitis Arizonica.....	Engelmann.....	Gulch Grape.....	Fairly vigorous; mildew and rot; West Arizona.....	4	2	50
Vitis Balleyana.....	Munson.....	"Possum Grape".....	Fairly vigorous; healthy; Virginia, West Virginia and North Carolina. 1.....	4	2	50
Vitis Berlandieri.....	Planchon.....	Little Mountain Grape, Plate I.....	Very vigorous; healthy; Southwest Texas. 1.....	286	286	100
Vitis Bicolor.....	LeConte.....	"Coon" or Summer Grape.....	Vigorous; healthy; Illinois, Ohio and Michigan.....	3	3	100
Vitis Blancoi.....	Munson.....	Blanco's Grape.....	Winter kills; West Mexico. 1.....	5	0	0
Vitis Bourquiniana.....	Munson.....	"Southern Aestivalis," Plate II.....	Fairly vigorous; rot and mildew; Southern Europe. 1.....	98	73	78
Vitis Californica.....	Bentham.....	California Grape.....	Winter kills; mildew and rot; Central and North California.....	6	0	0
Vitis Canadensis.....	Engelmann.....	Mustang Grape.....	Very vigorous; healthy; Texas. 1.....	6	6	100
Vitis Champini.....	Planchon.....	Champin's Grape, Plate III.....	Very vigorous; mildews a little; Central Tex. 1.....	63	63	100
Vitis Clnerea.....	Engelmann.....	Sweet Winter Grape.....	Very vigorous; healthy; Southern States. 1.....	12	12	100
Vitis Cordifolia.....	Lamarck.....	Frost or Sour Winter Grape.....	Very vigorous; healthy; Texas and Florida. 1.....	4	4	100
Vitis Coriacea.....	Shuttleworth.....	Leather Leaf Grape.....	Very vigorous; winter kills; Florida. 1.....	5	1	20
Vitis Doaniana.....	Munson.....	Doan's Grape.....	Very vigorous; healthy; Northwest Texas. 1.....	12	12	100
Vitis Girdiana.....	Munson.....	Gird's Grape.....	Mildew and rot; Northwest Mexico and South California.....	4	0	0
Vitis Labrusca.....	Linnaeus.....	Fox Grape of Atlantic States.....	Very weak; killed by douth; Massachusetts, Pennsylvania and North Carolina.....	245	64	26
Vitis Lincecumii.....	Buckley.....	Post-Oak Grape, Plates IV, V.....	Very vigorous; healthy; Texas, Indian Territory and Missouri.....	20	19	95
Vitis Longii.....	Bailey syn. Solonis.....	Bush or Canyon Grape.....	Weak and root-rot; Northwest Texas.....	72	2	3
Vitis Monticola.....	Buckley.....	Sweet Mountain Grape.....	Weak; dwarfish; Central Texas. 1.....	25	25	100
Vitis Munsoniana.....	Simpson.....	Florida Bird Grape.....	Winter killed; Southern Florida.....	7	0	0
Vitis Rotundifolia.....	Michaux.....	Southern Muscadine, Plate VIII.....	Very vigorous; healthy; Southern States.....	4	4	100
Vitis Rubra.....	Michaux.....	Cat-Bird Grape.....	Very vigorous; healthy; Mississippi River. 1.....	5	5	100
Vitis Rupestris.....	Scheele.....	Rock Grape.....	Drouth and root-rot; Indian Territory and Missouri. 1.....	92	0	0
Vitis Treleasei.....	Munson.....	Slick-Leaved Gulch Grape.....	Vigorous; mildews and rots; Arizona.....	3	3	100
Vitis Vinifera.....	Linnaeus.....	Wine Grape of Asia and Europe.....	Very weak; mildews, rots and phyloxera; Europe and Asia. 1.....	24	4	6
Vitis Vulpina.....	Linnaeus syn. Riparia.....	River-Side Grape.....	Fair; drouth and root-rot; Michigan and Wisconsin.....	10	5	50

**TABLE II.—COMPARATIVE LONGEVITY AND PROFITABLE-  
NESS OF CULTIVATED GRAPES AT DENISON, TEXAS.**

(Profitableness, color, use and conditions of vines in 1905 are each indicated by terms following names.)

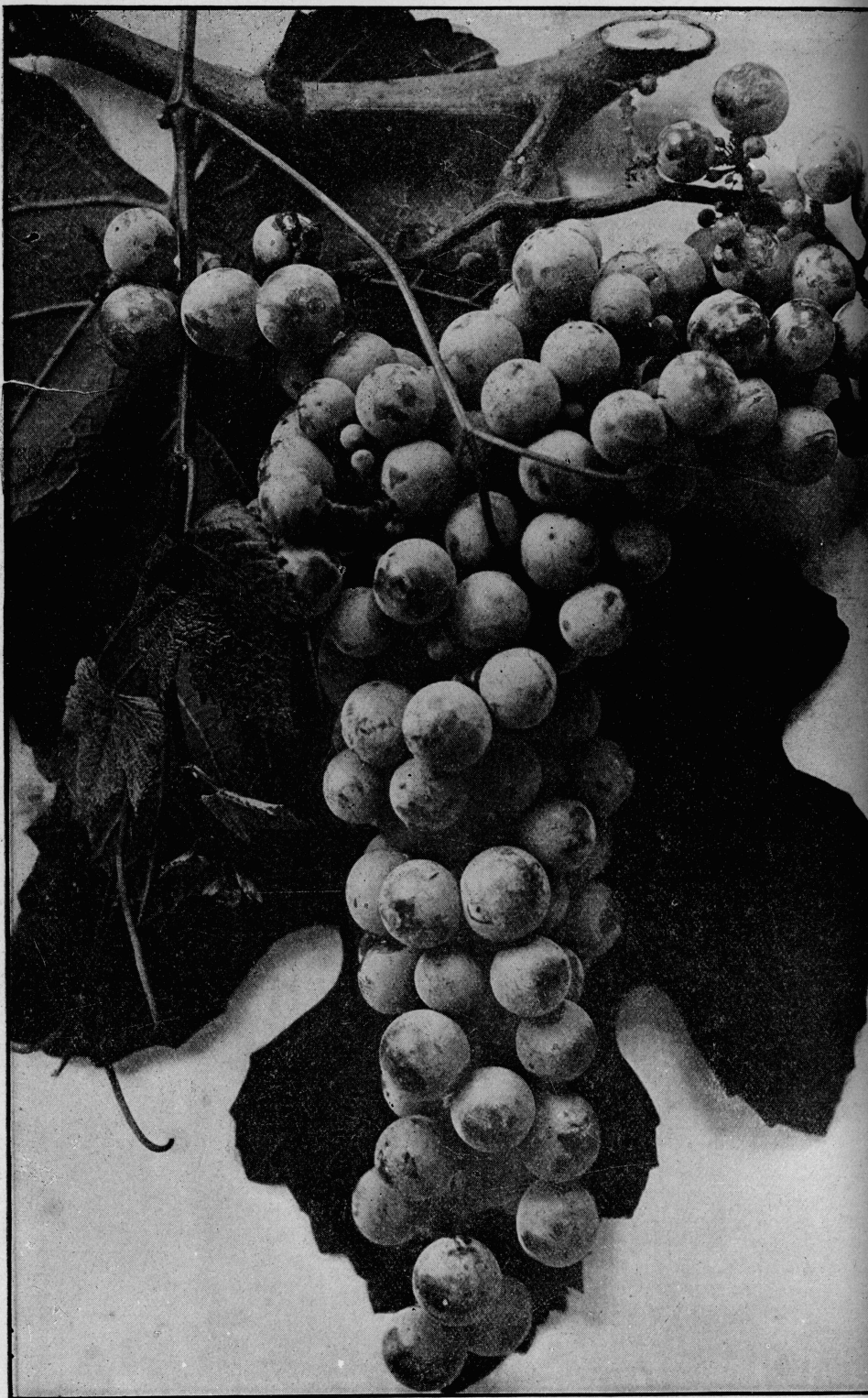
Names of Varieties and Their Specific Blood.	Number Planted in 1887	Number Alive in 1905	Per Cent Alive in 1905
America (black) Lincecumii x Rupestris. Very profitable; market, wine; no diseases, vigorous. 1 Plate VI.....	47	47	100
Berckmans (red) Delaware x Clinton. Unprofitable; some rot, fair. 1.....	20	15	75
Bailey (black) Lincecumii x Triumph. Profitable, market; mildews, vigorous.....	1	1	100
Beacon (black) Lincecumii x Concord. Profitable; market; rots and mildews; weak. 1.....	20	17	85
Bell (white) Elvira x Delaware. Profitable; market, no diseases, vigorous. 1.....	33	22	67
Brilliant (red) Lindley x Delaware. Very profitable; market, mildews, feeble. 1.....	86	66	77
Calabrain (white) Vinifera. Profitable grafted; mildews, feeble. 1.....	4	2	50
Concord (black) Vitis Labrusca. Profitable for eight years; rots, ripe uneven, very weak.....	78	40	51
Champion (black) Vitis Labrusca. Little profit; weak, very poor quality.....	20	19	95
Cottage (black) Vitis Labrusca. Unprofitable, drops, very weak.....	12	10	83
Delaware (red) Bourquiniana x Labrusca x Vinifera(?). Profitable, mildews weak. 1.....	145	122	84
Delago (red) Delaware x Goethe. Fair, market; mildews, weak. 1.....	34	26	77
Devereux or Black July (black) Vitis Bourquiniana. Unprofitable, root-rot. 1.....	7	0	00
Diana (red) Labrusca x Vinifera. Unprofitable; mildews, feeble.....	10	7	70
Dr. Collier (red) Lincecumii x Concord. Profitable, market; healthy, fair.....	4	2	50
Diamond (white) Labrusca x Vinifera. Profitable for eight years, rots.....	7	0	00
Eaton (black) Vitis Labrusca. Unprofitable, root-rot, very weak.....	6	2	33
Early Victor (black) Delaware x Ives. Unprofitable; root-rot.....	22	0	00
Elvira (white) Labrusca x Vulpina. Unprofitable; cracks, fair.....	5	4	80
Empire State (white) Labrusca x Vinifera. Unprofitable drops, very weak.....	27	2	7
Elvicand (red) Elvira x Mustang. For black land; healthy, vigorous. 11.....	10	10	100
Excelsior (red) Labrusca x Vinifera. Unprofitable, mildews, rots.....	15	0	00
Fern Munson (black) Lincecumii x Catawba. Very profitable; some mildew, vigorous, very late.....	33	33	100
Gold Coin (yellow) Norton Virginia x Martha. Very profitable; healthy, weak.....	27	25	92
Golden Gem (white) Delaware x Clinton. Unprofitable, rot. 1.....	6	0	00
Golden Chasselas (yellow) Vitis Vinifera. Unprofitable, rot, mildew. Succeeds (grafted) in S. and W. Texas. 11.....	6	0	00
Griega de Piemonte (black) Vitis Vinifera. Profitable grafted; mildews; weak. 1.....	3	2	66
Herbemont (red-purple) Vitis Bourquiniana: Profitable wine; rots; vigorous. 11.....	62	58	92
Hopkins (black) Lincecumii x Aestavallis. Profitable, wine, market; healthy, vigorous.....	1	1	100
Ives (black) Vitis Labrusca. Unprofitable, drouth, root-rot; very weak.....	40	10	25
Jefferson (red) Labrusca x Vinifera. Profitable for six years. Mildews, weak. 1.....	6	1	17

Names of Varieties and Their Specific Blood.	Number Planted in 1887	Number Alive in 1905	Per Cent Alive in 1905
Jaeger No. 43 (black) Vitis Lincecumii of Southwest Missouri. Profitable; wine, healthy, very vigorous.....	2	1	50
Lady (white) Vitis Labrusca. Unprofitable, root-rot.....	10	0	00
Lady Washington (red) Labrusca x Vinifera. Unprofitable, mildews.....	15	0	00
Laussel (black) Lincecumii x Cold Coin. Profitable, healthy, very vigorous.....	40	40	100
Lenoir or Black Spanish (black) Vitis Bourquiniana. Profitable, wine; mildews and rots, weak. 11.....	18	9	50
Lindley (red) Labrusca x Vinifera. Profitable; market, mildews, weak.....	9	5	55
Marguerite (purplish-red) Lincecumii x Bourquiniana. Profitable; wine, market; healthy, vigorous.....	23	23	100
Martha (white) Vitis Labrusca, root-rot, unprofitable.....	10	0	00
Missouri Reising (white) Labrusca x Vulpina. Unprofitable; cracks, weak.....	6	4	67
Moore Early (black) Vitis Labrusca. Unprofitable, shy; root-rot; very weak.....	53	3	6
Montifore (black) Labrusca x Vulpina. Unprofitable.....	2	0	00
Moyer (red) Delaware x Wyoming(?). Unprofitable; drops, rots, weak. 1.....	13	10	77
Muench (black) Lincecumii x Herbemont. Very profitable; some mildew; very vigorous.....	6	6	100
Muscat (white) Vinifera. Unprofitable; mildews, rots, 11.....	2	0	00
Neva (black) Lincecumii x Herbemont. Profitable, wine; healthy, very vigorous.....	1	1	100
Niagara (white) Labrusca x Vinifera. Profitable for eight years; rots; very weak.....	27	4	15
Norton or Cynthiana (black) Vitis Aestivalis. Profitable; wine; root-rot; weak.....	52	17	33
Norfolk (red) Labrusca x Vinifera. Profitable, early market; rots, weak.....	18	15	83
Perkins (pink) Labrusca. Unprofitable; root-rot; weak.....	34	13	38
Perry (red) Lincecumii x Herbemont. Profitable; market, wine; rots; very vigorous.....	1	1	100
Peter Wylie (white) Labrusca x Vinifera. Unprofitable; rots.....	4	0	00
Presly (red) Elvira x Champion. Profitable, very early market, root-rot.....	64	52	81
Quagliano (red) Vinifera. Unprofitable; rots, 11.....	3	0	00
Rommel (white) Elvira x Triumph. Profitable, mildews, 1.....	275	163	59
R. W. Munson (black) Lincecumii x Triumph. Profitable; healthy, very vigorous.....	29	29	100
Scuppernong (yellow) Vitis Rotundifolia. Profitable, wine, healthy, very vigorous.....	1	1	100
Thomas (black) Vitis Rotundifolia. Profitable, wine, healthy, very vigorous.....	1	1	100
Triumph (white) Concord x Muscat. Profitable, market, cracks, very weak. 1.....	78	46	59
Walter (red) Delaware Seedling. Profitable, market, mildews, weak. 1.....	3	1	33
Woodruff (red) Labrusca x Vinifera. Unprofitable, cracks.....	5	0	00
Worden (black) Vitis Labrusca. Unprofitable, cracks, drops, very weak.....	51	7	14
Wyoming (red) Labrusca x Delaware(?). Profitable, market, very weak.....	7	3	43
Wilder (black) Labrusca x Vinifera. Unprofitable, rots, very weak.....	5	1	20
Zinfandel (black) Vitis Vinifera. Unprofitable, mildews, rots, 11.....	6	0	00





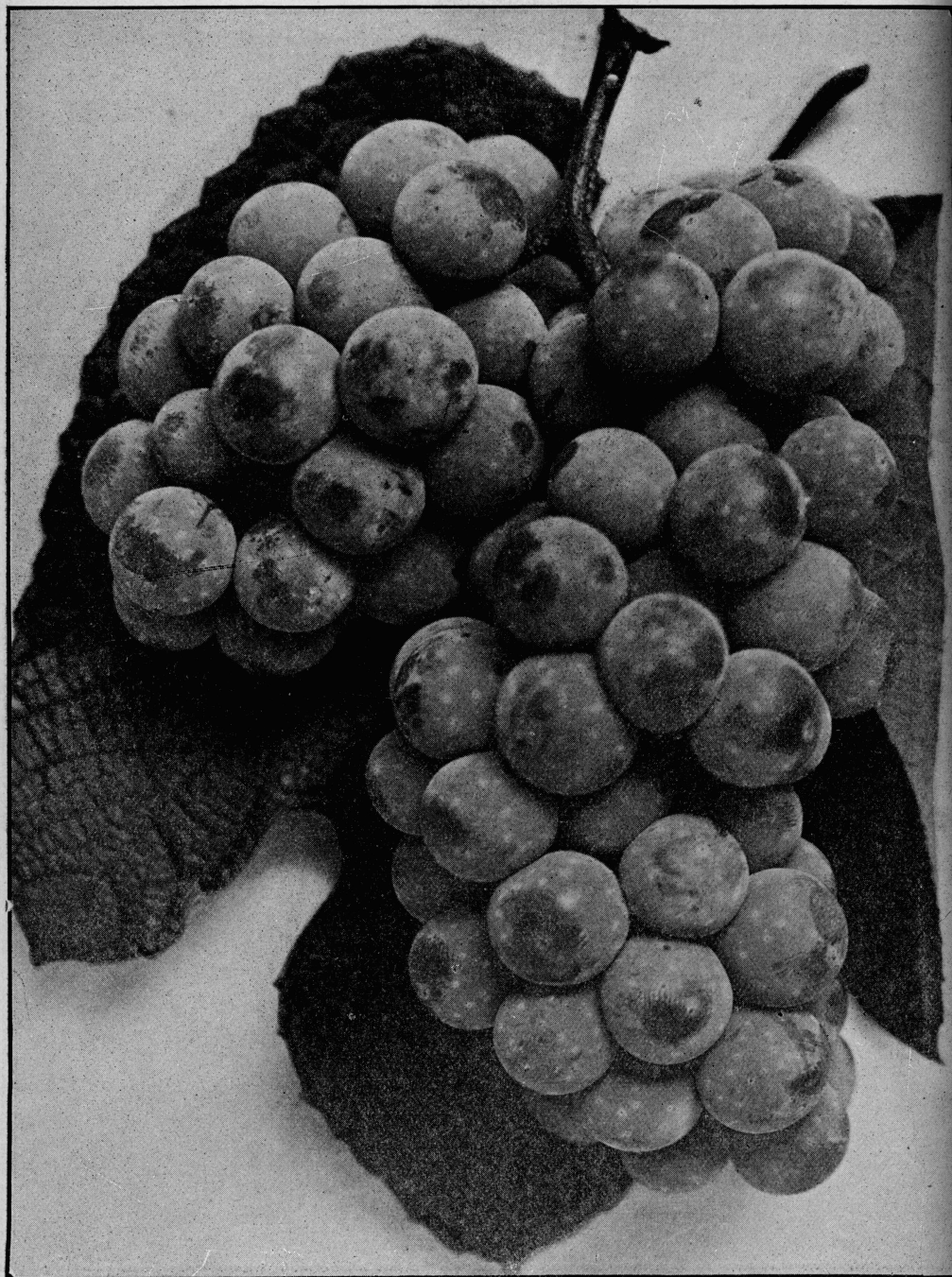
V. Berlandieri—Native of Bell County, Texas.



Herbemont. V. Bourquiniana.



V. Champini—Native of Lampasas County, Texas.

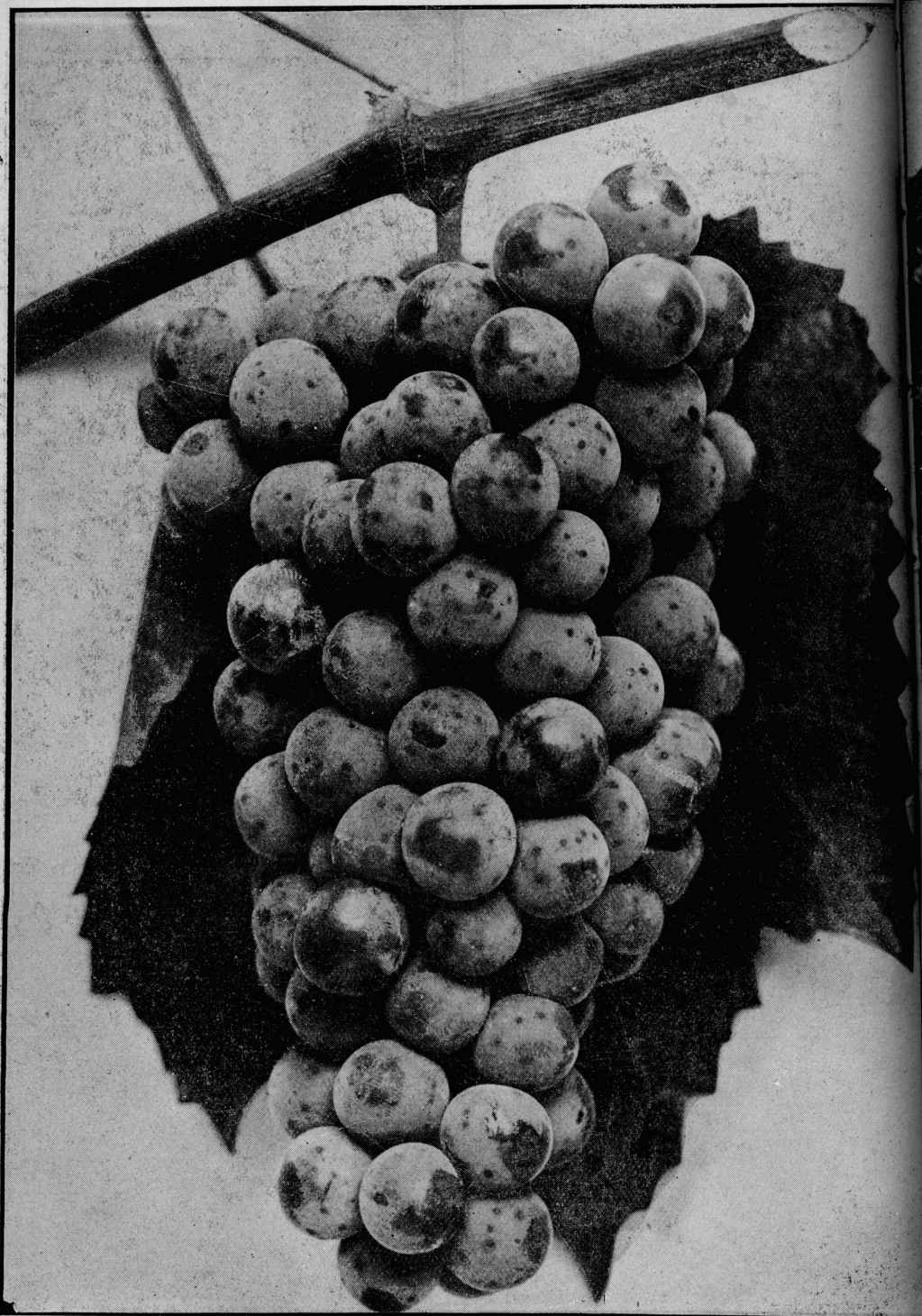


V. Lincesmii—Native of Grayson County, Texas.



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America—*Lincecumiax Rupestris*.



America—Lincecumii x Rupestris.



Xlnta—Combination of *V. Lincecumii*, *V. Rupestris*, *V. Labrusca* and *V. Vinifera*.



*V. lotundifolia*—Native of Carolina





1. Lasalle.  
2. San Jacinto.  
*Subpernana Hybrids.*