

4-10-14 Mike White's Pruning/Canopy Management Cheat Sheet

Beta 18

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Cultivar	Origin	Color	Approx. Bud Break	Harvest Season	Vigor	Growth Habit	(order of preference) Suggested Training System	Typical	Approx.	Approx.	Approx.	Yield/Acre High Mgt. Tons/fac.	Clusters/Plant Needed for Ave Yields 550 plants/ac.	Cluster Thinning Needed	Approx. Winter Hardiness
								Balance	Max	Cluster Wt	Berry Wt				
								Pruning #	lbs/cluster	Grams					
								Formula	buds						
Arandell (NY95)	Cornell Hybrid	Blue	Midseason	Midseason	Low - Mod	Upright	VSP, SHW	25+10	55	0.15 - 0.27	1.1	4 to 6	70 to 105	Maybe	-13F
Aromella (NY76)	Cornell Hybrid	White	Midseason	Midseason	High	Semi Upright	SHW, GDC	30+10	60	0.27	1.5	6 to 8	80 to 107	No	-16F
Bluebell	Univ. Mn labrusca	Blue	Midseason	Midseason	Good	Trailing	GDC, SHW	30+10	60	0.35	3	4 to 8	42 to 84	No	-40F
Brianna	Swenson hybrid	White	Early	Early-Mid	High	Trailing	GDC, SHW	25+10	55	0.25	2.5	4 to 8	58 to 116	No	-28F
Chardonel	Cornell Hybrid	White	Early	Late	High	Semi Upright	VSP, SHW	20+10	50	0.4	2.4	4 to 5	36 to 72	Maybe	-10F
Catawba	labrusca native	Red	Midseason	Late	Moderate	Trailing	GDC, SHW	20+10	50	0.35	3.2	6 to 8	62 to 93	Maybe	-20F
Cayuga White	Cornell Hybrid	White	Late	Midseason	High	Semi Trailing	VSP, GDC, SHW	25+10	55	0.6	3.2	4 to 6	24 to 36	yes	-10F
Chambourcin	French/American	Blue	Late	Late	Moderate	Semi Upright	VSP, SHW	20+10	50	0.4 - 0.8	2.4	4 to 6	36 to 54	Yes	-10F
Chancellor	French/American	Blue	Early	Mid - Late	Moderate	Semi Upright	VSP, SHW	20+10	50	0.35	1.9	3 to 5	32 to 54	Yes	-10F
Concord	labrusca native	Blue	Midseason	Midseason	High	Trailing	GDC, SHW	30+10	60-70	0.25	3.6	8 to 12	116 to 174	No	-20F
Corot noir	Cornell Hybrid	Blue	Late	Late	High	Semi Trailing	GDC, SHW, VSP	20+10	50	0.3	2.2	4 to 6	48 to 72	Yes	-15F
DeChaunac	French/American	Blue	Early	Midseason	High	Semi Upright	VSP, SHW	20+10	50	0.25	1.8	4 to 6	60 to 90	Maybe	-10F
Delaware	American/French ?	Red	Midseason	Midseason	Low	Trailing	GDC, SHW	20+10	50	0.3	1.9	6 to 8	72 to 96	No	-15 to -20
Edelweiss	Swenson Hybrid	White	Early	Very Early	High	Trailing	GDC, SHW	30+10	60	0.35	2.8	5 to 7	52 to 73	Maybe	-30F
Elvira	MO Amerian Hybrid	White	Midseason	Midseason	High	Semi Trailing	GDC, SHW	20+10	50	0.15	2.2	5 to 8	66 to 106	Maybe	-20F
Esprit	Swenson Hybrid	White	Early-Mid	Midseason	High	Semi Trailing	GDC, VSP, SHW	25+10	55	0.6		5 to 8	34 to 54	Yes	-25F
Frontenac	Univ. MN Hybrid	Blue	Early-Mid	Midseason	High	Semi Trailing	SHW, GDC, VSP	25+10	55	0.3	1.1	5 to 8	60 to 96	Maybe	-38F
Frontenac Gris	Univ. MN Hybrid	Blue	Early-Mid	Midseason	High	Semi Trailing	VSP, GDC, SHW	25+10	55	0.3	1.1	5 to 8	60 to 96	Maybe	-38F
GR-7	Cornell Hybrid	Blue	Early	Midseason	High	Trailing	GDC, SHW	25+10	55	0.3	3.3	6 to 8	72 to 96	No	-35F
Kay Gray	Swenson Hybrid	White	Midseason	Midseason	High	Trailing	GDC, SHW	30+10	60?	0.15	2.2	4 to 6	72 to 144	No	-35F
LaCrescent	Univ. MN Hybrid	White	Early	Early	Mod-High	Semi Trailing	VSP, SHW	25+10	55	0.3	1.5	3 to 5	36 to 60	Maybe	-36F
LaCrosse	Swenson Hybrid	White	Midseason	Early	High	Semi Upright	VSP, GDC, SHW	30+10	60	0.2	1.7	4 to 6	72 to 108	No	-25F
Landot noir 4511	French/American	Blue	Late	Midseason	High	Semi Upright	VSP	30+10	60	0.2	2	4 to 5	72 go 90	No	-15 to -20F
Leon Millot	French/American	Blue	Early	Early	High	Trailing	GDC, SHW	30+10	60	0.15	1.2	4 to 6	52 to 78	No	-20F
Louise Swenson	Swenson Hybrid	White	Late	Midseason	Moderate	Semi Trailing	SHW	30+10	60	0.25	3	3 to 5	44 to 72	No	-40F
Marechal Foch	French/American	Blue	Early	Midseason	Moderate	Semi Trailing	SHW, VSP, GDC	25+10	55	0.2	1.3	4 to 6	72 to 108	No	-25F
Marquette	Univ. MN Hybrid	Blue	Early	Early	Mod-High	Semi Upright	SHW, GDC, VSP	30+10	60	0.25	1.1	3 to 4	44 to 58	No	-36F
Noiret	Cornell Hybrid	Blue	Late	Late	High	Semi Trailing	GDC, SHW, VSP	20+10	50	0.2	3.3	3 to 5	44 to 72	No	-15F
Norton/Cynthiana	aestivalis native	Blue	Early	Very Late	High	Trailing	GDC	30+10	60-70	0.2	1.7	3 to 6	54 to 108	No	-10F
Niagara	labrusca native	White	Early-Mid	Midseason	High	Trailing	GDC, SHW	25+10	55	0.4	6.5	6 to 8	54 to 72	No	-15F
Petite Amie	American/French	White	Midseason	Early - Mid	Low - Mod	Trailing	GDC, SHW	25+10	55	0.4	2.2	3 to 4	27 to 36	Maybe	-25F
Petite Pearl	American/French	Red	Late	Late	Mod-High	Trailing	GDC, SHW	30+10	60-70	0.2	1.4	3 to 4	44 to 72	Maybe	-32F
Prairie Star	Swenson Hybrid	White	Midseason	Early	High	Semi Upright	VSP, SHW	30+10	60	0.4	2.5	4 to 6	36 to 54	Maybe	-35F
Reliance	Univ. Arkansas Hybrid	Red	Midseason	Early	Moderate	Trailing	GDC, SHW	25+10	50	0.6	2.7	4 to 6	24 to 36	yes	-25F
Sabrevois	Swenson Hybrid	Blue	Midseason	Early	High	Semi Upright	VSP, GDC	25+10	60	0.3	1.5	4 to 6	48 to 72	Maybe	-35F
Seyval Blanc	French/American	White	Midseason	Midseason	Mod-Early	Semi Upright	VSP	20+10	50	0.4 to 0.8	1.9	4 to 6	24 to 36	Yes	-15F
Steuben	labrusca native	Blue	Midseason	Midseason	High	Trailing	GDC, SHW	30+10	60	0.5	3.1	5 to 8	36 to 58	Maybe	-20F
St. Croix	Swenson Hybrid	Blue	Midseason	Midseason	High	Semi Trailing	GDC, SHW	25+10	55	0.35	2	4 to 6	42 to 63	Maybe	-32F
St Pepin	Swenson Hybrid	White	Early	Early	Moderate	Semi Trailing	VSP, SHW	30+10	60	0.15	2.4	3 to 4	72 to 108	No	-26F
St Vincent	American/French	Blue	Late	Late	Moderate	Semi Upright	VSP, SHW	25+10	55	0.35		4 to 6	42 to 62	Maybe	-15 to 20F
Swenson Red	Swenson Hybrid	Red	Midseason	Midseason	High	Trailing	GDC, SHW	25+10	55	0.3	3.9	4 to 6	48 to 72	Maybe	-20F
Swenson White	Swenson Hybrid	White	Midseason	Late	High	Semi Trailing	GDC, SHW	25+10	55	0.35	4	4 to 6	42 to 62	Maybe	-30F
Tramnette	Cornell Hybrid	White	Midseason	Late	Moderate	Semi Upright	VSP	20+10	50	0.4	1.5	5 to 7	46 to 64	No	-10F
Valvin Muscat	Cornell Hybrid	White	Midseason	Midseason	Low	Trailing	SHW	30+10	60	0.2	2.2	3 to 5	54 to 90	No	-15F
Vidal Blanc	French/American	White	Late	Late	Good	Upright	VSP	20+10	50	0.45	1.8	4 to 6	36 to 54	Yes	-5F
Valiant	SD State labrusca	Blue	Early	Early	High	Trailing	GDC, SHW	30+10	60	0.3	1.7	4 to 6	48 to 72	Yes	-50F
Vignoles	French/American	White	Late	Midseason	Moderate	Upright	VSP	25+10	55	0.25	1.5	3 to 5	44 to 72	No	-20F

SHW = Single High Wire, GDC = Geneva Double Curtain, VSP = Vertical Shoot Positioned

Average Yield that can be expected with good site conditions and high management.

Average Cluster Weights can easily vary 25-30+% depending on site, current climate, early shoot removal, cluster thinning, frost damage, and input management.

Lbs. per plant based on 550 plants per acre: 3 ton = 11 lbs, 4 ton = 14.5 lbs, 5 ton = 18 lbs, 6 ton = 22 lbs, 7 tons = 25.5 lbs, 8 tons = 29 lbs

Optimum Vine Characteristics to achieve vine balance:

1. Pruning weights of 0.2 to 0.4 lbs per foot of cordon.
2. Crop load ratio (yield wt./pruning wt.) of 5-10 for vinifera and 8-12 for hybrids.
3. Labrusca internode growth lengths of 4-6" and Hybrid Internode lengths of 3-4"
4. Minimal lateral shoot growth.
5. Untrimmed shoot lengths of 4' to 6'
6. Maximum of 1.5 to 2.5 leaf layers in the canopy.
7. Minimum number of nodes per shoot, 12-15.
8. Canopy gaps of 40-50%
9. 50-75% cluster sun exposure
10. Single trunks for cold hardy adapted varieties and double trunks for cold sensitive varieties.
11. Maximum of 4-6 buds/shoots per foot of cordon.
12. 44-53 ratio of leaf area to fruit weight (sq. inches per oz.).
13. Cane length/diameter ratio of 25-40.
14. Cessation of cane tip growth after veraison.

Yield in lbs. per plant = Ave. Cluster Wt lbs. x # of Clusters
 lbs. /Acre = # plants per acre x lbs. of grapes per plant
 1 acre = 43,560 square feet.

Double Pruning (aka Long Pruning) is the process of leaving 50-100% more buds at the first pruning. Then come back later after bud swell and do a final trim. This allows:

1. ability to see the amount of winter damage
2. easily determine amount of bud cold damage
3. slows bud break for those buds close to cordon

Grape Pruning Terms

- Apical Dominance - hormones produced by the cane growing point inhibits lateral shoot development
 Arm - branch of old wood extending from the trunk or cordon on which canes or spurs are born
 Balanced Pruning - pruning the vine based on the weight of canes produced the previous growing season. Most accurate on American (labrusca) and tends to over estimate buds required for French (vinifera) varieties and hybrid cultivars. Example:
 30 + 10 requires leaving 30 fruiting (count) buds for 1st lb. of canes removed and 10 additional fruiting buds for each additional lb. of prunings removed up to a suggested maximum number of total fruiting buds per plant.
 Base Shoot - a shoot arising from a bud at the base of a cane.
 Bud - compound bud or eye in the axil of a leaf at the node
 Bull Cane - large vigorous (often 1/2" or greater in diameter) cane that is often flattened on one side with wide internodes that fails to produce flowering buds due to excessive shading and lack of hardening off in the fall.
 Cane - a mature woody brown shoot that develops after leaf fall
 Compound Bud - A bud containing both vegetative and floral primordia; also called a 'mixed bud', as distinct from a simple bud.
 Cordon - A extension of the grapevine trunk usually horizontally oriented and trained along the trellis wire
 Double Trunk - used to offset potential from winter cold damage for cold sensitive cultivars.
 Fruiting Spur - a cane pruned commonly to two or five nodes. A fruiting spur is chosen to produce shoots with fruit.
 Head - the part of the trunk, usually at the top, from which branches or arms grow.
 Internode - The portion of the cane or shoot between nodes
 Kicker Cane - sucker sprout trained up as an additional cane to produce fruit or used to devigorate the vine by growing and then removing the fruit at veraison.
 Latent bud - bud that remains dormant indefinitely unless the vine suffers an injury that stimulates their growth
 Lateral - side branches of shoot or cane
 Persistent Lateral - lateral branch on a cane that remains through the winter
 Node: thickened portion of a shoot or cane where the leaf and its compound bud are attached
 Pruning - removal of portions of the vine for the purpose of maintaining size and productivity
 Renewal Spur - cane pruned to 1 or 2 nodes whose primary purpose is to position a cane for fruiting the next season.
 Single Trunk - used for grapes with sufficient cold tolerance for region grown.

Cluster Wt.	Clusters Needed / Plant For:					
	Lbs.	5 lbs.	10 lbs.	15 lbs.	20 lbs.	25 lbs.
0.1	50	100	150	200	250	
0.15	33.3	66.7	100	133.3	166.7	
0.2	25	50	75	100	125	
0.25	20	40	60	80	100	
0.3	16.7	33.3	50	66.7	83.3	
0.35	14.3	28.6	42.9	57.1	71.42	
0.4	12.5	25	37.5	50	62.5	
0.45	11.1	22.2	33.3	44.4	55.6	
0.5	10	20	30	40	50	
0.55	9.1	18.2	27.3	36.4	45.5	
0.6	8.3	16.7	25	33.3	41.7	
0.65	7.7	15.4	23.1	30.8	38.5	
0.7	7.1	14.3	21.4	28.6	35.7	
0.75	6.7	13.3	20	26.7	33.3	
0.8	6.3	12.5	18.8	25	31.3	
0.85	5.9	11.8	17.6	23.5	29.4	
0.9	5.5	11.1	16.7	22.2	27.8	
0.95	5.3	10.5	15.8	21.1	26.3	
1	5	10	15	20	25	

- Sucker - A shoot arising from a bud below ground
 Tendril - curled clinging vegetative structure at nodes on the shoot used to attach the vine.
 Trunk - main upright structure of the vine
 Water Sprout - unwanted shoot arising from buds on a trunk